



01/17/13

## Technical Report for

**XTO Energy**

**XTO Love Ranch 8**

**1108-07A**

**Accutest Job Number: D42510**

**Sampling Date: 01/07/13**

### Report to:

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**Total number of pages in report: 152**



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

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

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Test results relate only to samples analyzed.

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Sample Summary

XTO Energy

Job No: D42510

XTO Love Ranch 8  
Project No: 1108-07A

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D42510-1	01/07/13	10:00 DS	01/10/13	SO	Soil	RP SUBLINER COMP
D42510-1A	01/07/13	10:00 DS	01/10/13	SO	Soil	RP SUBLINER COMP

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



## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** XTO Energy

**Job No** D42510

**Site:** XTO Love Ranch 8

**Report Date** 1/17/2013 1:03:58 PM

On 01/10/2013, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4.5 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D42510 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:** V3V1327

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D42512-1MS, D42512-1MSD were used as the QC samples indicated.

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

**Matrix** SO

**Batch ID:** OP7223

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D42510-1MS, D42510-1MSD were used as the QC samples indicated.
- The matrix spike (MS) recovery(s) of Naphthalene are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- The RPD(s) for the MS and MSD recoveries of Naphthalene are outside control limits for sample OP7223-MSD. Variability of recovery may be due to sample matrix/homogeneity.

### Volatiles by GC By Method SW846 8015B

**Matrix** SO

**Batch ID:** GGB1044

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D42435-1MS, D42435-1MSD were used as the QC samples indicated.

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

**Matrix** SO

**Batch ID:** OP7222

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D42509-2MS, D42509-2MSD 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:** MP9237

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D42427-2MS, D42427-2MSD, D42427-2SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Calcium, Sodium are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- The matrix spike duplicate (MSD) recovery(s) of Calcium, Sodium are outside control limits. Probable cause due to matrix interference.
- The serial dilution RPD(s) for Magnesium, Calcium, Sodium are outside control limits for sample MP9237-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP9237-SD1 for Calcium: Serial dilution indicates possible matrix interference.
- MP9237-SD1 for Sodium: Serial dilution indicates possible matrix interference.

**Matrix** SO

**Batch ID:** MP9242

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D42510-1MS, D42510-1MSD, D42510-1SDL 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 Chromium, Lead, Zinc are outside control limits for sample MP9242-SD1. Probable cause due to sample homogeneity.
- MP9242-SD1 for Zinc, Chromium, Lead: Serial dilution indicates possible matrix interference.

## Metals By Method SW846 6020A

**Matrix** SO

**Batch ID:** MP9243

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D42510-1MS, D42510-1SDL, D42510-1MSD were used as the QC samples for the metals analysis.

## Metals By Method SW846 7471B

**Matrix** SO

**Batch ID:** MP9244

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D42445-1MS, D42445-1MSD were used as the QC samples for the metals analysis.

## Wet Chemistry By Method ASTM D1498-76M

**Matrix** SO

**Batch ID:** GN18410

- Sample(s) D42511-1DUP 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:** GP9098

- 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

<b>Matrix</b> SO	<b>Batch ID:</b> GN18390
------------------	--------------------------

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

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

<b>Matrix</b> SO	<b>Batch ID:</b> GP9086
------------------	-------------------------

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D42556-1DUP, D42556-1MS, D42556-1MSD were used as the QC samples for the Chromium, Hexavalent analysis.

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

<b>Matrix</b> SO	<b>Batch ID:</b> R15682
------------------	-------------------------

- The data for SW846 3060A/7196A M meets quality control requirements.
- D42510-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

### Wet Chemistry By Method SW846 9045D

<b>Matrix</b> SO	<b>Batch ID:</b> GN18407
------------------	--------------------------

- The following samples were run outside of holding time for method SW846 9045D: D42510-1

### Wet Chemistry By Method USDA HANDBOOK 60

<b>Matrix</b> SO	<b>Batch ID:</b> MP9237
------------------	-------------------------

- D42510-1A 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

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**Job Number:** D42510  
**Account:** XTO Energy  
**Project:** XTO Love Ranch 8  
**Collected:** 01/07/13

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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### D42510-1 RP SUBLINER COMP

Ethylbenzene	0.0415 J	0.14	0.026	mg/kg	SW846 8260B
Xylene (total)	0.682	0.27	0.14	mg/kg	SW846 8260B
Chrysene	0.0254	0.0099	0.0051	mg/kg	SW846 8270C BY SIM
Fluorene	0.198	0.0099	0.0051	mg/kg	SW846 8270C BY SIM
Naphthalene	1.07	0.014	0.012	mg/kg	SW846 8270C BY SIM
Pyrene	0.0313	0.0099	0.0051	mg/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)	29.6	14	6.8	mg/kg	SW846 8015B
TPH-DRO (C10-C28)	1580	7.9	4.7	mg/kg	SW846-8015B
Arsenic	11.1	0.12		mg/kg	SW846 6020A
Barium	4420	5.9		mg/kg	SW846 6010C
Chromium	24.2	1.2		mg/kg	SW846 6010C
Copper	15.4	1.2		mg/kg	SW846 6010C
Lead	12.0	5.9		mg/kg	SW846 6010C
Nickel	19.2	18		mg/kg	SW846 6010C
Zinc	37.6	3.5		mg/kg	SW846 6010C
Specific Conductivity	5380	1.0		umhos/cm	SM 2510B-2011 MOD
Chromium, Trivalent <sup>a</sup>	24.2	2.2		mg/kg	SW846 3060A/7196A M
Redox Potential Vs H2	118			mv	ASTM D1498-76M
pH	11.48			su	SW846 9045D

### D42510-1A RP SUBLINER COMP

Calcium	18.3	2.0		mg/l	SW846 6010C
Sodium	695	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio <sup>b</sup>	44.7			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

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## Report of Analysis

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<b>Client Sample ID:</b>	RP SUBLINER COMP	<b>Date Sampled:</b>	01/07/13
<b>Lab Sample ID:</b>	D42510-1	<b>Date Received:</b>	01/10/13
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	84.4
<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	3V22566.D	1	01/12/13	BD	n/a	n/a	V3V1327
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.05 g	5.0 ml	100 ul
Run #2			

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.068	0.034	mg/kg	
108-88-3	Toluene	ND	0.14	0.068	mg/kg	
100-41-4	Ethylbenzene	0.0415	0.14	0.026	mg/kg	J
1330-20-7	Xylene (total)	0.682	0.27	0.14	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	85%		64-130%
460-00-4	4-Bromofluorobenzene	114%		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

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## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	RP SUBLINER COMP	<b>Date Sampled:</b>	01/07/13
<b>Lab Sample ID:</b>	D42510-1	<b>Date Received:</b>	01/10/13
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	84.4
<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	3G12983.D	1	01/15/13	DC	01/14/13	OP7223	E3G621
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	0.0099	0.0051	mg/kg	
120-12-7	Anthracene	ND	0.0099	0.0051	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.0099	0.0051	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.0099	0.0051	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.0099	0.0051	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.0099	0.0051	mg/kg	
218-01-9	Chrysene	0.0254	0.0099	0.0051	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0099	0.0051	mg/kg	
206-44-0	Fluoranthene	ND	0.0099	0.0051	mg/kg	
86-73-7	Fluorene	0.198	0.0099	0.0051	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.0099	0.0051	mg/kg	
91-20-3	Naphthalene	1.07	0.014	0.012	mg/kg	
129-00-0	Pyrene	0.0313	0.0099	0.0051	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	141%		10-159%
321-60-8	2-Fluorobiphenyl	61%		19-131%
1718-51-0	Terphenyl-d14	91%		18-150%

ND = Not detected MDL - Method Detection Limit

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J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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## Report of Analysis

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<b>Client Sample ID:</b>	RP SUBLINER COMP	<b>Date Sampled:</b>	01/07/13
<b>Lab Sample ID:</b>	D42510-1	<b>Date Received:</b>	01/10/13
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	84.4
<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	GB19111.D	1	01/11/13	SK	n/a	n/a	GGB1044
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)	29.6	14	6.8	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	96%		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

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## Report of Analysis

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<b>Client Sample ID:</b>	RP SUBLINER COMP	<b>Date Sampled:</b>	01/07/13
<b>Lab Sample ID:</b>	D42510-1	<b>Date Received:</b>	01/10/13
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	84.4
<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	FH008576.D	1	01/15/13	AV	01/14/13	OP7222	GFH472
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	1580	7.9	4.7	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	79%		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

<b>Client Sample ID:</b>	RP SUBLINER COMP	<b>Date Sampled:</b>	01/07/13
<b>Lab Sample ID:</b>	D42510-1	<b>Date Received:</b>	01/10/13
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	84.4
<b>Project:</b>	XTO Love Ranch 8		

## Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	11.1	0.12	mg/kg	5	01/14/13	01/16/13 JB	SW846 6020A <sup>4</sup>	SW846 3050B <sup>6</sup>
Barium	4420	5.9	mg/kg	5	01/14/13	01/16/13 JB	SW846 6010C <sup>3</sup>	SW846 3050B <sup>5</sup>
Cadmium	< 1.2	1.2	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>5</sup>
Chromium	24.2	1.2	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>5</sup>
Copper	15.4	1.2	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>5</sup>
Lead	12.0	5.9	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>5</sup>
Mercury	< 0.096	0.096	mg/kg	1	01/15/13	01/15/13 JB	SW846 7471B <sup>2</sup>	SW846 7471B <sup>7</sup>
Nickel	19.2	18	mg/kg	5	01/14/13	01/16/13 JB	SW846 6010C <sup>3</sup>	SW846 3050B <sup>5</sup>
Selenium	< 5.9	5.9	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>5</sup>
Silver	< 3.5	3.5	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>5</sup>
Zinc	37.6	3.5	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C <sup>1</sup>	SW846 3050B <sup>5</sup>

(1) Instrument QC Batch: MA3169

(2) Instrument QC Batch: MA3177

(3) Instrument QC Batch: MA3180

(4) Instrument QC Batch: MA3182

(5) Prep QC Batch: MP9242

(6) Prep QC Batch: MP9243

(7) Prep QC Batch: MP9244

RL = Reporting Limit

## Report of Analysis

**Client Sample ID:** RP SUBLINER COMP  
**Lab Sample ID:** D42510-1  
**Matrix:** SO - Soil  
**Project:** XTO Love Ranch 8

**Date Sampled:** 01/07/13  
**Date Received:** 01/10/13  
**Percent Solids:** 84.4

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>prep: DEPT.OF AG, BOOK N9</b>							
Specific Conductivity	5380	1.0	umhos/cm	1	01/15/13	KB	SM 2510B-2011 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	01/14/13	KB	SW846 3060A/7196A
Chromium, Trivalent <sup>a</sup>	24.2	2.2	mg/kg	1	01/14/13 16:21	JB	SW846 3060A/7196A M
Redox Potential Vs H2	118		mv	1	01/11/13	CT	ASTM D1498-76M
Solids, Percent	84.4		%	1	01/11/13	SWT	SM19 2540B M
pH	11.48		su	1	01/11/13 13:30	CT	SW846 9045D

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

RL = Reporting Limit

Report of Analysis

**Client Sample ID:** RP SUBLINER COMP  
**Lab Sample ID:** D42510-1A  
**Matrix:** SO - Soil  
**Project:** XTO Love Ranch 8

**Date Sampled:** 01/07/13  
**Date Received:** 01/10/13  
**Percent Solids:** 84.4

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	18.3	2.0	mg/l	1	01/11/13	01/11/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>2</sup>
Magnesium	< 1.0	1.0	mg/l	1	01/11/13	01/11/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>2</sup>
Sodium	695	2.0	mg/l	1	01/11/13	01/11/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>2</sup>

(1) Instrument QC Batch: MA3166  
(2) Prep QC Batch: MP9237

RL = Reporting Limit

4.2  
4



Report of Analysis

**Client Sample ID:** RP SUBLINER COMP  
**Lab Sample ID:** D42510-1A  
**Matrix:** SO - Soil  
**Project:** XTO Love Ranch 8

**Date Sampled:** 01/07/13  
**Date Received:** 01/10/13  
**Percent Solids:** 84.4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	44.7		ratio	1	01/11/13 17:45	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

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Includes the following where applicable:

- Chain of Custody



# Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D42510

Client: KRW

Immediate Client Services Action Required: No

Date / Time Received: 1/10/2013 1:00:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XTO LOVE RANCH 8

Airbill #'s: HDCO

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:** D42510  
**Account:** XTOKRWR XTO Energy  
**Project:** XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1327-MB	3V22560.D	1	01/12/13	BD	n/a	n/a	V3V1327

The QC reported here applies to the following samples:

Method: SW846 8260B

D42510-1

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	89% 64-130%
460-00-4	4-Bromofluorobenzene	97% 62-131%
17060-07-0	1,2-Dichloroethane-D4	98% 70-130%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D42510

**Account:** XTOKRWR XTO Energy

**Project:** XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1327-BS	3V22561.D	1	01/12/13	BD	n/a	n/a	V3V1327

The QC reported here applies to the following samples:

Method: SW846 8260B

D42510-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	47.4	95	70-130
100-41-4	Ethylbenzene	50	48.7	97	70-130
108-88-3	Toluene	50	47.3	95	70-130
1330-20-7	Xylene (total)	150	149	99	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	91%	64-130%
460-00-4	4-Bromofluorobenzene	109%	62-131%
17060-07-0	1,2-Dichloroethane-D4	88%	70-130%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D42510  
**Account:** XTOKRWR XTO Energy  
**Project:** XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D42512-1MS	3V22564.D	1	01/12/13	BD	n/a	n/a	V3V1327
D42512-1MSD	3V22565.D	1	01/12/13	BD	n/a	n/a	V3V1327
D42512-1	3V22563.D	1	01/12/13	BD	n/a	n/a	V3V1327

The QC reported here applies to the following samples:

Method: SW846 8260B

D42510-1

CAS No.	Compound	D42512-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	72.3		3580	3400	93	3340	91	2	64-139/30
100-41-4	Ethylbenzene	35.0	J	3580	3530	98	3500	97	1	68-136/30
108-88-3	Toluene	138	J	3580	3330	89	3300	88	1	60-130/30
1330-20-7	Xylene (total)	212	J	10700	10800	99	10800	99	0	58-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D42512-1	Limits
2037-26-5	Toluene-D8	86%	87%	84%	64-130%
460-00-4	4-Bromofluorobenzene	113%	112%	104%	62-131%
17060-07-0	1,2-Dichloroethane-D4	90%	86%	90%	70-130%

\* = Outside of Control Limits.



GC/MS Volatiles

Raw Data

7

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3011113.S\  
 Data File : 3V22566.D  
 Acq On : 12 Jan 2013 5:08 am  
 Operator : BRETD  
 Sample : D42510-1  
 Misc : MS5218,V3V1327,5.050,,100,5,1  
 ALS Vial : 33 Sample Multiplier: 1

Quant Time: Jan 15 08:46:50 2013  
 Quant Method : C:\msdchem\1\METHODS\V3AP1299TVH1299SOIL.M  
 Quant Title : 8260  
 QLast Update : Thu Jan 03 11:40:16 2013  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.860	168	316702	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.656	114	496179	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.295	117	568797	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.287	152	356316	50.00	ug/l	0.00

System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.251	102	31701	44.73	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	89.46%
61) Toluene-d8	14.051	98	581668	42.47	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	84.94%
69) 4-Bromofluorobenzene	16.245	95	336622	57.06	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	114.12%

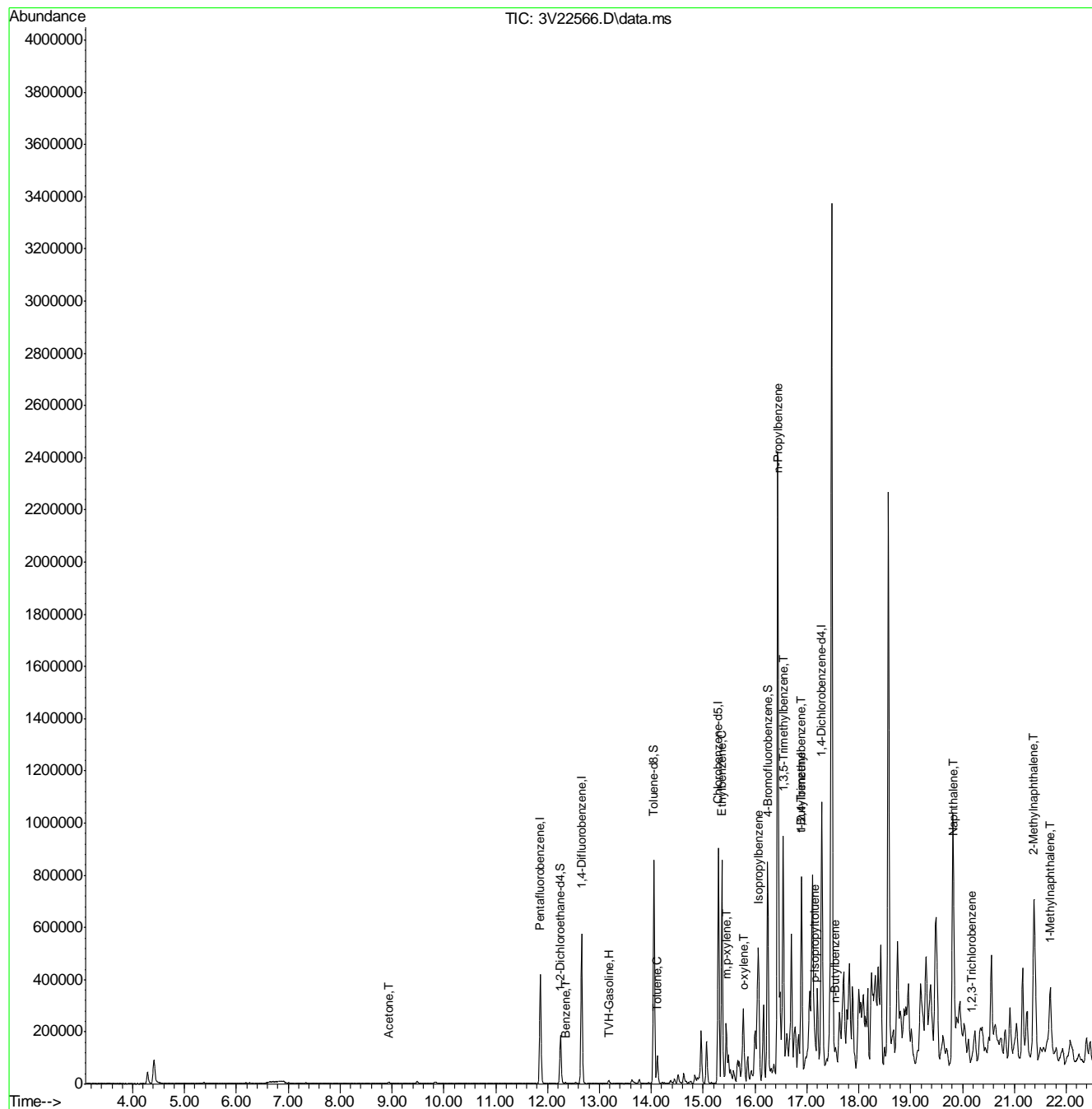
Target Compounds					Qvalue
1) TVH-Gasoline	13.200	TIC	16881856m	575.27	ug/l
15) Acetone	8.941	43	7965	1.48	ug/l
50) Benzene	12.344	78	4437	0.32	ug/l
62) Toluene	14.112	92	10329	0.44	ug/l
66) Ethylbenzene	15.366	91	12665	0.61	ug/l
68) Isopropylbenzene	16.078	105	11212	0.54	ug/l
72) m,p-xylene	15.449	106	70007	8.02	ug/l
73) o-xylene	15.796	106	17125	2.02	ug/l
77) n-Propylbenzene	16.425	91	32211	1.31	ug/l
80) 1,3,5-Trimethylbenzene	16.540	105	451319	24.60	ug/l
81) t-Butylbenzene	16.896	119	66009	3.33	ug/l
82) 1,2,4-Trimethylbenzene	16.896	105	446121	23.85	ug/l
86) p-Isopropyltoluene	17.156	119	50179	2.40	ug/l
88) n-Butylbenzene	17.541	91	36319	2.14	ug/l
91) Naphthalene	19.841	128	277404	15.36	ug/l
93) 1,2,3-Trichlorobenzene	20.168	180	11332	1.52	ug/l
94) 2-Methylnaphthalene	21.381	142	438068	52.94	ug/l
95) 1-Methylnaphthalene	21.692	142	163573	20.84	ug/l

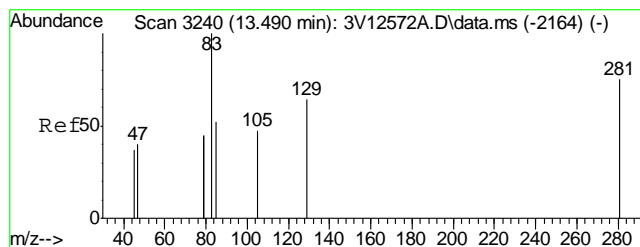
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3011113.S\  
Data File : 3V22566.D  
Acq On : 12 Jan 2013 5:08 am  
Operator : BRETD  
Sample : D42510-1  
Misc : MS5218,V3V1327,5.050,,100,5,1  
ALS Vial : 33 Sample Multiplier: 1

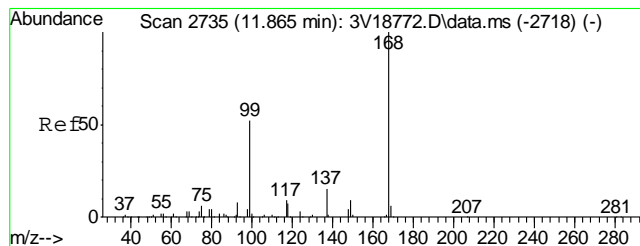
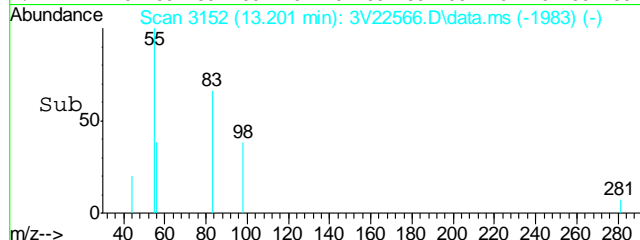
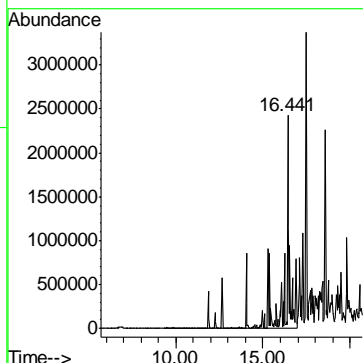
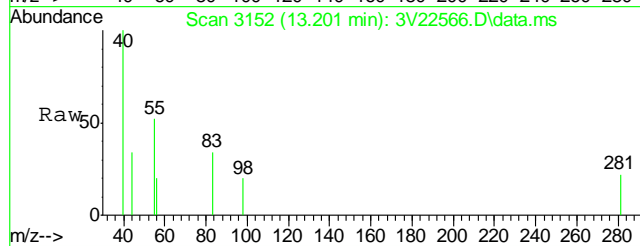
Quant Time: Jan 15 08:46:50 2013  
Quant Method : C:\msdchem\1\METHODS\V3AP1299TVH1299SOIL.M  
Quant Title : 8260  
QLast Update : Thu Jan 03 11:40:16 2013  
Response via : Initial Calibration





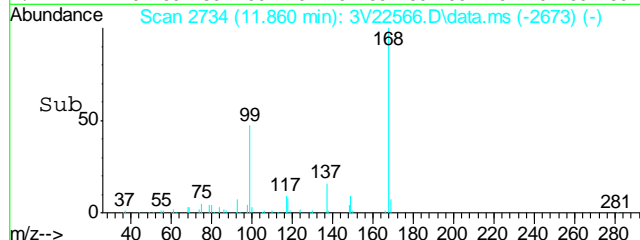
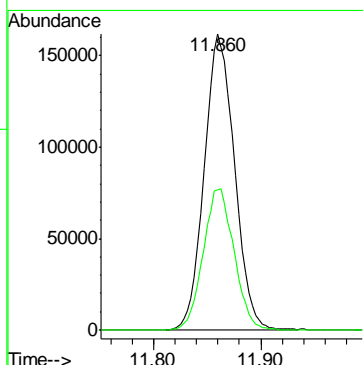
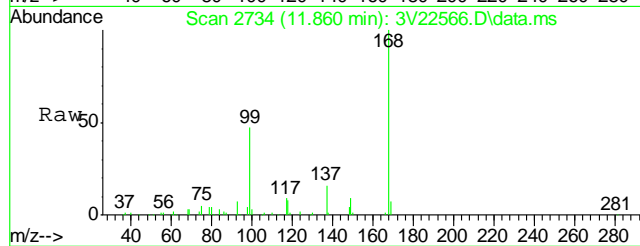
#1  
TVH-Gasoline  
Concen: 575.27 ug/l m  
RT: 13.200 min Scan# 3152  
Delta R.T. 0.000 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

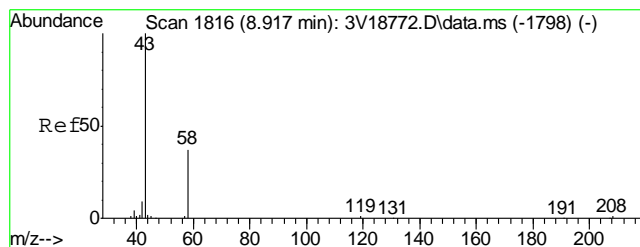
Tgt Ion:TIC Resp:16881856



#2  
Pentafluorobenzene  
Concen: 50.00 ug/l  
RT: 11.860 min Scan# 2734  
Delta R.T. -0.003 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

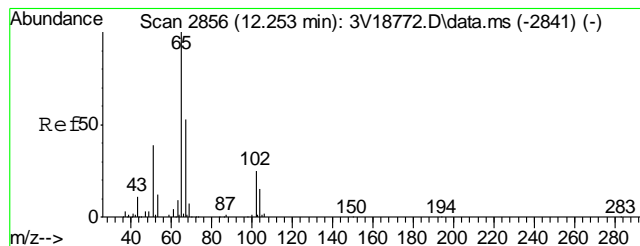
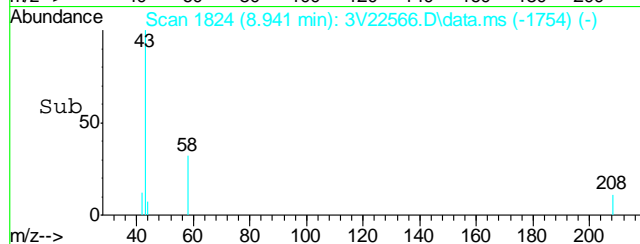
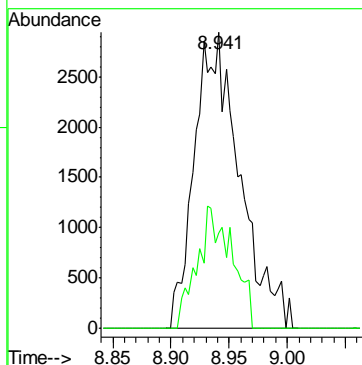
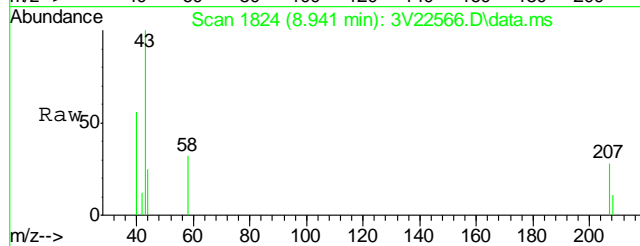
Tgt Ion:168 Resp: 316702  
Ion Ratio Lower Upper  
168 100  
99 48.5 29.0 69.0





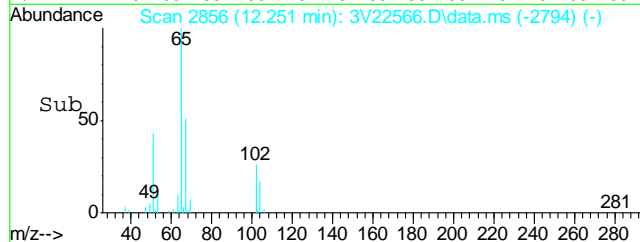
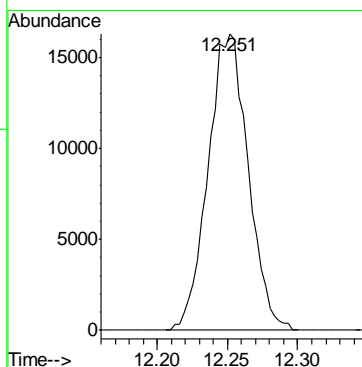
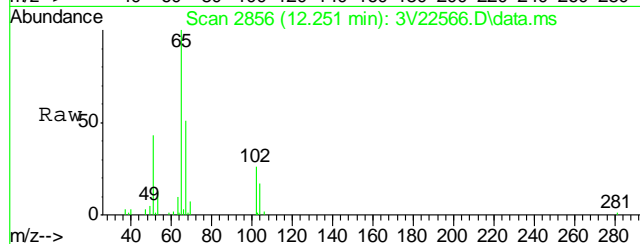
#15  
Acetone  
Concen: 1.48 ug/l  
RT: 8.941 min Scan# 1824  
Delta R.T. 0.026 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

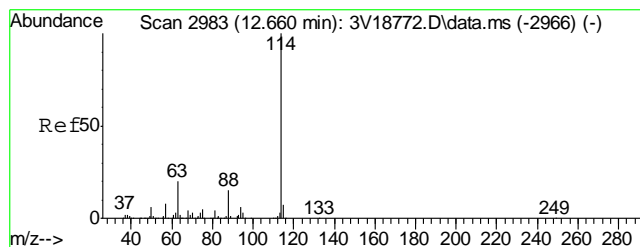
Tgt Ion: 43 Resp: 7965  
Ion Ratio Lower Upper  
43 100  
58 31.8 8.7 48.7



#33  
1,2-Dichloroethane-d4  
Concen: 44.73 ug/l  
RT: 12.251 min Scan# 2856  
Delta R.T. 0.000 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

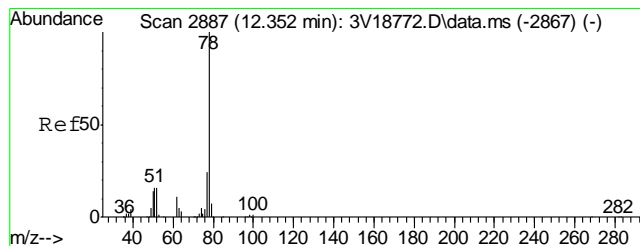
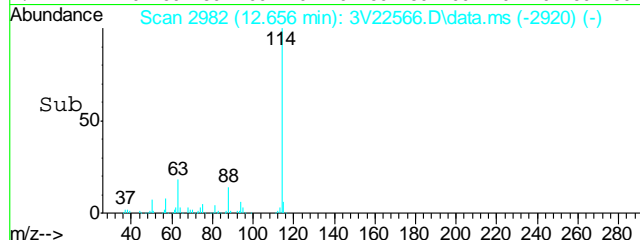
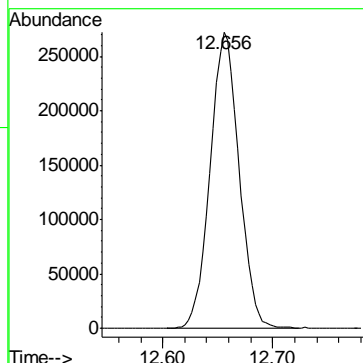
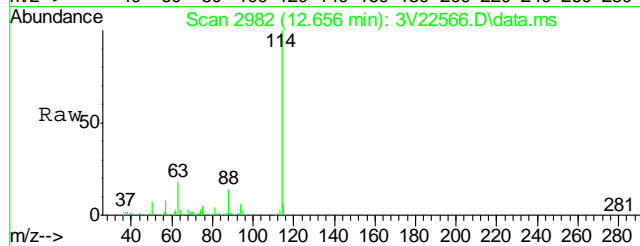
Tgt Ion: 102 Resp: 31701





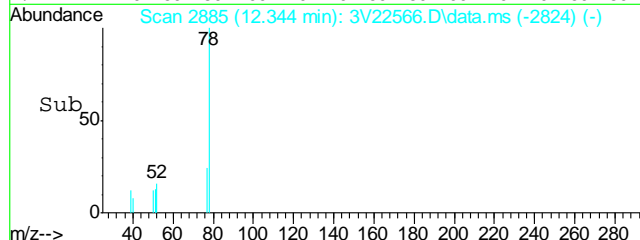
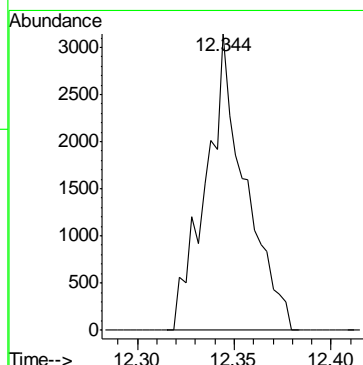
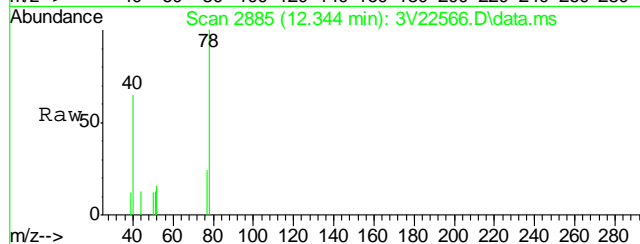
#35  
1,4-Difluorobenzene  
Concen: 50.00 ug/l  
RT: 12.656 min Scan# 2982  
Delta R.T. 0.000 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

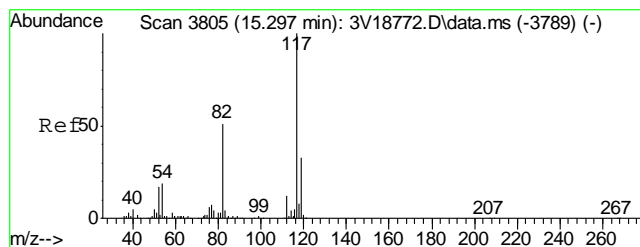
Tgt Ion: 114 Resp: 496179



#50  
Benzene  
Concen: 0.32 ug/l  
RT: 12.344 min Scan# 2885  
Delta R.T. -0.003 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

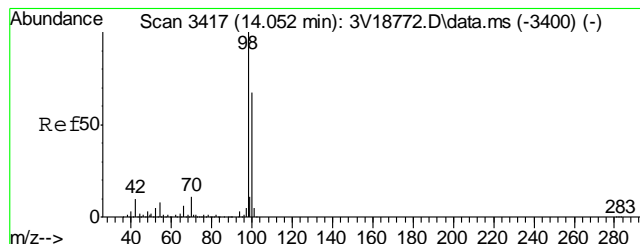
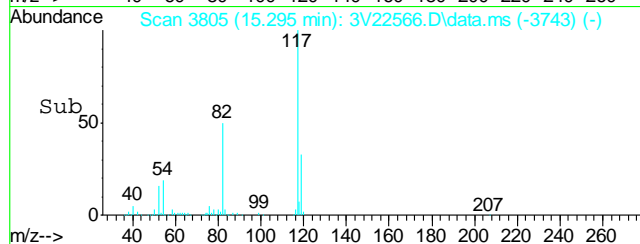
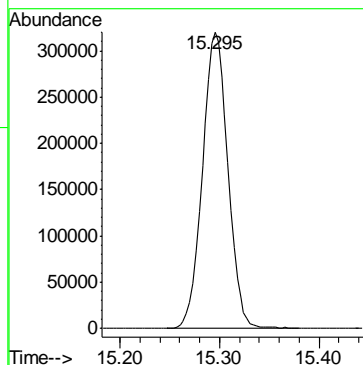
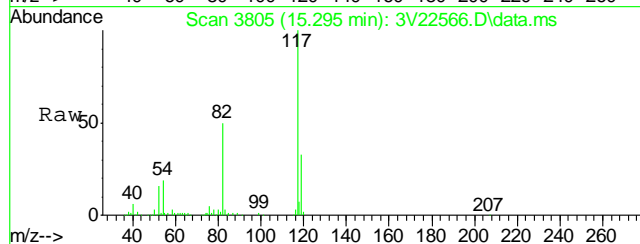
Tgt Ion: 78 Resp: 4437





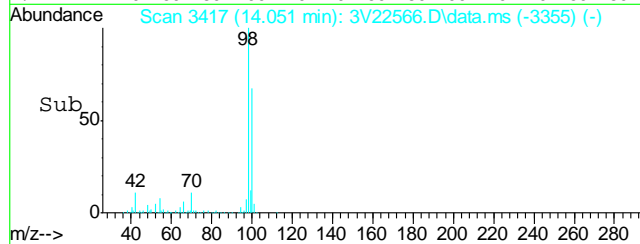
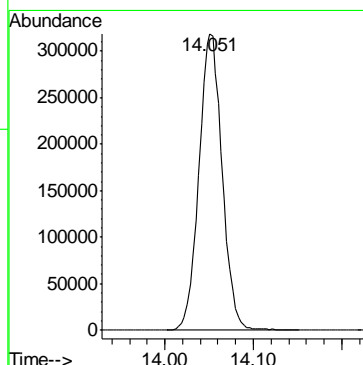
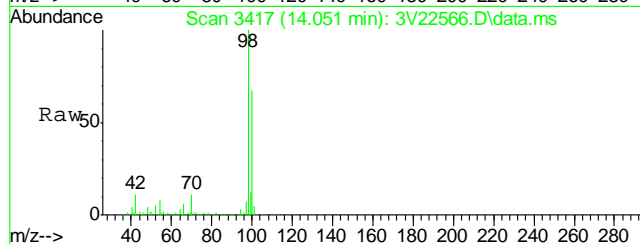
#53  
Chlorobenzene-d5  
Concen: 50.00 ug/l  
RT: 15.295 min Scan# 3805  
Delta R.T. 0.000 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

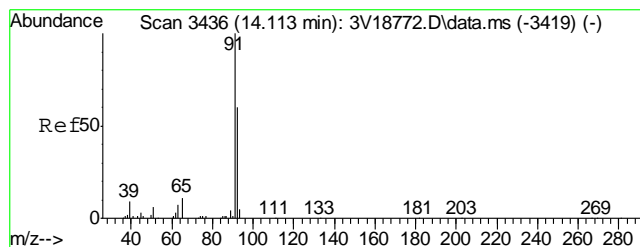
Tgt Ion: 117 Resp: 568797



#61  
Toluene-d8  
Concen: 42.47 ug/l  
RT: 14.051 min Scan# 3417  
Delta R.T. 0.000 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

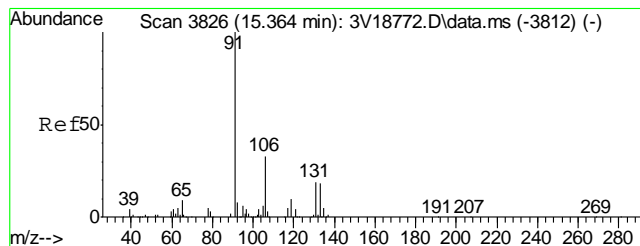
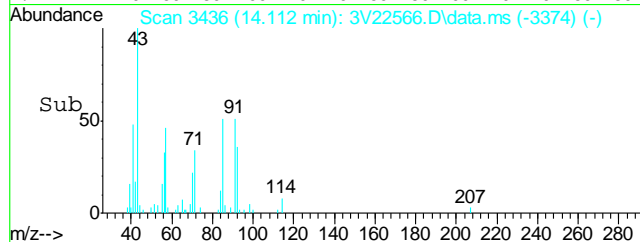
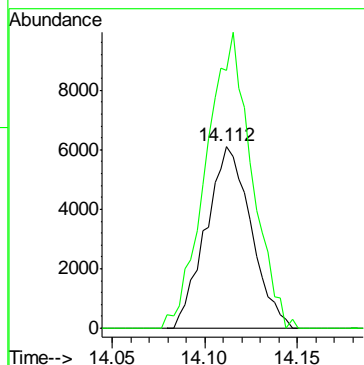
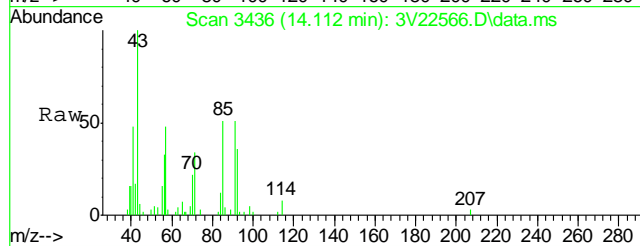
Tgt Ion: 98 Resp: 581668





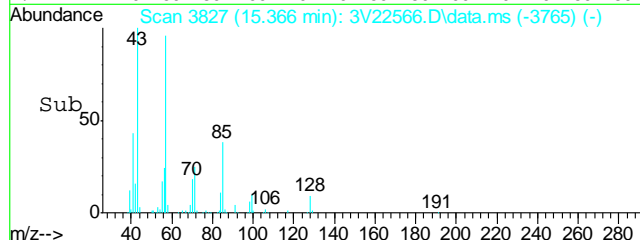
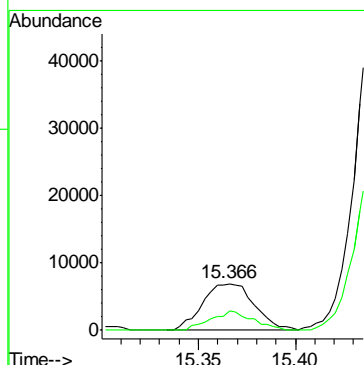
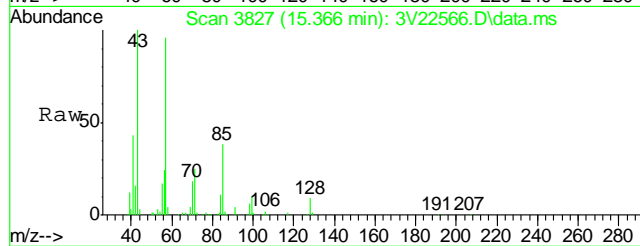
#62  
Toluene  
Concen: 0.44 ug/l  
RT: 14.112 min Scan# 3436  
Delta R.T. -0.002 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

Tgt Ion: 92 Resp: 10329  
Ion Ratio Lower Upper  
92 100  
91 165.3 150.2 190.2

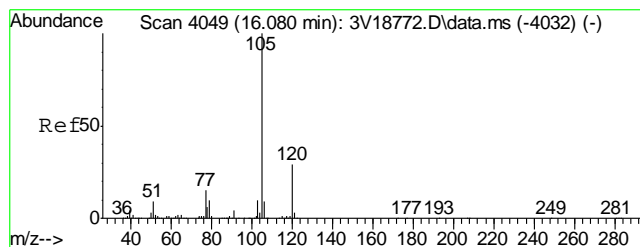


#66  
Ethylbenzene  
Concen: 0.61 ug/l  
RT: 15.366 min Scan# 3827  
Delta R.T. 0.000 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

Tgt Ion: 91 Resp: 12665  
Ion Ratio Lower Upper  
91 100  
106 32.9 13.2 53.2

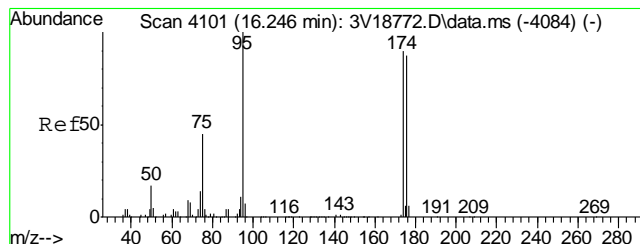
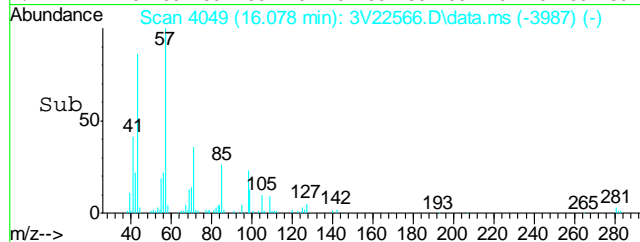
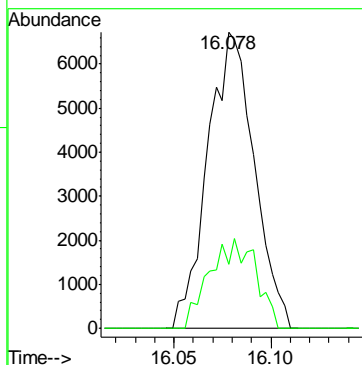
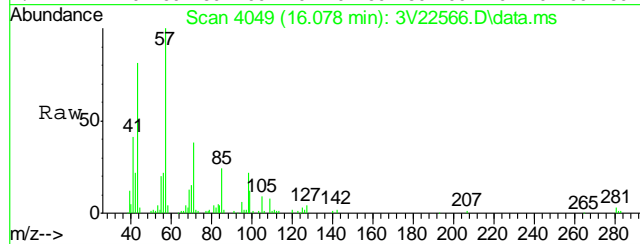






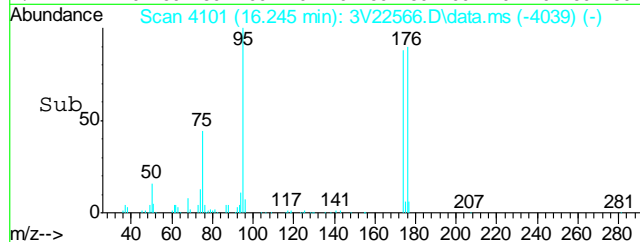
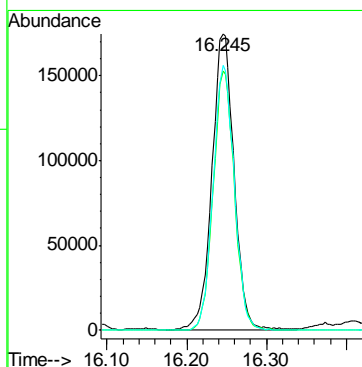
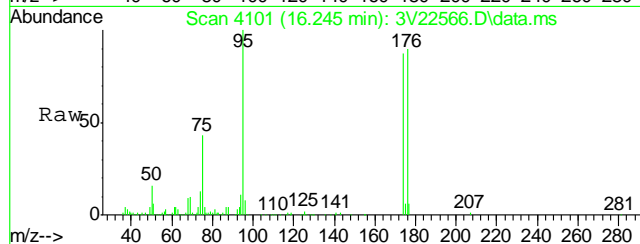
#68  
Isopropylbenzene  
Concen: 0.54 ug/l  
RT: 16.078 min Scan# 4049  
Delta R.T. 0.000 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

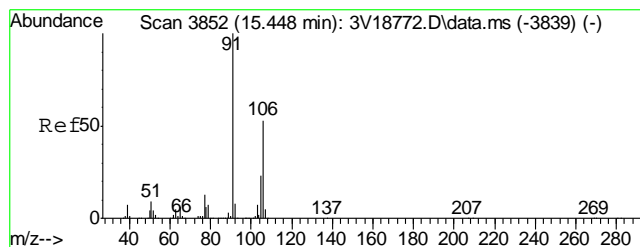
Tgt Ion	Ratio	Lower	Upper
105	100		
120	29.9	8.3	48.3



#69  
4-Bromofluorobenzene  
Concen: 57.06 ug/l  
RT: 16.245 min Scan# 4101  
Delta R.T. 0.000 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

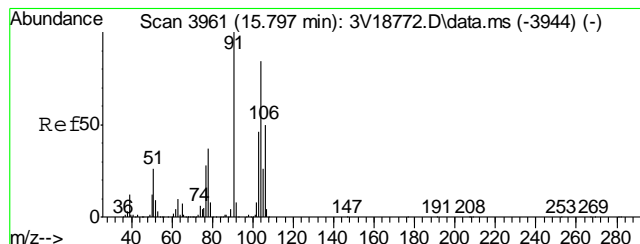
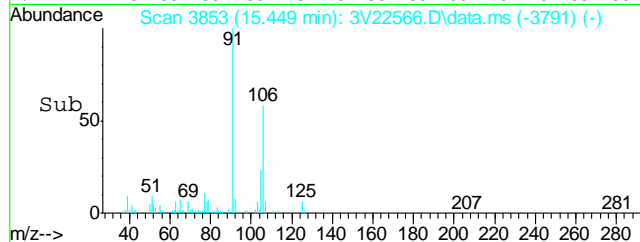
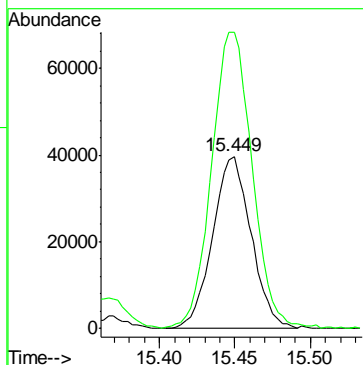
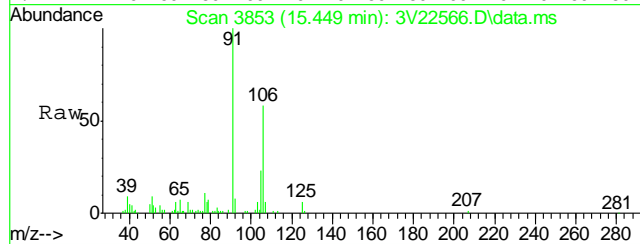
Tgt Ion	Ratio	Lower	Upper
95	100		
174	83.4	0.0	20.0#
176	85.3	0.0	20.0#





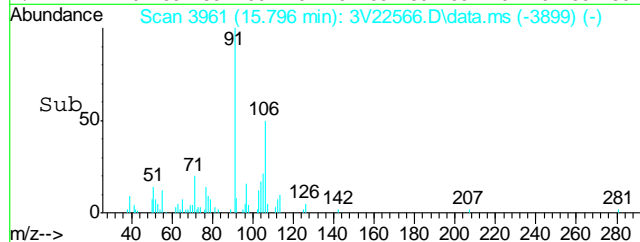
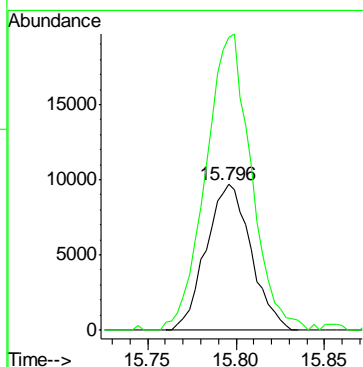
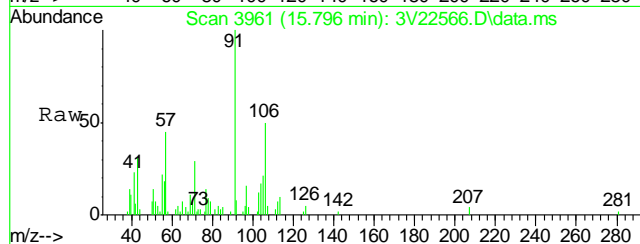
#72  
m,p-xylene  
Concen: 8.02 ug/l  
RT: 15.449 min Scan# 3853  
Delta R.T. 0.000 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

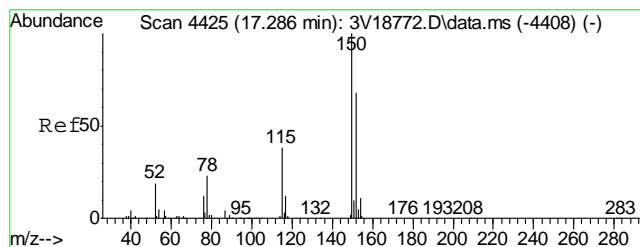
Tgt Ion:106 Resp: 70007  
Ion Ratio Lower Upper  
106 100  
91 182.0 168.1 208.1



#73  
o-xylene  
Concen: 2.02 ug/l  
RT: 15.796 min Scan# 3961  
Delta R.T. 0.000 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

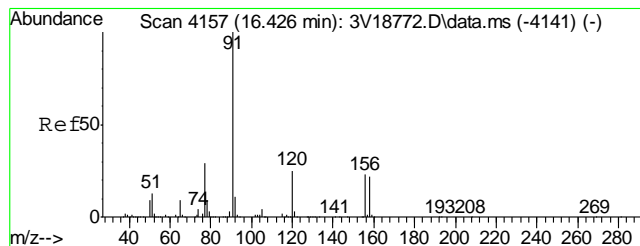
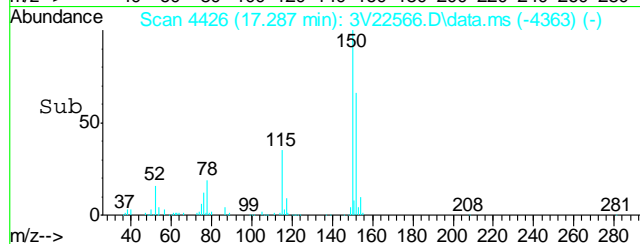
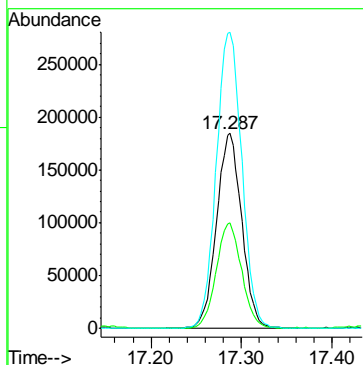
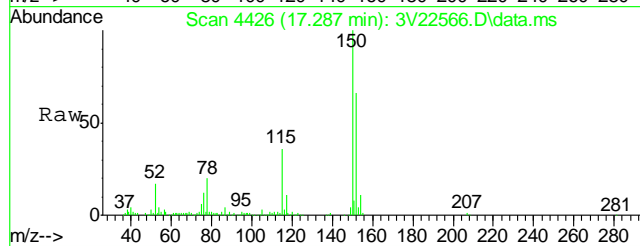
Tgt Ion:106 Resp: 17125  
Ion Ratio Lower Upper  
106 100  
91 206.4 180.3 220.3





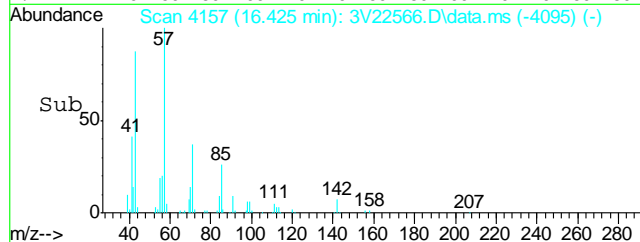
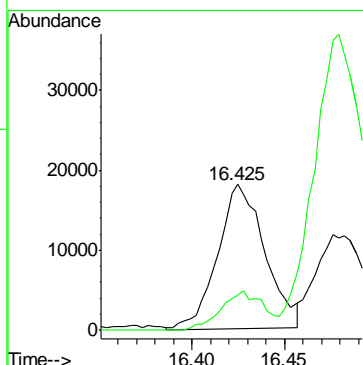
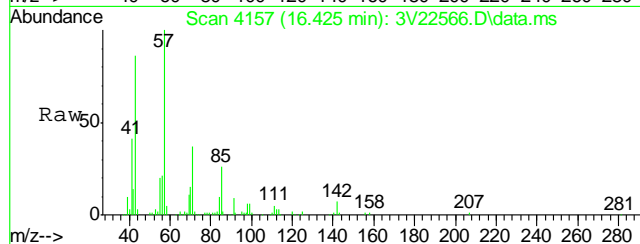
#74  
1,4-Dichlorobenzene-d4  
Concen: 50.00 ug/l  
RT: 17.287 min Scan# 4426  
Delta R.T. 0.003 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

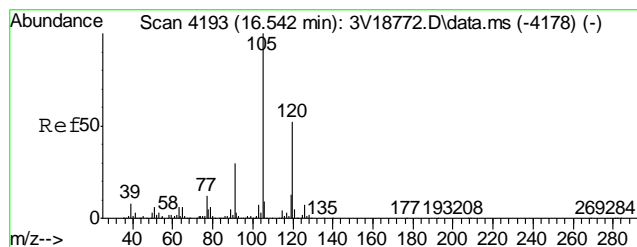
Tgt Ion	Ratio	Lower	Upper
152	100		
115	54.6	34.6	74.6
150	154.4	152.1	192.1



#77  
n-Propylbenzene  
Concen: 1.31 ug/l  
RT: 16.425 min Scan# 4157  
Delta R.T. 0.000 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

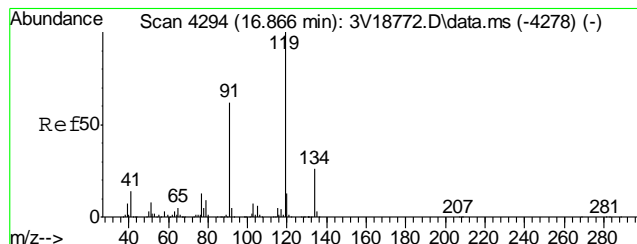
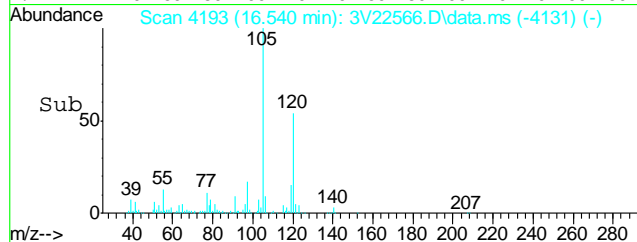
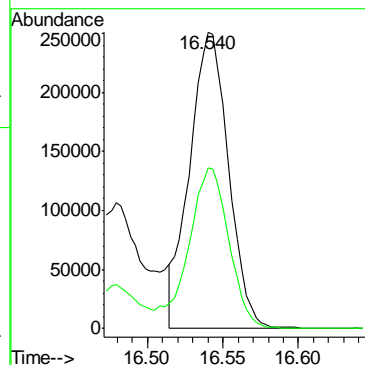
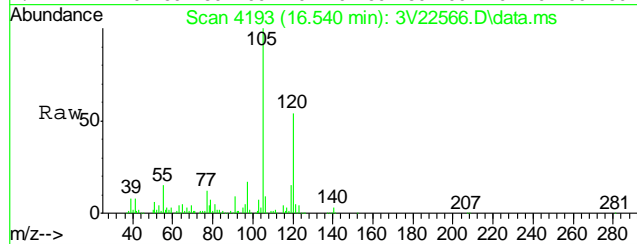
Tgt Ion	Ratio	Lower	Upper
91	100		
120	24.6	4.9	44.9





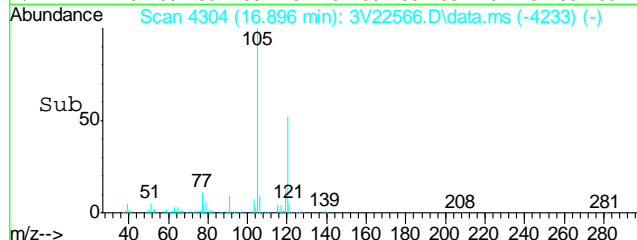
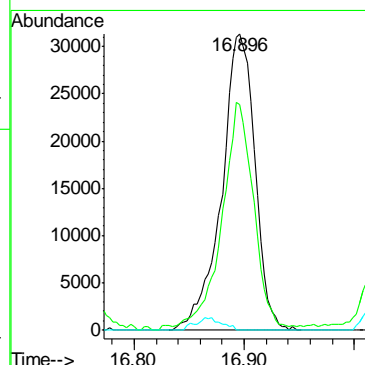
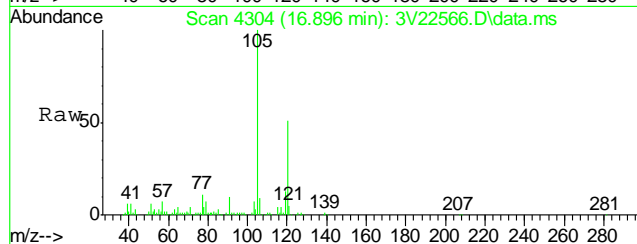
#80  
1,3,5-Trimethylbenzene  
Concen: 24.60 ug/l  
RT: 16.540 min Scan# 4193  
Delta R.T. 0.000 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

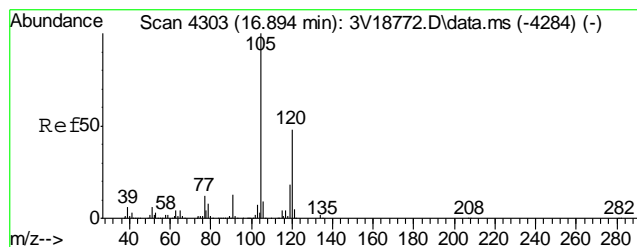
Tgt Ion	Ratio	Lower	Upper
105	100		
120	54.7	31.8	71.8



#81  
t-Butylbenzene  
Concen: 3.33 ug/l  
RT: 16.896 min Scan# 4304  
Delta R.T. 0.029 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

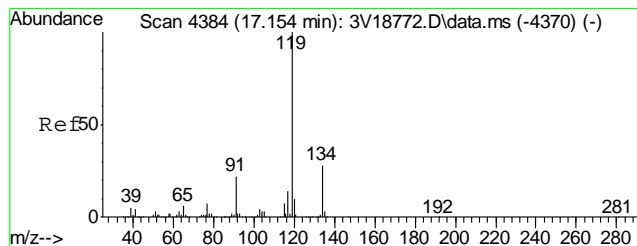
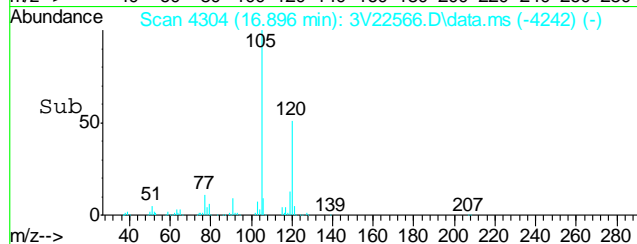
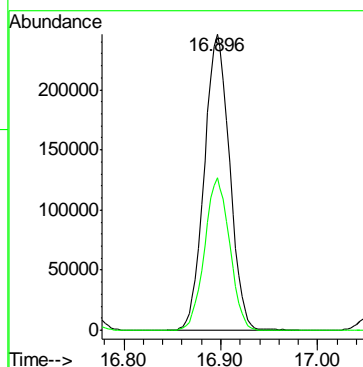
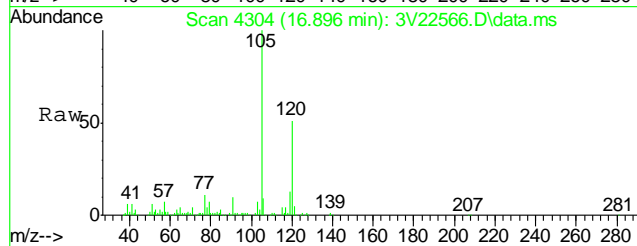
Tgt Ion	Ratio	Lower	Upper
119	100		
91	70.0	43.9	83.9
134	3.2	3.1	43.1





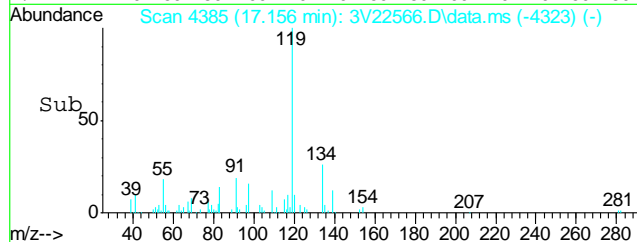
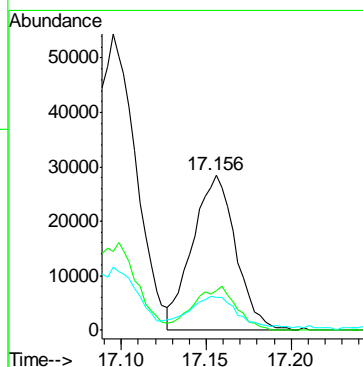
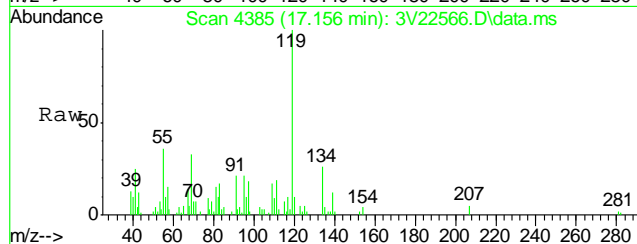
#82  
1,2,4-Trimethylbenzene  
Concen: 23.85 ug/l  
RT: 16.896 min Scan# 4304  
Delta R.T. 0.000 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

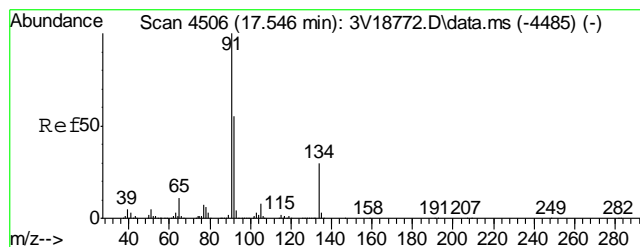
Tgt Ion	Ratio	Lower	Upper
105	100		
120	51.0	36.4	76.4



#86  
p-Isopropyltoluene  
Concen: 2.40 ug/l  
RT: 17.156 min Scan# 4385  
Delta R.T. 0.000 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

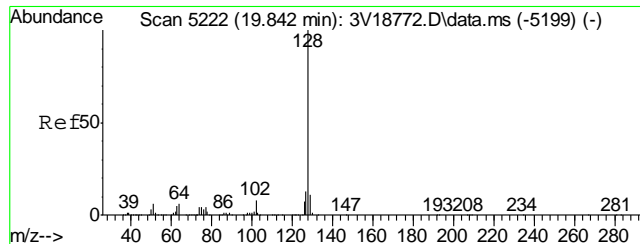
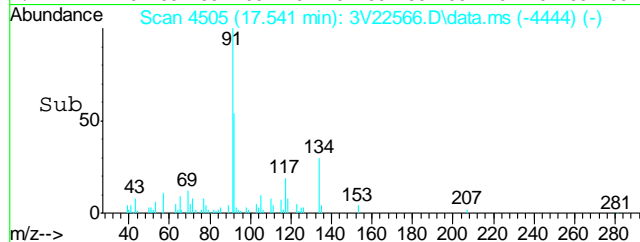
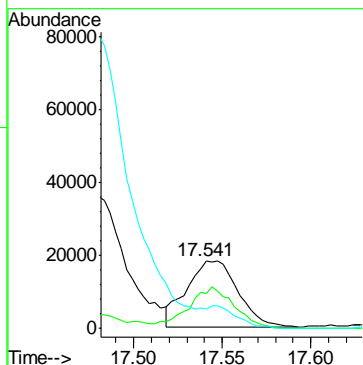
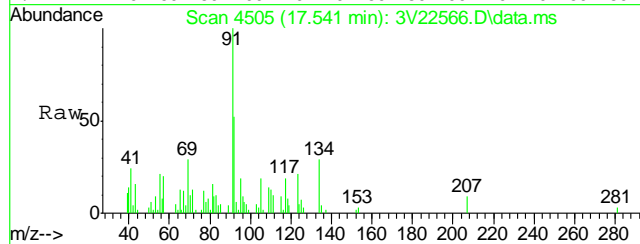
Tgt Ion	Ratio	Lower	Upper
119	100		
134	28.1	7.9	47.9
91	26.1	1.8	41.8





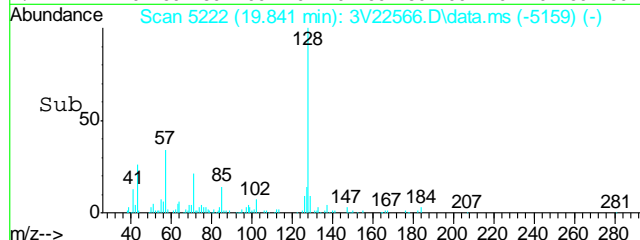
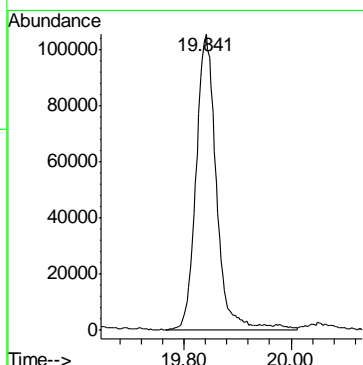
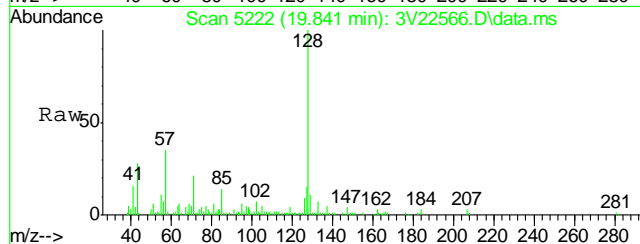
#88  
n-Butylbenzene  
Concen: 2.14 ug/l  
RT: 17.541 min Scan# 4505  
Delta R.T. -0.003 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

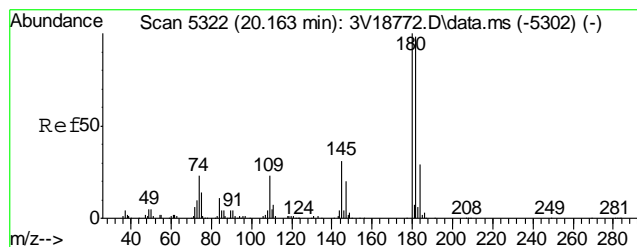
Tgt Ion	Ratio	Lower	Upper
91	100		
92	55.9	34.8	74.8
134	0.0	8.9	48.9#



#91  
Naphthalene  
Concen: 15.36 ug/l  
RT: 19.841 min Scan# 5222  
Delta R.T. 0.001 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

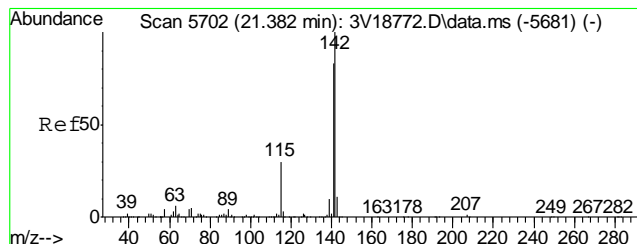
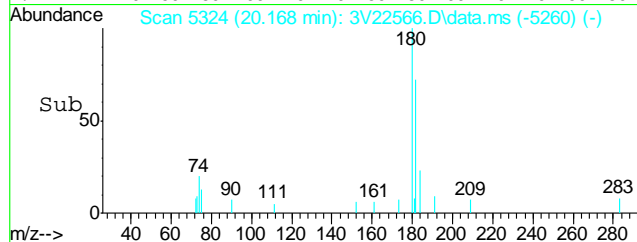
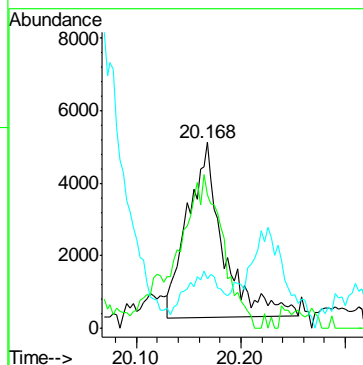
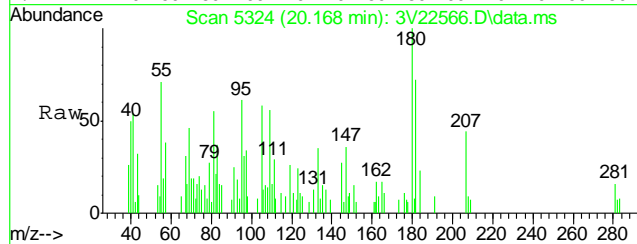
Tgt Ion:128 Resp: 277404





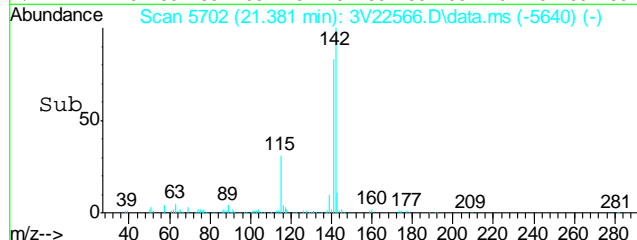
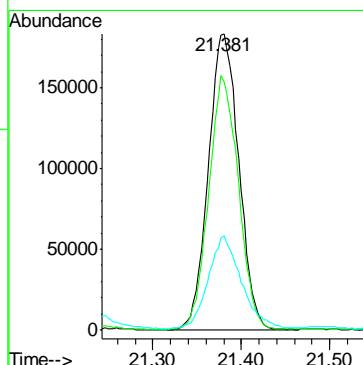
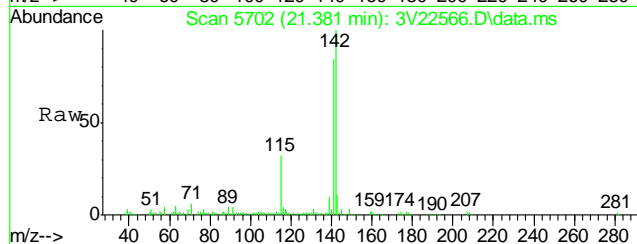
#93  
1,2,3-Trichlorobenzene  
Concen: 1.52 ug/l  
RT: 20.168 min Scan# 5324  
Delta R.T. 0.007 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

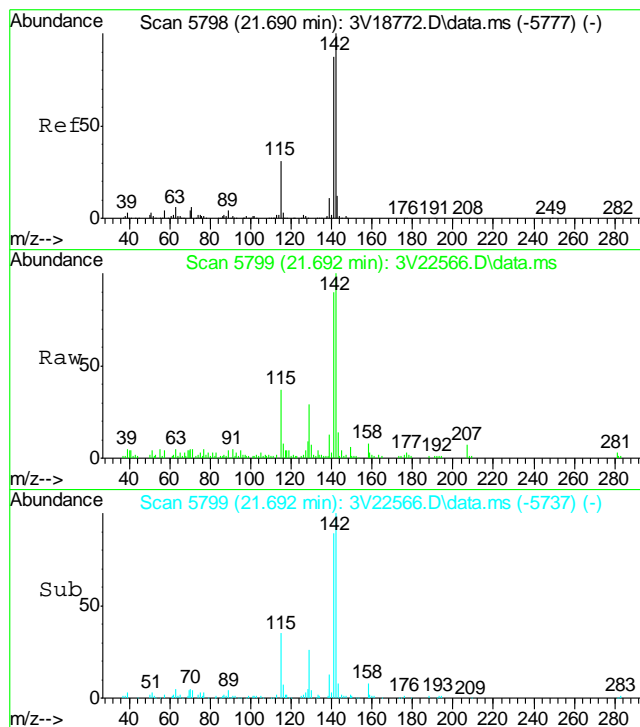
Tgt Ion	Ratio	Lower	Upper
180	100		
182	94.7	75.6	115.6
145	29.4	10.3	50.3



#94  
2-Methylnaphthalene  
Concen: 52.94 ug/l  
RT: 21.381 min Scan# 5702  
Delta R.T. 0.000 min  
Lab File: 3V22566.D  
Acq: 12 Jan 2013 5:08 am

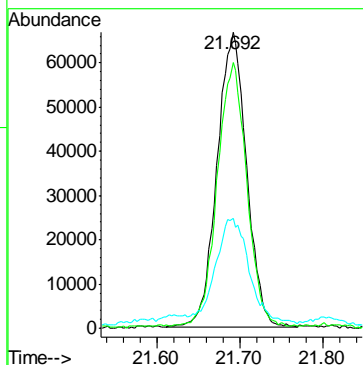
Tgt Ion	Ratio	Lower	Upper
142	100		
141	83.7	65.8	105.8
115	34.1	9.7	49.7





#95  
 1-Methylnaphthalene  
 Concen: 20.84 ug/l  
 RT: 21.692 min Scan# 5799  
 Delta R.T. 0.000 min  
 Lab File: 3V22566.D  
 Acq: 12 Jan 2013 5:08 am

Tgt Ion:	142	Resp:	163573
Ion Ratio	Lower	Upper	
142	100		
141	90.5	68.3	108.3
115	42.2	11.8	51.8





## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3011113.S\  
 Data File : 3V22560.D  
 Acq On : 12 Jan 2013 2:00 am  
 Operator : BRETD  
 Sample : MB  
 Misc : MS5218,V3V1327,5.00,,100,5,1  
 ALS Vial : 27 Sample Multiplier: 1

Quant Time: Jan 15 08:11:29 2013  
 Quant Method : C:\msdchem\1\METHODS\V3AP1299TVH1299SOIL.M  
 Quant Title : 8260  
 QLast Update : Thu Jan 03 11:40:16 2013  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.863	168	308471	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.659	114	500082	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.295	117	525362	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.287	152	304372	50.00	ug/l	0.00

## System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.251	102	33686	48.79	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	97.58%
61) Toluene-d8	14.054	98	562082	44.44	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	88.88%
69) 4-Bromofluorobenzene	16.245	95	265181	48.67	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	97.34%

## Target Compounds

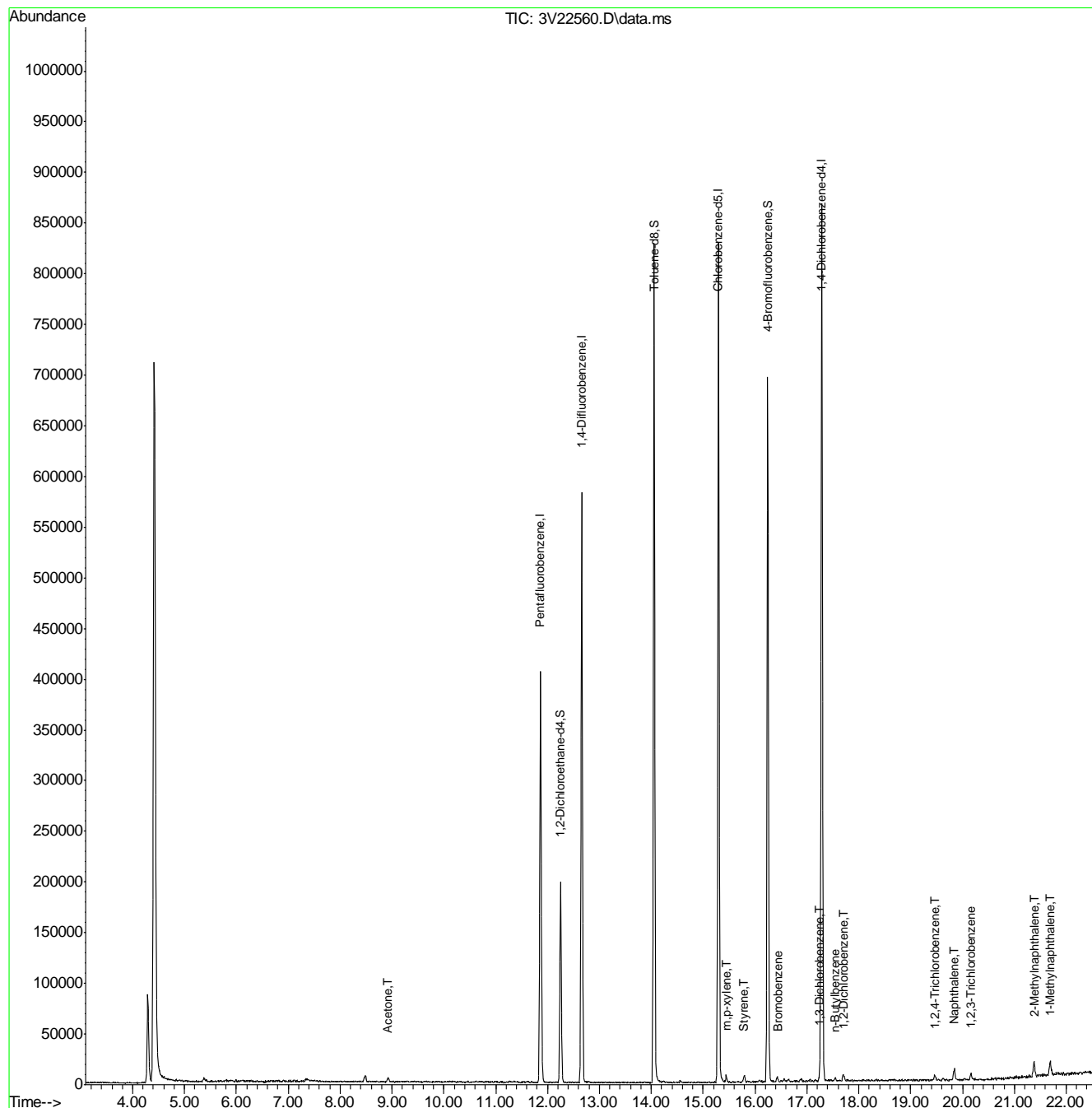
						Qvalue
15) Acetone	8.925	43	6973	0.73	ug/l	100
70) Bromobenzene	16.441	156	1174	0.21	ug/l	90
71) Styrene	15.796	104	1960	0.56	ug/l	86
72) m,p-xylene	15.453	106	2503	0.31	ug/l	90
84) 1,3-Dichlorobenzene	17.239	146	3019	0.28	ug/l	96
87) 1,2-Dichlorobenzene	17.704	146	3319	0.32	ug/l	96
88) n-Butylbenzene	17.541	91	3129	0.22	ug/l	88
90) 1,2,4-Trichlorobenzene	19.462	180	3118	0.48	ug/l	92
91) Naphthalene	19.838	128	16063	2.00	ug/l	100
93) 1,2,3-Trichlorobenzene	20.168	180	3642	0.57	ug/l	94
94) 2-Methylnaphthalene	21.384	142	13326	1.89	ug/l	97
95) 1-Methylnaphthalene	21.692	142	11465	1.71	ug/l	98

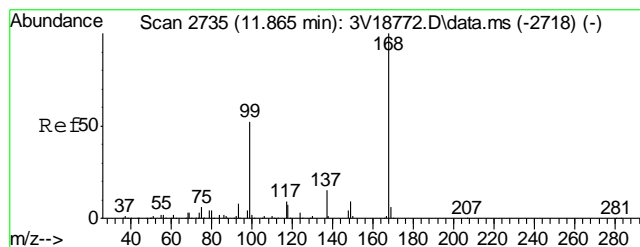
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3011113.S\  
Data File : 3V22560.D  
Acq On : 12 Jan 2013 2:00 am  
Operator : BRETD  
Sample : MB  
Misc : MS5218,V3V1327,5.00,,100,5,1  
ALS Vial : 27 Sample Multiplier: 1

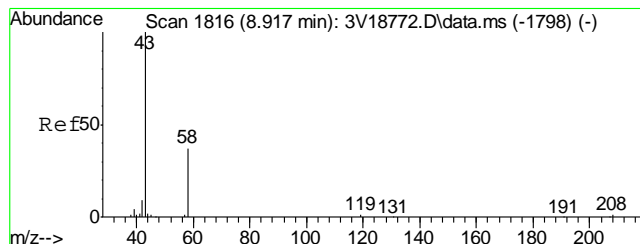
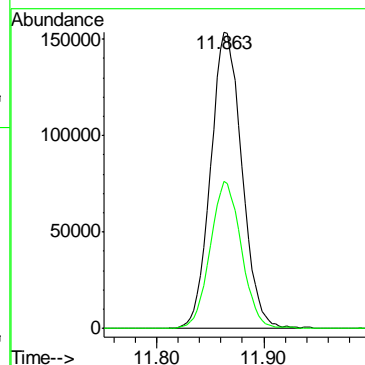
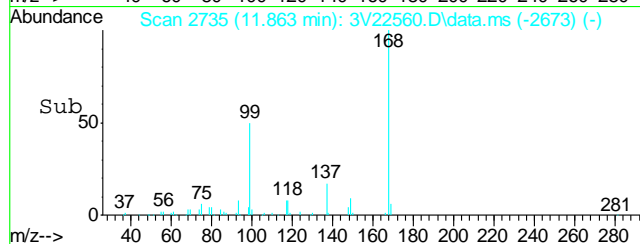
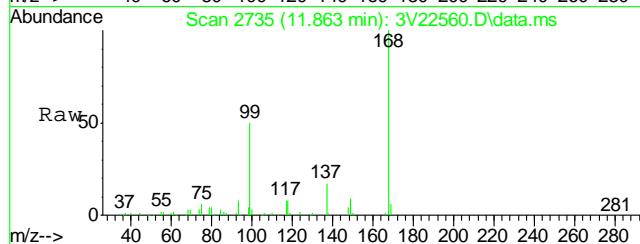
Quant Time: Jan 15 08:11:29 2013  
Quant Method : C:\msdchem\1\METHODS\V3AP1299TVH1299SOIL.M  
Quant Title : 8260  
QLast Update : Thu Jan 03 11:40:16 2013  
Response via : Initial Calibration





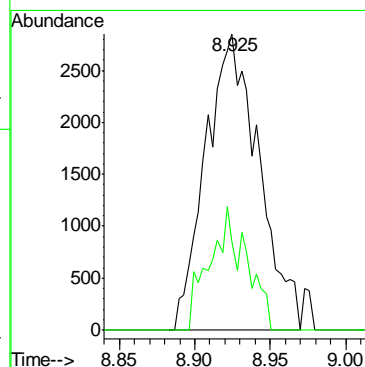
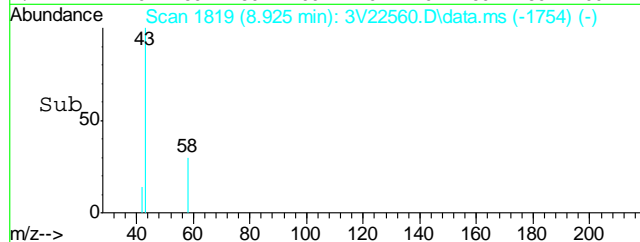
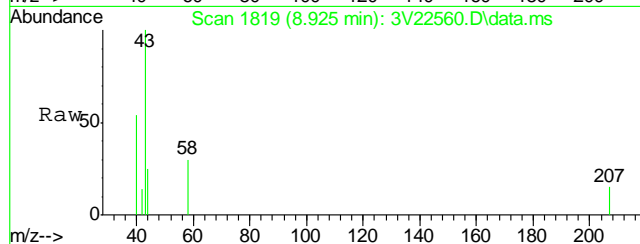
#2  
Pentafluorobenzene  
Concen: 50.00 ug/l  
RT: 11.863 min Scan# 2735  
Delta R.T. 0.000 min  
Lab File: 3V22560.D  
Acq: 12 Jan 2013 2:00 am

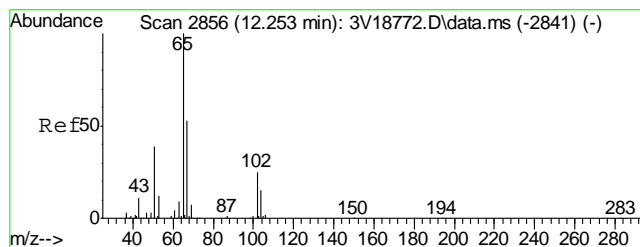
Tgt Ion: 168 Resp: 308471  
Ion Ratio Lower Upper  
168 100  
99 49.5 29.0 69.0



#15  
Acetone  
Concen: 0.73 ug/l  
RT: 8.925 min Scan# 1819  
Delta R.T. 0.010 min  
Lab File: 3V22560.D  
Acq: 12 Jan 2013 2:00 am

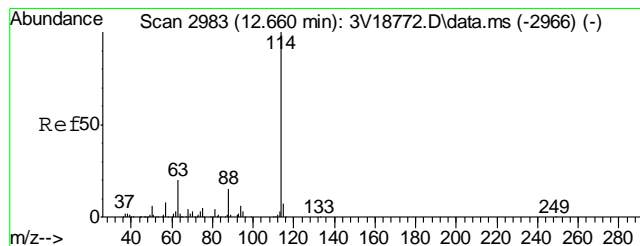
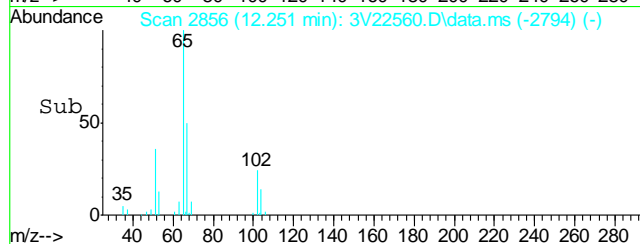
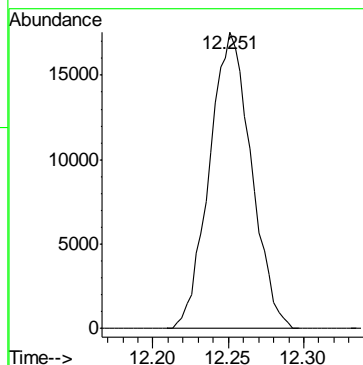
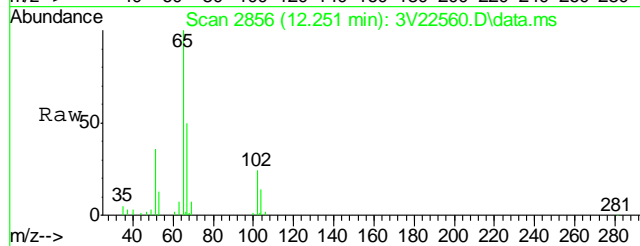
Tgt Ion: 43 Resp: 6973  
Ion Ratio Lower Upper  
43 100  
58 29.0 8.7 48.7





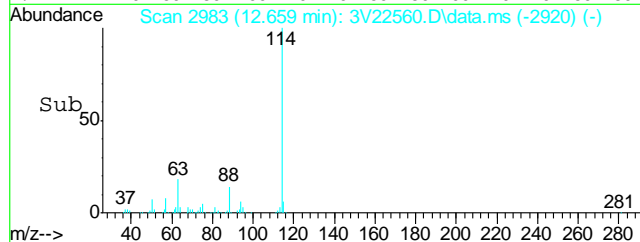
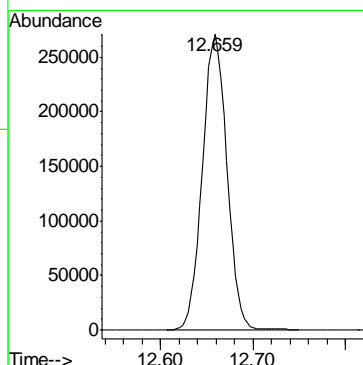
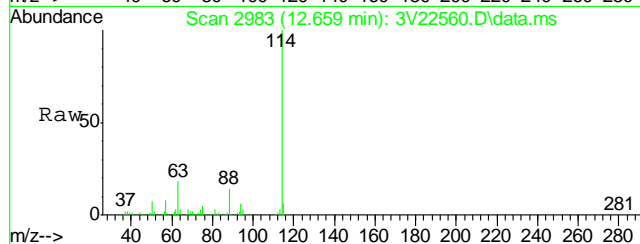
#33  
1,2-Dichloroethane-d4  
Concen: 48.79 ug/l  
RT: 12.251 min Scan# 2856  
Delta R.T. 0.000 min  
Lab File: 3V22560.D  
Acq: 12 Jan 2013 2:00 am

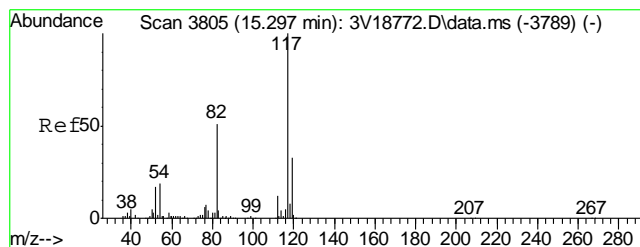
Tgt Ion:102 Resp: 33686



#35  
1,4-Difluorobenzene  
Concen: 50.00 ug/l  
RT: 12.659 min Scan# 2983  
Delta R.T. 0.003 min  
Lab File: 3V22560.D  
Acq: 12 Jan 2013 2:00 am

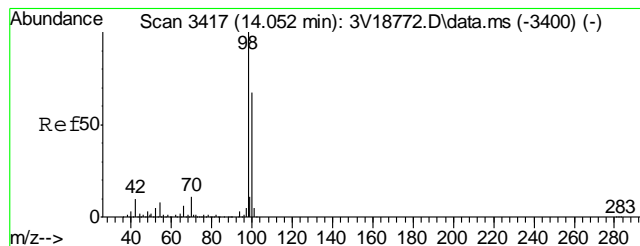
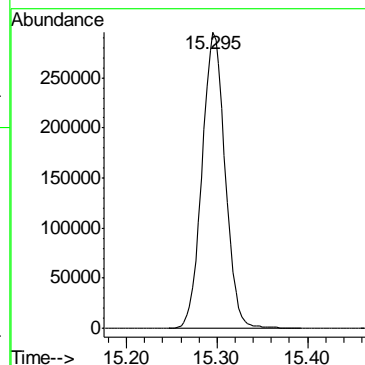
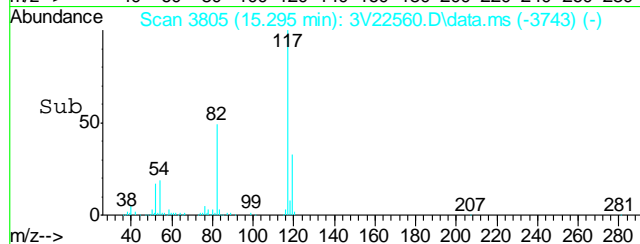
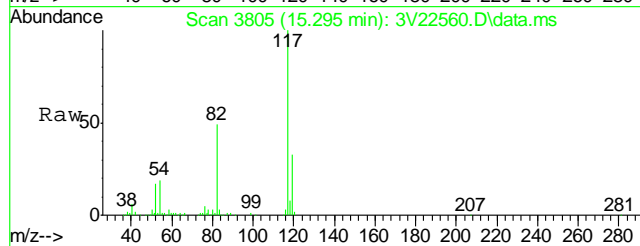
Tgt Ion:114 Resp: 500082





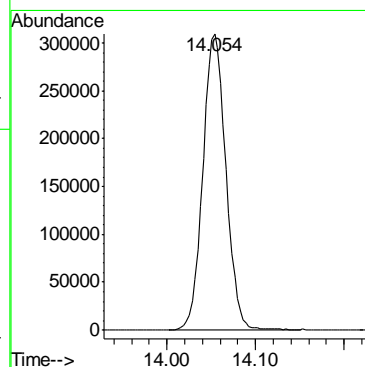
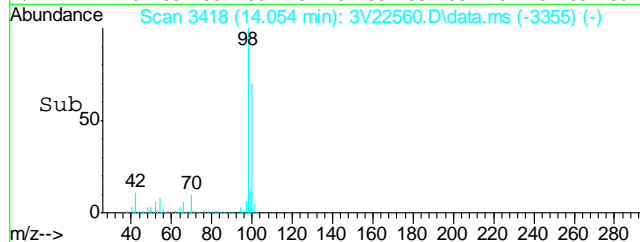
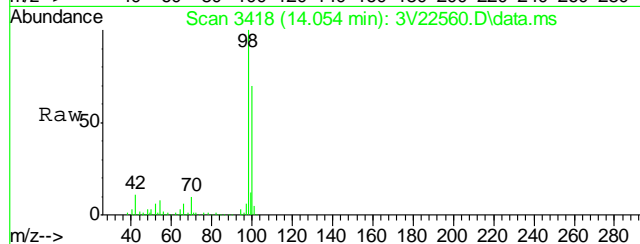
#53  
Chlorobenzene-d5  
Concen: 50.00 ug/l  
RT: 15.295 min Scan# 3805  
Delta R.T. 0.000 min  
Lab File: 3V22560.D  
Acq: 12 Jan 2013 2:00 am

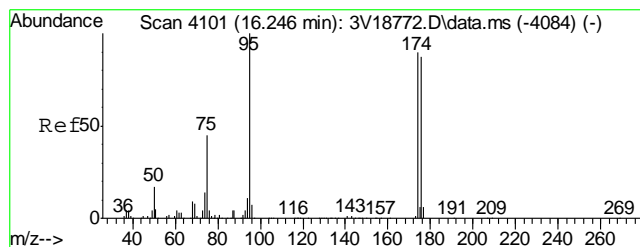
Tgt Ion: 117 Resp: 525362



#61  
Toluene-d8  
Concen: 44.44 ug/l  
RT: 14.054 min Scan# 3418  
Delta R.T. 0.003 min  
Lab File: 3V22560.D  
Acq: 12 Jan 2013 2:00 am

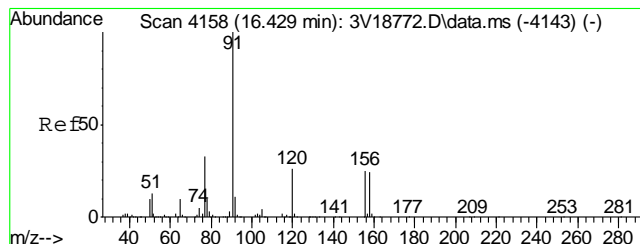
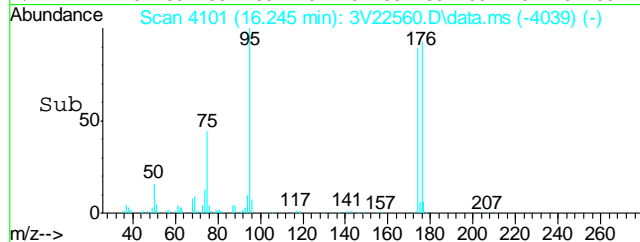
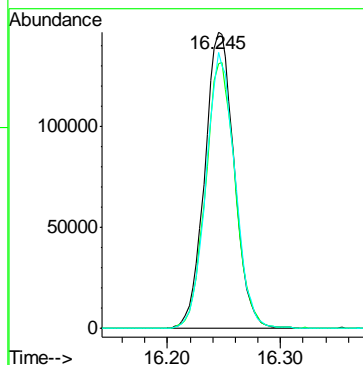
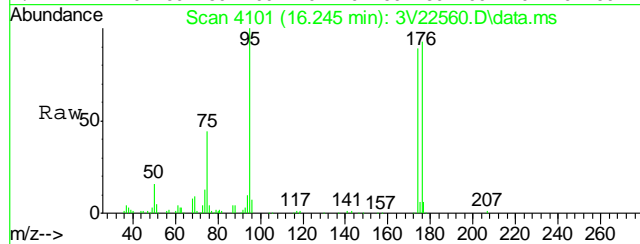
Tgt Ion: 98 Resp: 562082





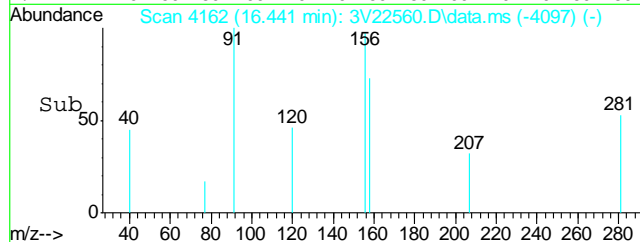
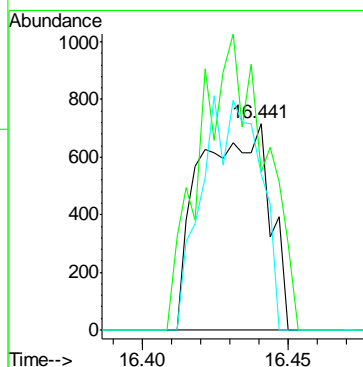
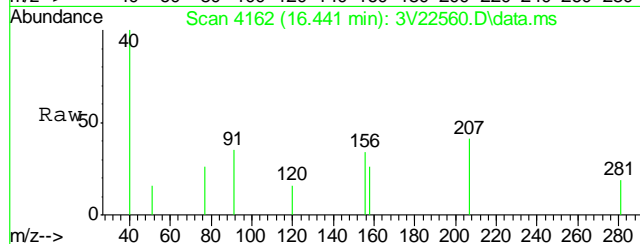
#69  
4-Bromofluorobenzene  
Concen: 48.67 ug/l  
RT: 16.245 min Scan# 4101  
Delta R.T. 0.000 min  
Lab File: 3V22560.D  
Acq: 12 Jan 2013 2:00 am

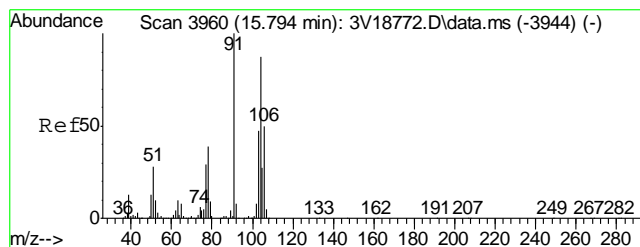
Tgt Ion	Ratio	Lower	Upper
95	100		
174	89.9	0.0	20.0#
176	91.3	0.0	20.0#



#70  
Bromobenzene  
Concen: 0.21 ug/l  
RT: 16.441 min Scan# 4162  
Delta R.T. 0.010 min  
Lab File: 3V22560.D  
Acq: 12 Jan 2013 2:00 am

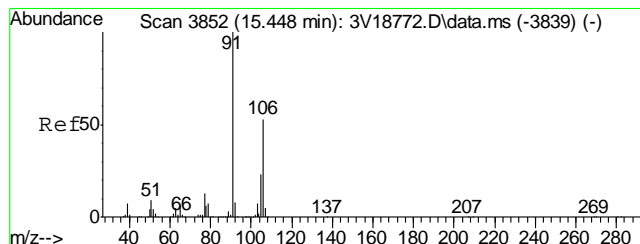
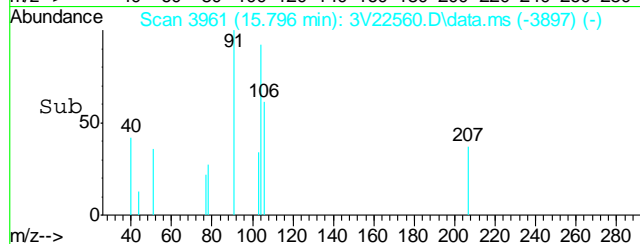
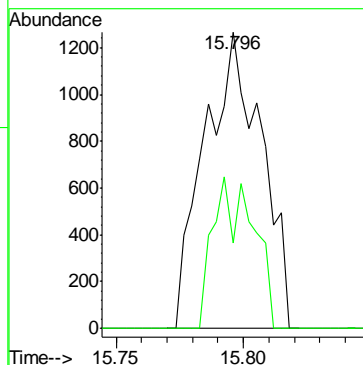
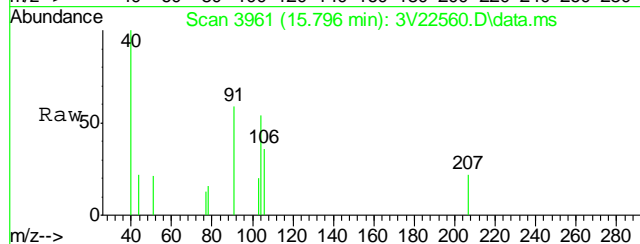
Tgt Ion	Ratio	Lower	Upper
156	100		
77	136.3	135.4	175.4
158	95.1	77.3	117.3





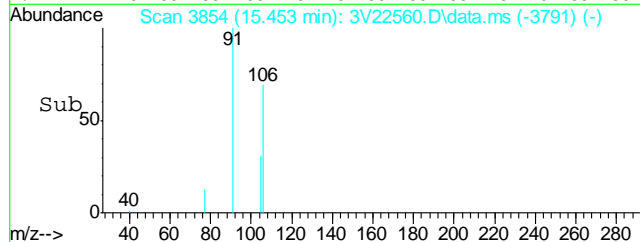
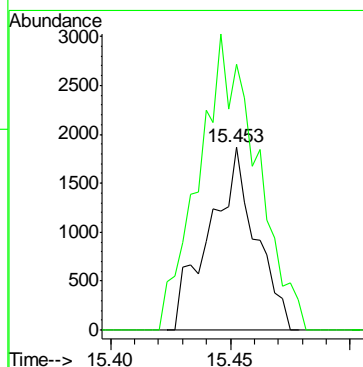
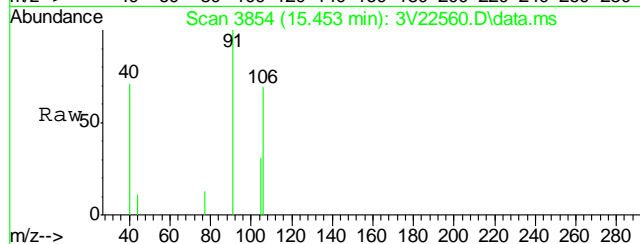
#71  
Styrene  
Concen: 0.56 ug/l  
RT: 15.796 min Scan# 3961  
Delta R.T. 0.004 min  
Lab File: 3V22560.D  
Acq: 12 Jan 2013 2:00 am

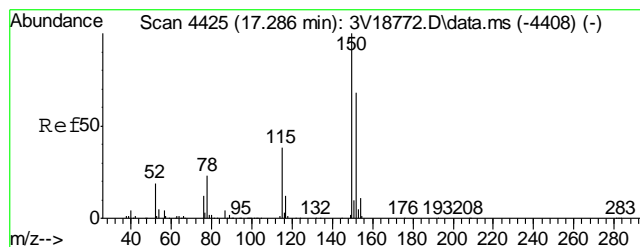
Tgt Ion	Ratio	Lower	Upper
104	100		
78	36.5	25.4	65.4



#72  
m,p-xylene  
Concen: 0.31 ug/l  
RT: 15.453 min Scan# 3854  
Delta R.T. 0.003 min  
Lab File: 3V22560.D  
Acq: 12 Jan 2013 2:00 am

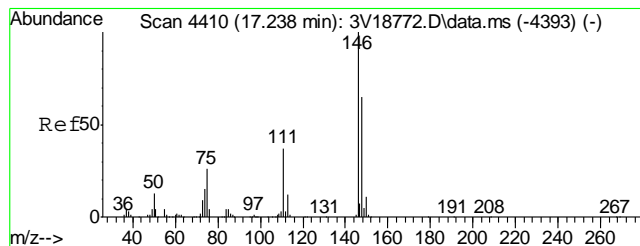
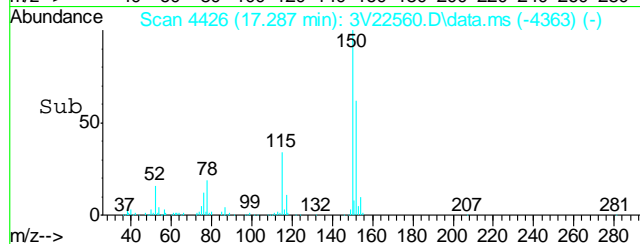
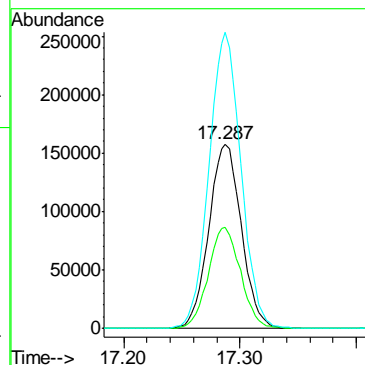
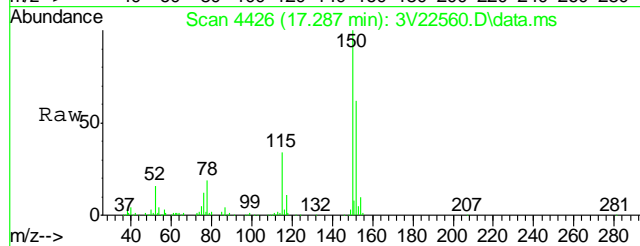
Tgt Ion	Ratio	Lower	Upper
106	100		
91	202.3	168.1	208.1





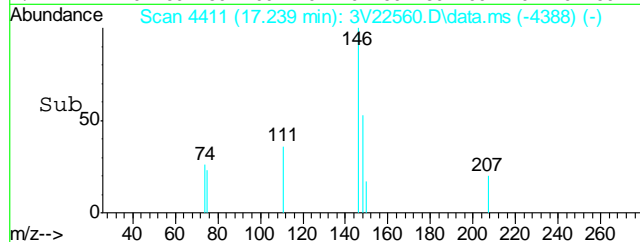
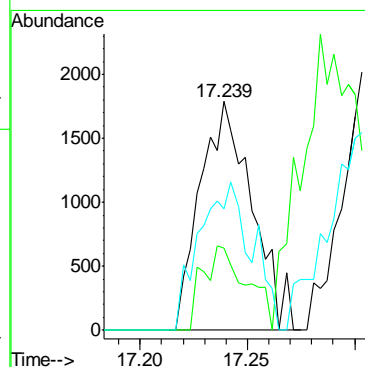
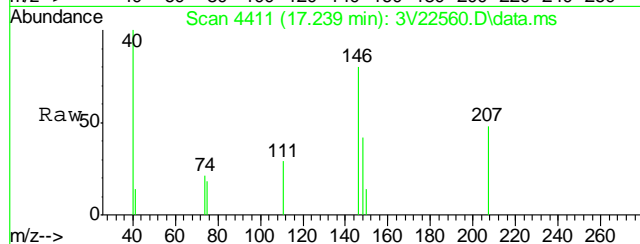
#74  
 1,4-Dichlorobenzene-d4  
 Concen: 50.00 ug/l  
 RT: 17.287 min Scan# 4426  
 Delta R.T. 0.003 min  
 Lab File: 3V22560.D  
 Acq: 12 Jan 2013 2:00 am

Tgt Ion	Ratio	Lower	Upper
152	100		
115	54.2	34.6	74.6
150	158.2	152.1	192.1

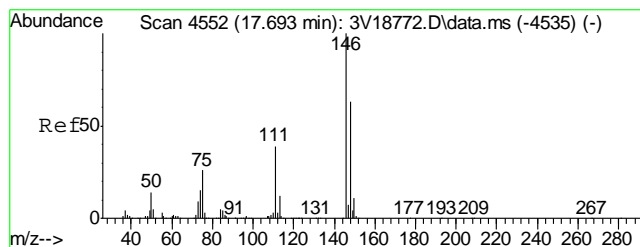


#84  
 1,3-Dichlorobenzene  
 Concen: 0.28 ug/l  
 RT: 17.239 min Scan# 4411  
 Delta R.T. 0.004 min  
 Lab File: 3V22560.D  
 Acq: 12 Jan 2013 2:00 am

Tgt Ion	Ratio	Lower	Upper
146	100		
111	31.2	17.1	57.1
148	64.9	44.2	84.2

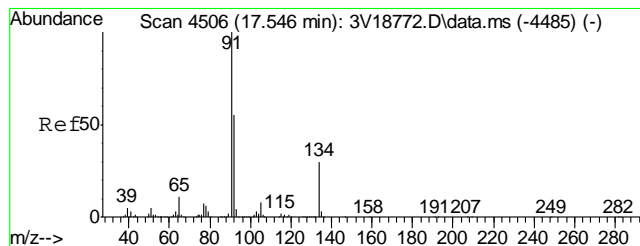
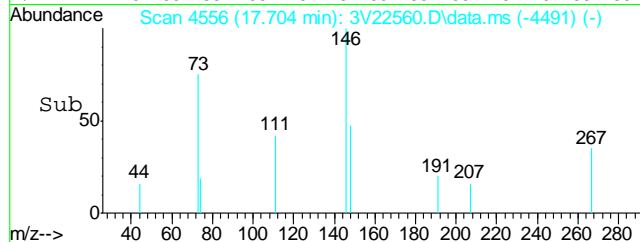
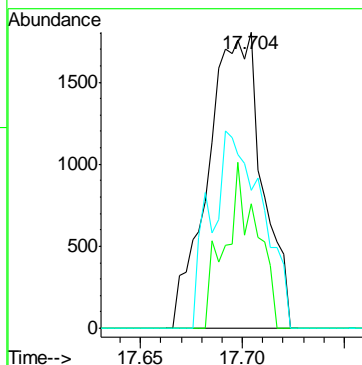
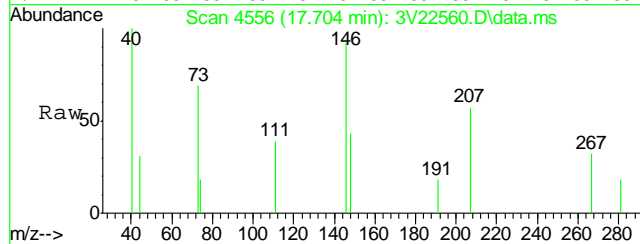






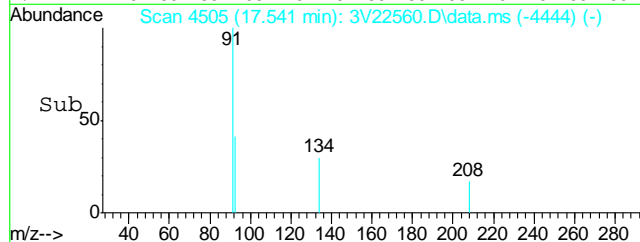
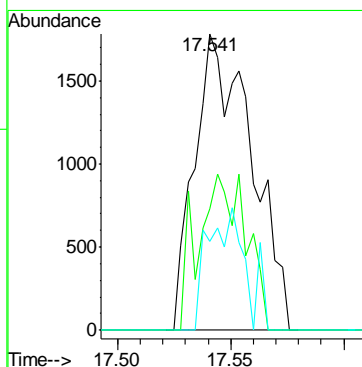
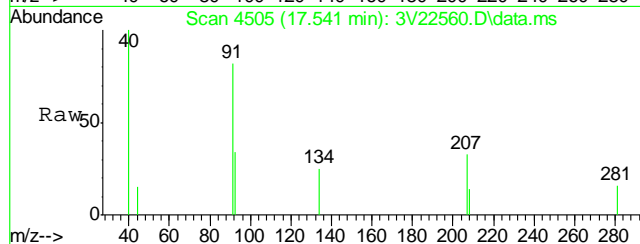
#87  
1,2-Dichlorobenzene  
Concen: 0.32 ug/l  
RT: 17.704 min Scan# 4556  
Delta R.T. 0.010 min  
Lab File: 3V22560.D  
Acq: 12 Jan 2013 2:00 am

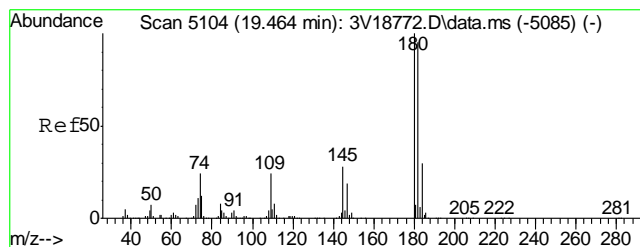
Tgt Ion	Ratio	Lower	Upper
146	100		
111	33.4	18.8	58.8
148	63.2	44.3	84.3



#88  
n-Butylbenzene  
Concen: 0.22 ug/l  
RT: 17.541 min Scan# 4505  
Delta R.T. -0.003 min  
Lab File: 3V22560.D  
Acq: 12 Jan 2013 2:00 am

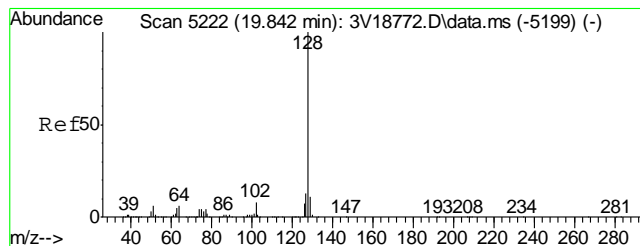
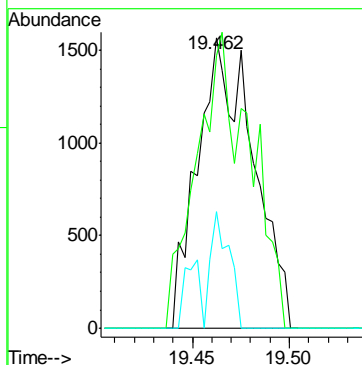
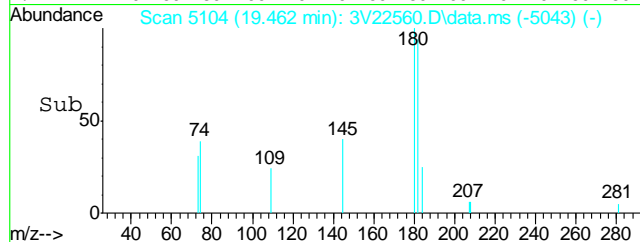
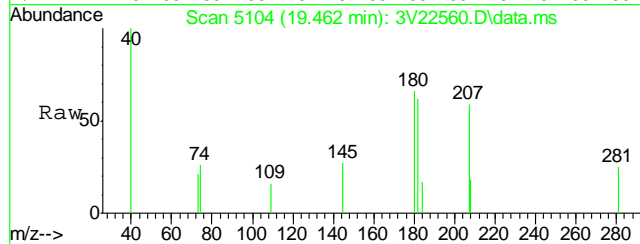
Tgt Ion	Ratio	Lower	Upper
91	100		
92	44.4	34.8	74.8
134	24.3	8.9	48.9





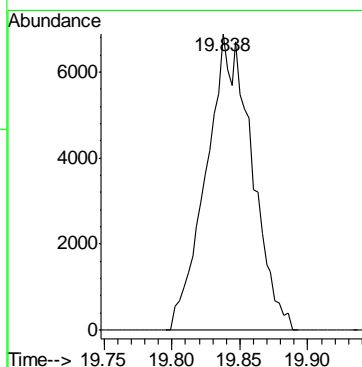
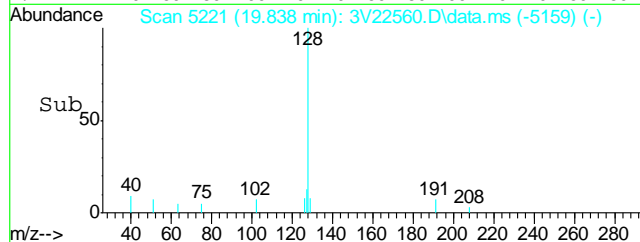
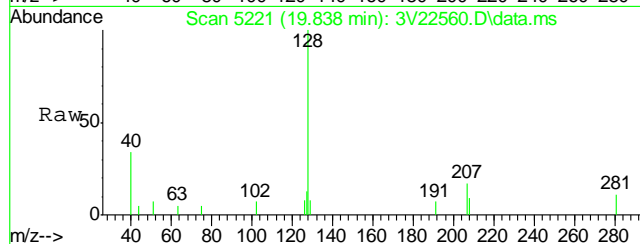
#90  
1,2,4-Trichlorobenzene  
Concen: 0.48 ug/l  
RT: 19.462 min Scan# 5104  
Delta R.T. -0.003 min  
Lab File: 3V22560.D  
Acq: 12 Jan 2013 2:00 am

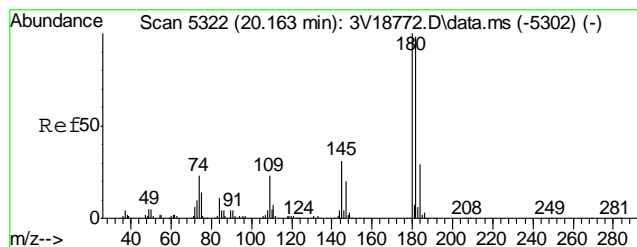
Tgt Ion:	180	Resp:	3118
Ion Ratio	Lower	Upper	
180	100		
182	98.0	75.5	115.5
145	13.6	8.6	48.6



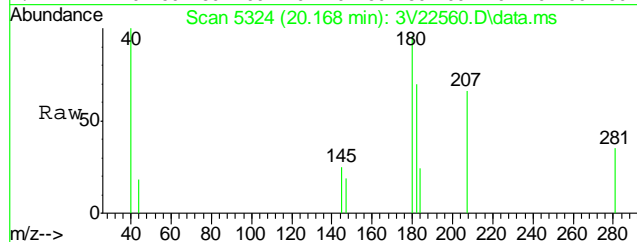
#91  
Naphthalene  
Concen: 2.00 ug/l  
RT: 19.838 min Scan# 5221  
Delta R.T. -0.002 min  
Lab File: 3V22560.D  
Acq: 12 Jan 2013 2:00 am

Tgt Ion:128 Resp: 16063

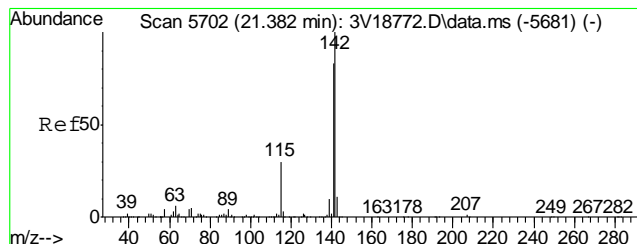
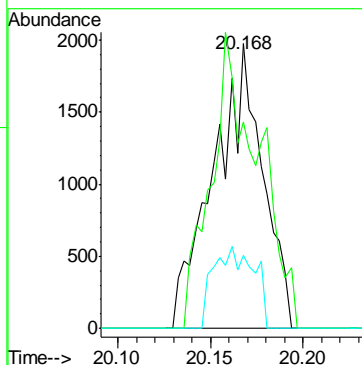
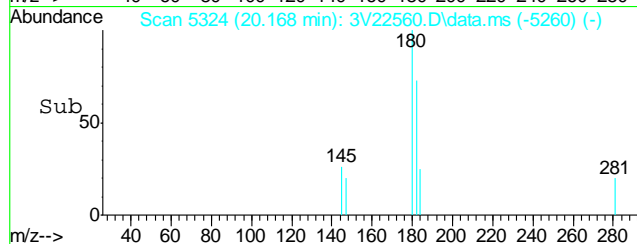




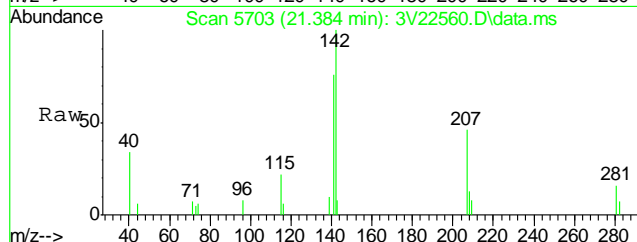
#93  
1,2,3-Trichlorobenzene  
Concen: 0.57 ug/l  
RT: 20.168 min Scan# 5324  
Delta R.T. 0.006 min  
Lab File: 3V22560.D  
Acq: 12 Jan 2013 2:00 am



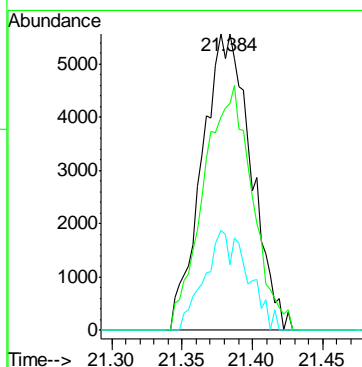
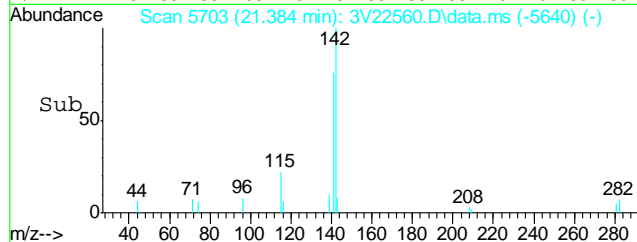
Tgt Ion	Ratio	Lower	Upper
180	100		
182	99.5	75.6	115.6
145	23.7	10.3	50.3

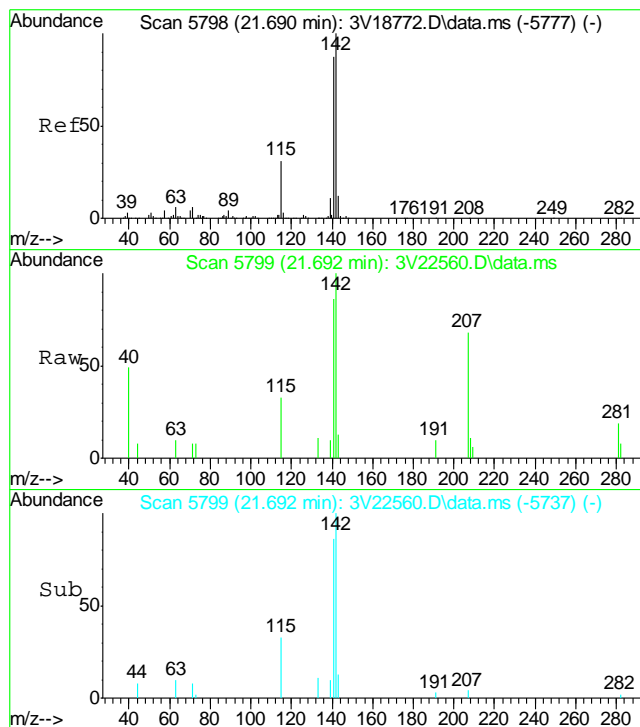


#94  
2-Methylnaphthalene  
Concen: 1.89 ug/l  
RT: 21.384 min Scan# 5703  
Delta R.T. 0.003 min  
Lab File: 3V22560.D  
Acq: 12 Jan 2013 2:00 am



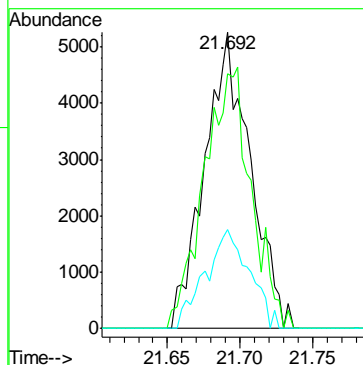
Tgt Ion	Ratio	Lower	Upper
142	100		
141	82.0	65.8	105.8
115	29.4	9.7	49.7





#95  
1-Methylnaphthalene  
Concen: 1.71 ug/l  
RT: 21.692 min Scan# 5799  
Delta R.T. 0.000 min  
Lab File: 3V22560.D  
Acq: 12 Jan 2013 2:00 am

Tgt Ion	Ratio	Lower	Upper
142	100		
141	90.8	68.3	108.3
115	32.2	11.8	51.8



7.2.1

7

## GC/MS Semi-volatiles

### QC Data Summaries

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Includes the following where applicable:

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

**Method Blank Summary**

Page 1 of 1

**Job Number:** D42510  
**Account:** XTOKRWR XTO Energy  
**Project:** XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7223-MB	3G12973.D	1	01/15/13	DC	01/14/13	OP7223	E3G621

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

D42510-1

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	4.3	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	81% 10-159%
321-60-8	2-Fluorobiphenyl	85% 19-131%
1718-51-0	Terphenyl-d14	105% 18-150%

8.1.1

8

## Blank Spike Summary

Page 1 of 1

**Job Number:** D42510  
**Account:** XTOKRWR XTO Energy  
**Project:** XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7223-BS	3G12974.D	1	01/15/13	DC	01/14/13	OP7223	E3G621

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D42510-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	87.0	104	68-130
120-12-7	Anthracene	83.3	75.1	90	67-130
56-55-3	Benzo(a)anthracene	83.3	79.3	95	65-130
205-99-2	Benzo(b)fluoranthene	83.3	79.2	95	44-130
207-08-9	Benzo(k)fluoranthene	83.3	65.4	78	56-131
50-32-8	Benzo(a)pyrene	83.3	70.8	85	62-130
218-01-9	Chrysene	83.3	70.3	84	70-130
53-70-3	Dibenzo(a,h)anthracene	83.3	79.8	96	55-130
206-44-0	Fluoranthene	83.3	76.4	92	70-130
86-73-7	Fluorene	83.3	80.9	97	70-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	77.2	93	56-130
91-20-3	Naphthalene	83.3	71.1	85	70-130
129-00-0	Pyrene	83.3	74.5	89	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	103%	10-159%
321-60-8	2-Fluorobiphenyl	97%	19-131%
1718-51-0	Terphenyl-d14	107%	18-150%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D42510  
**Account:** XTOKRWR XTO Energy  
**Project:** XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7223-MS	3G12984.D	1	01/15/13	DC	01/14/13	OP7223	E3G621
OP7223-MSD	3G12985.D	1	01/15/13	DC	01/14/13	OP7223	E3G621
D42510-1	3G12983.D	1	01/15/13	DC	01/14/13	OP7223	E3G621

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D42510-1

CAS No.	Compound	D42510-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		98.3	76.7	78	76.8	78	0	25-151/30
120-12-7	Anthracene	ND		98.3	93.2	95	95.1	97	2	39-159/30
56-55-3	Benzo(a)anthracene	ND		98.3	107	109	109	111	2	39-168/30
205-99-2	Benzo(b)fluoranthene	ND		98.3	109	111	110	112	1	24-163/30
207-08-9	Benzo(k)fluoranthene	ND		98.3	70.7	72	74.9	76	6	10-188/30
50-32-8	Benzo(a)pyrene	ND		98.3	77.1	78	79.0	80	2	32-144/30
218-01-9	Chrysene	25.4		98.3	97.1	73	101	77	4	43-150/30
53-70-3	Dibenzo(a,h)anthracene	ND		98.3	76.5	78	79.8	81	4	21-152/30
206-44-0	Fluoranthene	ND		98.3	101	103	102	104	1	36-157/30
86-73-7	Fluorene	198		98.3	260	63	249	52	4	10-182/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		98.3	73.2	74	76.2	77	4	20-154/30
91-20-3	Naphthalene	1070		98.3	1400	336* a	909	-164* a	43* b	10-163/30
129-00-0	Pyrene	31.3		98.3	126	96	127	97	1	25-180/30

CAS No.	Surrogate Recoveries	MS	MSD	D42510-1	Limits
4165-60-0	Nitrobenzene-d5	141%	110%	141%	10-159%
321-60-8	2-Fluorobiphenyl	63%	56%	61%	19-131%
1718-51-0	Terphenyl-d14	98%	96%	91%	18-150%

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

(b) Variability of recovery may be due to sample matrix/homogeneity.

\* = Outside of Control Limits.



GC/MS Semi-volatiles

Raw Data

6

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\011513\  
 Data File : 3g12983.D  
 Acq On : 15 Jan 2013 2:17 pm  
 Operator : DONC  
 Sample : D42510-1  
 Misc : OP7223,E3G621,30.07,,,1,1  
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jan 16 08:34:01 2013  
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G611.M  
 Quant Title : PAHSIM BASE  
 QLast Update : Thu Jan 10 14:18:35 2013  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.621	136	80659	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.337	164	114761	4.0000	ug/mL	0.01
15) Phenanthrene-d10	8.819	188	140968	4.0000	ug/mL	0.00
19) Chrysene-d12	11.450	240	93535	4.0000	ug/mL	0.00
24) Perylene-d12	12.810	264	78530	4.0000	ug/mL	0.00

## System Monitoring Compounds

2) Nitrobenzene-d5	4.935	82	510531	70.3689	ug/mL	-0.01
Spiked Amount 50.000	Range 25 - 135		Recovery = 140.74%#			
7) 2-Fluorobiphenyl	6.676	172	1384195	30.4682	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 60.94%			
21) Terphenyl-d14	10.410	244	581028	45.6523	ug/mL	0.01
Spiked Amount 50.000	Range 25 - 135		Recovery = 91.30%			

## Target Compounds

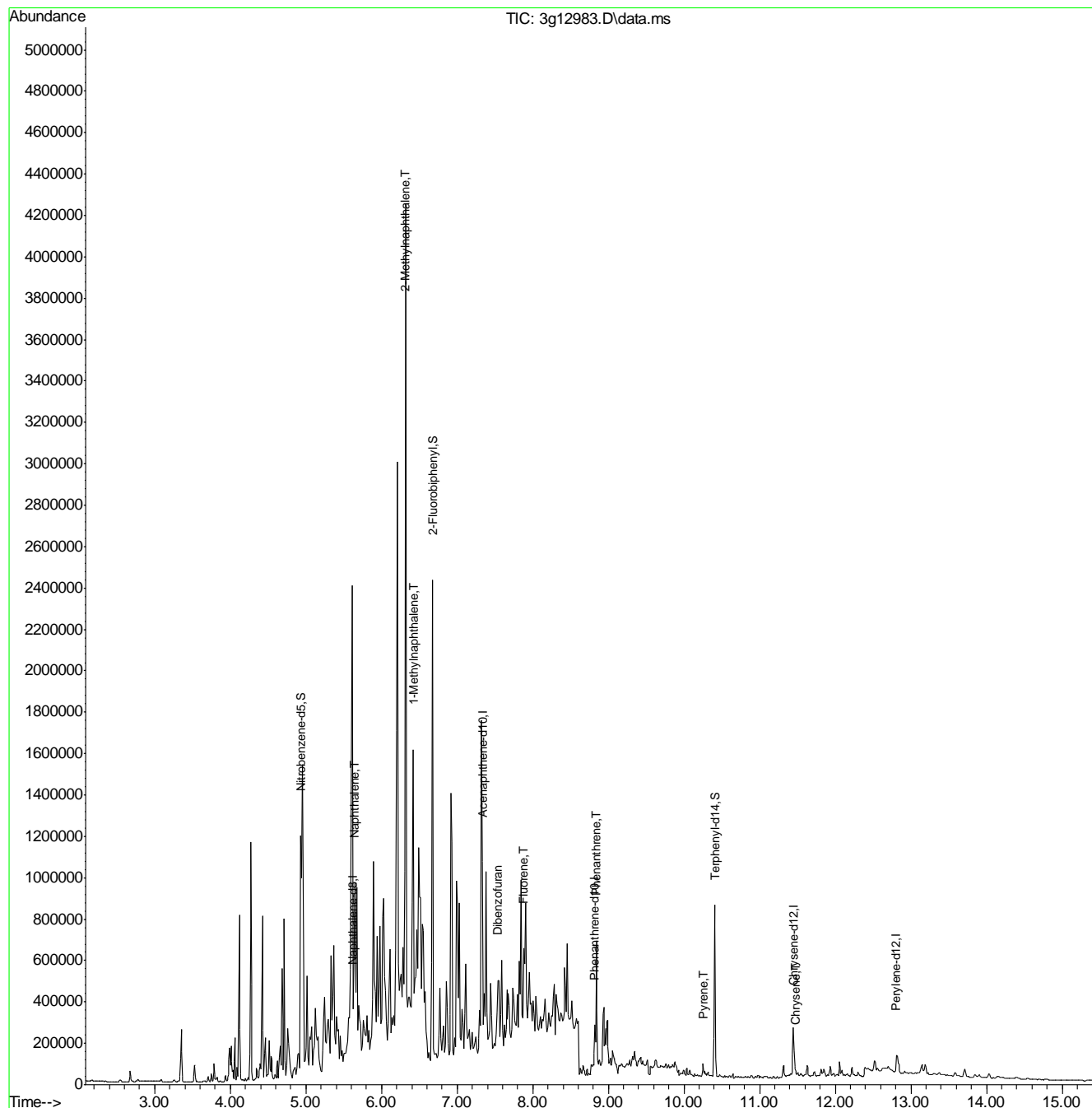
						Qvalue
3) N-Nitrosodimethylamine	2.378	74	50	N.D.		
4) N-Nitrosodi-propylamine	0.000	70	0	N.D. d		
5) Naphthalene	5.645	128	629698	27.2029	ug/mL	92
8) 2-Methylnaphthalene	6.319	142	1640170	44.4763	ug/mL	95
9) 1-Methylnaphthalene	6.418	142	549264	17.0292	ug/mL	90
10) Acenaphthylene	0.000	152	0	N.D. d		
11) Acenaphthene	0.000	154	0	N.D. d		
12) Dibenzofuran	7.538	168	66520	1.1868	ug/mL	86
13) Fluorene	7.881	166	232041	5.0267	ug/mL#	41
14) Diphenylamine	0.000	169	0	N.D. d		
16) Phenanthrene	8.843	178	342584	6.2887	ug/mL	71
17) Anthracene	0.000	178	0	N.D. d		
18) Fluoranthene	0.000	202	0	N.D. d		
20) Pyrene	10.252	202	39664	0.7941	ug/mL#	52
22) Benzo(a)anthracene	0.000	228	0	N.D. d		
23) Chrysene	11.470	228	29213	0.6453	ug/mL	92
25) Benzo(b)fluoranthene	0.000	252	0	N.D. d		
26) Benzo(k)fluoranthene	0.000	252	0	N.D. d		
27) Benzo(a)pyrene	0.000	252	0	N.D. d		
28) Indeno(1,2,3-cd)pyrene	0.000	276	0	N.D. d		
29) Dibenz(a,h)anthracene	0.000	278	0	N.D. d		
30) Benzo(g,h,i)perylene	0.000	276	0	N.D. d		

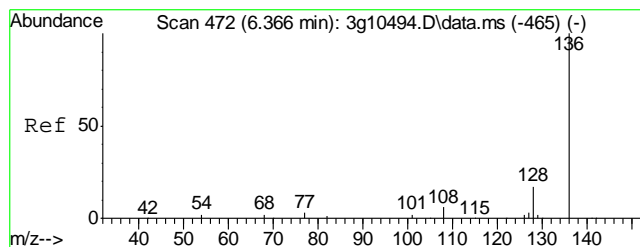
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\011513\  
 Data File : 3g12983.D  
 Acq On : 15 Jan 2013 2:17 pm  
 Operator : DONC  
 Sample : D42510-1  
 Misc : OP7223,E3G621,30.07,,,1,1  
 ALS Vial : 14 Sample Multiplier: 1

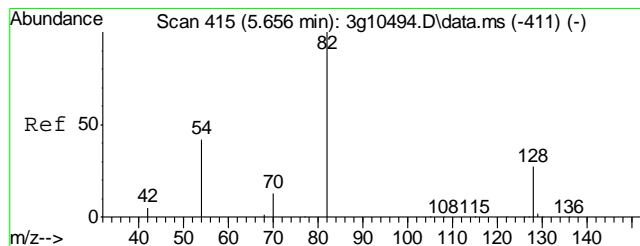
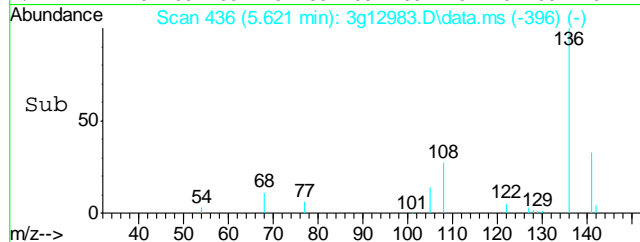
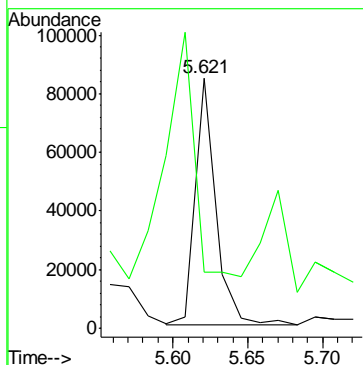
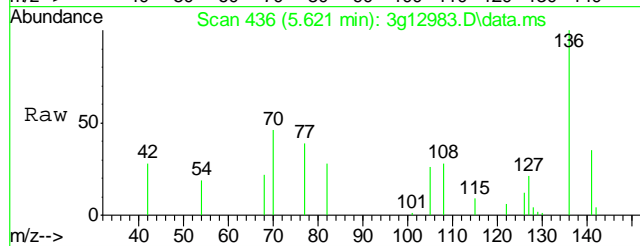
Quant Time: Jan 16 08:34:01 2013  
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G611.M  
 Quant Title : PAHSIM BASE  
 QLast Update : Thu Jan 10 14:18:35 2013  
 Response via : Initial Calibration





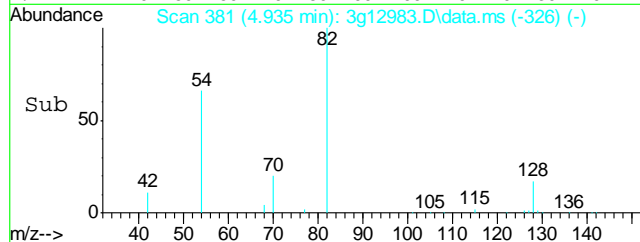
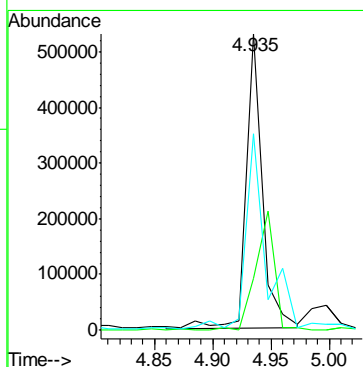
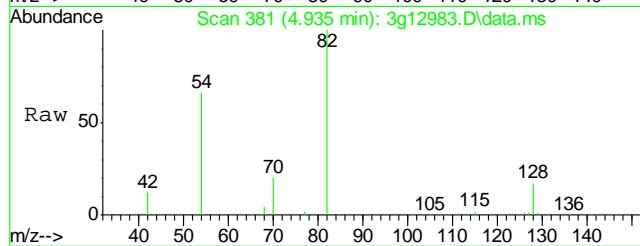
#1  
Naphthalene-d8  
Concen: 4.0000 ug/mL  
RT: 5.621 min Scan# 436  
Delta R.T. -0.000 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

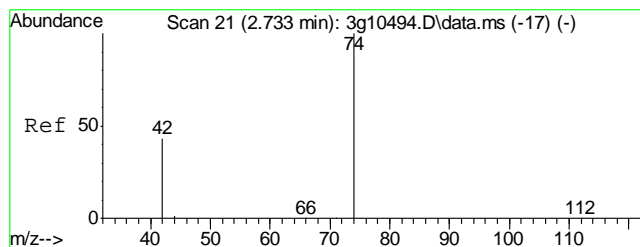
Tgt Ion	Ratio	Lower	Upper
136	100		
68	204.3	0.0	20.8#



#2  
Nitrobenzene-d5  
Concen: 70.3689 ug/mL  
RT: 4.935 min Scan# 381  
Delta R.T. -0.014 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

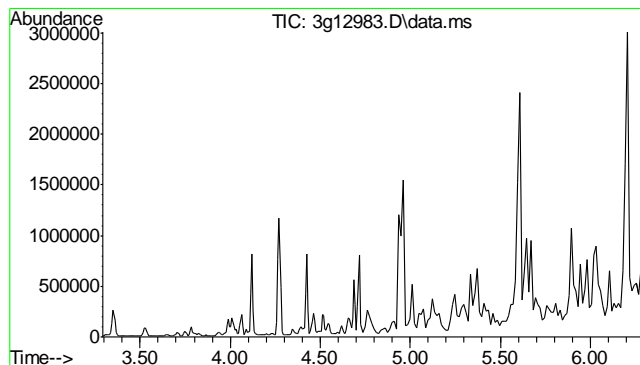
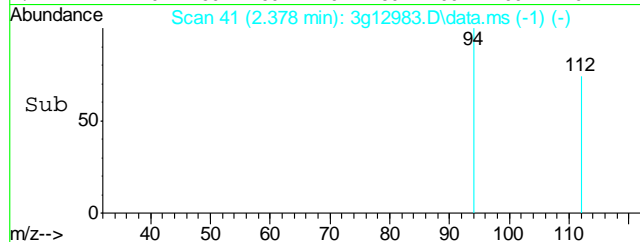
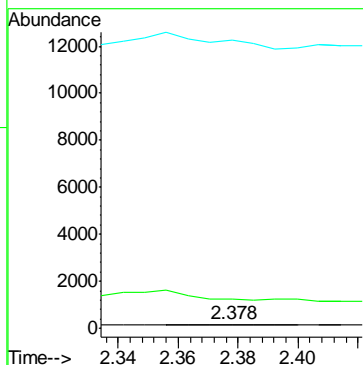
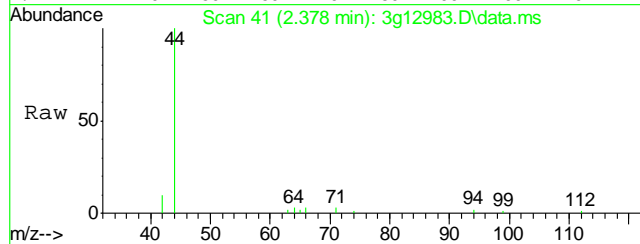
Tgt Ion	Ratio	Lower	Upper
82	100		
128	46.6	36.8	76.8
54	82.9	40.5	80.5#





#3  
N-Nitrosodimethylamine  
Concen: Below ug/mL  
RT: 2.378 min Scan# 41  
Delta R.T. 0.041 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

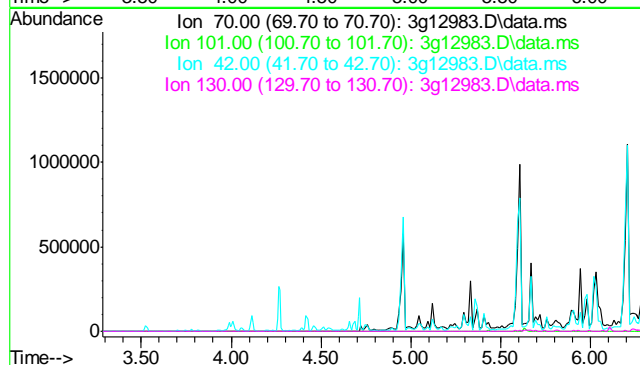
Tgt Ion	Resp	Lower	Upper
74	100		
42	0.0	58.5	98.5#
44	2150.0	0.0	24.0#

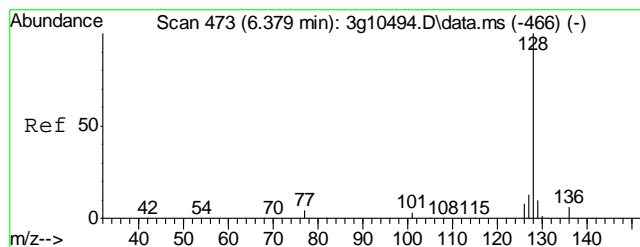


#4  
N-Nitrosodi-propylamine  
Concen: N.D. ug/mL  
Expected RT: 4.79 min

Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

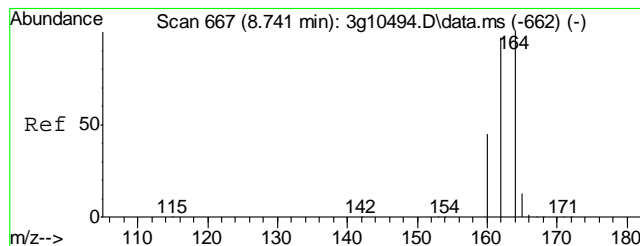
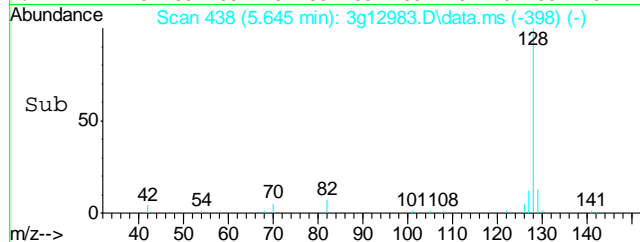
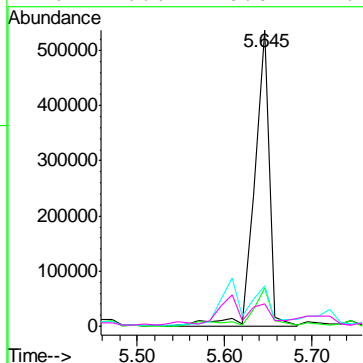
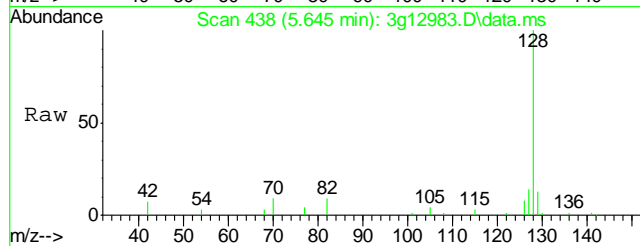
Tgt Ion	Sig	Exp Ratio
70	100	
101	11.9	
42	57.4	
130	21.7	





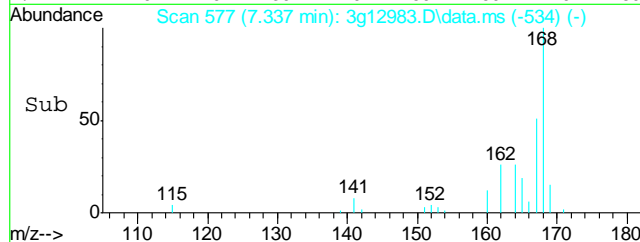
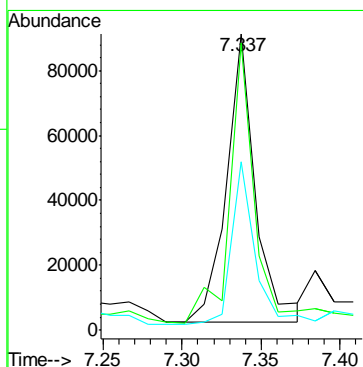
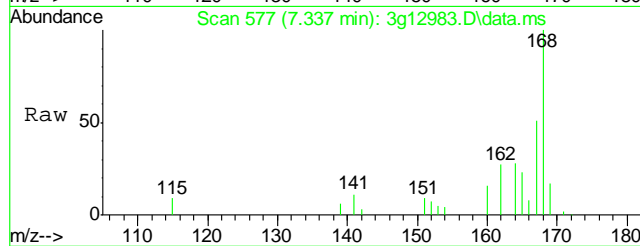
#5  
Naphthalene  
Concen: 27.2029 ug/mL  
RT: 5.645 min Scan# 438  
Delta R.T. 0.001 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

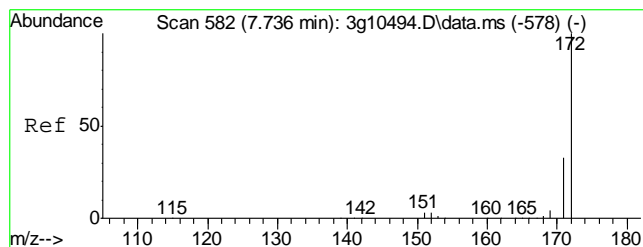
Tgt Ion:	128	Resp:	629698
Ion Ratio	Lower	Upper	
128	100		
129	14.8	0.0	31.2
127	8.3	0.0	32.4
126	6.6	0.0	27.2



#6  
Acenaphthene-d10  
Concen: 4.0000 ug/mL  
RT: 7.337 min Scan# 577  
Delta R.T. 0.012 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

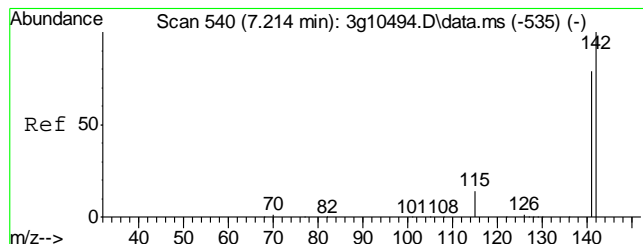
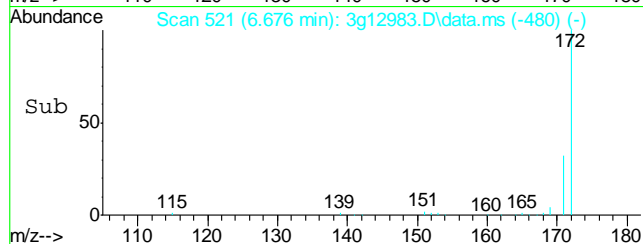
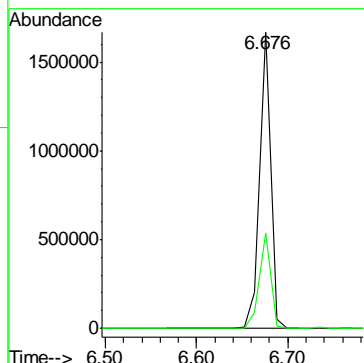
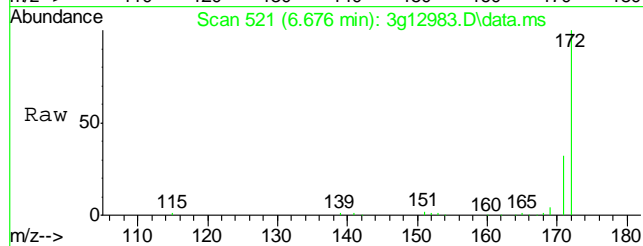
Tgt Ion:	164	Resp:	114761
Ion Ratio	Lower	Upper	
164	100		
162	86.4	88.1	128.1#
160	46.2	38.8	78.8





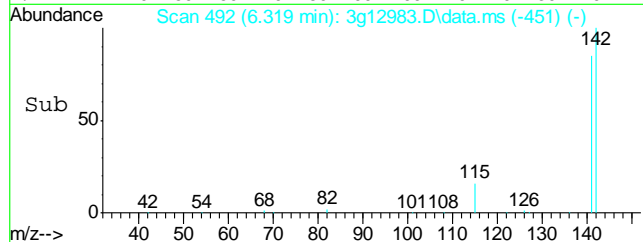
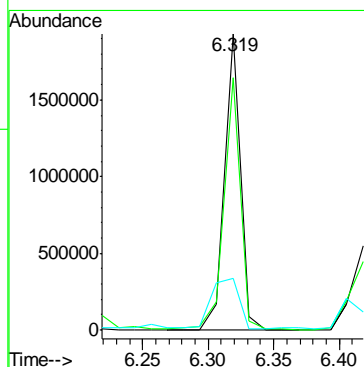
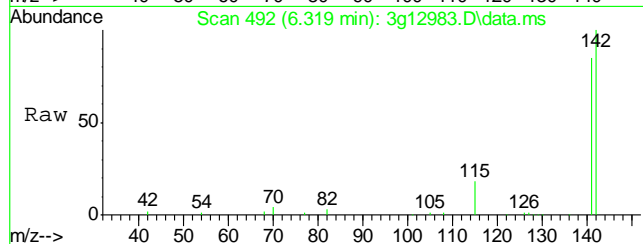
#7  
2-Fluorobiphenyl  
Concen: 30.4682 ug/mL  
RT: 6.676 min Scan# 521  
Delta R.T. 0.010 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

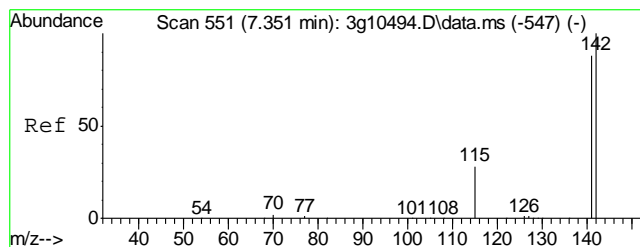
Tgt Ion	Ratio	Lower	Upper
172	100		
171	32.9	12.2	52.2



#8  
2-Methylnaphthalene  
Concen: 44.4763 ug/mL  
RT: 6.319 min Scan# 492  
Delta R.T. 0.008 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

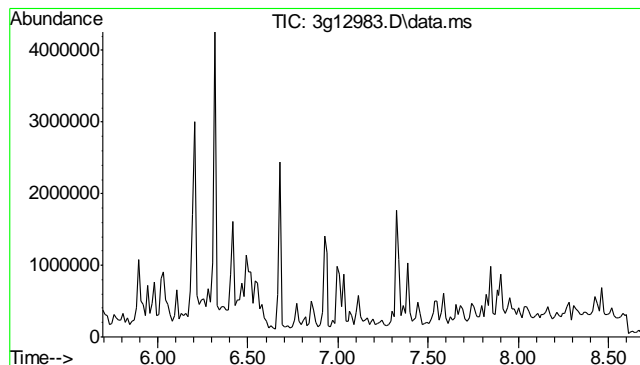
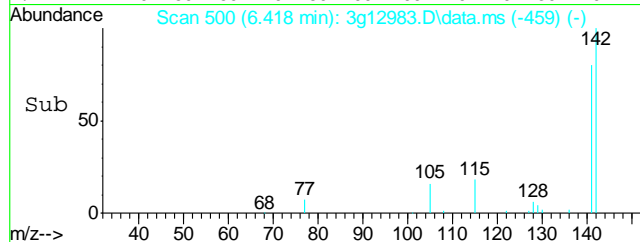
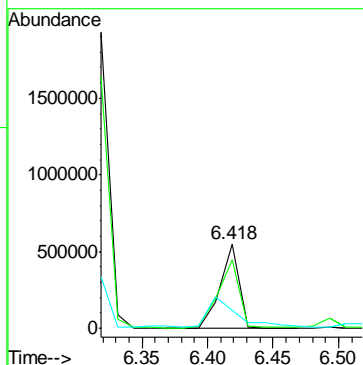
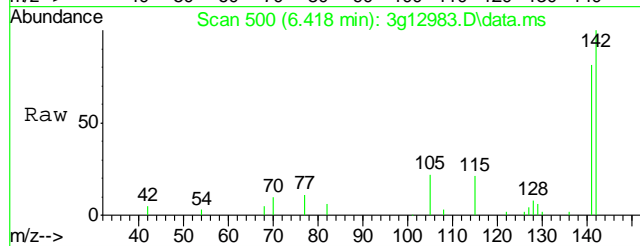
Tgt Ion	Ratio	Lower	Upper
142	100		
141	87.6	62.0	102.0
115	29.8	11.3	51.3





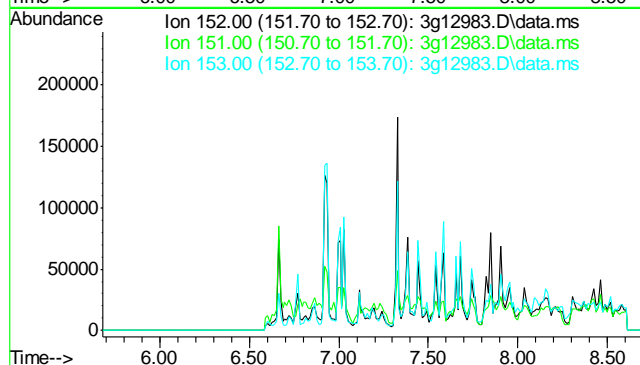
#9  
1-Methylnaphthalene  
Concen: 17.0292 ug/mL  
RT: 6.418 min Scan# 500  
Delta R.T. 0.008 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

Tgt Ion	Ratio	Lower	Upper
142	100		
141	91.0	67.5	107.5
115	53.5	19.4	59.4

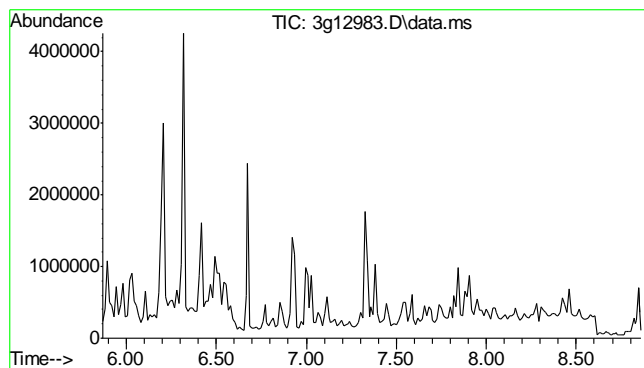


#10  
Acenaphthylene  
Concen: N.D. ug/mL  
Expected RT: 7.18 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

Tgt Ion	Sig	Exp Ratio
152	100	
151	19.2	
153	12.9	

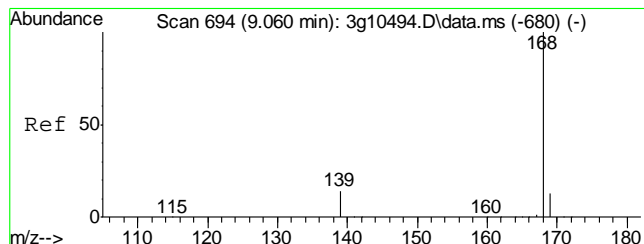
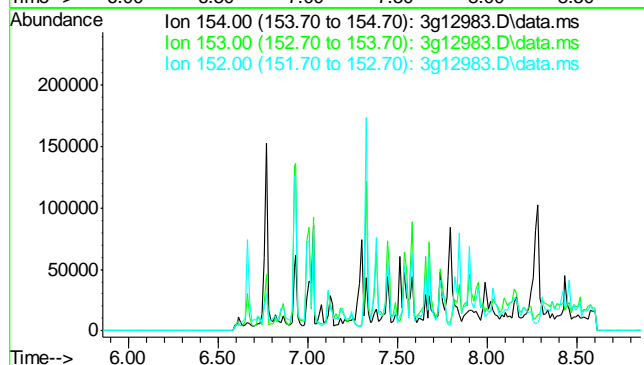






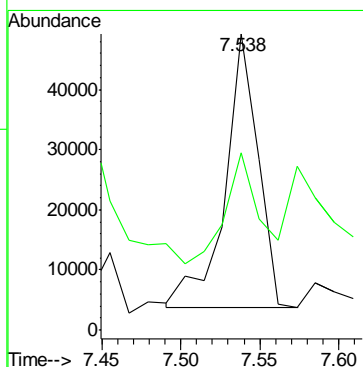
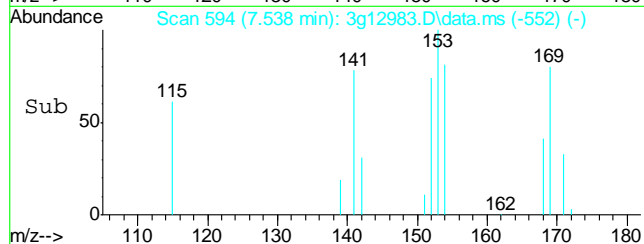
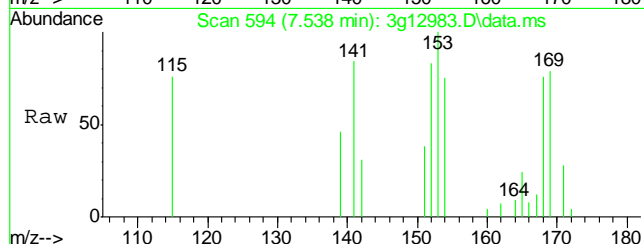
#11  
Acenaphthene  
Concen: N.D. ug/mL  
Expected RT: 7.36 min  
  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

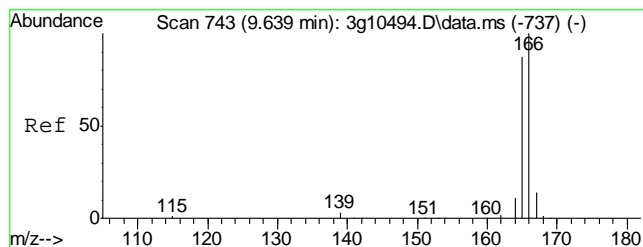
Tgt Ion: 154  
Sig Exp Ratio  
154 100  
153 102.4  
152 50.0



#12  
Dibenzofuran  
Concen: 1.1868 ug/mL  
RT: 7.538 min Scan# 594  
Delta R.T. 0.001 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

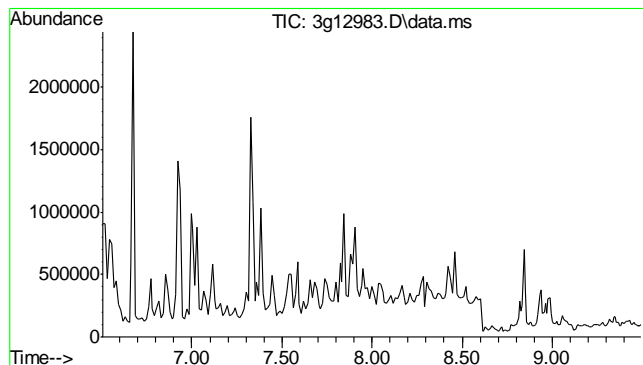
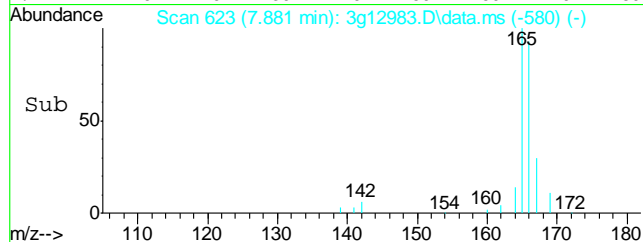
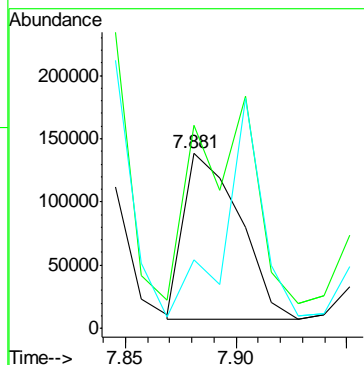
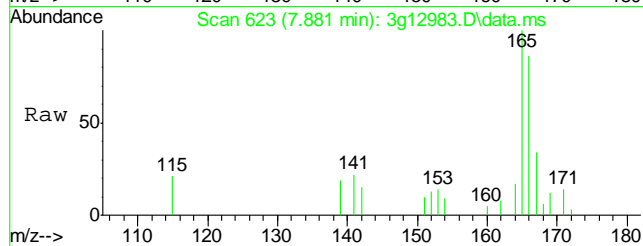
Tgt Ion: 168 Resp: 66520  
Ion Ratio Lower Upper  
168 100  
139 41.1 13.4 53.4





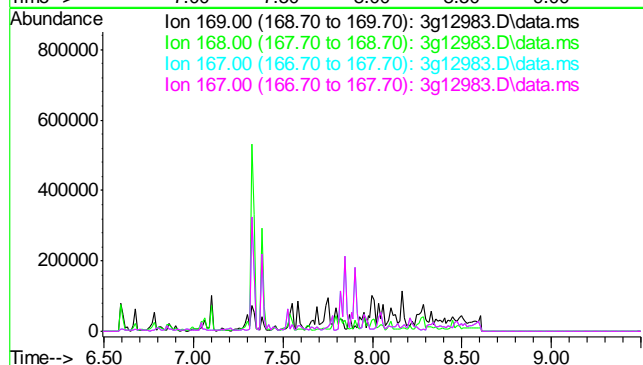
#13  
Fluorene  
Concen: 5.0267 ug/mL  
RT: 7.881 min Scan# 623  
Delta R.T. 0.014 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

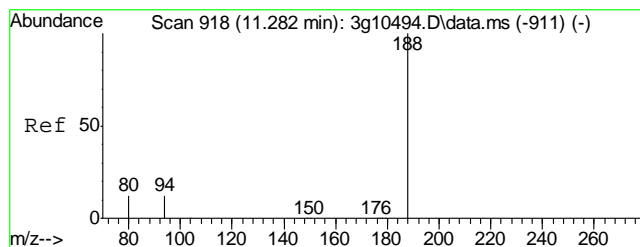
Tgt Ion	Ratio	Lower	Upper
166	100		
165	128.6	72.0	112.0#
167	94.1	0.0	33.1#



#14  
Diphenylamine  
Concen: N.D. ug/mL  
Expected RT: 8.00 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

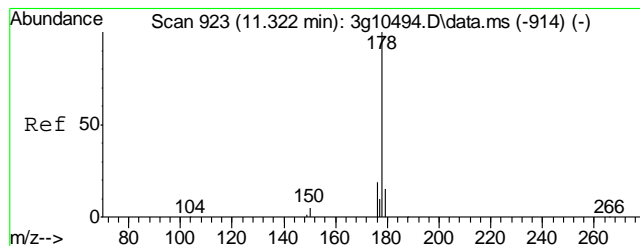
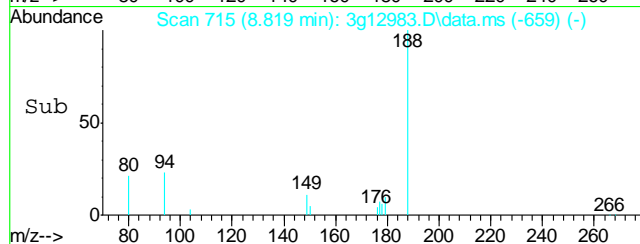
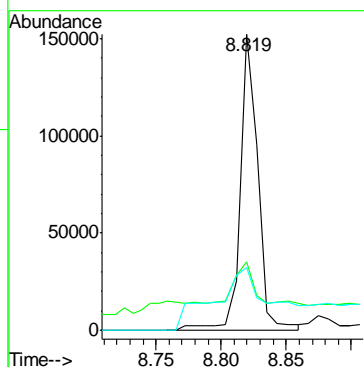
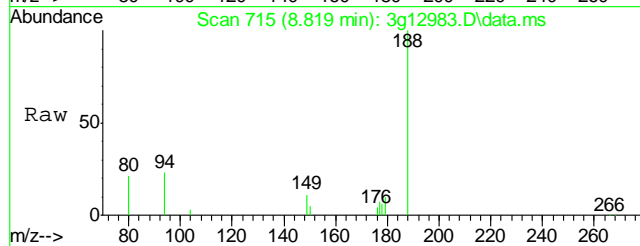
Tgt Ion	Sig	Exp Ratio
169	100	
168	61.7	
167	34.1	
167	34.1	





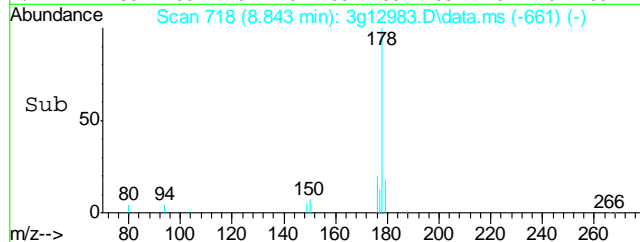
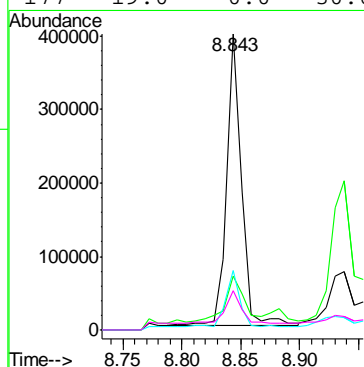
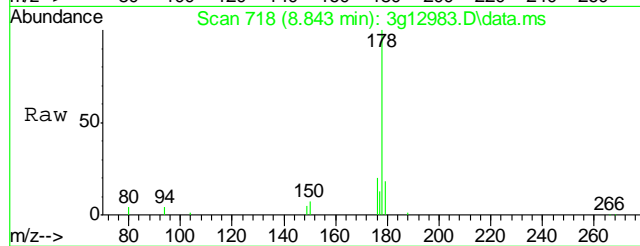
#15  
Phenanthrene-d10  
Concen: 4.0000 ug/mL  
RT: 8.819 min Scan# 715  
Delta R.T. 0.008 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

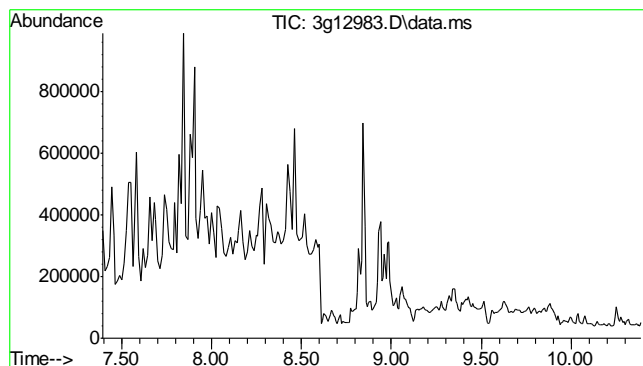
Tgt Ion	Ratio	Lower	Upper
188	100		
94	21.4	0.0	26.9
80	71.5	0.0	26.3



#16  
Phenanthrene  
Concen: 6.2887 ug/mL  
RT: 8.843 min Scan# 718  
Delta R.T. 0.008 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

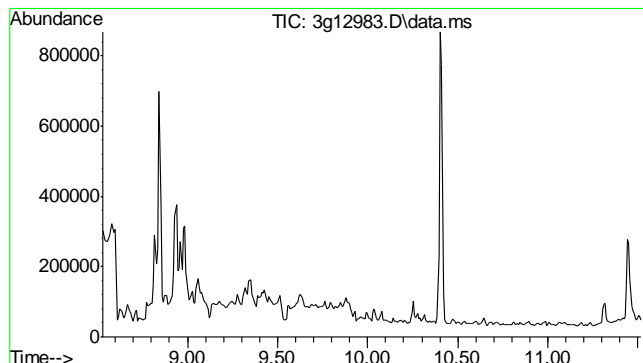
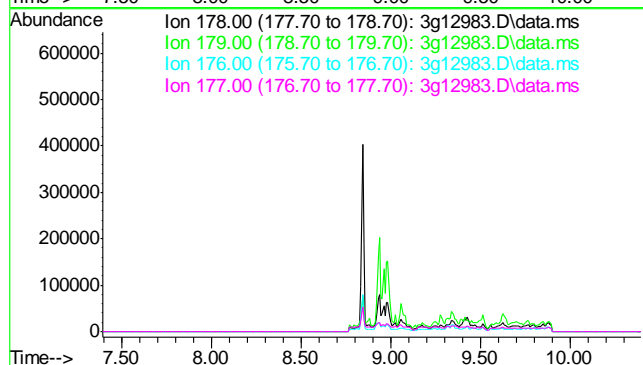
Tgt Ion	Ratio	Lower	Upper
178	100		
179	32.8	0.0	35.2
176	28.3	0.0	38.6
177	19.0	0.0	30.0





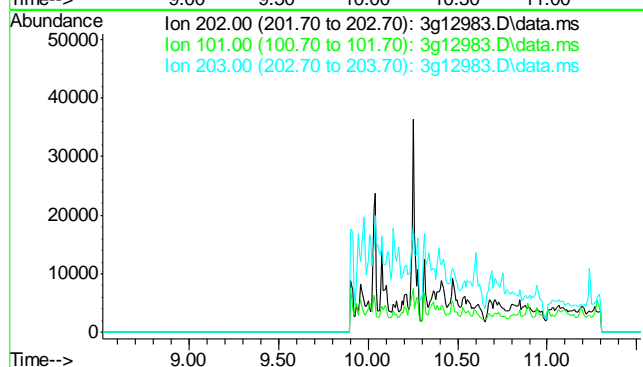
#17  
 Anthracene  
 Concen: N.D. ug/mL  
 Expected RT: 8.89 min  
 Lab File: 3g12983.D  
 Acq: 15 Jan 13 2:17 pm

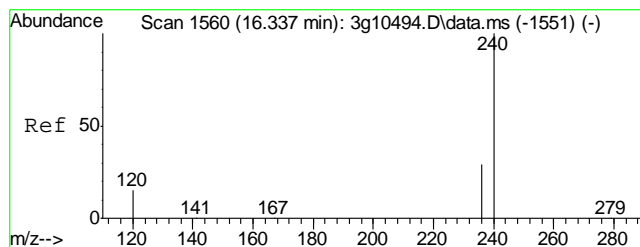
Tgt Ion	Sig	Exp Ratio
178	100	
179	15.1	
176	18.2	
177	8.7	



#18  
 Fluoranthene  
 Concen: N.D. ug/mL  
 Expected RT: 10.02 min  
 Lab File: 3g12983.D  
 Acq: 15 Jan 13 2:17 pm

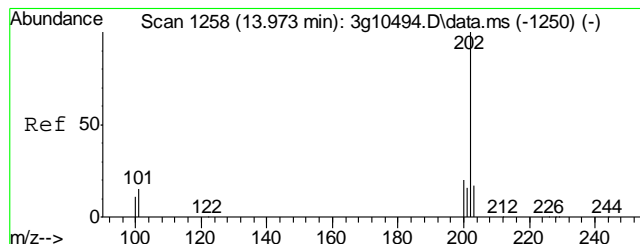
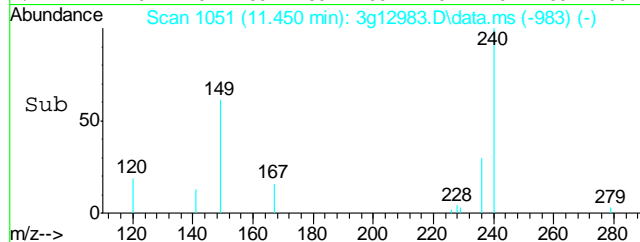
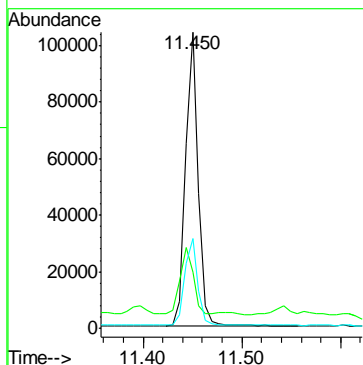
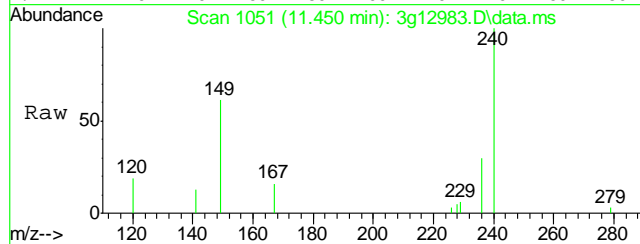
Tgt Ion	Sig	Exp Ratio
202	100	
101	12.6	
203	17.4	





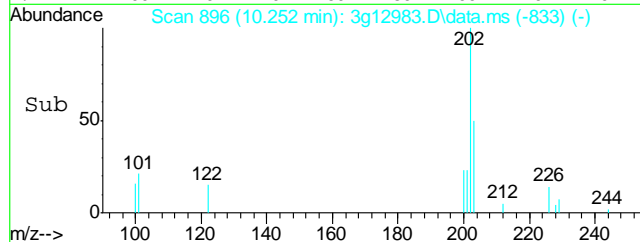
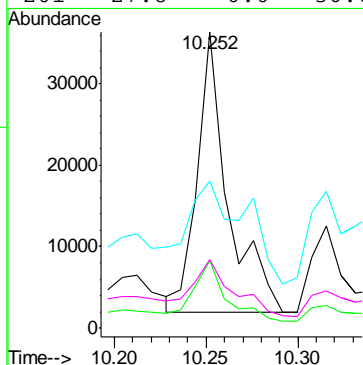
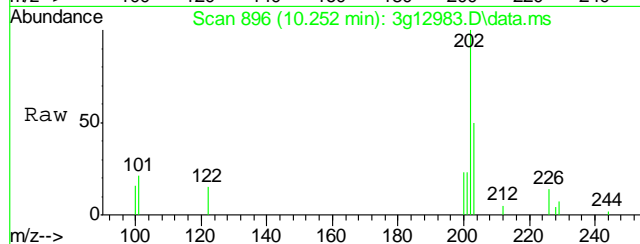
#19  
Chrysene-d12  
Concen: 4.0000 ug/mL  
RT: 11.450 min Scan# 1051  
Delta R.T. 0.007 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

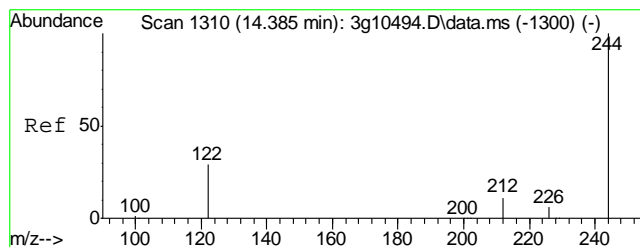
Tgt Ion:	240	Resp:	93535
Ion Ratio	Lower	Upper	
240	100		
120	24.8	0.0	37.3
236	30.5	11.2	51.2



#20  
Pyrene  
Concen: 0.7941 ug/mL  
RT: 10.252 min Scan# 896  
Delta R.T. 0.002 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

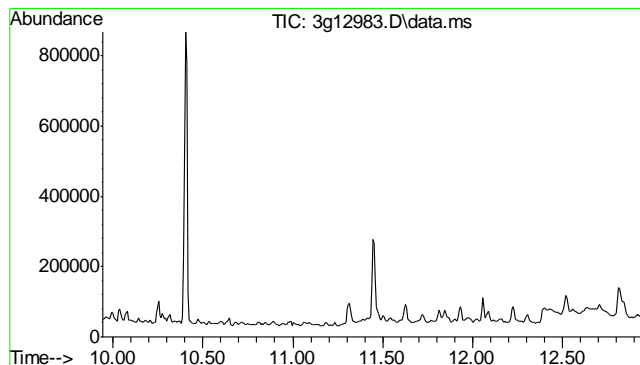
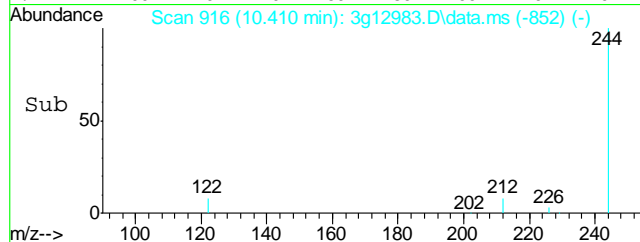
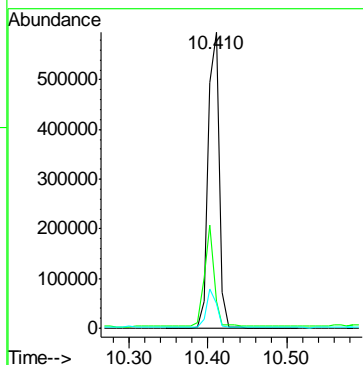
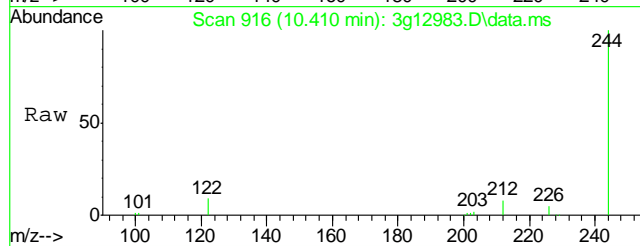
Tgt Ion:	202	Resp:	39664
Ion Ratio	Lower	Upper	
202	100		
200	23.6	0.2	40.2
203	68.5	0.0	37.8#
201	27.8	0.0	36.6





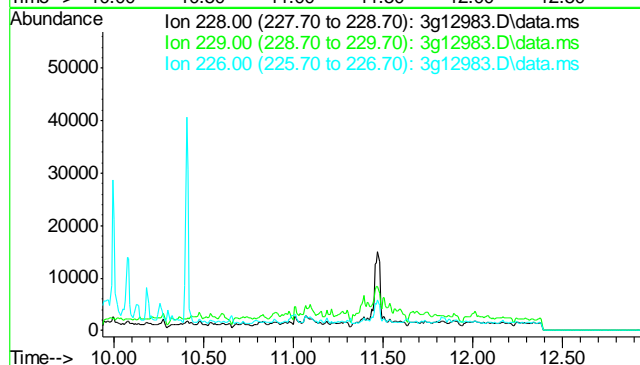
#21  
Terphenyl-d14  
Concen: 45.6523 ug/mL  
RT: 10.410 min Scan# 916  
Delta R.T. 0.010 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

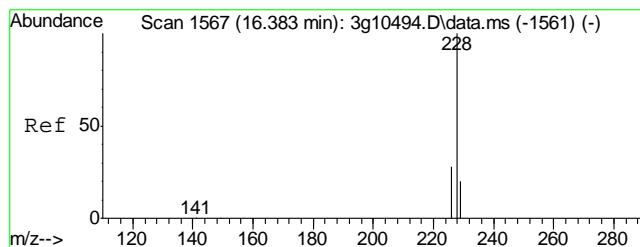
Tgt Ion:	244	Resp:	581028
Ion Ratio	Lower	Upper	
244	100		
122	29.9	7.8	47.8
212	11.8	0.0	32.8



#22  
Benzo(a)anthracene  
Concen: N.D. ug/mL  
Expected RT: 11.44 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

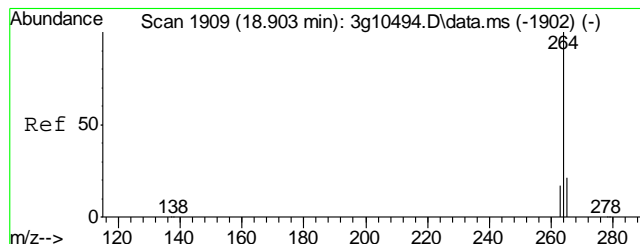
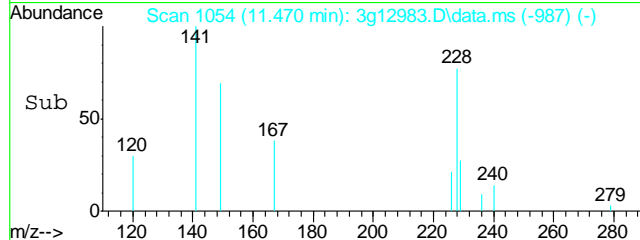
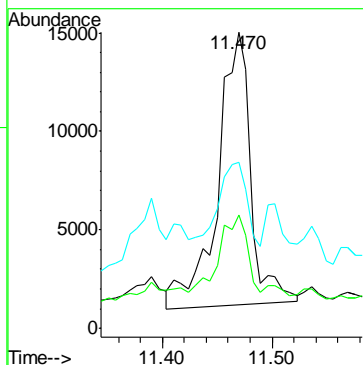
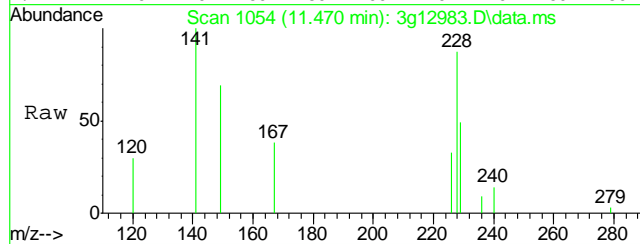
Tgt Ion:	228
Sig	Exp Ratio
228	100
229	19.4
226	26.6





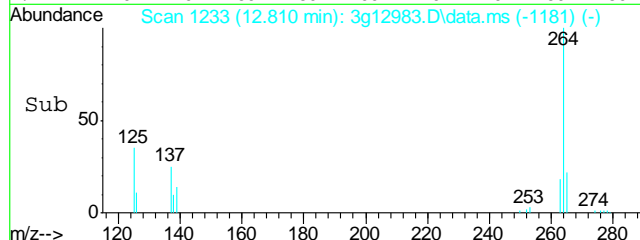
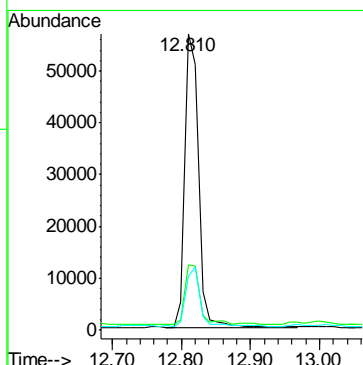
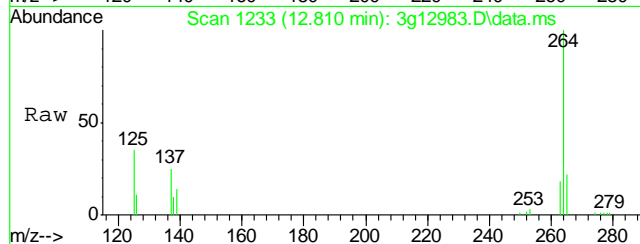
#23  
Chrysene  
Concen: 0.6453 ug/mL  
RT: 11.470 min Scan# 1054  
Delta R.T. 0.000 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

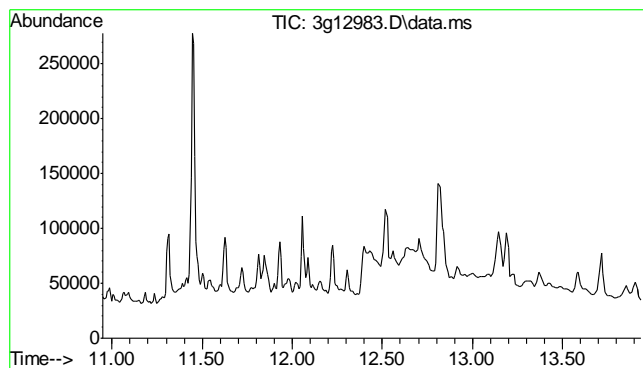
Tgt Ion	Ratio	Lower	Upper
228	100		
226	28.1	8.6	48.6
229	27.9	0.0	39.4



#24  
Perylene-d12  
Concen: 4.0000 ug/mL  
RT: 12.810 min Scan# 1233  
Delta R.T. -0.000 min  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

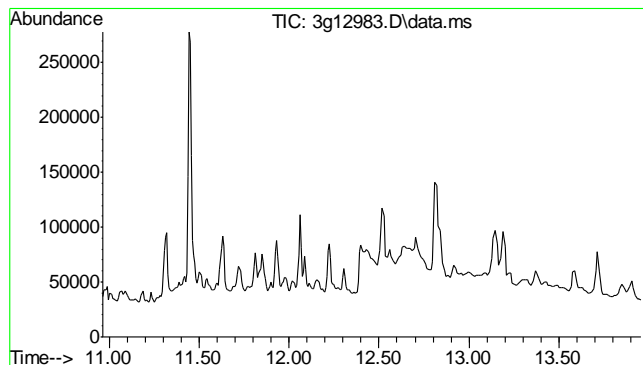
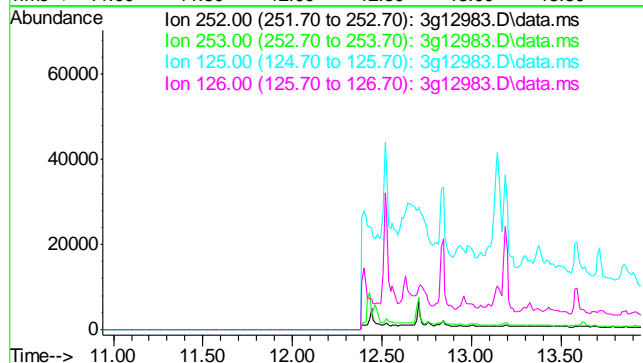
Tgt Ion	Ratio	Lower	Upper
264	100		
265	22.6	0.6	40.6
263	20.7	0.0	38.8





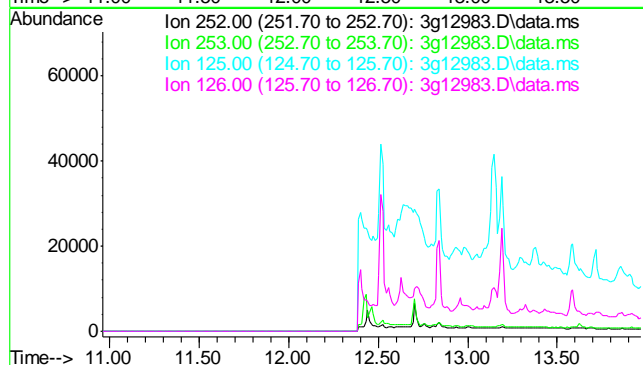
#25  
Benzo(b)fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 12.44 min  
  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

Tgt Ion	Exp Ratio
252	100
253	51.5
125	13.2
126	46.9

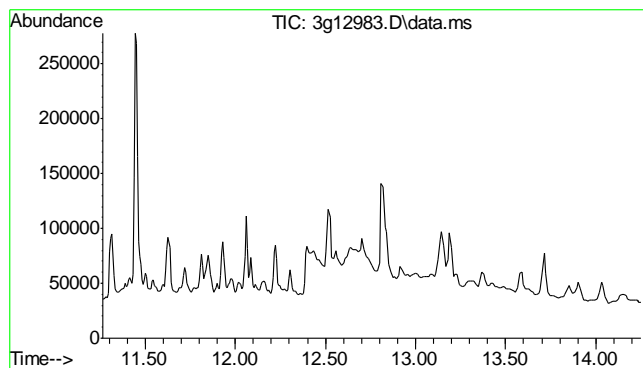


#26  
Benzo(k)fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 12.46 min  
  
Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

Tgt Ion	Exp Ratio
252	100
253	37.3
125	9.6
126	34.1

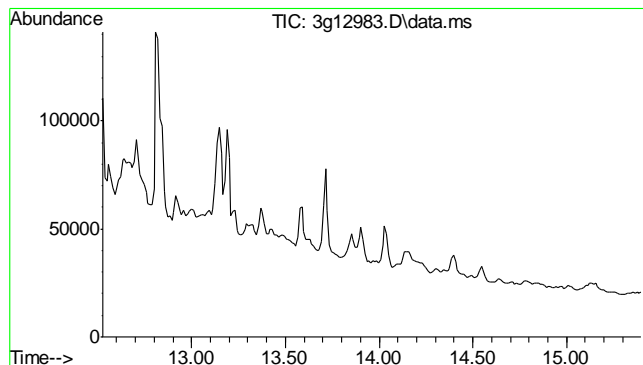
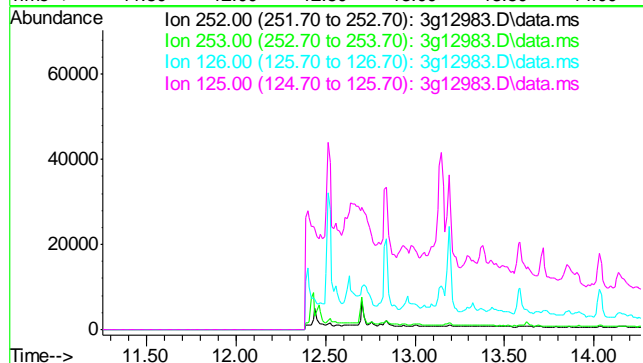






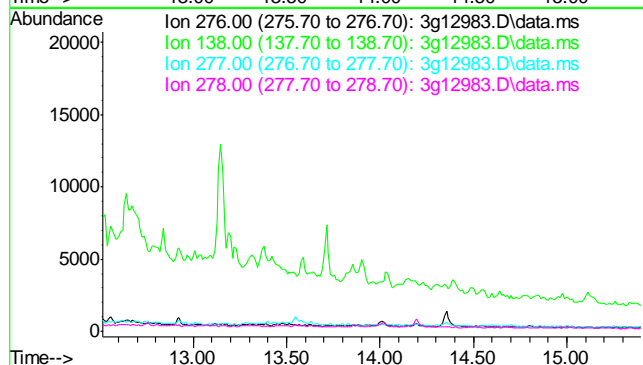
#27  
 Benzo(a)pyrene  
 Concen: N.D. ug/mL  
 Expected RT: 12.76 min  
  
 Lab File: 3g12983.D  
 Acq: 15 Jan 13 2:17 pm

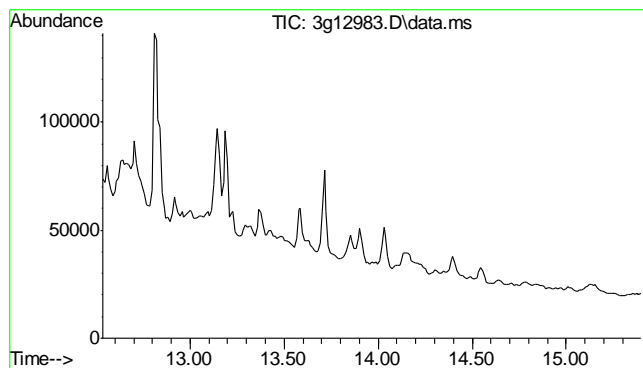
Tgt Ion	Sig	Exp Ratio
252	100	
253	21.5	
126	20.4	
125	14.5	



#28  
 Indeno(1,2,3-cd)pyrene  
 Concen: N.D. ug/mL  
 Expected RT: 14.02 min  
  
 Lab File: 3g12983.D  
 Acq: 15 Jan 13 2:17 pm

Tgt Ion	Sig	Exp Ratio
276	100	
138	40.0	
277	24.8	
278	76.2	

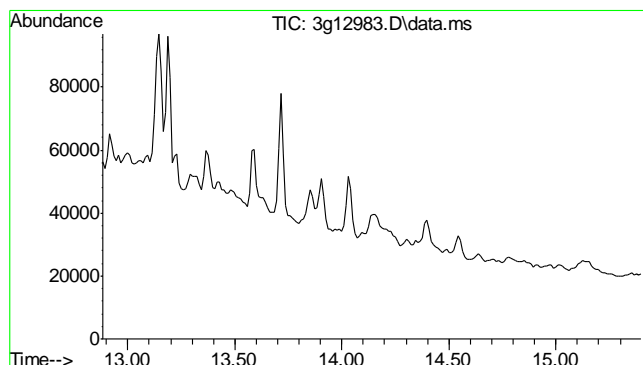
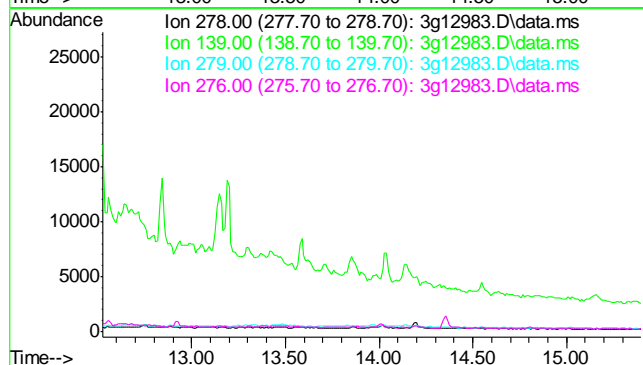




#29  
Dibenz(a,h)anthracene  
Concen: N.D. ug/mL  
Expected RT: 14.03 min

Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

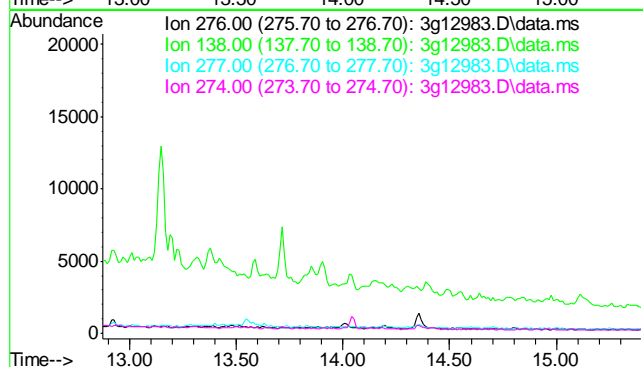
Tgt Ion	Exp Ratio
278	100
139	30.8
279	22.9
276	131.2



#30  
Benzo(g,h,i)perylene  
Concen: N.D. ug/mL  
Expected RT: 14.37 min

Lab File: 3g12983.D  
Acq: 15 Jan 13 2:17 pm

Tgt Ion	Exp Ratio
276	100
138	35.1
277	23.3
274	21.5



## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\011513\  
 Data File : 3g12973.D  
 Acq On : 15 Jan 2013 10:14 am  
 Operator : DONC  
 Sample : OP7223-MB  
 Misc : OP7223,E3G621,30.00,,,1,1  
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 15 13:46:44 2013  
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G611.M  
 Quant Title : PAHSIM BASE  
 QLast Update : Thu Jan 10 14:18:35 2013  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.621	136	122903	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.337	164	71901	4.0000	ug/mL	0.01
15) Phenanthrene-d10	8.812	188	128999	4.0000	ug/mL	0.00
19) Chrysene-d12	11.443	240	101544	4.0000	ug/mL	0.00
24) Perylene-d12	12.810	264	84293	4.0000	ug/mL	0.00

## System Monitoring Compounds

2) Nitrobenzene-d5	4.935	82	445750	40.3218	ug/mL	-0.01
Spiked Amount 50.000	Range 25 - 135		Recovery =	80.64%		
7) 2-Fluorobiphenyl	6.676	172	1170373	42.6075	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	85.22%		
21) Terphenyl-d14	10.402	244	725496	52.5073	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	105.02%		

## Target Compounds

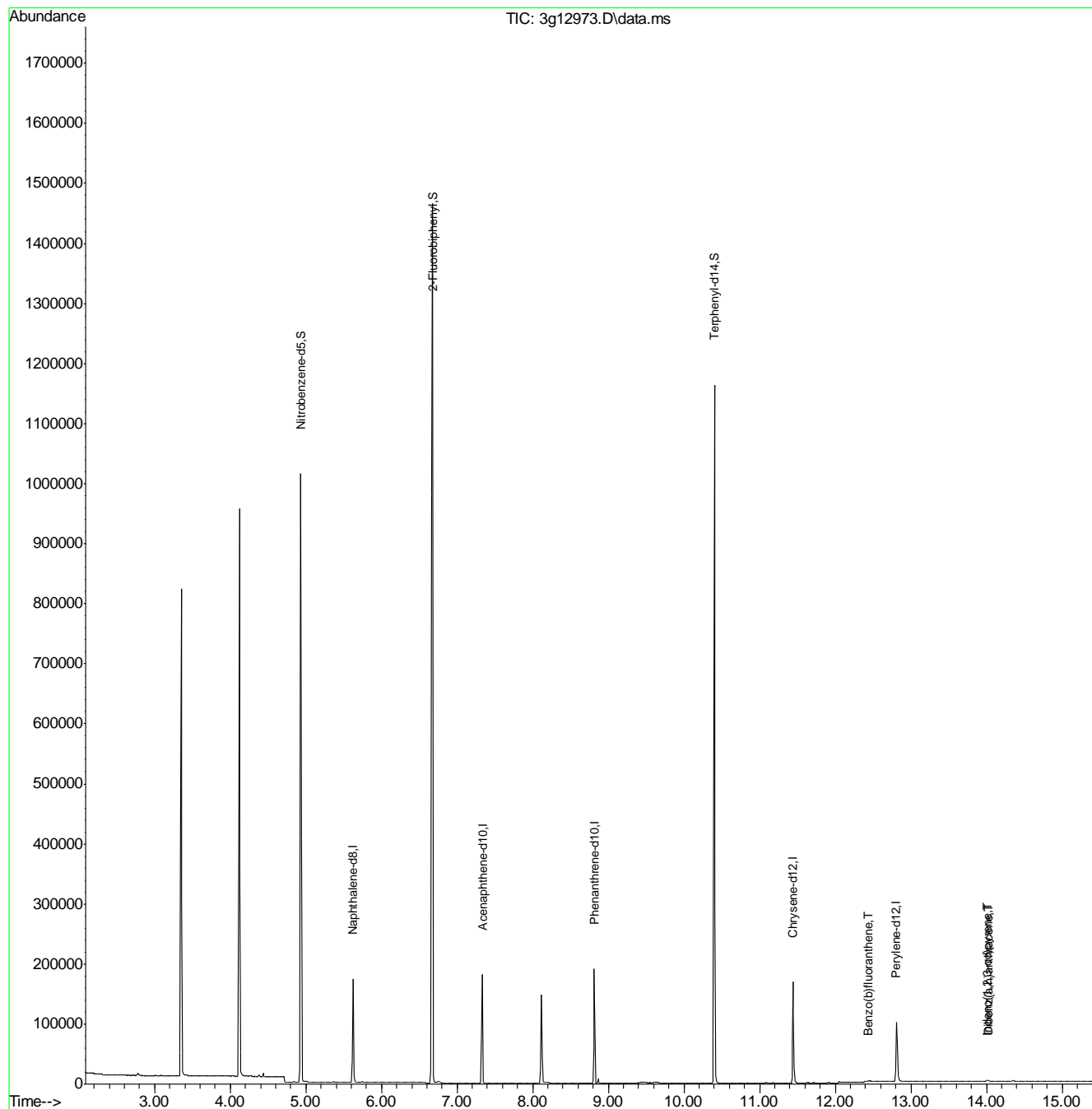
					Qvalue	
3) N-Nitrosodimethylamine	2.356	74	24	N.D.		
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d	
5) Naphthalene	5.646	128	183	Below	Cal # 48	
8) 2-Methylnaphthalene	6.319	142	186	N.D.		
9) 1-Methylnaphthalene	6.394	142	78	N.D.		
10) Acenaphthylene	7.396	152	202	N.D.		
11) Acenaphthene	7.385	154	61	N.D.		
12) Dibenzofuran	7.857	168	73	N.D.		
13) Fluorene	0.000	166	0	N.D.	d	
14) Diphenylamine	0.000	169	0	N.D.	d	
16) Phenanthrene	8.812	178	152	N.D.		
17) Anthracene	8.891	178	39	N.D.		
18) Fluoranthene	10.015	202	205	N.D.		
20) Pyrene	10.244	202	152	N.D.		
22) Benzo(a)anthracene	11.437	228	1041	N.D.		
23) Chrysene	11.470	228	877	N.D.		
25) Benzo(b)fluoranthene	12.442	252	1135m	0.0649	ug/mL	
26) Benzo(k)fluoranthene	12.463	252	1206	N.D.		
27) Benzo(a)pyrene	0.000	252	0	N.D.	d	
28) Indeno(1,2,3-cd)pyrene	14.009	276	1461	0.0777	ug/mL	89
29) Dibenz(a,h)anthracene	14.019	278	1174	0.0897	ug/mL	92
30) Benzo(g,h,i)perylene	14.356	276	1418	N.D.		

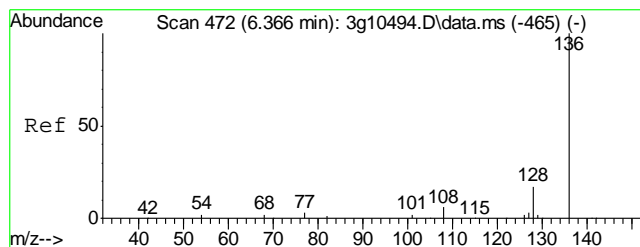
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\011513\  
Data File : 3g12973.D  
Acq On : 15 Jan 2013 10:14 am  
Operator : DONC  
Sample : OP7223-MB  
Misc : OP7223,E3G621,30.00,,,1,1  
ALS Vial : 4 Sample Multiplier: 1

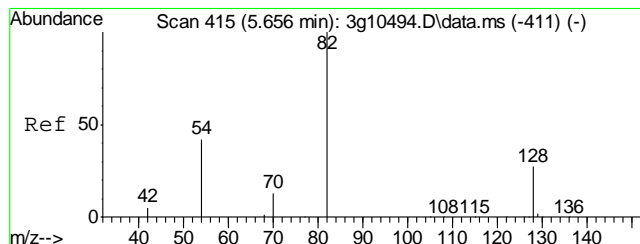
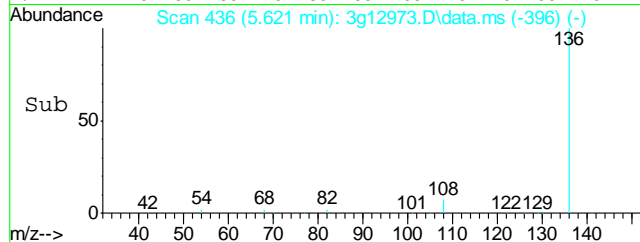
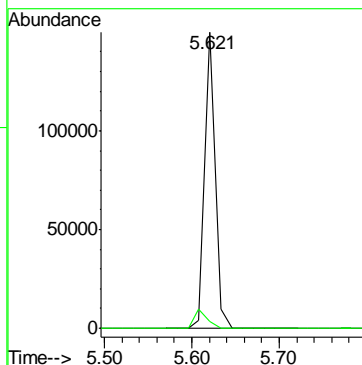
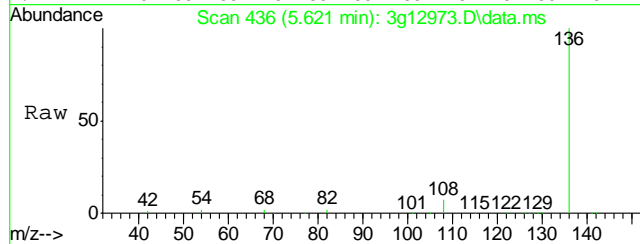
Quant Time: Jan 15 13:46:44 2013  
Quant Method : C:\msdchem\1\METHODS\SIMPE3G611.M  
Quant Title : PAHSIM BASE  
QLast Update : Thu Jan 10 14:18:35 2013  
Response via : Initial Calibration





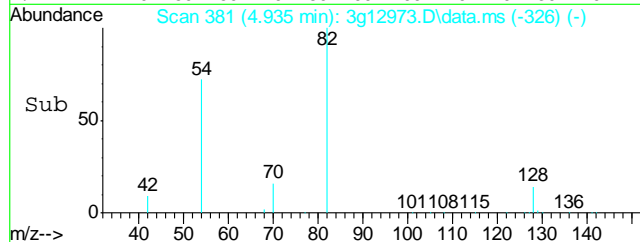
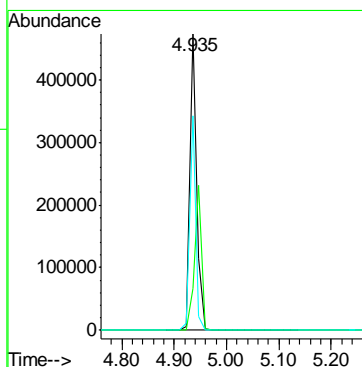
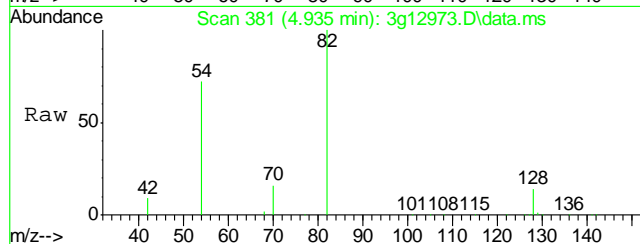
#1  
Naphthalene-d8  
Concen: 4.0000 ug/mL  
RT: 5.621 min Scan# 436  
Delta R.T. 0.000 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

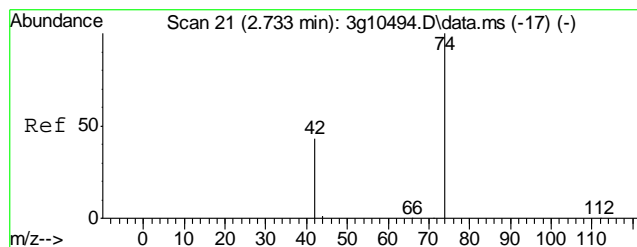
Tgt Ion:	136	Resp:	122903
Ion Ratio	Lower	Upper	
136	100		
68	7.9	0.0	20.8



#2  
Nitrobenzene-d5  
Concen: 40.3218 ug/mL  
RT: 4.935 min Scan# 381  
Delta R.T. -0.014 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

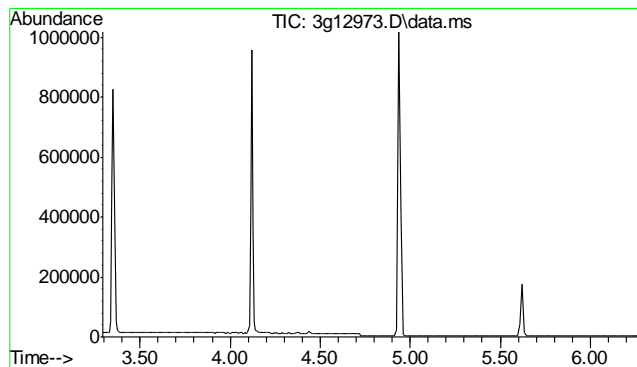
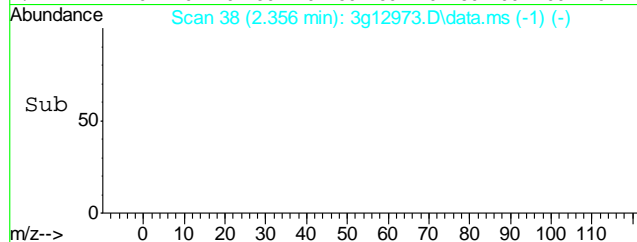
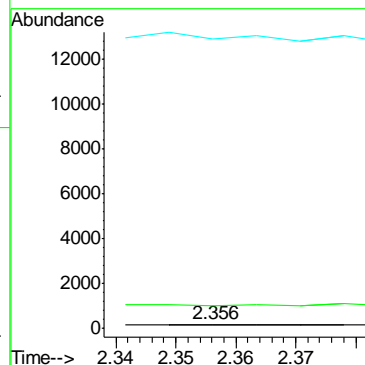
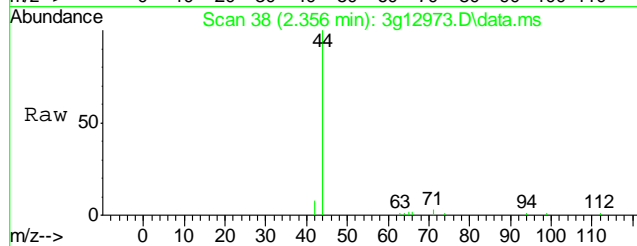
Tgt Ion:	82	Resp:	445750
Ion Ratio	Lower	Upper	
82	100		
128	50.4	36.8	76.8
54	62.9	40.5	80.5





#3  
N-Nitrosodimethylamine  
Concen: Below ug/mL  
RT: 2.356 min Scan# 38  
Delta R.T. 0.020 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

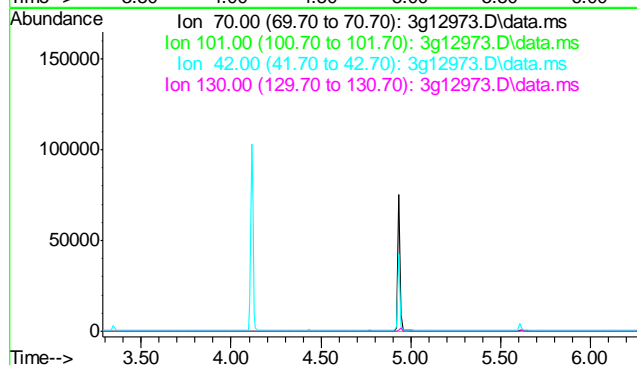
Tgt Ion: 74 Resp: 24  
Ion Ratio Lower Upper  
74 100  
42 0.0 58.5 98.5#  
44 0.0 0.0 24.0

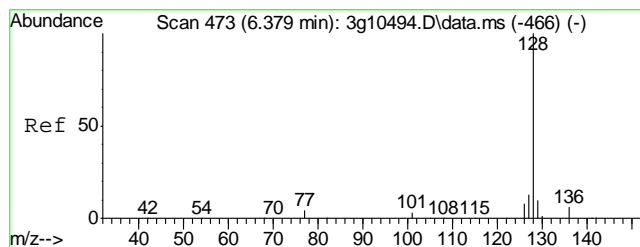


#4  
N-Nitrosodi-propylamine  
Concen: N.D. ug/mL  
Expected RT: 4.79 min

Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

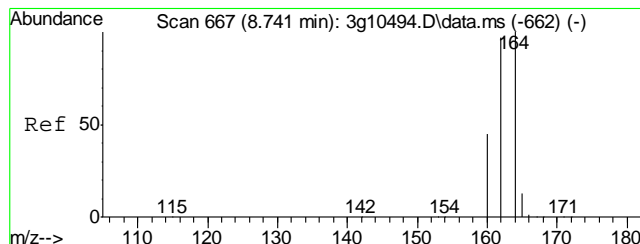
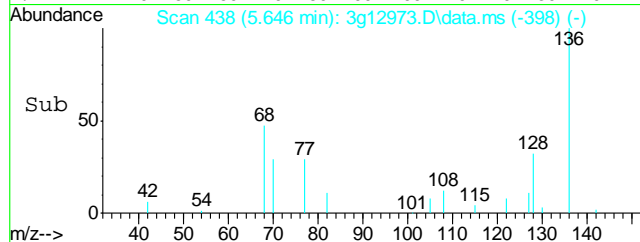
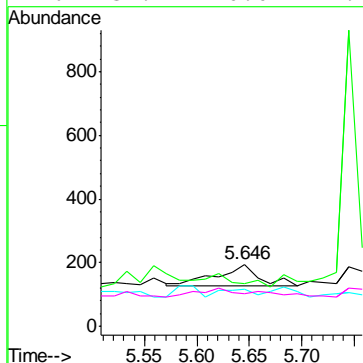
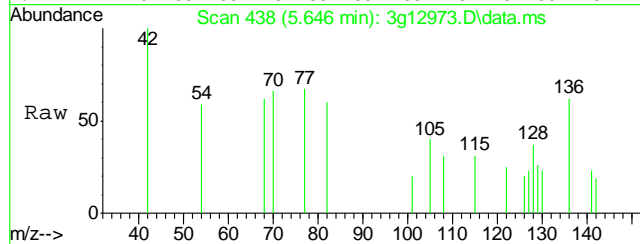
Tgt Ion: 70  
Sig Exp Ratio  
70 100  
101 11.9  
42 57.4  
130 21.7





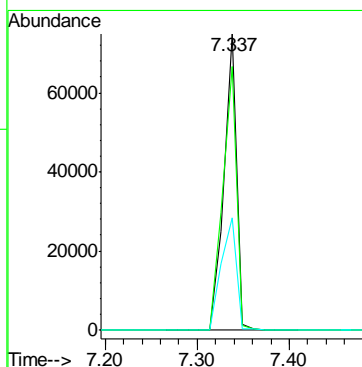
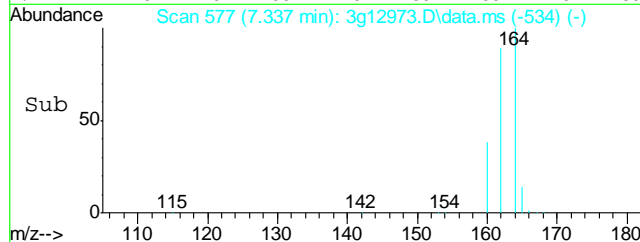
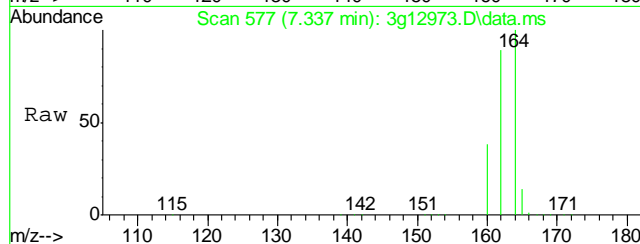
#5  
Naphthalene  
Concen: Below ug/mL  
RT: 5.646 min Scan# 438  
Delta R.T. 0.001 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

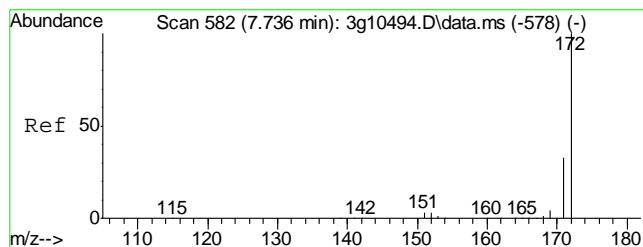
Tgt Ion	128	Resp	183
Ion Ratio	100		
Lower		0.0	31.2
Upper		32.4#	
	37.2	0.0	27.2#



#6  
Acenaphthene-d10  
Concen: 4.0000 ug/mL  
RT: 7.337 min Scan# 577  
Delta R.T. 0.012 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

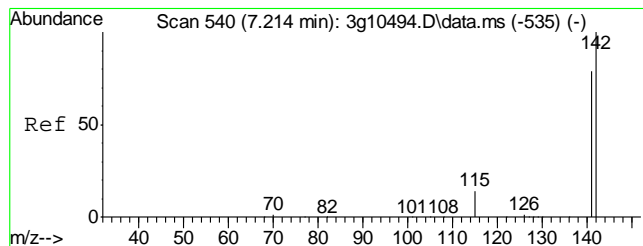
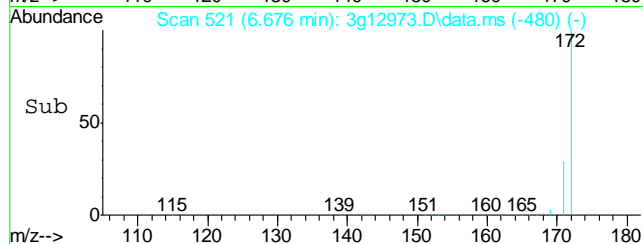
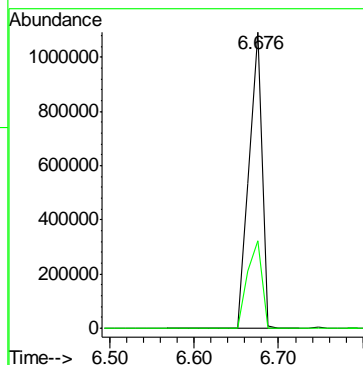
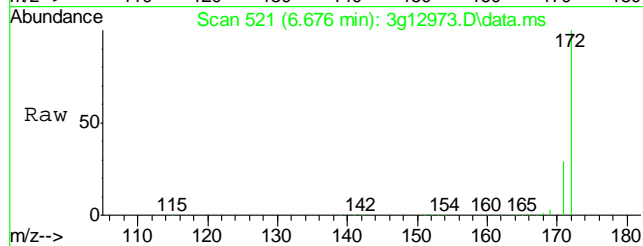
Tgt Ion	164	Resp	71901
Ion Ratio <td>100</td> <td></td> <td></td>	100		
Lower <td></td> <td>88.1</td> <td>128.1</td>		88.1	128.1
Upper <td></td> <td>78.8</td> <td></td>		78.8	





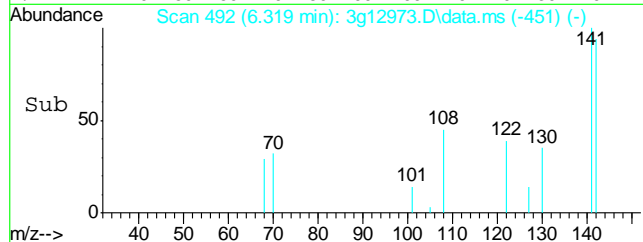
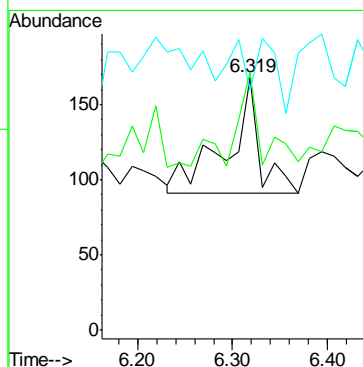
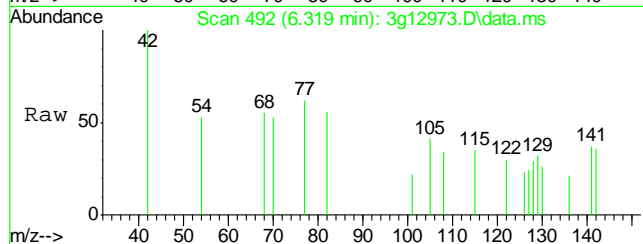
#7  
2-Fluorobiphenyl  
Concen: 42.6075 ug/mL  
RT: 6.676 min Scan# 521  
Delta R.T. 0.010 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

Tgt Ion:172 Resp: 1170373  
Ion Ratio Lower Upper  
172 100  
171 32.8 12.2 52.2

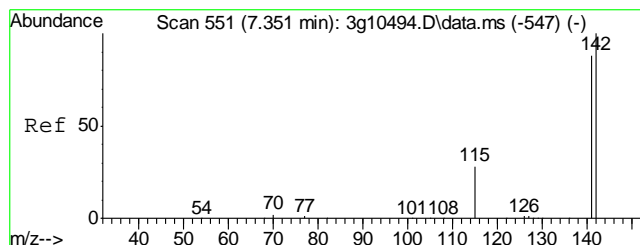


#8  
2-Methylnaphthalene  
Concen: Below ug/mL  
RT: 6.319 min Scan# 492  
Delta R.T. 0.008 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

Tgt Ion:142 Resp: 186  
Ion Ratio Lower Upper  
142 100  
141 66.1 62.0 102.0  
115 0.0 11.3 51.3#

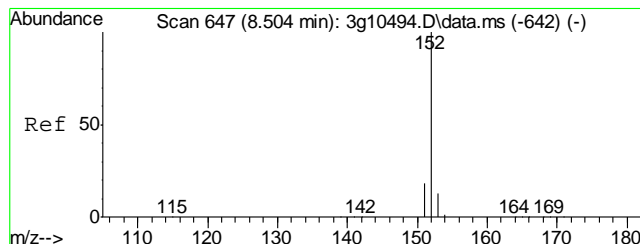
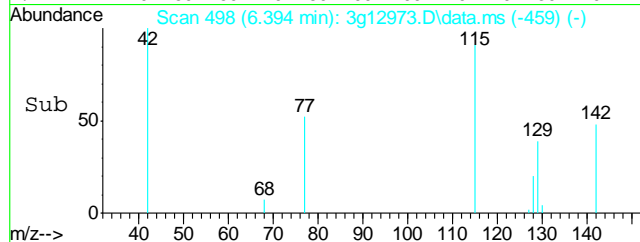
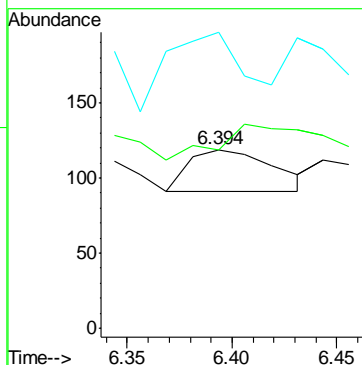
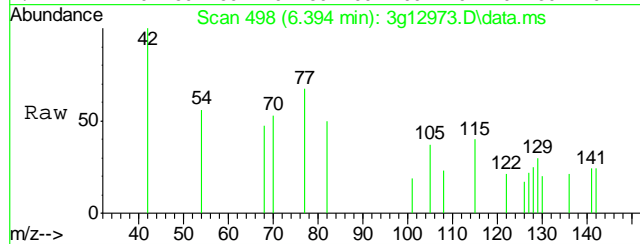






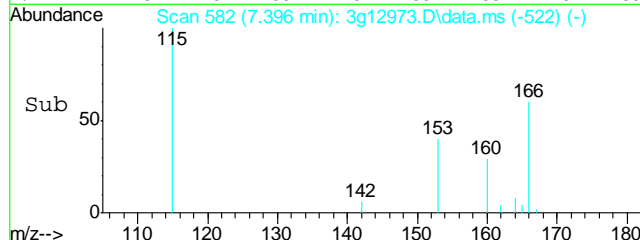
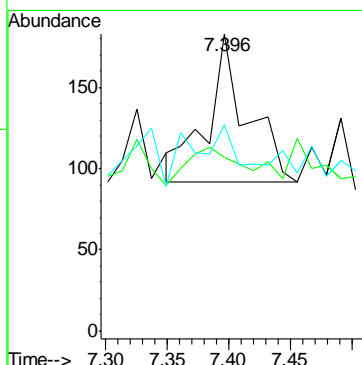
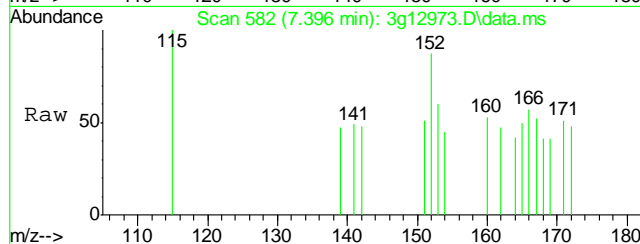
#9  
1-Methylnaphthalene  
Concen: Below ug/mL  
RT: 6.394 min Scan# 498  
Delta R.T. -0.017 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

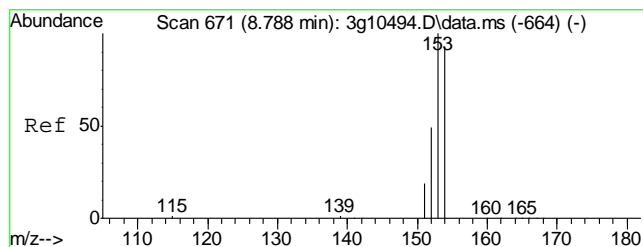
Tgt Ion:142	Resp:	78
Ion Ratio	Lower	Upper
142	100	
141	223.1	67.5 107.5#
115	0.0	19.4 59.4#



#10  
Acenaphthylene  
Concen: Below ug/mL  
RT: 7.396 min Scan# 582  
Delta R.T. 0.212 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

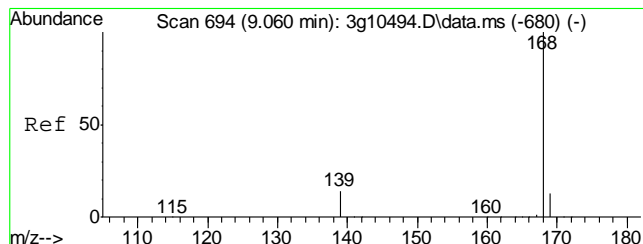
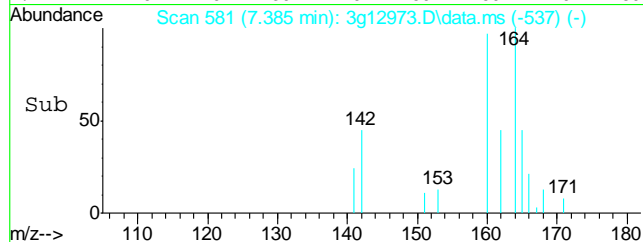
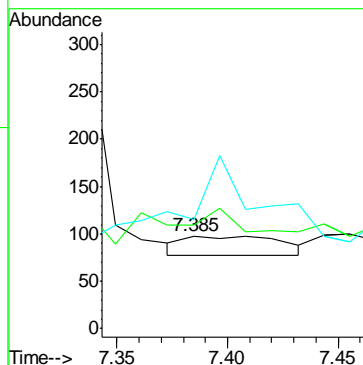
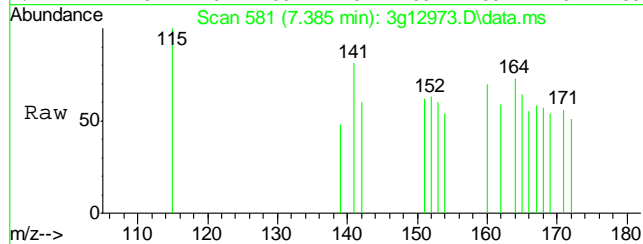
Tgt Ion:152	Resp:	202
Ion Ratio	Lower	Upper
152	100	
151	32.2	0.0 39.2
153	25.7	0.0 32.9





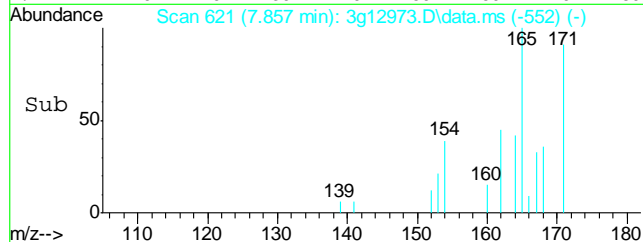
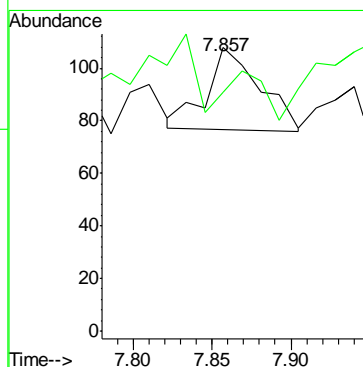
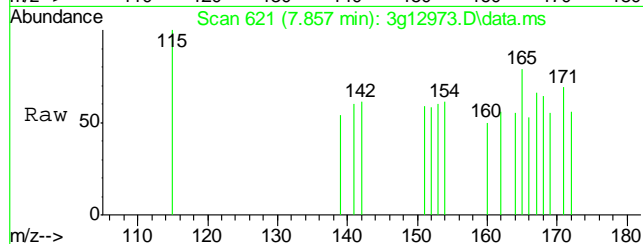
#11  
Acenaphthene  
Concen: Below ug/mL  
RT: 7.385 min Scan# 581  
Delta R.T. 0.024 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

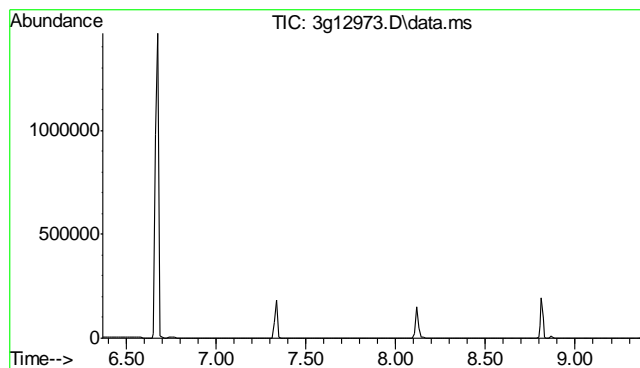
Tgt Ion:	154	Resp:	61
Ion Ratio	Lower	Upper	
154	100		
153	85.2	82.4	122.4
152	331.1	30.0	70.0#



#12  
Dibenzofuran  
Concen: Below ug/mL  
RT: 7.857 min Scan# 621  
Delta R.T. 0.320 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

Tgt Ion:	168	Resp:	73
Ion Ratio	Lower	Upper	
168	100		
139	32.9	13.4	53.4

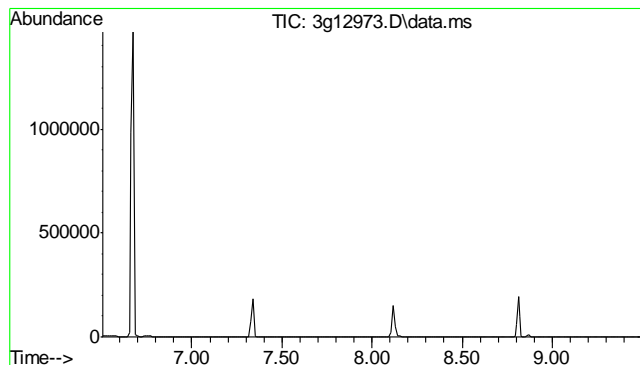
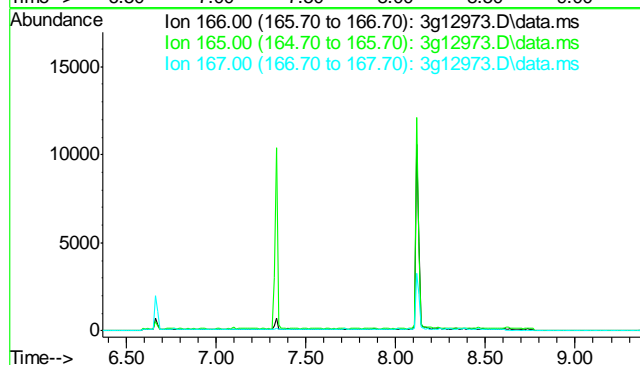




#13  
Fluorene  
Concen: N.D. ug/mL  
Expected RT: 7.87 min

Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

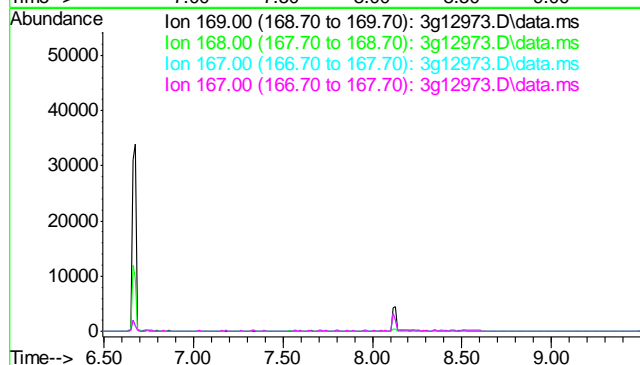
Tgt Ion:	166
Sig	Exp Ratio
166	100
165	92.0
167	13.1

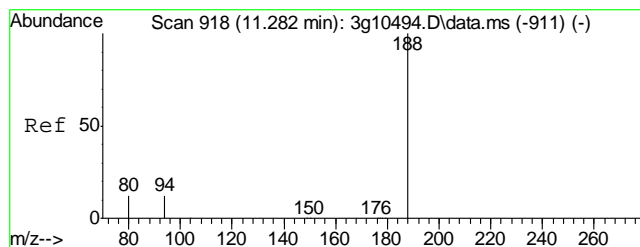


#14  
Diphenylamine  
Concen: N.D. ug/mL  
Expected RT: 8.00 min

Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

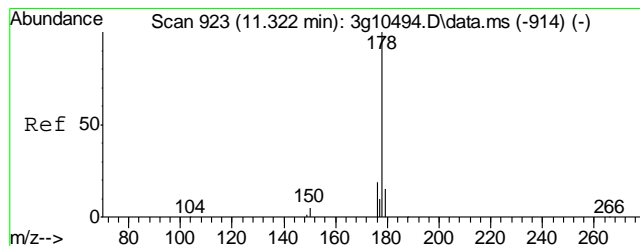
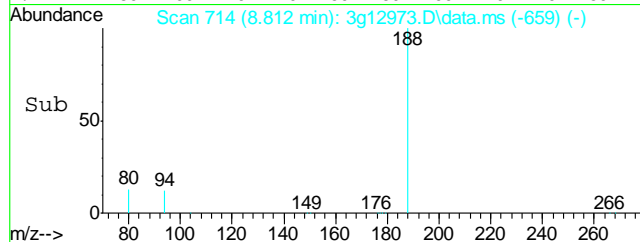
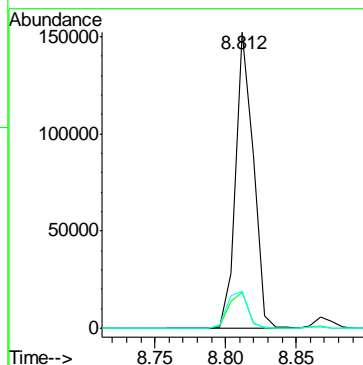
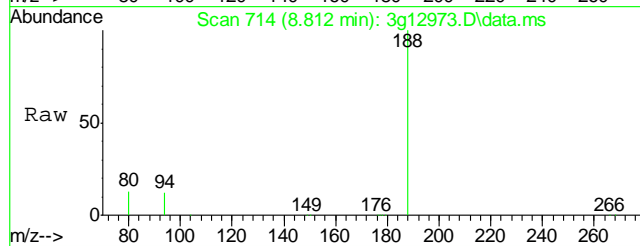
Tgt Ion:	169
Sig	Exp Ratio
169	100
168	61.7
167	34.1
167	34.1





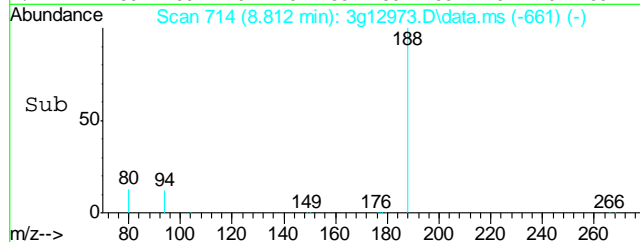
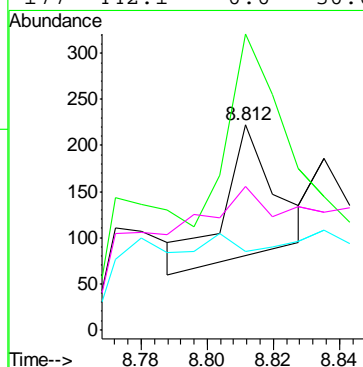
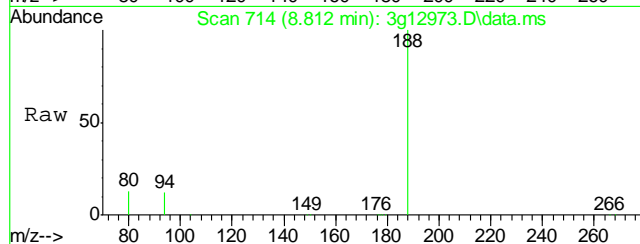
#15  
Phenanthrene-d10  
Concen: 4.0000 ug/mL  
RT: 8.812 min Scan# 714  
Delta R.T. 0.000 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

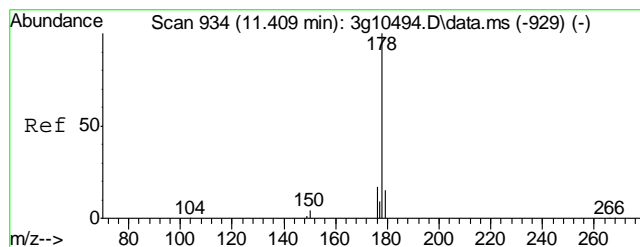
Tgt Ion	188	94	80
Resp	128999		
Ratio	100	13.6	14.9
Lower		0.0	0.0
Upper		26.9	26.3



#16  
Phenanthrene  
Concen: Below ug/mL  
RT: 8.812 min Scan# 714  
Delta R.T. -0.024 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

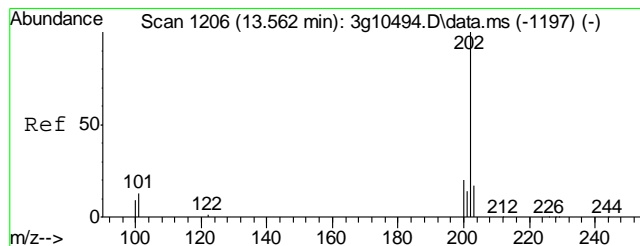
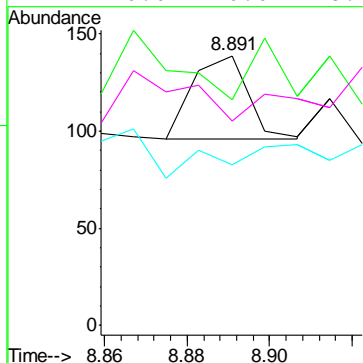
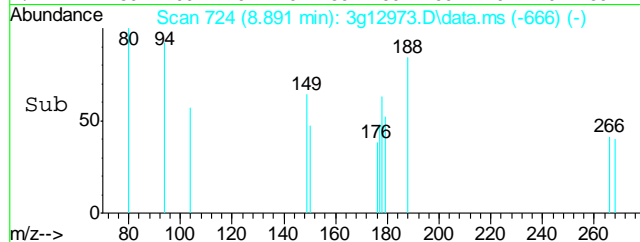
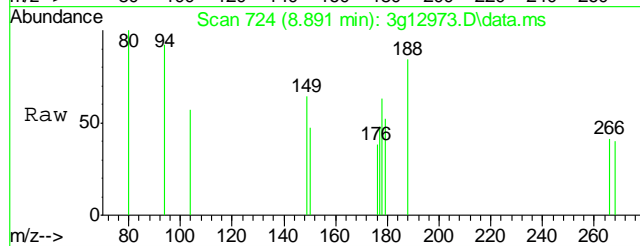
Tgt Ion	178	179	176	177
Resp	152			
Ratio	100	213.8	159.2	442.1
Lower		0.0	0.0	0.0
Upper		35.2#	38.6#	30.0#





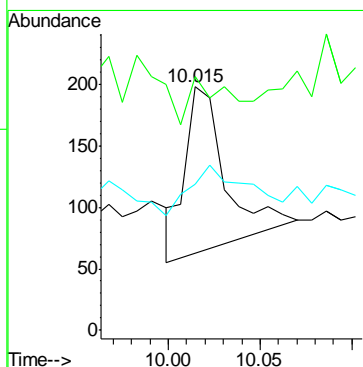
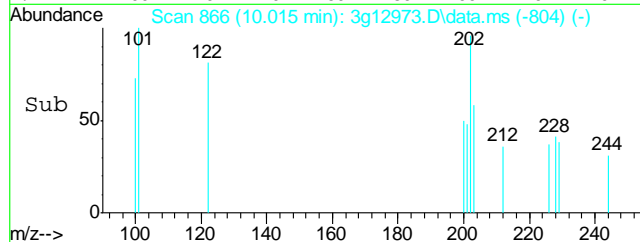
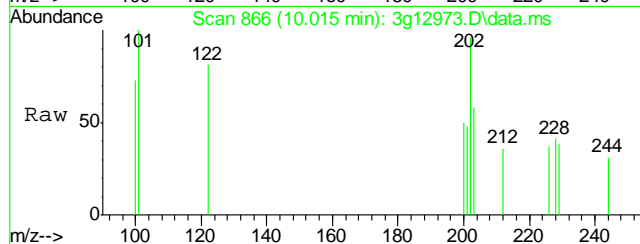
#17  
Anthracene  
Concen: Below ug/mL  
RT: 8.891 min Scan# 724  
Delta R.T. 0.000 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

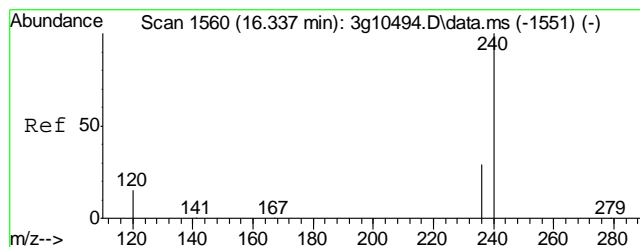
Tgt Ion: 178 Resp: 39  
Ion Ratio Lower Upper  
178 100  
179 0.0 0.0 35.1  
176 0.0 0.0 38.2  
177 0.0 0.0 28.7



#18  
Fluoranthene  
Concen: Below ug/mL  
RT: 10.015 min Scan# 866  
Delta R.T. -0.006 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

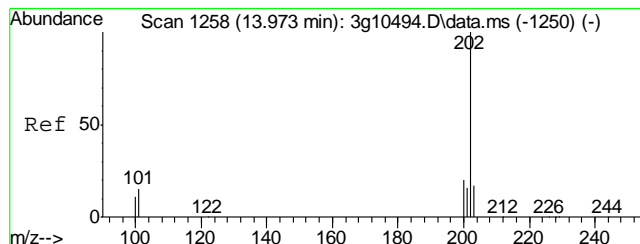
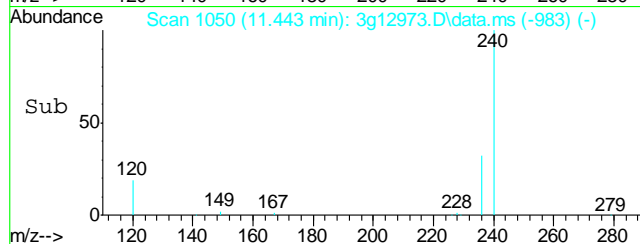
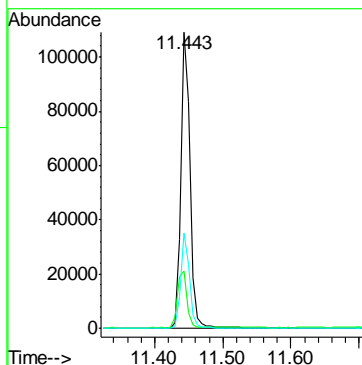
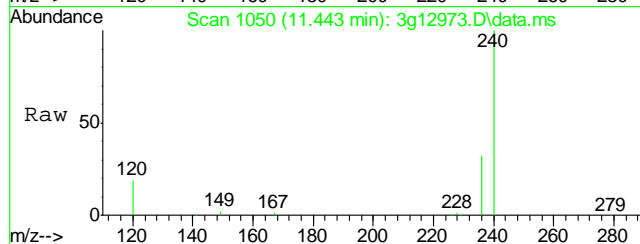
Tgt Ion: 202 Resp: 205  
Ion Ratio Lower Upper  
202 100  
101 0.0 0.0 32.6  
203 44.9 0.0 37.4#





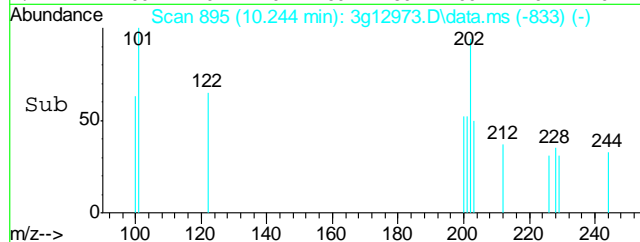
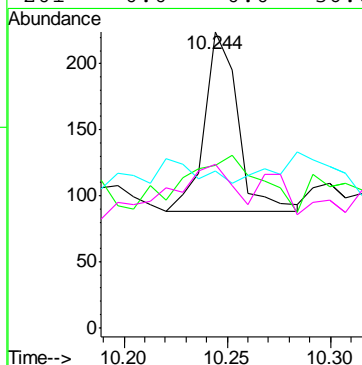
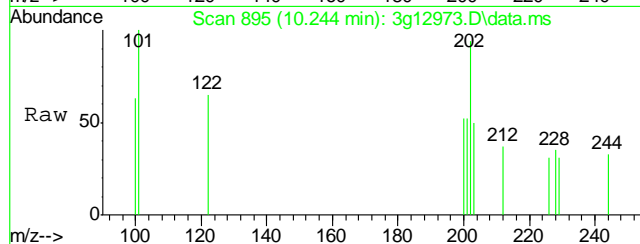
#19  
Chrysene-d12  
Concen: 4.0000 ug/mL  
RT: 11.443 min Scan# 1050  
Delta R.T. 0.000 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

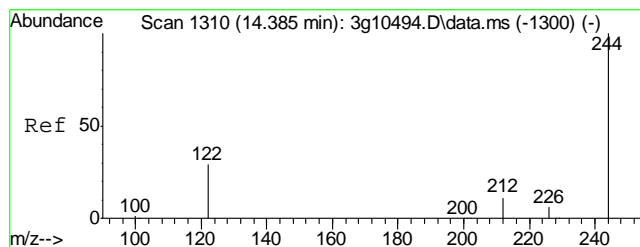
Tgt Ion:	240	Resp:	101544
Ion Ratio	Lower	Upper	
240	100		
120	20.4	0.0	37.3
236	30.7	11.2	51.2



#20  
Pyrene  
Concen: Below ug/mL  
RT: 10.244 min Scan# 895  
Delta R.T. -0.006 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

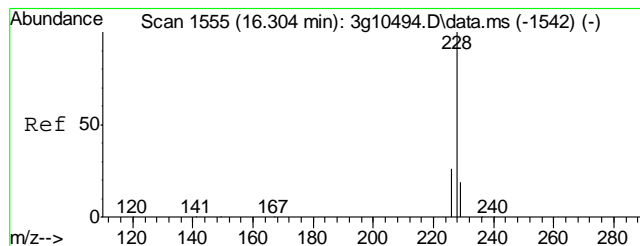
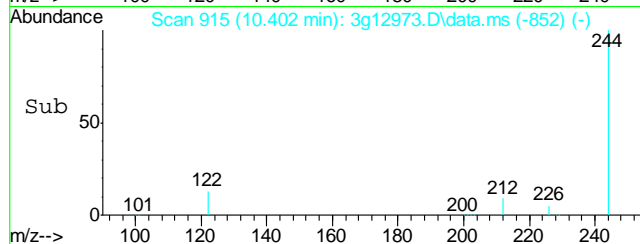
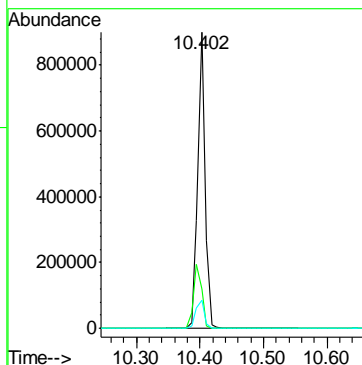
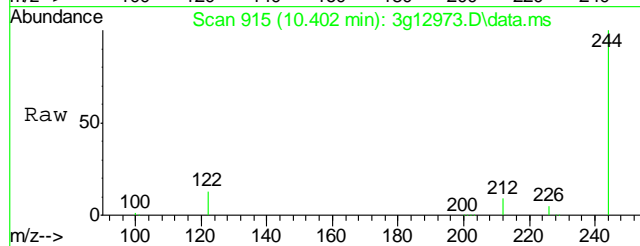
Tgt Ion:	202	Resp:	152
Ion Ratio	Lower	Upper	
202	100		
200	0.0	0.2	40.2#
203	0.0	0.0	37.8
201	0.0	0.0	36.6





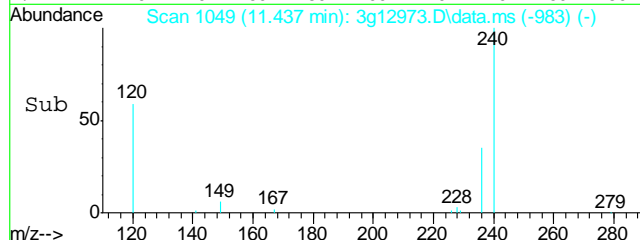
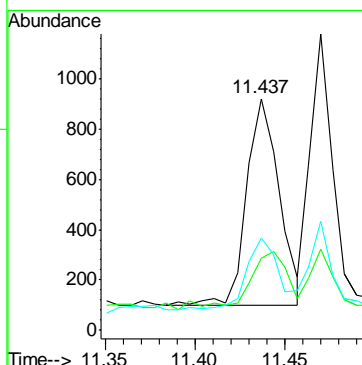
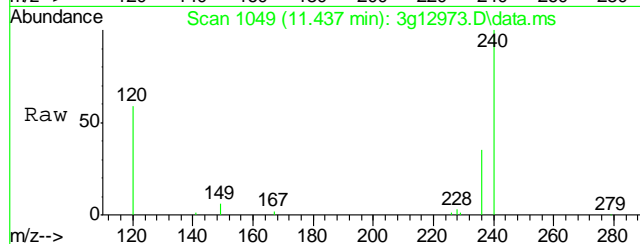
#21  
Terphenyl-d14  
Concen: 52.5073 ug/mL  
RT: 10.402 min Scan# 915  
Delta R.T. 0.002 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

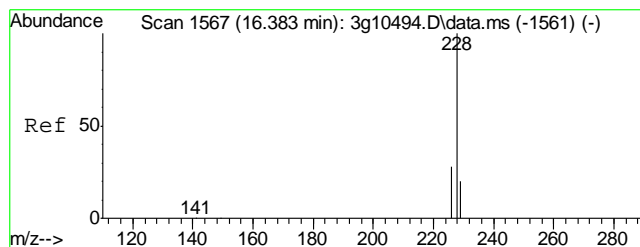
Tgt Ion:	244	Resp:	725496
Ion Ratio	Lower	Upper	
244	100		
122	24.3	7.8	47.8
212	11.0	0.0	32.8



#22  
Benzo(a)anthracene  
Concen: Below ug/mL  
RT: 11.437 min Scan# 1049  
Delta R.T. 0.000 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

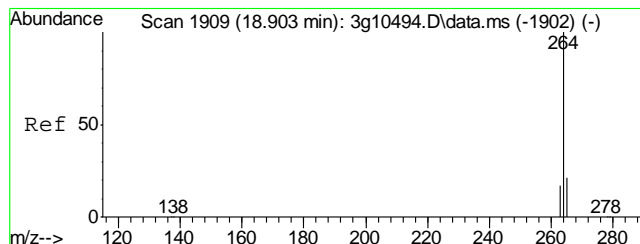
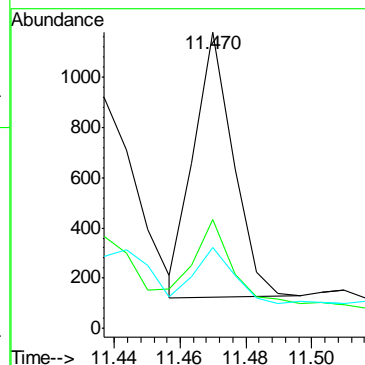
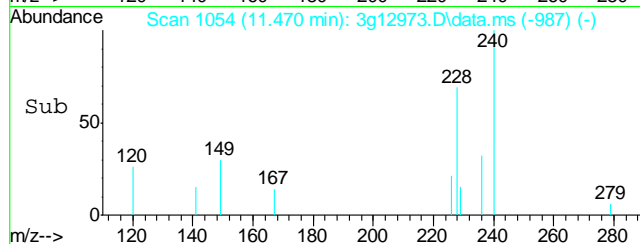
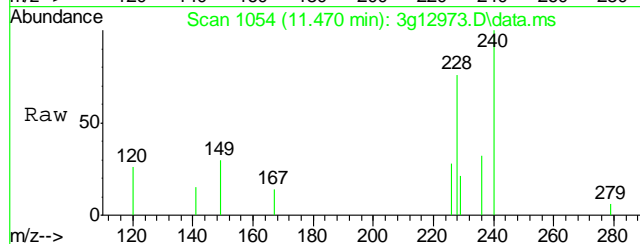
Tgt Ion:	228	Resp:	1041
Ion Ratio	Lower	Upper	
228	100		
229	28.4	0.0	39.4
226	34.7	6.6	46.6





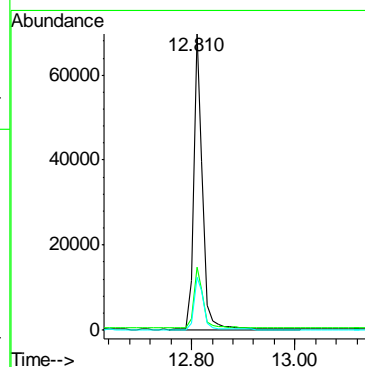
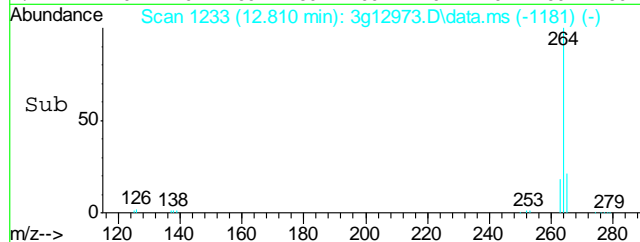
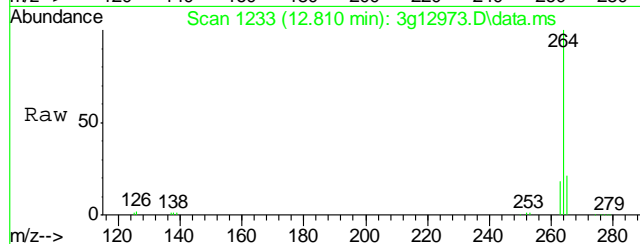
#23  
Chrysene  
Concen: Below ug/mL  
RT: 11.470 min Scan# 1054  
Delta R.T. 0.000 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

Tgt Ion: 228	Resp: 877
Ion Ratio	Lower Upper
228	100
226	40.8 8.6 48.6
229	27.1 0.0 39.4

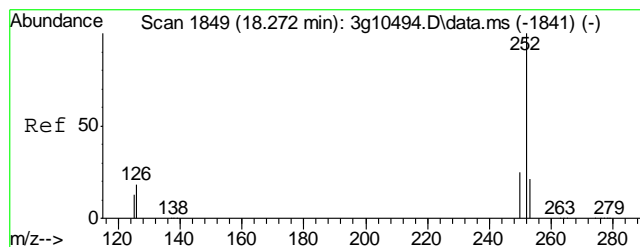


#24  
Perylene-d12  
Concen: 4.0000 ug/mL  
RT: 12.810 min Scan# 1233  
Delta R.T. 0.000 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

Tgt Ion: 264	Resp: 84293
Ion Ratio	Lower Upper
264	100
265	20.8 0.6 40.6
263	19.5 0.0 38.8

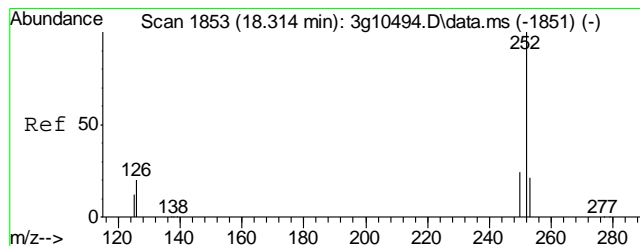
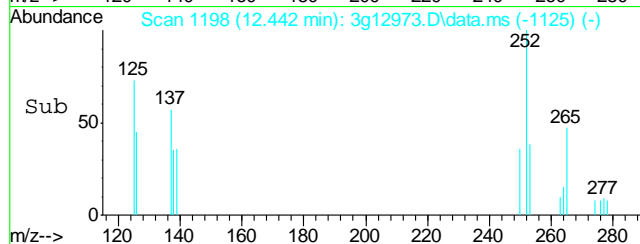
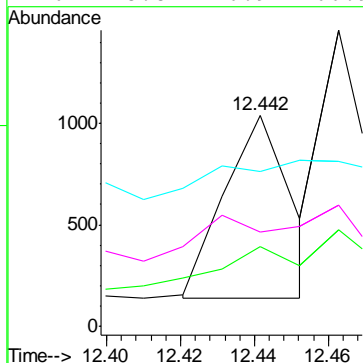
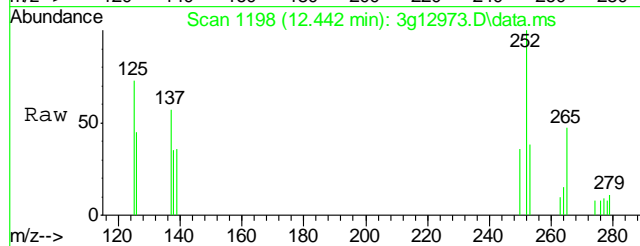






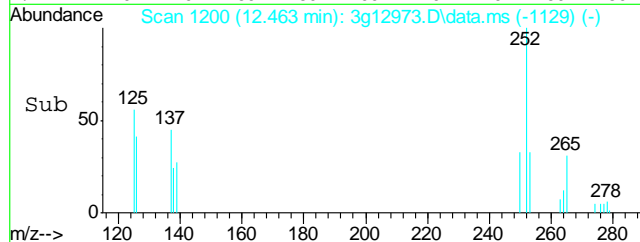
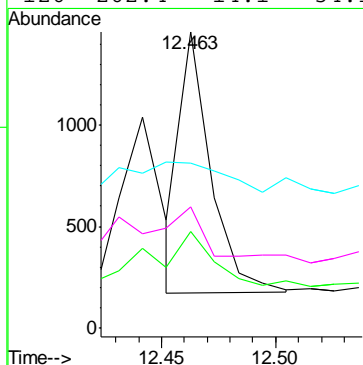
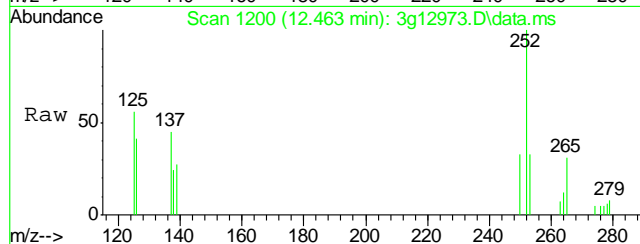
#25  
Benzo(b)fluoranthene  
Concen: 0.0649 ug/mL m  
RT: 12.442 min Scan# 1198  
Delta R.T. 0.000 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

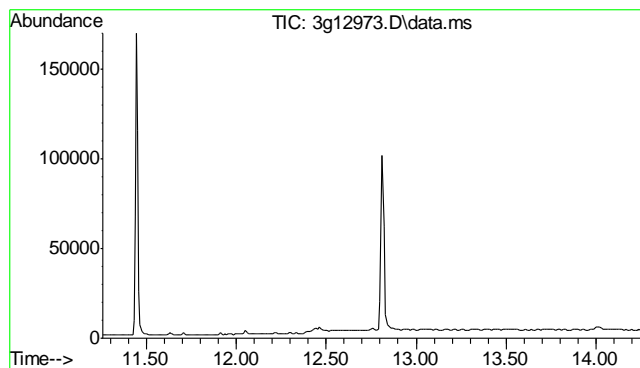
Tgt Ion	252	Resp	1135
Ion Ratio	100		
253	182.7	31.5	71.5#
125	91.1	0.0	33.2#
126	278.8	26.9	66.9#



#26  
Benzo(k)fluoranthene  
Concen: Below ug/mL m  
RT: 12.463 min Scan# 1200  
Delta R.T. -0.000 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

Tgt Ion	252	Resp	1206
Ion Ratio	100		
253	172.0	17.3	57.3#
125	85.7	0.0	29.6#
126	262.4	14.1	54.1#

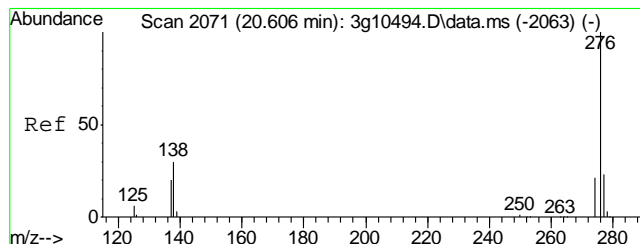
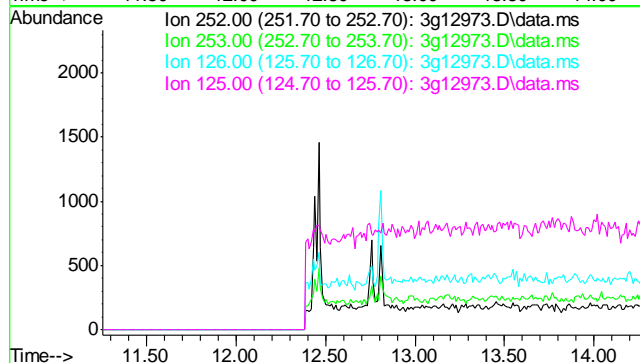




#27  
Benzo(a)pyrene  
Concen: N.D. ug/mL  
Expected RT: 12.76 min

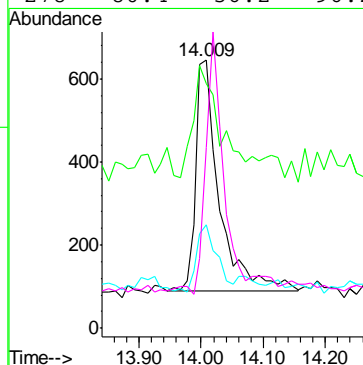
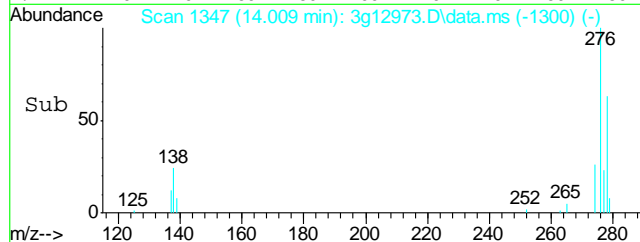
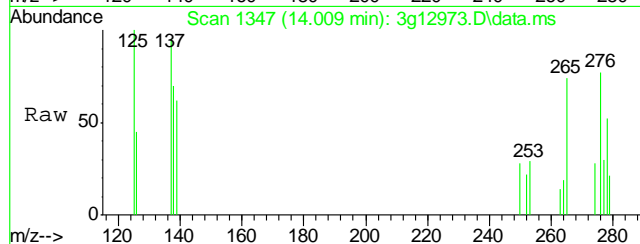
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

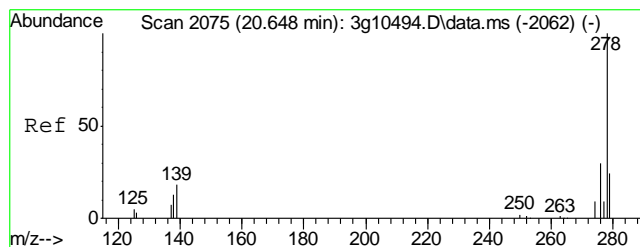
Tgt Ion: 252  
Sig Exp Ratio  
252 100  
253 21.5  
126 20.4  
125 14.5



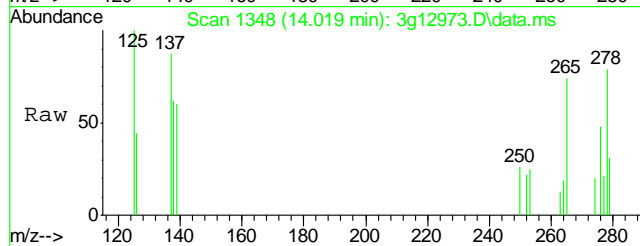
#28  
Indeno(1,2,3-cd)pyrene  
Concen: 0.0777 ug/mL  
RT: 14.009 min Scan# 1347  
Delta R.T. -0.008 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am

Tgt Ion: 276 Resp: 1461  
Ion Ratio Lower Upper  
276 100  
138 57.9 20.0 60.0  
277 24.3 4.8 44.8  
278 80.4 56.2 96.2

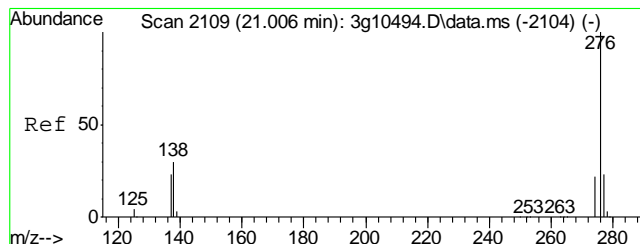
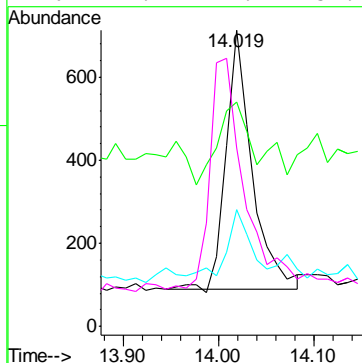
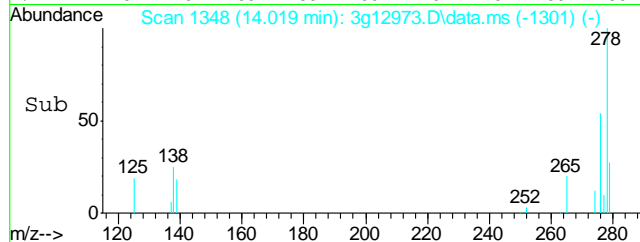




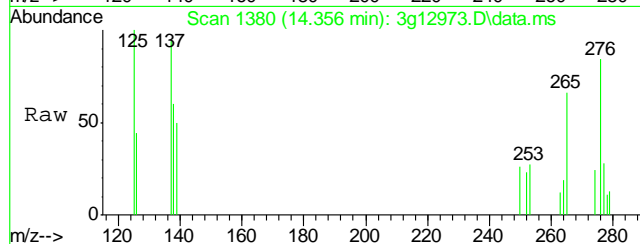
#29  
Dibenzo(a,h)anthracene  
Concen: 0.0897 ug/mL  
RT: 14.019 min Scan# 1348  
Delta R.T. -0.008 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am



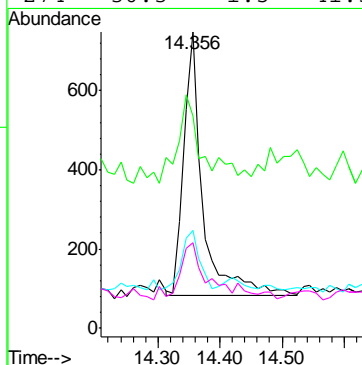
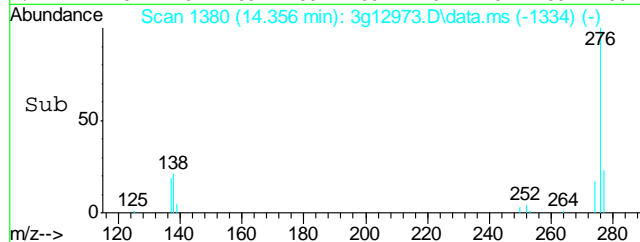
Tgt Ion: 278 Resp: 1174  
Ion Ratio Lower Upper  
278 100  
139 48.2 10.8 50.8  
279 20.9 2.9 42.9  
276 127.2 111.2 151.2



#30  
Benzo(g,h,i)perylene  
Concen: Below ug/mL  
RT: 14.356 min Scan# 1380  
Delta R.T. -0.018 min  
Lab File: 3g12973.D  
Acq: 15 Jan 13 10:14 am



Tgt Ion: 276 Resp: 1418  
Ion Ratio Lower Upper  
276 100  
138 34.2 15.1 55.1  
277 24.0 3.3 43.3  
274 30.3 1.5 41.5



## 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: D42510  
Account: XTOKRWR XTO Energy  
Project: XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1044-MB	GB19088.D	1	01/10/13	SK	n/a	n/a	GGB1044

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

D42510-1

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

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	87% 60-140%

10.1.1  
10

## Blank Spike Summary

Page 1 of 1

**Job Number:** D42510  
**Account:** XTOKRWR XTO Energy  
**Project:** XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1044-BS	GB19089.D	1	01/10/13	SK	n/a	n/a	GGB1044

The QC reported here applies to the following samples:

Method: SW846 8015B

D42510-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	123	112	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	104%	60-140%

\* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D42510  
Account: XTOKRWR XTO Energy  
Project: XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D42435-1MS	GB19091.D	1	01/10/13	SK	n/a	n/a	GGB1044
D42435-1MSD	GB19092.D	1	01/10/13	SK	n/a	n/a	GGB1044
D42435-1	GB19090.D	1	01/10/13	SK	n/a	n/a	GGB1044

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

D42510-1

CAS No.	Compound	D42435-1 mg/kg	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND	127	140	111	140	111	0	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D42435-1	Limits
120-82-1	1,2,4-Trichlorobenzene	92%	95%	93%	60-140%

\* = Outside of Control Limits.

GC Volatiles

Raw Data





Judy Melson  
01/11/13 11:39

## Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\011013\GB19111.D\FID1A.CH Vial: 26  
Signal #2 : Y:\1\DATA\011013\GB19111.D\FID2B.CH  
Acq On : 11 Jan 2013 5:37 am Operator: StephK  
Sample : D42510-1, 50X Inst : GC/MS Ins  
Misc : GC3347,GGB1044,5.050,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: Jan 11 08:57:28 2013 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Thu Jan 10 16:31:50 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	14.36	3015593	96.240 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.36	14497202	89.198 %	m
Target Compounds					
1) H	TVH-Gasoline	7.23	29484709	0.436	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	7.65	190706	0.481	ug/L
7) T	Ethylbenzene	10.27	121573	0.359	ug/L
8) T	m,p-Xylene	10.45	1861698	4.727	ug/L
9) T	o-Xylene	10.95	523270	1.594	ug/L
11) T	Naphthalene	14.54	4898684	24.828	uq/L m

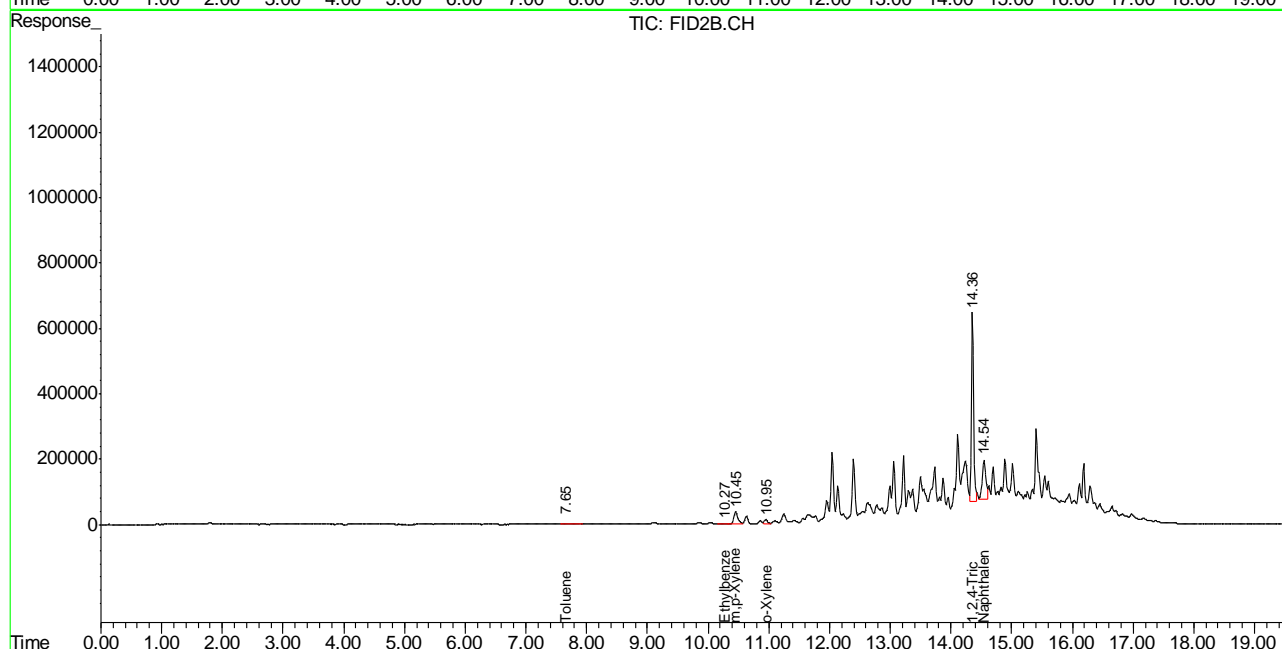
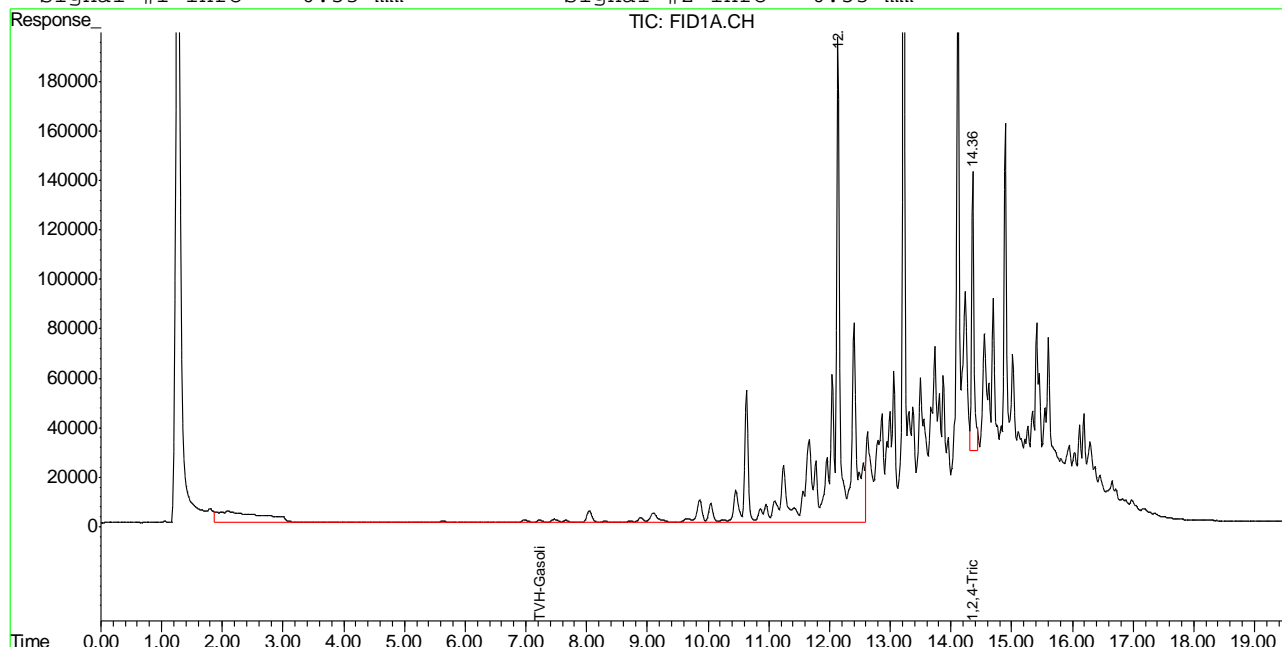
-----  
(f)=RT Delta > 1/2 Window (m)=manual int.  
GB19111.D TB868GB868SOIL.M Fri Jan 11 09:08:56 2013 GC

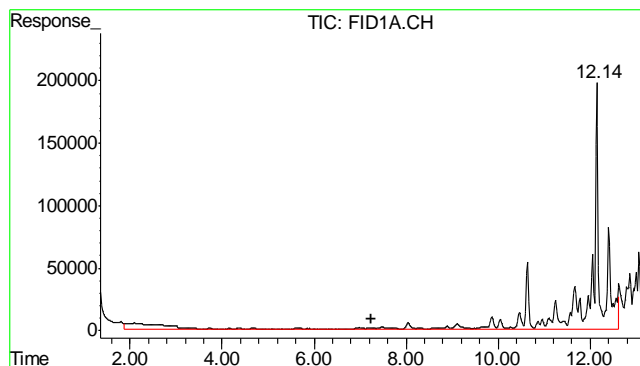
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\011013\GB19111.D\FID1A.CH Vial: 26  
 Signal #2 : Y:\1\DATA\011013\GB19111.D\FID2B.CH  
 Acq On : 11 Jan 2013 5:37 am Operator: StephK  
 Sample : D42510-1, 50X Inst : GC/MS Ins  
 Misc : GC3347,GGB1044,5.050,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
 Quant Time: Jan 11 9:05 2013 Quant Results File: TB868GB868SOIL.RES

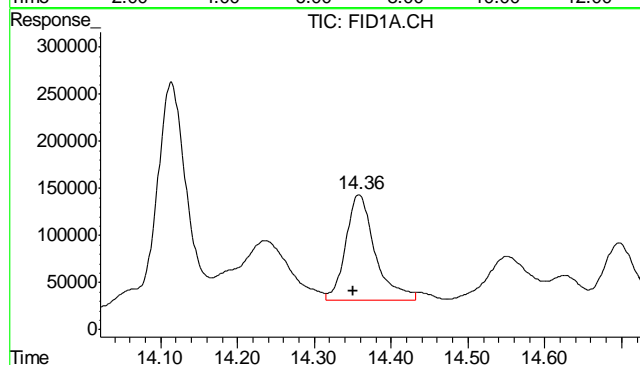
Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Thu Jan 10 16:31:50 2013  
 Response via : Multiple Level Calibration  
 DataAcq Meth : TVB4.M

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

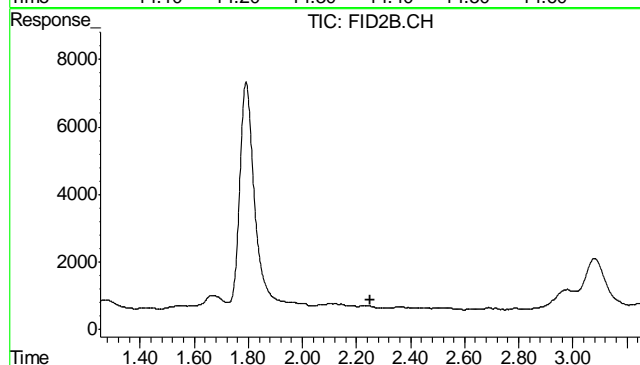




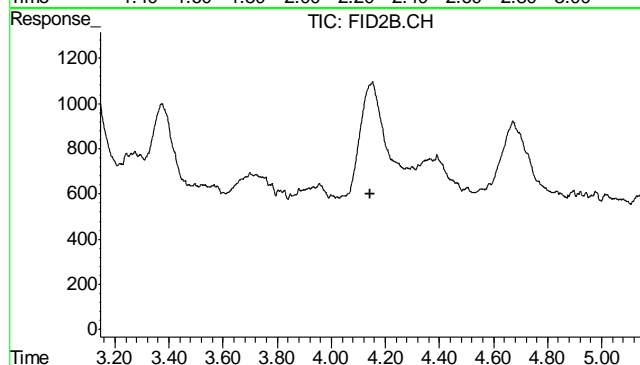
#1 TVH-Gasoline  
 R.T.: 7.230 min  
 Delta R.T.: 0.000 min  
 Response: 29484709  
 Conc: 0.44 mg/L m



#2 1,2,4-Trichlorobenzene  
 R.T.: 14.358 min  
 Delta R.T.: 0.007 min  
 Response: 3015593  
 Conc: 96.24 % m

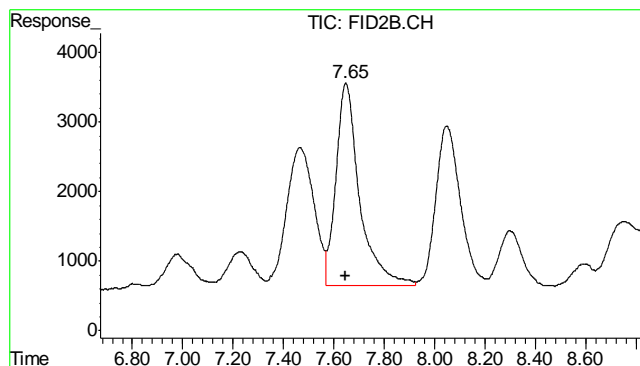


#4 Methyl-t-butyl-ether  
 R.T.: 0.000 min  
 Exp R.T.: 2.252 min  
 Response: 0  
 Conc: N.D.



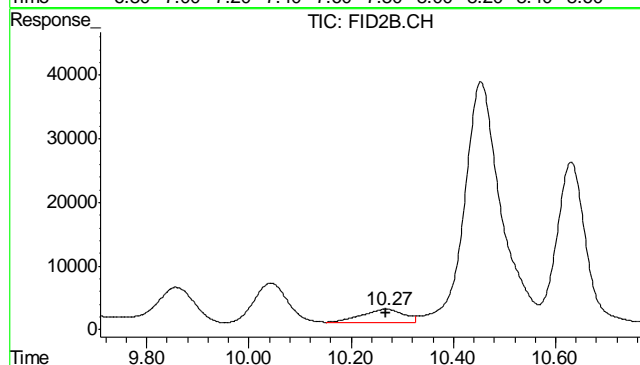
#5 Benzene  
 R.T.: 0.000 min  
 Exp R.T.: 4.145 min  
 Response: 0  
 Conc: N.D.

11.1.1  
 11



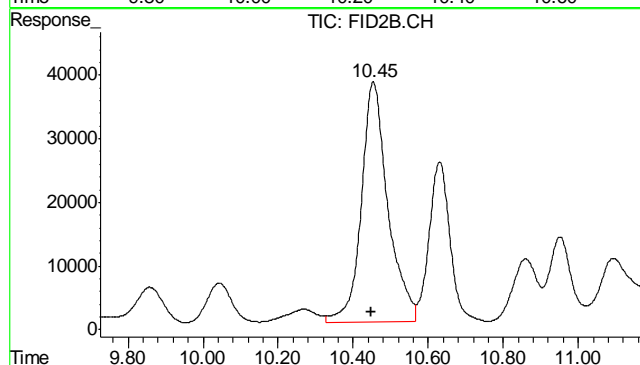
#6 Toluene

R.T.: 7.648 min  
Delta R.T.: 0.004 min  
Response: 190706  
Conc: 0.48 ug/L



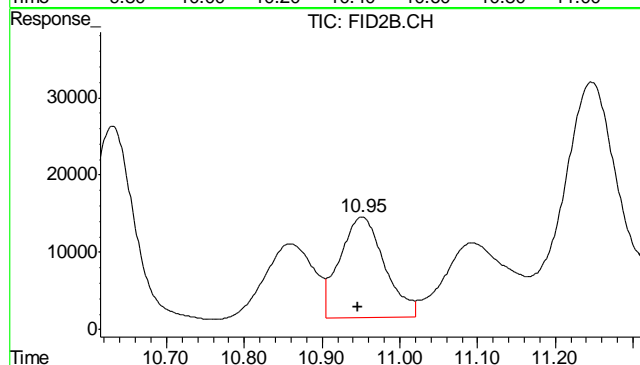
#7 Ethylbenzene

R.T.: 10.268 min  
Delta R.T.: 0.000 min  
Response: 121573  
Conc: 0.36 ug/L



#8 m,p-Xylene

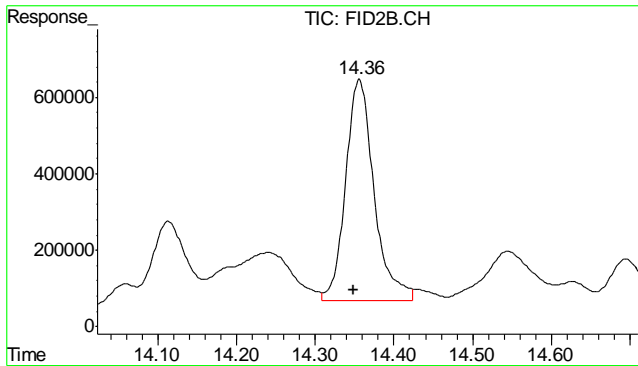
R.T.: 10.454 min  
Delta R.T.: 0.005 min  
Response: 1861698  
Conc: 4.73 ug/L



#9 o-Xylene

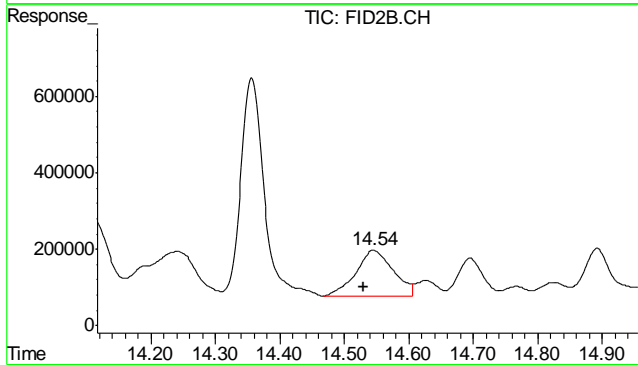
R.T.: 10.951 min  
Delta R.T.: 0.006 min  
Response: 523270  
Conc: 1.59 ug/L

11.1.1



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

R.T.: 14.355 min  
Delta R.T.: 0.007 min  
Response: 14497202  
Conc: 89.20 % m



#11 Naphthalene

R.T.: 14.544 min  
Delta R.T.: 0.013 min  
Response: 4898684  
Conc: 24.83 ug/L m

11.1.1  
11

Judy Melson  
01/11/13 11:38

## Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\011013\GB19088.D\FID1A.CH Vial: 3  
Signal #2 : Y:\1\DATA\011013\GB19088.D\FID2B.CH  
Acq On : 10 Jan 2013 4:00 pm Operator: StephK  
Sample : MB Inst : GC/MS Ins  
Misc : GC3347,GGB1044,5.000,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: Jan 10 16:32:09 2013 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Thu Jan 10 16:31:50 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	2717831	86.737 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.35	13731194	84.485 %	
Target Compounds					
1) H	TVH-Gasoline	7.23	3461894	<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	126661	0.320	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	0.00	0	N.D.	ug/L d
9) T	o-Xylene	0.00	0	N.D.	ug/L d
11) T	Naphthalene	14.54	24002	0.122	ug/L m

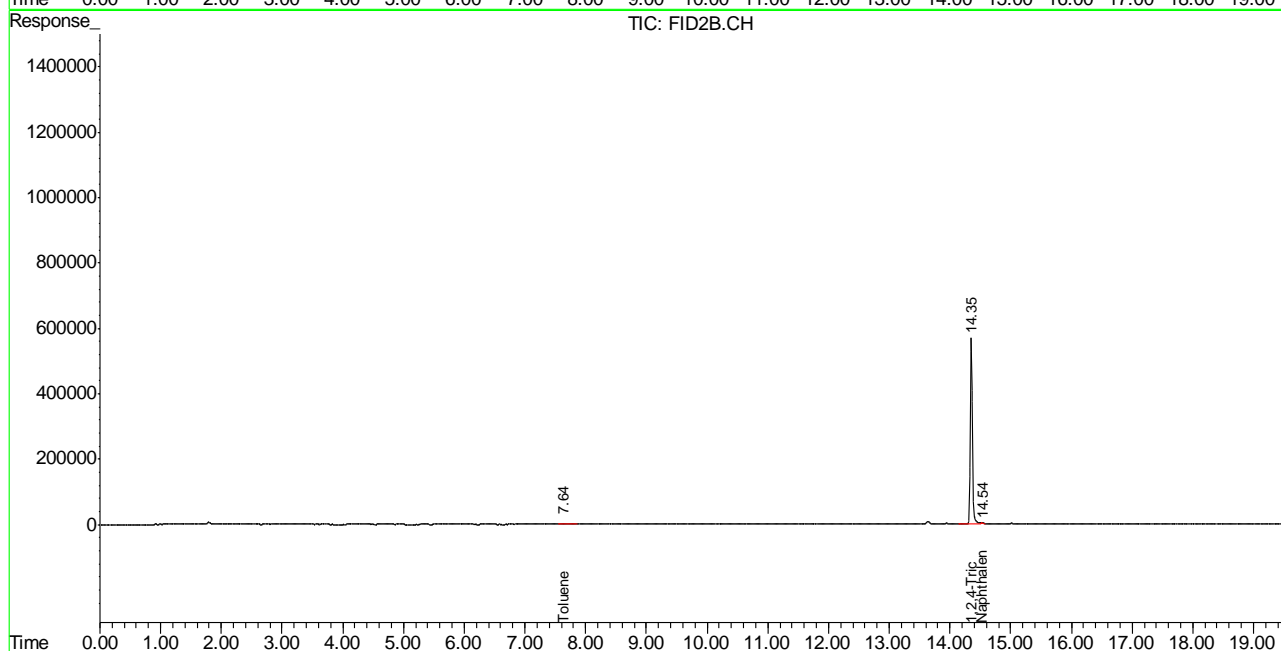
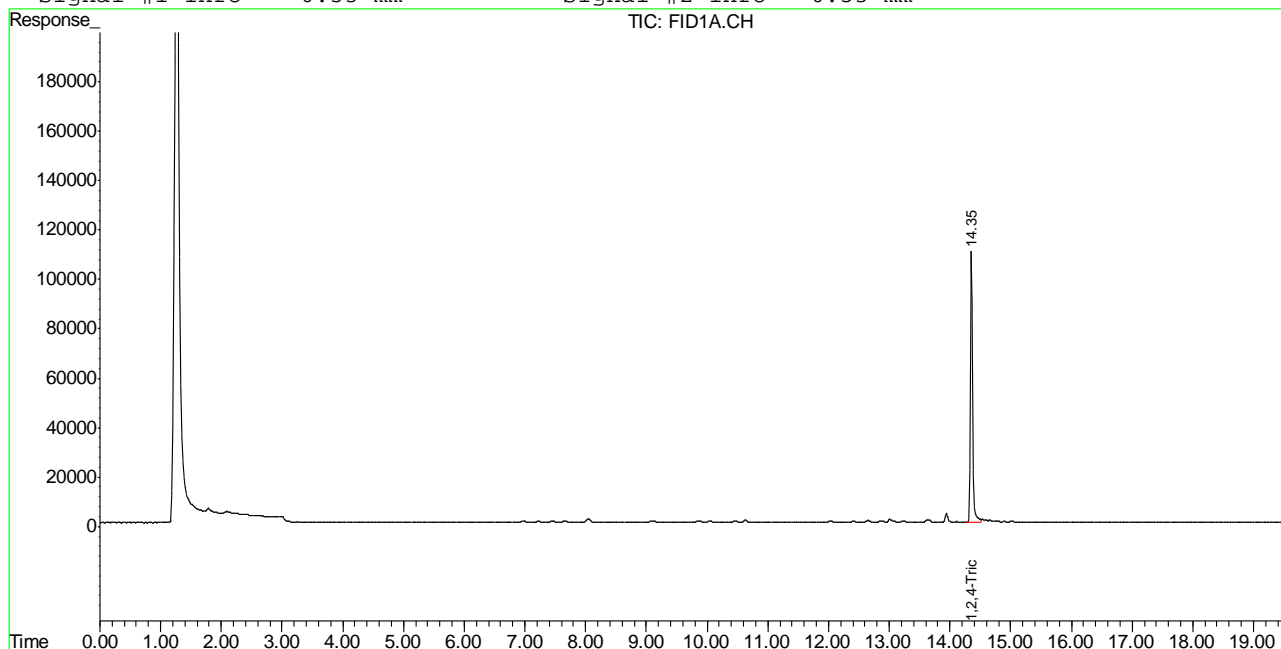
-----  
(f)=RT Delta > 1/2 Window (m)=manual int.  
GB19088.D TB868GB868SOIL.M Fri Jan 11 09:07:47 2013 GC

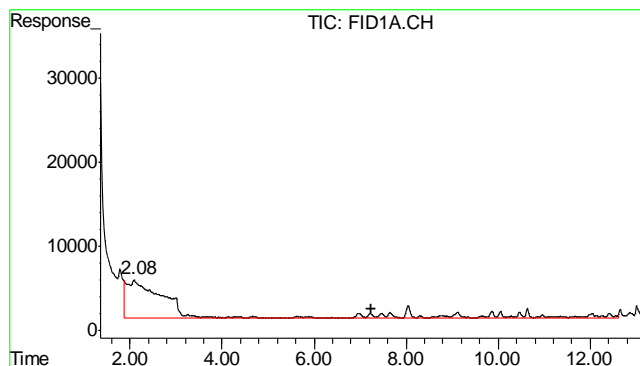
## Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\011013\GB19088.D\FID1A.CH Vial: 3  
Signal #2 : Y:\1\DATA\011013\GB19088.D\FID2B.CH  
Acq On : 10 Jan 2013 4:00 pm Operator: StephK  
Sample : MB Inst : GC/MS Ins  
Misc : GC3347,GGB1044,5.000,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: Jan 10 16:31 2013 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Thu Jan 10 16:31:50 2013  
Response via : Multiple Level Calibration  
DataAcq Meth : TVB4.M

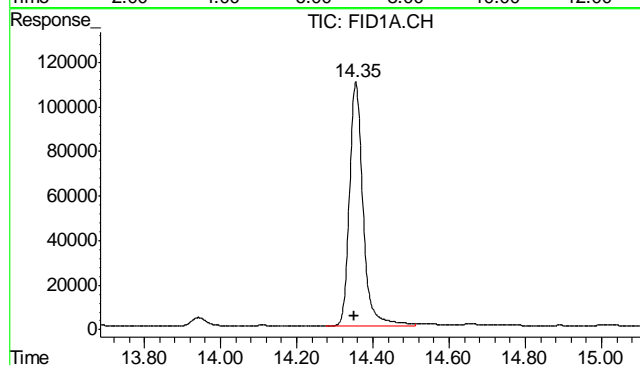
Volume Inj. :  
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





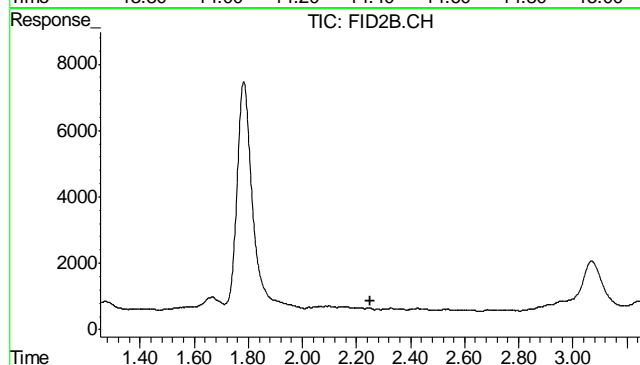
#1 TVH-Gasoline

R.T.: 7.230 min  
Delta R.T.: 0.000 min  
Response: 3461894  
Conc: N.D.



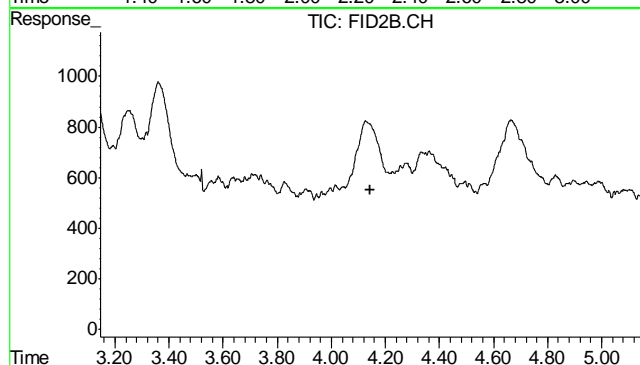
#2 1,2,4-Trichlorobenzene

R.T.: 14.355 min  
Delta R.T.: 0.004 min  
Response: 2717831  
Conc: 86.74 % m



#4 Methyl-t-butyl-ether

R.T.: 0.000 min  
Exp R.T.: 2.252 min  
Response: 0  
Conc: N.D.

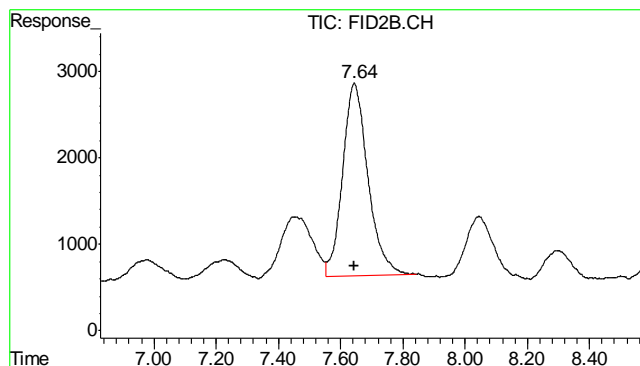


#5 Benzene

R.T.: 0.000 min  
Exp R.T.: 4.145 min  
Response: 0  
Conc: N.D.

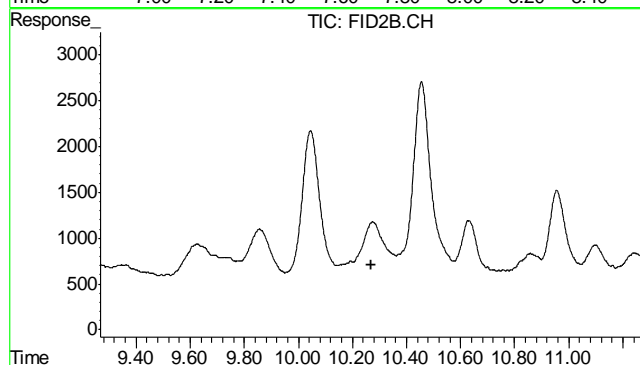
11.21  
11





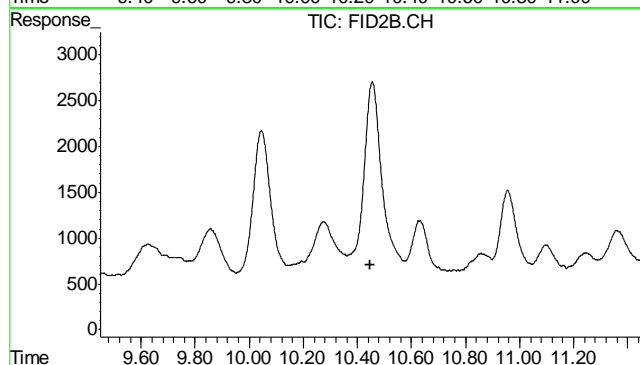
#6 Toluene

R.T.: 7.644 min  
Delta R.T.: 0.000 min  
Response: 126661  
Conc: 0.32 ug/L



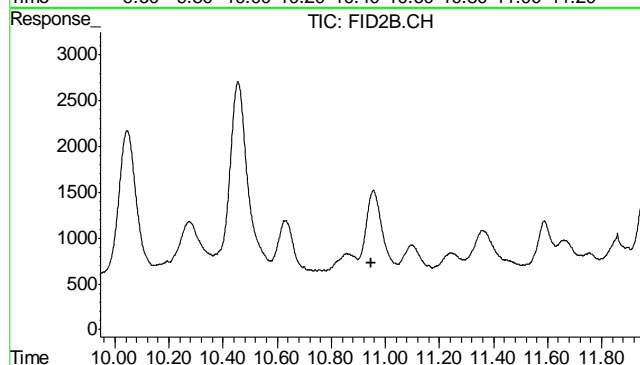
#7 Ethylbenzene

R.T.: 0.000 min  
Exp R.T.: 10.268 min  
Response: 0  
Conc: N.D.



#8 m,p-Xylene

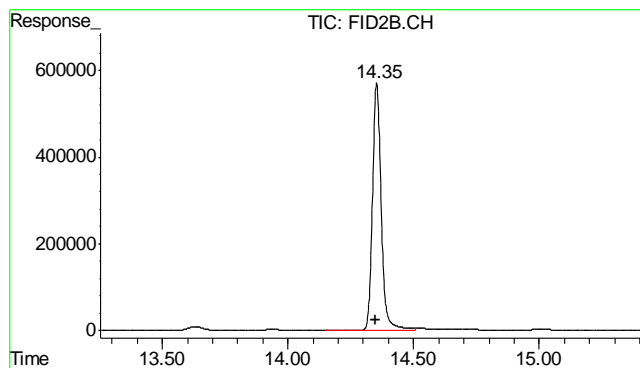
R.T.: 0.000 min  
Exp R.T.: 10.449 min  
Response: 0  
Conc: N.D.



#9 o-Xylene

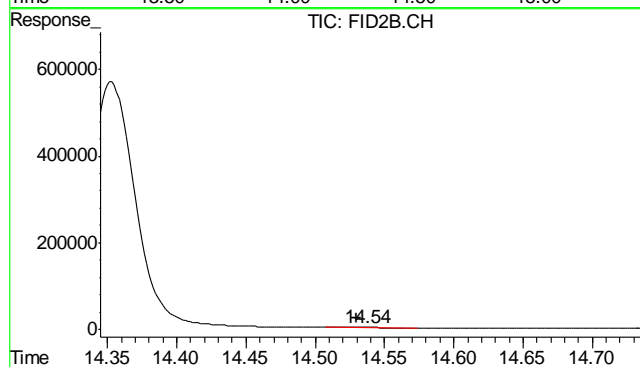
R.T.: 0.000 min  
Exp R.T.: 10.946 min  
Response: 0  
Conc: N.D.

11.21  
11



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

R.T.: 14.353 min  
Delta R.T.: 0.005 min  
Response: 13731194  
Conc: 84.49 %



#11 Naphthalene

R.T.: 14.537 min  
Delta R.T.: 0.006 min  
Response: 24002  
Conc: 0.12 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: D42510  
Account: XTOKRWR XTO Energy  
Project: XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7222-MB	FH008528.D	1	01/14/13	AV	01/14/13	OP7222	GFH472

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

D42510-1

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	91% 35-130%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D42510  
**Account:** XTOKRWR XTO Energy  
**Project:** XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7222-BS	FH008532.D	1	01/14/13	AV	01/14/13	OP7222	GFH472

The QC reported here applies to the following samples:

Method: SW846-8015B

D42510-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	534	80	48-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	88%	35-130%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D42510  
**Account:** XTOKRWR XTO Energy  
**Project:** XTO Love Ranch 8

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7222-MS	FH008534.D	1	01/14/13	AV	01/14/13	OP7222	GFH472
OP7222-MSD	FH008536.D	1	01/14/13	AV	01/14/13	OP7222	GFH472
D42509-2	FH008572.D	1	01/15/13	AV	01/14/13	OP7222	GFH472

The QC reported here applies to the following samples:

Method: SW846-8015B

D42510-1

CAS No.	Compound	D42509-2 mg/kg	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	46.1	736	647	82	493	61	27	20-168/30

CAS No.	Surrogate Recoveries	MS	MSD	D42509-2	Limits
84-15-1	o-Terphenyl	79%	62%	74%	35-130%

\* = Outside of Control Limits.

GC Semi-volatiles

Raw Data

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH011413.SEC\  
Data File : FH008576.D  
Signal(s) : FID2B.ch  
Acq On : 15 Jan 2013 5:25 am  
Operator : ashleyv  
Sample : D42510-1  
Misc : OP7222,GFH472,30.01,,,1,1  
ALS Vial : 76 Sample Multiplier: 1

Integration File: events.e  
Quant Time: Jan 15 11:53:43 2013  
Quant Method : C:\msdchem\1\METHODS\DRO-GFH464R.M  
Quant Title : DRO-ORO REAR  
QLast Update : Mon Jan 07 08:59:40 2013  
Response via : Initial Calibration  
Integrator: ChemStation

Volume Inj. :  
Signal Phase :  
Signal Info :

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
3) s o-Terphenyl	12.546	2165898232	1574.948 ug/mlm
Target Compounds			
1) H TPH-DRO (C10-C28)	10.243	47393153465	40144.347 ug/ml
2) H TPH-DRO (C8-C20)	7.898	36829552055	33134.773 ug/ml
-----			

(f)=RT Delta &gt; 1/2 Window

(m)=manual int.

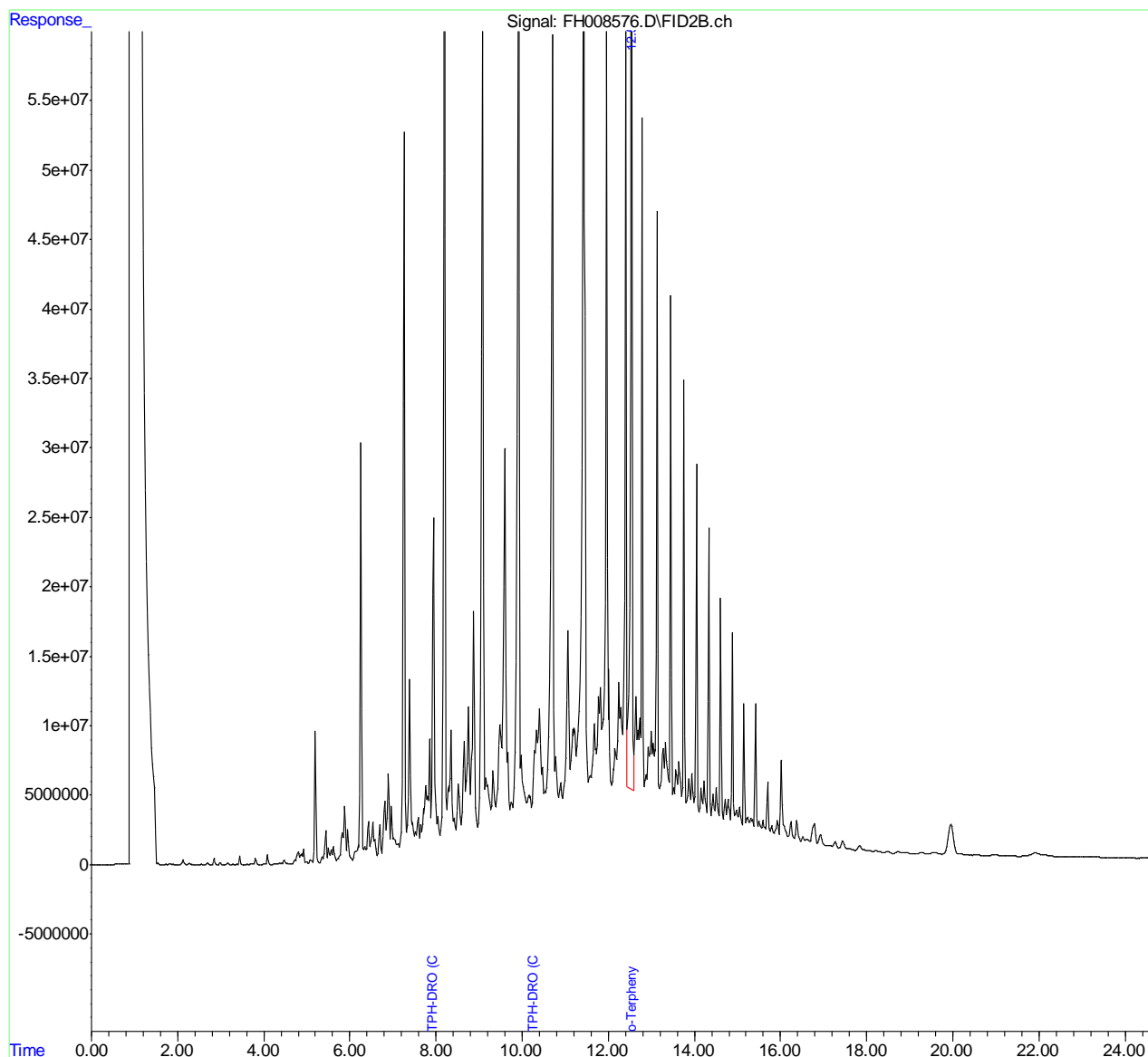


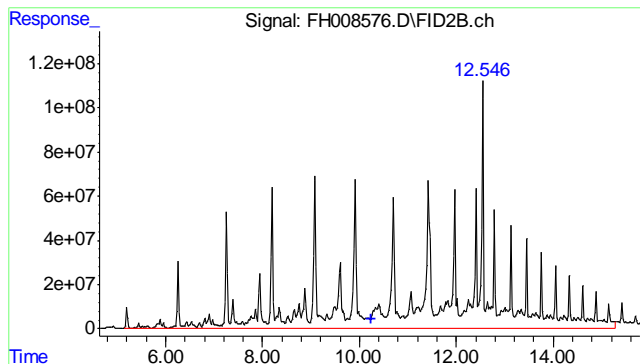
## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH011413.SEC\  
Data File : FH008576.D  
Signal(s) : FID2B.ch  
Acq On : 15 Jan 2013 5:25 am  
Operator : ashleyv  
Sample : D42510-1  
Misc : OP7222,GFH472,30.01,,,1,1  
ALS Vial : 76 Sample Multiplier: 1

Integration File: events.e  
Quant Time: Jan 15 11:53:43 2013  
Quant Method : C:\msdchem\1\METHODS\DRO-GFH464R.M  
Quant Title : DRO-ORO REAR  
QLast Update : Mon Jan 07 08:59:40 2013  
Response via : Initial Calibration  
Integrator: ChemStation

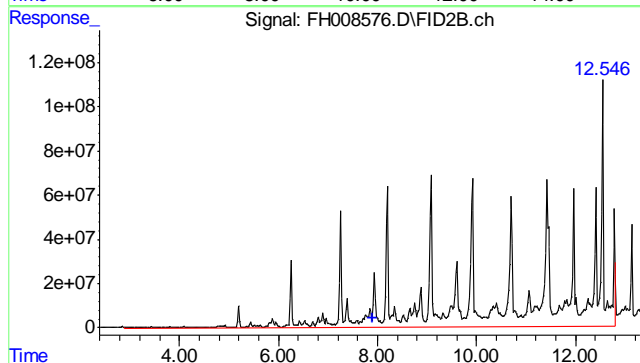
Volume Inj. :  
Signal Phase :  
Signal Info :





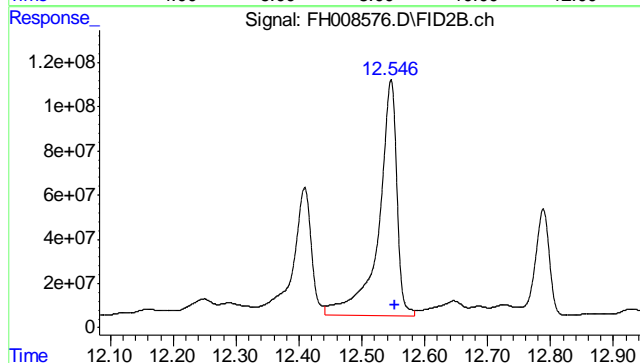
#1 TPH-DRO (C10-C28)

R.T.: 10.243 min  
Delta R.T.: 0.000 min  
Response: 47393153465  
Conc: 40144.35 ug/ml m



#2 TPH-DRO (C8-C20)

R.T.: 7.898 min  
Delta R.T.: 0.000 min  
Response: 36829552055  
Conc: 33134.77 ug/ml m



#3 o-Terphenyl

R.T.: 12.546 min  
Delta R.T.: -0.007 min  
Response: 2165898232  
Conc: 1574.95 ug/ml m

13.1.1  
13

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH011413.SEC\  
Data File : FH008528.D  
Signal(s) : FID2B.ch  
Acq On : 14 Jan 2013 3:50 pm  
Operator : ashleyv  
Sample : OP7222-MB  
Misc : OP7222,GFH472,30.00,,,1,1  
ALS Vial : 53 Sample Multiplier: 1

Integration File: events.e  
Quant Time: Jan 15 08:27:53 2013  
Quant Method : C:\msdchem\1\METHODS\DRO-GFH464R.M  
Quant Title : DRO-ORO REAR  
QLast Update : Mon Jan 07 08:59:40 2013  
Response via : Initial Calibration  
Integrator: ChemStation

Volume Inj. :  
Signal Phase :  
Signal Info :

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
3) s o-Terphenyl	12.557	2504718000	1821.324 ug/ml
Target Compounds			
1) H TPH-DRO (C10-C28)	10.243	70088032	59.368 ug/ml
2) H TPH-DRO (C8-C20)	7.898	20531892	18.472 ug/ml
-----			

(f)=RT Delta > 1/2 Window

(m)=manual int.

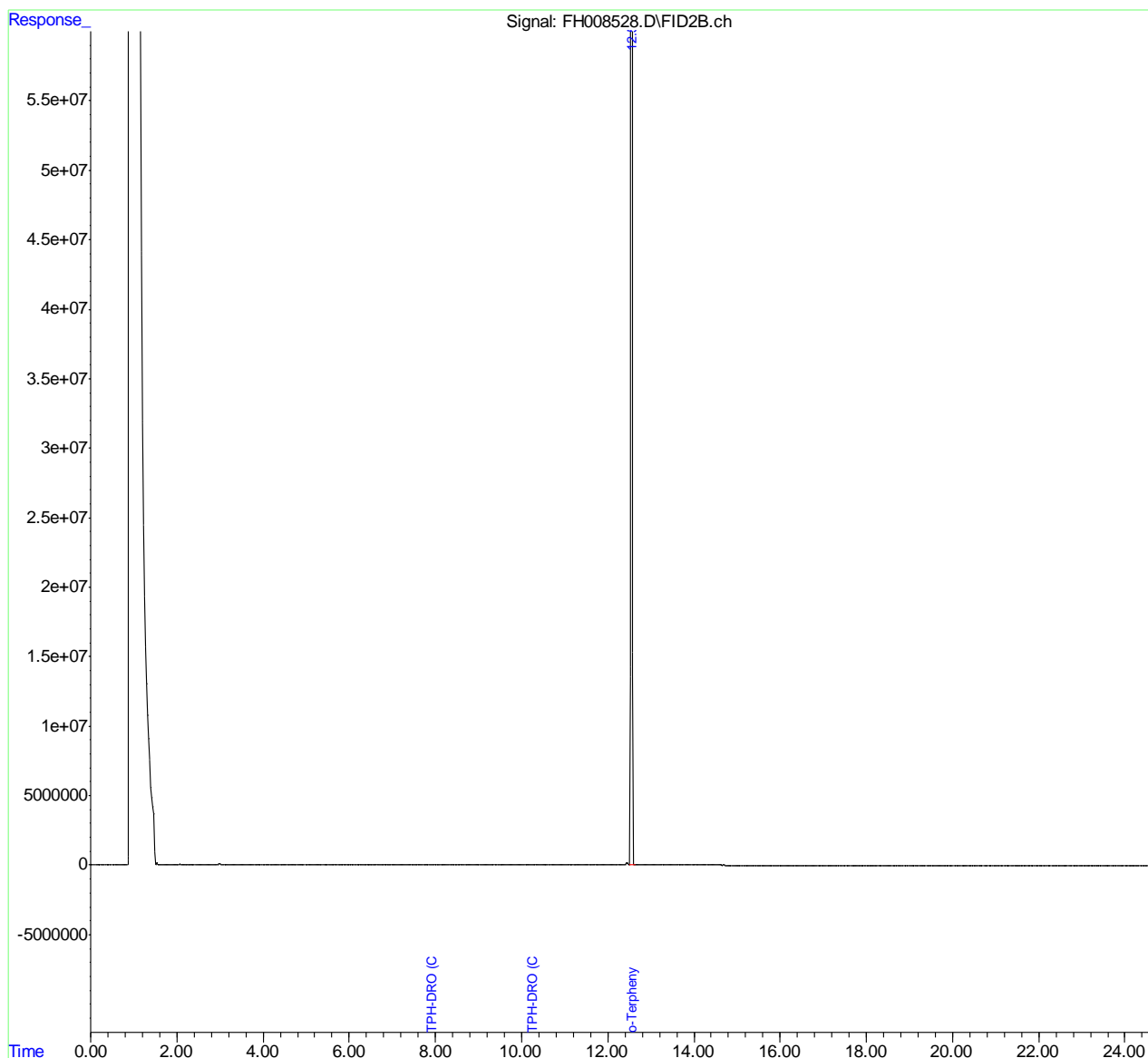
13.2.1  
13

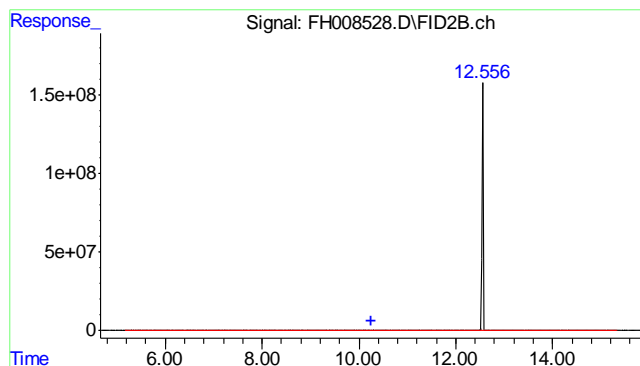
## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH011413.SEC\  
Data File : FH008528.D  
Signal(s) : FID2B.ch  
Acq On : 14 Jan 2013 3:50 pm  
Operator : ashleyv  
Sample : OP7222-MB  
Misc : OP7222,GFH472,30.00,,,1,1  
ALS Vial : 53 Sample Multiplier: 1

Integration File: events.e  
Quant Time: Jan 15 08:27:53 2013  
Quant Method : C:\msdchem\1\METHODS\DRO-GFH464R.M  
Quant Title : DRO-ORO REAR  
QLast Update : Mon Jan 07 08:59:40 2013  
Response via : Initial Calibration  
Integrator: ChemStation

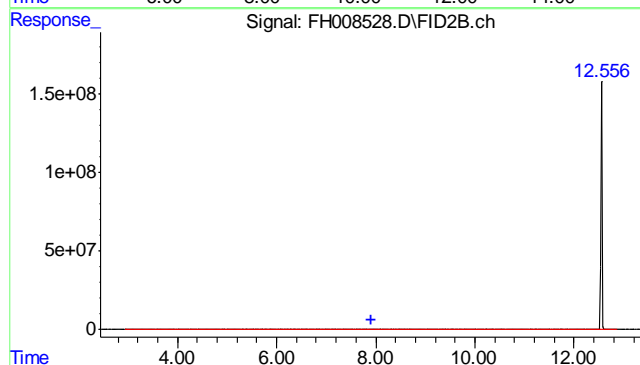
Volume Inj. :  
Signal Phase :  
Signal Info :





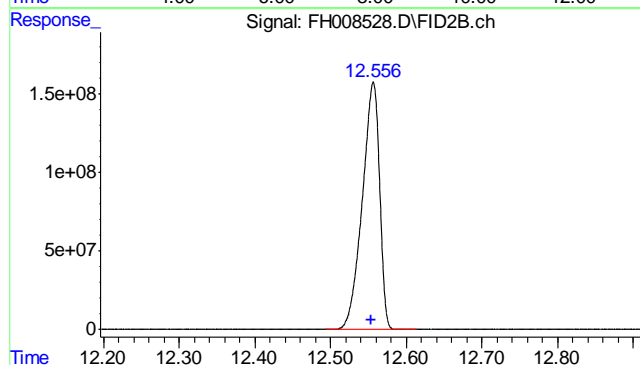
#1 TPH-DRO (C10-C28)

R.T.: 10.243 min  
Delta R.T.: 0.000 min  
Response: 70088032  
Conc: 59.37 ug/ml m



#2 TPH-DRO (C8-C20)

R.T.: 7.898 min  
Delta R.T.: 0.000 min  
Response: 20531892  
Conc: 18.47 ug/ml m



#3 o-Terphenyl

R.T.: 12.557 min  
Delta R.T.: 0.004 min  
Response: 2504718000  
Conc: 1821.32 ug/ml

## 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: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9237  
Matrix Type: AQUEOUS

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

Prep Date: 01/11/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	48	130		
Antimony	150	8.5	18		
Arsenic	130	22	42		
Barium	50	.5	9		
Beryllium	50	6.5	16		
Boron	250	5	22		
Cadmium	50	3	3		
Calcium	2000	27	80	-27	<2000
Chromium	50	1.5	2.8		
Cobalt	25	2	2.1		
Copper	50	6	15		
Iron	350	6	100		
Lead	250	9.5	15		
Lithium	10	2.5			
Magnesium	1000	33	110	-38	<1000
Manganese	25	6	6		
Molybdenum	50	11	11		
Nickel	150	2.5	2.9		
Phosphorus	500	70	300		
Potassium	5000	310	750		
Selenium	250	24	55		
Silicon	250	15			
Silver	150	2	4.9		
Sodium	2000	30	490	-180	<2000
Strontium	25	.2	7.5		
Thallium	50	15	43		
Tin	250	60			
Titanium	50	.5			
Uranium	250	11	23		
Vanadium	50	1	2.4		
Zinc	150	2.5	12		

Associated samples MP9237: D42510-1A

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9237  
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: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9237  
Matrix Type: AQUEOUS

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

Prep Date: 01/11/13

Metal	D42427-2 Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	241000	164000	125000	-61.6N(a)	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	1310	130000	125000	103.0	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	266000	295000	125000	23.2N(a)	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP9237: D42510-1A

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

14.1.2  
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9237  
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 recovery indicates possible matrix interference and/or sample nonhomogeneity.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9237  
Matrix Type: AQUEOUS

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

Prep Date: 01/11/13

Metal	D42427-2 Original	MSD	SpikeLot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	241000	166000	125000	-60.0N(a)	1.2	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	1310	129000	125000	102.2	0.8	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	266000	292000	125000	20.8N(a)	1.0	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP9237: D42510-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9237  
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 recovery indicates possible matrix interference and/or sample nonhomogeneity.

## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9237  
Matrix Type: AQUEOUS

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

Prep Date: 01/11/13

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	130000	125000	104.0	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	122000	125000	97.6	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	126000	125000	100.8	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP9237: D42510-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9237  
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: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9237  
Matrix Type: AQUEOUS

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

Prep Date: 01/11/13

D42427-2		QC	
Metal	Original	SDL 1:5	%DIF Limits
Aluminum			
Antimony			
Arsenic			
Barium			
Beryllium			
Boron			
Cadmium			
Calcium	48100	6440	86.6*(a) 0-10
Chromium			
Cobalt			
Copper			
Iron			
Lead			
Lithium			
Magnesium	262	1240	375.2(b) 0-10
Manganese			
Molybdenum			
Nickel			
Phosphorus			
Potassium			
Selenium			
Silicon			
Silver			
Sodium	53100	34700	34.7*(a) 0-10
Strontium			
Thallium			
Tin			
Titanium			
Uranium			
Vanadium			
Zinc			

Associated samples MP9237: D42510-1A

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

14.1.4  
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9237  
Matrix Type: AQUEOUS

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

Prep Date:

Metal

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

14.1.4  
14



BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9242  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: mg/kg

Prep Date: 01/14/13

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	0.25	<1.0
Beryllium	1.0	.13	.15		
Boron	5.0	.1	.06		
Cadmium	1.0	.06	.036	0.020	<1.0
Calcium	40	.54	9		
Chromium	1.0	.03	.03	0.040	<1.0
Cobalt	0.50	.04	.07		
Copper	1.0	.12	.15	0.13	<1.0
Iron	7.0	.12	.87		
Lead	5.0	.19	.24	0.020	<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	-0.020	<3.0
Phosphorus	10	1.4	1.9		
Potassium	200	6.1	7		
Selenium	5.0	.48	.36	-0.46	<5.0
Silicon	5.0	.29	.37		
Silver	3.0	.04	.06	0.030	<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	0.090	<3.0

Associated samples MP9242: D42510-1

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9242  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9242  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: mg/kg

Prep Date: 01/14/13

Metal	D42510-1 Original MS		Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium	4420	4470	235	21.3 (a)	75-125
Beryllium					
Boron					
Cadmium	0.0	49.1	58.7	83.7	75-125
Calcium					
Chromium	28.6	73.0	58.7	83.2	75-125
Cobalt					
Copper	15.4	67.2	58.7	88.3	75-125
Iron					
Lead	12.0	107	117	81.0	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	19.2	77.2	58.7	98.9	75-125
Phosphorus					
Potassium					
Selenium	0.0	105	117	89.5	75-125
Silicon					
Silver	0.0	21.0	23.5	89.5	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	37.6	82.7	58.7	76.9	75-125

Associated samples MP9242: D42510-1

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

14.2.2  
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9242  
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: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9242  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: mg/kg

Prep Date: 01/14/13

Metal	D42510-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium	4420	4930	232	219.5(a)	9.8	20
Beryllium						
Boron						
Cadmium	0.0	48.6	58.1	83.7	1.0	20
Calcium						
Chromium	28.6	74.5	58.1	86.6	2.0	20
Cobalt						
Copper	15.4	67.2	58.1	89.2	0.0	20
Iron						
Lead	12.0	105	116	80.1	1.9	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	19.2	77.0	58.1	99.5	0.3	20
Phosphorus						
Potassium						
Selenium	0.0	104	116	89.5	1.0	20
Silicon						
Silver	0.0	20.8	23.2	89.5	1.0	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	37.6	81.9	58.1	76.3	1.0	20

Associated samples MP9242: D42510-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9242  
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: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9242  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: mg/kg

Prep Date: 01/14/13

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	198	200	99.0	80-120
Beryllium				
Boron				
Cadmium	46.5	50	93.0	80-120
Calcium				
Chromium	49.9	50	99.8	80-120
Cobalt				
Copper	47.4	50	94.8	80-120
Iron				
Lead	96.0	100	96.0	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	47.5	50	95.0	80-120
Phosphorus				
Potassium				
Selenium	97.5	100	97.5	80-120
Silicon				
Silver	19.8	20	99.0	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	49.2	50	98.4	80-120

Associated samples MP9242: D42510-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9242  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested



SERIAL DILUTION RESULTS SUMMARY

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9242  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: ug/l

Prep Date: 01/14/13

Metal	D42510-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	32800	36700	2.5	0-10
Beryllium				
Boron				
Cadmium	0.00	0.00	NC	0-10
Calcium				
Chromium	206	243	17.8*(a)	0-10
Cobalt				
Copper	121	142	8.3	0-10
Iron				
Lead	119	122	19.0*(a)	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	135	155	5.2	0-10
Phosphorus				
Potassium				
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver	0.00	0.00	NC	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	320	412	28.5*(a)	0-10

Associated samples MP9242: D42510-1

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

14.2.4  
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9242  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested  
(a) Serial dilution indicates possible matrix interference.

14.2.4  
14

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9243  
Matrix Type: SOLID

Methods: SW846 6020A  
Units: mg/kg

Prep Date: 01/14/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.006	.06	0.013	<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 MP9243: D42510-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9243  
Matrix Type: SOLID

Methods: SW846 6020A  
Units: mg/kg

Prep Date: 01/14/13

Metal	D42510-1 Original MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	11.1	116	117	89.4
Barium	anr			
Beryllium				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper				
Iron				
Lead	anr			
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium	anr			
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP9243: D42510-1

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

14.3.2  
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9243  
Matrix Type: SOLID

Methods: SW846 6020A  
Units: mg/kg

Prep Date: 01/14/13

Metal	D42510-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	11.1	123	116	96.3	5.9	20
Barium						
Beryllium						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt						
Copper						
Iron						
Lead	anr					
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium	anr					
Silver	anr					
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP9243: D42510-1

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

14.3.2  
14

## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9243  
Matrix Type: SOLID

Methods: SW846 6020A  
Units: mg/kg

Prep Date: 01/14/13

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

Associated samples MP9243: D42510-1

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

14.3.3  
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D42510  
 Account: XTOKRWR - XTO Energy  
 Project: XTO Love Ranch 8

QC Batch ID: MP9243  
 Matrix Type: SOLID

Methods: SW846 6020A  
 Units: ug/l

Prep Date: 01/14/13

Metal	D42510-1			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic	94.9	94.9	0.0	0-10	
Barium	anr				
Beryllium					
Boron					
Cadmium	anr				
Calcium					
Chromium	anr				
Cobalt					
Copper					
Iron					
Lead	anr				
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium	anr				
Silver	anr				
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP9243: D42510-1

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

QC Batch ID: MP9244  
Matrix Type: SOLID

Methods: SW846 7471B  
Units: mg/kg

Prep Date: 01/15/13

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.10	.0011	.0009	0.0018	<0.10

Associated samples MP9244: D42510-1

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



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42510  
 Account: XTOKRWR - XTO Energy  
 Project: XTO Love Ranch 8

QC Batch ID: MP9244  
 Matrix Type: SOLID

Methods: SW846 7471B  
 Units: mg/kg

Prep Date: 01/15/13

Metal	D42445-1		Spikelot		QC	
	Original	MS	HGWSR1	% Rec	Limits	
Mercury	0.054	0.45	0.393	100.7	75-125	

Associated samples MP9244: D42510-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42510  
 Account: XTOKRWR - XTO Energy  
 Project: XTO Love Ranch 8

QC Batch ID: MP9244  
 Matrix Type: SOLID

Methods: SW846 7471B  
 Units: mg/kg

Prep Date: 01/15/13

Metal	D42445-1 Original MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.054	0.45	0.393	100.7	0.0 20

Associated samples MP9244: D42510-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D42510  
 Account: XTOKRWR - XTO Energy  
 Project: XTO Love Ranch 8

QC Batch ID: MP9244  
 Matrix Type: SOLID

Methods: SW846 7471B  
 Units: mg/kg

Prep Date: 01/15/13

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.40	0.4	100.0	80-120

Associated samples MP9244: D42510-1

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

## General Chemistry

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### QC Data Summaries

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Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D42510  
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	GP9086/GN18425	1.0	0.0	mg/kg	92.9	91.5	98.5	80-120%
Specific Conductivity	GP9098/GN18435	1.0	<1.0	umhos/cm	9992	10500	105.2	90-110%
pH	GN18407			su	8.00	7.99	99.9	99.3-100.7%

Associated Samples:  
Batch GP9086: D42510-1  
Batch GP9098: D42510-1  
Batch GN18407: D42510-1  
(\*) Outside of QC limits

DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D42510  
Account: XTOKRWR - XTO Energy  
Project: XTO Love Ranch 8

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP9086/GN18425	D42556-1	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN18410	D42511-1	mv	137	137	0.0	0-20%

Associated Samples:  
Batch GP9086: D42510-1  
Batch GN18410: D42510-1  
(\*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D42510  
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	GP9086/GN18425	D42556-1	mg/kg	0.0	40.0	35.0	87.5	75-125%

Associated Samples:

Batch GP9086: D42510-1

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D42510  
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	GP9086/GN18425	D42556-1	mg/kg	0.0	40.0	33.9	3.1	20%

Associated Samples:  
Batch GP9086: D42510-1  
(\*) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits

15.4  
15