



01/06/12

## Technical Report for

**KRW Consulting, Inc.**

**XOM PCU F13X-19G**

**1112-06**

**Accutest Job Number: D30595**

**Sampling Date: 12/21/11**


### Report to:

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

**Total number of pages in report: 135**



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

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

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

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

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Test results relate only to samples analyzed.

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Sample Summary

KRW Consulting, Inc.

Job No: D30595

XOM PCU F13X-19G  
Project No: 1112-06

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D30595-1	12/21/11	13:45 CH	12/23/11	SO	Soil	EXCAVATION FLOOR
D30595-1A	12/21/11	13:45 CH	12/23/11	SO	Soil	EXCAVATION FLOOR

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

## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** KRW Consulting, Inc.

**Job No** D30595

**Site:** XOM PCU F13X-19G

**Report Dat** 1/6/2012 4:18:52 PM

On 12/23/2011, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 10.1 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D30595 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:** M:MSV196

- The data for SW846 8260B meets quality control requirements.
- D30595-1: Analysis performed at Accutest Laboratories, Marlborough, MA.

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

**Matrix** SO

**Batch ID:** OP5080

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D30596-1MS, D30596-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- The RPD(s) for the MS and MSD recoveries of Acenaphthene, Naphthalene are outside control limits for sample OP5080-MSD. Variability of recovery may be due to sample matrix/homogeneity.
- D30595-1, OP5080-MS, and OP5080-MSD: Dilution required due to matrix interference; extract was viscous.

### Volatiles by GC By Method SW846 8015B

**Matrix** SO

**Batch ID:** GGB815

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30594-1MS, D30594-1MSD were used as the QC samples indicated.

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

**Matrix** SO

**Batch ID:** OP5072

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30596-1MS, D30596-1MSD were used as the QC samples indicated.

## Metals By Method SW846 6010B

**Matrix** AQ

**Batch ID:** MP6558

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30587-5MS, D30587-5MSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Sodium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

**Matrix** SO

**Batch ID:** MP6551

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30595-1MS, D30595-1MSD, D30595-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Cadmium, Selenium are outside control limits for sample MP6551-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- The serial dilution RPD(s) for Copper, Lead are outside control limits for sample MP6551-SD1. Serial dilution indicates possible matrix interference.

## Metals By Method SW846 6020

**Matrix** SO

**Batch ID:** MP6552

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30595-1MS, D30595-1MSD, D30595-1SDL were used as the QC samples for the metals analysis.

## Metals By Method SW846 7471A

**Matrix** SO

**Batch ID:** MP6550

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30567-3MSD, D30567-3MS were used as the QC samples for the metals analysis.
- The matrix spike (MS) and matrix spike duplicate (MSD) recovery(s) of Mercury are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- The RPD(s) for the MS and MSD recoveries of Mercury are outside control limits for sample MP6550-S2. High RPD due to possible sample matrix or nonhomogeneity.

## Wet Chemistry By Method ASTM D1498-76M

**Matrix** SO

**Batch ID:** GN13067

- Sample(s) D30613-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

## Wet Chemistry By Method SM19 2540B M

**Matrix** SO

**Batch ID:** GN13036

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

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

**Matrix** SO

**Batch ID:** M:GP13987

- The data for SW846 3060A/7196A meets quality control requirements.
- D30595-1 for Chromium, Hexavalent: Analysis performed at Accutest Laboratories, Marlborough, MA.

**Wet Chemistry By Method SW846 9045C****Matrix** SO**Batch ID:** GN13062

- The following sample was run outside of holding time for method SW846 9045C: D30595-1.

**Wet Chemistry By Method USDA HANDBOOK 60****Matrix** SO**Batch ID:** MP6558

- D30595-1A for Sodium Adsorption Ratio: Calculated as:  $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

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

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

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

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** Accutest Mountain States**Job No** D30595**Site:** KRWCCOL: XOM PCU F13X-19G**Report Date** 1/6/2012 5:40:55 PM

1 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 12/21/2011 and were received at Accutest on 12/23/2011 properly preserved, at 1.8 Deg. C and intact. These Samples received an Accutest job number of D30595. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

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

### Volatiles by GCMS By Method SW846 8260B

**Matrix** SO**Batch ID:** MSV196

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30587-5MS, D30587-5MSD were used as the QC samples indicated.
- MS/MSD Recovery(s) for Xylene (total) are outside control limits. Outside control limits due to high level in sample relative to spike amount.

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

**Matrix** SO**Batch ID:** GP13987

- All samples were distilled within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30596-1DUP, D30596-1MS were used as the QC samples for Chromium, Hexavalent.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety. The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(D30595).



## Sample Results

## Report of Analysis

Accutest Laboratories

## Report of Analysis

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<b>Client Sample ID:</b>	EXCAVATION FLOOR	
<b>Lab Sample ID:</b>	D30595-1	<b>Date Sampled:</b> 12/21/11
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b> 12/23/11
<b>Method:</b>	SW846 8260B	<b>Percent Solids:</b> 84.6
<b>Project:</b>	XOM PCU F13X-19G	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	V4408.D	1	01/04/12	AMA	n/a	n/a	M:MSV196
Run #2							

	Initial Weight	Final Volume
Run #1	3.56 g	5.0 ml
Run #2		

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00083	0.00021	mg/kg	
108-88-3	Toluene	ND	0.0083	0.00030	mg/kg	
100-41-4	Ethylbenzene	ND	0.0033	0.00022	mg/kg	
1330-20-7	Xylene (total)	ND	0.0033	0.00021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	121%		70-130%
2037-26-5	Toluene-D8	106%		70-130%
460-00-4	4-Bromofluorobenzene	110%		70-130%

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

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>	EXCAVATION FLOOR	
<b>Lab Sample ID:</b>	D30595-1	<b>Date Sampled:</b> 12/21/11
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b> 12/23/11
<b>Method:</b>	SW846 8270C BY SIM SW846 3546	<b>Percent Solids:</b> 84.6
<b>Project:</b>	XOM PCU F13X-19G	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	3G07433.D	4	12/30/11	DC	12/29/11	OP5080	E3G277
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	0.031	0.025	mg/kg	
120-12-7	Anthracene	ND	0.031	0.028	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.079	0.041	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.079	0.057	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.079	0.058	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.079	0.035	mg/kg	
218-01-9	Chrysene	ND	0.079	0.035	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.079	0.058	mg/kg	
206-44-0	Fluoranthene	ND	0.031	0.031	mg/kg	
86-73-7	Fluorene	ND	0.031	0.027	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.094	0.087	mg/kg	
91-20-3	Naphthalene	ND	0.031	0.030	mg/kg	
129-00-0	Pyrene	ND	0.031	0.030	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	49%		10-145%
321-60-8	2-Fluorobiphenyl	59%		10-130%
1718-51-0	Terphenyl-d14	65%		22-130%

(a) Dilution required due to matrix interference; extract was viscous.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

## Report of Analysis

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<b>Client Sample ID:</b>	EXCAVATION FLOOR	<b>Date Sampled:</b>	12/21/11
<b>Lab Sample ID:</b>	D30595-1	<b>Date Received:</b>	12/23/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	84.6
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	XOM PCU F13X-19G		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB14428.D	1	12/28/11	SK	n/a	n/a	GGB815
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	14	6.8	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	97%		60-140%		

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

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

Accutest Laboratories

## Report of Analysis

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<b>Client Sample ID:</b>	EXCAVATION FLOOR	<b>Date Sampled:</b>	12/21/11
<b>Lab Sample ID:</b>	D30595-1	<b>Date Received:</b>	12/23/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	84.6
<b>Method:</b>	SW846-8015B SW846 3546		
<b>Project:</b>	XOM PCU F13X-19G		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD12579.D	1	12/28/11	TR	12/27/11	OP5072	GFD651
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	50.1	16	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	79%		43-136%		

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

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

## Report of Analysis

**Client Sample ID:** EXCAVATION FLOOR**Lab Sample ID:** D30595-1**Matrix:** SO - Soil**Project:** XOM PCU F13X-19G**Date Sampled:** 12/21/11**Date Received:** 12/23/11**Percent Solids:** 84.6**Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.5	0.45	mg/kg	5	12/27/11	12/27/11 GJ	SW846 6020 <sup>2</sup>	SW846 3050B <sup>6</sup>
Barium	251	1.1	mg/kg	1	12/27/11	12/28/11 JB	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>
Cadmium	< 1.1	1.1	mg/kg	1	12/27/11	12/28/11 JB	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>
Chromium	42.9	1.1	mg/kg	1	12/27/11	12/28/11 JB	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>
Copper	8.7	1.1	mg/kg	1	12/27/11	12/28/11 JB	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>
Lead	11.2	5.6	mg/kg	1	12/27/11	12/28/11 JB	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>
Mercury	< 0.12	0.12	mg/kg	1	12/27/11	12/27/11 JB	SW846 7471A <sup>1</sup>	SW846 7471A <sup>4</sup>
Nickel	16.7	3.4	mg/kg	1	12/27/11	12/28/11 JB	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>
Selenium	< 5.6	5.6	mg/kg	1	12/27/11	12/28/11 JB	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>
Silver	< 3.4	3.4	mg/kg	1	12/27/11	12/28/11 JB	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>
Zinc	41.7	3.4	mg/kg	1	12/27/11	12/28/11 JB	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>

(1) Instrument QC Batch: MA2076

(2) Instrument QC Batch: MA2079

(3) Instrument QC Batch: MA2082

(4) Prep QC Batch: MP6550

(5) Prep QC Batch: MP6551

(6) Prep QC Batch: MP6552

RL = Reporting Limit

## Report of Analysis

**Client Sample ID:** EXCAVATION FLOOR**Lab Sample ID:** D30595-1**Matrix:** SO - Soil**Project:** XOM PCU F13X-19G**Date Sampled:** 12/21/11**Date Received:** 12/23/11**Percent Solids:** 84.6**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent <sup>a</sup>	< 0.47	0.47	mg/kg	1	12/29/11 15:53	AMA	SW846 3060A/7196A
Chromium, Trivalent <sup>b</sup>	42.9	1.6	mg/kg	1	12/29/11 15:53	AMA	SW846 3060/7196A M
Redox Potential Vs H2	440		mv	1	12/28/11 13:30	JK	ASTM D1498-76M
Solids, Percent	84.6		%	1	12/27/11	SWT	SM19 2540B M
Specific Conductivity	473	1.0	umhos/cm	1	01/03/12	JD	DEPT.OF AG, BOOK N9
pH	7.81		su	1	12/28/11 13:30	JK	SW846 9045C

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

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

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	EXCAVATION FLOOR	<b>Date Sampled:</b>	12/21/11
<b>Lab Sample ID:</b>	D30595-1A	<b>Date Received:</b>	12/23/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	84.6
<b>Project:</b>	XOM PCU F13X-19G		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	22.5	2.0	mg/l	1	12/28/11	12/28/11 JB	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Magnesium	5.98	1.0	mg/l	1	12/28/11	12/28/11 JB	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Sodium	88.5	2.0	mg/l	1	12/28/11	12/28/11 JB	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>

(1) Instrument QC Batch: MA2082  
(2) Prep QC Batch: MP6558

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	EXCAVATION FLOOR	<b>Date Sampled:</b>	12/21/11
<b>Lab Sample ID:</b>	D30595-1A	<b>Date Received:</b>	12/23/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	84.6
<b>Project:</b>	XOM PCU F13X-19G		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	4.28		ratio	1	12/28/11 13:30	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

## Misc. Forms

### Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Mountain States  
4036 Youngfield Street Wheat Ridge, Co 80033  
TEL. 303-425-6021 877-737-4521  
FAX 303-425-6021

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # <b>D30595</b>

[illegible]

## D30595: Chain of Custody

Page 1 of 2

# Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D30595

Client: KRW

Immediate Client Services Action Required: No

Date / Time Received: 12/23/2011 10:00:00 A

No. Coolers: 1

Client Service Action Required at Login: No

Project: XOM PCU

Airbill #'s: FEDEX

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

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

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

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

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

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

Comments

Accutest Laboratories  
V:(303) 425-6021

4036 Youngfield Street  
F: (303) 425-6854

Wheat Ridge, CO  
www.accutest.com

## GC/MS Semi-volatiles

5

### QC Data Summaries

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Includes the following where applicable:

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

**Method Blank Summary**

Page 1 of 1

**Job Number:** D30595  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** XOM PCU F13X-19G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5080-MB	3G07426.D	1	12/30/11	DC	12/29/11	OP5080	E3G277

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

D30595-1

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

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	83% 10-145%
321-60-8	2-Fluorobiphenyl	85% 10-130%
1718-51-0	Terphenyl-d14	105% 22-130%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D30595

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

**Project:** XOM PCU F13X-19G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5080-BS	3G07427.D	1	12/30/11	DC	12/29/11	OP5080	E3G277

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D30595-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	64.4	77	34-130
120-12-7	Anthracene	83.3	67.9	81	35-130
56-55-3	Benzo(a)anthracene	83.3	60.5	73	36-130
50-32-8	Benzo(a)pyrene	83.3	50.4	60	36-130
205-99-2	Benzo(b)fluoranthene	83.3	48.0	58	35-130
207-08-9	Benzo(k)fluoranthene	83.3	70.5	85	37-130
218-01-9	Chrysene	83.3	65.9	79	40-130
53-70-3	Dibenzo(a,h)anthracene	83.3	50.3	60	32-130
206-44-0	Fluoranthene	83.3	64.0	77	38-130
86-73-7	Fluorene	83.3	67.4	81	35-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	51.2	61	28-130
91-20-3	Naphthalene	83.3	63.2	76	35-130
129-00-0	Pyrene	83.3	67.5	81	37-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	72%	10-145%
321-60-8	2-Fluorobiphenyl	69%	10-130%
1718-51-0	Terphenyl-d14	74%	22-130%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D30595  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** XOM PCU F13X-19G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5080-MS <sup>a</sup>	3G07429.D	4	12/30/11	DC	12/29/11	OP5080	E3G277
OP5080-MSD <sup>a</sup>	3G07430.D	4	12/30/11	DC	12/29/11	OP5080	E3G277
D30596-1 <sup>a</sup>	3G07428.D	4	12/30/11	DC	12/29/11	OP5080	E3G277

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D30595-1

CAS No.	Compound	D30596-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		94.4	49.7	53	67.8	72	31* <sup>b</sup>	10-155/30
120-12-7	Anthracene	ND		94.4	66.7	71	75.9	80	13	10-155/30
56-55-3	Benzo(a)anthracene	ND		94.4	82.0	87	87.5	93	6	10-175/30
50-32-8	Benzo(a)pyrene	ND		94.4	68.3	72	73.5	78	7	10-164/30
205-99-2	Benzo(b)fluoranthene	ND		94.4	75.7	80	82.9	88	9	10-165/30
207-08-9	Benzo(k)fluoranthene	ND		94.4	61.8	65	65.1	69	5	10-178/30
218-01-9	Chrysene	ND		94.4	63.7	67	67.8	72	6	10-147/30
53-70-3	Dibenzo(a,h)anthracene	ND		94.4	74.2	79	74.4	79	0	10-144/30
206-44-0	Fluoranthene	ND		94.4	78.6	83	83.5	89	6	10-207/30
86-73-7	Fluorene	ND		94.4	61.5	65	76.6	81	22	10-163/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		94.4	80	85	91.2	97	12	10-180/30
91-20-3	Naphthalene	ND		94.4	27	29	68.1	72	43* <sup>b</sup>	10-198/30
129-00-0	Pyrene	ND		94.4	71.6	76	76.0	81	6	10-189/30

CAS No.	Surrogate Recoveries	MS	MSD	D30596-1	Limits
4165-60-0	Nitrobenzene-d5	19%	60%	55%	10-145%
321-60-8	2-Fluorobiphenyl	44%	72%	70%	10-130%
1718-51-0	Terphenyl-d14	70%	76%	77%	22-130%

(a) Dilution required due to matrix interference; extract was viscous.

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



GC/MS Semi-volatiles

Raw Data



## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\123011\  
 Data File : 3g07433.D  
 Acq On : 30 Dec 2011 7:50 pm  
 Operator : DONC  
 Sample : D30595-1, 4x  
 Misc : OP5080,E3G277,30.05,,,1,4  
 ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jan 03 08:20:23 2012  
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G277.M  
 Quant Title : PAHSIM BASE  
 QLast Update : Fri Dec 30 15:13:20 2011  
 Response via : Initial Calibration

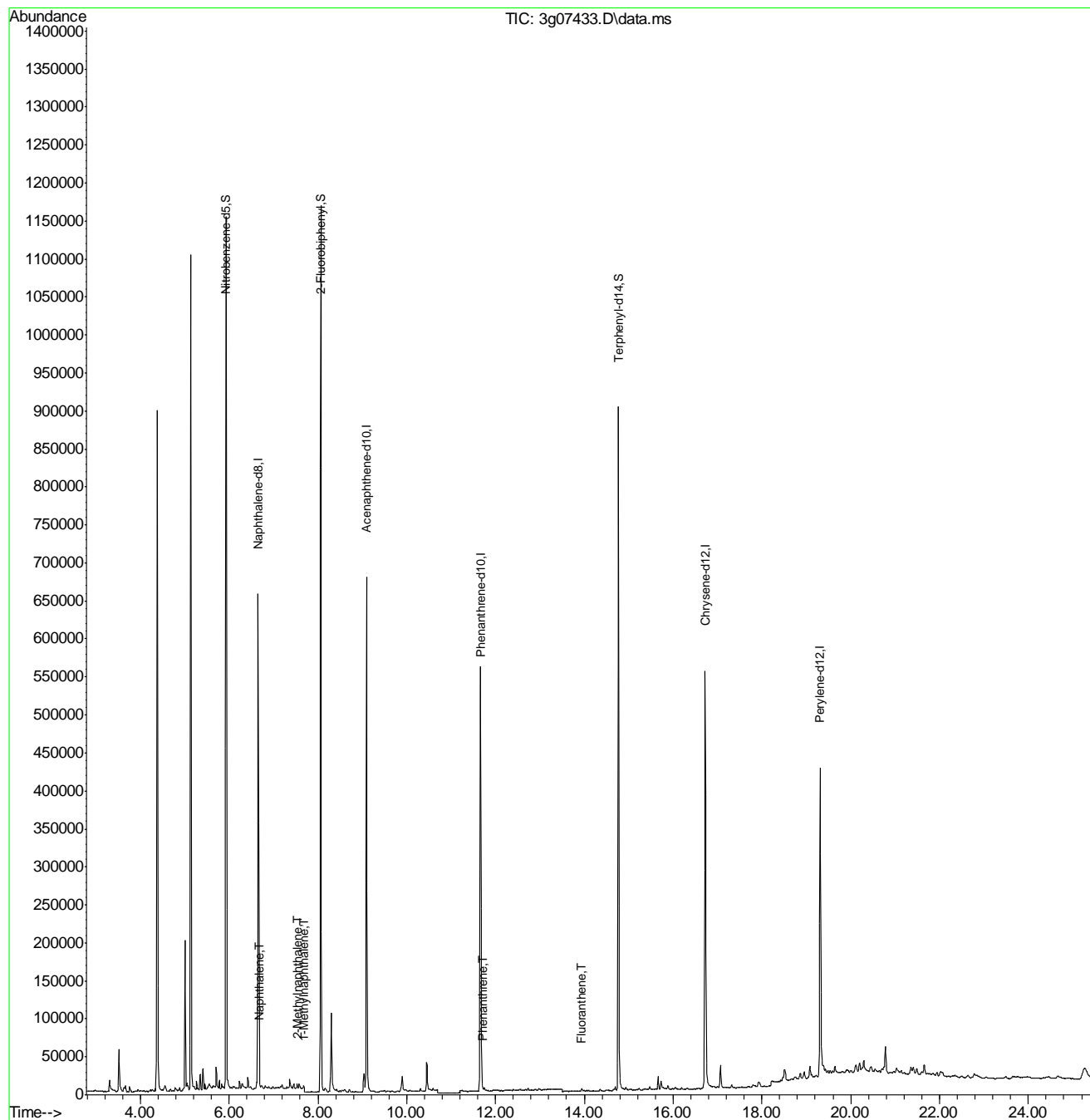
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.657	136	605027	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.098	164	369584	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.667	188	598965	4.00	ug/mL	0.00
18) Chrysene-d12	16.725	240	630851	4.00	ug/mL	0.00
23) Perylene-d12	19.311	264	533572	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.934	82	871265	6.18	ug/mL	0.00
7) 2-Fluorobiphenyl	8.071	172	1102002	7.34	ug/mL	0.00
20) Terphenyl-d14	14.769	244	1011316	8.12	ug/mL	-0.02
Target Compounds						
					Qvalue	
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	6.682	128	3445	0.02	ug/mL	87
8) 2-Methylnaphthalene	7.530	142	3365	0.03	ug/mL	95
9) 1-Methylnaphthalene	7.679	142	1726m	0.02	ug/mL	
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	0.000		0	N.D.	d	
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	11.707	178	3519	0.02	ug/mL	85
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	13.946	202	1694	0.06	ug/mL	93
19) Pyrene	0.000		0	N.D.	d	
21) Benzo(a)anthracene	0.000		0	N.D.	d	
22) Chrysene	0.000		0	N.D.	d	
24) Benzo(b)fluoranthene	0.000		0	N.D.	d	
25) Benzo(k)fluoranthene	0.000		0	N.D.	d	
26) Benzo(a)pyrene	0.000		0	N.D.	d	
27) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
28) Dibenz(a,h)anthracene	0.000		0	N.D.	d	
29) Benzo(g,h,i)perylene	0.000		0	N.D.	d	

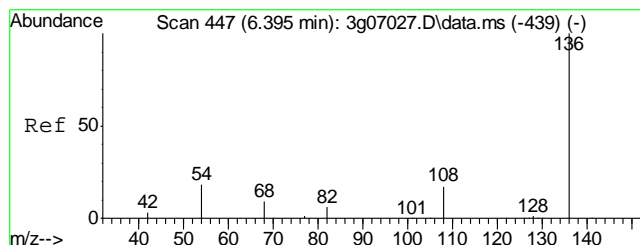
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\123011\  
Data File : 3g07433.D  
Acq On : 30 Dec 2011 7:50 pm  
Operator : DONC  
Sample : D30595-1, 4x  
Misc : OP5080,E3G277,30.05,,,1,4  
ALS Vial : 18 Sample Multiplier: 1

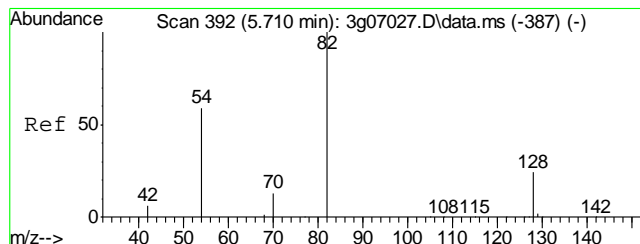
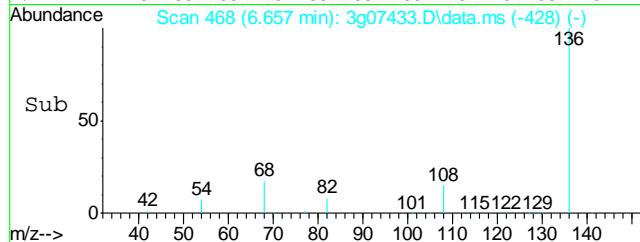
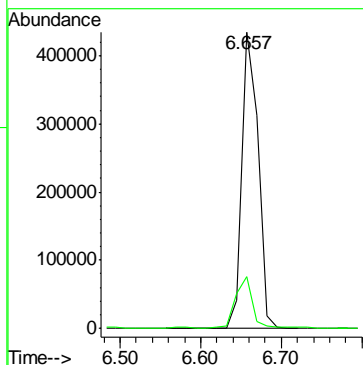
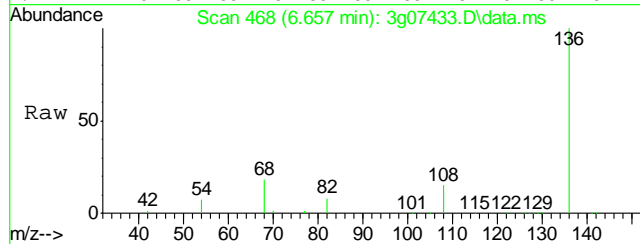
Quant Time: Jan 03 08:20:23 2012  
Quant Method : C:\msdchem\1\METHODS\SIMPE3G277.M  
Quant Title : PAHSIM BASE  
QLast Update : Fri Dec 30 15:13:20 2011  
Response via : Initial Calibration





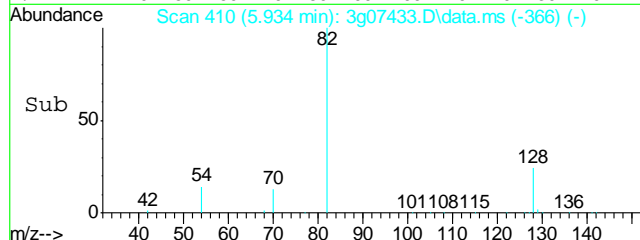
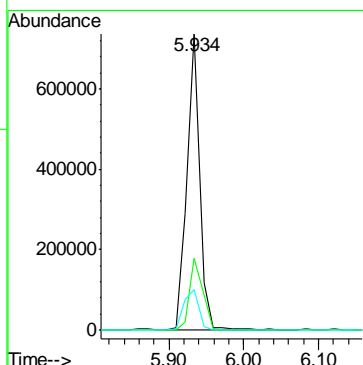
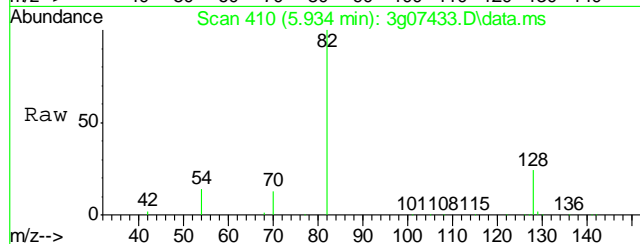
#1  
Naphthalene-d8  
Concen: 4.00 ug/mL  
RT: 6.657 min Scan# 468  
Delta R.T. -0.000 min  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

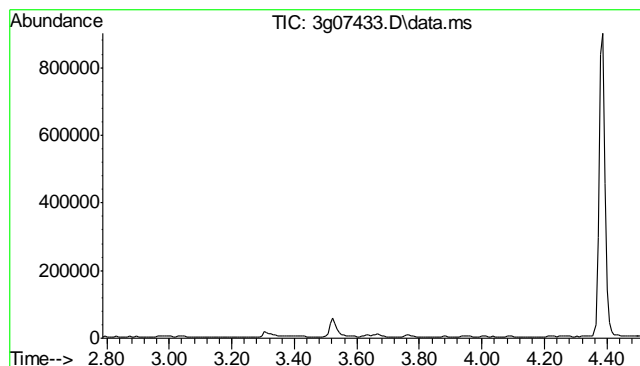
Tgt Ion	Ratio	Lower	Upper
136	100		
68	17.6	0.0	38.4



#2  
Nitrobenzene-d5  
Concen: 6.18 ug/mL  
RT: 5.934 min Scan# 410  
Delta R.T. -0.000 min  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

Tgt Ion	Ratio	Lower	Upper
82	100		
128	24.8	1.1	41.1
54	16.4	0.0	38.3

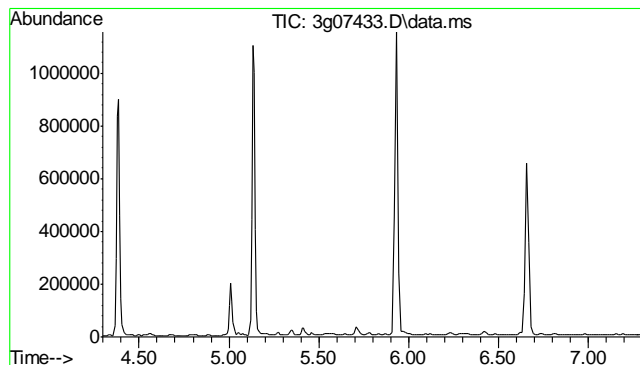
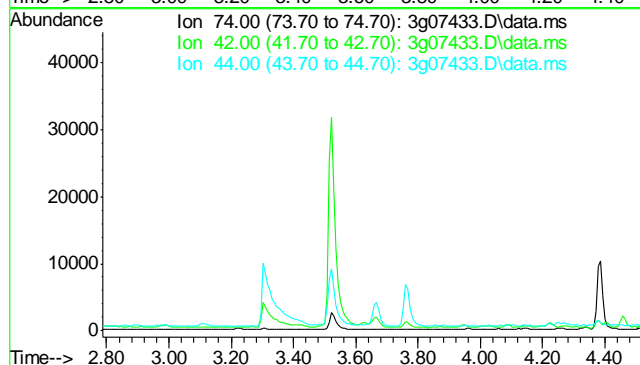




#3  
N-Nitrosodimethylamine  
Concen: N.D. ug/mL  
Expected RT: 3.01 min

Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

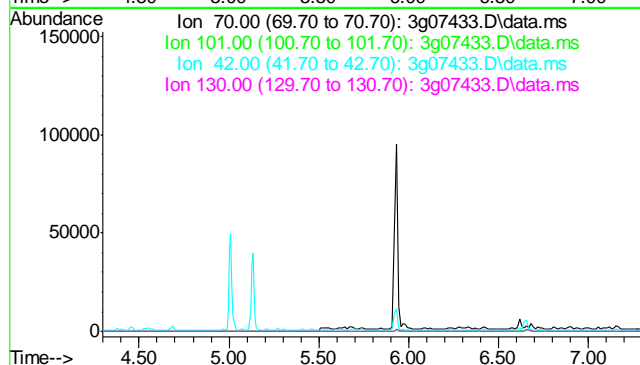
Tgt Ion	Exp Ratio
74	100
42	21.4
44	1.4

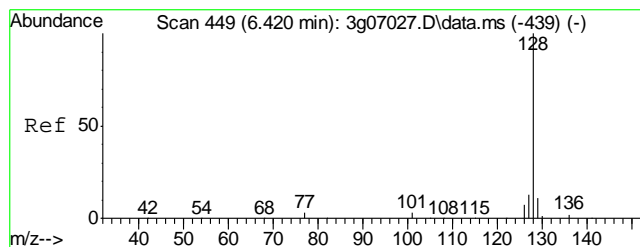


#4  
N-Nitrosodi-propylamine  
Concen: N.D. ug/mL  
Expected RT: 5.80 min

Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

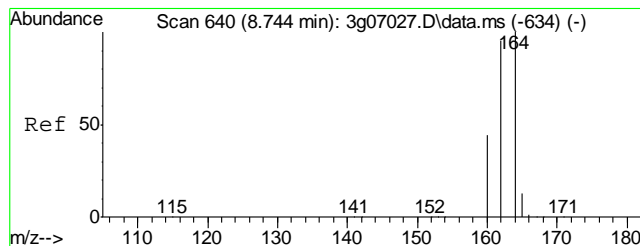
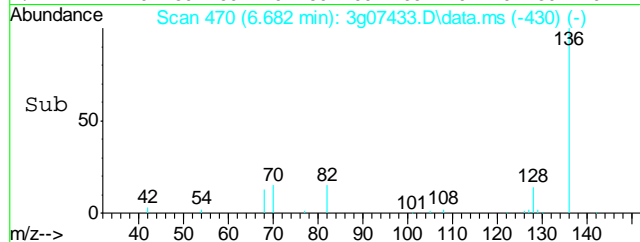
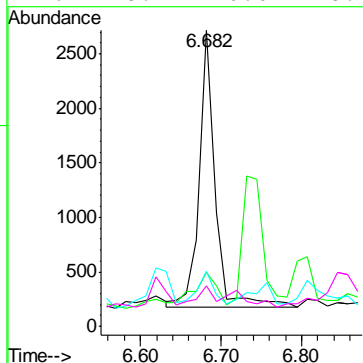
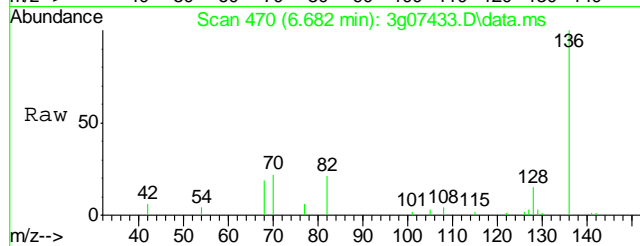
Tgt Ion	Exp Ratio
70	100
101	8.9
42	17.1
130	10.3





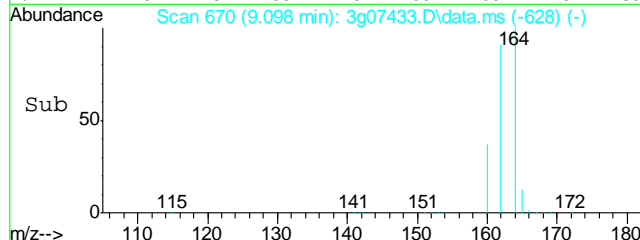
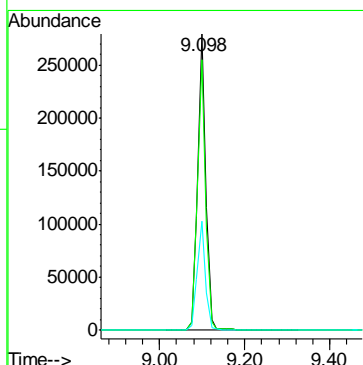
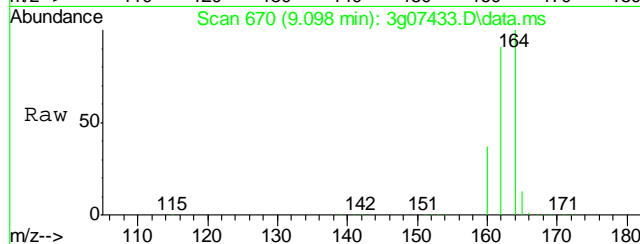
#5  
Naphthalene  
Concen: 0.02 ug/mL  
RT: 6.682 min Scan# 470  
Delta R.T. -0.000 min  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

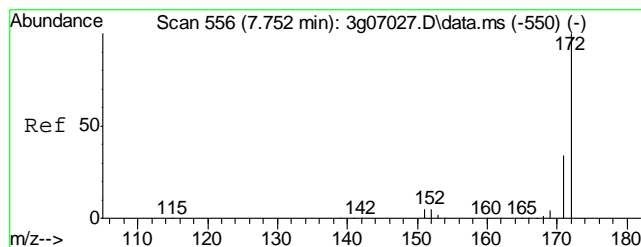
Tgt Ion	Ratio	Lower	Upper
128	100		
129	23.4	0.0	30.8
127	12.6	0.0	33.8
126	8.7	0.0	28.1



#6  
Acenaphthene-d10  
Concen: 4.00 ug/mL  
RT: 9.098 min Scan# 670  
Delta R.T. -0.000 min  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

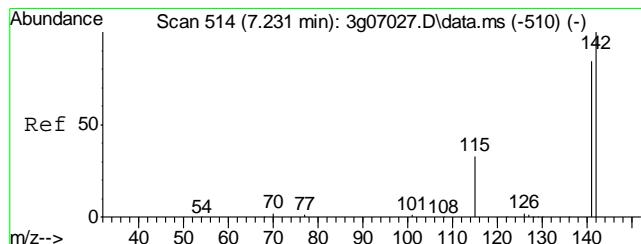
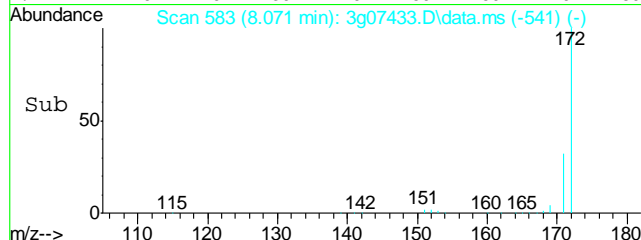
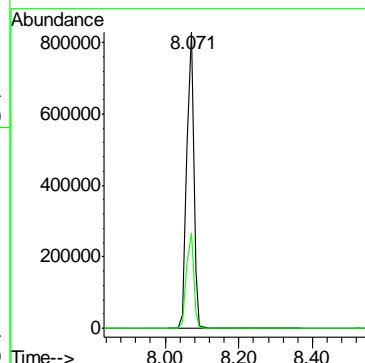
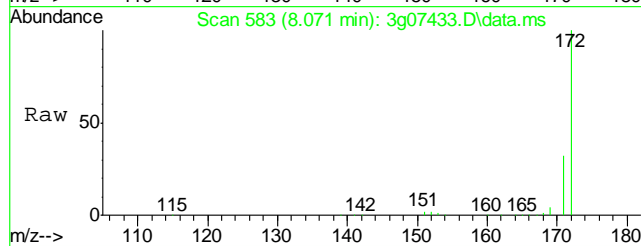
Tgt Ion	Ratio	Lower	Upper
164	100		
162	91.3	72.2	112.2
160	37.1	17.7	57.7





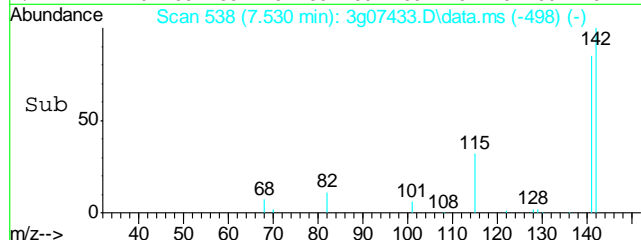
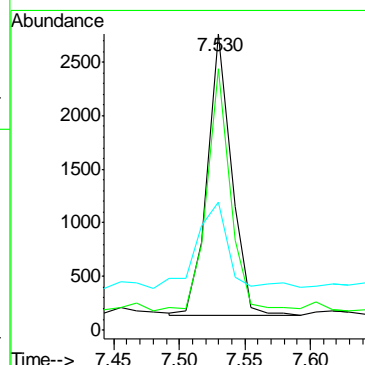
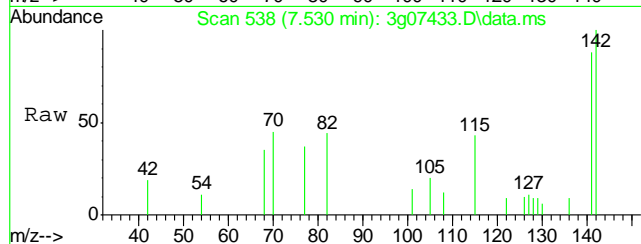
#7  
2-Fluorobiphenyl  
Concen: 7.34 ug/mL  
RT: 8.071 min Scan# 583  
Delta R.T. -0.000 min  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

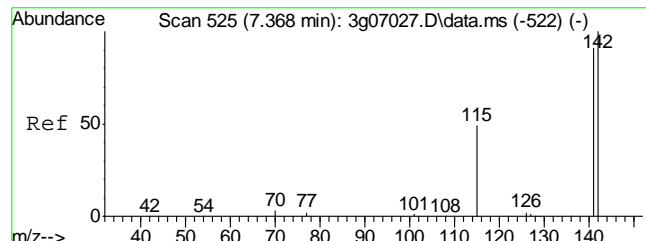
Tgt Ion: 172 Resp: 1102002  
Ion Ratio Lower Upper  
172 100  
171 33.1 12.7 52.7



#8  
2-Methylnaphthalene  
Concen: 0.03 ug/mL  
RT: 7.530 min Scan# 538  
Delta R.T. -0.000 min  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

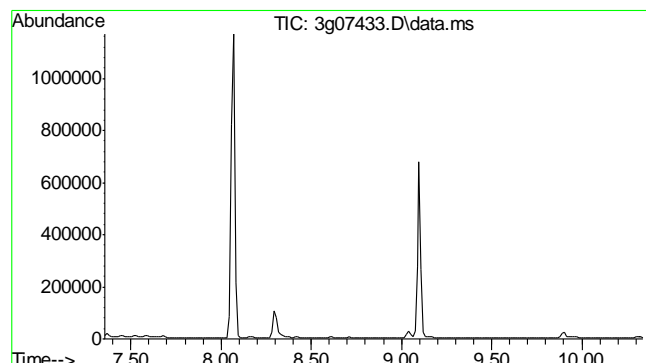
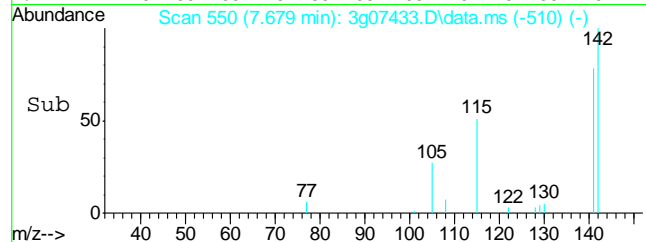
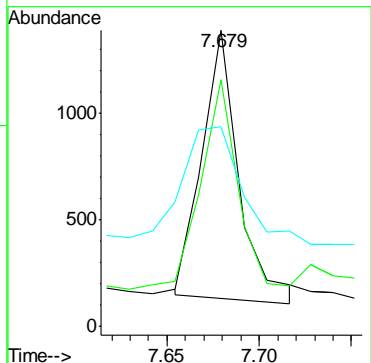
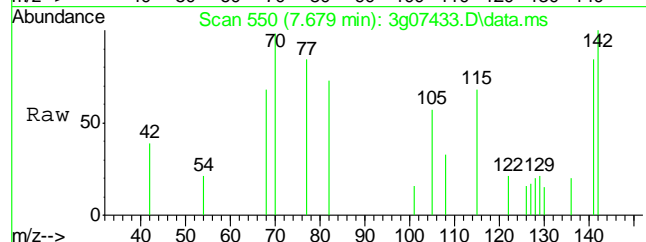
Tgt Ion: 142 Resp: 3365  
Ion Ratio Lower Upper  
142 100  
141 83.4 62.1 102.1  
115 49.4 21.0 61.0





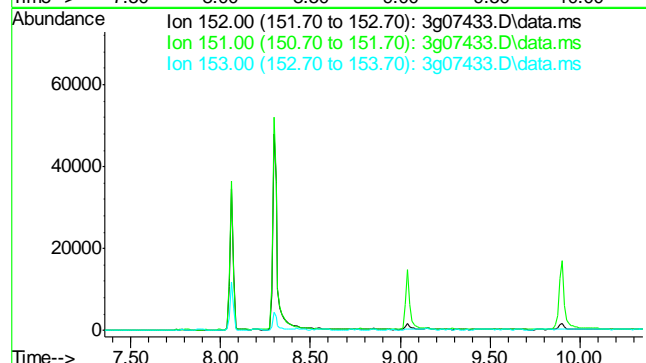
#9  
1-Methylnaphthalene  
Concen: 0.02 ug/mL m  
RT: 7.679 min Scan# 550  
Delta R.T. -0.000 min  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

Tgt Ion:	142	Resp:	1726
Ion Ratio	Lower	Upper	
142	100		
141	162.7	68.6	102.8#
115	99.2	35.4	53.2#

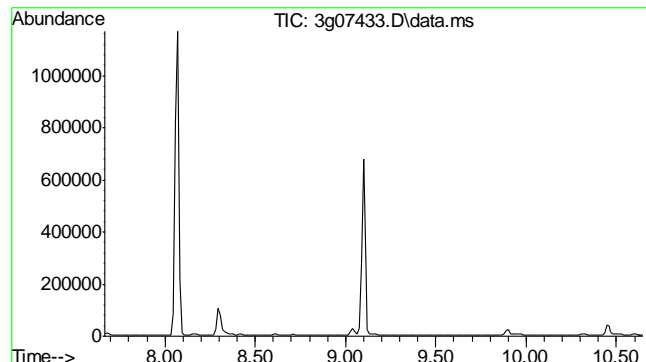


#10  
Acenaphthylene  
Concen: N.D. ug/mL  
Expected RT: 8.85 min  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

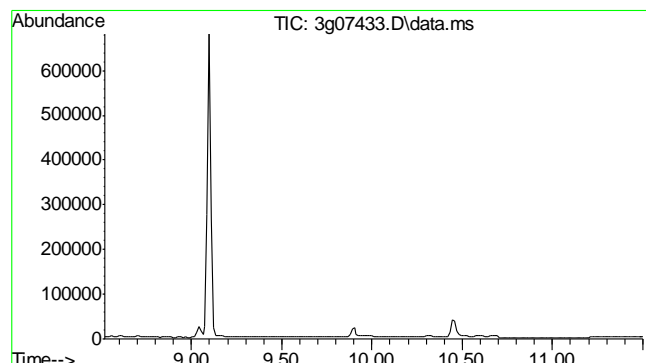
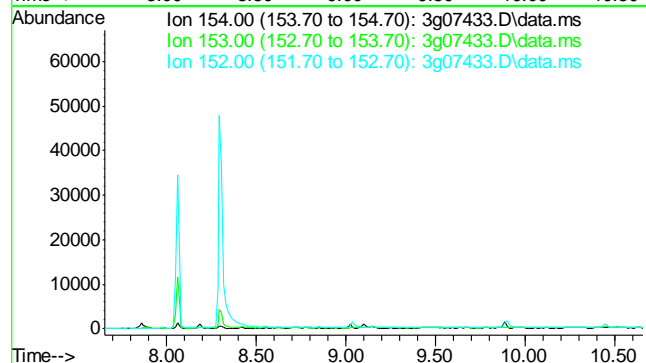
Tgt Ion:	152
Sig	Exp Ratio
152	100
151	18.8
153	12.9



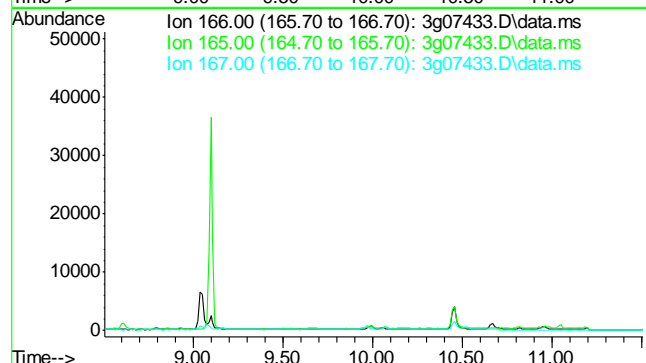


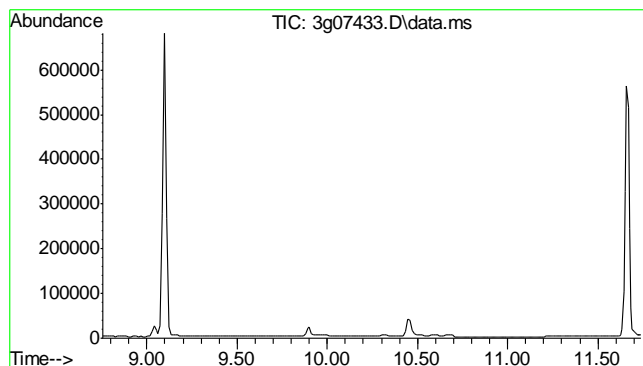


#11  
Acenaphthene  
Concen: N.D. ug/mL  
Expected RT: 9.16 min  
  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm  
  
Tgt Ion: 154  
Sig Exp Ratio  
154 100  
153 104.3  
152 49.7



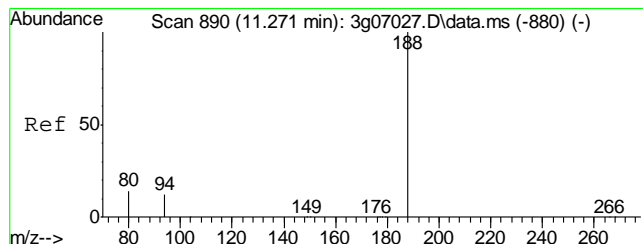
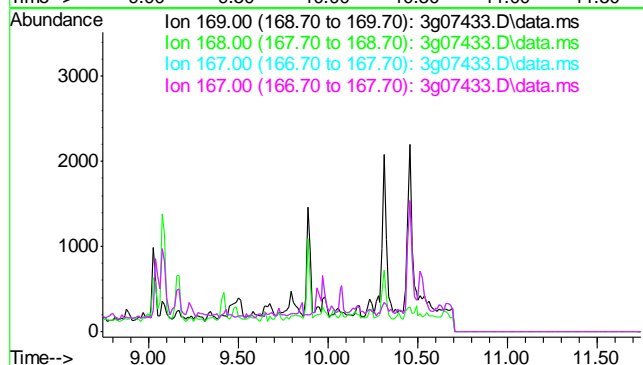
#12  
Fluorene  
Concen: N.D. ug/mL  
Expected RT: 10.01 min  
  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm  
  
Tgt Ion: 166  
Sig Exp Ratio  
166 100  
165 89.9  
167 13.1





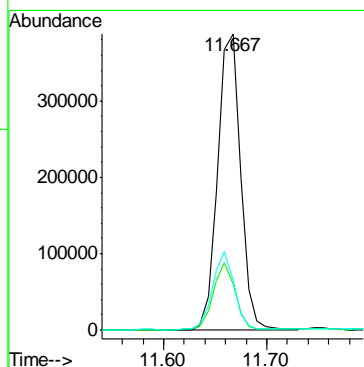
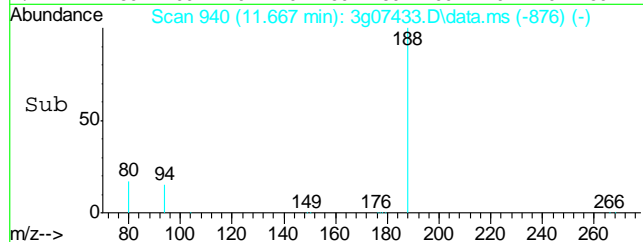
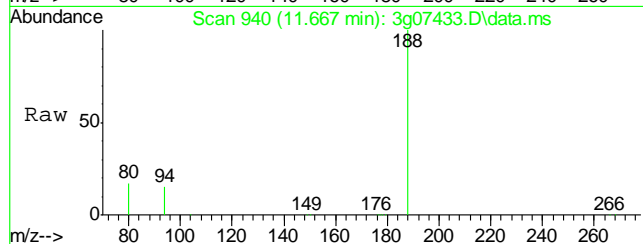
#13  
Diphenylamine  
Concen: N.D. ug/mL  
Expected RT: 10.24 min  
  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

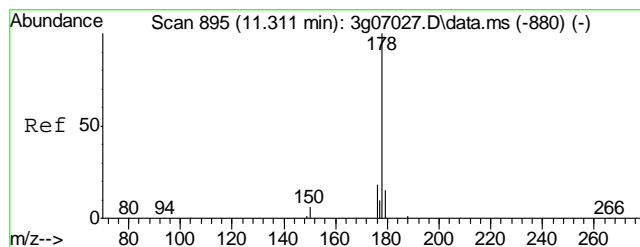
Tgt Ion: 169  
Sig Exp Ratio  
169 100  
168 60.9  
167 32.9  
167 32.9



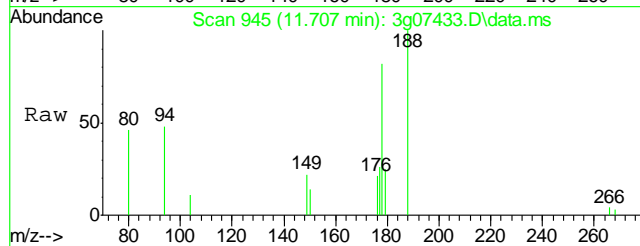
#14  
Phenanthrene-d10  
Concen: 4.00 ug/mL  
RT: 11.667 min Scan# 940  
Delta R.T. -0.000 min  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

Tgt Ion: 188 Resp: 598965  
Ion Ratio Lower Upper  
188 100  
94 21.3 5.1 45.1  
80 24.6 8.1 48.1

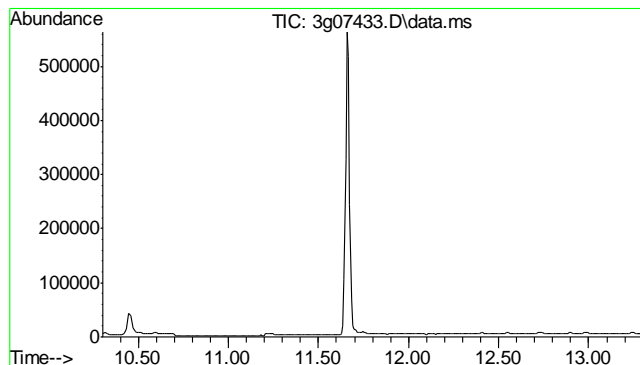
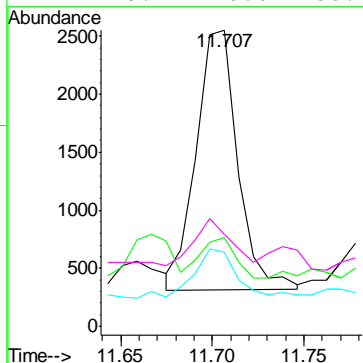
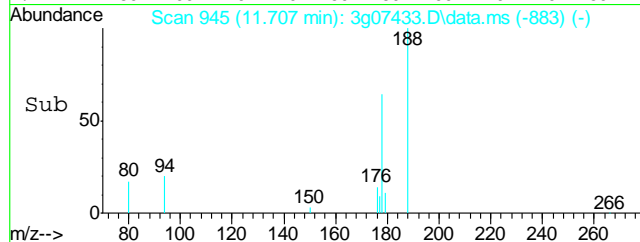




#15  
Phenanthrene  
Concen: 0.02 ug/mL  
RT: 11.707 min Scan# 945  
Delta R.T. -0.008 min  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

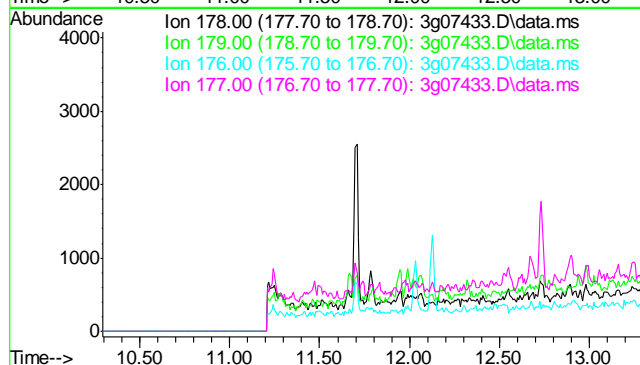


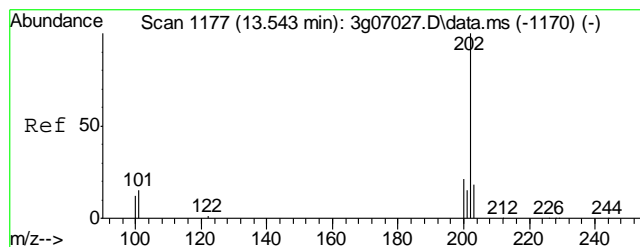
Tgt Ion:	178	Resp:	3519
Ion Ratio	Lower	Upper	
178	100		
179	12.9	0.0	35.2
176	27.1	0.0	38.4
177	18.1	0.0	30.0



#16  
Anthracene  
Concen: N.D. ug/mL  
Expected RT: 11.79 min  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

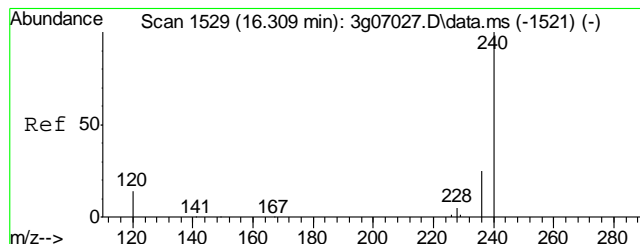
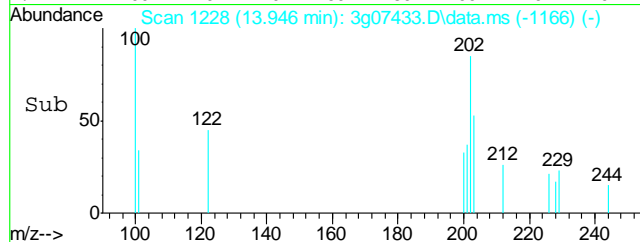
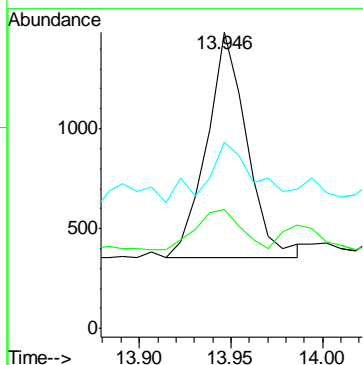
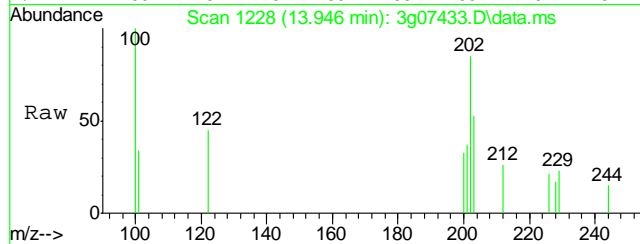
Tgt Ion:	178
Sig	Exp Ratio
178	100
179	15.0
176	17.6
177	8.5





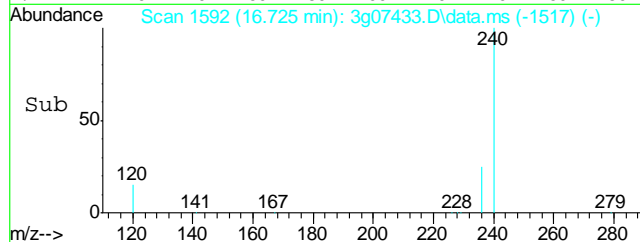
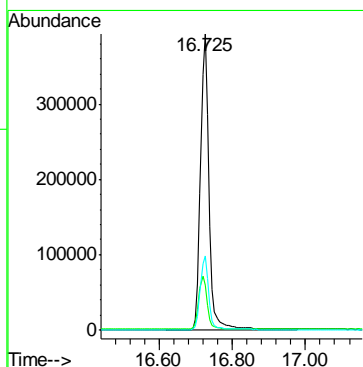
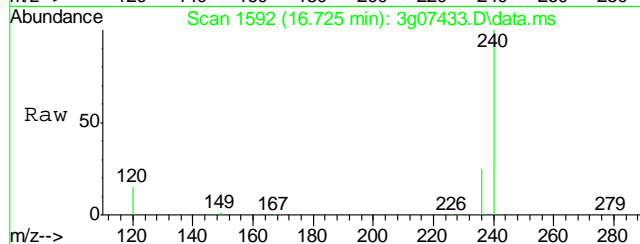
#17  
Fluoranthene  
Concen: 0.06 ug/mL  
RT: 13.946 min Scan# 1228  
Delta R.T. -0.008 min  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

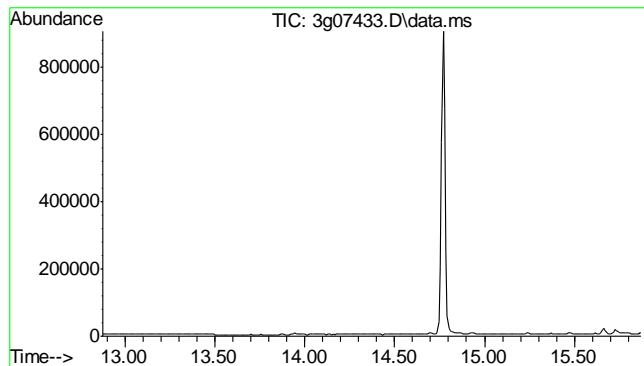
Tgt Ion: 202	Resp: 1694
Ion Ratio	Lower Upper
202	100
101	19.6 2.8 42.8
203	20.8 0.0 37.2



#18  
Chrysene-d12  
Concen: 4.00 ug/mL  
RT: 16.725 min Scan# 1592  
Delta R.T. -0.007 min  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

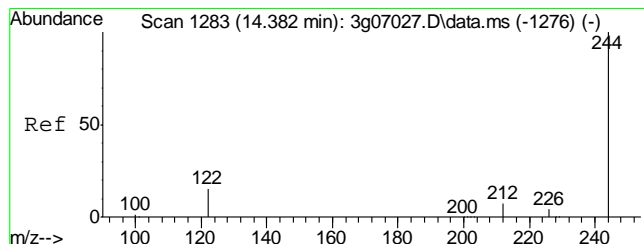
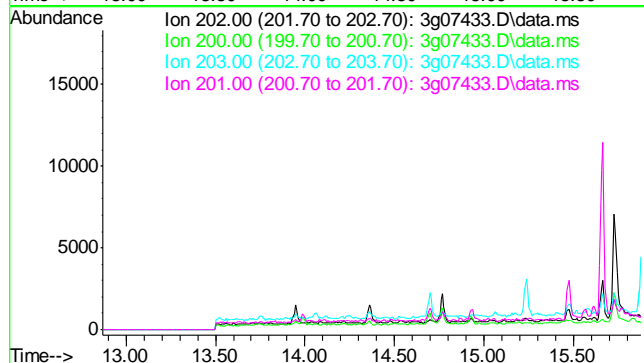
Tgt Ion: 240	Resp: 630851
Ion Ratio	Lower Upper
240	100
120	17.6 0.5 40.5
236	25.2 5.3 45.3





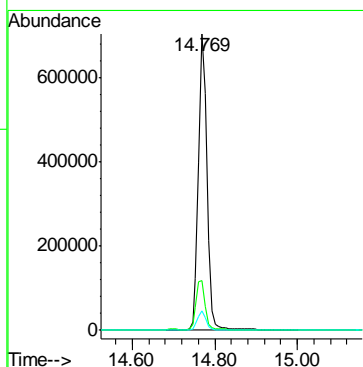
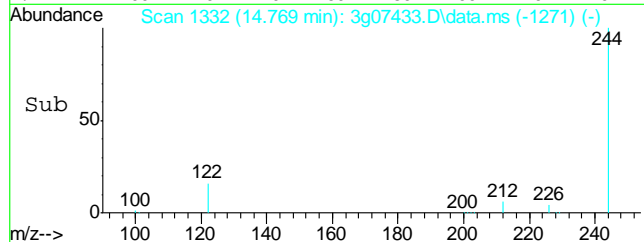
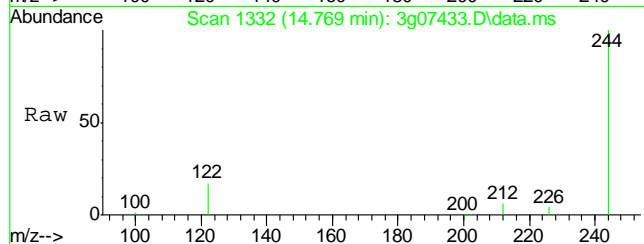
#19  
 Pyrene  
 Concen: N.D. ug/mL  
 Expected RT: 14.37 min  
  
 Lab File: 3g07433.D  
 Acq: 30 Dec 11 7:50 pm

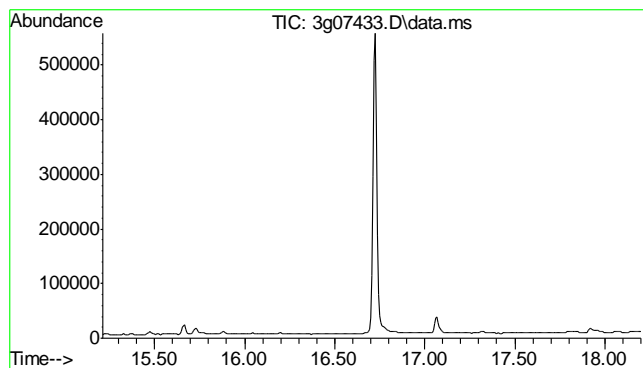
Tgt Ion	Exp Ratio
202	100
200	20.0
203	17.8
201	16.5



#20  
 Terphenyl-d14  
 Concen: 8.12 ug/mL  
 RT: 14.769 min Scan# 1332  
 Delta R.T. -0.016 min  
 Lab File: 3g07433.D  
 Acq: 30 Dec 11 7:50 pm

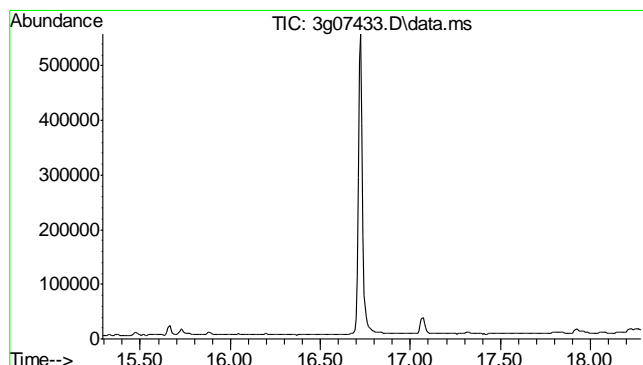
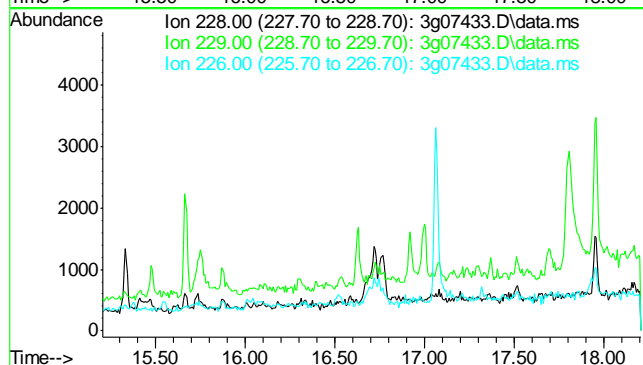
Tgt Ion	Ratio	Lower	Upper
244	100		
122	17.7	0.0	39.3
212	6.3	0.0	26.8





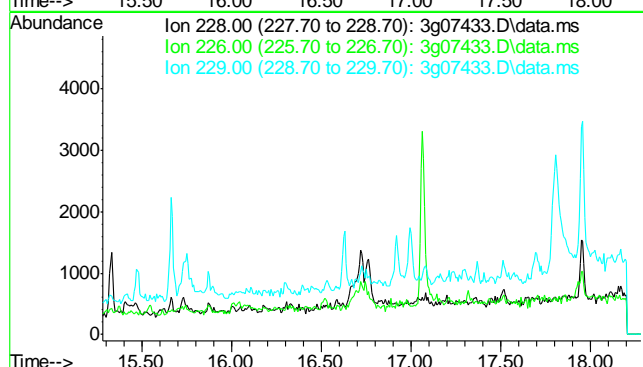
#21  
Benzo(a)anthracene  
Concen: N.D. ug/mL  
Expected RT: 16.70 min  
  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

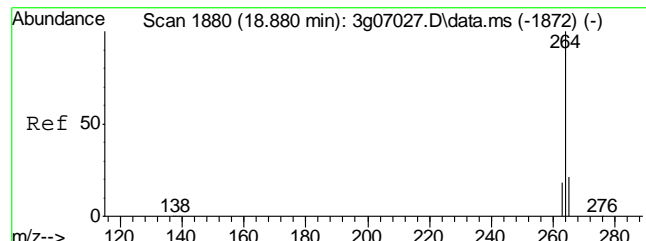
Tgt Ion	Exp Ratio
228	100
229	19.5
226	26.1



#22  
Chrysene  
Concen: N.D. ug/mL  
Expected RT: 16.79 min  
  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

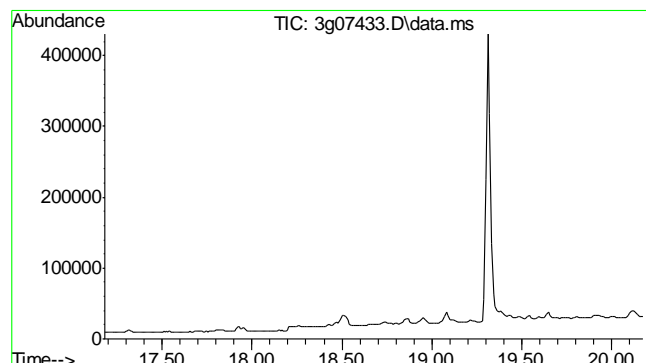
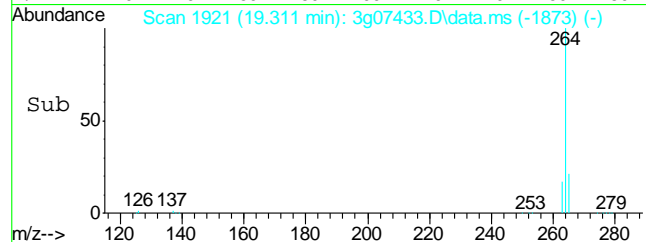
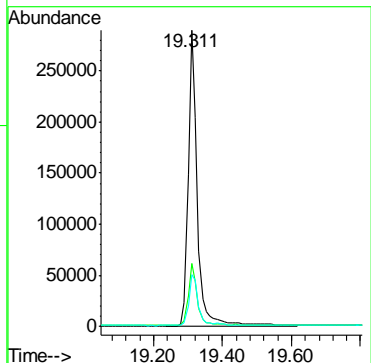
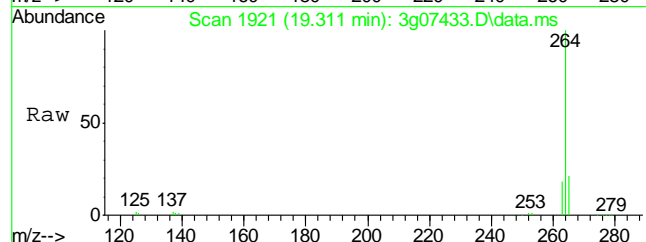
Tgt Ion	Exp Ratio
228	100
226	28.2
229	19.5





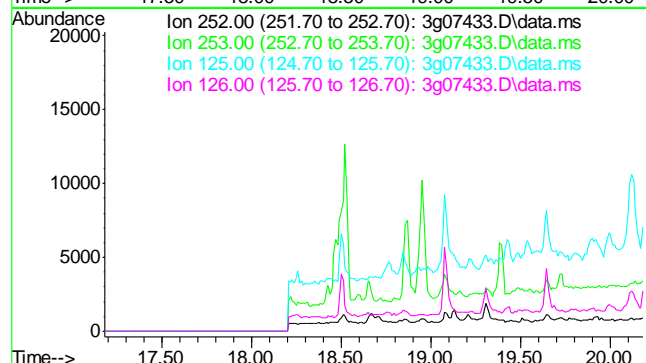
#23  
Perylene-d12  
Concen: 4.00 ug/mL  
RT: 19.311 min Scan# 1921  
Delta R.T. -0.000 min  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

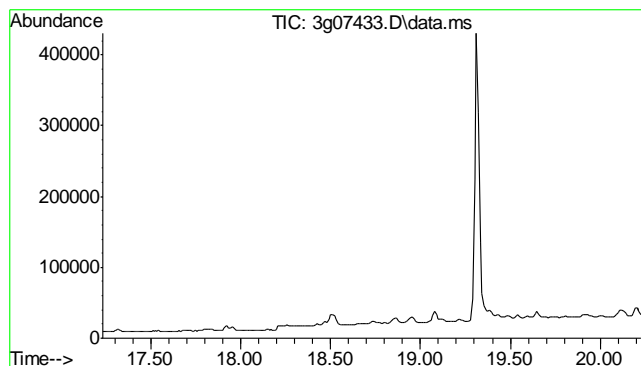
Tgt Ion:	264	Resp:	533572
Ion Ratio	Lower	Upper	
264	100		
265	20.5	0.6	40.6
263	18.8	0.0	39.4



#24  
Benzo(b)fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 18.68 min  
  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

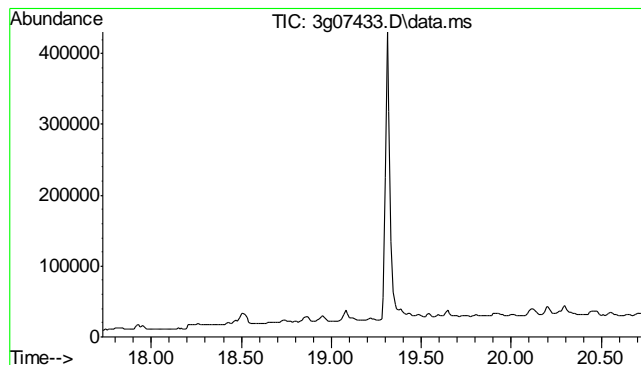
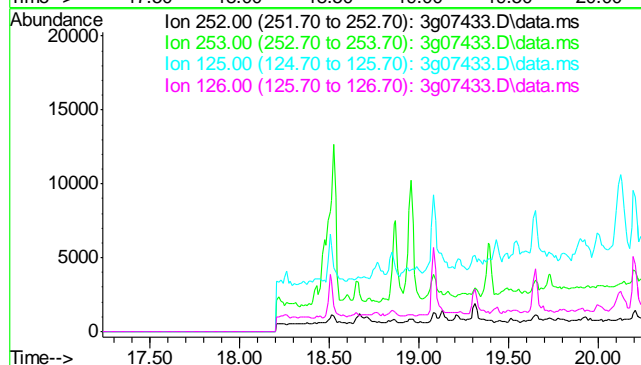
Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.4
125	11.3
126	15.7





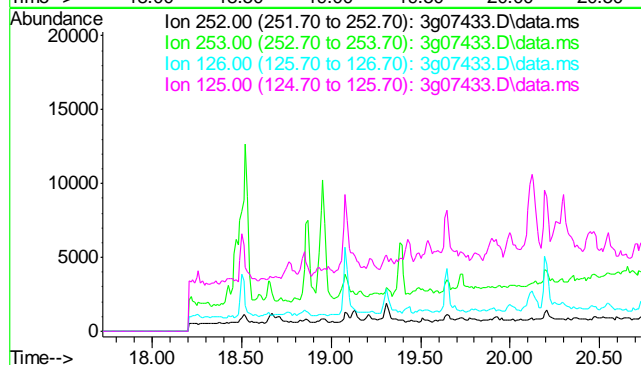
#25  
Benzo(k)fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 18.73 min  
  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

Tgt Ion	Exp Ratio
252	100
253	21.8
125	13.6
126	20.4

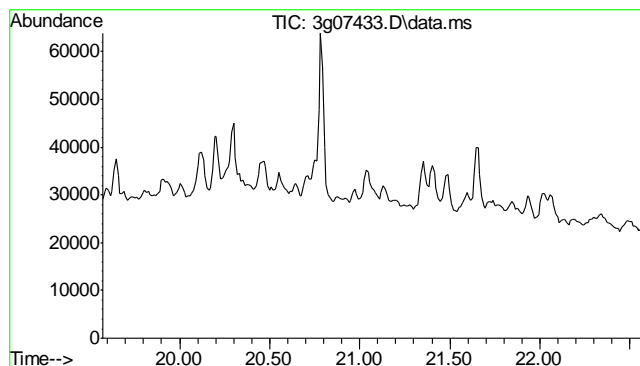


#26  
Benzo(a)pyrene  
Concen: N.D. ug/mL  
Expected RT: 19.23 min  
  
Lab File: 3g07433.D  
Acq: 30 Dec 11 7:50 pm

Tgt Ion	Exp Ratio
252	100
253	21.7
126	18.8
125	16.3

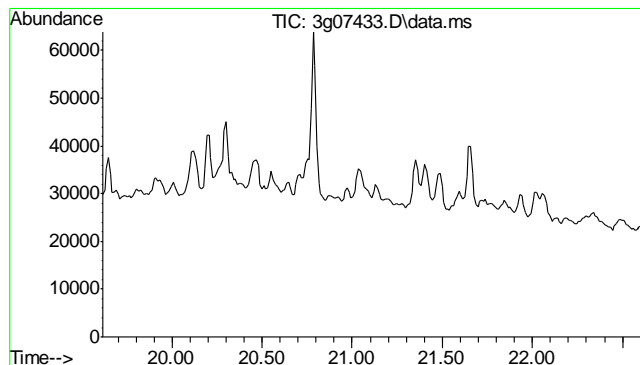
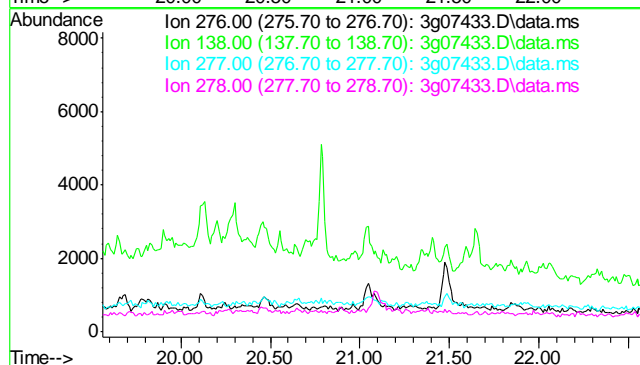






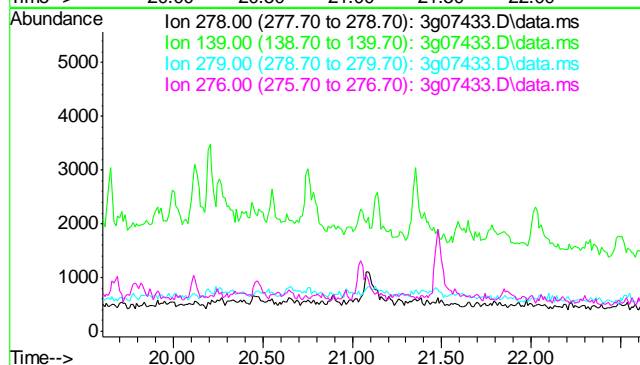
#27  
 Indeno(1,2,3-cd)pyrene  
 Concen: N.D. ug/mL  
 Expected RT: 21.07 min  
  
 Lab File: 3g07433.D  
 Acq: 30 Dec 11 7:50 pm

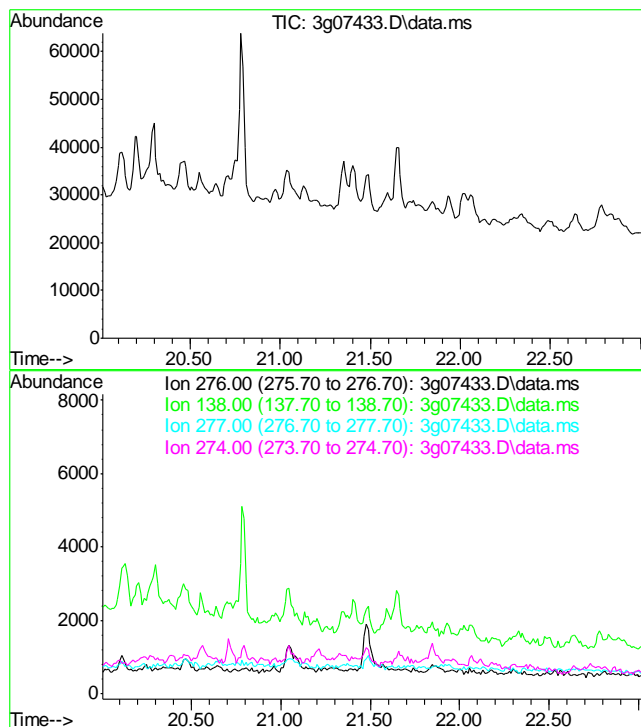
Tgt Ion	Exp Ratio
276	100
138	22.6
277	51.8
278	153.6



#28  
 Dibenz(a,h)anthracene  
 Concen: N.D. ug/mL  
 Expected RT: 21.11 min  
  
 Lab File: 3g07433.D  
 Acq: 30 Dec 11 7:50 pm

Tgt Ion	Exp Ratio
278	100
139	20.0
279	23.0
276	134.7





#29  
 Benzo(g,h,i)perylene  
 Concen: N.D. ug/mL  
 Expected RT: 21.51 min

Lab File: 3g07433.D  
 Acq: 30 Dec 11 7:50 pm

Tgt Ion	Exp Ratio
276	100
138	25.1
277	23.8
274	21.4

6.1.1  
 6

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\123011\  
Data File : 3g07426.D  
Acq On : 30 Dec 2011 3:41 pm  
Operator : DONC  
Sample : OP5080-MB  
Misc : OP5080,E3G277,30,,,1,1  
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 03 08:09:57 2012  
Quant Method : C:\msdchem\1\METHODS\SIMPE3G277.M  
Quant Title : PAHSIM BASE  
QLast Update : Fri Dec 30 15:13:20 2011  
Response via : Initial Calibration

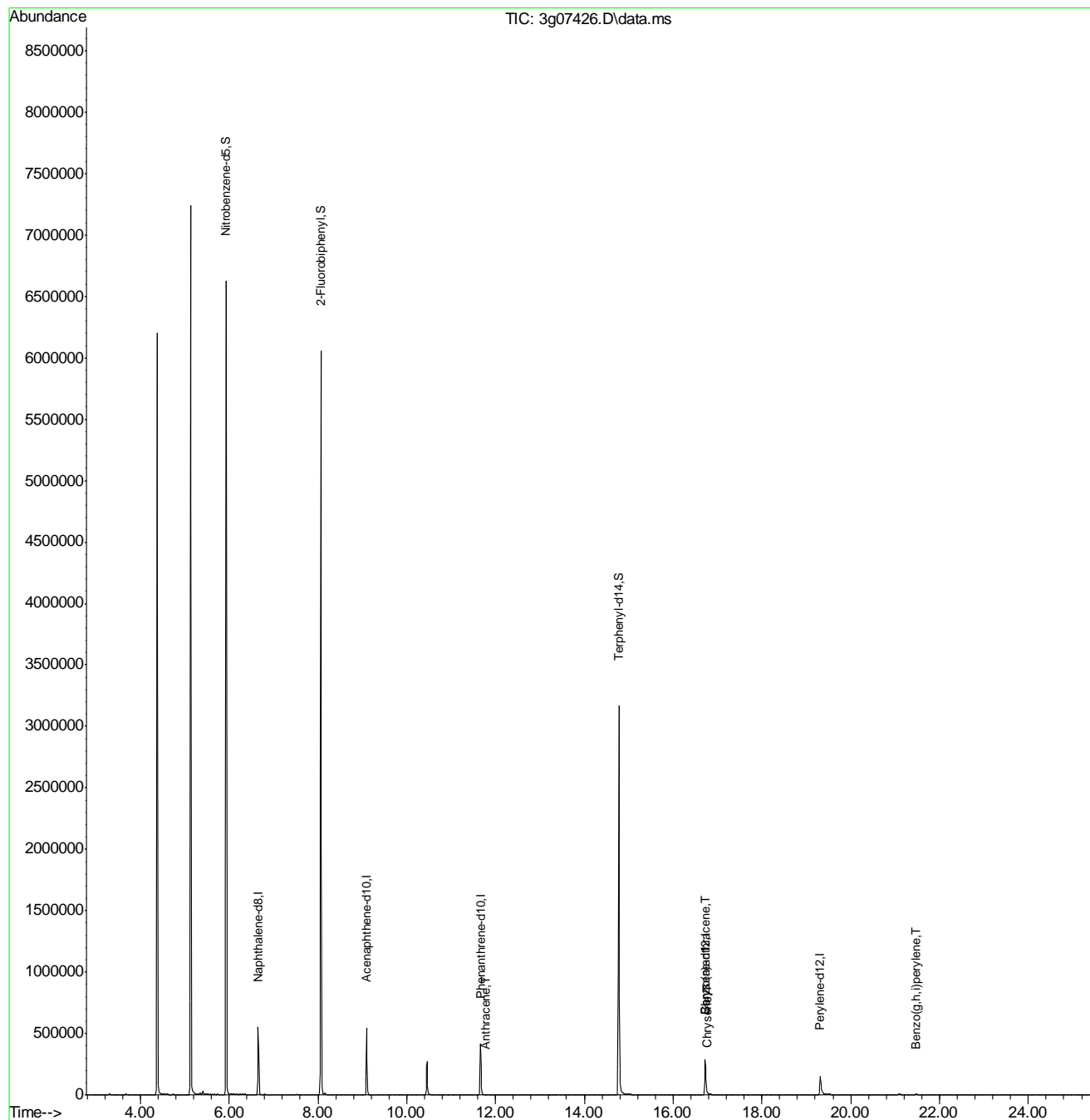
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.657	136	518744	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.098	164	298944	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.667	188	434565	4.00	ug/mL	0.00
18) Chrysene-d12	16.725	240	370815	4.00	ug/mL	0.00
23) Perylene-d12	19.311	264	272470	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.934	82	4686784	41.61	ug/mL	0.00
7) 2-Fluorobiphenyl	8.070	172	5175272	42.61	ug/mL	0.00
20) Terphenyl-d14	14.777	244	3830008	52.35	ug/mL	0.00
Target Compounds						
						Qvalue
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	0.000		0	N.D.	d	
8) 2-Methylnaphthalene	0.000		0	N.D.	d	
9) 1-Methylnaphthalene	0.000		0	N.D.	d	
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	0.000		0	N.D.	d	
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	0.000		0	N.D.	d	
16) Anthracene	11.786	178	493	0.04	ug/mL	87
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	0.000		0	N.D.	d	
21) Benzo(a)anthracene	16.725	228	1793	0.09	ug/mL	92
22) Chrysene	16.772	228	1506	0.01	ug/mL	85
24) Benzo(b)fluoranthene	0.000		0	N.D.	d	
25) Benzo(k)fluoranthene	0.000		0	N.D.	d	
26) Benzo(a)pyrene	0.000		0	N.D.	d	
27) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
28) Dibenz(a,h)anthracene	0.000		0	N.D.	d	
29) Benzo(g,h,i)perylene	21.467	276	2029	0.09	ug/mL	95

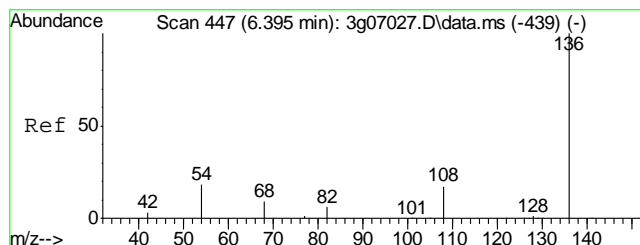
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\123011\  
Data File : 3g07426.D  
Acq On : 30 Dec 2011 3:41 pm  
Operator : DONC  
Sample : OP5080-MB  
Misc : OP5080,E3G277,30,,,1,1  
ALS Vial : 11 Sample Multiplier: 1

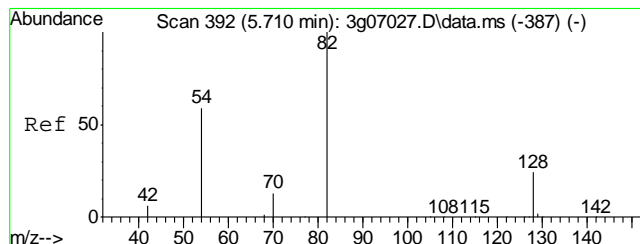
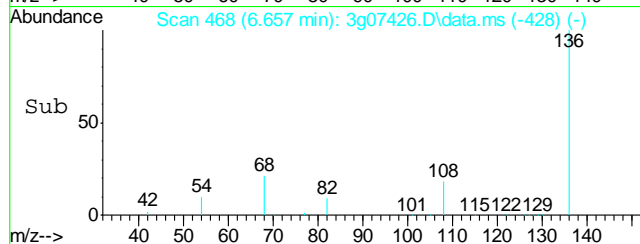
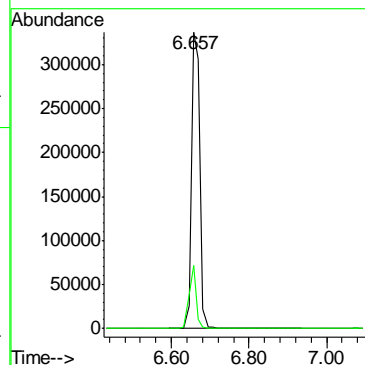
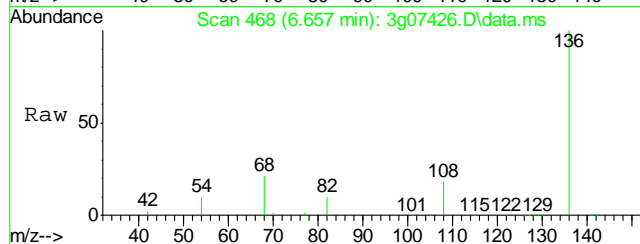
Quant Time: Jan 03 08:09:57 2012  
Quant Method : C:\msdchem\1\METHODS\SIMPE3G277.M  
Quant Title : PAHSIM BASE  
QLast Update : Fri Dec 30 15:13:20 2011  
Response via : Initial Calibration





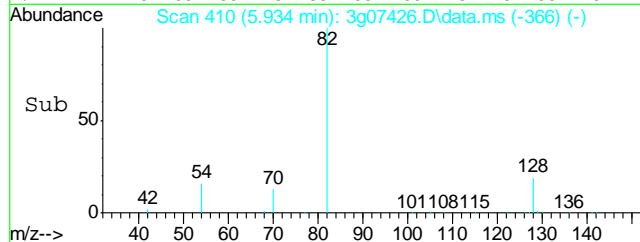
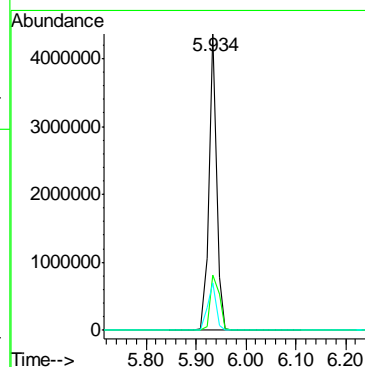
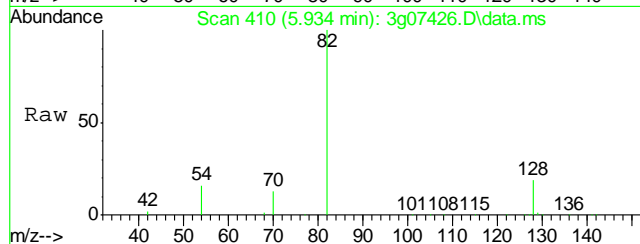
#1  
Naphthalene-d8  
Concen: 4.00 ug/mL  
RT: 6.657 min Scan# 468  
Delta R.T. -0.000 min  
Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

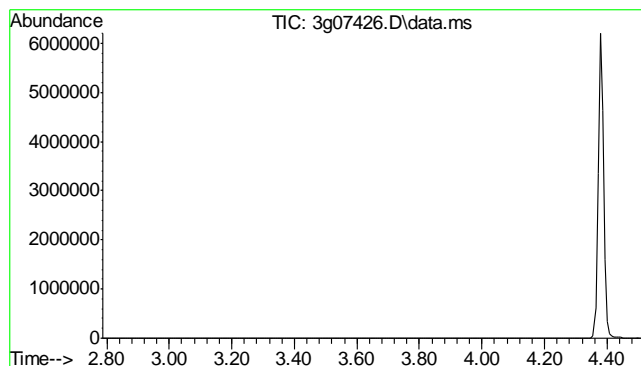
Tgt Ion: 136 Resp: 518744  
Ion Ratio Lower Upper  
136 100  
68 17.8 0.0 38.4



#2  
Nitrobenzene-d5  
Concen: 41.61 ug/mL  
RT: 5.934 min Scan# 410  
Delta R.T. -0.000 min  
Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

Tgt Ion: 82 Resp: 4686784  
Ion Ratio Lower Upper  
82 100  
128 22.7 1.1 41.1  
54 17.9 0.0 38.3

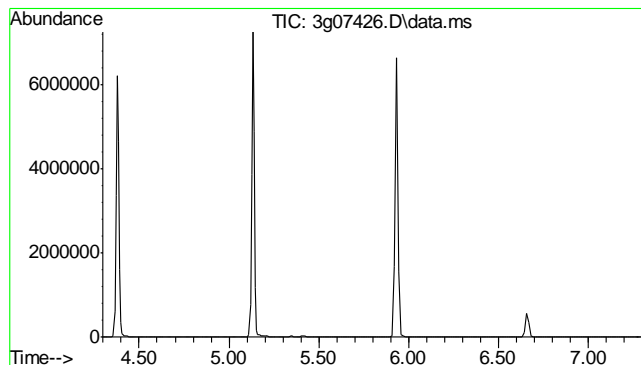
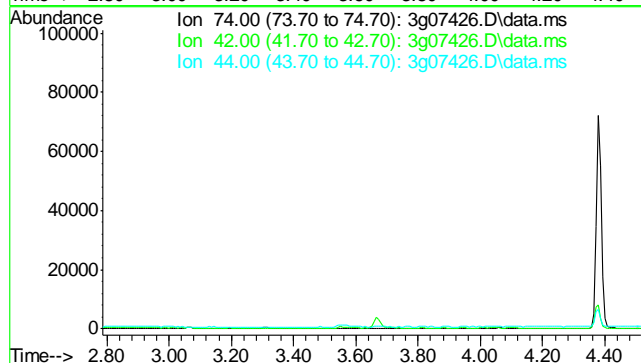




#3  
N-Nitrosodimethylamine  
Concen: N.D. ug/mL  
Expected RT: 3.01 min

Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

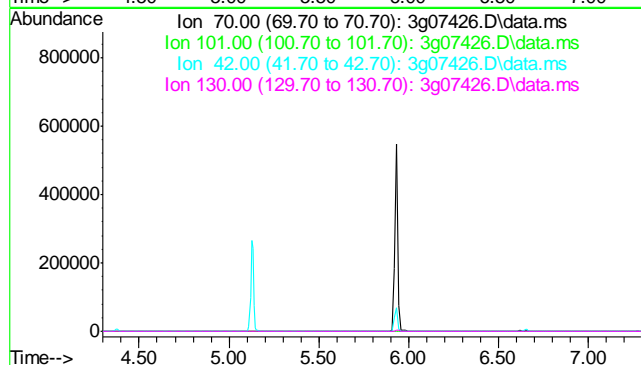
Tgt Ion:	74
Sig	Exp Ratio
74	100
42	21.4
44	1.4

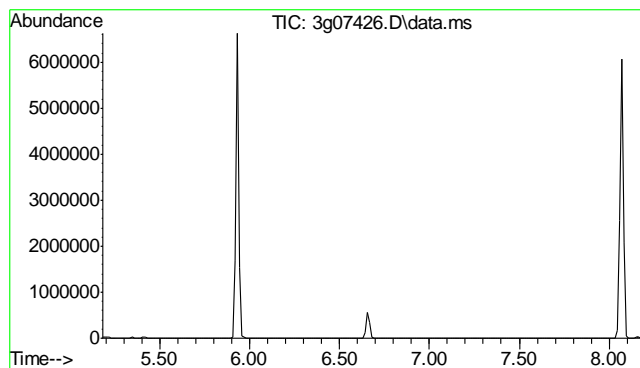


#4  
N-Nitrosodi-propylamine  
Concen: N.D. ug/mL  
Expected RT: 5.80 min

Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

Tgt Ion:	70
Sig	Exp Ratio
70	100
101	8.9
42	17.1
130	10.3

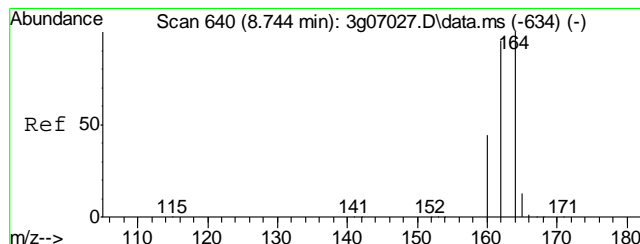
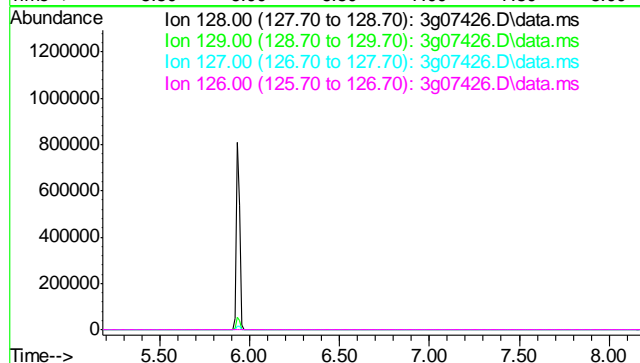




#5  
Naphthalene  
Concen: N.D. ug/mL  
Expected RT: 6.68 min

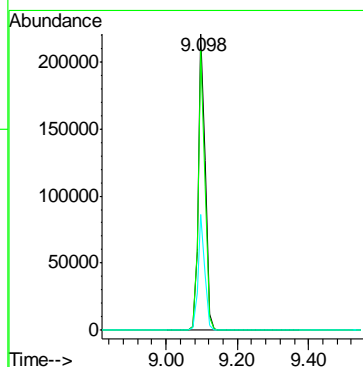
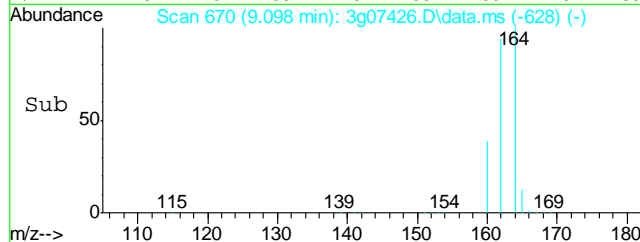
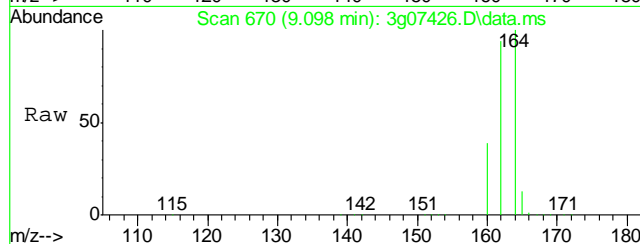
Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

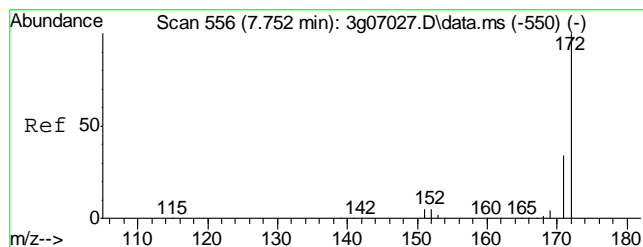
Tgt Ion: 128  
Sig Exp Ratio  
128 100  
129 10.8  
127 13.8  
126 8.1



#6  
Acenaphthene-d10  
Concen: 4.00 ug/mL  
RT: 9.098 min Scan# 670  
Delta R.T. -0.000 min  
Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

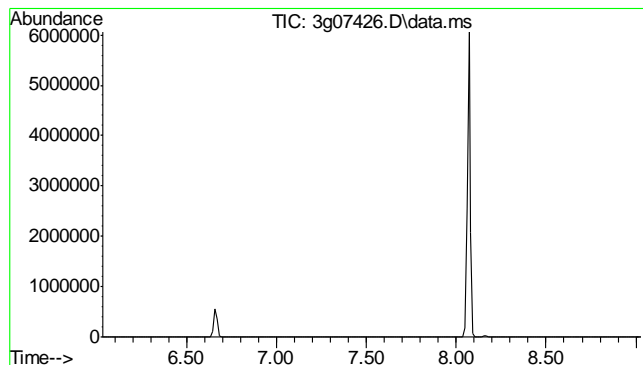
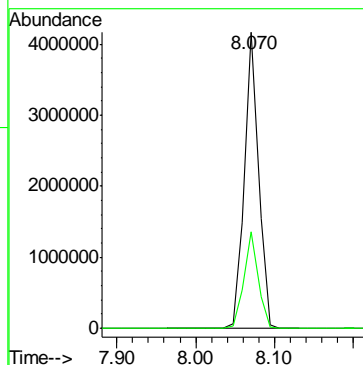
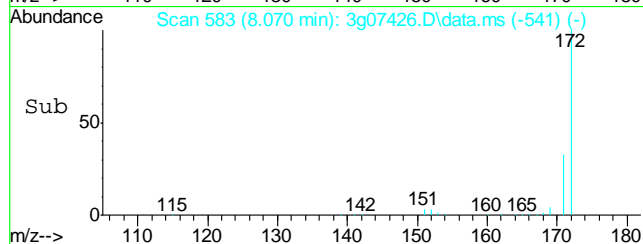
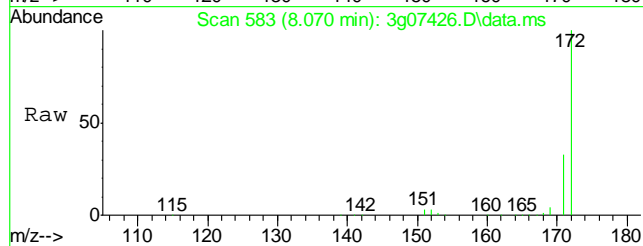
Tgt Ion: 164 Resp: 298944  
Ion Ratio Lower Upper  
164 100  
162 92.5 72.2 112.2  
160 38.0 17.7 57.7





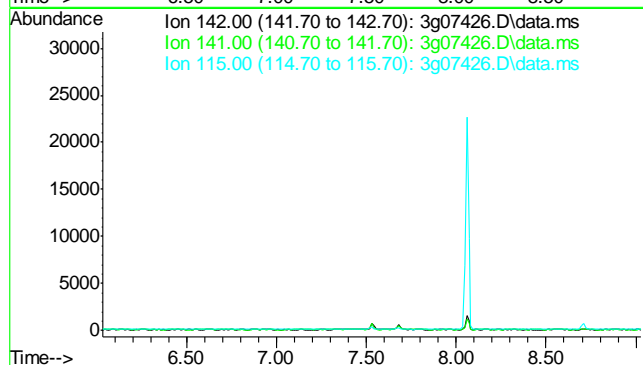
#7  
2-Fluorobiphenyl  
Concen: 42.61 ug/mL  
RT: 8.070 min Scan# 583  
Delta R.T. -0.000 min  
Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

Tgt Ion: 172 Resp: 5175272  
Ion Ratio Lower Upper  
172 100  
171 32.8 12.7 52.7

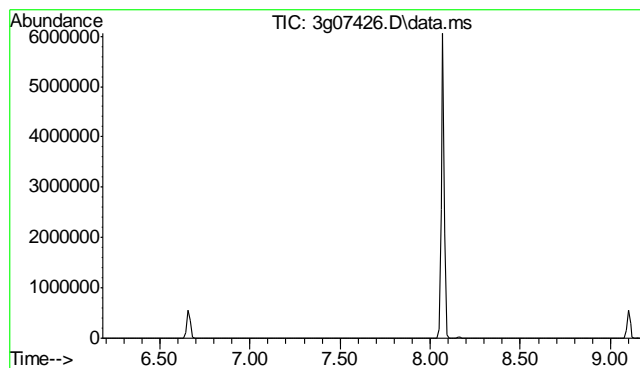


#8  
2-Methylnaphthalene  
Concen: N.D. ug/mL  
Expected RT: 7.53 min  
Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

Tgt Ion: 142  
Sig Exp Ratio  
142 100  
141 82.1  
115 41.0



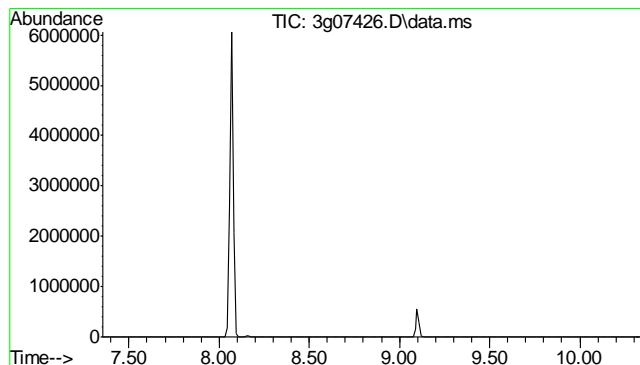
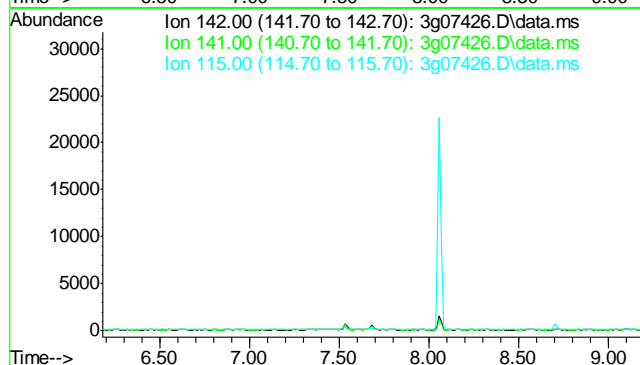




#9  
1-Methylnaphthalene  
Concen: N.D. ug/mL  
Expected RT: 7.68 min

Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

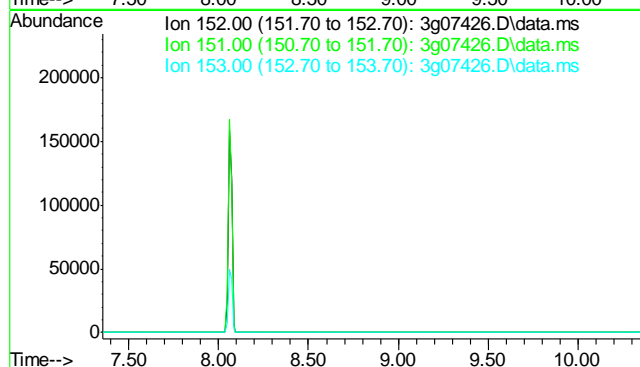
Tgt Ion:	142
Sig	Exp Ratio
142	100
141	85.7
115	44.3

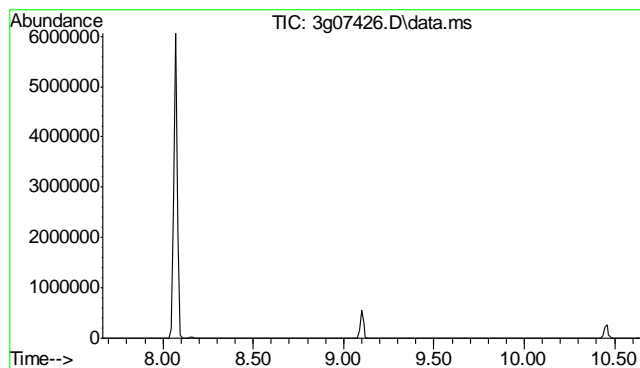


#10  
Acenaphthylene  
Concen: N.D. ug/mL  
Expected RT: 8.85 min

Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

Tgt Ion:	152
Sig	Exp Ratio
152	100
151	18.8
153	12.9

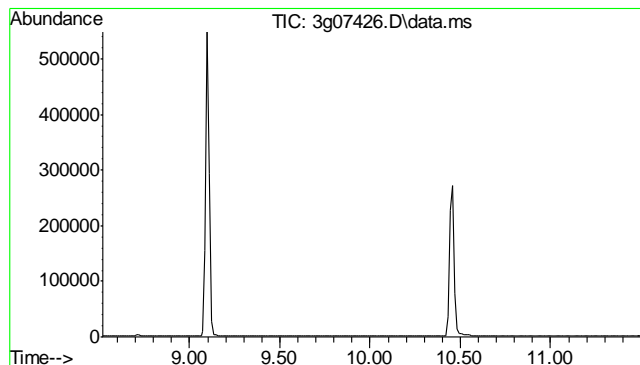
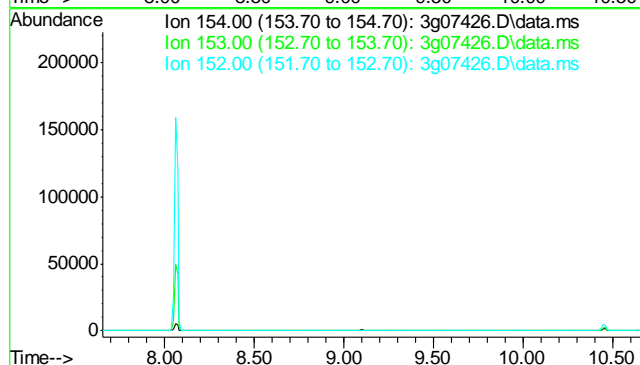




#11  
Acenaphthene  
Concen: N.D. ug/mL  
Expected RT: 9.16 min

Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

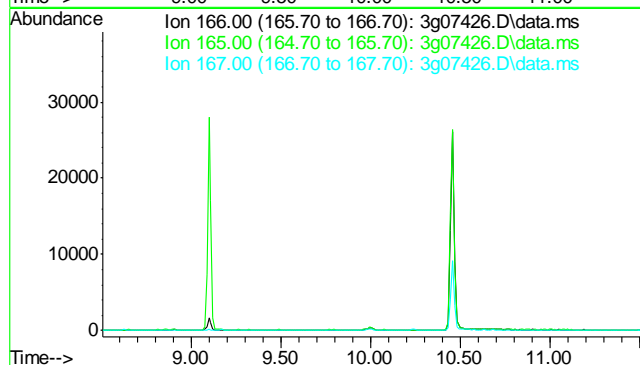
Tgt Ion:	154
Sig	Exp Ratio
154	100
153	104.3
152	49.7

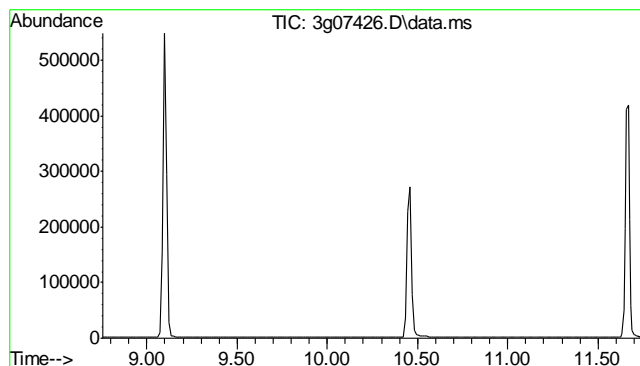


#12  
Fluorene  
Concen: N.D. ug/mL  
Expected RT: 10.01 min

Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

Tgt Ion:	166
Sig	Exp Ratio
166	100
165	89.9
167	13.1

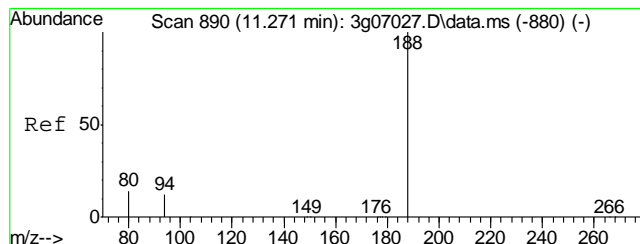
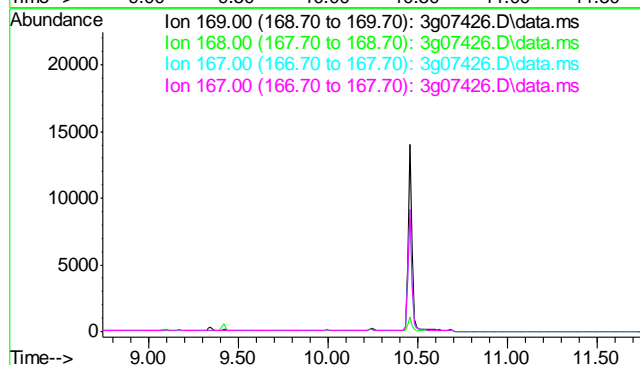




#13  
Diphenylamine  
Concen: N.D. ug/mL  
Expected RT: 10.24 min

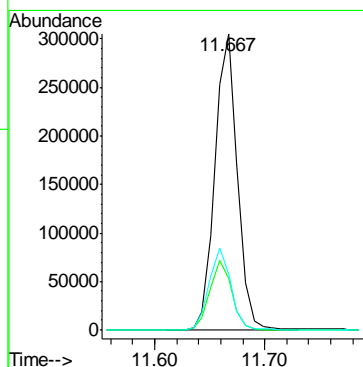
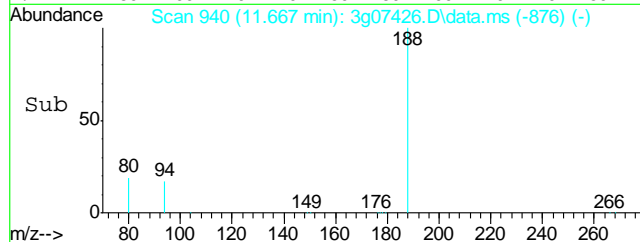
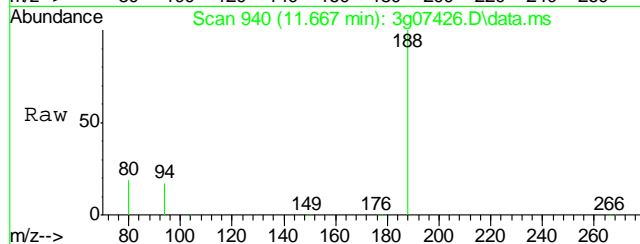
Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

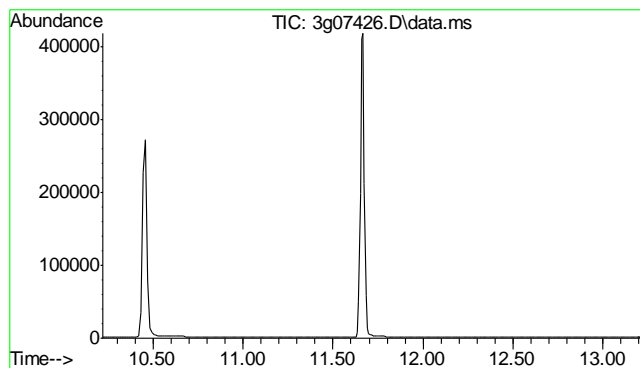
Tgt Ion: 169  
Sig Exp Ratio  
169 100  
168 60.9  
167 32.9  
167 32.9



#14  
Phenanthrene-d10  
Concen: 4.00 ug/mL  
RT: 11.667 min Scan# 940  
Delta R.T. -0.000 min  
Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

Tgt Ion: 188 Resp: 434565  
Ion Ratio Lower Upper  
188 100  
94 22.9 5.1 45.1  
80 26.8 8.1 48.1

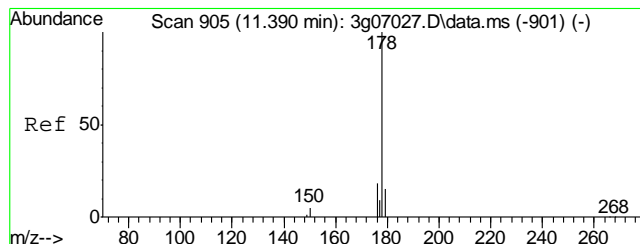
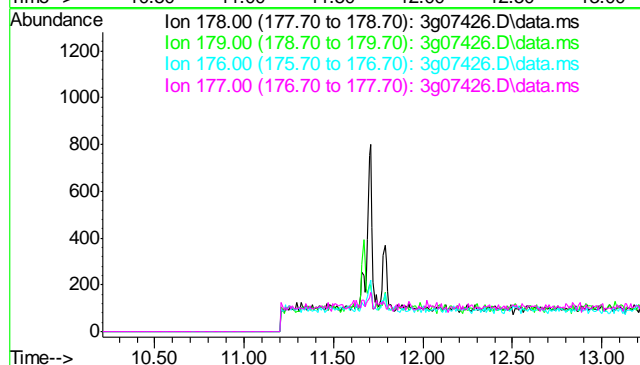




#15  
Phenanthrene  
Concen: N.D. ug/mL  
Expected RT: 11.71 min

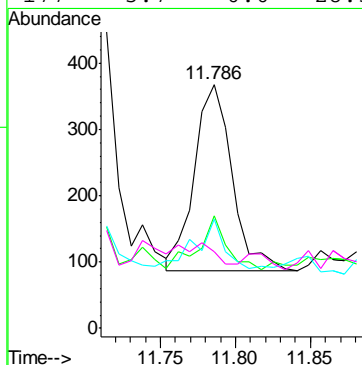
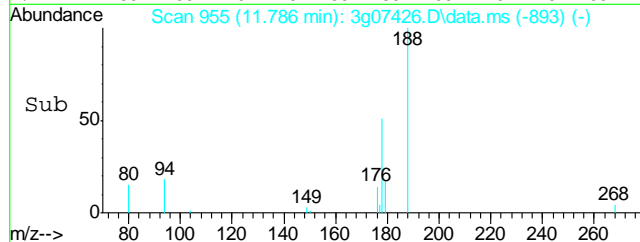
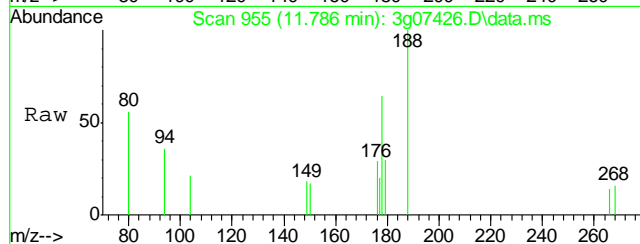
Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

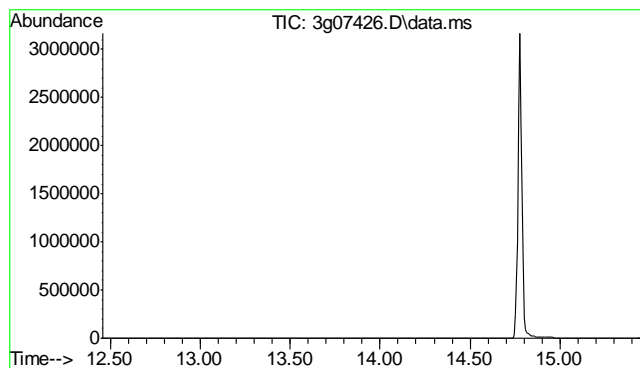
Tgt Ion: 178  
Sig Exp Ratio  
178 100  
179 15.2  
176 18.4  
177 10.0



#16  
Anthracene  
Concen: 0.04 ug/mL  
RT: 11.786 min Scan# 955  
Delta R.T. -0.007 min  
Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

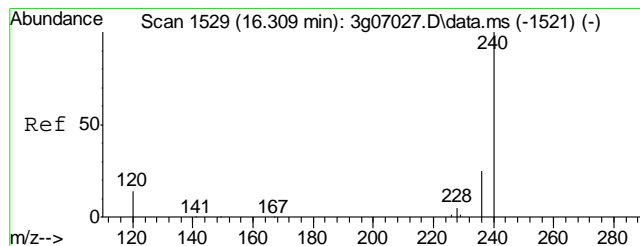
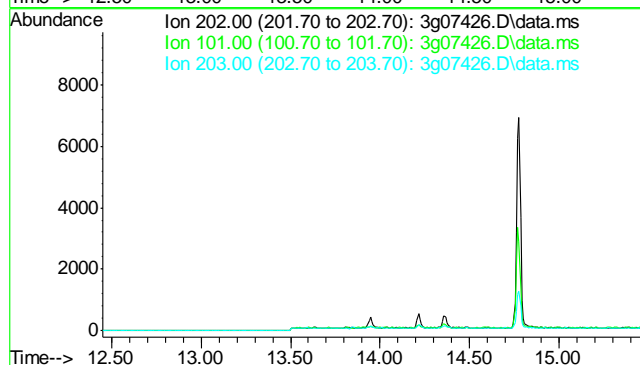
Tgt Ion: 178 Resp: 493  
Ion Ratio Lower Upper  
178 100  
179 21.1 0.0 35.0  
176 23.3 0.0 37.6  
177 5.7 0.0 28.5





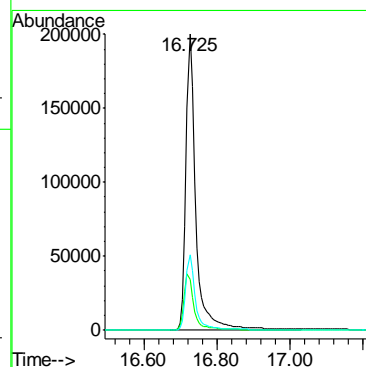
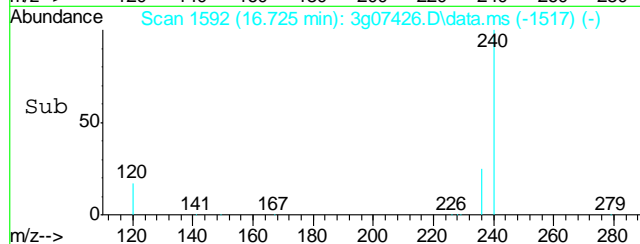
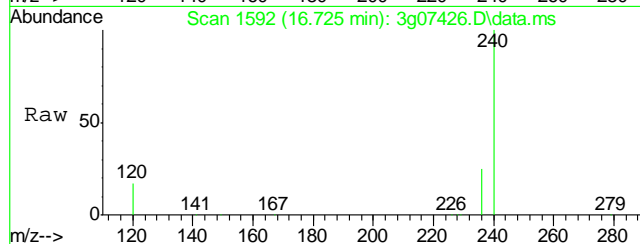
#17  
Fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 13.95 min  
  
Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

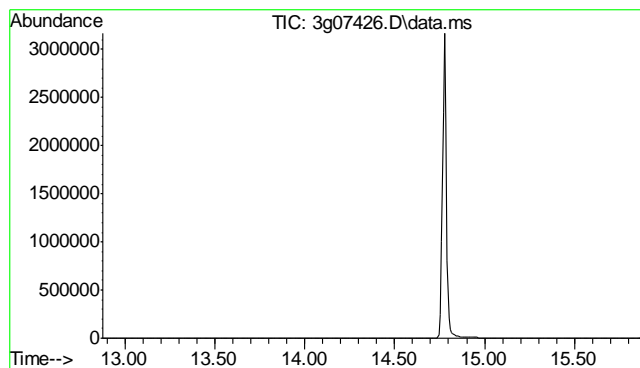
Tgt Ion:	202
Sig	Exp Ratio
202	100
101	22.8
203	17.2



#18  
Chrysene-d12  
Concen: 4.00 ug/mL  
RT: 16.725 min Scan# 1592  
Delta R.T. -0.007 min  
Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

Tgt Ion:	240	Resp:	370815
Ion	Ratio	Lower	Upper
240	100		
120	19.2	0.5	40.5
236	25.3	5.3	45.3

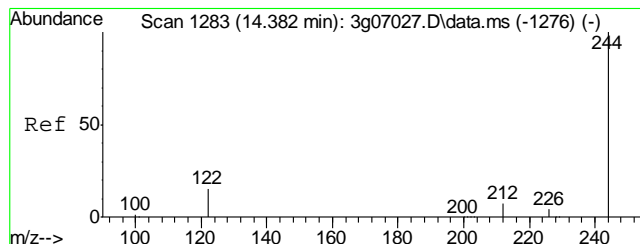
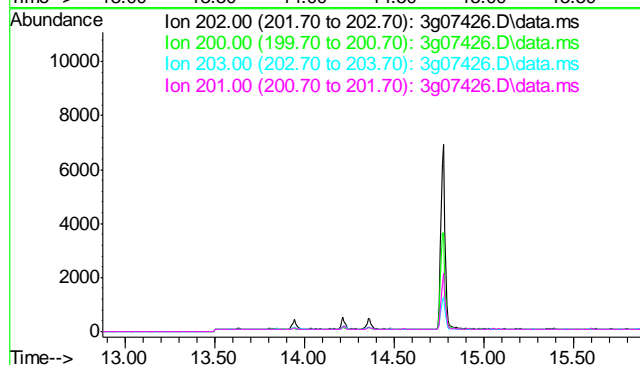




#19  
Pyrene  
Concen: N.D. ug/mL  
Expected RT: 14.37 min

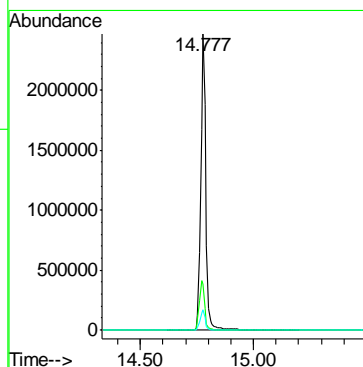
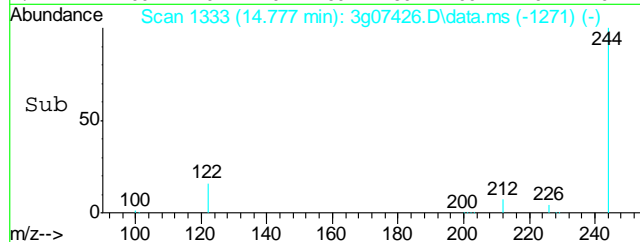
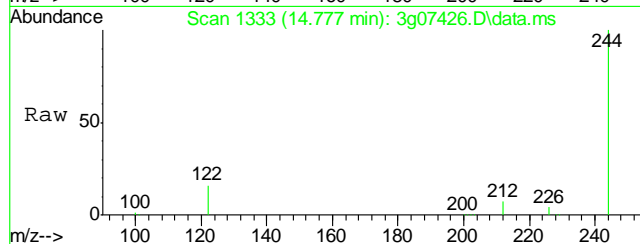
Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

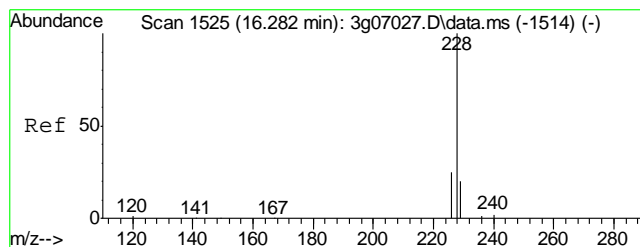
Tgt Ion:	202
Sig	Exp Ratio
202	100
200	20.0
203	17.8
201	16.5



#20  
Terphenyl-d14  
Concen: 52.35 ug/mL  
RT: 14.777 min Scan# 1333  
Delta R.T. -0.008 min  
Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

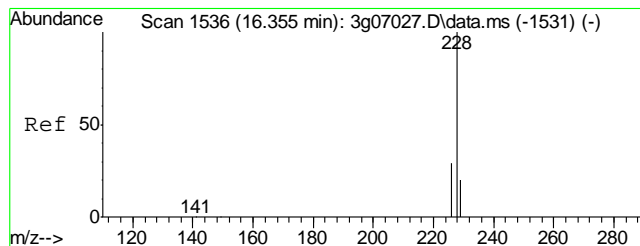
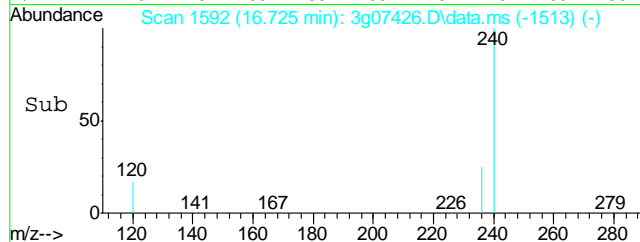
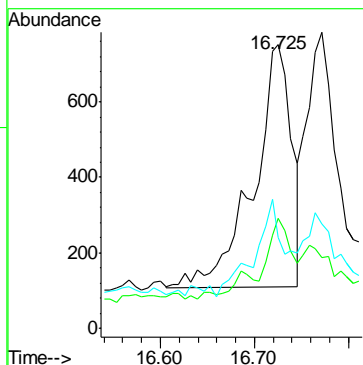
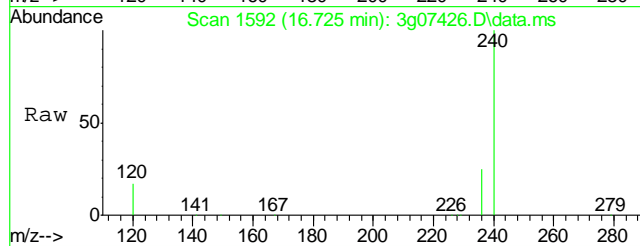
Tgt Ion:	244	Resp:	3830008
Ion	Ratio	Lower	Upper
244	100		
122	17.7	0.0	39.3
212	6.9	0.0	26.8





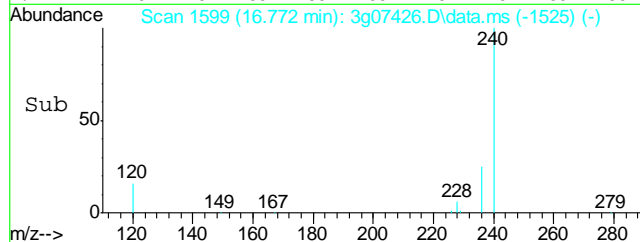
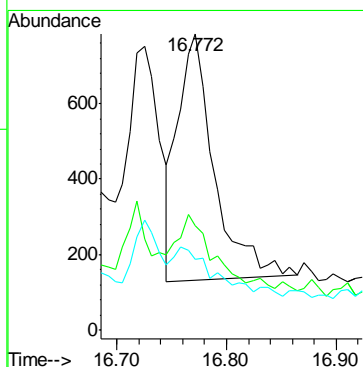
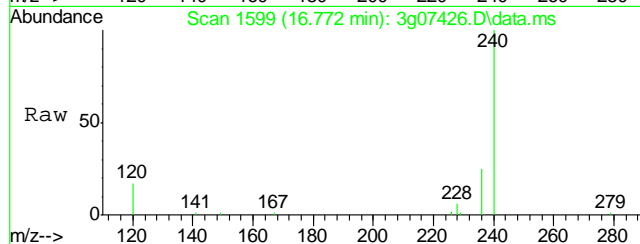
#21  
Benzo(a)anthracene  
Concen: 0.09 ug/mL  
RT: 16.725 min Scan# 1592  
Delta R.T. 0.020 min  
Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

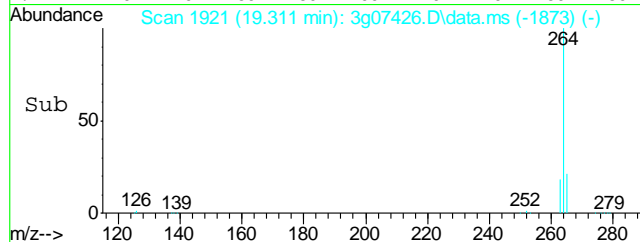
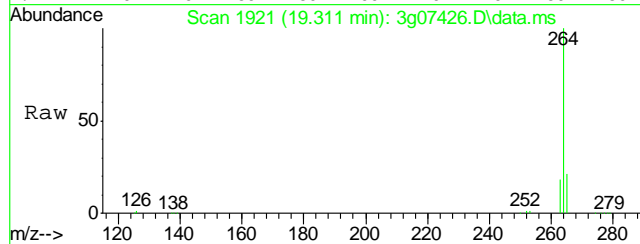
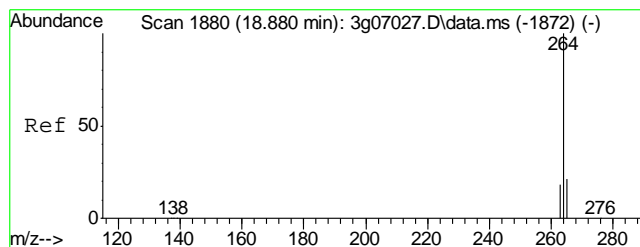
Tgt Ion: 228	Resp: 1793
Ion Ratio	Lower Upper
228	100
229	18.3 0.0 39.5
226	32.6 6.1 46.1



#22  
Chrysene  
Concen: 0.01 ug/mL  
RT: 16.772 min Scan# 1599  
Delta R.T. -0.013 min  
Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

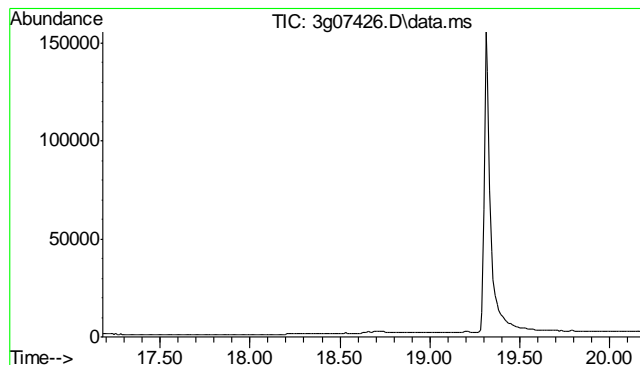
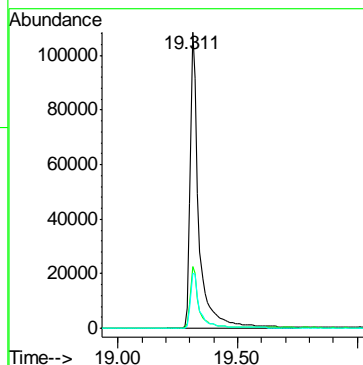
Tgt Ion: 228	Resp: 1506
Ion Ratio	Lower Upper
228	100
226	38.0 8.2 48.2
229	23.9 0.0 39.5





#23  
Perylene-d12  
Concen: 4.00 ug/mL  
RT: 19.311 min Scan# 1921  
Delta R.T. -0.000 min  
Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

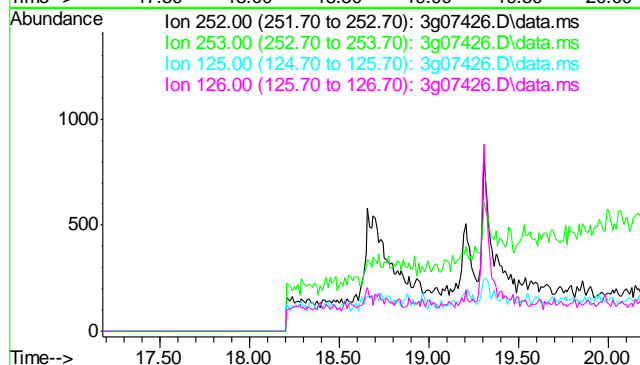
Tgt Ion: 264	Resp: 272470
Ion Ratio	Lower Upper
264	100
265	20.3 0.6 40.6
263	19.8 0.0 39.4



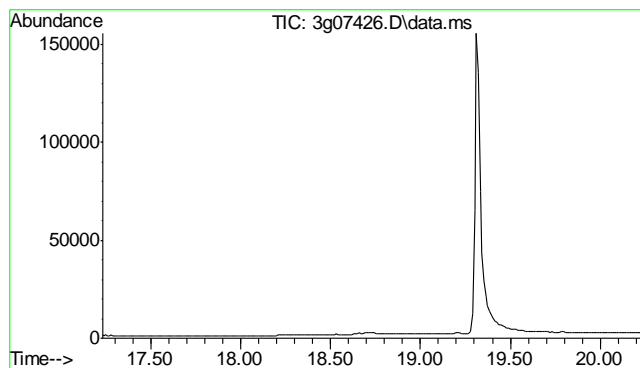
#24  
Benzo(b)fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 18.68 min

Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

Tgt Ion: 252	
Sig	Exp Ratio
252	100
253	21.4
125	11.3
126	15.7



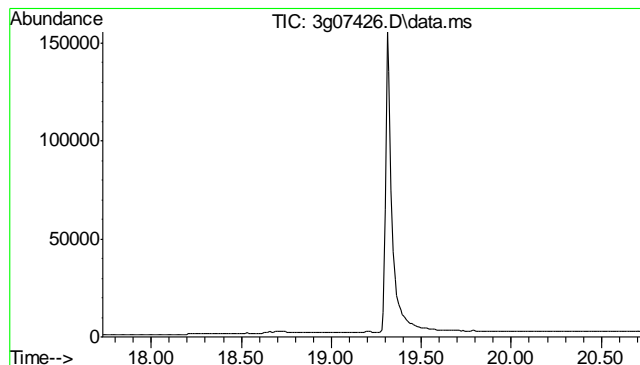
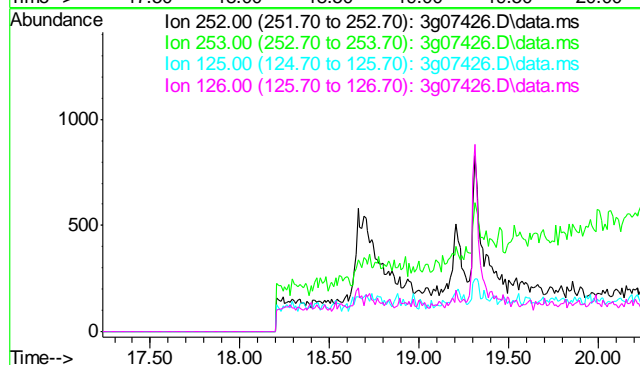




#25  
Benzo(k)fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 18.73 min

Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

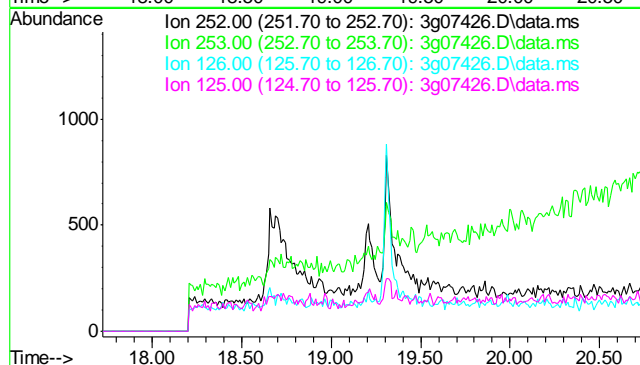
Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.8
125	13.6
126	20.4

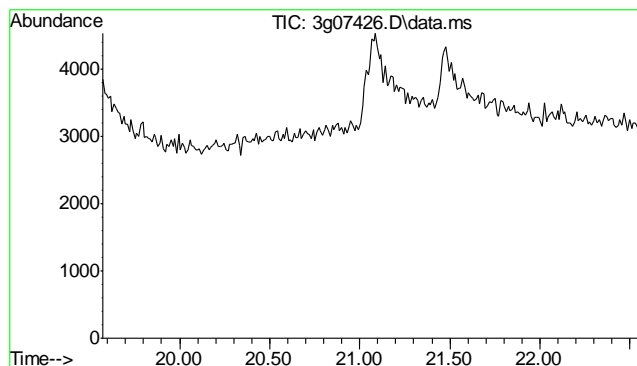


#26  
Benzo(a)pyrene  
Concen: N.D. ug/mL  
Expected RT: 19.23 min

Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.7
126	18.8
125	16.3

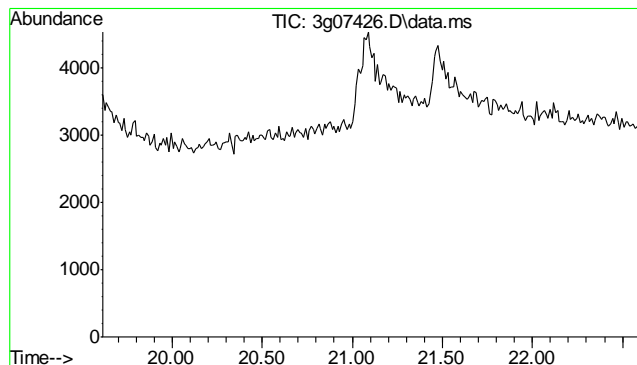
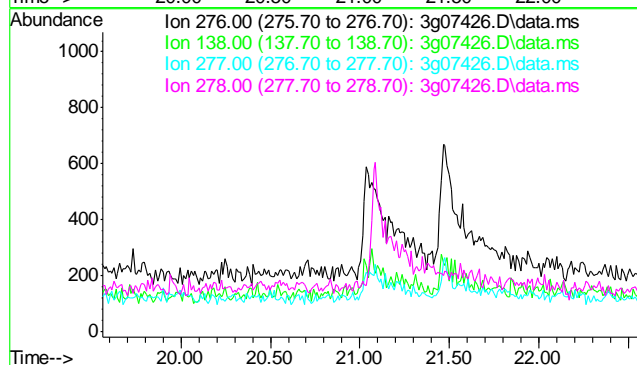




#27  
Indeno(1,2,3-cd)pyrene  
Concen: N.D. ug/mL  
Expected RT: 21.07 min

Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

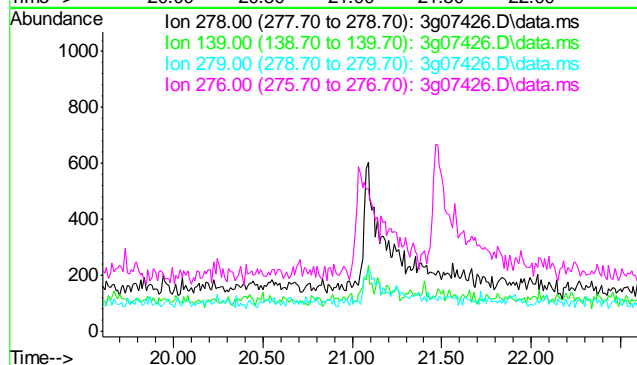
Tgt Ion:	276
Sig	Exp Ratio
276	100
138	22.6
277	51.8
278	153.6

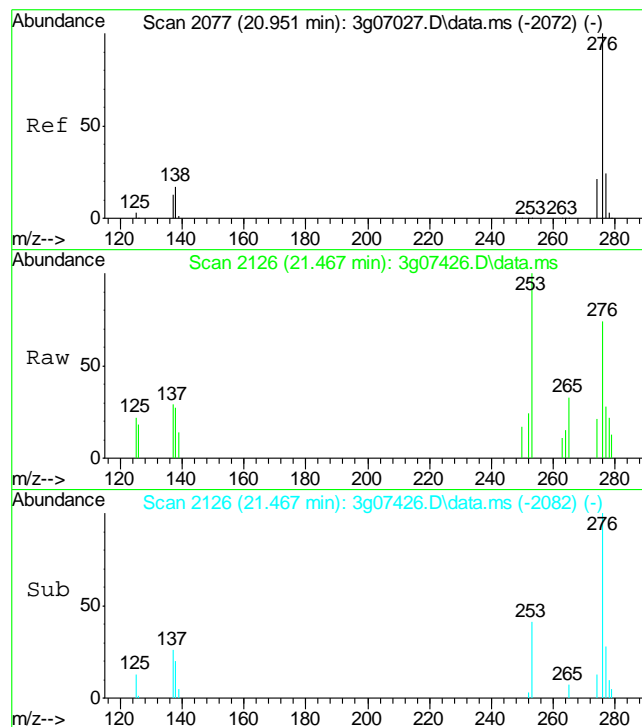


#28  
Dibenz(a,h)anthracene  
Concen: N.D. ug/mL  
Expected RT: 21.11 min

Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

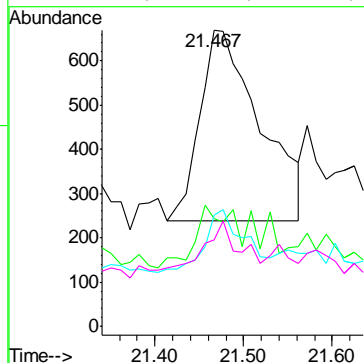
Tgt Ion:	278
Sig	Exp Ratio
278	100
139	20.0
279	23.0
276	134.7





#29  
Benzo(g,h,i)perylene  
Concen: 0.09 ug/mL  
RT: 21.467 min Scan# 2126  
Delta R.T. -0.041 min  
Lab File: 3g07426.D  
Acq: 30 Dec 11 3:41 pm

Tgt Ion	276	Resp	2029
Ion Ratio	100		
Lower			
Upper			
276	100		
138	20.5	5.1	45.1
277	21.8	3.8	43.8
274	22.1	1.4	41.4



## GC Volatiles

## QC Data Summaries

Includes the following where applicable:

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

**Method Blank Summary**

Page 1 of 1

**Job Number:** D30595  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** XOM PCU F13X-19G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB815-MB	GB14410.D	1	12/27/11	SK	n/a	n/a	GGB815

The QC reported here applies to the following samples:

Method: SW846 8015B

D30595-1

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	108% 60-140%

7.1.1  
7

Blank Spike Summary

Job Number: D30595  
Account: KRWCCOL KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB815-BS	GB14411.D	1	12/27/11	SK	n/a	n/a	GGB815

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

D30595-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	113	103	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	113%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D30595  
Account: KRWCCOL KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D30594-1MS	GB14413.D	1	12/27/11	SK	n/a	n/a	GGB815
D30594-1MSD	GB14414.D	1	12/27/11	SK	n/a	n/a	GGB815
D30594-1	GB14412.D	1	12/27/11	SK	n/a	n/a	GGB815

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

D30595-1

CAS No.	Compound	D30594-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		136	138	101	139	102	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D30594-1	Limits
120-82-1	1,2,4-Trichlorobenzene	107%	112%	103%	60-140%

GC Volatiles

Raw Data

∞



Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\122711\GB14428.D\FID1A.CH Vial: 21  
Signal #2 : Y:\1\DATA\122711\GB14428.D\FID2B.CH  
Acq On : 28 Dec 2011 5:31 am Operator: StephK  
Sample : D30595-1, 50X Inst : GC/MS Ins  
Misc : GC2507,GGB815,5.038,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: Dec 28 08:37:31 2011 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Wed Dec 28 08:36:51 2011  
Response via : Initial Calibration  
DataAcq Meth : TVB4.M

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

Compound	R.T.	Response	Conc	Units
-----				
System Monitoring Compounds				
2) S 1,2,4-Trichlorobenzene	14.39	2848355	97.363 %	m
10) S 1,2,4-Trichlorobenzene (P)	14.39	25113702	109.266 %	
Target Compounds				
1) H TVH-Gasoline	7.32	6108159	<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	7.68	84279	0.149	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	14.58	2477520	9.625	ug/L

8.1.1

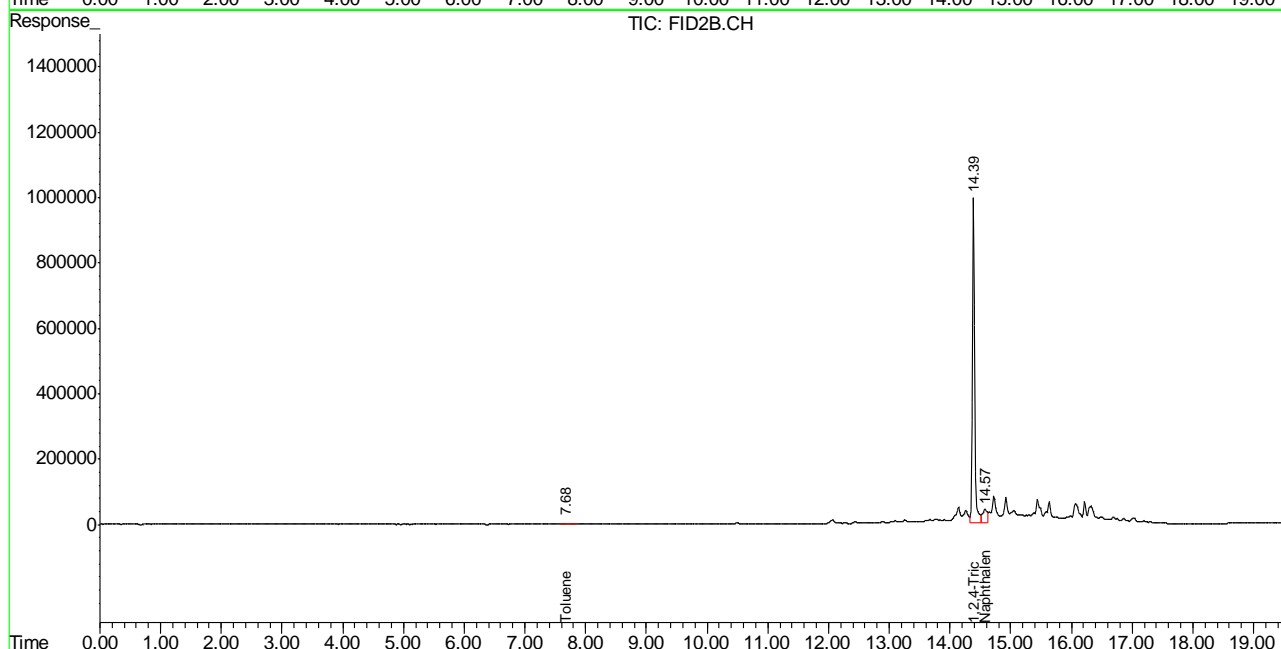
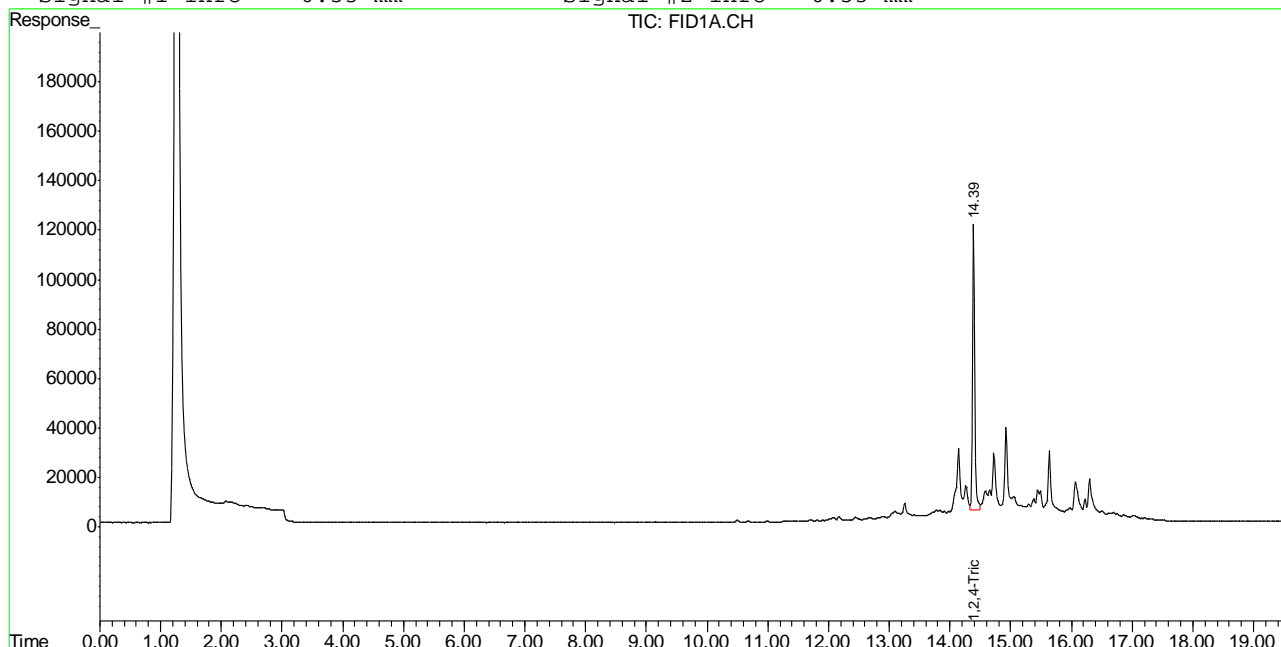
8

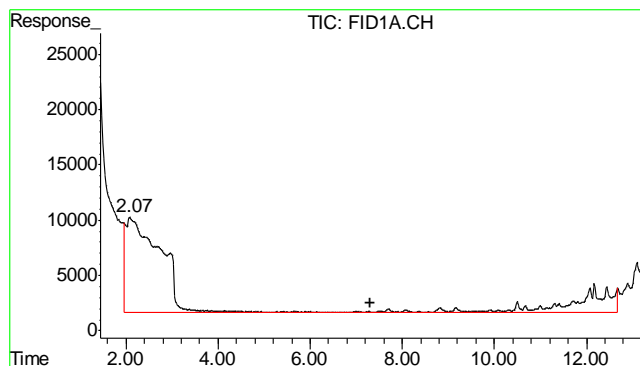
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\122711\GB14428.D\FID1A.CH Vial: 21  
 Signal #2 : Y:\1\DATA\122711\GB14428.D\FID2B.CH  
 Acq On : 28 Dec 2011 5:31 am Operator: StephK  
 Sample : D30595-1, 50X Inst : GC/MS Ins  
 Misc : GC2507,GGB815,5.038,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
 Quant Time: Dec 28 7:43 2011 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Wed Dec 28 08:36:51 2011  
 Response via : Multiple Level Calibration  
 DataAcq Meth : TVB4.M

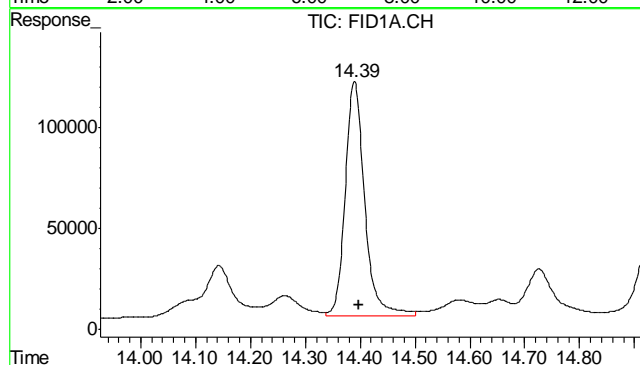
Volume Inj. :  
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





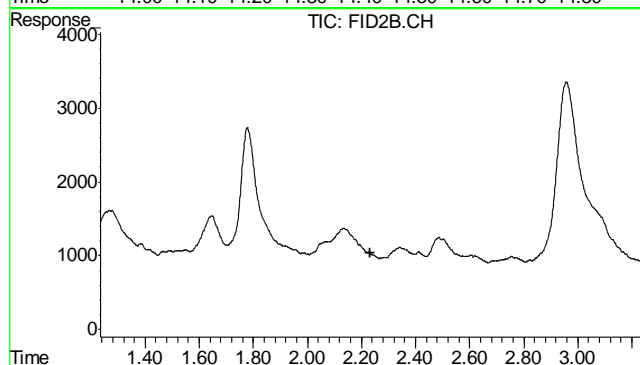
#1 TVH-Gasoline

R.T.: 7.315 min  
Delta R.T.: 0.000 min  
Response: 6108159  
Conc: N.D.



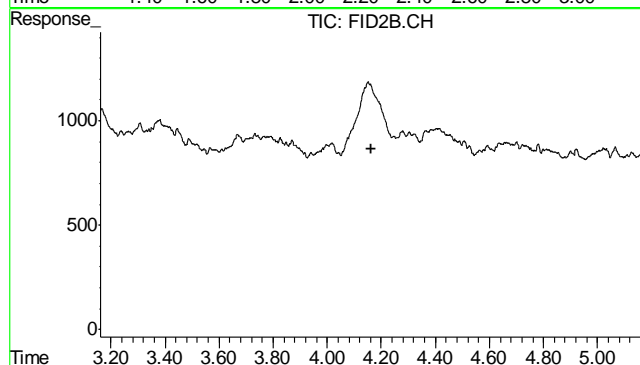
#2 1,2,4-Trichlorobenzene

R.T.: 14.389 min  
Delta R.T.: -0.009 min  
Response: 2848355  
Conc: 97.36 % m



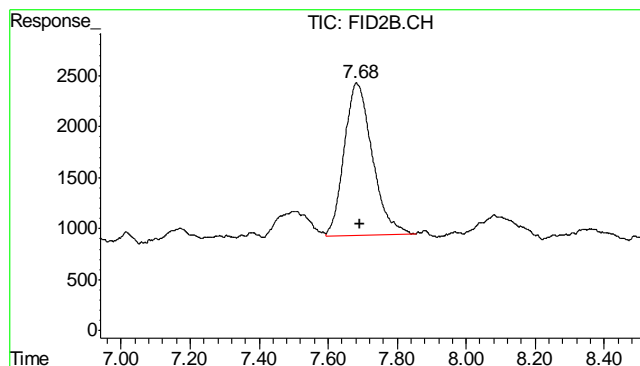
#4 Methyl-t-butyl-ether

R.T.: 0.000 min  
Exp R.T.: 2.233 min  
Response: 0  
Conc: N.D.

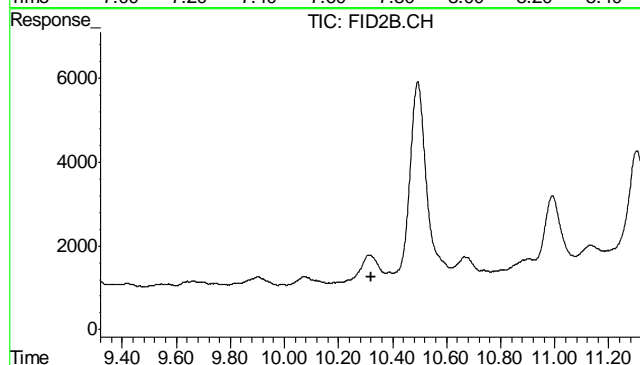


#5 Benzene

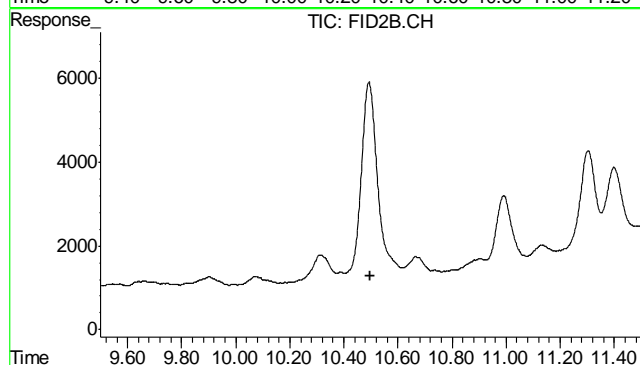
R.T.: 0.000 min  
Exp R.T.: 4.161 min  
Response: 0  
Conc: N.D.



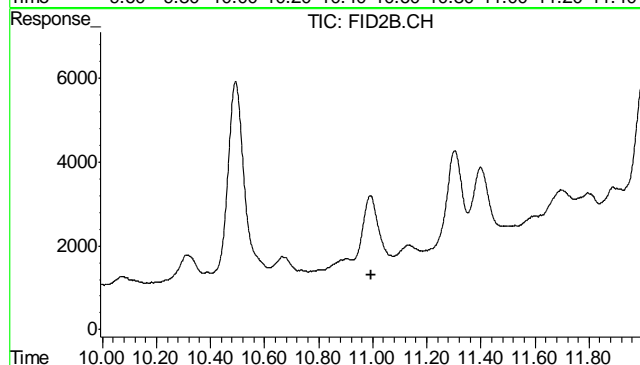
#6 Toluene  
 R.T.: 7.682 min  
 Delta R.T.: -0.010 min  
 Response: 84279  
 Conc: 0.15 ug/L



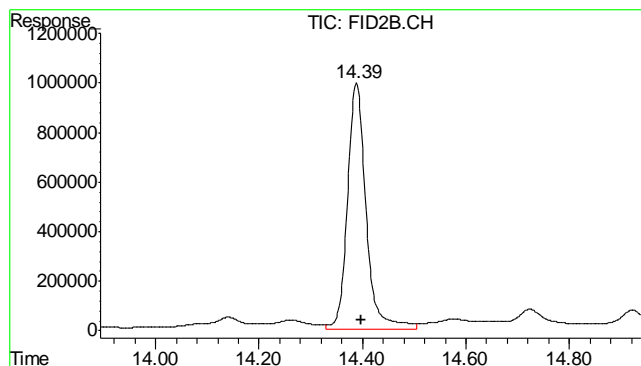
#7 Ethylbenzene  
 R.T.: 0.000 min  
 Exp R.T. : 10.320 min  
 Response: 0  
 Conc: N.D.



#8 m,p-Xylene  
 R.T.: 0.000 min  
 Exp R.T. : 10.499 min  
 Response: 0  
 Conc: N.D.

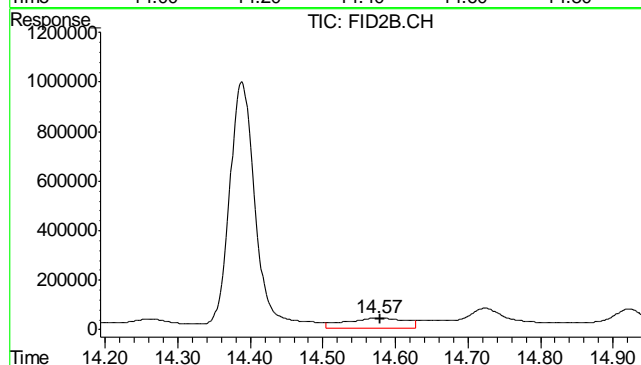


#9 o-Xylene  
 R.T.: 0.000 min  
 Exp R.T. : 10.993 min  
 Response: 0  
 Conc: N.D.



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

R.T.: 14.388 min  
Delta R.T.: -0.008 min  
Response: 25113702  
Conc: 109.27 %



#11 Naphthalene

R.T.: 14.576 min  
Delta R.T.: -0.003 min  
Response: 2477520  
Conc: 9.63 ug/L

8.1.1

8

Judy Melson  
12/28/11 11:02

## Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\122711\GB14410.D\FID1A.CH Vial: 3  
Signal #2 : Y:\1\DATA\122711\GB14410.D\FID2B.CH  
Acq On : 27 Dec 2011 6:47 pm Operator: StephK  
Sample : MB, S Inst : GC/MS Ins  
Misc : GC2507,GGB815,5.000,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: Dec 28 08:34:34 2011 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Tue Dec 27 18:51:32 2011  
Response via : Initial Calibration  
DataAcq Meth : TVB4.M

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

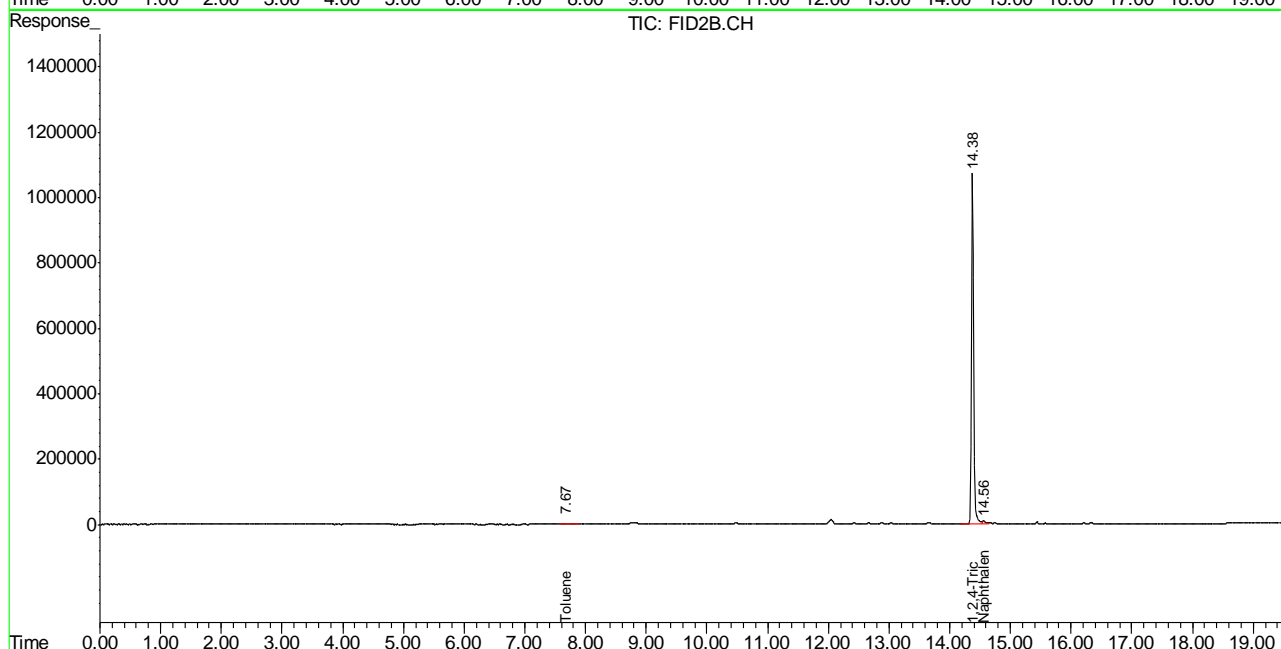
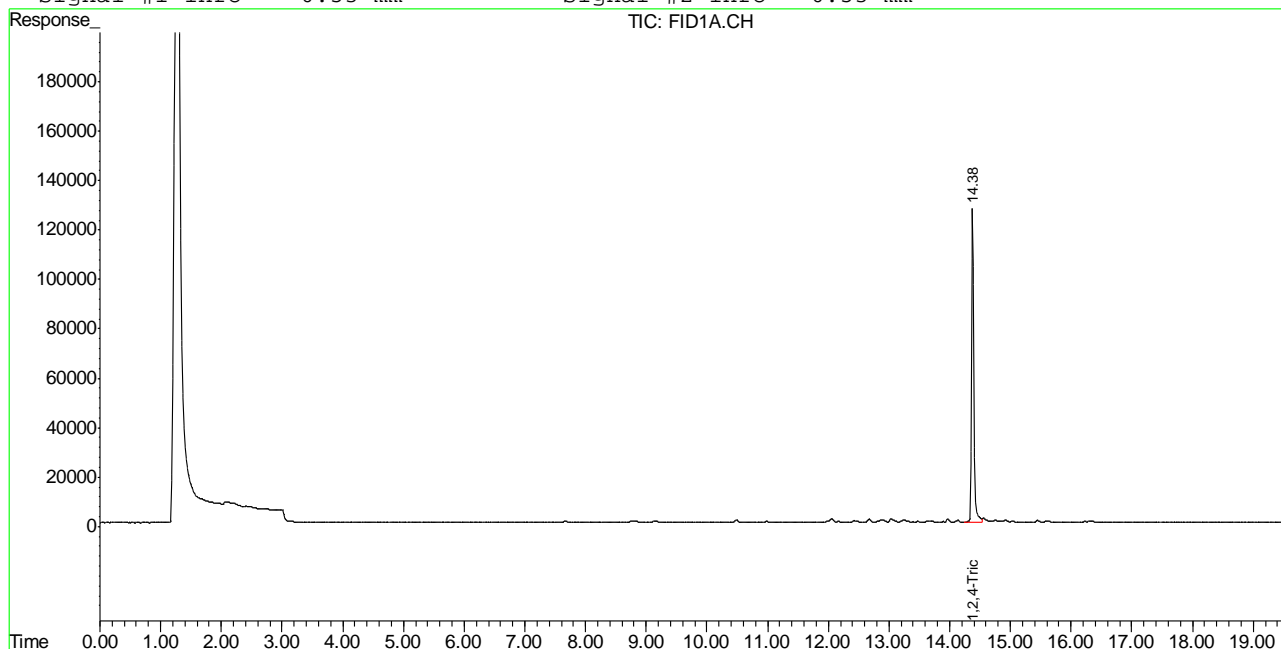
Compound	R.T.	Response	Conc	Units
-----				
System Monitoring Compounds				
2) S 1,2,4-Trichlorobenzene	14.38	3153066	107.778 %	m
10) S 1,2,4-Trichlorobenzene (P)	14.38	25854121	112.488 %	
Target Compounds				
1) H TVH-Gasoline	7.32	5190592	<MDL	mg/L
4) T Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T Benzene	0.00	0	N.D.	ug/L d
6) T Toluene	7.67	161634	0.285	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	14.56	422203	1.640	ug/L

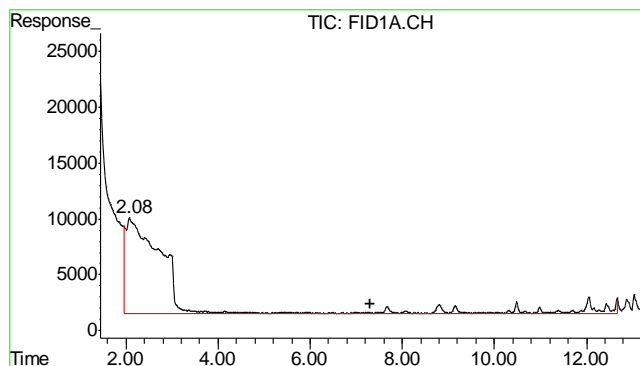
## Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\122711\GB14410.D\FID1A.CH Vial: 3  
Signal #2 : Y:\1\DATA\122711\GB14410.D\FID2B.CH  
Acq On : 27 Dec 2011 6:47 pm Operator: StephK  
Sample : MB, S Inst : GC/MS Ins  
Misc : GC2507,GGB815,5.000,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: Dec 28 7:36 2011 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Tue Dec 27 18:51:32 2011  
Response via : Multiple Level Calibration  
DataAcq Meth : TVB4.M

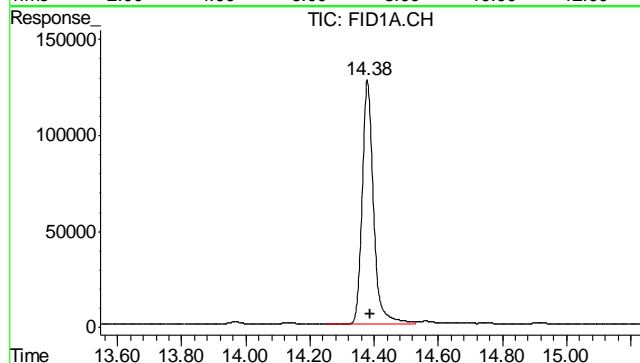
Volume Inj. :  
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





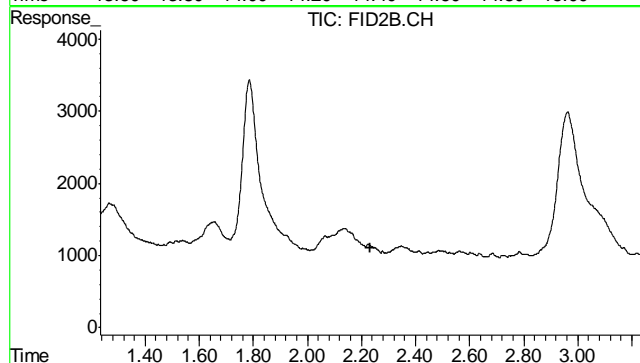
#1 TVH-Gasoline

R.T.: 7.315 min  
Delta R.T.: 0.000 min  
Response: 5190592  
Conc: N.D.



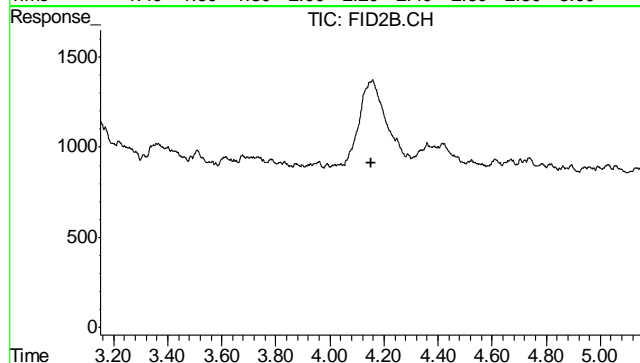
#2 1,2,4-Trichlorobenzene

R.T.: 14.378 min  
Delta R.T.: -0.009 min  
Response: 3153066  
Conc: 107.78 % m



#4 Methyl-t-butyl-ether

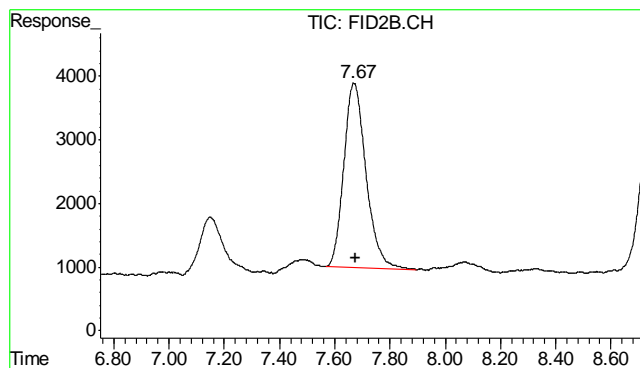
R.T.: 0.000 min  
Exp R.T.: 2.233 min  
Response: 0  
Conc: N.D.



#5 Benzene

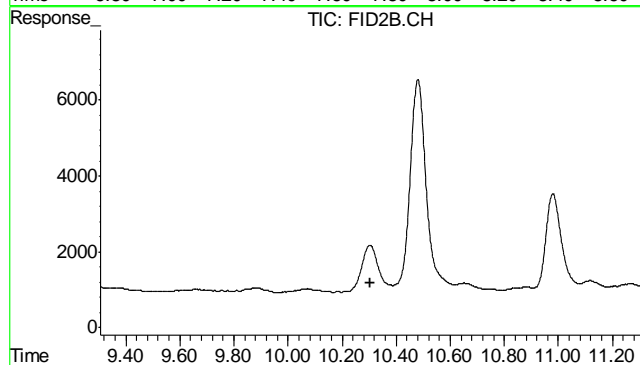
R.T.: 0.000 min  
Exp R.T.: 4.151 min  
Response: 0  
Conc: N.D.





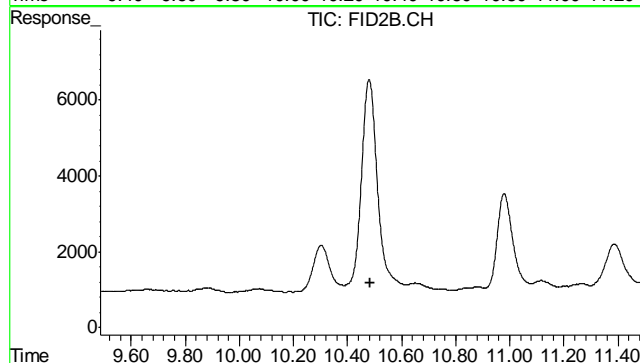
#6 Toluene

R.T.: 7.668 min  
Delta R.T.: -0.007 min  
Response: 161634  
Conc: 0.29 ug/L



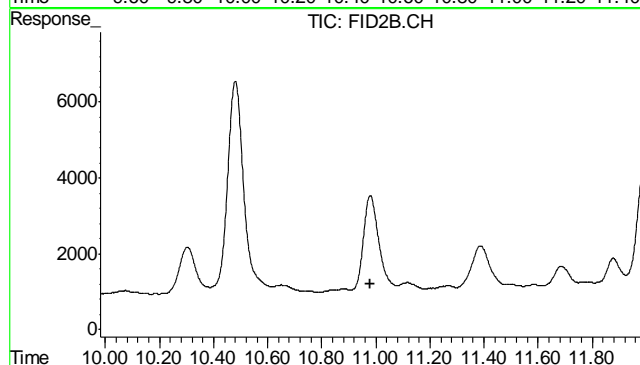
#7 Ethylbenzene

R.T.: 0.000 min  
Exp R.T.: 10.305 min  
Response: 0  
Conc: N.D.



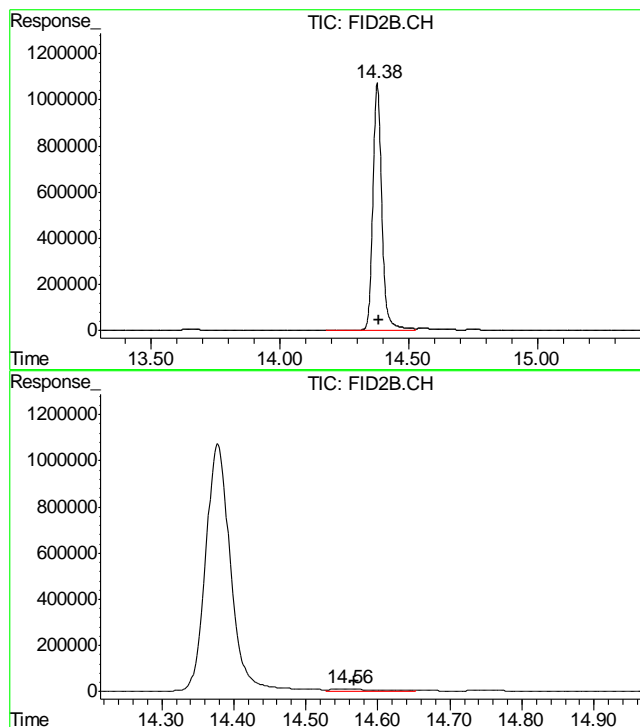
#8 m,p-Xylene

R.T.: 0.000 min  
Exp R.T.: 10.485 min  
Response: 0  
Conc: N.D.



#9 o-Xylene

R.T.: 0.000 min  
Exp R.T.: 10.980 min  
Response: 0  
Conc: N.D.



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

R.T.: 14.378 min  
Delta R.T.: -0.007 min  
Response: 25854121  
Conc: 112.49 %

#11 Naphthalene

R.T.: 14.559 min  
Delta R.T.: -0.009 min  
Response: 422203  
Conc: 1.64 ug/L

8.2.1

8

## 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**

Page 1 of 1

**Job Number:** D30595  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** XOM PCU F13X-19G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5072-MB	FD12567.D	1	12/27/11	TR	12/27/11	OP5072	GFD651

The QC reported here applies to the following samples:

Method: SW846-8015B

D30595-1

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

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	92% 43-136%

9.1.1

6

Blank Spike Summary

Job Number: D30595  
Account: KRWCCOL KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5072-BS	FD12568.D	1	12/27/11	TR	12/27/11	OP5072	GFD651

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

D30595-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	500	75	58-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	85%	43-136%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D30595  
Account: KRWCCOL KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5072-MS	FD12569.D	1	12/27/11	TR	12/27/11	OP5072	GFD651
OP5072-MSD	FD12570.D	1	12/28/11	TR	12/27/11	OP5072	GFD651
D30596-1	FD12571.D	1	12/28/11	TR	12/27/11	OP5072	GFD651

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

D30595-1

CAS No.	Compound	D30596-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	53.3		754	497	59	567	68	13	20-183/43

CAS No.	Surrogate Recoveries	MS	MSD	D30596-1	Limits
84-15-1	o-Terphenyl	79%	89%	87%	43-136%

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\DEC\FD122711\FD12579.D Vial: 28  
Acq On : 12-28-2011 04:00:12 AM Operator: TEDR  
Sample : D30595-1 Inst : FID5  
Misc : OP5072,GFD651,30.09,,,2,1 Multiplr: 1.00  
IntFile : autoint1.e  
Quant Time: Dec 28 09:53:43 2011 Quant Results File: GFD624.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD624.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Fri Dec 09 12:22:03 2011  
Response via : Initial Calibration  
DataAcq Meth : JH080911.M

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

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	9.62	35452508	793.959 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	7.42	26672832	637.959 mg/L

10.1.1  
10

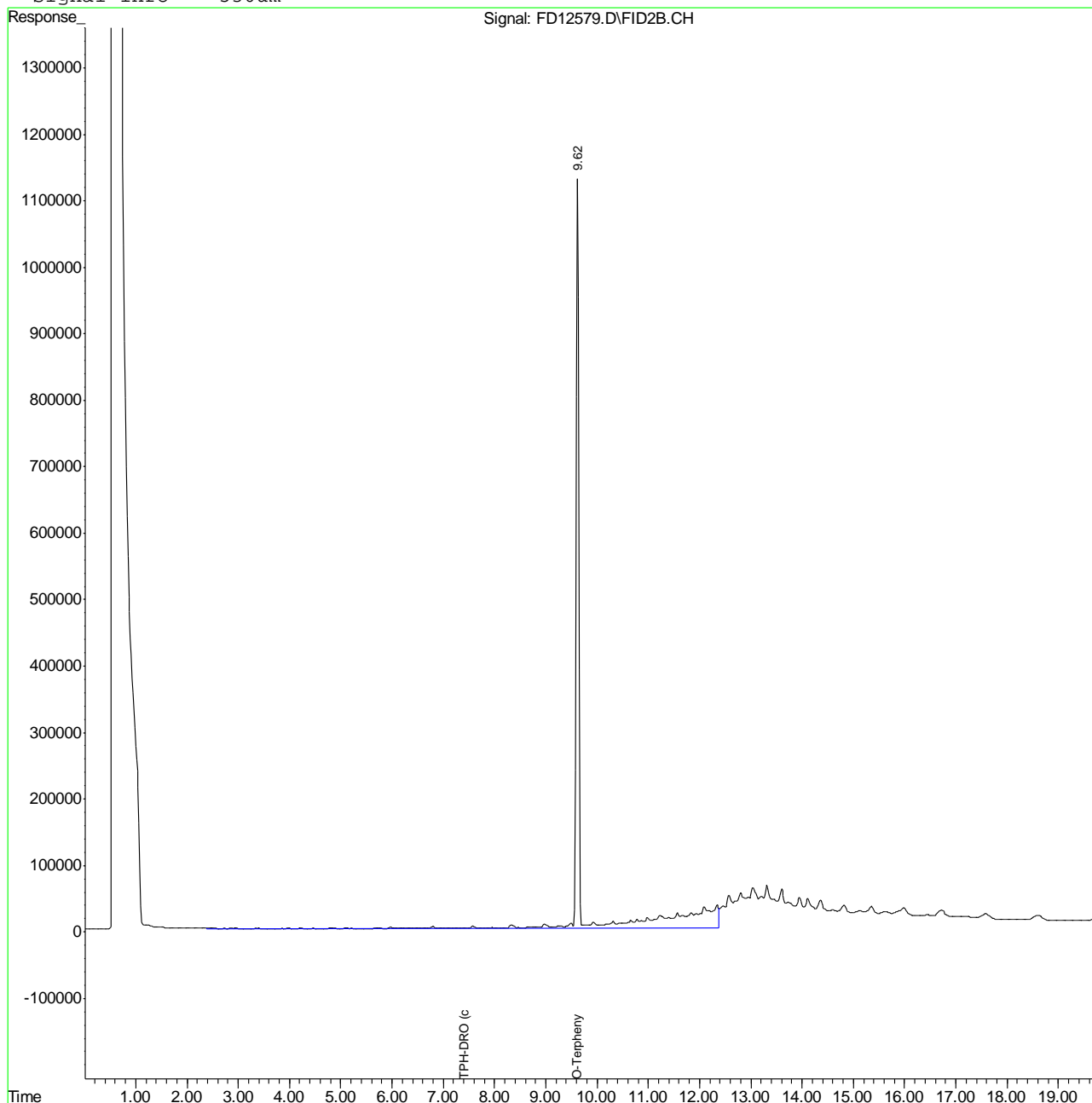


Quantitation Report (QT Reviewed)

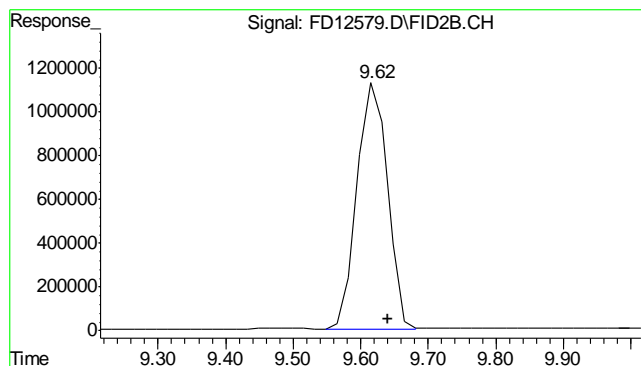
Data File : C:\MSDCHEM\2\DATA\2011\DEC\FD122711\FD12579.D Vial: 28  
 Acq On : 12-28-2011 04:00:12 AM Operator: TEDR  
 Sample : D30595-1 Inst : FID5  
 Misc : OP5072,GFD651,30.09,,,2,1 Multiplr: 1.00  
 IntFile : autoint1.e  
 Quant Time: Dec 28 9:54 2011 Quant Results File: GFD624.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD624.M (Chemstation Integrator)  
 Title : 8015B TEH  
 Last Update : Fri Dec 09 12:22:03 2011  
 Response via : Multiple Level Calibration  
 DataAcq Meth : JH080911.M

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

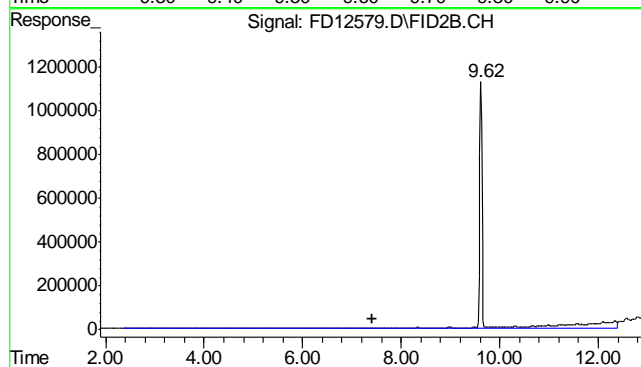


10.1.1  
10



#1 O-Terphenyl

R.T.: 9.617 min  
 Delta R.T.: -0.023 min  
 Response: 35452508  
 Conc: 793.96 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 7.420 min  
 Delta R.T.: 0.000 min  
 Response: 26672832  
 Conc: 637.96 mg/L m

10.1.1  
10

Judy Melson  
12/28/11 10:56

## Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\DEC\FD122711\FD12567.D Vial: 16  
Acq On : 27 Dec 2011 10:51 pm Operator: TEDR  
Sample : OP5072-MB Inst : FID5  
Misc : OP5072,GFD651,30.00,,,2,1 Multiplr: 1.00  
IntFile : autoint1.e  
Quant Time: Dec 28 09:42:59 2011 Quant Results File: GFD624.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD624.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Fri Dec 09 12:22:03 2011  
Response via : Initial Calibration  
DataAcq Meth : JH080911.M

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

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	9.62	41166139	921.916 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	7.42	2234396	53.442 mg/L

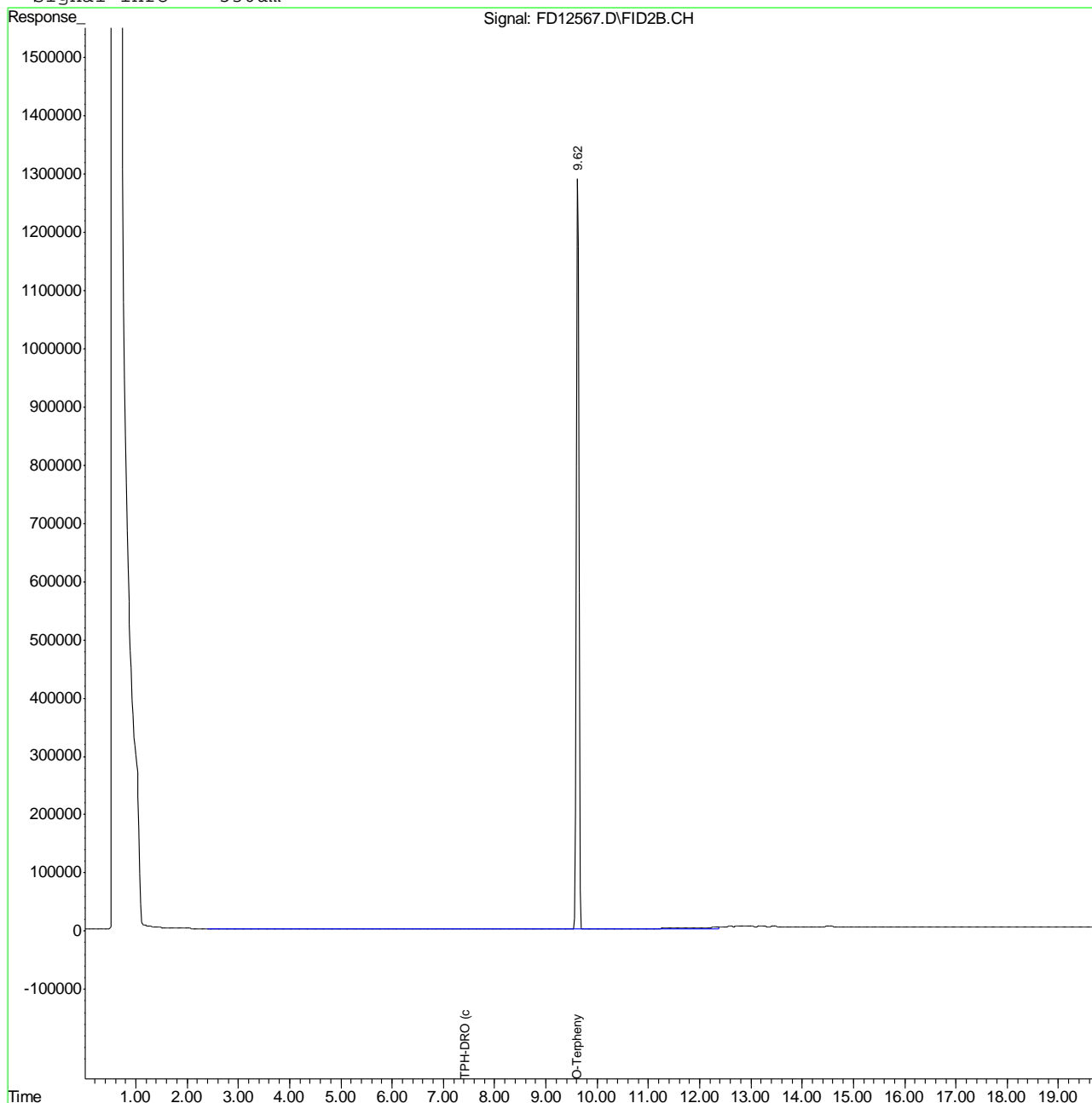
-----  
(f)=RT Delta > 1/2 Window (m)=manual int.  
FD12567.D GFD624.M Wed Dec 28 10:07:30 2011 GC

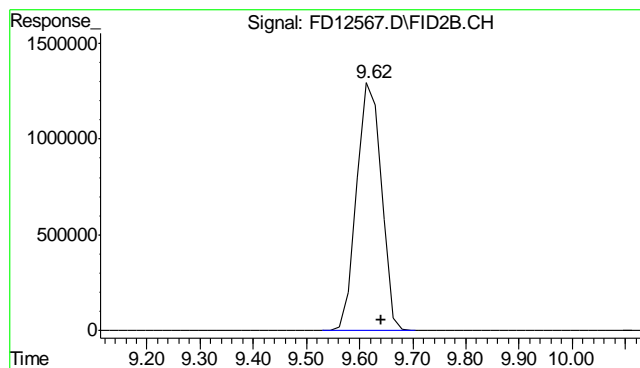
## Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\DEC\FD122711\FD12567.D Vial: 16  
Acq On : 27 Dec 2011 10:51 pm Operator: TEDR  
Sample : OP5072-MB Inst : FID5  
Misc : OP5072,GFD651,30.00,,,2,1 Multiplr: 1.00  
IntFile : autoint1.e  
Quant Time: Dec 28 9:43 2011 Quant Results File: GFD624.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD624.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Fri Dec 09 12:22:03 2011  
Response via : Multiple Level Calibration  
DataAcq Meth : JH080911.M

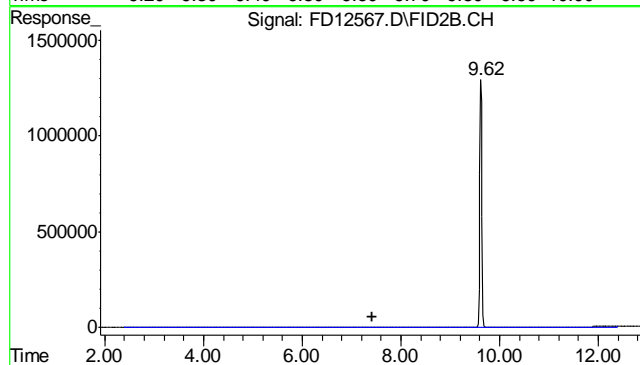
Volume Inj. : 1ul  
Signal Phase : RTX-5  
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.618 min  
Delta R.T.: -0.022 min  
Response: 41166139  
Conc: 921.92 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 7.420 min  
Delta R.T.: 0.000 min  
Response: 2234396  
Conc: 53.44 mg/L m

10.2.1  
10

## 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: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6550  
Matrix Type: SOLID

Methods: SW846 7471A  
Units: mg/kg

Prep Date: 12/27/11

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.10	.0011	.013	-0.000040	<0.10

Associated samples MP6550: D30595-1

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

11.1.1  
11

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30595  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: XOM PCU F13X-19G

QC Batch ID: MP6550  
 Matrix Type: SOLID

Methods: SW846 7471A  
 Units: mg/kg

Prep Date: 12/27/11

Metal	D30567-3 Original MS	Spikelot HGWSR1	% Rec	QC Limits
-------	-------------------------	--------------------	-------	--------------

Mercury 0.10 0.11 0.394 2.5N (a) 85-115

Associated samples MP6550: D30595-1

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

(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30595  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: XOM PCU F13X-19G

QC Batch ID: MP6550  
 Matrix Type: SOLID

Methods: SW846 7471A  
 Units: mg/kg

Prep Date: 12/27/11

Metal	D30567-3 Original MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
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Mercury 0.10 0.016 0.409 -20.5N(a) 149.2 (b)20

Associated samples MP6550: D30595-1

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

(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

(b) High RPD due to possible sample matrix or nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D30595  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: XOM PCU F13X-19G

QC Batch ID: MP6550  
 Matrix Type: SOLID

Methods: SW846 7471A  
 Units: mg/kg

Prep Date: 12/27/11

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.36	0.4	90.0	80-120

Associated samples MP6550: D30595-1

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: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6551  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 12/27/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.59	.59		
Antimony	3.0	.31	.31		
Arsenic	2.5	.59	.59		
Barium	1.0	.11	.11	0.040	<1.0
Beryllium	1.0	.044	.1		
Boron	5.0	.48	.48		
Cadmium	1.0	.027	.27	0.040	<1.0
Calcium	40	.96	1.1		
Chromium	1.0	.018	.031	0.020	<1.0
Cobalt	0.50	.035	.035		
Copper	1.0	.085	.16	0.070	<1.0
Iron	7.0	.34	2		
Lead	5.0	.16	.21	-0.17	<5.0
Lithium	0.20	.028	.031		
Magnesium	20	.58	1.4		
Manganese	0.50	.0053	.012		
Molybdenum	1.0	.045	.054		
Nickel	3.0	.043	.099	-0.040	<3.0
Phosphorus	10	1.1	1.2		
Potassium	200	5.5	9.2		
Selenium	5.0	.38	.5	0.090	<5.0
Silicon	5.0	.38	.51		
Silver	3.0	.018	.051	-0.14	<3.0
Sodium	40	11	11		
Strontium	5.0		.017		
Thallium	1.0	.29	.34		
Tin	5.0	.55	1.3		
Titanium	1.0	.011	.1		
Uranium	5.0	.15	.2		
Vanadium	1.0	.016	.025		
Zinc	3.0	.028	.06	0.17	<3.0

Associated samples MP6551: D30595-1

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6551  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

11.2.1

11

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6551  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 12/27/11

Metal	D30595-1 Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	251	460	239	87.5	75-125
Beryllium					
Boron					
Cadmium	0.23	53.3	59.7	88.9	75-125
Calcium					
Chromium	42.9	99.5	59.7	94.8	75-125
Cobalt					
Copper	8.7	66.0	59.7	96.0	75-125
Iron					
Lead	11.2	118	119	89.4	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	16.7	67.6	59.7	85.3	75-125
Phosphorus					
Potassium					
Selenium	2.0	106	119	87.1	75-125
Silicon					
Silver	0.0	21.8	23.9	91.3	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	41.7	93.6	59.7	86.9	75-125

Associated samples MP6551: D30595-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6551  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6551  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 12/27/11

Metal	D30595-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	251	456	239	85.8	0.9	20
Beryllium						
Boron						
Cadmium	0.23	52.8	59.7	88.1	0.9	20
Calcium						
Chromium	42.9	97.6	59.7	91.6	1.9	20
Cobalt						
Copper	8.7	64.6	59.7	93.6	2.1	20
Iron						
Lead	11.2	116	119	87.8	1.7	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	16.7	67.1	59.7	84.4	0.7	20
Phosphorus						
Potassium						
Selenium	2.0	104	119	85.4	1.9	20
Silicon						
Silver	0.0	21.5	23.9	90.0	1.4	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	41.7	91.7	59.7	83.8	2.1	20

Associated samples MP6551: D30595-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6551  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date:

Metal

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



## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6551  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 12/27/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	189	200	94.5	80-120
Beryllium				
Boron				
Cadmium	47.4	50	94.8	80-120
Calcium				
Chromium	49.0	50	98.0	80-120
Cobalt				
Copper	47.7	50	95.4	80-120
Iron				
Lead	97.8	100	97.8	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	47.2	50	94.4	80-120
Phosphorus				
Potassium				
Selenium	94.9	100	94.9	80-120
Silicon				
Silver	19.4	20	97.0	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	47.2	50	94.4	80-120

Associated samples MP6551: D30595-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6551  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D30595  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: XOM PCU F13X-19G

QC Batch ID: MP6551  
 Matrix Type: SOLID

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 12/27/11

Metal	D30595-1 Original SDL 1:5		%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	2230	2240	0.4	0-10
Beryllium				
Boron				
Cadmium	2.00	0.00	100.0(a)	0-10
Calcium				
Chromium	382	352	7.9	0-10
Cobalt				
Copper	77.5	63.5	18.1*(b)	0-10
Iron				
Lead	99.7	82.5	17.3*(b)	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	148	142	4.5	0-10
Phosphorus				
Potassium				
Selenium	17.9	32.0	78.8 (a)	0-10
Silicon				
Silver	0.00	0.00	NC	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	370	375	1.2	0-10

Associated samples MP6551: D30595-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6551  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: ug/l

Prep Date:

Metal

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

11.2.4  
11

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6552  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 12/27/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	0.072	<0.40
Barium	1.0	.0035	.1		
Beryllium	0.10	.0075	.014		
Boron	20	.97	1		
Cadmium	0.050	.023	.048		
Calcium	200	1.8	8.2		
Chromium	1.0	.021	.24		
Cobalt	0.10	.0033	.003		
Copper	1.0	.011	.063		
Iron	20	.81	3.7		
Lead	0.25	.0012	.015		
Magnesium	50	.067	2.6		
Manganese	0.50	.007	.029		
Molybdenum	0.50	.0044	.023		
Nickel	1.0	.0029	.031		
Phosphorus	30	1.8	3.5		
Potassium	100	2	3.2		
Selenium	0.20	.075	.19		
Silver	0.050	.0008	.002		
Sodium	250	.8	4.4		
Strontium	10	.004	.04		
Thallium	0.10	.015	.02		
Tin	5.0	.006	.028		
Titanium	1.0	.035	.062		
Uranium	0.25	.00038	.0009		
Vanadium	2.0	.052	.29		
Zinc	5.0	.039	.12		

Associated samples MP6552: D30595-1

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: D30595  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: XOM PCU F13X-19G

QC Batch ID: MP6552  
 Matrix Type: SOLID

Methods: SW846 6020  
 Units: mg/kg

Prep Date: 12/27/11

Metal	D30595-1 Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	5.5	124	119	99.2	75-125
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6552: D30595-1

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: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6552  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 12/27/11

Metal	D30595-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	5.5	125	119	100.1	0.8	20
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP6552: D30595-1

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: D30595  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: XOM PCU F13X-19G

QC Batch ID: MP6552  
 Matrix Type: SOLID

Methods: SW846 6020  
 Units: mg/kg

Prep Date: 12/27/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	106	100	106.0	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP6552: D30595-1

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



SERIAL DILUTION RESULTS SUMMARY

Login Number: D30595  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: XOM PCU F13X-19G

QC Batch ID: MP6552  
 Matrix Type: SOLID

Methods: SW846 6020  
 Units: ug/l

Prep Date: 12/27/11

Metal	D30595-1			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic	48.6	52.4	7.8	0-10	
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6552: D30595-1

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

11.3.4  
11

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6558  
Matrix Type: AQUEOUS

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

Prep Date: 12/28/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	30	30		
Antimony	150	16	16		
Arsenic	130	30	30		
Barium	50	5.5	5.5		
Beryllium	50	2.2	2.5		
Boron	250	24	24		
Cadmium	50	1.4	1.4		
Calcium	2000	48	75	124	<2000
Chromium	50	.9	4		
Cobalt	25	1.8	1.8		
Copper	50	4.3	14		
Iron	350	17	65		
Lead	250	8	11		
Lithium	10	1.4	6		
Magnesium	1000	29	50	24.5	<1000
Manganese	25	.27	1.6		
Molybdenum	50	2.3	4.4		
Nickel	150	2.2	5		
Phosphorus	500	55	100		
Potassium	5000	280	280		
Selenium	250	19	19		
Silicon	250	19	19		
Silver	150	.9	1.6		
Sodium	2000	570	570	69.0	<2000
Strontium	25		1.3		
Thallium	50	15	15		
Tin	250	28	50		
Titanium	50	.55	1.6		
Uranium	250	7.5	18		
Vanadium	50	.8	1.1		
Zinc	150	1.4	9		

Associated samples MP6558: D30595-1A

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6558  
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

11.4.1  
11

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30595  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: XOM PCU F13X-19G

QC Batch ID: MP6558  
 Matrix Type: AQUEOUS

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

Prep Date: 12/28/11

Metal	D30587-5 Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	182000	312000	125000	104.0	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	25400	149000	125000	98.9	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	1250000	1340000	125000	72.0 (a)	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6558: D30595-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6558  
Matrix Type: AQUEOUS

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

Prep Date:

Metal

- (N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested  
(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: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6558  
Matrix Type: AQUEOUS

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

Prep Date: 12/28/11

Metal	D30587-5 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	182000	312000	125000	104.0	0.0	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	25400	150000	125000	99.7	0.7	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	1250000	1350000	125000	80.0	0.7	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP6558: D30595-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6558  
Matrix Type: AQUEOUS

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

Prep Date:

Metal

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

## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6558  
Matrix Type: AQUEOUS

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

Prep Date: 12/28/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	133000	125000	106.4	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	125000	125000	100.0	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	125000	125000	100.0	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP6558: D30595-1A

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



SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

QC Batch ID: MP6558  
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

## General Chemistry

### QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP6228/GN13106			umhos/cm	10008	9370	93.6	90-110%
pH	GN13062			su	8.00	7.98	99.8	99.3-100.7%

Associated Samples:  
Batch GN13062: D30595-1  
Batch GP6228: D30595-1  
(\*) Outside of QC limits

DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D30595  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: XOM PCU F13X-19G

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Redox Potential Vs H2	GN13067	D30613-1	mv	392	398	1.5	0-20%

Associated Samples:  
Batch GN13067: D30595-1  
(\*) Outside of QC limits

## Misc. Forms

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### Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

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Includes the following where applicable:

- Chain of Custody



# Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D30595

Client: AMS

Immediate Client Services Action Required: No

Date / Time Received: 12/24/2011

Delivery Method:

Client Service Action Required at Login: No

Project:

No. Coolers: 1

Airbill #'s:

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

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

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

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

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

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

Comments

## GC/MS Volatiles

### QC Data Summaries

(Accutest Labs of New England, Inc.)

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Includes the following where applicable:

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



Method Blank Summary

Job Number: D30595  
Account: ALMS Accutest Mountain States  
Project: KRWCCOL: XOM PCU F13X-19G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSV196-MB	V4402.D	1	01/04/12	AMY	n/a	n/a	MSV196

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

D30595-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.13	ug/kg	
100-41-4	Ethylbenzene	ND	2.0	0.13	ug/kg	
108-88-3	Toluene	ND	5.0	0.18	ug/kg	
1330-20-7	Xylene (total)	ND	2.0	0.13	ug/kg	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	110% 70-130%
2037-26-5	Toluene-D8	104% 70-130%
460-00-4	4-Bromofluorobenzene	91% 70-130%

Blank Spike Summary

Job Number: D30595  
Account: ALMS Accutest Mountain States  
Project: KRWCCOL: XOM PCU F13X-19G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSV196-BS	V4400.D	1	01/04/12	AMY	n/a	n/a	MSV196

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

D30595-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	54.5	109	70-130
100-41-4	Ethylbenzene	50	50.1	100	70-130
108-88-3	Toluene	50	54.7	109	70-130
1330-20-7	Xylene (total)	150	153	102	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	119%	70-130%
2037-26-5	Toluene-D8	109%	70-130%
460-00-4	4-Bromofluorobenzene	94%	70-130%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D30595

**Account:** ALMS Accutest Mountain States

**Project:** KRWCCOL: XOM PCU F13X-19G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D30587-5MS	V4410.D	1	01/04/12	AMY	n/a	n/a	MSV196
D30587-5MSD	V4411.D	1	01/04/12	AMY	n/a	n/a	MSV196
D30587-5	V4403.D	1	01/04/12	AMY	n/a	n/a	MSV196

The QC reported here applies to the following samples:

Method: SW846 8260B

D30595-1

CAS No.	Compound	D30587-5 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.5		107	123	113	145	119	16	70-130/30
100-41-4	Ethylbenzene	19.5		107	132	105	153	111	15	70-130/30
108-88-3	Toluene	38.3		107	146	100	170	109	15	70-130/30
1330-20-7	Xylene (total)	901		322	997	30* a	1140	66* a	13	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D30587-5	Limits
1868-53-7	Dibromofluoromethane	115%	116%	110%	70-130%
2037-26-5	Toluene-D8	108%	110%	102%	70-130%
460-00-4	4-Bromofluorobenzene	106%	106%	100%	70-130%

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

14.3.1  
14

## GC/MS Volatiles

### Raw Data

(Accutest Labs of New England, Inc.)

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\  
Data File : V4408.D  
Acq On : 4 Jan 2012 6:21 pm  
Operator : AMYM  
Sample : D30595-1  
Misc : MS24783,MSV196,3.563,,,5,1  
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 05 12:22:07 2012  
Quant Method : C:\msdchem\1\METHODS\v121911s.m  
Quant Title : SW-846 Method 8260  
QLast Update : Tue Dec 20 11:11:57 2011  
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	3.473	65	119351	500.00	ug/L	-0.03
4) pentafluorobenzene	6.521	168	421143	50.00	ug/L	-0.02
43) 1,4-difluorobenzene	7.712	114	649027	50.00	ug/L	-0.01
66) chlorobenzene-d5	11.072	82	363185	50.00	ug/L	0.00
80) 1,4-dichlorobenzene-d4	13.309	152	283689	50.00	ug/L	0.00
System Monitoring Compounds						
40) dibromofluoromethane (s)	6.399	113	236293	60.64	ug/L	-0.02
Spiked Amount 50.000	Range 70 - 130		Recovery =	121.28%		
60) toluene-d8 (s)	9.536	98	904748	53.02	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	106.04%		
82) bromofluorobenzene (s)	12.231	95	301937	54.94	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	109.88%		
Target Compounds						
16) acetone	2.879	43	30638	32.16	ug/L	Qvalue 99

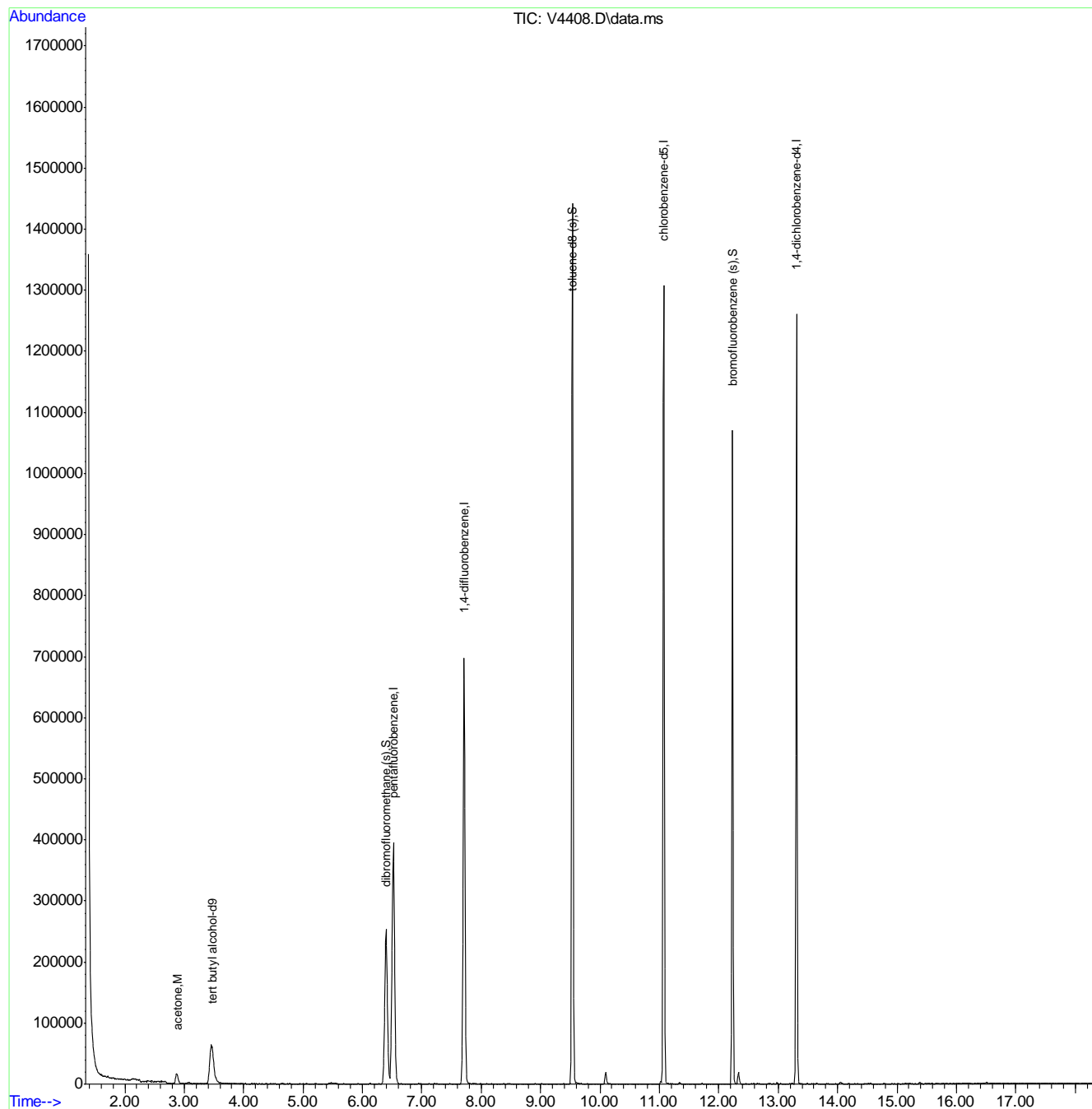
(#) = qualifier out of range (m) = manual integration (+) = signals summed

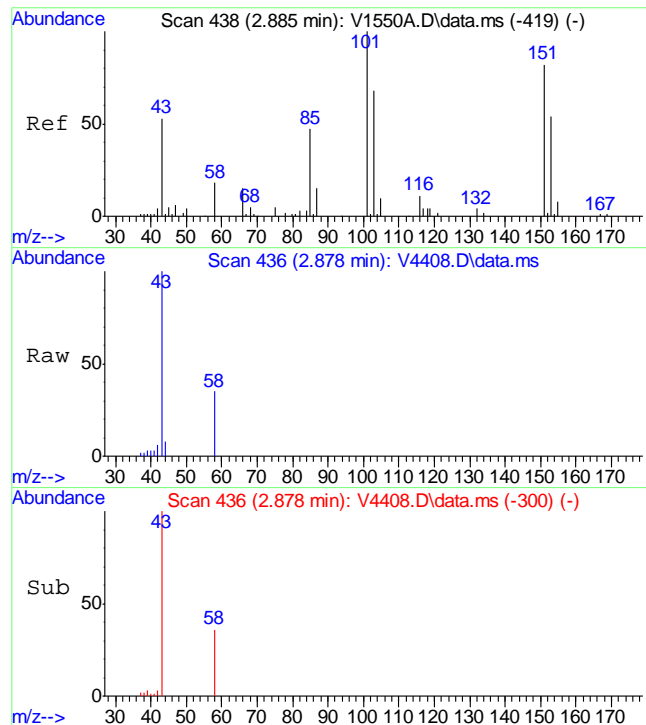
15.1.1  
15

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\  
Data File : V4408.D  
Acq On : 4 Jan 2012 6:21 pm  
Operator : AMYM  
Sample : D30595-1  
Misc : MS24783,MSV196,3.563,,,5,1  
ALS Vial : 11 Sample Multiplier: 1

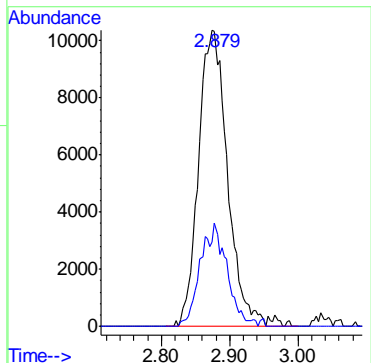
Quant Time: Jan 05 12:22:07 2012  
Quant Method : C:\msdchem\1\METHODS\v121911s.m  
Quant Title : SW-846 Method 8260  
QLast Update : Tue Dec 20 11:11:57 2011  
Response via : Initial Calibration





#16  
acetone  
Concen: 32.16 ug/L  
RT: 2.879 min Scan# 436  
Delta R.T. -0.018 min  
Lab File: V4408.D  
Acq: 4 Jan 2012 6:21 pm

Tgt Ion	Ratio	Lower	Upper
43	100		
58	34.9	4.3	64.3



15.1.1  
15

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\  
Data File : V4402.D  
Acq On : 4 Jan 2012 3:19 pm  
Operator : AMYM  
Sample : mb  
Misc : MS24779,MSV196,5,,,5,1  
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 05 11:28:11 2012  
Quant Method : C:\msdchem\1\METHODS\v121911s.m  
Quant Title : SW-846 Method 8260  
QLast Update : Tue Dec 20 11:11:57 2011  
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	3.484	65	135875	500.00	ug/L	-0.02
4) pentafluorobenzene	6.528	168	512090	50.00	ug/L	-0.01
43) 1,4-difluorobenzene	7.717	114	777605	50.00	ug/L	-0.01
66) chlorobenzene-d5	11.073	82	460992	50.00	ug/L	0.00
80) 1,4-dichlorobenzene-d4	13.310	152	445118	50.00	ug/L	0.00
System Monitoring Compounds						
40) dibromofluoromethane (s)	6.407	113	261772	55.24	ug/L	-0.01
Spiked Amount 50.000	Range 70 - 130		Recovery =	110.48%		
60) toluene-d8 (s)	9.538	98	1063811	52.04	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	104.08%		
82) bromofluorobenzene (s)	12.232	95	394248	45.72	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	91.44%		
Target Compounds						
24) carbon disulfide	3.096	76	24821	3.76	ug/L	Qvalue 97

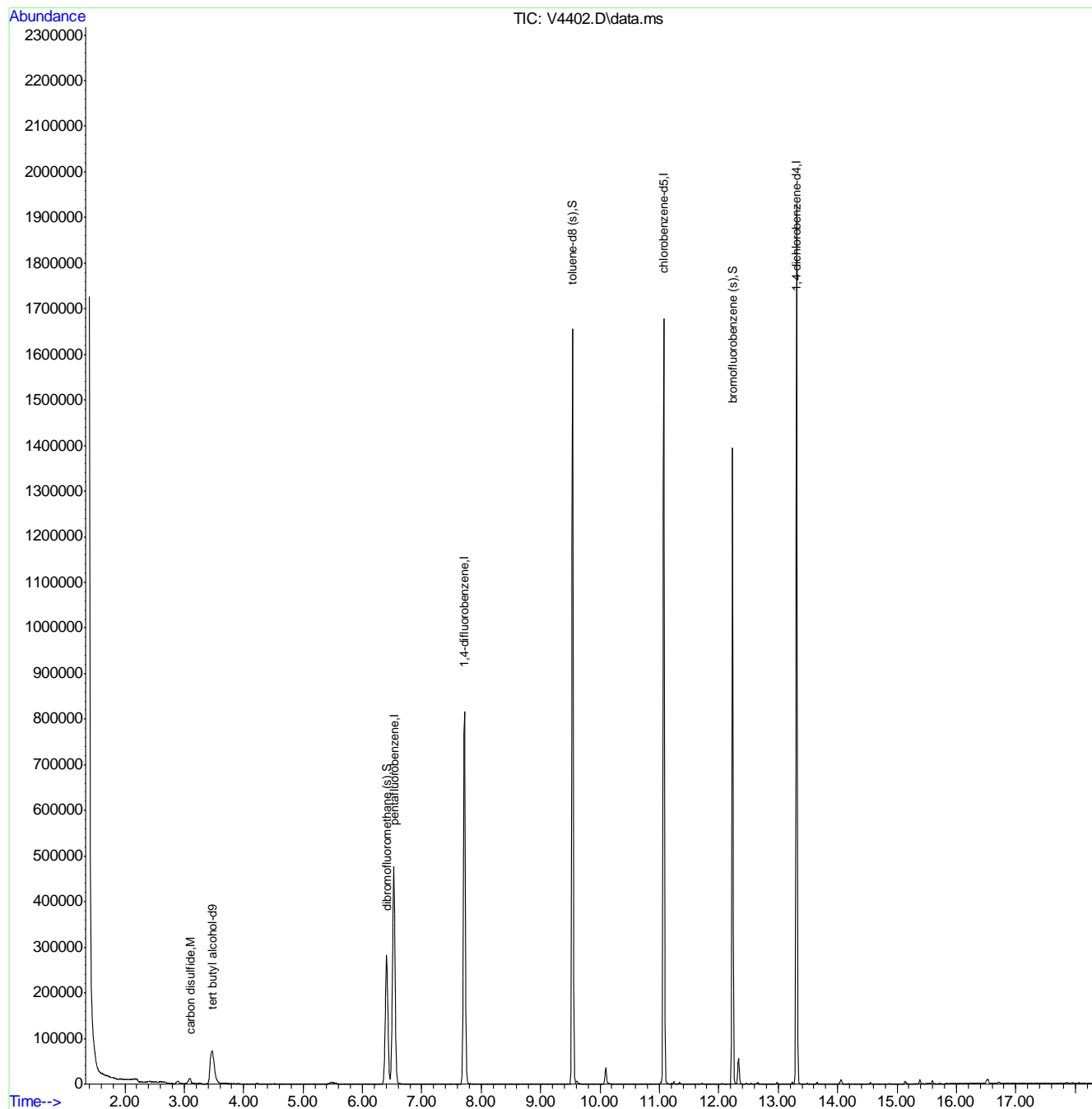
(#) = qualifier out of range (m) = manual integration (+) = signals summed

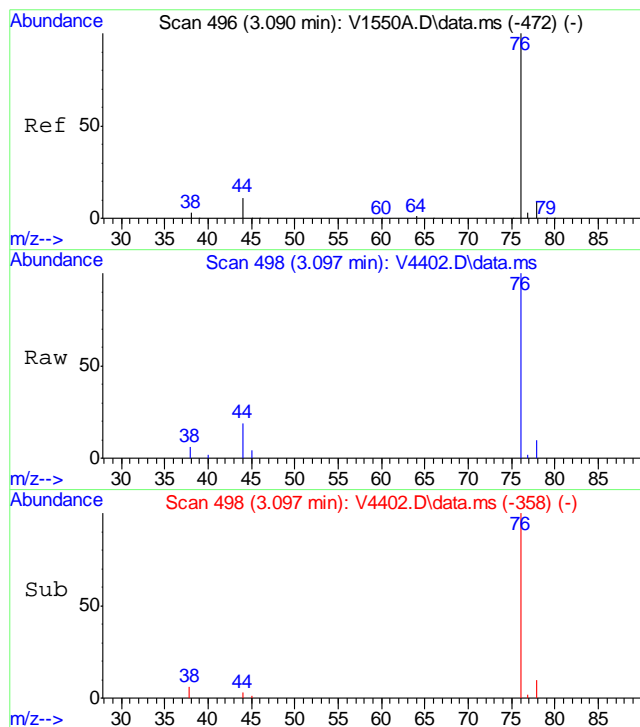


## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\  
Data File : V4402.D  
Acq On : 4 Jan 2012 3:19 pm  
Operator : AMYM  
Sample : mb  
Misc : MS24779,MSV196,5,,,5,1  
ALS Vial : 5 Sample Multiplier: 1

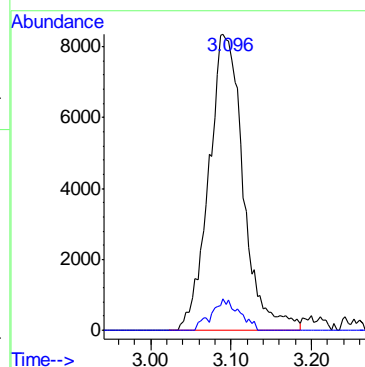
Quant Time: Jan 05 11:28:11 2012  
Quant Method : C:\msdchem\1\METHODS\v121911s.m  
Quant Title : SW-846 Method 8260  
QLast Update : Tue Dec 20 11:11:57 2011  
Response via : Initial Calibration





#24  
carbon disulfide  
Concen: 3.76 ug/L  
RT: 3.096 min Scan# 498  
Delta R.T. -0.007 min  
Lab File: V4402.D  
Acq: 4 Jan 2012 3:19 pm

Tgt Ion: 76 Resp: 24821  
Ion Ratio Lower Upper  
76 100  
78 10.3 0.0 39.1



## General Chemistry

### QC Data Summaries

(Accutest Labs of New England, Inc.)

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Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D30595  
Account: ALMS - Accutest Mountain States  
Project: KRWCCOL: XOM PCU F13X-19G

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP13987/GN37413	0.40	0.0	mg/kg	40	42.6	106.5	80-120%
Chromium, Hexavalent	GP13987/GN37413			mg/kg	1290	1350	104.7	80-120%

Associated Samples:  
Batch GP13987: D30595-1  
(\*) Outside of QC limits

BLANK SPIKE DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D30595  
Account: ALMS - Accutest Mountain States  
Project: KRWCCOL: XOM PCU F13X-19G

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
Chromium, Hexavalent	GP13987/GN37413	mg/kg	40	43.3	1.7	

Associated Samples:  
Batch GP13987: D30595-1  
(\*) Outside of QC limits

DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D30595  
Account: ALMS - Accutest Mountain States  
Project: KRWCCOL: XOM PCU F13X-19G

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP13987/GN37413	D30596-1	mg/kg	0.0	0.0	0.0	0-20%

Associated Samples:  
Batch GP13987: D30595-1  
(\*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D30595  
Account: ALMS - Accutest Mountain States  
Project: KRWCCOL: XOM PCU F13X-19G

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP13987/GN37413	D30596-1	mg/kg	0.0	44.6	47.4	106.2	75-125%
Chromium, Hexavalent	GP13987/GN37413	D30596-1	mg/kg	0.0	942	1150	122.1	75-125%

Associated Samples:  
Batch GP13987: D30595-1  
(\*) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits