



11/10/11

Technical Report for

KRW Consulting, Inc.

XOM FRU 297-32A

1108-12A

Accutest Job Number: D29206

Sampling Date: 11/04/11

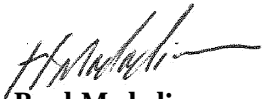
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Total number of pages in report: 143



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)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.
Test results relate only to samples analyzed.

Table of Contents

-1-

Section 1: Sample Summary	4
Section 2: Case Narrative/Conformance Summary	5
Section 3: Sample Results	9
3.1: D29206-1: RESERVE PIT CONTENT	10
3.2: D29206-1A: RESERVE PIT CONTENT	16
Section 4: Misc. Forms	18
4.1: Chain of Custody	19
Section 5: GC/MS Volatiles - QC Data Summaries	21
5.1: Method Blank Summary	22
5.2: Blank Spike Summary	23
5.3: Matrix Spike/Matrix Spike Duplicate Summary	24
Section 6: GC/MS Volatiles - Raw Data	25
6.1: Samples	26
6.2: Method Blanks	36
Section 7: GC/MS Semi-volatiles - QC Data Summaries	40
7.1: Method Blank Summary	41
7.2: Blank Spike Summary	42
7.3: Matrix Spike/Matrix Spike Duplicate Summary	43
Section 8: GC/MS Semi-volatiles - Raw Data	44
8.1: Samples	45
8.2: Method Blanks	62
Section 9: GC Volatiles - QC Data Summaries	79
9.1: Method Blank Summary	80
9.2: Blank Spike Summary	81
9.3: Matrix Spike/Matrix Spike Duplicate Summary	82
Section 10: GC Volatiles - Raw Data	83
10.1: Samples	84
10.2: Method Blanks	89
Section 11: GC Semi-volatiles - QC Data Summaries	94
11.1: Method Blank Summary	95
11.2: Blank Spike Summary	96
11.3: Matrix Spike/Matrix Spike Duplicate Summary	97
Section 12: GC Semi-volatiles - Raw Data	98
12.1: Samples	99
12.2: Method Blanks	102
Section 13: Metals Analysis - QC Data Summaries	105
13.1: Prep QC MP6206: Ba,Cd,Cr,Cu,Pb,Ni,Se,Ag,Zn	106
13.2: Prep QC MP6207: As	116
13.3: Prep QC MP6224: Hg	121
13.4: Prep QC MP6227: Ca,Mg,Na,Sodium Adsorption Ratio	125
Section 14: General Chemistry - QC Data Summaries	133
14.1: Method Blank and Spike Results Summary	134

Table of Contents

Sections:

-2-	
14.2: Duplicate Results Summary	135
Section 15: Misc. Forms (Accutest Labs of New England, Inc.)	136
15.1: Chain of Custody	137
Section 16: General Chemistry - QC Data (Accutest Labs of New England, Inc.)	139
16.1: Method Blank and Spike Results Summary	140
16.2: Blank Spike Duplicate Results Summary	141
16.3: Duplicate Results Summary	142
16.4: Matrix Spike Results Summary	143

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16



Sample Summary

KRW Consulting, Inc.

Job No: D29206

XOM FRU 297-32A
Project No: 1108-12A

Sample Number	Collected		Time By	Received	Matrix		Client Sample ID
	Date				Code	Type	
D29206-1	11/04/11	11:25	CB	11/05/11	SO	Soil	RESERVE PIT CONTENT
D29206-1A	11/04/11	11:25	CB	11/05/11	SO	Soil	RESERVE PIT CONTENT

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: KRW Consulting, Inc.

Job No D29206

Site: XOM FRU 297-32A

Report Dat 11/10/2011 4:36:49 PM

On 11/05/2011, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D29206 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: V3V832

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

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO

Batch ID: OP4805

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

Volatiles by GC By Method SW846 8015B

Matrix SO

Batch ID: GGB778

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

Extractables by GC By Method SW846-8015B

Matrix SO

Batch ID: OP4801

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

Metals By Method SW846 6010B

Matrix AQ

Batch ID: MP6227

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

Matrix SO

Batch ID: MP6206

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

Metals By Method SW846 6020

Matrix SO

Batch ID: MP6207

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

Metals By Method SW846 7471A

Matrix SO

Batch ID: MP6224

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

Wet Chemistry By Method ASTM D1498-76M

Matrix SO

Batch ID: GN12406

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

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN12361

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO

Batch ID: R10682

- The data for SW846 3060/7196A M meets quality control requirements.
- D29206-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO

Batch ID: M:GP13780

- The data for SW846 3060A/7196A meets quality control requirements.
- D29206-1 for Chromium, Hexavalent: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method SW846 9045C

Matrix SO

Batch ID: GN12401

- The following sample was run outside of holding time for method SW846 9045C: D29206-1.

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO

Batch ID: MP6227

- D29206-1A 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 D29206

Site: KRWCCOL: XOM FRU 297-32A

Report Date 11/10/2011 4:30:32 PM

1 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 11/04/2011 and were received at Accutest on 11/05/2011 properly preserved, at 1.8 Deg. C and intact. These Samples received an Accutest job number of D29206. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

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

Wet Chemistry By Method SW846 3060A/7196A

Matrix: SO

Batch ID: GP13780

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

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety. The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(D29206).

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	RESERVE PIT CONTENT	
Lab Sample ID:	D29206-1	Date Sampled: 11/04/11
Matrix:	SO - Soil	Date Received: 11/05/11
Method:	SW846 8260B	Percent Solids: 20.6
Project:	XOM FRU 297-32A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V14479.D	1	11/07/11	DC	n/a	n/a	V3V832
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.06 g	5.0 ml	50.0 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	3580	860	380	ug/kg	
108-88-3	Toluene	31200	1700	860	ug/kg	
100-41-4	Ethylbenzene	6040	1700	430	ug/kg	
1330-20-7	Xylene (total)	101000	3500	1700	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	109%		61-130%
460-00-4	4-Bromofluorobenzene	102%		53-131%
17060-07-0	1,2-Dichloroethane-D4	98%		62-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RESERVE PIT CONTENT	Date Sampled:	11/04/11
Lab Sample ID:	D29206-1	Date Received:	11/05/11
Matrix:	SO - Soil	Percent Solids:	20.6
Method:	SW846 8270C BY SIM SW846 3546		
Project:	XOM FRU 297-32A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G06850.D	10	11/09/11	TMB	11/08/11	OP4805	E3G253
Run #2							

	Initial Weight	Final Volume
Run #1	15.0 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	650	520	ug/kg	
120-12-7	Anthracene	ND	650	580	ug/kg	
56-55-3	Benzo(a)anthracene	ND	1600	840	ug/kg	
50-32-8	Benzo(a)pyrene	ND	1600	1200	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	1600	1200	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	1600	710	ug/kg	
218-01-9	Chrysene	ND	1600	710	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	1600	1200	ug/kg	
206-44-0	Fluoranthene	ND	650	650	ug/kg	
86-73-7	Fluorene	4350	650	550	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1900	1800	ug/kg	
91-20-3	Naphthalene	6130	650	610	ug/kg	
129-00-0	Pyrene	ND	650	610	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	116%		10-145%
321-60-8	2-Fluorobiphenyl	78%		10-130%
1718-51-0	Terphenyl-d14	83%		22-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

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J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	RESERVE PIT CONTENT			Date Sampled:	11/04/11
Lab Sample ID:	D29206-1			Date Received:	11/05/11
Matrix:	SO - Soil			Percent Solids:	20.6
Method:	SW846 8015B				
Project:	XOM FRU 297-32A				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB13742.D	1	11/07/11	SK	n/a	n/a	GGB778
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	50.0 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	951	170	86	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	90%		60-140%		

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

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

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	RESERVE PIT CONTENT					Date Sampled:	11/04/11
Lab Sample ID:	D29206-1					Date Received:	11/05/11
Matrix:	SO - Soil					Percent Solids:	20.6
Method:	SW846-8015B SW846 3546						
Project:	XOM FRU 297-32A						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD11388.D	1	11/08/11	TR	11/08/11	OP4801	GFD571
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	9600	65	42	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	104%		61-142%		

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

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

Report of Analysis

Client Sample ID: RESERVE PIT CONTENT**Lab Sample ID:** D29206-1**Matrix:** SO - Soil**Project:** XOM FRU 297-32A**Date Sampled:** 11/04/11**Date Received:** 11/05/11**Percent Solids:** 20.6**Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.1	2.0	mg/kg	5	11/07/11	11/08/11 GJ	SW846 6020 ²	SW846 3050B ⁶
Barium	34400	50	mg/kg	10	11/07/11	11/08/11 JB	SW846 6010B ³	SW846 3050B ⁵
Cadmium	< 5.0	5.0	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B ¹	SW846 3050B ⁵
Chromium	21.2	5.0	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B ¹	SW846 3050B ⁵
Copper	111	5.0	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B ¹	SW846 3050B ⁵
Lead	89.7	25	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B ¹	SW846 3050B ⁵
Mercury	< 0.48	0.48	mg/kg	1	11/09/11	11/09/11 JB	SW846 7471A ⁴	SW846 7471A ⁷
Nickel	16.4	15	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B ¹	SW846 3050B ⁵
Selenium ^a	< 250	250	mg/kg	10	11/07/11	11/08/11 JB	SW846 6010B ³	SW846 3050B ⁵
Silver	< 15	15	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B ¹	SW846 3050B ⁵
Zinc	51.1	15	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B ¹	SW846 3050B ⁵

(1) Instrument QC Batch: MA1952

(2) Instrument QC Batch: MA1953

(3) Instrument QC Batch: MA1954

(4) Instrument QC Batch: MA1959

(5) Prep QC Batch: MP6206

(6) Prep QC Batch: MP6207

(7) Prep QC Batch: MP6224

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: RESERVE PIT CONTENT**Lab Sample ID:** D29206-1**Matrix:** SO - Soil**Project:** XOM FRU 297-32A**Date Sampled:** 11/04/11**Date Received:** 11/05/11**Percent Solids:** 20.6**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent ^a	1.9	1.9	mg/kg	1	11/10/11 15:13	AMA	SW846 3060A/7196A
Chromium, Trivalent ^b	19.3	6.9	mg/kg	1	11/10/11 15:13	AMA	SW846 3060/7196A M
Redox Potential Vs H2	301		mv	1	11/08/11 14:40	JK	ASTM D1498-76M
Solids, Percent	20.6		%	1	11/07/11	SWT	SM19 2540B M
Specific Conductivity	2770	1.0	umhos/cm	1	11/08/11	JD	DEPT.OF AG, BOOK N9
pH	10.02		su	1	11/08/11 11:30	JK	SW846 9045C

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RESERVE PIT CONTENT	Date Sampled:	11/04/11
Lab Sample ID:	D29206-1A	Date Received:	11/05/11
Matrix:	SO - Soil	Percent Solids:	20.6
Project:	XOM FRU 297-32A		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	10.8	2.0	mg/l	1	11/09/11	11/10/11 JB	SW846 6010B ¹	EPA 200.7 1994 ²
Magnesium	< 1.0	1.0	mg/l	1	11/09/11	11/10/11 JB	SW846 6010B ¹	EPA 200.7 1994 ²
Sodium	609	2.0	mg/l	1	11/09/11	11/10/11 JB	SW846 6010B ¹	EPA 200.7 1994 ²

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

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RESERVE PIT CONTENT	Date Sampled:	11/04/11
Lab Sample ID:	D29206-1A	Date Received:	11/05/11
Matrix:	SO - Soil	Percent Solids:	20.6
Project:	XOM FRU 297-32A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	48.3		ratio	1	11/10/11 11:05	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

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 # D29206	
Client / Reporting Information		Project Information	
Company Name KRW Street Address 8000 Wilth Ave St. 200 City State Zip Lakewood Co 80214 Project Contact Dwayne Knudson Phone # 970-123-4046 Sample(s) Name(s) Craig Burger 970-756-2993		Project Name XOM FRU 297-32A Street 1111 -02A Billing Information (If different from Report to) Company Name JUL HESS Street Address 1111 -02A City State Zip 1111 -02A Attention: PO#	
Requested Analysis (see TEST CODE sheet)		Matrix Codes	
DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank		LAB USE ONLY 01 72	
Accutest Sample # Field ID / Point of Collection Reserve Pit Content MECH/ID Vial # Date 11-4-11 Time 11:25 Sampled by CAB Matrix SO # of bottles 5 Number of preserved bottles HCl NaOH HNO3 H2SO4 NONE DI Water MECH ENCORE Baseline		Table 9/10	
Turnaround Time (Business days) <input type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> Std. 5 Business Days (By Contract only) <input type="checkbox"/> 5 Day # SH <input checked="" type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY Emergency & Rush T/A data available VIA Lablink		Approved By (Accutest PM): / Date: <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> Commercial "B" + Narrative <input type="checkbox"/> FULLT1 (Level 3+4) Commercial "A" = Results Only Commercial "B" = Results + QC Summary	
Data Deliverable Information <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format <input checked="" type="checkbox"/> PDF		Comments / Special Instructions Please email results to KRW XTO Piceance creek team	
Sample Custody must be documented below each time samples change possession, including courier delivery.			
Relinquished by: 1 Relinquished by Sample: 3 Relinquished by: 5	Date Time: 11-4-11 17:15 Date Time: 11-4-11 Date Time: 11-4-11	Received By: 1 Received By: 3 Received By: 5	Relinquished By: 2 Relinquished By: 4 Custody Seal # 6 Intact Not Intact Preserved where applicable <input type="checkbox"/> On Ice <input checked="" type="checkbox"/> Cooler Temp 30

D29206: Chain of Custody

Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D29206

Client: KRW

Immediate Client Services Action Required: No

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

No. Coolers: 1

Client Service Action Required at Login: No

Project: XOM FRU 297-32A

Airbill #'s: Fedex

<u>Cooler Security</u>	<u>Y</u>	<u>or</u>	<u>N</u>		<u>Y</u>	<u>or</u>	<u>N</u>
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"/>

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

<u>Quality Control Preservation</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
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"/>

<u>Sample Integrity - Documentation</u>	<u>Y</u>	<u>or</u>	<u>N</u>
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"/>

<u>Sample Integrity - Condition</u>	<u>Y</u>	<u>or</u>	<u>N</u>
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

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

Comments

 Accutest Laboratories
 V:(303) 425-6021

 4036 Youngfield Street
 F: (303) 425-6854

 Wheat Ridge, CO
 www.accutest.com

GC/MS Volatiles

5

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: D29206
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-32A

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

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

D29206-1

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

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

Blank Spike Summary

Page 1 of 1

Job Number: D29206

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-32A

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

The QC reported here applies to the following samples:

Method: SW846 8260B

D29206-1

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

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

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D29206

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-32A

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

The QC reported here applies to the following samples:

Method: SW846 8260B

D29206-1

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

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

GC/MS Volatiles

Raw Data



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3110711.S\
 Data File : 3V14479.D
 Acq On : 7 Nov 2011 9:51 pm
 Operator : DONC
 Sample : D29206-1, 100x
 Misc : MS2923,V3V832,5.063,,50,5,1
 ALS Vial : 19 Sample Multiplier: 1

Quant Time: Nov 09 12:10:01 2011
 Quant Method : C:\msdchem\1\METHODS\V3AP830TVH830.M
 Quant Title : 8260
 QLast Update : Mon Nov 07 14:42:41 2011
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.889	168	394105	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.684	114	632192	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.319	117	549672	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.311	152	270793	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.287	102	50958	48.95	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	97.90%
61) Toluene-d8	14.074	98	891752	54.39	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	108.78%
69) 4-Bromofluorobenzene	16.269	95	272340	51.04	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	102.08%

Target Compounds

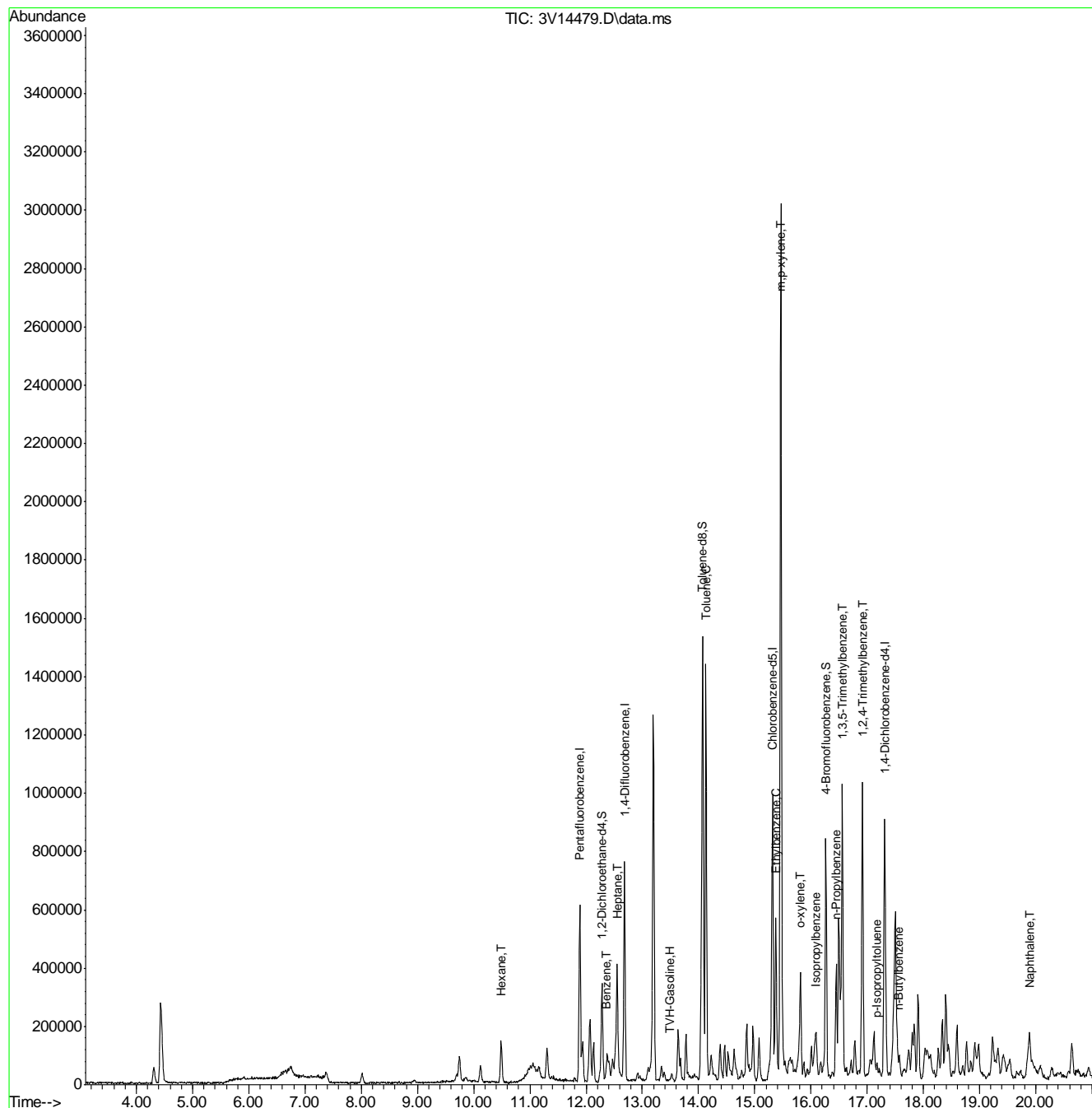
						Qvalue
1) TVH-Gasoline	13.491	TIC	25033183m	1352.50	ug/l	
41) Hexane	10.490	57	69497	12.80	ug/l	100
43) Heptane	12.556	43	139398	23.13	ug/l	98
50) Benzene	12.373	78	69901	4.13	ug/l	100
62) Toluene	14.135	92	402975	36.04	ug/l	100
66) Ethylbenzene	15.383	91	131656	6.98	ug/l	97
68) Isopropylbenzene	16.092	105	33644	1.63	ug/l	99
72) m,p-xylene	15.466	106	911696	102.88	ug/l	97
73) o-xylene	15.813	106	104686	13.65	ug/l	93
77) n-Propylbenzene	16.448	91	70033	3.36	ug/l	99
80) 1,3,5-Trimethylbenzene	16.557	105	533550	34.19	ug/l	99
82) 1,2,4-Trimethylbenzene	16.917	105	598404	36.49	ug/l	88
86) p-Isopropyltoluene	17.177	119	30634	1.66	ug/l	96
88) n-Butylbenzene	17.568	91	29568	1.86	ug/l	# 92
91) Naphthalene	19.891	128	190916	12.77	ug/l	100

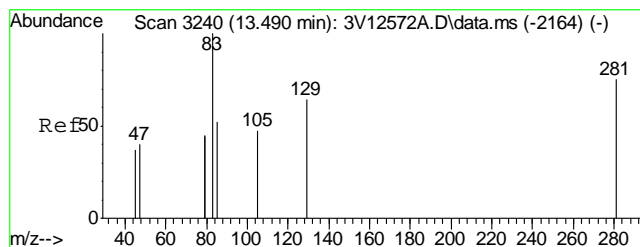
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3110711.S\
Data File : 3V14479.D
Acq On : 7 Nov 2011 9:51 pm
Operator : DONC
Sample : D29206-1, 100x
Misc : MS2923,V3V832,5.063,,50,5,1
ALS Vial : 19 Sample Multiplier: 1

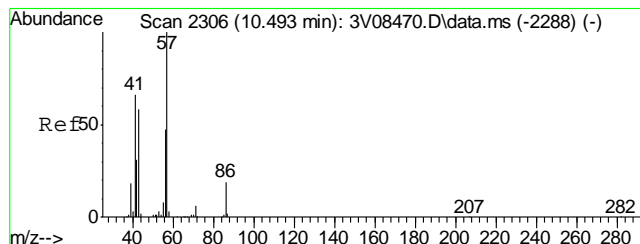
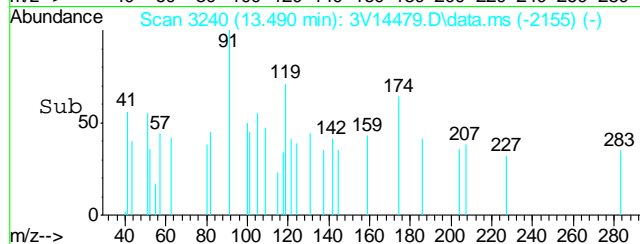
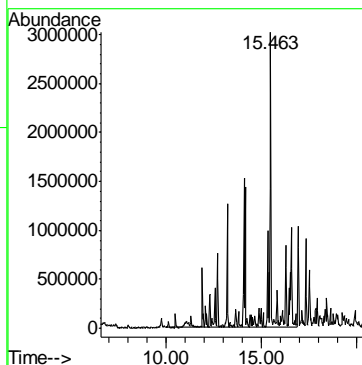
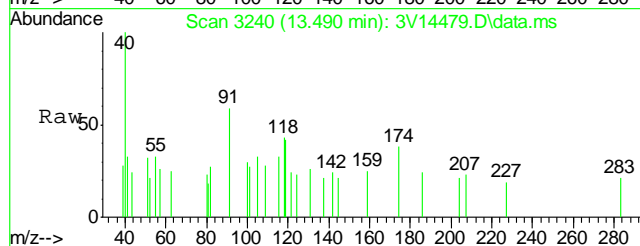
Quant Time: Nov 09 12:10:01 2011
Quant Method : C:\msdchem\1\METHODS\V3AP830TVH830.M
Quant Title : 8260
QLast Update : Mon Nov 07 14:42:41 2011
Response via : Initial Calibration





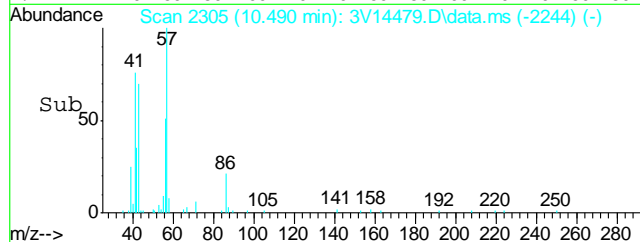
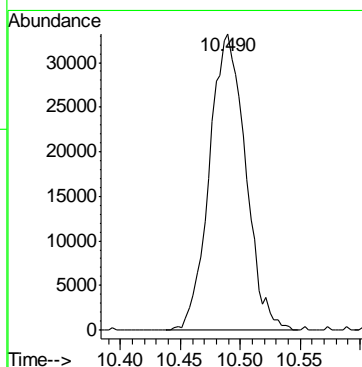
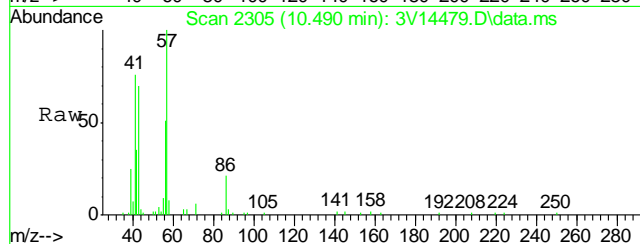
#1
TVH-Gasoline
Concen: 1352.50 ug/l m
RT: 13.491 min Scan# 3240
Delta R.T. 0.000 min
Lab File: 3V14479.D
Acq: 7 Nov 2011 9:51 pm

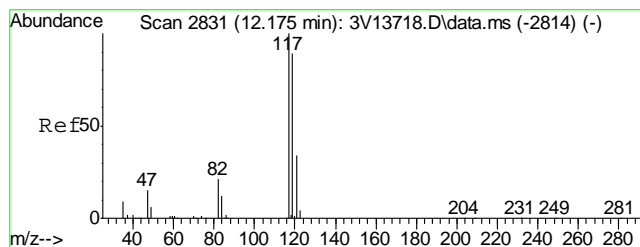
Tgt Ion:TIC Resp:25033183



#41
Hexane
Concen: 12.80 ug/l
RT: 10.490 min Scan# 2305
Delta R.T. -0.004 min
Lab File: 3V14479.D
Acq: 7 Nov 2011 9:51 pm

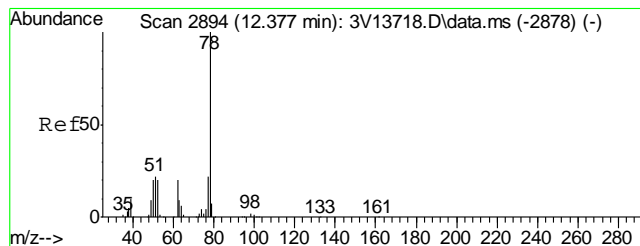
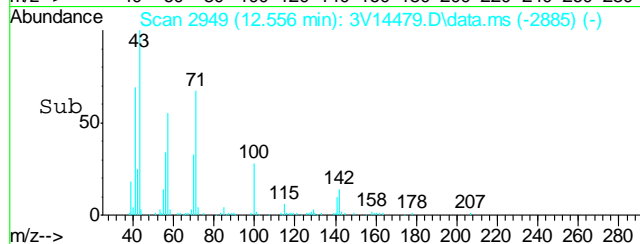
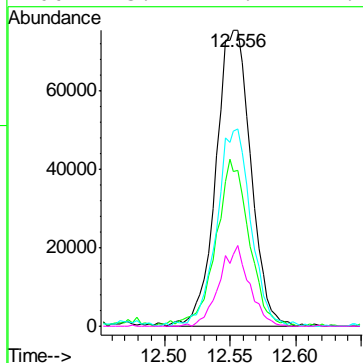
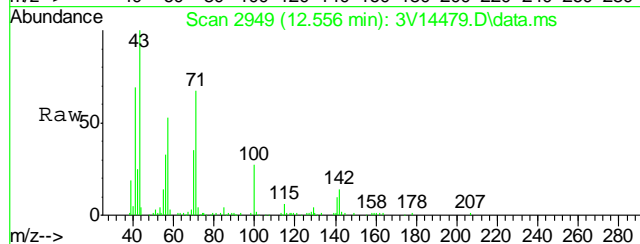
Tgt Ion: 57 Resp: 69497





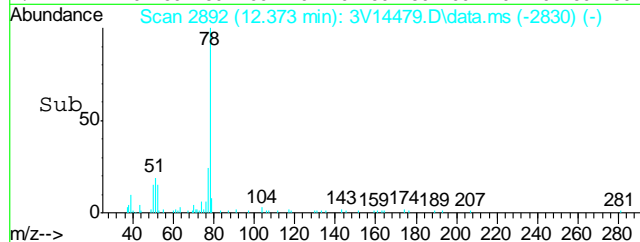
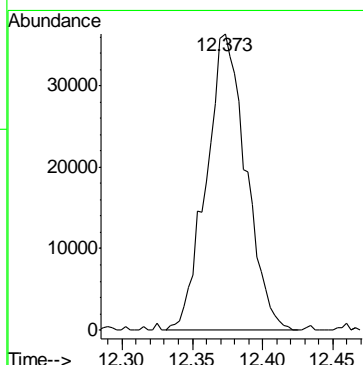
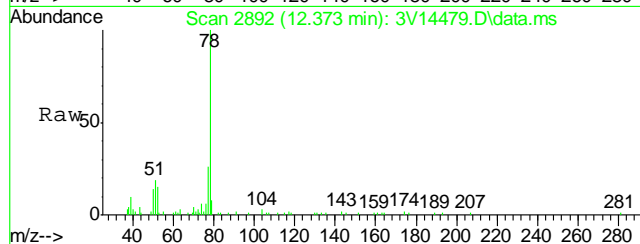
#43
Heptane
Concen: 23.13 ug/l
RT: 12.556 min Scan# 2949
Delta R.T. 0.006 min
Lab File: 3V14479.D
Acq: 7 Nov 2011 9:51 pm

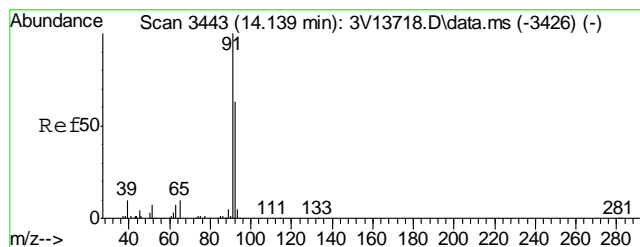
Tgt Ion	43	Resp	139398
Ion Ratio	100		
57	54.0	33.4	73.4
71	65.2	46.9	86.9
100	23.4	4.7	44.7



#50
Benzene
Concen: 4.13 ug/l
RT: 12.373 min Scan# 2892
Delta R.T. -0.001 min
Lab File: 3V14479.D
Acq: 7 Nov 2011 9:51 pm

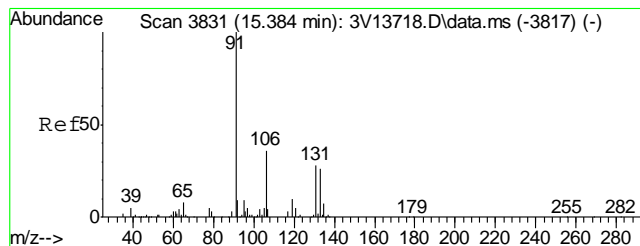
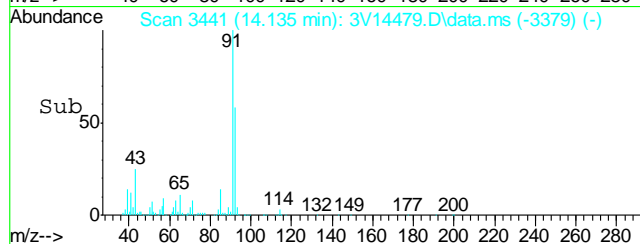
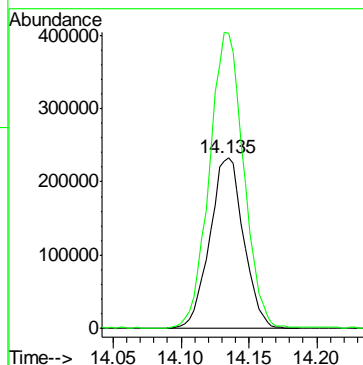
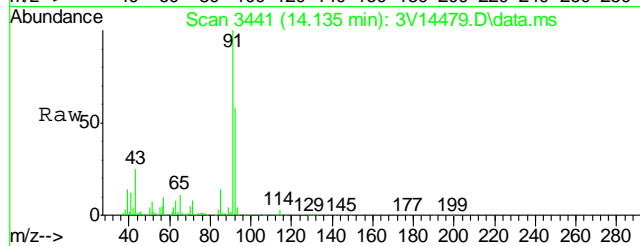
Tgt Ion: 78 Resp: 69901





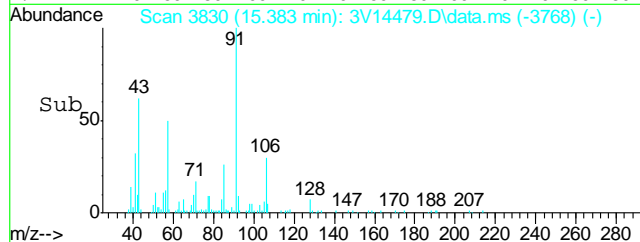
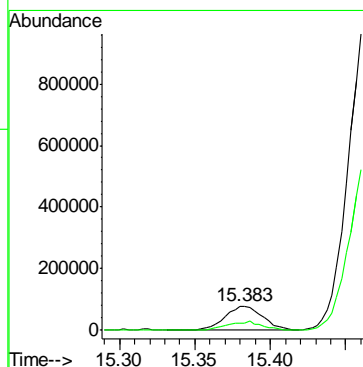
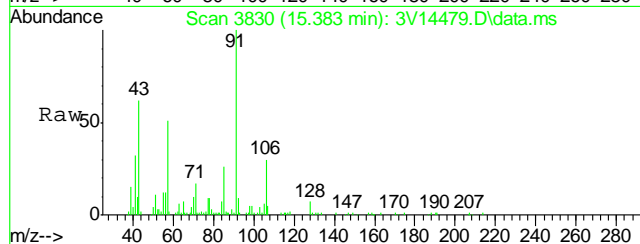
#62
Toluene
Concen: 36.04 ug/l
RT: 14.135 min Scan# 3441
Delta R.T. -0.001 min
Lab File: 3V14479.D
Acq: 7 Nov 2011 9:51 pm

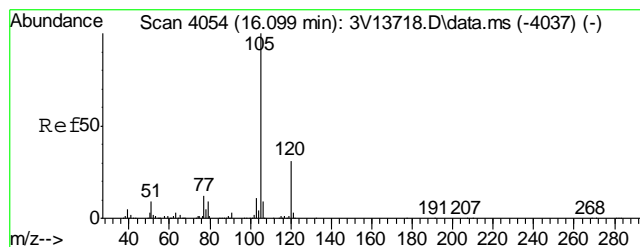
Tgt Ion	Ratio	Lower	Upper
92	100		
91	176.5	156.8	196.8



#66
Ethylbenzene
Concen: 6.98 ug/l
RT: 15.383 min Scan# 3830
Delta R.T. 0.000 min
Lab File: 3V14479.D
Acq: 7 Nov 2011 9:51 pm

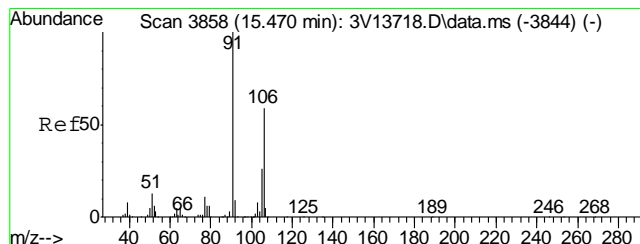
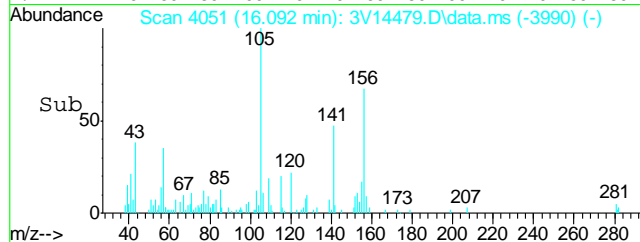
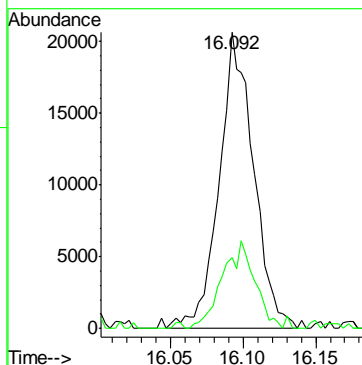
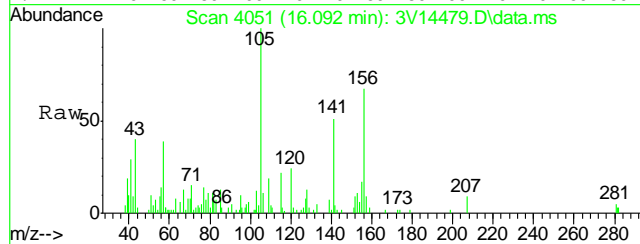
Tgt Ion	Ratio	Lower	Upper
91	100		
106	35.0	13.3	53.3





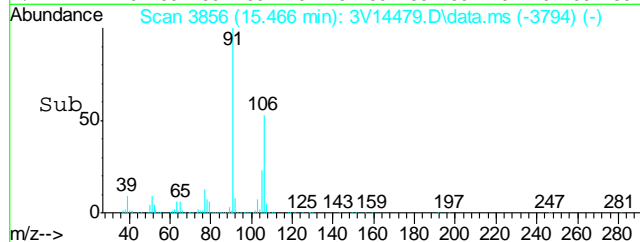
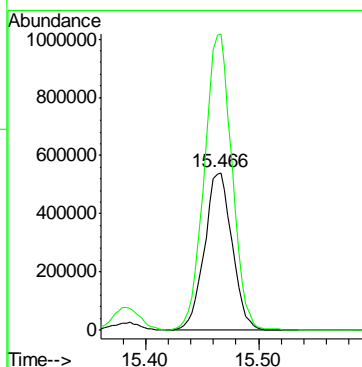
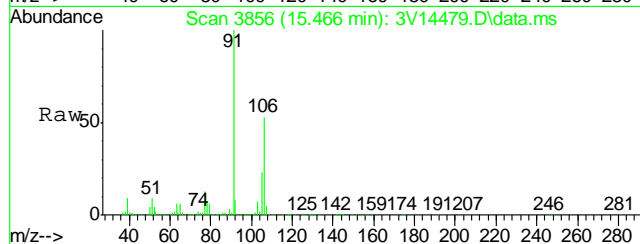
#68
Isopropylbenzene
Concen: 1.63 ug/l
RT: 16.092 min Scan# 4051
Delta R.T. -0.004 min
Lab File: 3V14479.D
Acq: 7 Nov 2011 9:51 pm

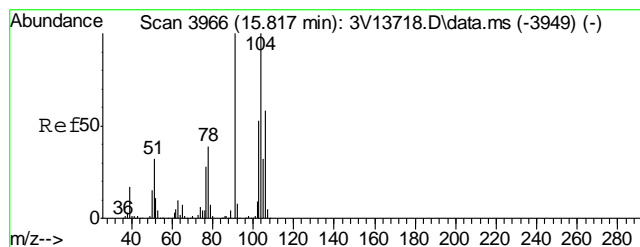
Tgt Ion	Ratio	Lower	Upper
105	100		
120	28.0	23.0	34.4



#72
m,p-xylene
Concen: 102.88 ug/l
RT: 15.466 min Scan# 3856
Delta R.T. 0.000 min
Lab File: 3V14479.D
Acq: 7 Nov 2011 9:51 pm

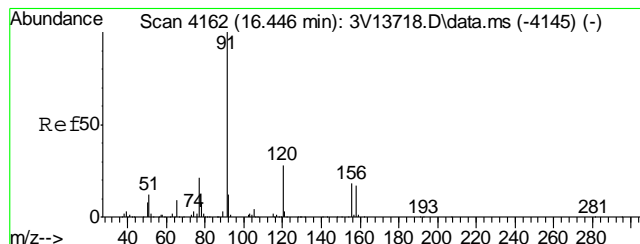
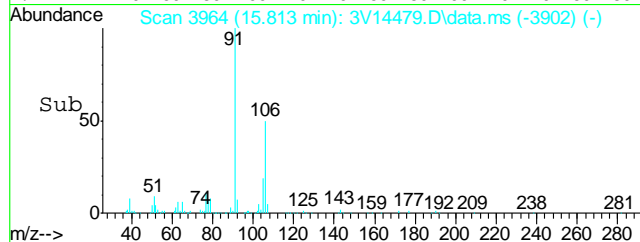
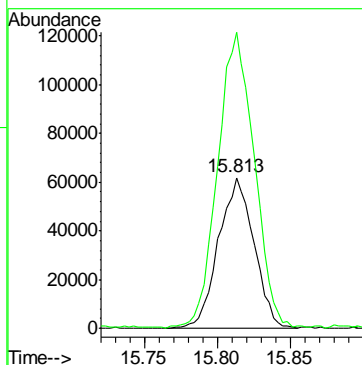
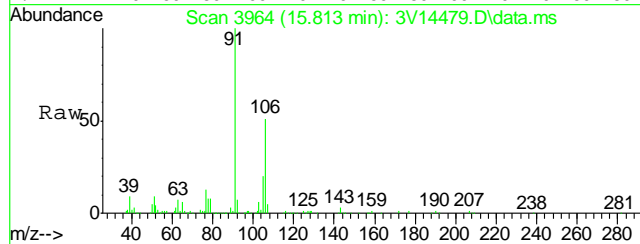
Tgt Ion	Ratio	Lower	Upper
106	100		
91	188.9	164.7	204.7





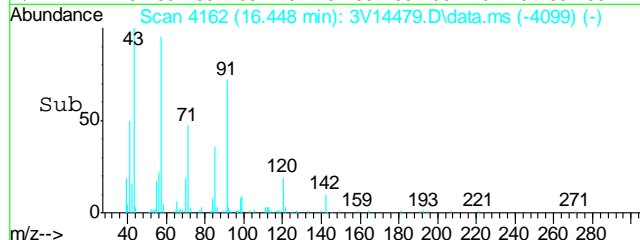
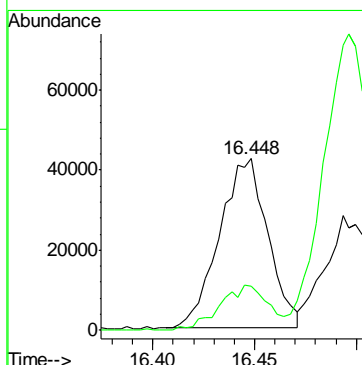
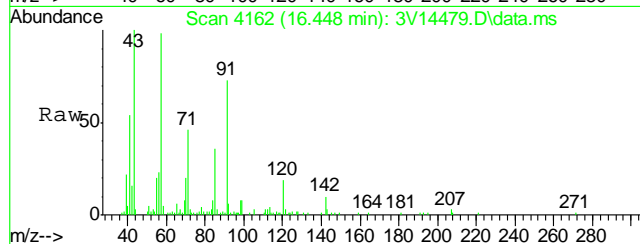
#73
o-xylene
Concen: 13.65 ug/l
RT: 15.813 min Scan# 3964
Delta R.T. 0.000 min
Lab File: 3V14479.D
Acq: 7 Nov 2011 9:51 pm

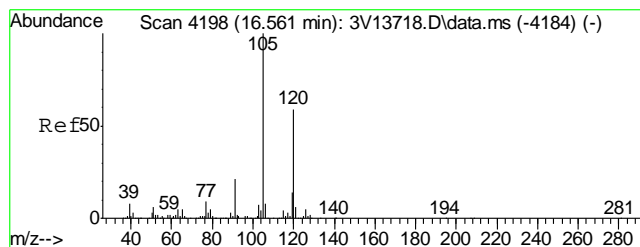
Tgt Ion	Ratio	Lower	Upper
106	100		
91	203.2	154.8	232.2



#77
n-Propylbenzene
Concen: 3.36 ug/l
RT: 16.448 min Scan# 4162
Delta R.T. 0.003 min
Lab File: 3V14479.D
Acq: 7 Nov 2011 9:51 pm

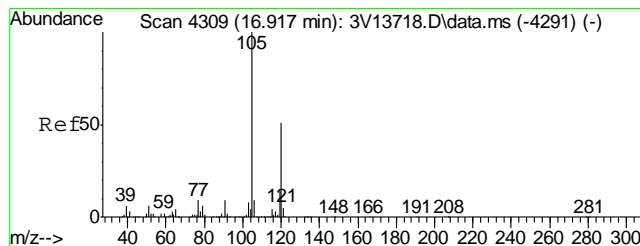
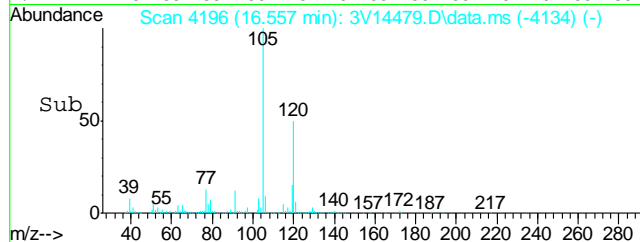
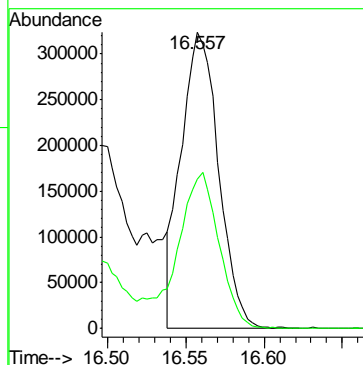
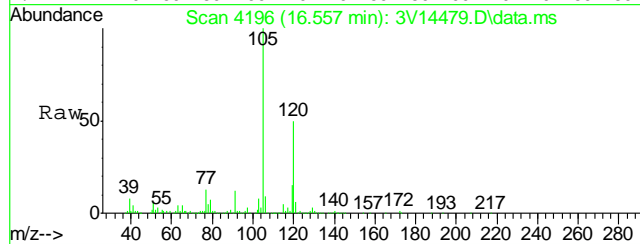
Tgt Ion	Ratio	Lower	Upper
91	100		
120	26.4	20.8	31.2





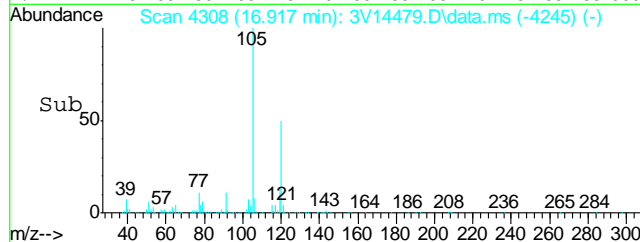
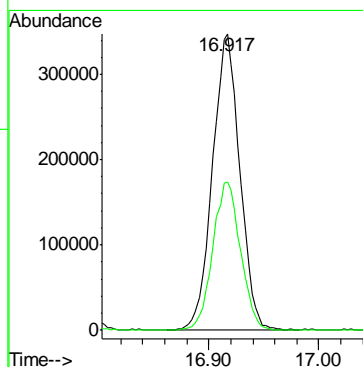
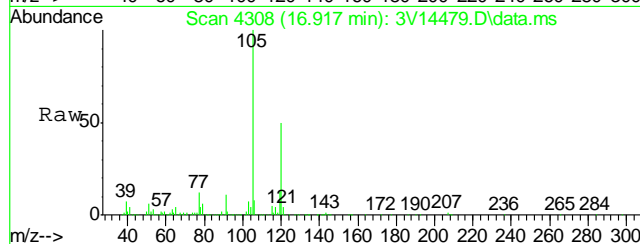
#80
1,3,5-Trimethylbenzene
Concen: 34.19 ug/l
RT: 16.557 min Scan# 4196
Delta R.T. 0.000 min
Lab File: 3V14479.D
Acq: 7 Nov 2011 9:51 pm

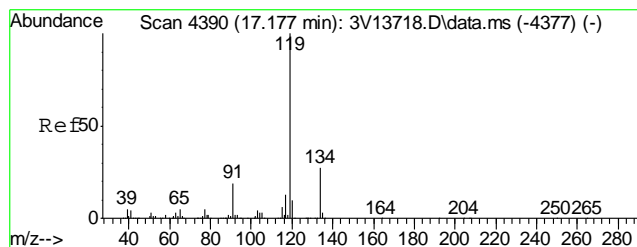
Tgt Ion	Ratio	Lower	Upper
105	100		
120	55.8	43.8	65.8



#82
1,2,4-Trimethylbenzene
Concen: 36.49 ug/l
RT: 16.917 min Scan# 4308
Delta R.T. 0.003 min
Lab File: 3V14479.D
Acq: 7 Nov 2011 9:51 pm

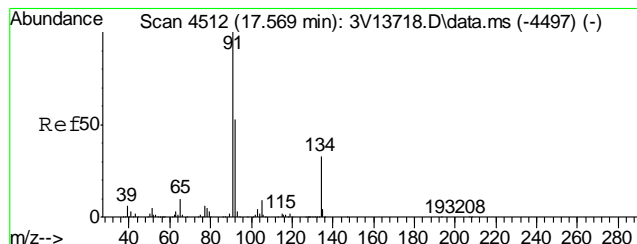
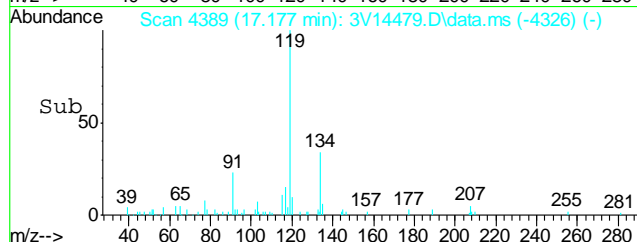
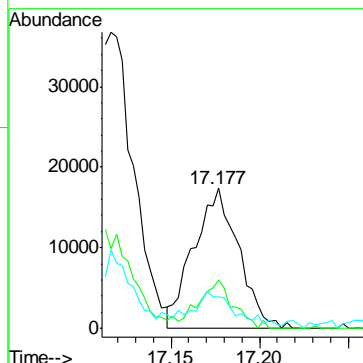
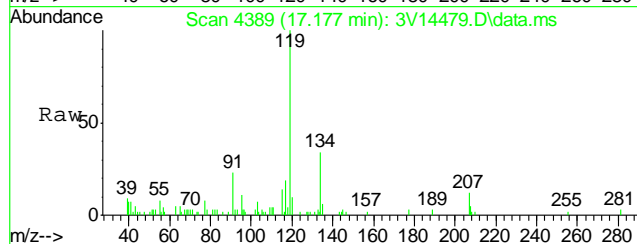
Tgt Ion	Ratio	Lower	Upper
105	100		
120	50.8	47.8	71.6





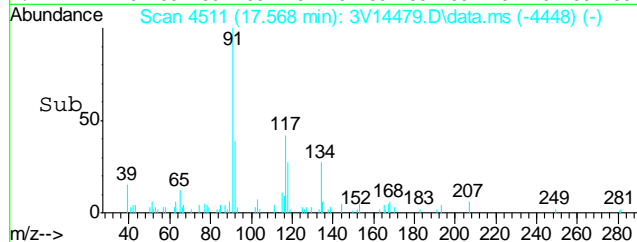
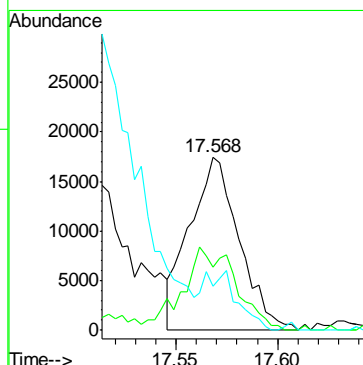
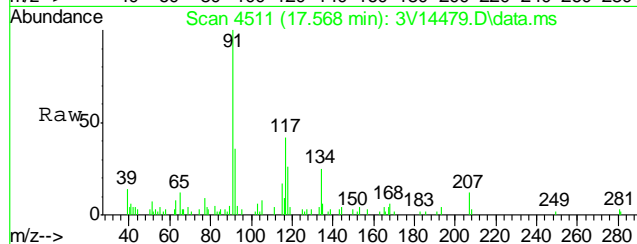
#86
p-Isopropyltoluene
Concen: 1.66 ug/l
RT: 17.177 min Scan# 4389
Delta R.T. 0.003 min
Lab File: 3V14479.D
Acq: 7 Nov 2011 9:51 pm

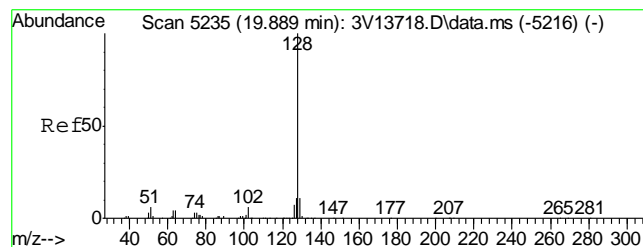
Tgt Ion:	119	Resp:	30634
Ion Ratio	Lower	Upper	
119	100		
134	26.5	23.4	35.0
91	21.6	16.3	24.5



#88
n-Butylbenzene
Concen: 1.86 ug/l
RT: 17.568 min Scan# 4511
Delta R.T. 0.003 min
Lab File: 3V14479.D
Acq: 7 Nov 2011 9:51 pm

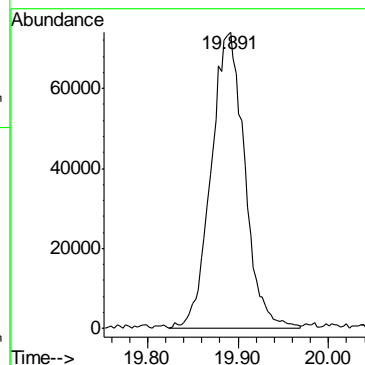
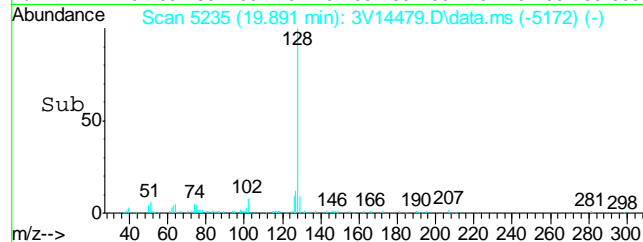
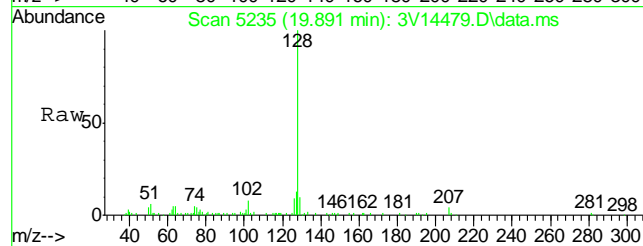
Tgt Ion:	91	Resp:	29568
Ion Ratio	Lower	Upper	
91	100		
92	51.3	41.5	62.3
134	21.0	25.4	38.0#





#91
Naphthalene
Concen: 12.77 ug/l
RT: 19.891 min Scan# 5235
Delta R.T. 0.003 min
Lab File: 3V14479.D
Acq: 7 Nov 2011 9:51 pm

Tgt Ion:128 Resp: 190916



Quantitation Report (QT Reviewed)

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

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

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

System Monitoring Compounds

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

Target Compounds

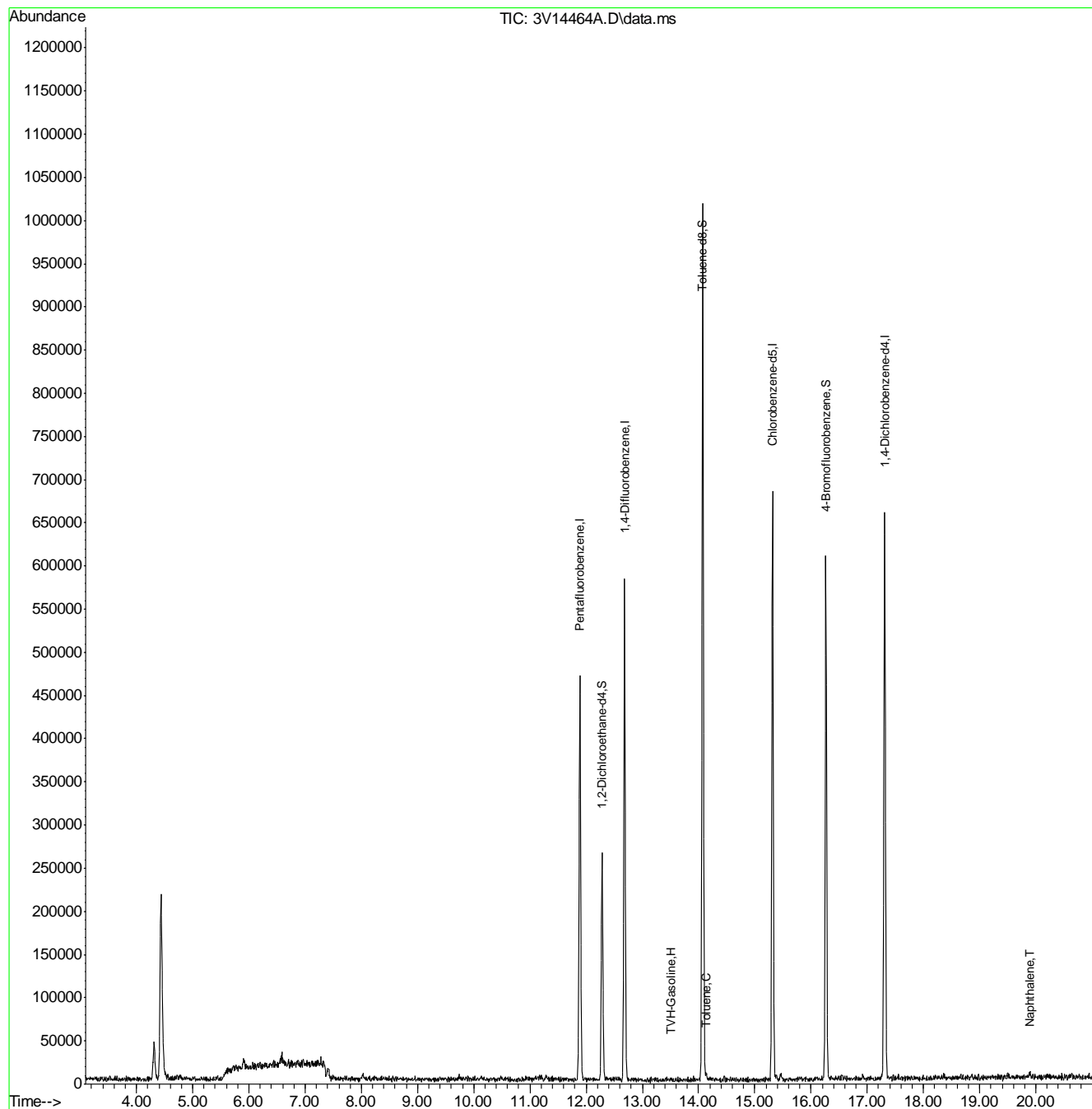
					Qvalue
1) TVH-Gasoline	13.491	TIC	124794m	19.44	ug/l
62) Toluene	14.139	92	2913	0.35	ug/l # 75
91) Naphthalene	19.899	128	5939	0.50	ug/l 100

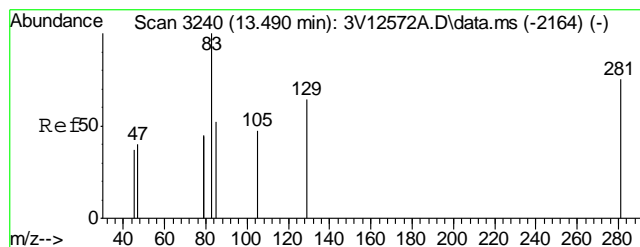
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

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

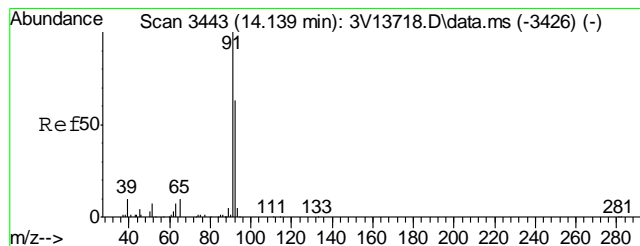
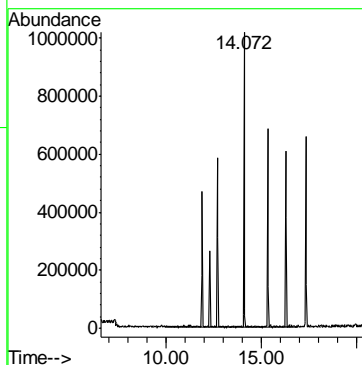
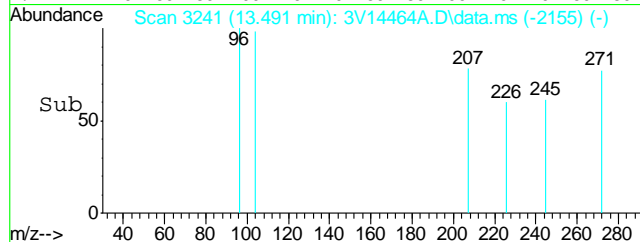
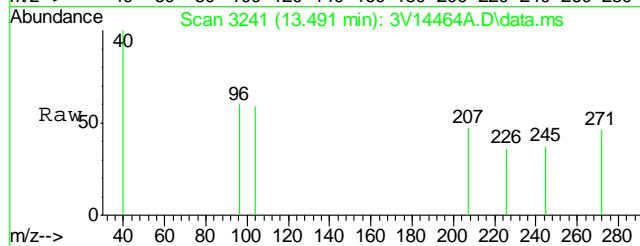
Quant Time: Nov 09 09:42:41 2011
Quant Method : C:\msdchem\1\METHODS\V3AP830TVH830.M
Quant Title : 8260
QLast Update : Mon Nov 07 14:42:41 2011
Response via : Initial Calibration





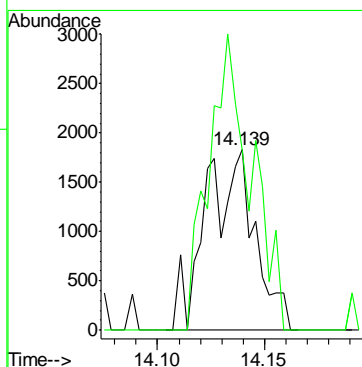
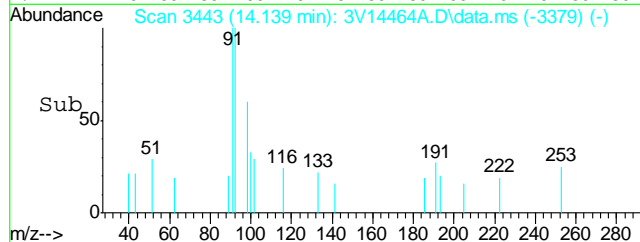
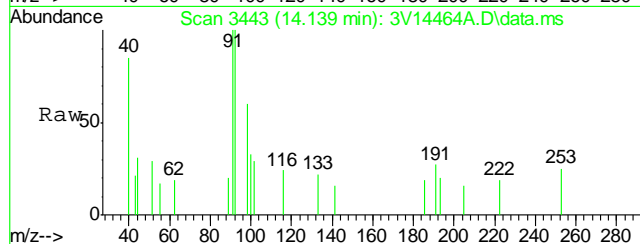
#1
TVH-Gasoline
Concen: 19.44 ug/l m
RT: 13.491 min Scan# 3241
Delta R.T. 0.000 min
Lab File: 3V14464A.D
Acq: 7 Nov 2011 11:29 am

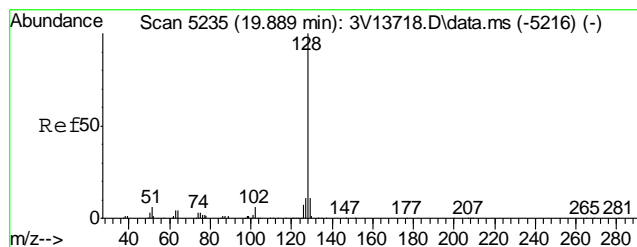
Tgt Ion:TIC Resp: 124794



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

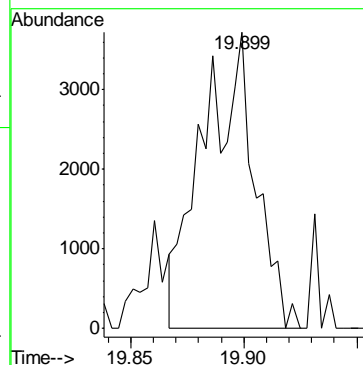
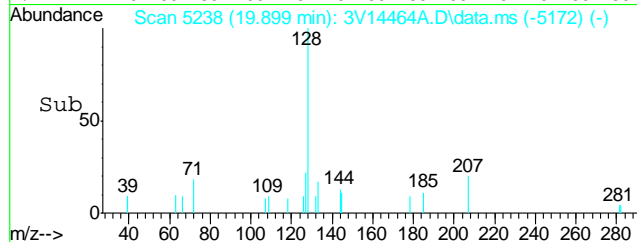
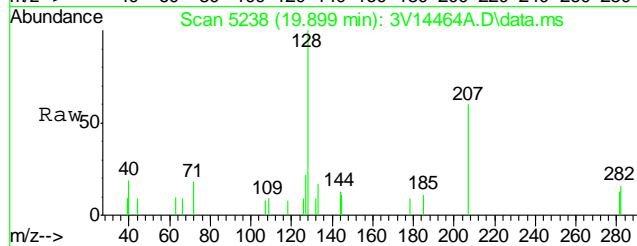
Tgt Ion: 92 Resp: 2913
Ion Ratio Lower Upper
92 100
91 141.8 156.8 196.8#





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

Tgt Ion:128 Resp: 5939



GC/MS Semi-volatiles

QC Data Summaries

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: D29206**Account:** KRWCCOL KRW Consulting, Inc.**Project:** XOM FRU 297-32A

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

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

D29206-1

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

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

Blank Spike Summary

Page 1 of 1

Job Number: D29206

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-32A

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

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D29206-1

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

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

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D29206
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-32A

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

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D29206-1

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

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

(a) Outside control limits due to dilution.

GC/MS Semi-volatiles

Raw Data

∞

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\110911\
 Data File : 3g06850.D
 Acq On : 9 Nov 2011 11:38 pm
 Operator : TamiB
 Sample : D29206-1,10x
 Misc : OP4805,E3G253,15.02,,,1,10
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 10 10:49:35 2011
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G253.M
 Quant Title : PAHSIM BASE
 QLast Update : Thu Nov 10 10:44:39 2011
 Response via : Initial Calibration

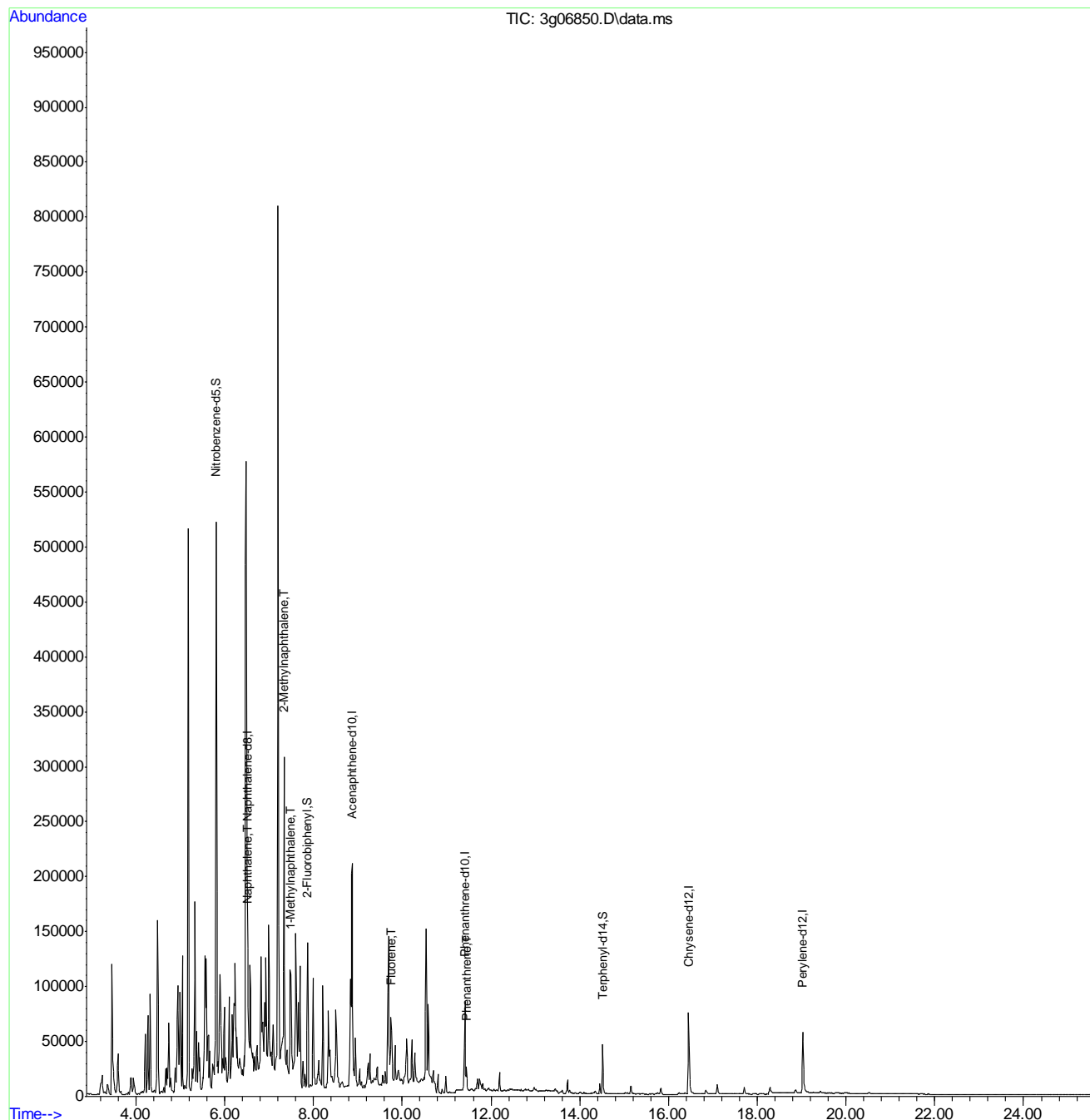
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.506	136	193823	4.00	ug/mL	0.00
6) Acenaphthene-d10	8.873	164	93063	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.411	188	103935	4.00	ug/mL	0.00
18) Chrysene-d12	16.452	240	93468	4.00	ug/mL	0.00
23) Perylene-d12	19.025	264	84487	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.808	82	45928	5.81	ug/mL	0.00
7) 2-Fluorobiphenyl	7.869	172	108158	3.91	ug/mL	0.00
20) Terphenyl-d14	14.514	244	54960	4.17	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	6.518	128	92819	1.90	ug/mL#	38
8) 2-Methylnaphthalene	7.341	142	134542	5.43	ug/mL	90
9) 1-Methylnaphthalene	7.491	142	41959	1.74	ug/mL#	76
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	9.759	166	31722	1.35	ug/mL#	30
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	11.443	178	23661	0.83	ug/mL	97
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	0.000		0	N.D.	d	
21) Benzo(a)anthracene	0.000		0	N.D.	d	
22) Chrysene	0.000		0	N.D.	d	
24) Benzo(b)fluoranthene	0.000		0	N.D.	d	
25) Benzo(k)fluoranthene	0.000		0	N.D.	d	
26) Benzo(a)pyrene	0.000		0	N.D.	d	
27) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
28) Dibenz(a,h)anthracene	0.000		0	N.D.	d	
29) Benzo(g,h,i)perylene	0.000		0	N.D.	d	

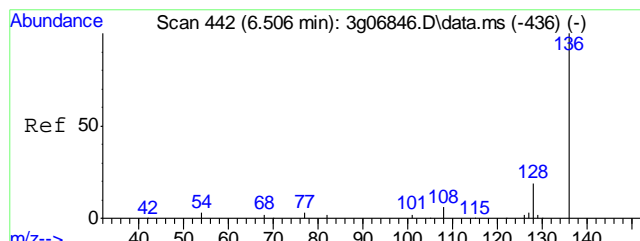
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\110911\
Data File : 3g06850.D
Acq On : 9 Nov 2011 11:38 pm
Operator : TamiB
Sample : D29206-1,10x
Misc : OP4805,E3G253,15.02,,,1,10
ALS Vial : 12 Sample Multiplier: 1

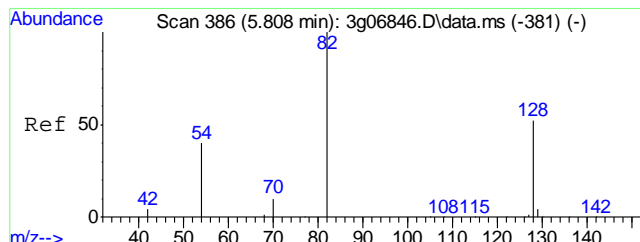
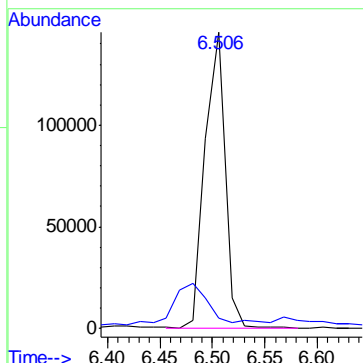
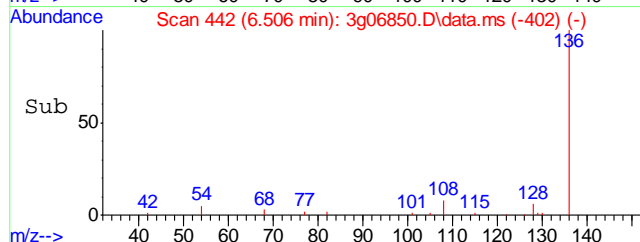
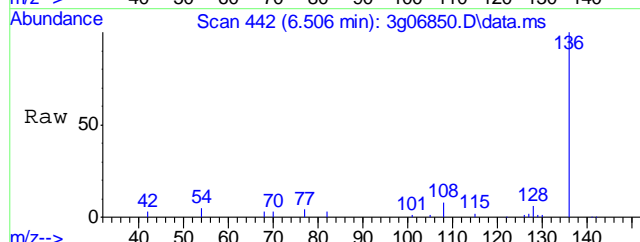
Quant Time: Nov 10 10:49:35 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G253.M
Quant Title : PAHSIM BASE
QLast Update : Thu Nov 10 10:44:39 2011
Response via : Initial Calibration





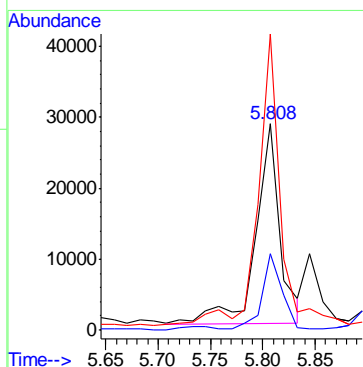
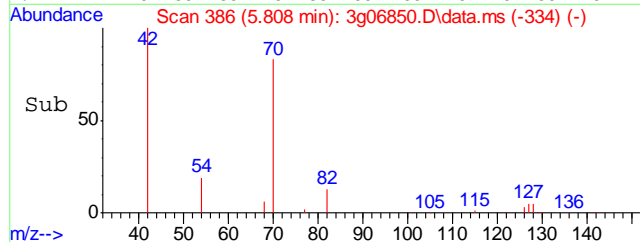
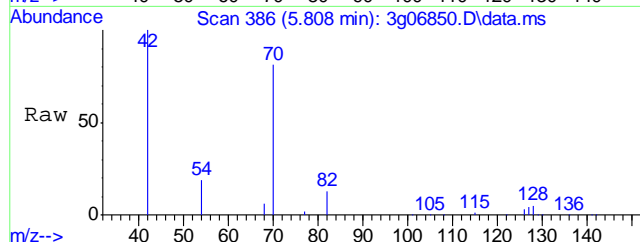
#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.506 min Scan# 442
Delta R.T. -0.000 min
Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

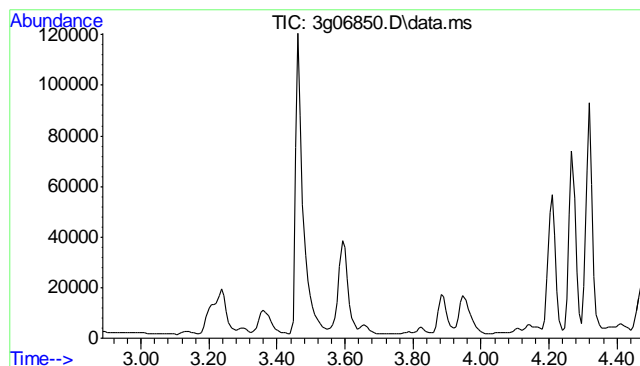
Tgt Ion	Ratio	Lower	Upper
136	100		
68	26.3	0.0	28.4



#2
Nitrobenzene-d5
Concen: 5.81 ug/mL
RT: 5.808 min Scan# 386
Delta R.T. -0.000 min
Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

Tgt Ion	Ratio	Lower	Upper
82	100		
128	30.4	20.9	60.9
54	136.4	38.1	78.1#

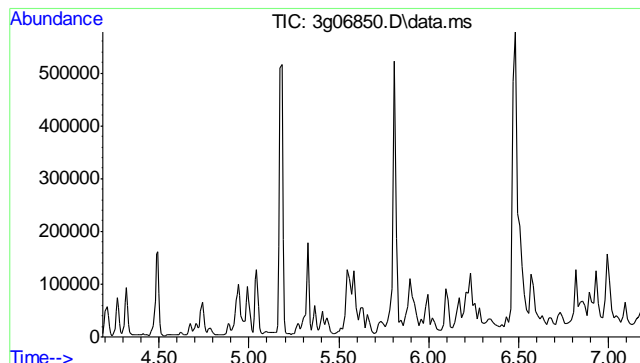
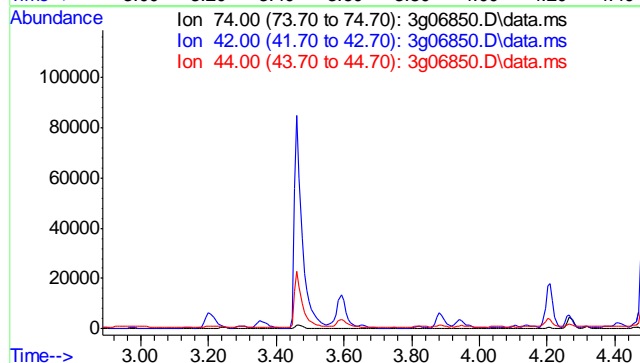




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.97 min

Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

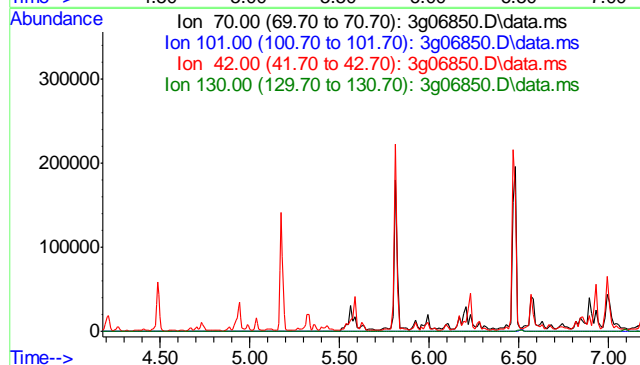
Tgt Ion	Exp Ratio
74	100
42	66.2
44	6.5

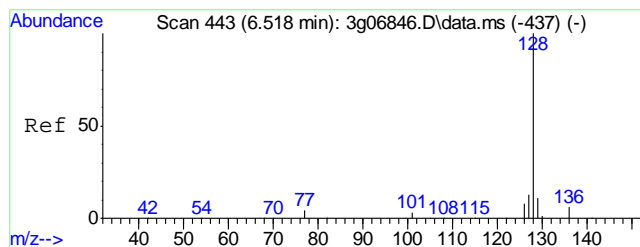


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.68 min

Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

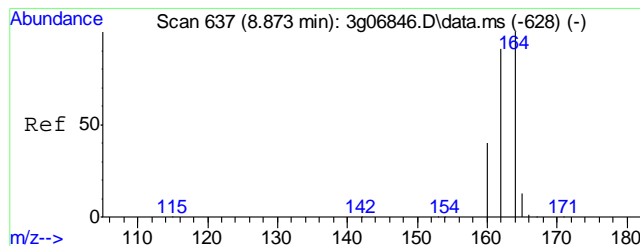
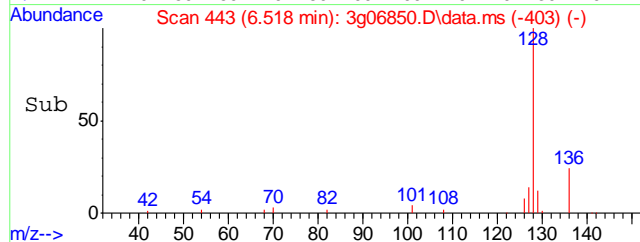
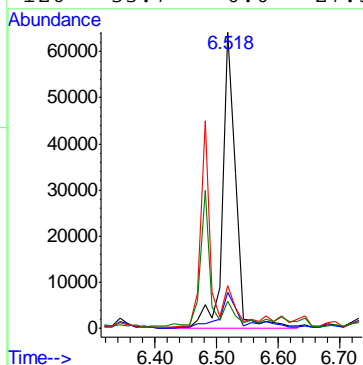
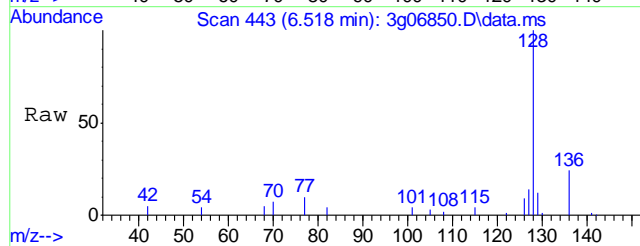
Tgt Ion	Exp Ratio
70	100
101	11.6
42	56.4
130	22.2





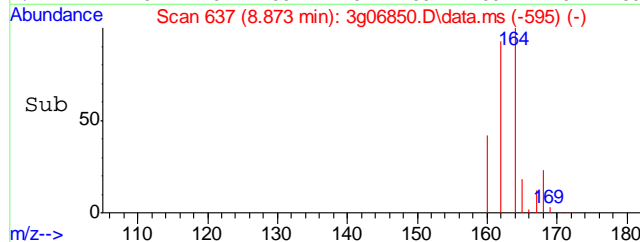
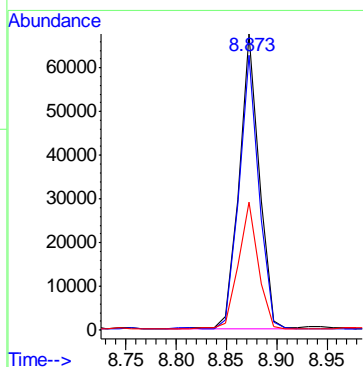
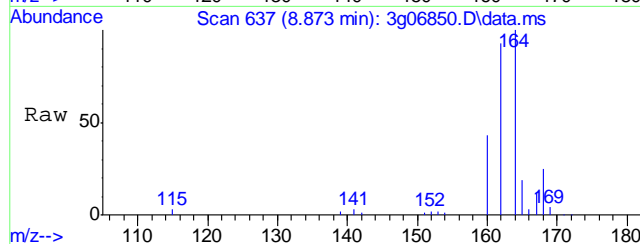
#5
Naphthalene
Concen: 1.90 ug/mL
RT: 6.518 min Scan# 443
Delta R.T. -0.000 min
Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

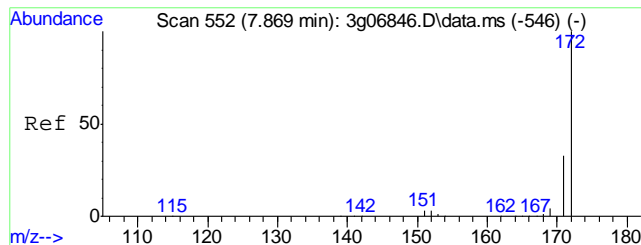
Tgt Ion	Ratio	Lower	Upper
128	100		
129	16.2	0.0	31.0
127	50.2	0.0	32.6#
126	33.7	0.0	27.3#



#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 8.873 min Scan# 637
Delta R.T. -0.000 min
Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

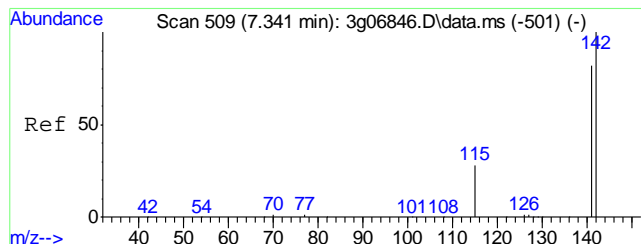
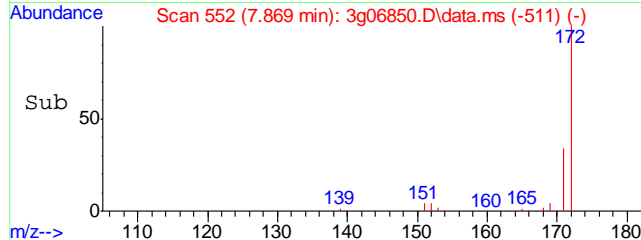
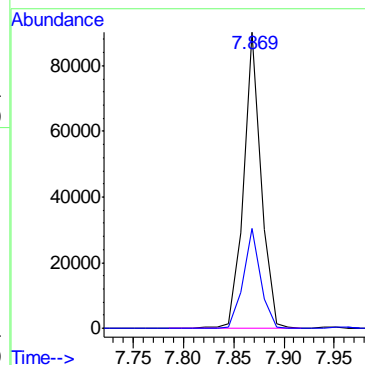
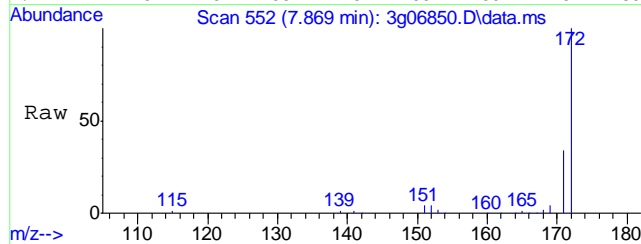
Tgt Ion	Ratio	Lower	Upper
164	100		
162	91.2	71.4	111.4
160	43.0	21.7	61.7





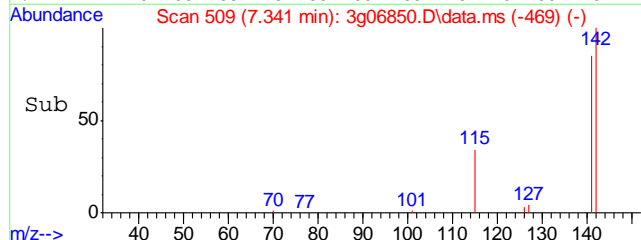
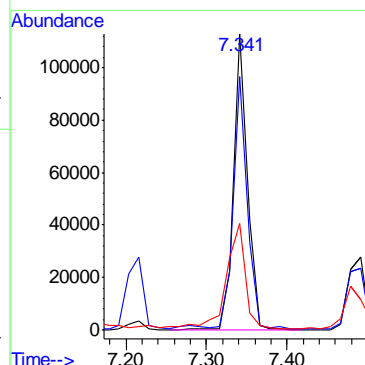
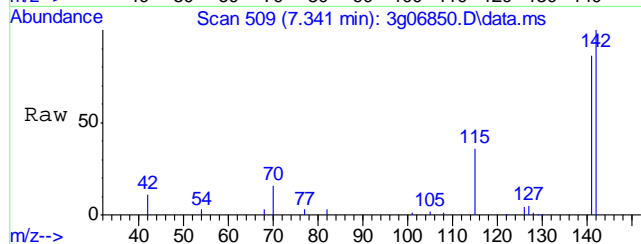
#7
2-Fluorobiphenyl
Concen: 3.91 ug/mL
RT: 7.869 min Scan# 552
Delta R.T. -0.000 min
Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

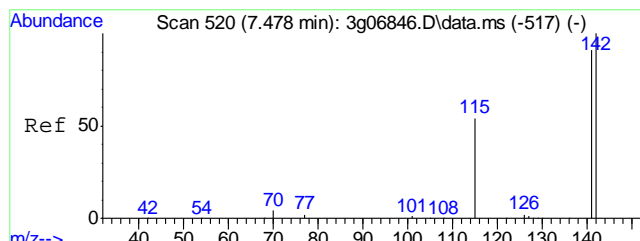
Tgt Ion	Ratio	Lower	Upper
172	100		
171	33.5	13.1	53.1



#8
2-Methylnaphthalene
Concen: 5.43 ug/mL
RT: 7.341 min Scan# 509
Delta R.T. -0.000 min
Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

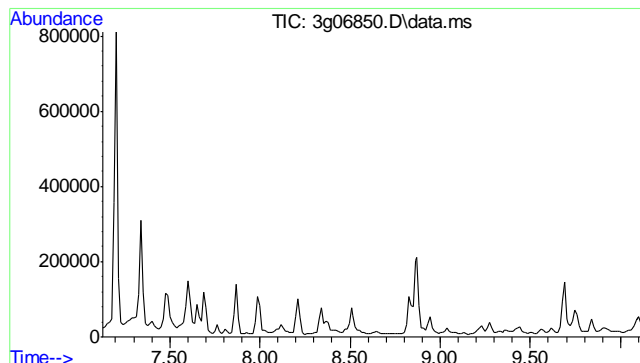
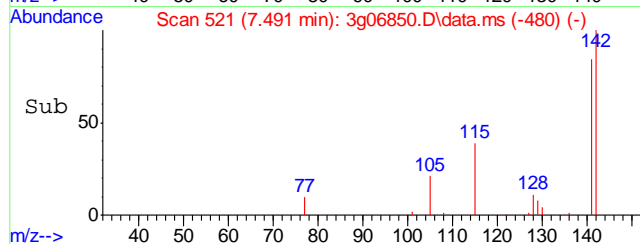
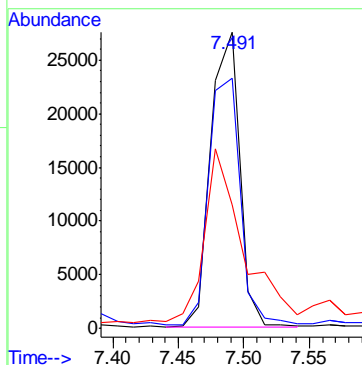
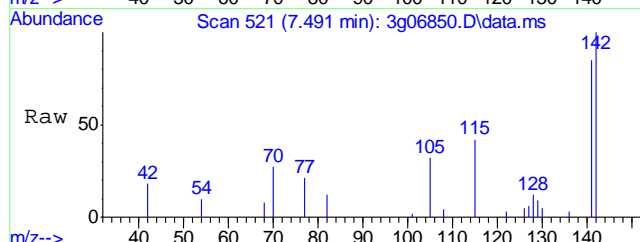
Tgt Ion	Ratio	Lower	Upper
142	100		
141	86.6	62.3	102.3
115	48.8	16.3	56.3





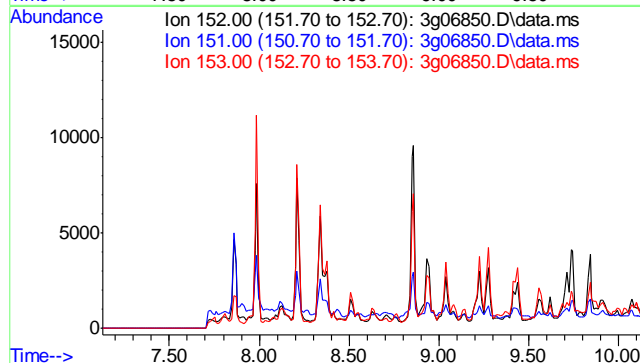
#9
1-Methylnaphthalene
Concen: 1.74 ug/mL
RT: 7.491 min Scan# 521
Delta R.T. 0.012 min
Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

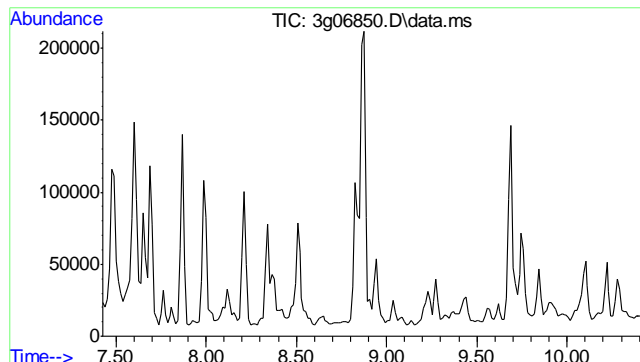
Tgt Ion:	142	Resp:	41959
Ion Ratio	100	Lower	Upper
142	100		
141	92.3	69.3	103.9
115	79.1	32.0	48.0#



#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.62 min
Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

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

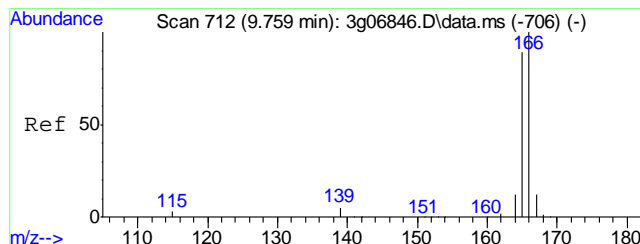
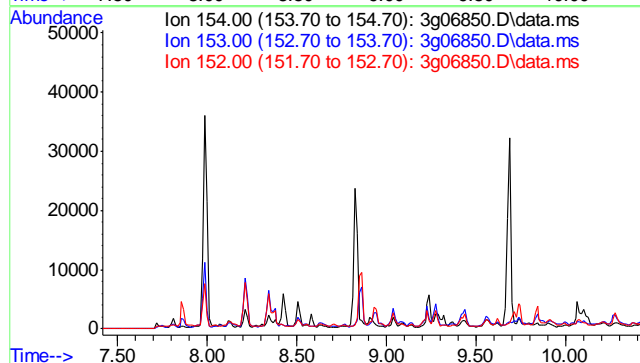




#11
 Acenaphthene
 Concen: N.D. ug/mL
 Expected RT: 8.92 min
 Lab File: 3g06850.D
 Acq: 9 Nov 11 11:38 pm

Tgt Ion: 154

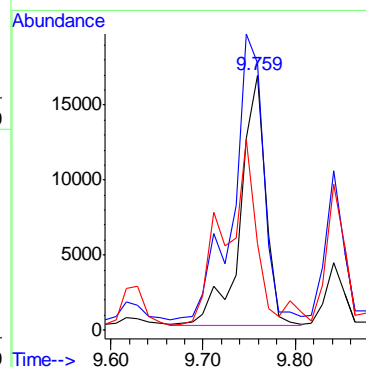
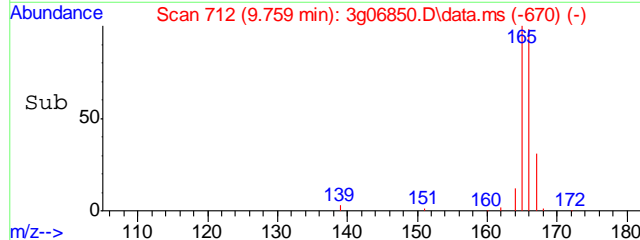
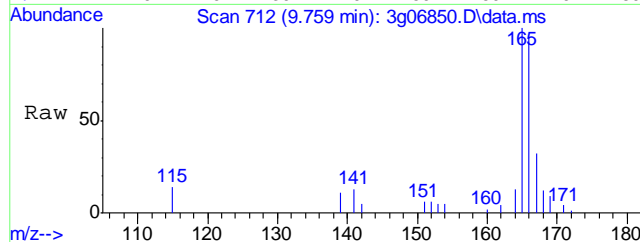
Sig	Exp Ratio
154	100
153	103.4
152	49.4

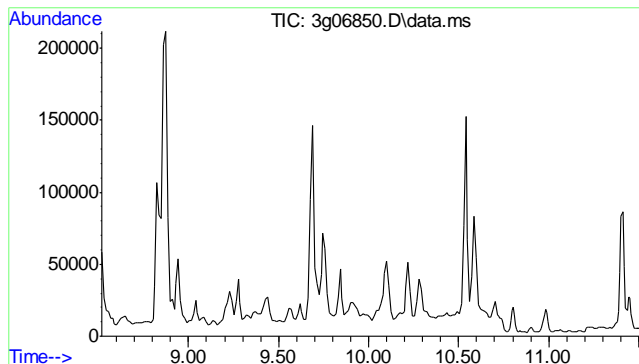


#12
 Fluorene
 Concen: 1.35 ug/mL
 RT: 9.759 min Scan# 712
 Delta R.T. -0.000 min
 Lab File: 3g06850.D
 Acq: 9 Nov 11 11:38 pm

Tgt Ion: 166 Resp: 31722

Ion	Ratio	Lower	Upper
166	100		
165	139.2	69.7	109.7#
167	89.8	0.0	32.1#

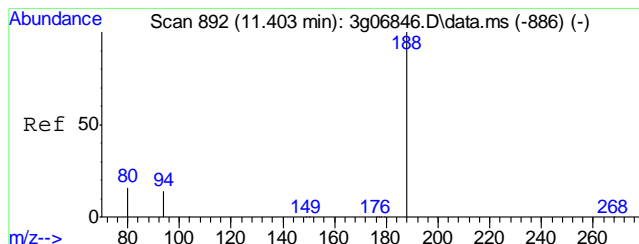
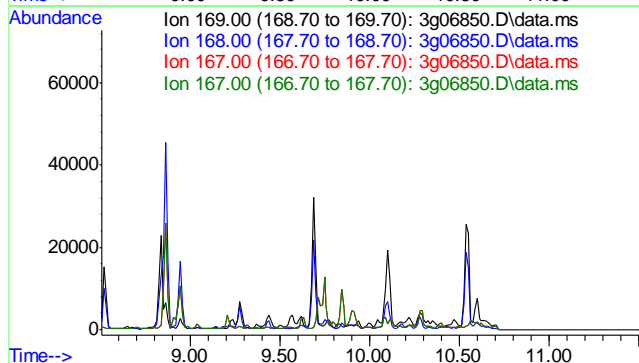




#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.01 min

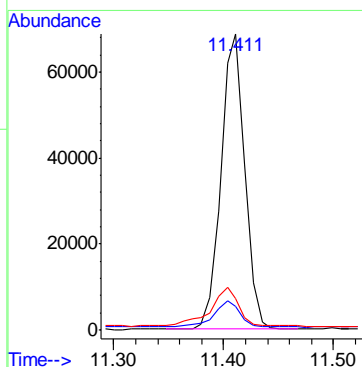
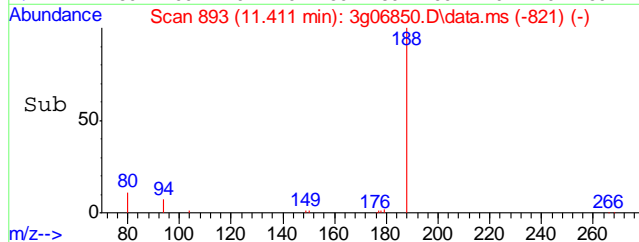
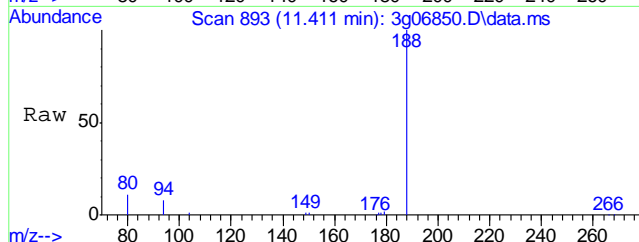
Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

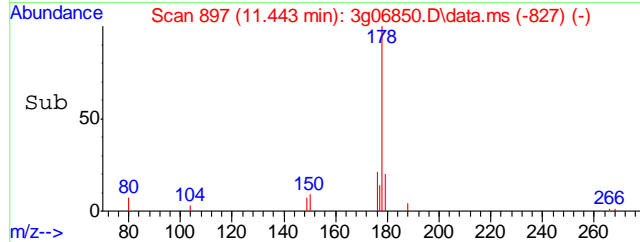
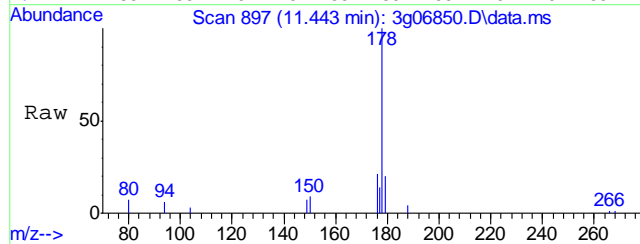
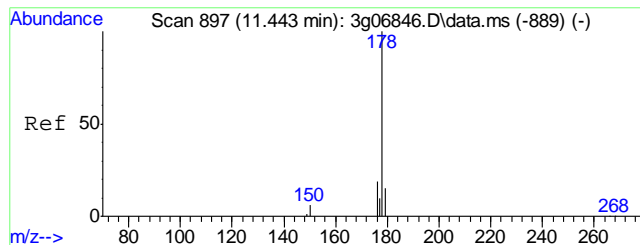
Tgt Ion: 169
Sig Exp Ratio
169 100
168 60.8
167 32.6
167 32.6



#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.411 min Scan# 893
Delta R.T. 0.008 min
Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

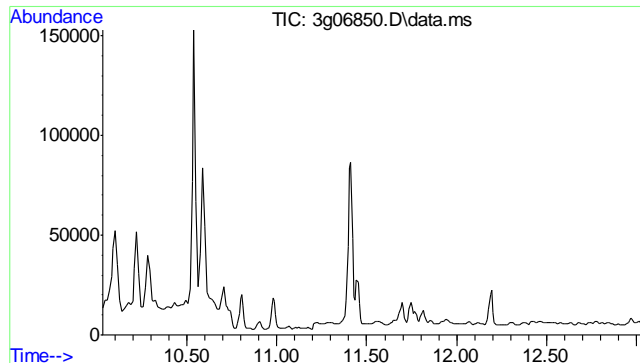
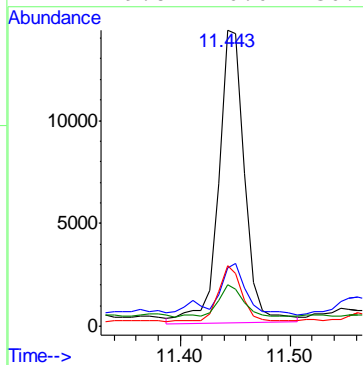
Tgt Ion: 188 Resp: 103935
Ion Ratio Lower Upper
188 100
94 10.1 0.0 34.0
80 16.1 0.0 36.6





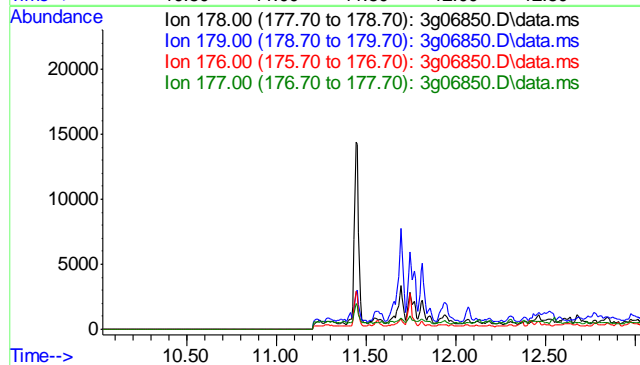
#15
Phenanthrene
Concen: 0.83 ug/mL
RT: 11.443 min Scan# 897
Delta R.T. -0.000 min
Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

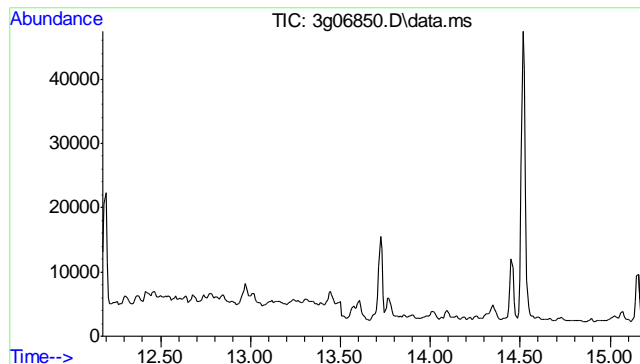
Tgt Ion:	178	Resp:	23661
Ion Ratio	Lower	Upper	
178	100		
179	16.2	0.0	35.3
176	16.5	0.0	38.1
177	9.8	0.0	30.2



#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.53 min
Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

Tgt Ion:	178
Sig	Exp Ratio
178	100
179	15.1
176	17.5
177	8.6

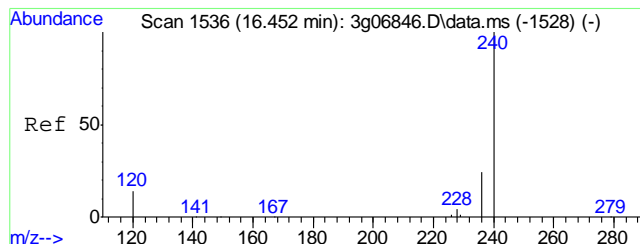
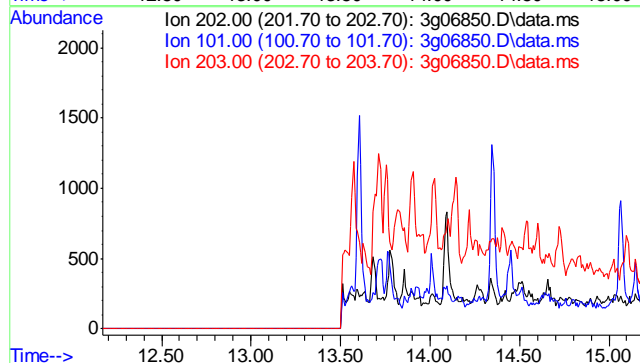




#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 13.68 min

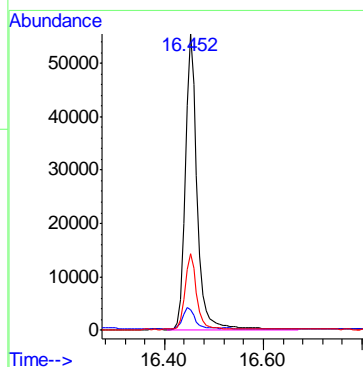
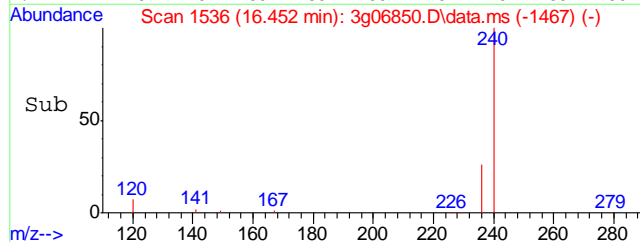
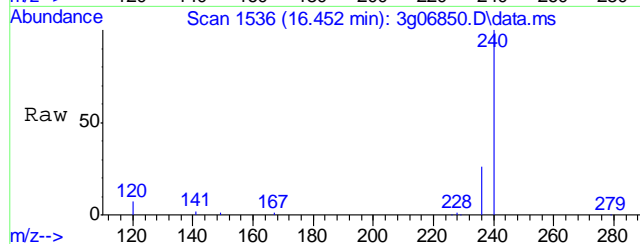
Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

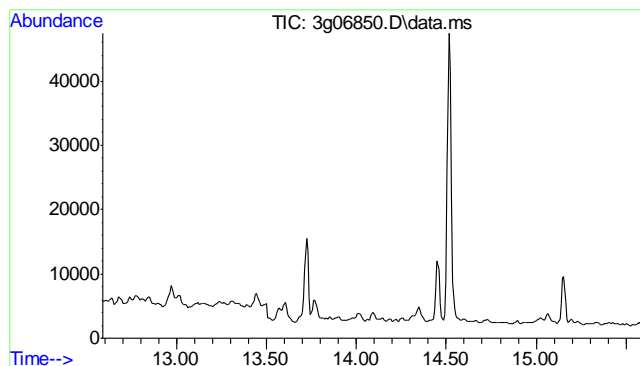
Tgt Ion: 202
Sig Exp Ratio
202 100
101 17.2
203 17.0



#18
Chrysene-d12
Concen: 4.00 ug/mL
RT: 16.452 min Scan# 1536
Delta R.T. -0.000 min
Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

Tgt Ion: 240 Resp: 93468
Ion Ratio Lower Upper
240 100
120 7.5 0.0 35.9
236 25.3 4.6 44.6



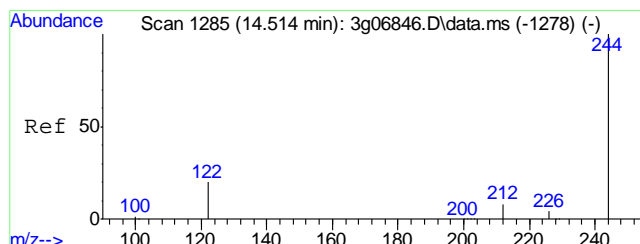
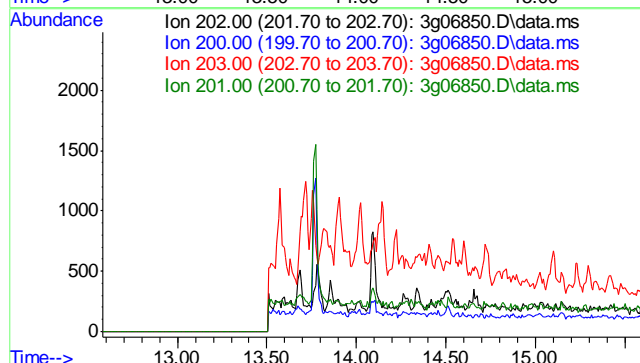


#19
 Pyrene
 Concen: N.D. ug/mL
 Expected RT: 14.09 min

 Lab File: 3g06850.D
 Acq: 9 Nov 11 11:38 pm

Tgt Ion: 202

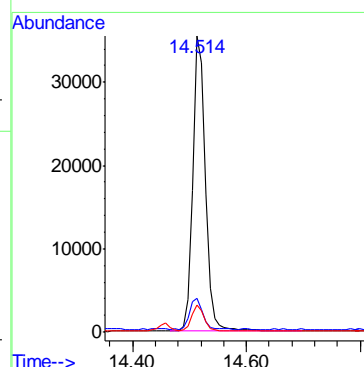
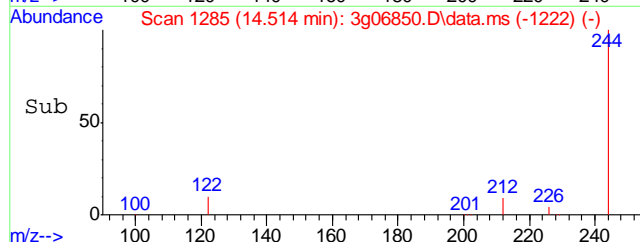
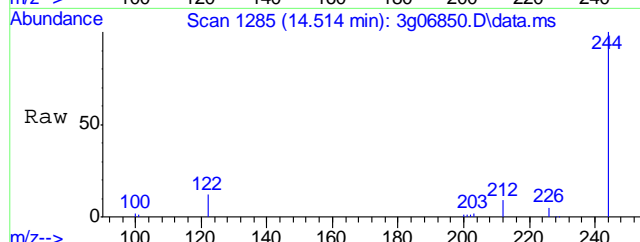
Sig	Exp Ratio
202	100
200	21.8
203	17.6
201	18.1

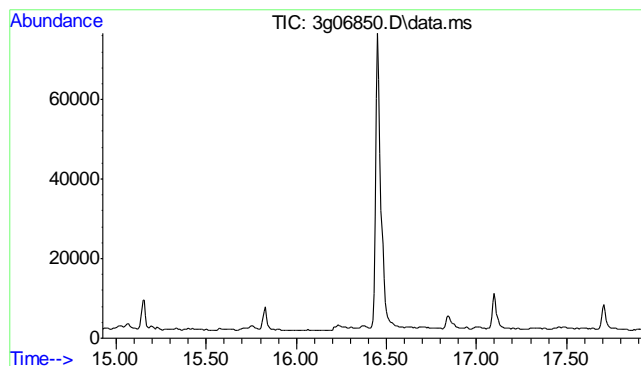


#20
 Terphenyl-d14
 Concen: 4.17 ug/mL
 RT: 14.514 min Scan# 1285
 Delta R.T. -0.000 min
 Lab File: 3g06850.D
 Acq: 9 Nov 11 11:38 pm

Tgt Ion: 244 Resp: 54960

Ion	Ratio	Lower	Upper
244	100		
122	11.1	0.0	38.9
212	8.6	0.0	27.4

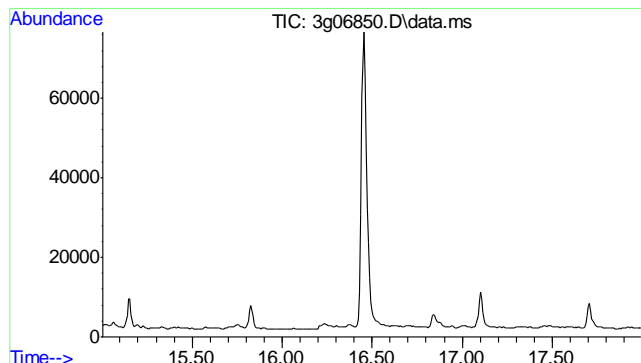
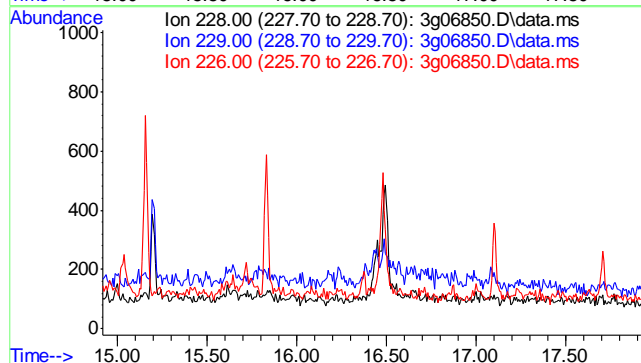




#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.42 min

Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

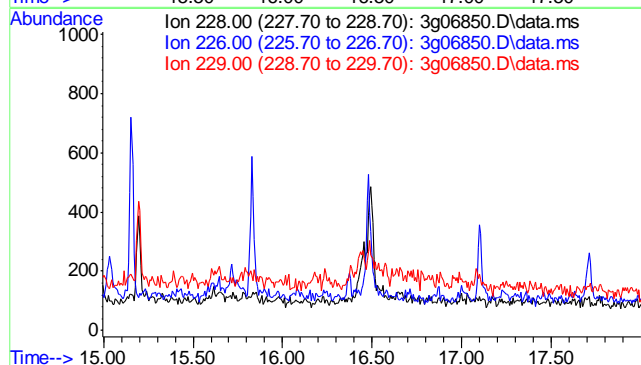
Tgt Ion	Exp Ratio
228	100
229	19.5
226	25.7

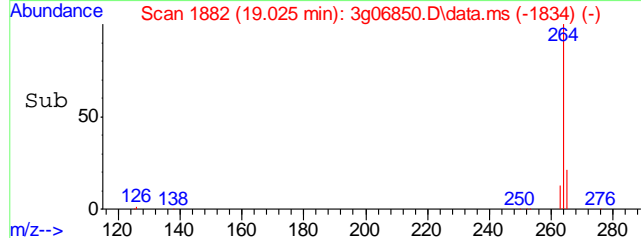
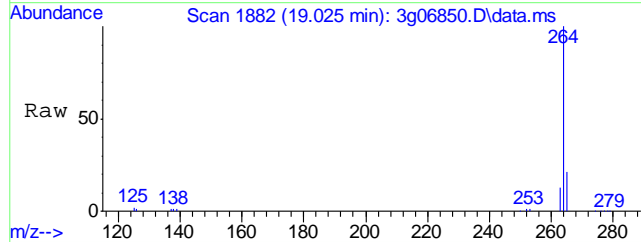
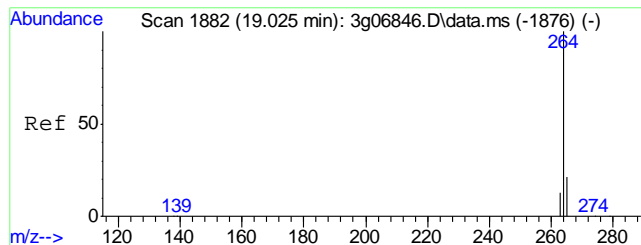


#22
Chrysene
Concen: N.D. ug/mL
Expected RT: 16.50 min

Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

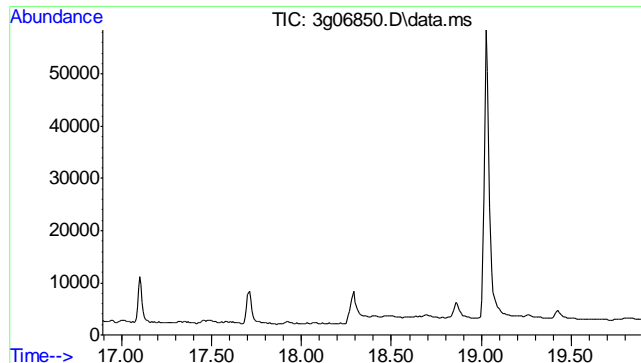
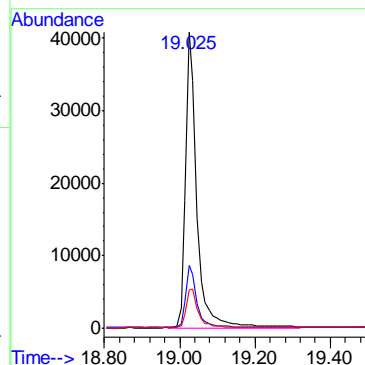
Tgt Ion	Exp Ratio
228	100
226	28.2
229	19.6





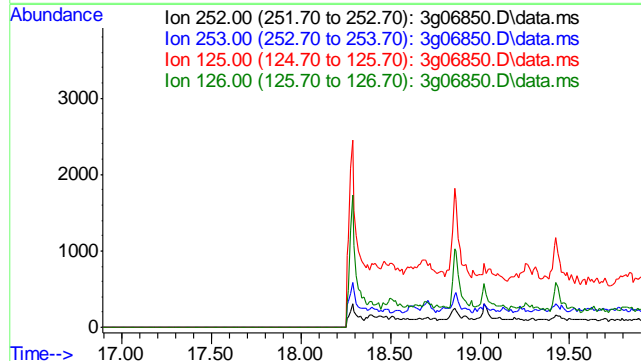
#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 19.025 min Scan# 1882
Delta R.T. -0.000 min
Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

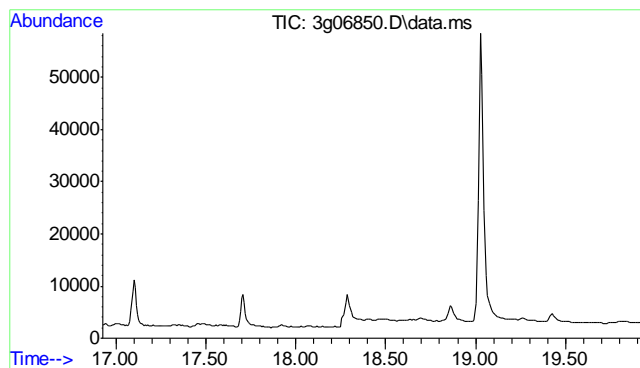
Tgt Ion:	264	Resp:	84487
Ion Ratio	Lower	Upper	
264	100		
265	20.6	1.0	41.0
263	14.0	0.0	34.6



#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.39 min
Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.5
125	13.1
126	17.4

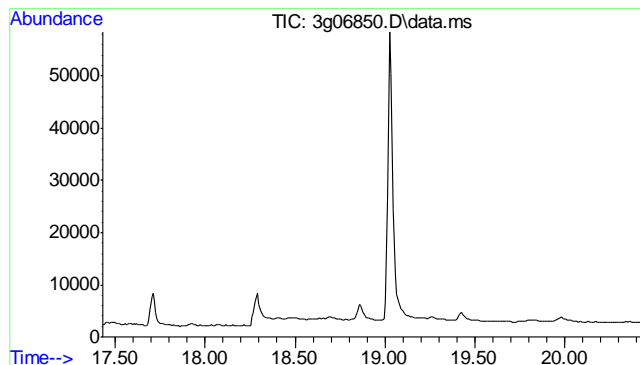
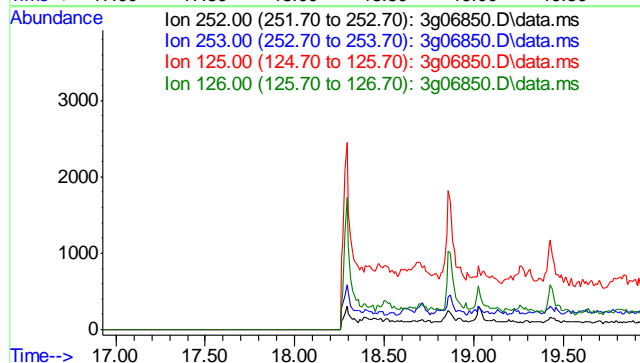




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.43 min

Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

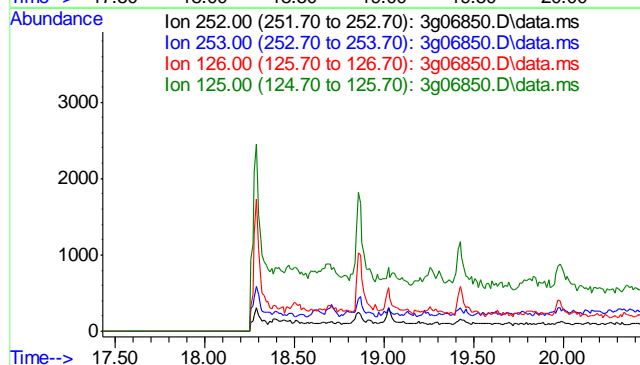
Tgt Ion	Exp Ratio
252	100
253	21.6
125	11.3
126	16.6

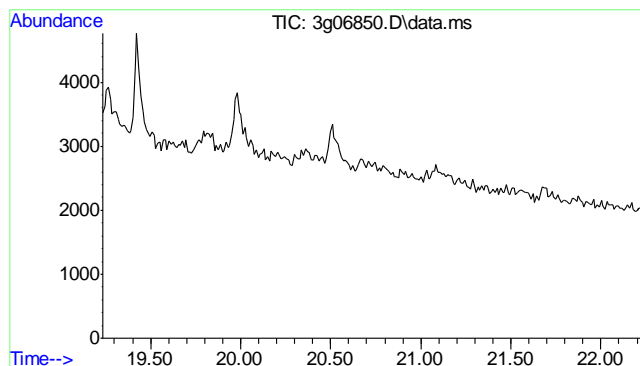


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 18.93 min

Lab File: 3g06850.D
Acq: 9 Nov 11 11:38 pm

Tgt Ion	Exp Ratio
252	100
253	21.3
126	17.3
125	13.3

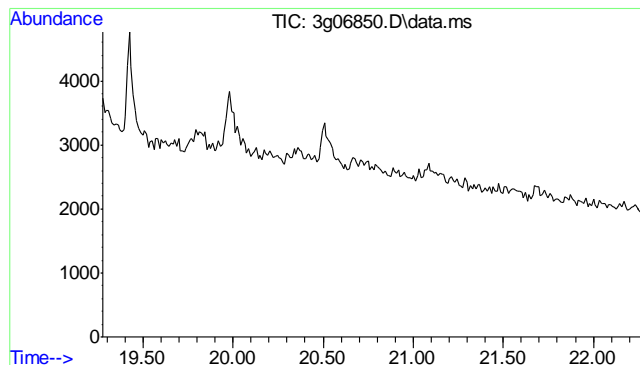
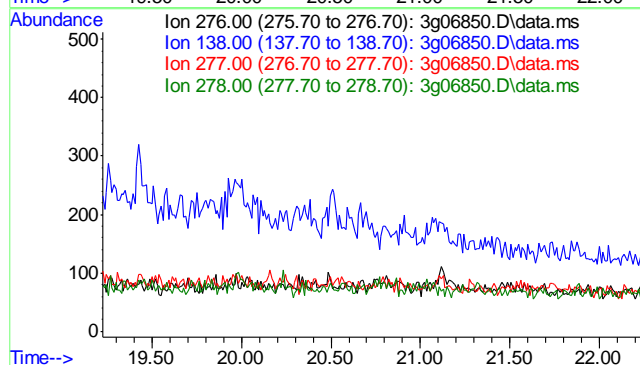




#27
 Indeno(1,2,3-cd)pyrene
 Concen: N.D. ug/mL
 Expected RT: 20.73 min

 Lab File: 3g06850.D
 Acq: 9 Nov 11 11:38 pm

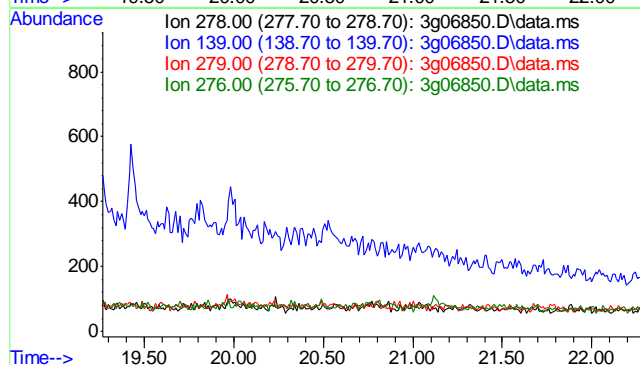
Tgt Ion	Exp Ratio
276	100
138	21.7
277	48.9
278	155.1

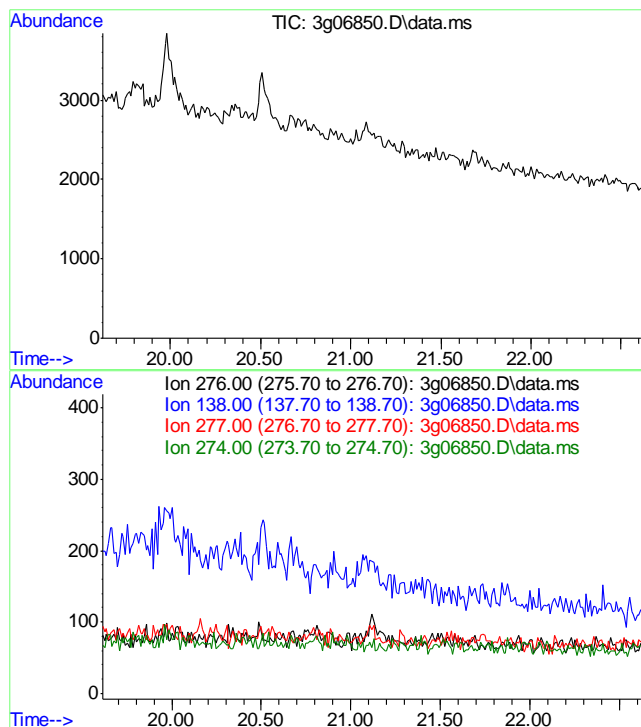


#28
 Dibenzo(a,h)anthracene
 Concen: N.D. ug/mL
 Expected RT: 20.77 min

 Lab File: 3g06850.D
 Acq: 9 Nov 11 11:38 pm

Tgt Ion	Exp Ratio
278	100
139	19.1
279	23.5
276	125.5





#29
 Benzo(g,h,i)perylene
 Concen: N.D. ug/mL
 Expected RT: 21.12 min

Lab File: 3g06850.D
 Acq: 9 Nov 11 11:38 pm

Tgt Ion	Sig	Exp Ratio
276	100	
138	21.8	
277	22.7	
274	20.2	

8.1.1
 8

Quantitation Report (QT Reviewed)

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

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

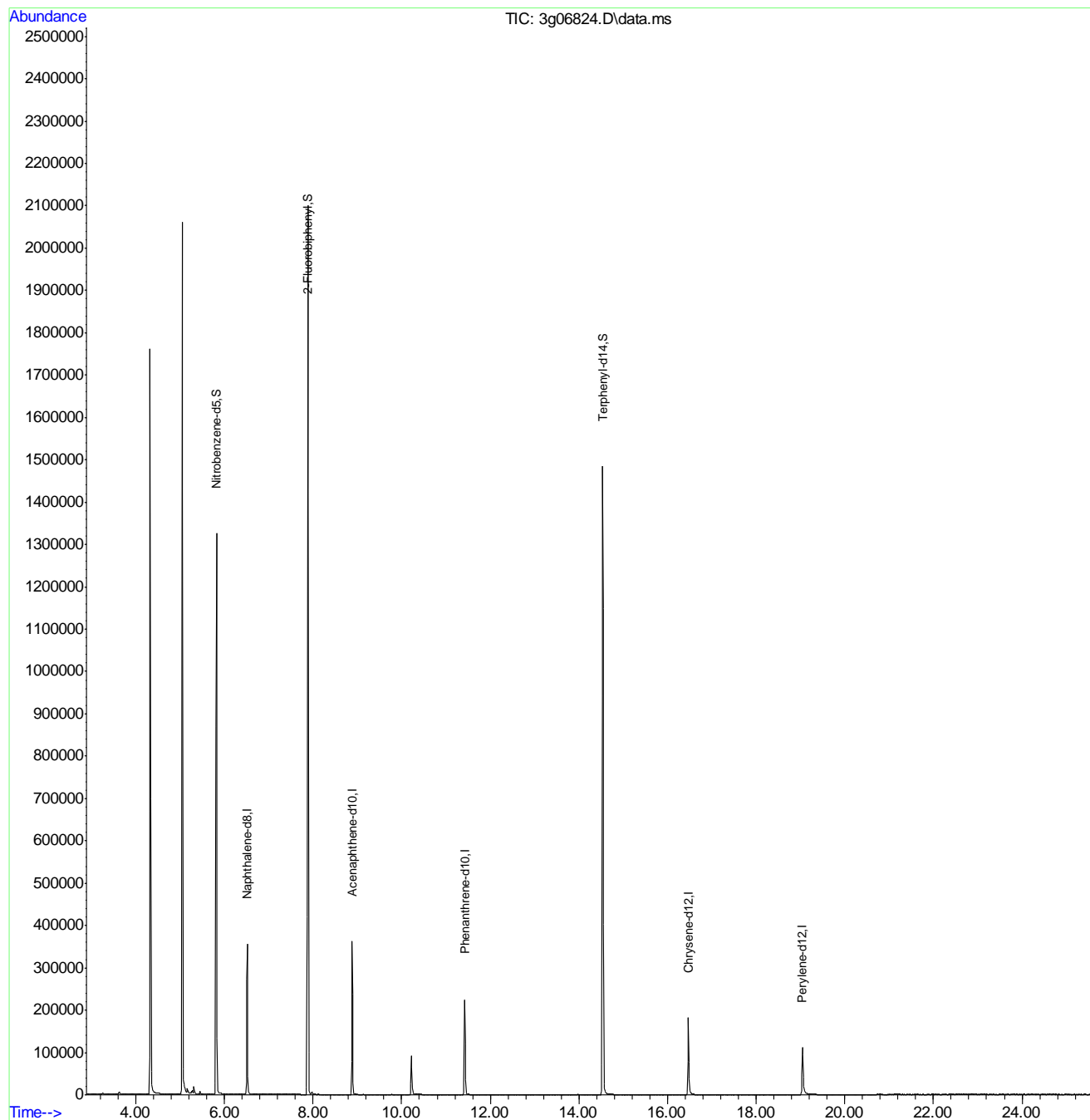
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.518	136	365591	4.00	ug/mL	0.00
6) Acenaphthene-d10	8.885	164	204639	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.427	188	275930	4.00	ug/mL	0.00
18) Chrysene-d12	16.472	240	217153	4.00	ug/mL	0.00
23) Perylene-d12	19.046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

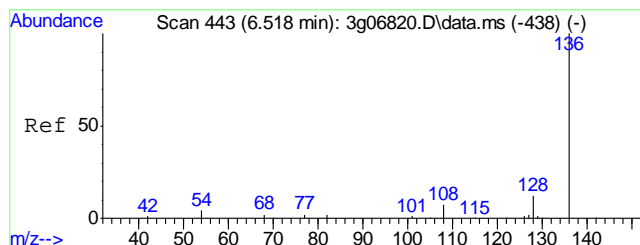
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

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

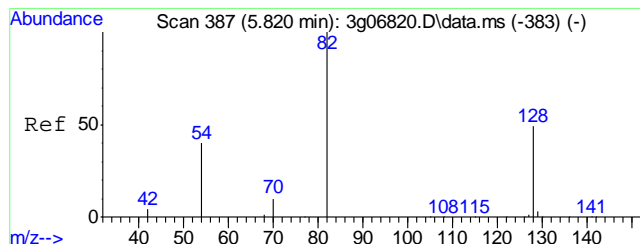
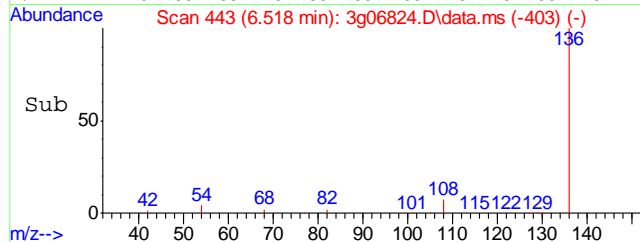
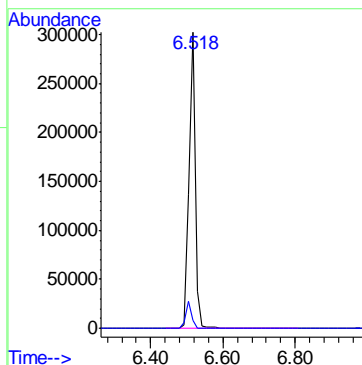
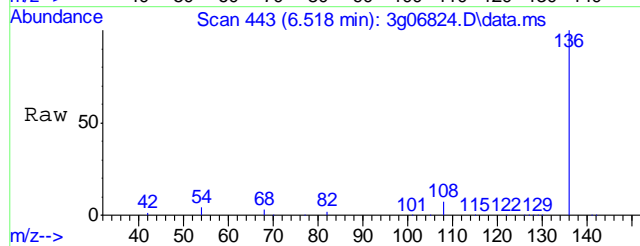
Quant Time: Nov 09 14:42:53 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G252.M
Quant Title : PAHSIM BASE
QLast Update : Wed Nov 09 14:40:27 2011
Response via : Initial Calibration





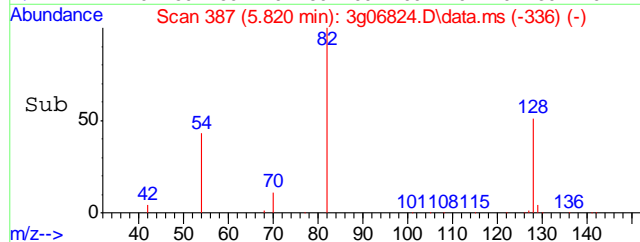
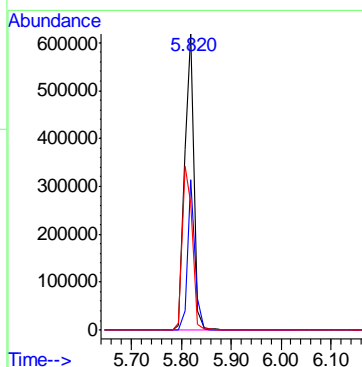
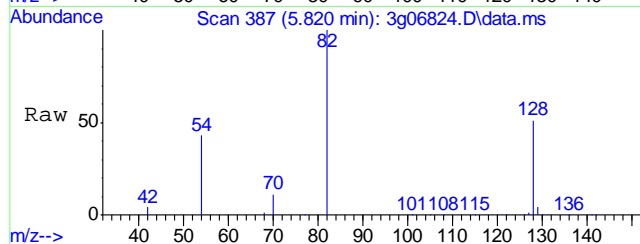
#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.518 min Scan# 443
Delta R.T. -0.000 min
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

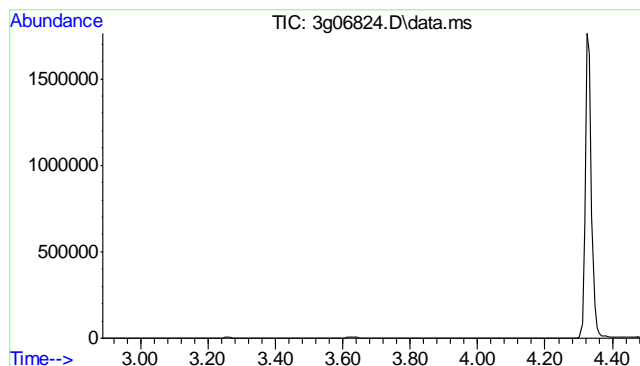
Tgt Ion:	136	Resp:	365591
Ion Ratio	Lower	Upper	
136	100		
68	8.5	0.0	28.4



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

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

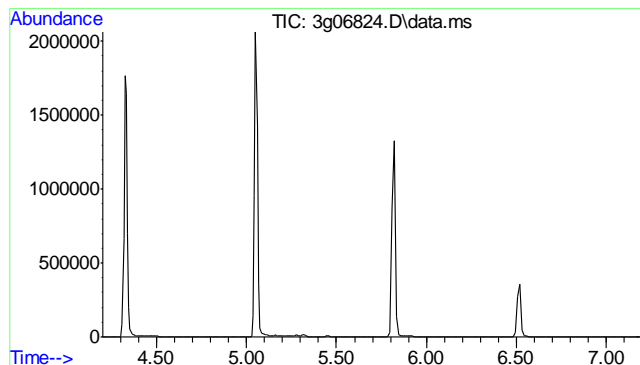
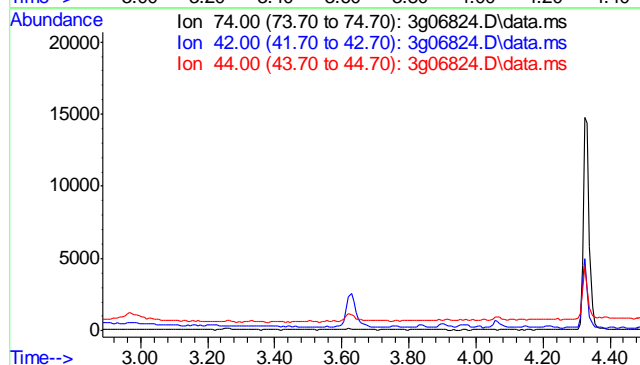




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.99 min

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

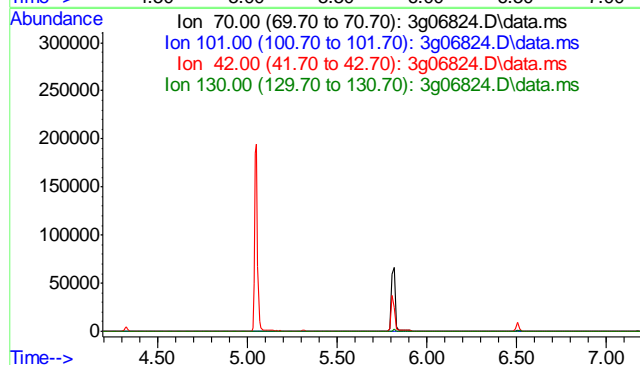
Tgt Ion:	74
Sig	Exp Ratio
74	100
42	40.0
44	6.2

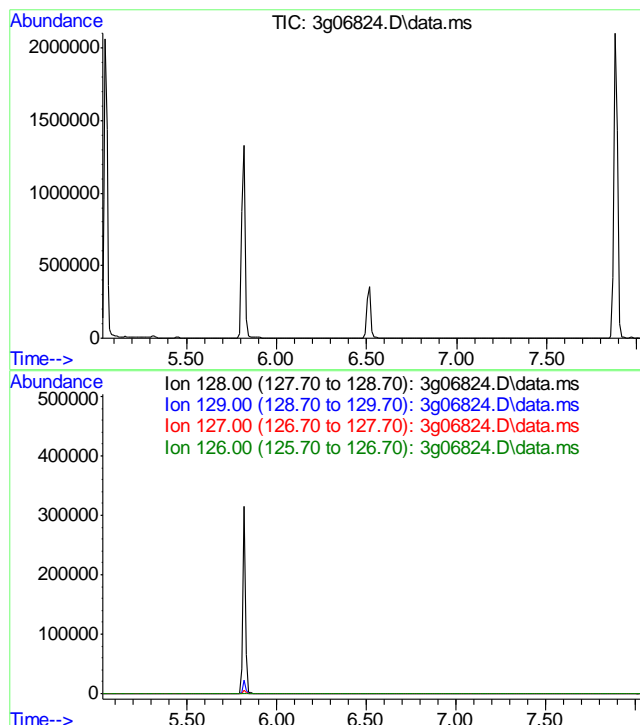


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.70 min

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

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

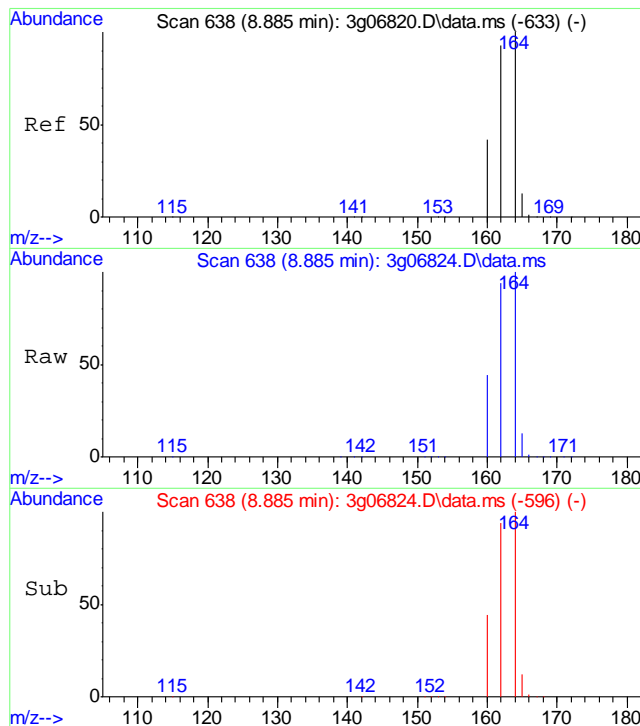




#5
Naphthalene
Concen: N.D. ug/mL
Expected RT: 6.53 min

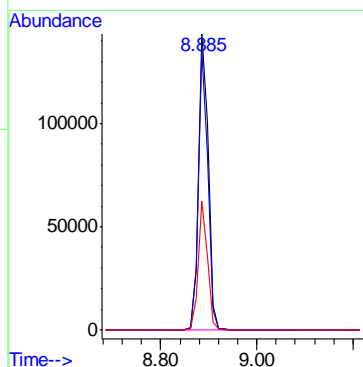
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

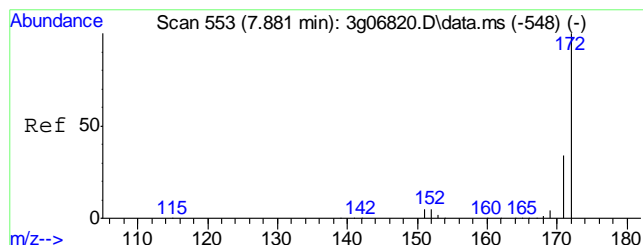
Tgt Ion: 128
Sig Exp Ratio
128 100
129 11.0
127 12.5
126 7.2



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

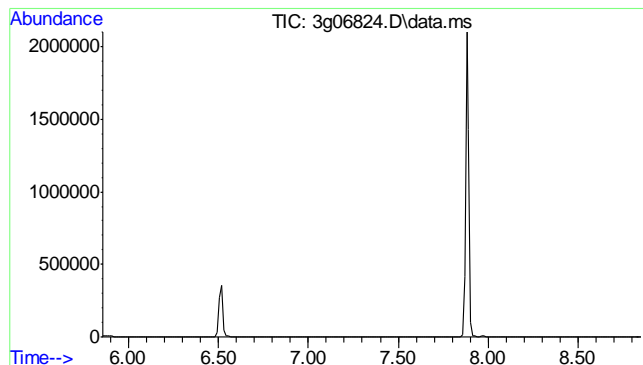
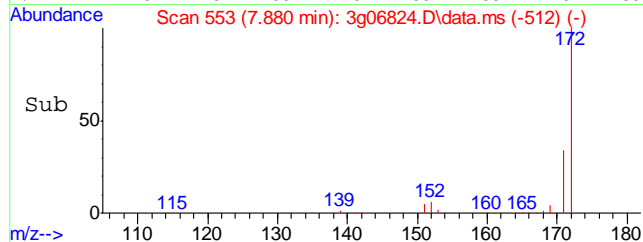
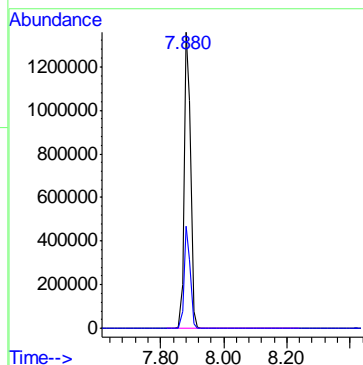
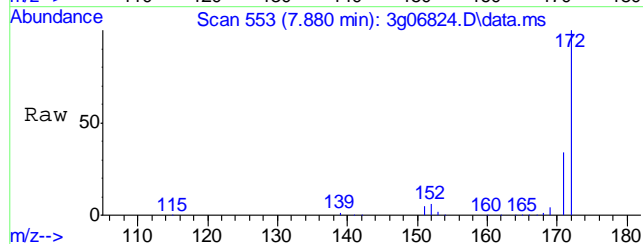
Tgt Ion: 164 Resp: 204639
Ion Ratio Lower Upper
164 100
162 91.2 71.6 111.6
160 41.5 21.2 61.2





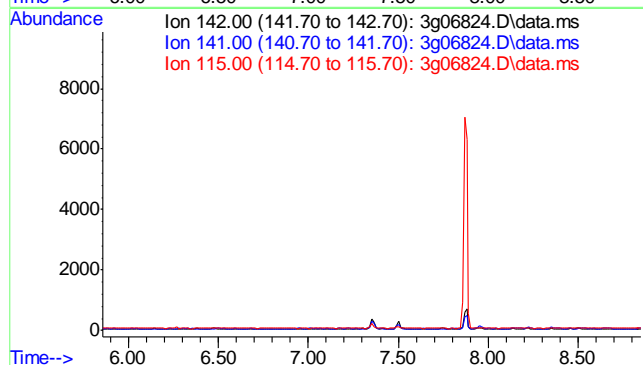
#7
2-Fluorobiphenyl
Concen: 31.52 ug/mL
RT: 7.880 min Scan# 553
Delta R.T. -0.000 min
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

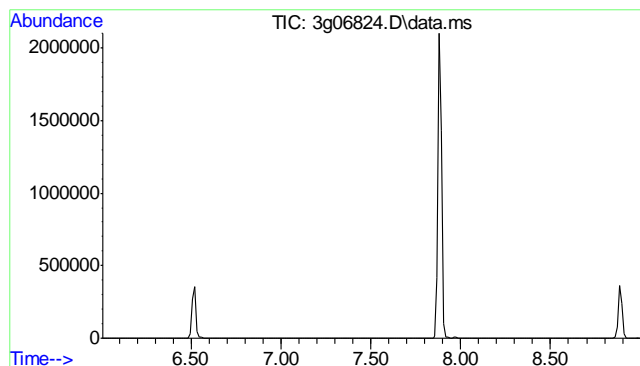
Tgt Ion: 172 Resp: 1914243
Ion Ratio Lower Upper
172 100
171 32.9 13.0 53.0



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

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

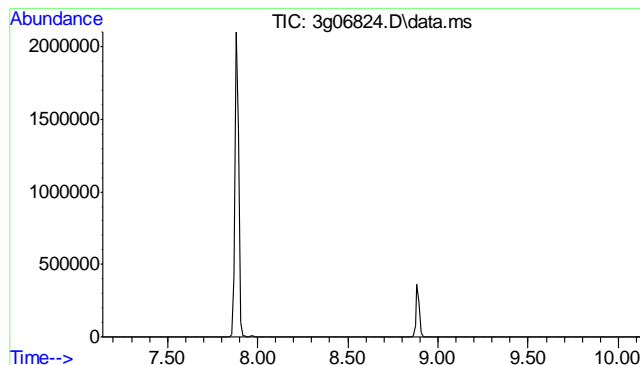
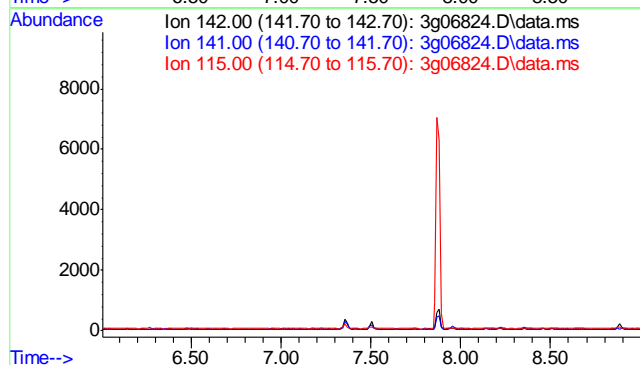




#9
1-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.50 min

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

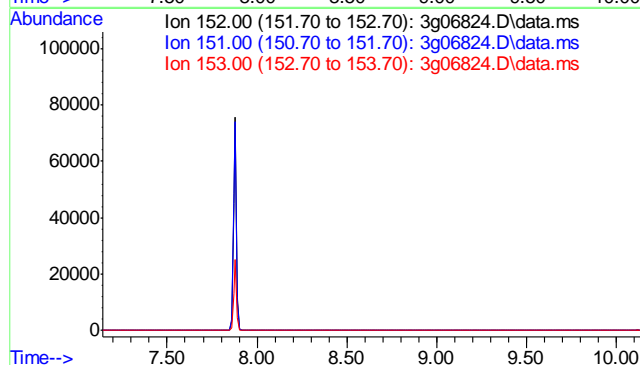
Tgt Ion: 142
Sig Exp Ratio
142 100
141 86.7
115 39.0

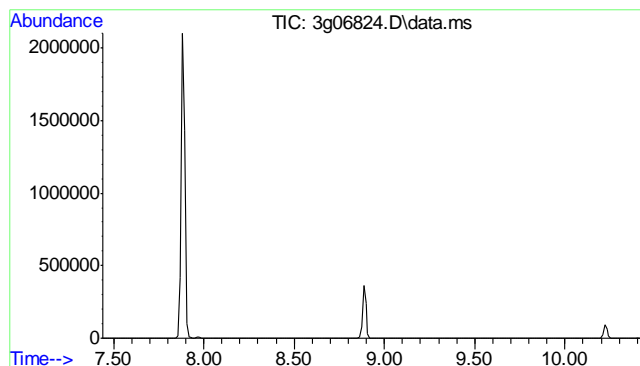


#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.64 min

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

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

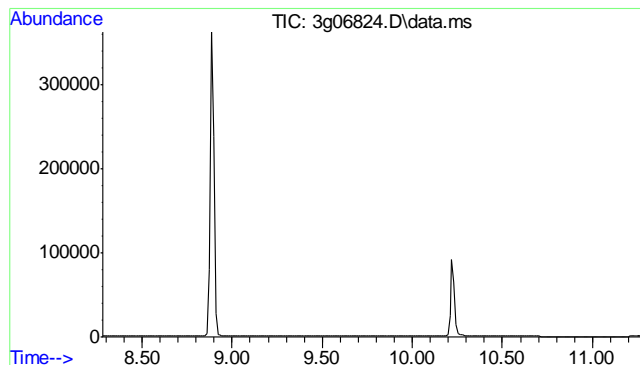
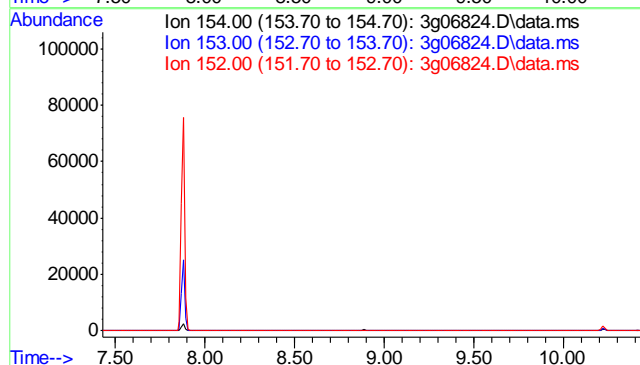




#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 8.93 min

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

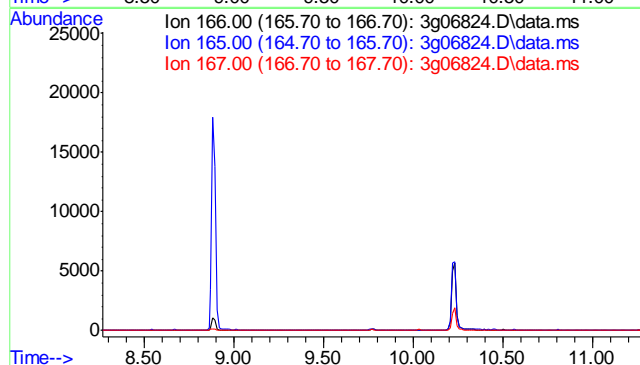
Tgt Ion: 154
Sig Exp Ratio
154 100
153 102.7
152 49.3

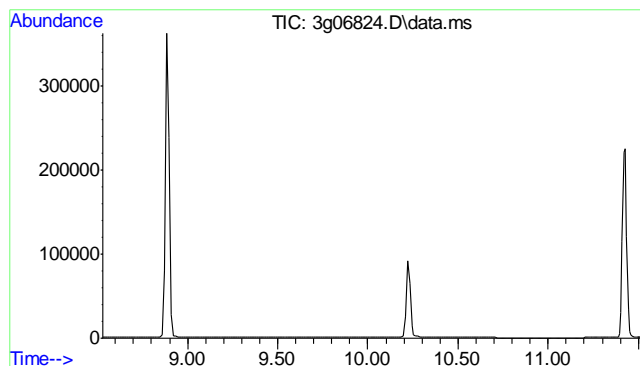


#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 9.77 min

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

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

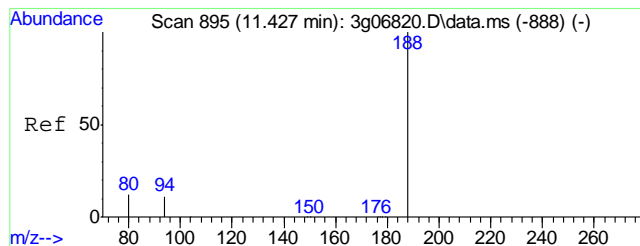
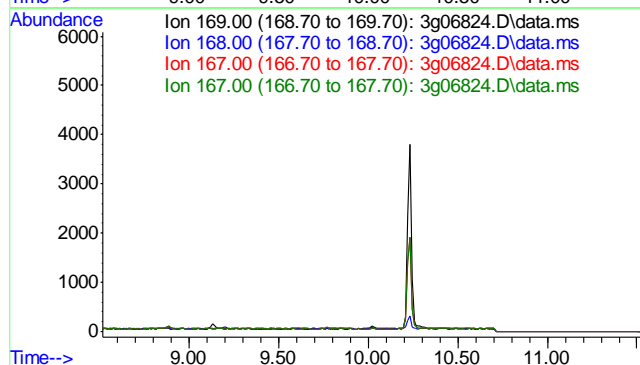




#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.02 min

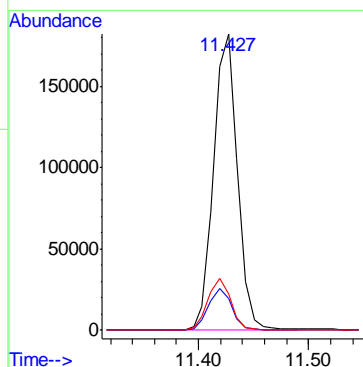
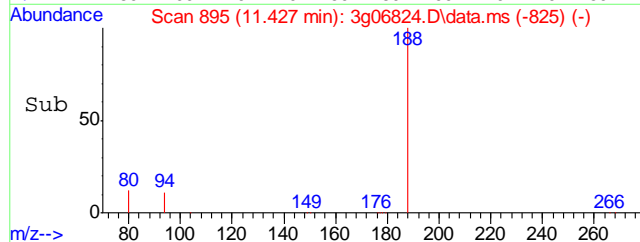
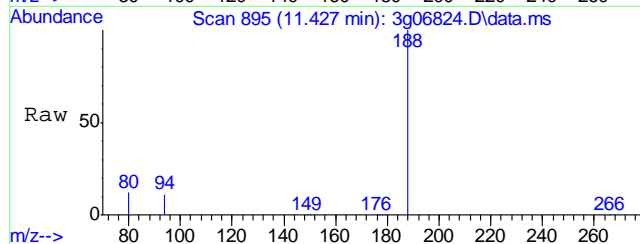
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

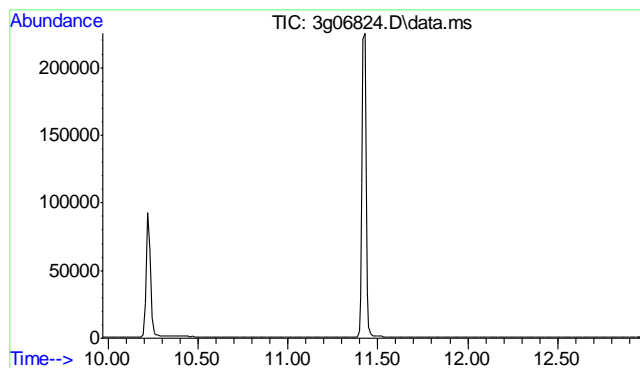
Tgt Ion: 169
Sig Exp Ratio
169 100
168 60.3
167 32.3
167 32.3



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

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

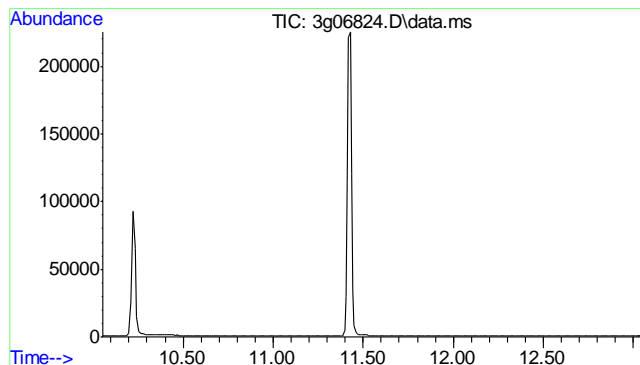
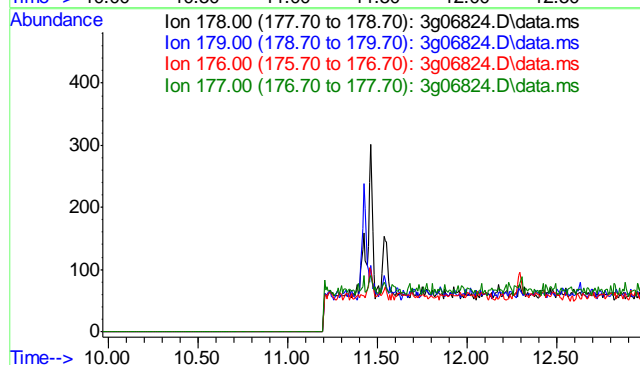




#15
Phenanthrene
Concen: N.D. ug/mL
Expected RT: 11.47 min

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

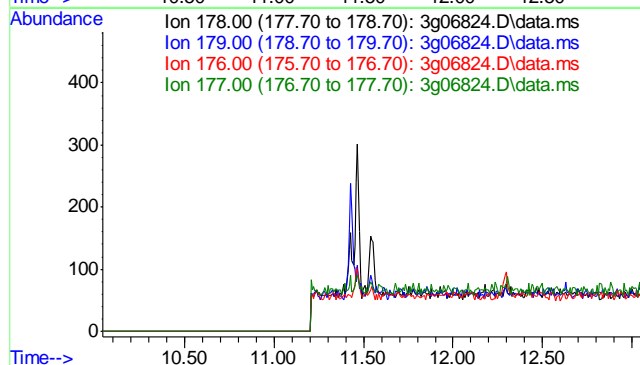
Tgt Ion: 178
Sig Exp Ratio
178 100
179 15.2
176 18.3
177 10.1

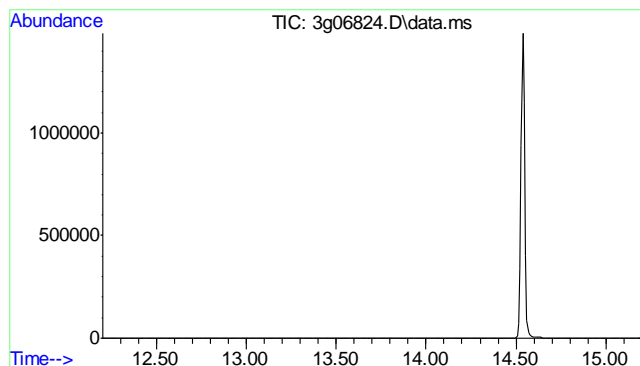


#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.55 min

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

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

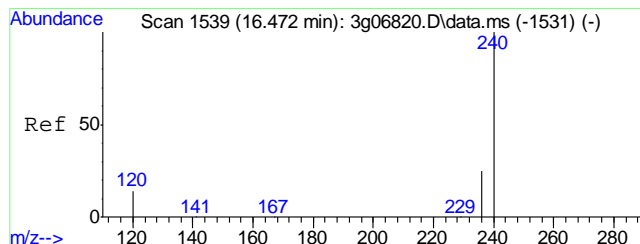
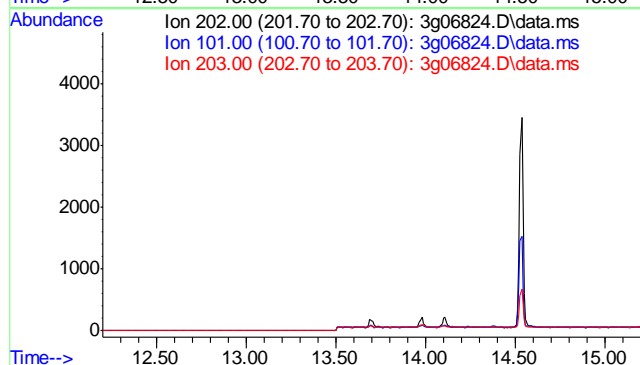




#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 13.70 min

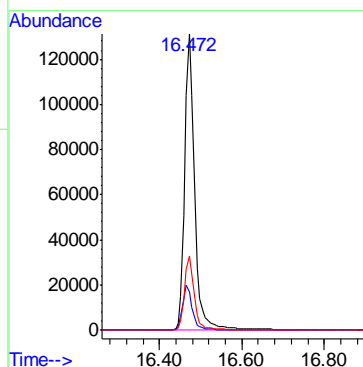
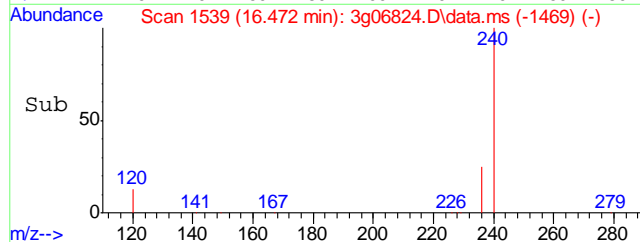
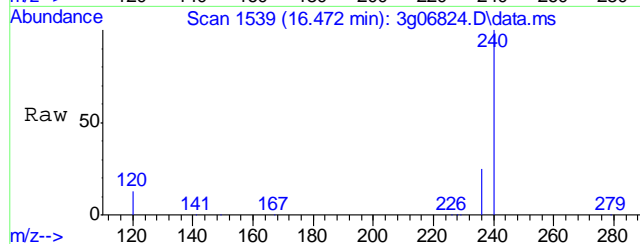
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

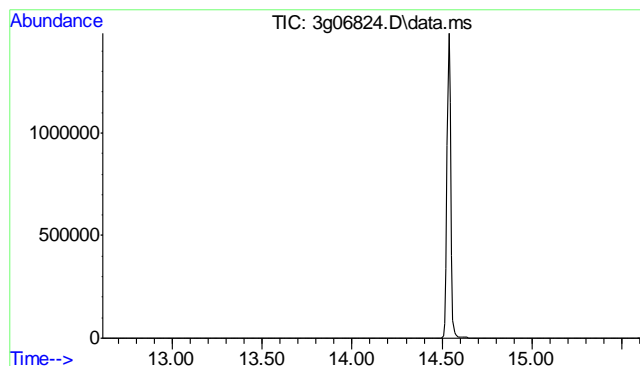
Tgt Ion:	202
Sig	Exp Ratio
202	100
101	17.3
203	17.2



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

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

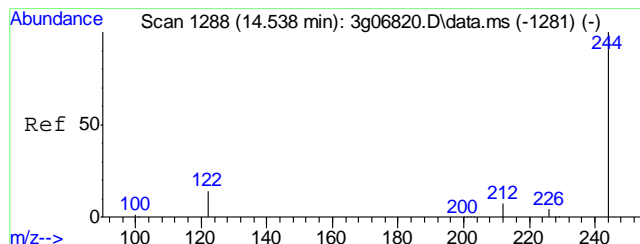
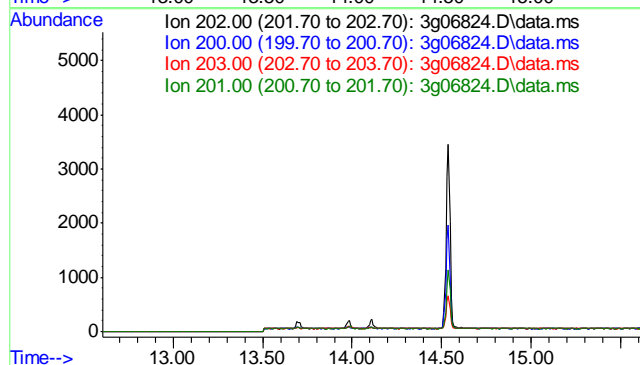




#19
Pyrene
Concen: N.D. ug/mL
Expected RT: 14.11 min

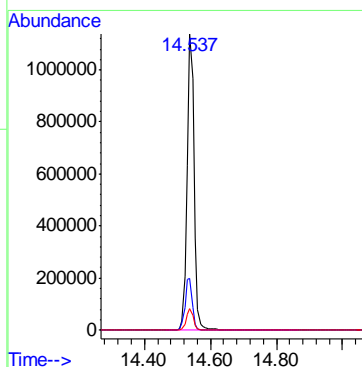
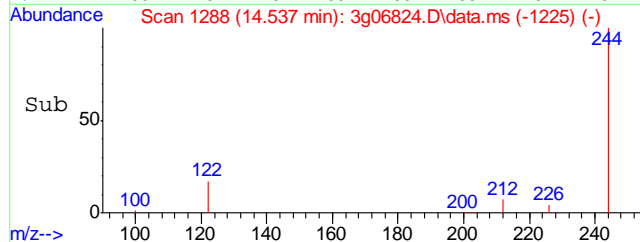
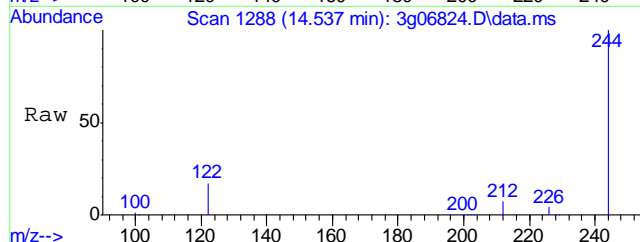
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

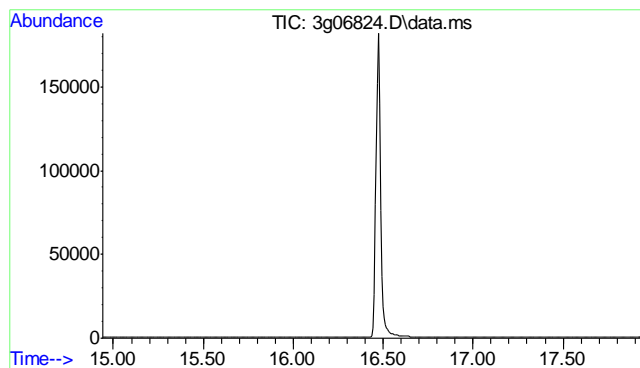
Tgt Ion: 202
Sig Exp Ratio
202 100
200 21.9
203 17.8
201 18.0



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

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

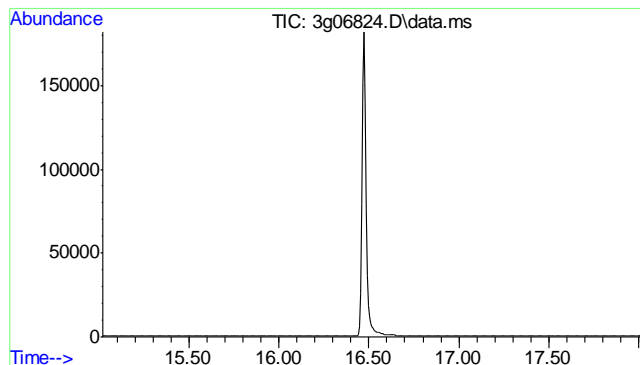
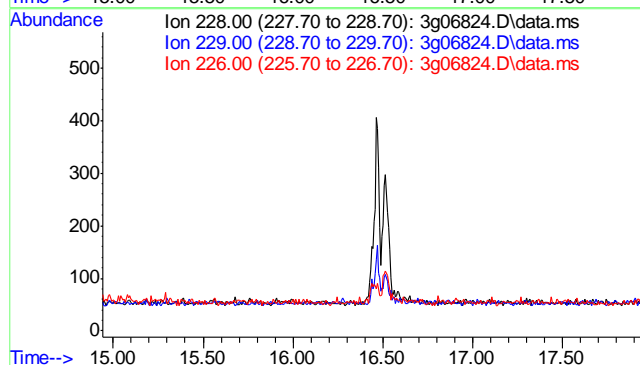




#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.44 min

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

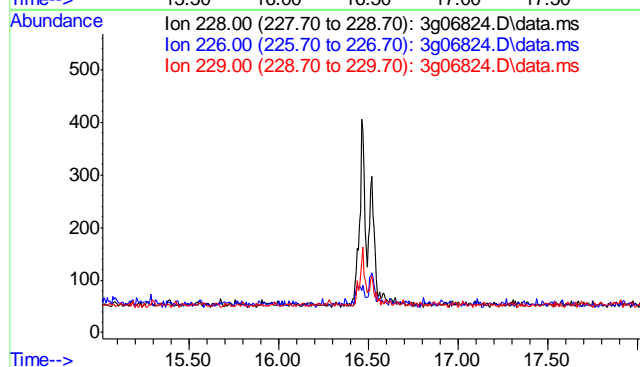
Tgt Ion: 228	
Sig	Exp Ratio
228	100
229	19.5
226	25.8

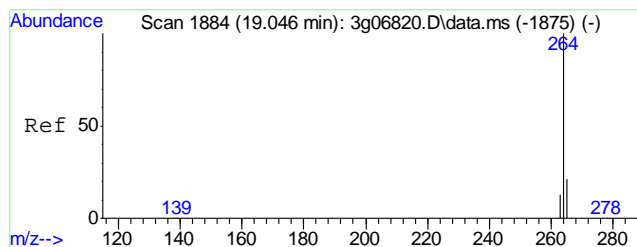


#22
Chrysene
Concen: N.D. ug/mL
Expected RT: 16.52 min

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

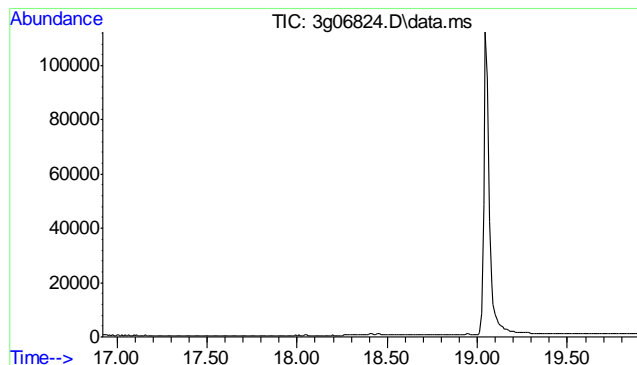
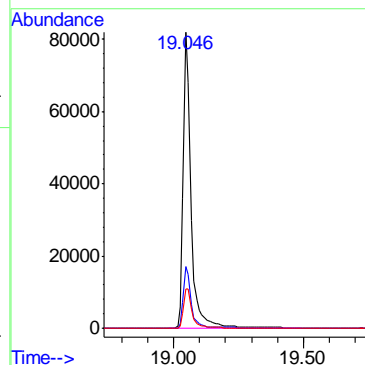
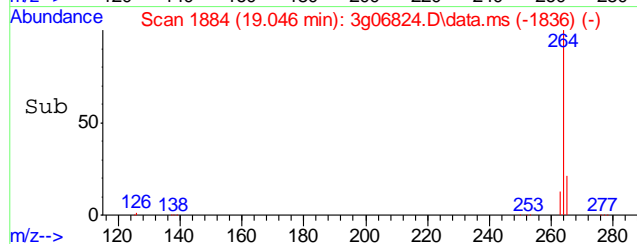
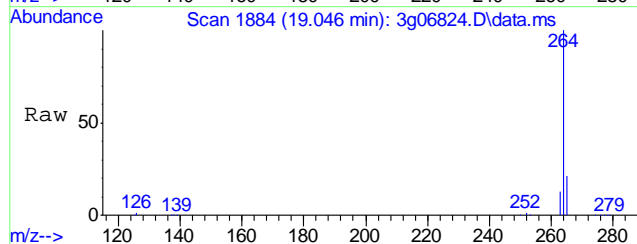
Tgt Ion: 228	
Sig	Exp Ratio
228	100
226	28.2
229	19.6





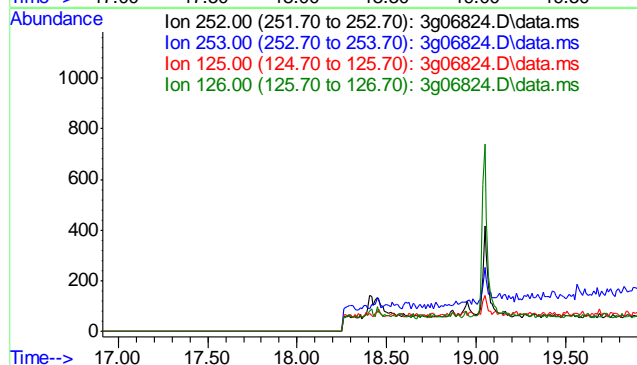
#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 19.046 min Scan# 1884
Delta R.T. -0.000 min
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

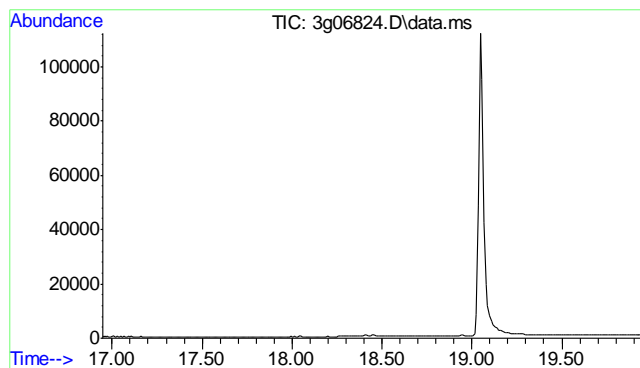
Tgt Ion	Ratio	Lower	Upper
264	100		
265	20.9	1.1	41.1
263	14.5	0.0	34.1



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

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

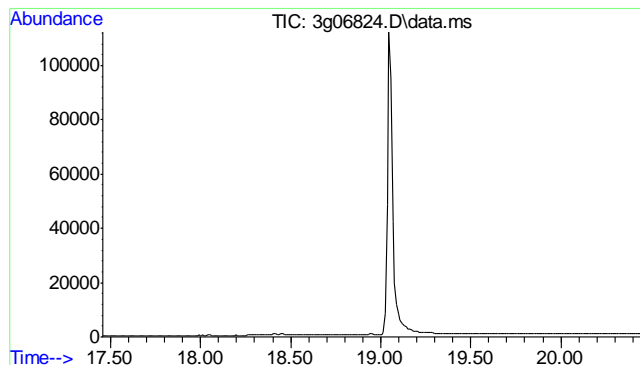
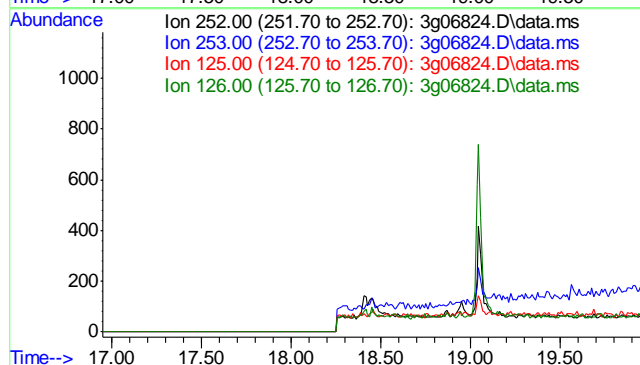




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.45 min

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

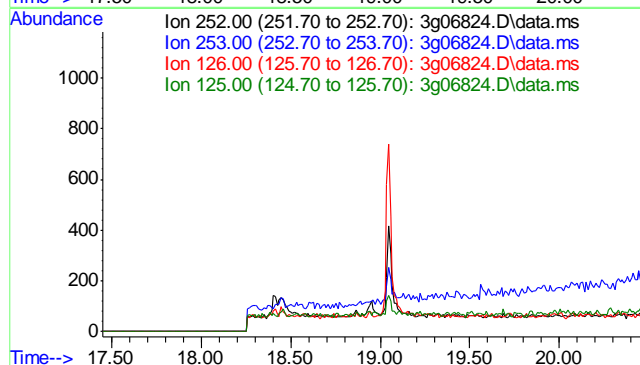
Tgt Ion: 252
Sig Exp Ratio
252 100
253 21.8
125 11.2
126 16.8

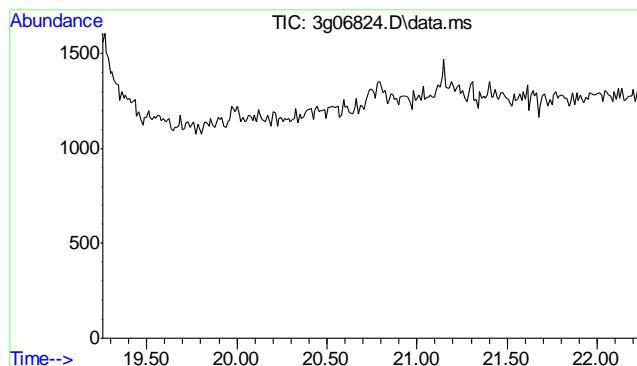


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 18.95 min

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

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

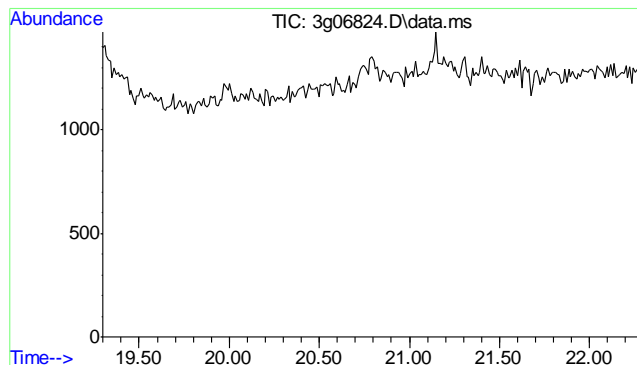
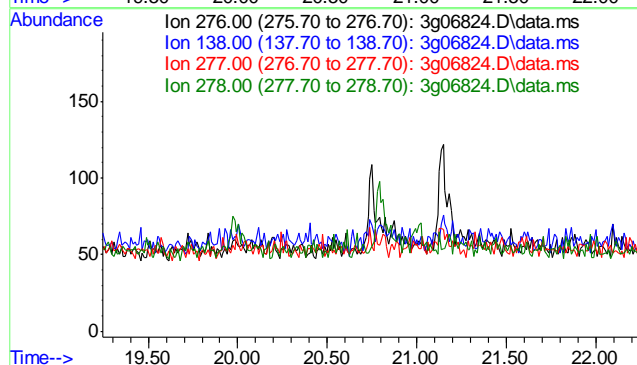




#27
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 20.75 min

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

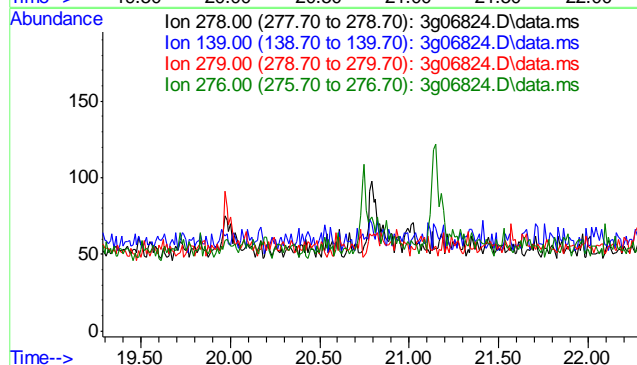
Tgt Ion:	276
Sig	Exp Ratio
276	100
138	22.7
277	40.3
278	128.3

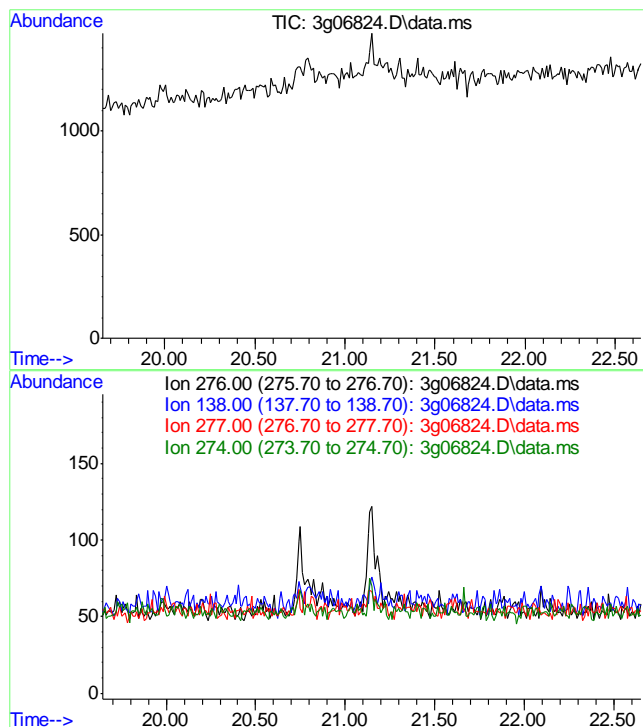


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 20.79 min

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

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





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

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

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

GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D29206**Account:** KRWCCOL KRW Consulting, Inc.**Project:** XOM FRU 297-32A

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

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

D29206-1

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

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

9.1.1

9

Blank Spike Summary

Job Number: D29206
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-32A

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

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

D29206-1

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

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

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D29206
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-32A

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

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

D29206-1

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

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

GC Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\110711\GB13742.D\FID1A.CH Vial: 12
Signal #2 : Y:\1\DATA\110711\GB13742.D\FID2B.CH
Acq On : 7 Nov 2011 6:03 pm Operator: StephK
Sample : D29206-1, 100X Inst : GC/MS Ins
Misc : GC2383,GGB778,5.063,,50,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 07 17:31:51 2011 Quant Results File: TB740GB740SOIL.RES

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

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

	Compound	R.T.	Response	Conc	Units	

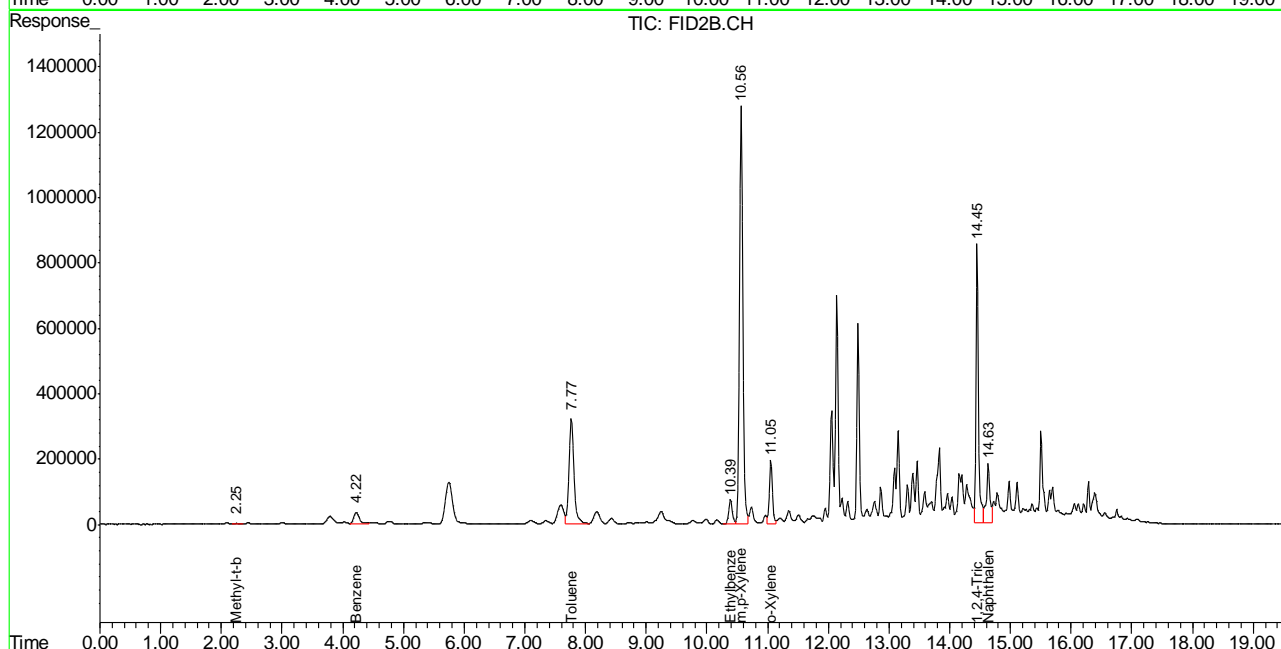
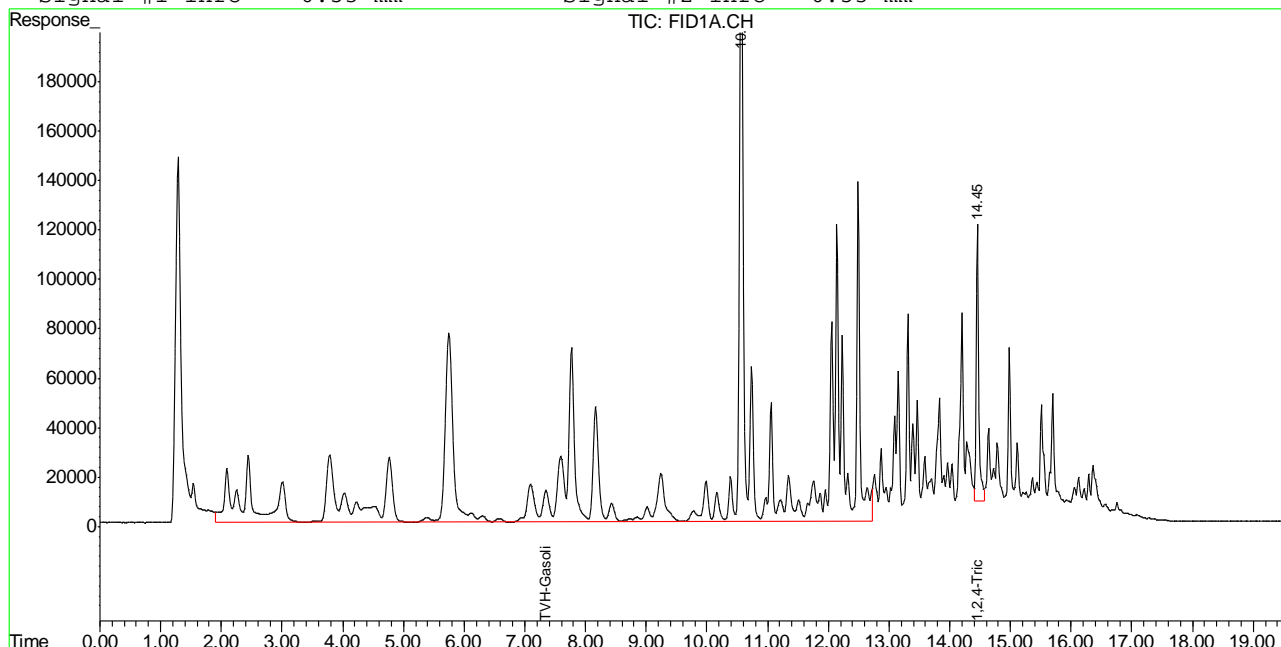
System Monitoring Compounds						
2) S	1,2,4-Trichlorobenzene	14.45f	3127873	90.147 %	m	
10) S	1,2,4-Trichlorobenzene (P)	14.45	23581455	117.259 %		
Target Compounds						
1) H	TVH-Gasoline	7.33	71330708	1.099 mg/L		
4) T	Methyl-t-butyl-ether	2.25	148915	0.898 ug/L		
5) T	Benzene	4.22	2573311	5.324 ug/L		
6) T	Toluene	7.77	18530075	39.889 ug/L		
7) T	Ethylbenzene	10.39	3013216	7.482 ug/L		
8) T	m,p-Xylene	10.56	49528045	104.830 ug/L		
9) T	o-Xylene	11.05	6828730	17.153 ug/L		
11) T	Naphthalene	14.64	6952387	29.918 ug/L		

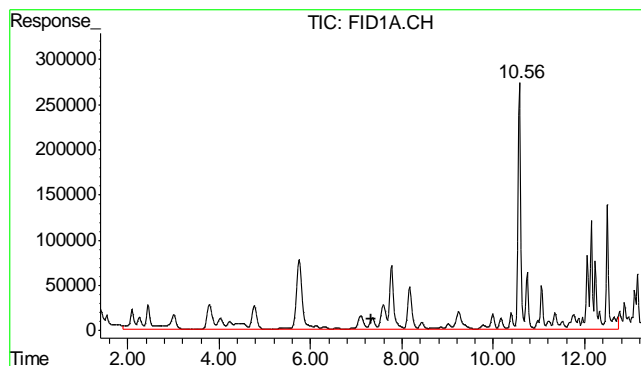
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\110711\GB13742.D\FID1A.CH Vial: 12
 Signal #2 : Y:\1\DATA\110711\GB13742.D\FID2B.CH
 Acq On : 7 Nov 2011 6:03 pm Operator: StephK
 Sample : D29206-1, 100X Inst : GC/MS Ins
 Misc : GC2383,GGB778,5.063,,50,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Nov 7 17:32 2011 Quant Results File: TB740GB740SOIL.RES

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

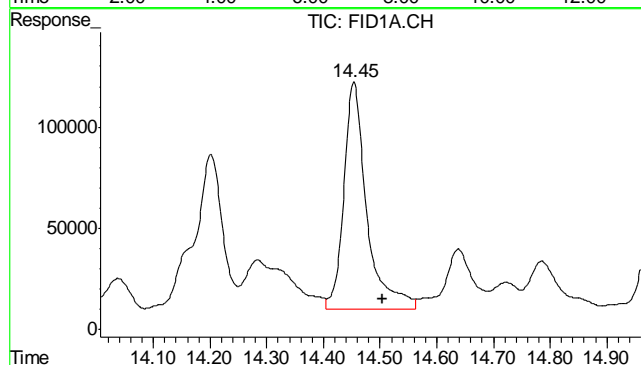
Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





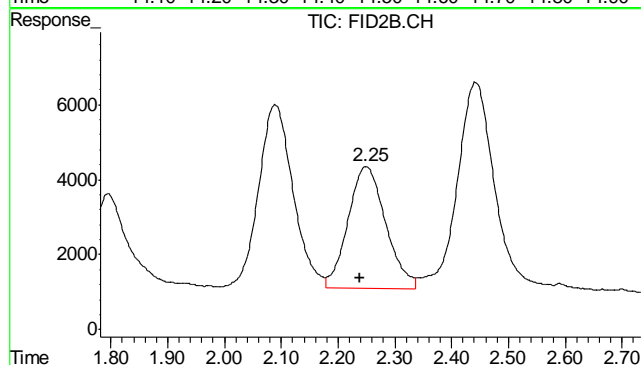
#1 TVH-Gasoline

R.T.: 7.330 min
Delta R.T.: 0.000 min
Response: 71330708
Conc: 1.10 mg/L m



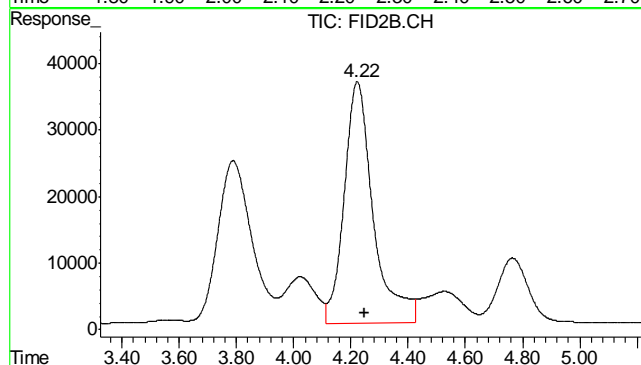
#2 1,2,4-Trichlorobenzene

R.T.: 14.453 min
Delta R.T.: -0.050 min
Response: 3127873
Conc: 90.15 % m



#4 Methyl-t-butyl-ether

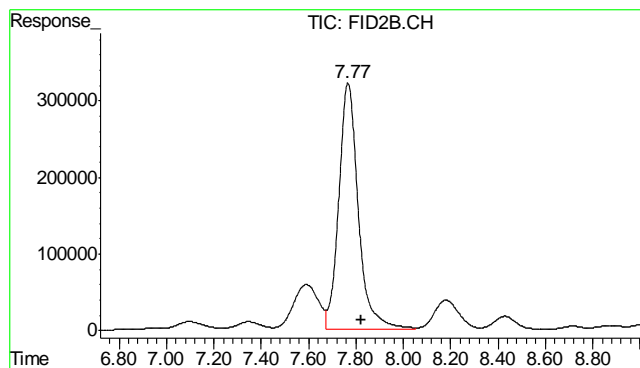
R.T.: 2.249 min
Delta R.T.: 0.010 min
Response: 148915
Conc: 0.90 ug/L



#5 Benzene

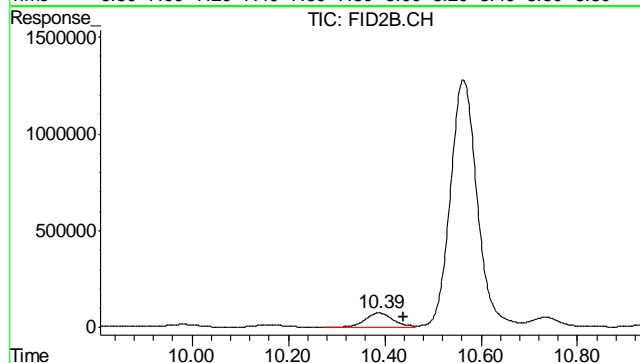
R.T.: 4.222 min
Delta R.T.: -0.024 min
Response: 2573311
Conc: 5.32 ug/L

10.1.1
10



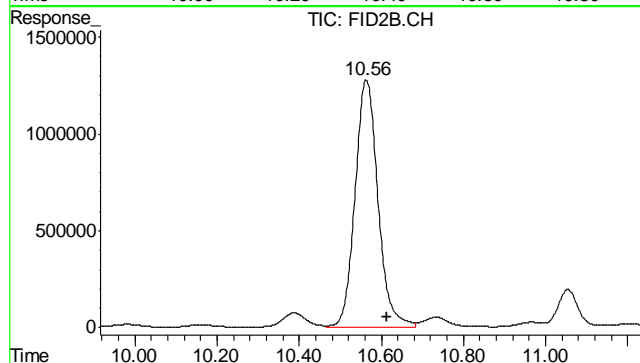
#6 Toluene

R.T.: 7.767 min
Delta R.T.: -0.056 min
Response: 18530075
Conc: 39.89 ug/L



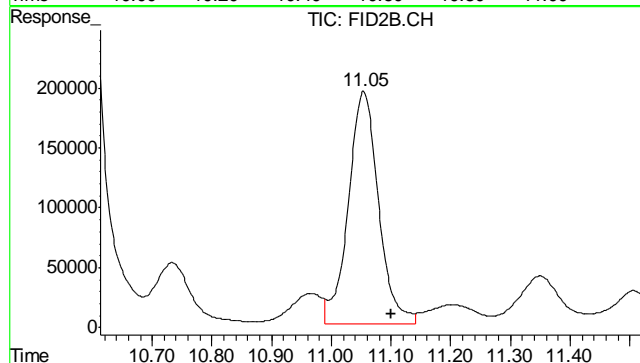
#7 Ethylbenzene

R.T.: 10.388 min
Delta R.T.: -0.051 min
Response: 3013216
Conc: 7.48 ug/L



#8 m,p-Xylene

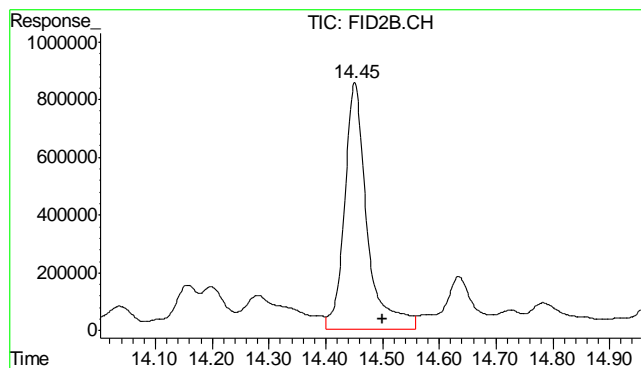
R.T.: 10.564 min
Delta R.T.: -0.051 min
Response: 49528045
Conc: 104.83 ug/L



#9 o-Xylene

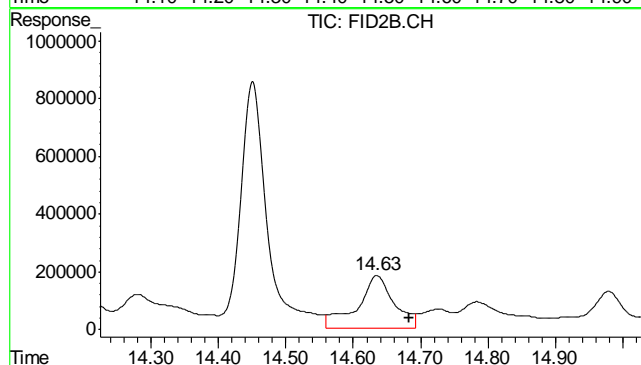
R.T.: 11.054 min
Delta R.T.: -0.047 min
Response: 6828730
Conc: 17.15 ug/L

10.1.1
10



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

R.T.: 14.452 min
Delta R.T.: -0.049 min
Response: 23581455
Conc: 117.26 %



#11 Naphthalene

R.T.: 14.635 min
Delta R.T.: -0.049 min
Response: 6952387
Conc: 29.92 ug/L

10.1.1
10

Judy Melson
11/08/11 11:54

Quantitation Report (QT Reviewed)

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

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

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

Compound		R.T.	Response	Conc	Units

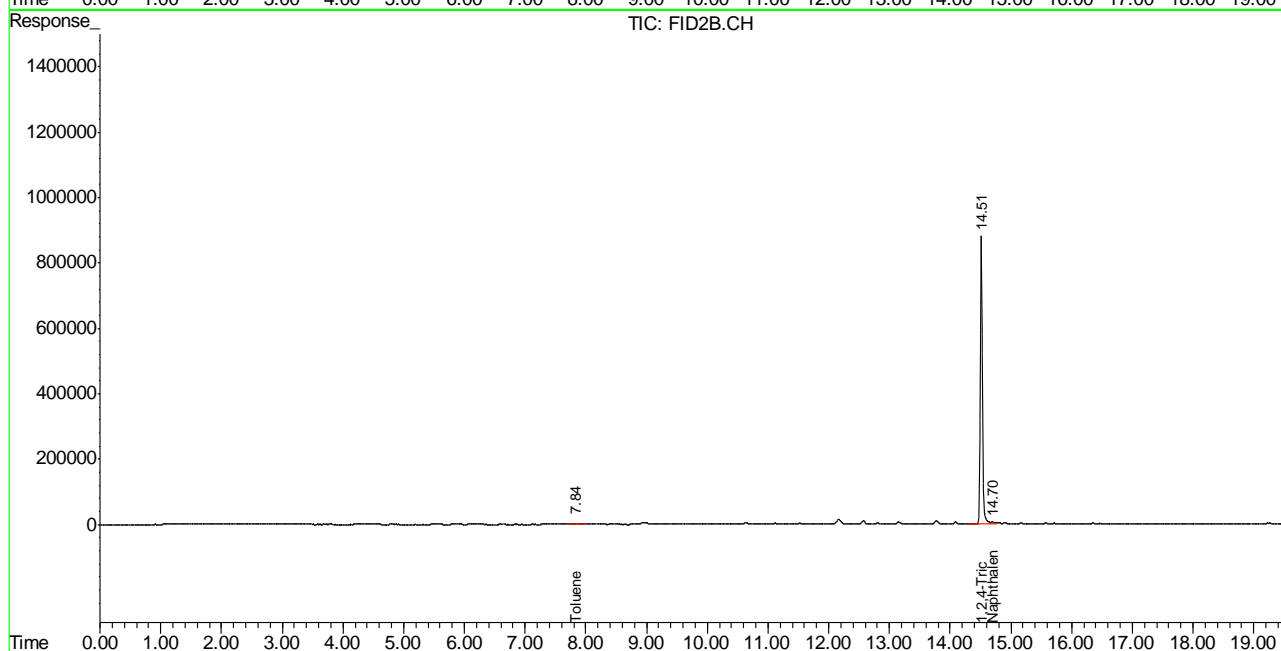
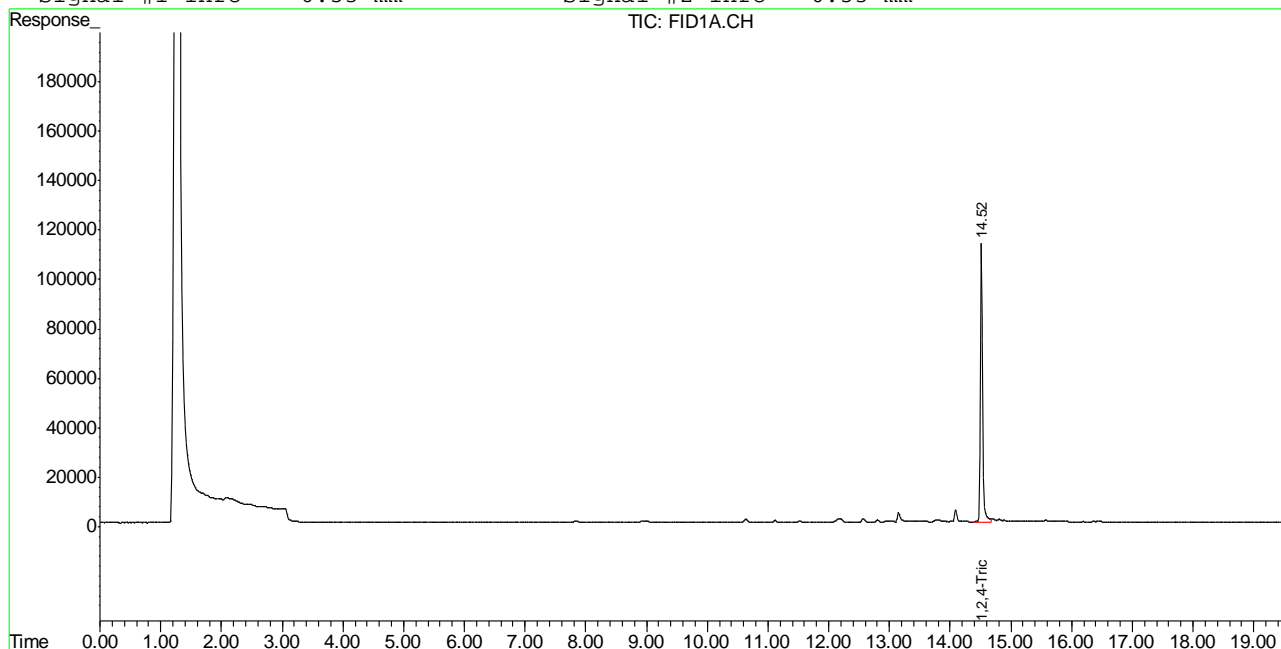
System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.52	2787271	80.331 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.52	21007422	104.460 %	
Target Compounds					
1) H	TVH-Gasoline	7.33	6371267	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	7.84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

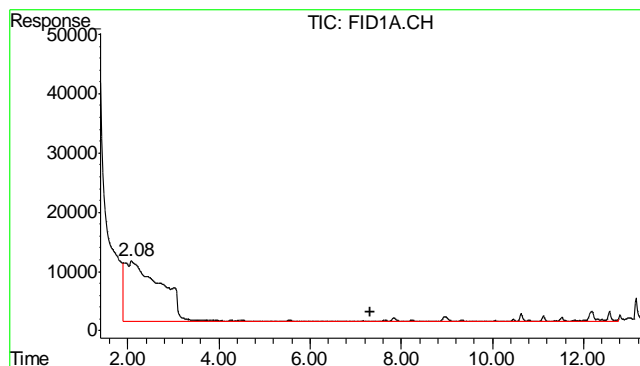
Quantitation Report (QT Reviewed)

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

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

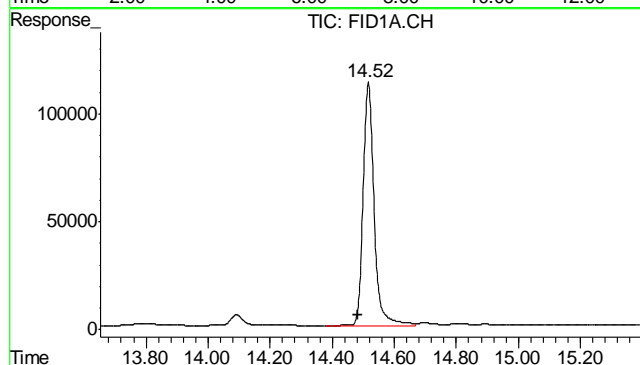
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





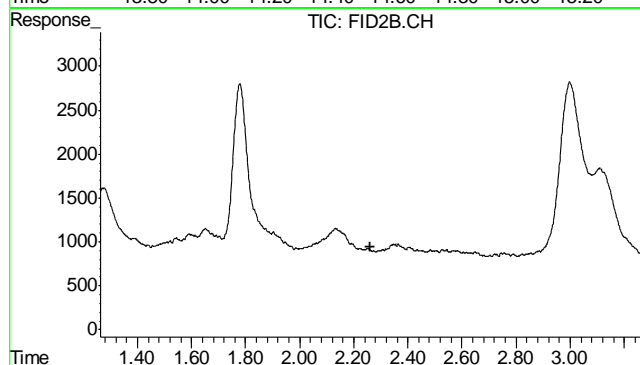
#1 TVH-Gasoline

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



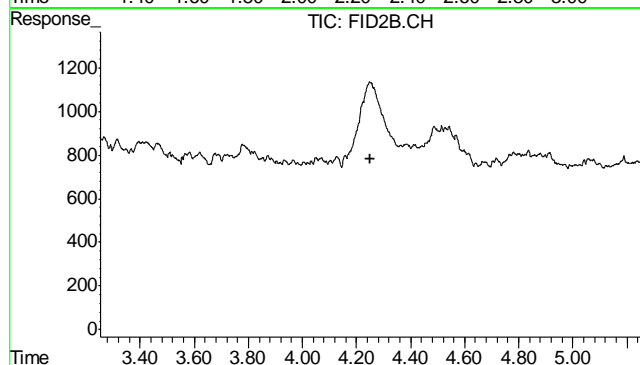
#2 1,2,4-Trichlorobenzene

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



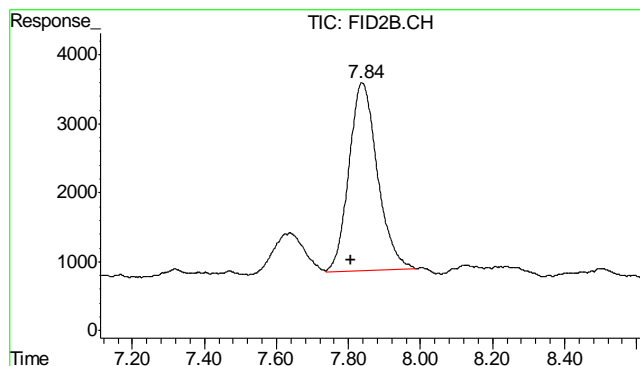
#4 Methyl-t-butyl-ether

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



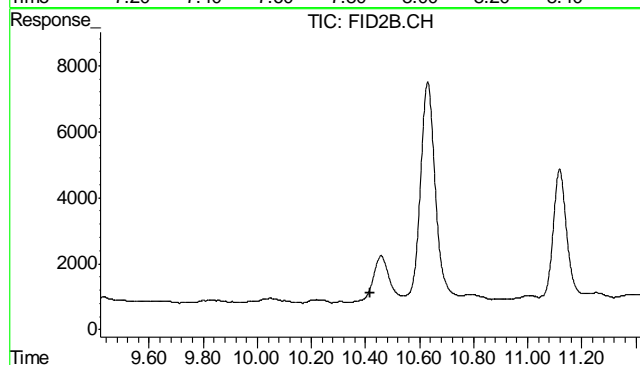
#5 Benzene

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



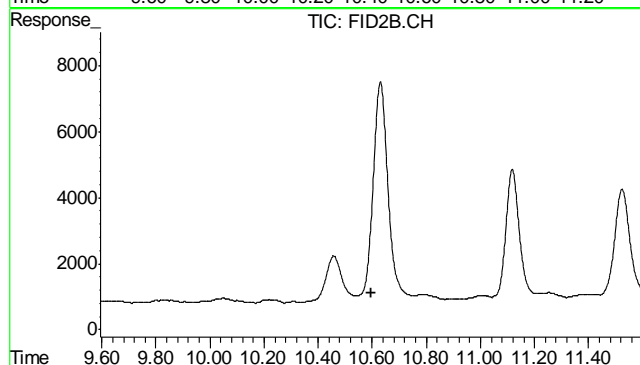
#6 Toluene

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



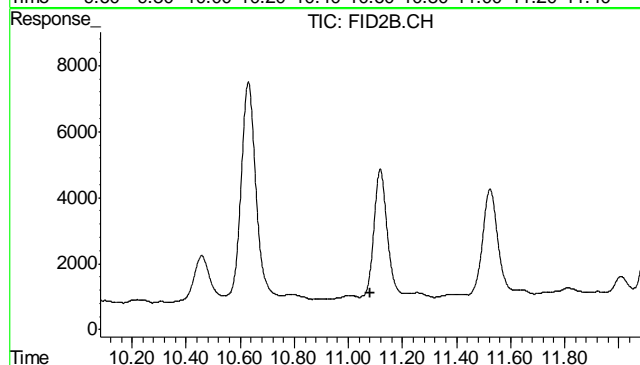
#7 Ethylbenzene

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



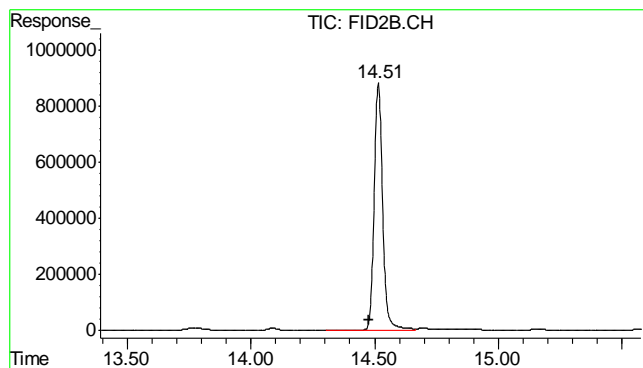
#8 m,p-Xylene

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



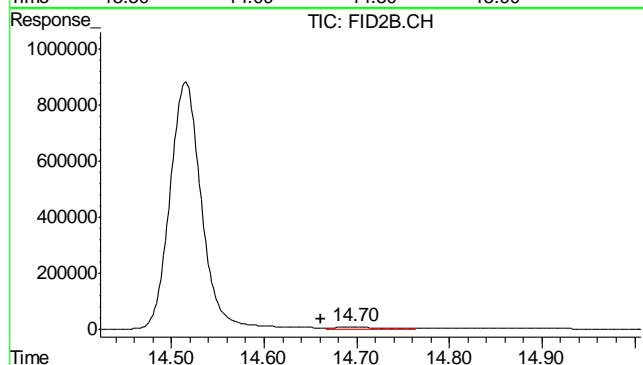
#9 o-Xylene

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



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

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



#11 Naphthalene

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

10.2.1
10

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D29206**Account:** KRWCCOL KRW Consulting, Inc.**Project:** XOM FRU 297-32A

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

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

D29206-1

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

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

Blank Spike Summary

Job Number: D29206
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-32A

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

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

D29206-1

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

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

11.2.1
11

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D29206
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-32A

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

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

D29206-1

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

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

11.3.1
11

GC Semi-volatiles

Raw Data

Judy Melson
11/09/11 09:21

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\NOV\FD110811\FD11388.D Vial: 8
Acq On : 11-8-2011 01:50:17 PM Operator: TEDR
Sample : D29206-1 Inst : FID5
Misc : OP4801,GFD571,30.10,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Nov 09 06:51:50 2011 Quant Results File: GFD530.RES

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

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

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
1) S O-Terphenyl	9.69	43459306	1040.755 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	7.48	1309375076	29760.391 mg/L

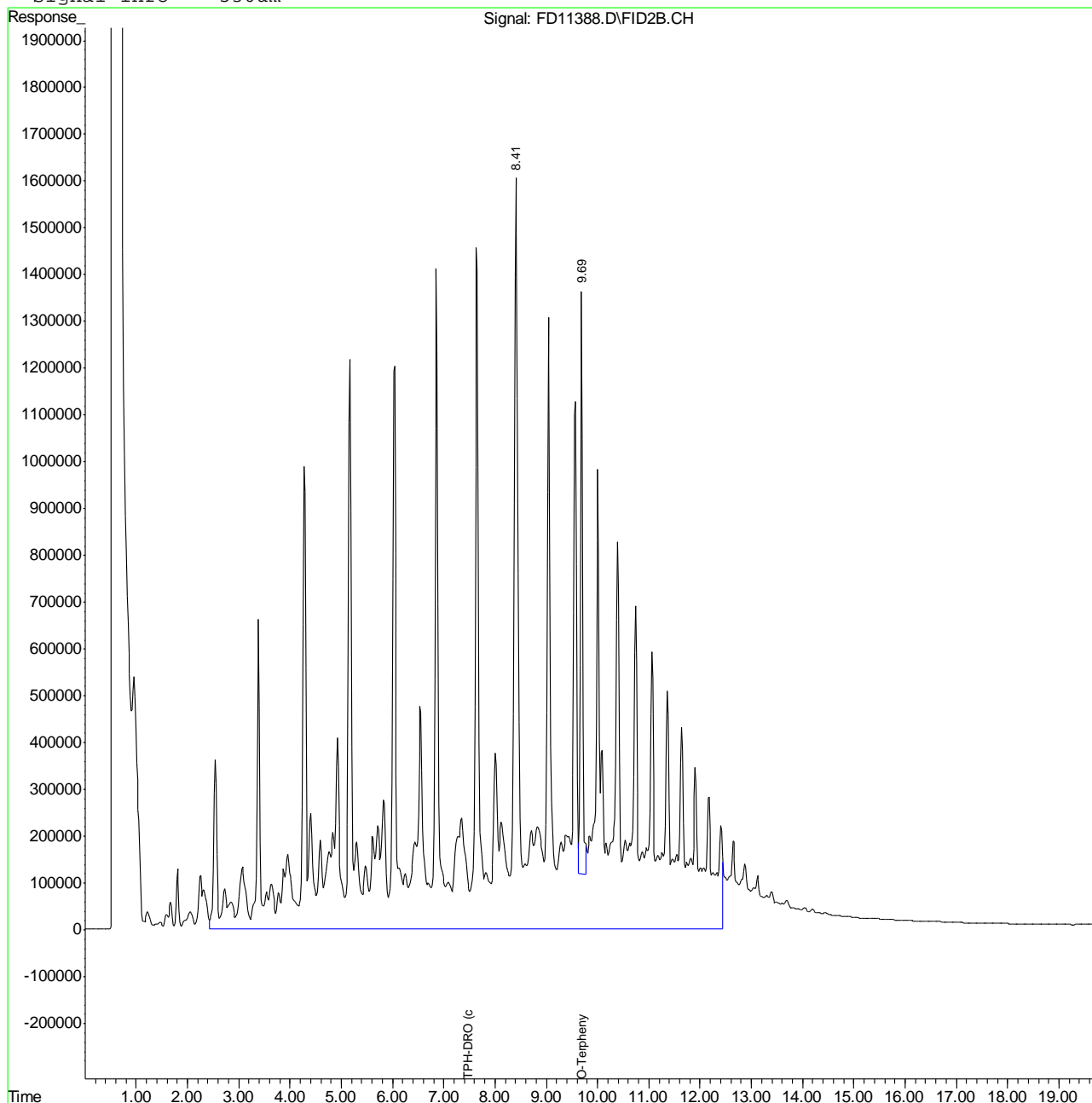
12.1.1
12

Quantitation Report (QT Reviewed)

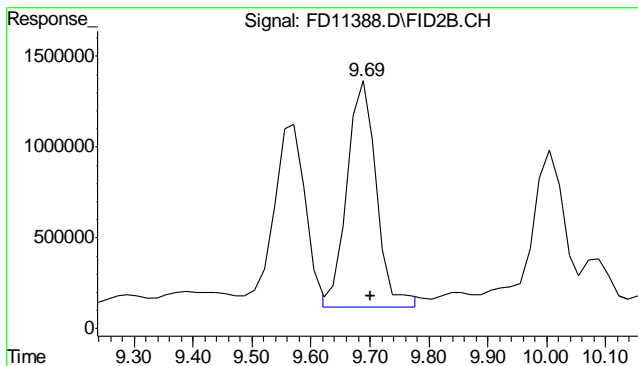
Data File : C:\MSDCHEM\2\DATA\2011\NOV\FD110811\FD11388.D Vial: 8
Acq On : 11-8-2011 01:50:17 PM Operator: TEDR
Sample : D29206-1 Inst : FID5
Misc : OP4801,GFD571,30.10,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Nov 9 6:52 2011 Quant Results File: GFD530.RES

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

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

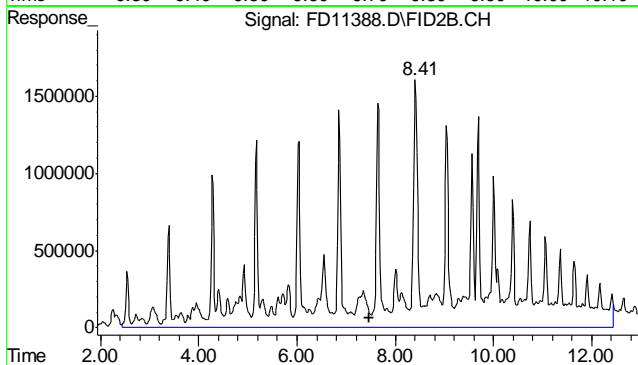


12.1.1
12



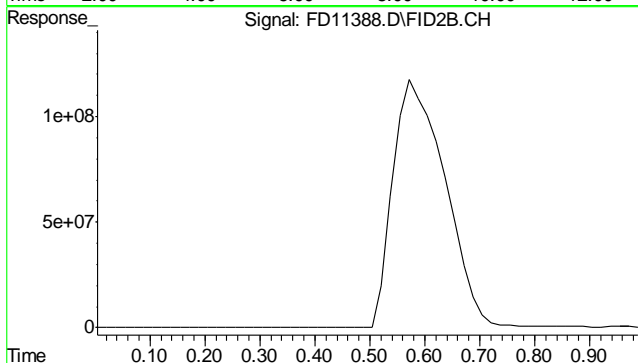
#1 O-Terphenyl

R.T.: 9.686 min
Delta R.T.: -0.014 min
Response: 43459306
Conc: 1040.76 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 7.480 min
Delta R.T.: 0.000 min
Response: 1309375076
Conc: 29760.39 mg/L m



#9 5a-Androstane

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

12.1.1
12

Judy Melson
11/09/11 09:21

Quantitation Report (QT Reviewed)

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

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

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

Compound	R.T.	Response	Conc Units

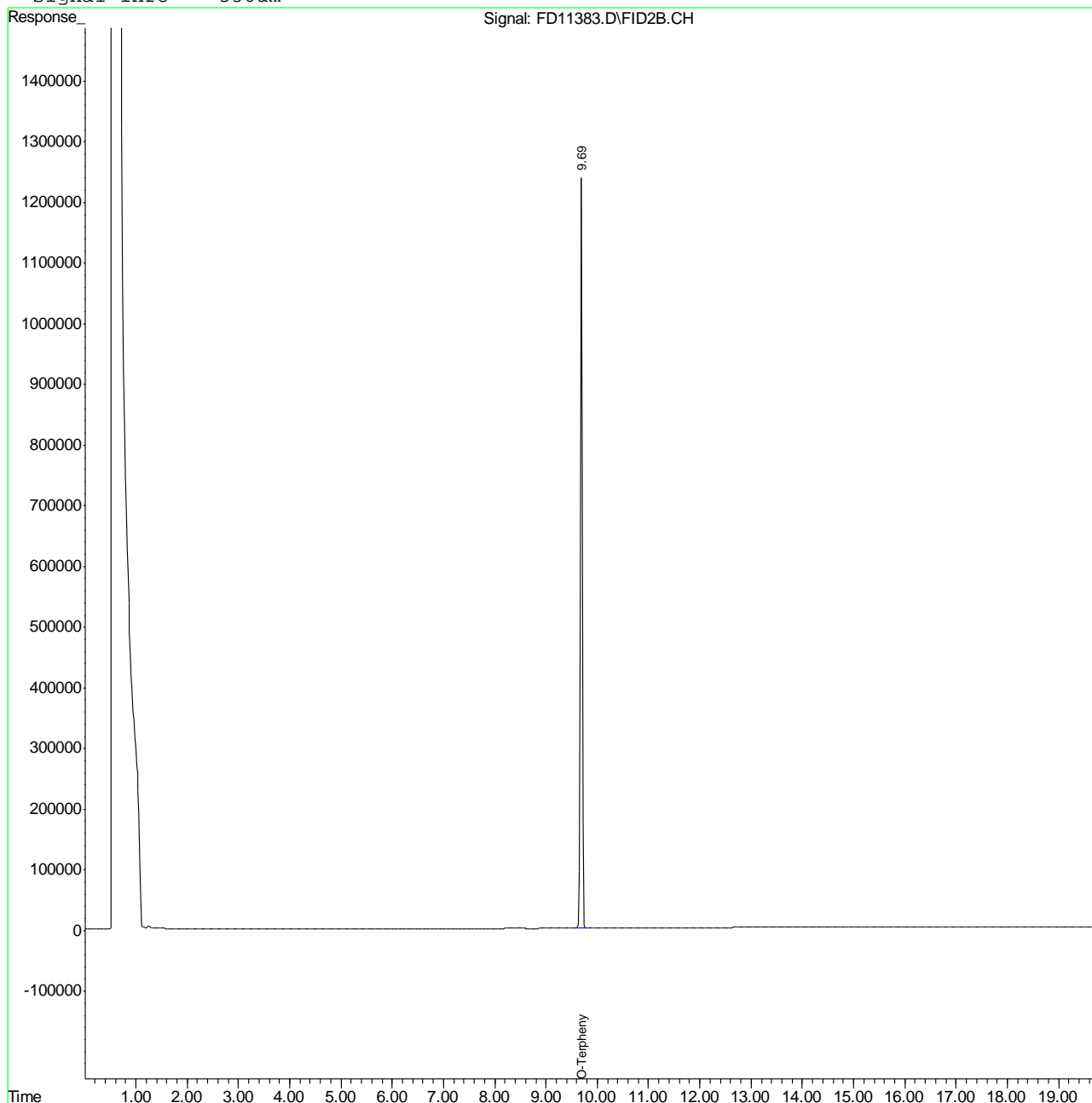
System Monitoring Compounds			
1) S O-Terphenyl	9.69	40126030	975.919 mg/L m
Target Compounds			

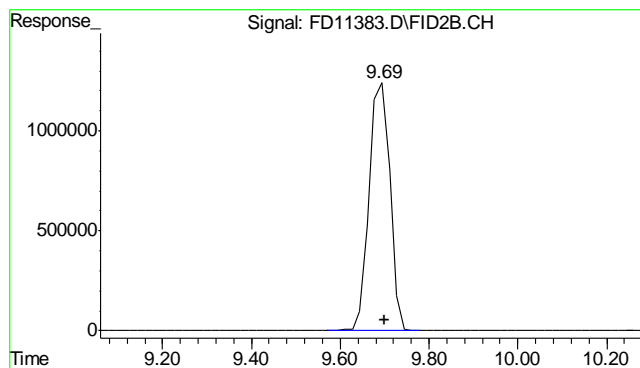
Quantitation Report (QT Reviewed)

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

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

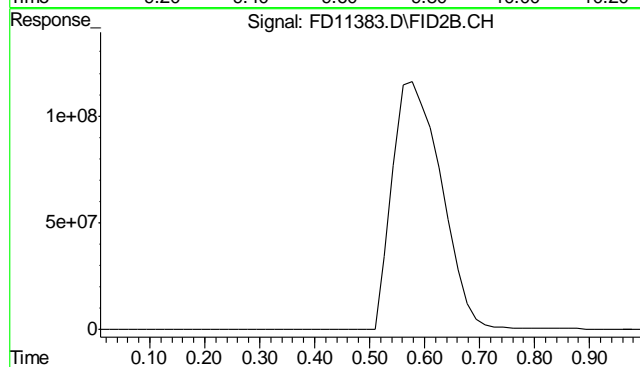
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

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



#9 5a-Androstane

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

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: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6206
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/07/11

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

Associated samples MP6206: D29206-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6206
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6206
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/07/11

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

Associated samples MP6206: D29206-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6206
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

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

13.1.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6206
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/07/11

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

Associated samples MP6206: D29206-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6206
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6206
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/07/11

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

Associated samples MP6206: D29206-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6206
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D29206
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-32A

QC Batch ID: MP6206
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: ug/l

Prep Date: 11/07/11

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

Associated samples MP6206: D29206-1

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

13.1.4
13

SERIAL DILUTION RESULTS SUMMARY

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6206
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6207
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 11/07/11

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

Associated samples MP6207: D29206-1

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: D29206
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-32A

QC Batch ID: MP6207
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 11/07/11

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

Associated samples MP6207: D29206-1

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: D29206
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-32A

QC Batch ID: MP6207
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 11/07/11

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

Associated samples MP6207: D29206-1

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: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6207
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 11/07/11

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

Associated samples MP6207: D29206-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D29206
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-32A

QC Batch ID: MP6207
 Matrix Type: SOLID

Methods: SW846 6020
 Units: ug/l

Prep Date: 11/07/11

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

Associated samples MP6207: D29206-1

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6224
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 11/09/11

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

Associated samples MP6224: D29206-1

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: D29206
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-32A

QC Batch ID: MP6224
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 11/09/11

Metal	D29206-1		Spikelot		QC
	Original	MS	HGWSR1	% Rec	Limits
Mercury	0.16	2.1	1.94	99.9	85-115

Associated samples MP6224: D29206-1

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: D29206
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-32A

QC Batch ID: MP6224
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 11/09/11

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

Associated samples MP6224: D29206-1

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: D29206
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-32A

QC Batch ID: MP6224
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 11/09/11

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

Associated samples MP6224: D29206-1

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: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6227
Matrix Type: AQUEOUS

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

Prep Date: 11/09/11

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

Associated samples MP6227: D29206-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6227
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

13.4.1

13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6227
Matrix Type: AQUEOUS

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

Prep Date: 11/09/11

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

Associated samples MP6227: D29206-1A

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

13.4.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6227
Matrix Type: AQUEOUS

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

Prep Date:

Metal

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

13.4.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6227
Matrix Type: AQUEOUS

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

Prep Date: 11/09/11

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

Associated samples MP6227: D29206-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6227
Matrix Type: AQUEOUS

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

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6227
Matrix Type: AQUEOUS

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

Prep Date: 11/09/11

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

Associated samples MP6227: D29206-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6227
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

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

Associated Samples:
Batch GN12401: D29206-1
Batch GP5881: D29206-1
(*) Outside of QC limits

14.1
14

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D29206
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

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

Associated Samples:
Batch GN12406: D29206-1
(*) Outside of QC limits

14.2
14

Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D29206

Client: AMS

Immediate Client Services Action Required: No

Date / Time Received: 11/8/2011

Delivery Method:

Client Service Action Required at Login: No

Project:

No. Coolers: 1

Airbill #'s:

Cooler Security

Y or N

Y or N

- | | | | | | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler Temperature

Y or N

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

Quality Control Preservation

Y or N

N/A

- | | | | |
|---------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Trip Blank listed on COC: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Samples preserved properly: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. VOCs headspace free: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Sample Integrity - Documentation

Y or N

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

Sample Integrity - Condition

Y or N

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

Sample Integrity - Instructions

Y or N N/A

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

Comments

General Chemistry

QC Data Summaries

(Accutest Labs of New England, Inc.)

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: D29206
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: XOM FRU 297-32A

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

Associated Samples:
Batch GP13780: D29206-1
(*) Outside of QC limits

BLANK SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D29206
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: XOM FRU 297-32A

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

Associated Samples:
Batch GP13780: D29206-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D29206
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: XOM FRU 297-32A

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

Associated Samples:
Batch GP13780: D29206-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D29206
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: XOM FRU 297-32A

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

Associated Samples:
Batch GP13780: D29206-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits