Mountain States ACCUTEST LABORATORIES

12/09/11

Technical Report for

KRW Consulting, Inc.

XOM FRU 297-17A

1108-13A

Accutest Job Number: D29759

Sampling Date: 11/23/11

Report to:

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

Total number of pages in report: **155**

ACCREDITED IN ACCORDANCE WITH nelac

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)

Test results relate only to samples analyzed.

Table of Contents

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

Section 1: Sample Summary **4**
Section 2: Case Narrative/Conformance Summary **5**
Section 3: Sample Results **9**
3.1: D29759-1: RP MIX BLEND 11/22 10
3.2: D29759-1A: RP MIX BLEND 11/22 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 32
Section 7: GC/MS Semi-volatiles - QC Data Summaries **36**
7.1: Method Blank Summary 37
7.2: Blank Spike Summary 38
7.3: Matrix Spike/Matrix Spike Duplicate Summary 39
Section 8: GC/MS Semi-volatiles - Raw Data **40**
8.1: Samples 41
8.2: Method Blanks 75
Section 9: GC Volatiles - QC Data Summaries **92**
9.1: Method Blank Summary 93
9.2: Blank Spike Summary 94
9.3: Matrix Spike/Matrix Spike Duplicate Summary 95
Section 10: GC Volatiles - Raw Data **96**
10.1: Samples 97
10.2: Method Blanks 102
Section 11: GC Semi-volatiles - QC Data Summaries **107**
11.1: Method Blank Summary 108
11.2: Blank Spike Summary 109
11.3: Matrix Spike/Matrix Spike Duplicate Summary 110
Section 12: GC Semi-volatiles - Raw Data **111**
12.1: Samples 112
12.2: Method Blanks 115
Section 13: Metals Analysis - QC Data Summaries **118**
13.1: Prep QC MP6360: Ca,Mg,Na,Sodium Adsorption Ratio 119
13.2: Prep QC MP6361: Ba,Cd,Cr,Cu,Pb,Ni,Se,Ag,Zn 127
13.3: Prep QC MP6362: As 137
13.4: Prep QC MP6363: Hg 142
Section 14: General Chemistry - QC Data Summaries **146**
14.1: Method Blank and Spike Results Summary 147

Table of Contents

14.2: Duplicate Results Summary 148
Section 15: Misc. Forms (Accutest Labs of New England, Inc.) 149
15.1: Chain of Custody 150
Section 16: General Chemistry - QC Data (Accutest Labs of New England, Inc.) 152
16.1: Method Blank and Spike Results Summary 153
16.2: Duplicate Results Summary 154
16.3: Matrix Spike Results Summary 155

Sample Summary

KRW Consulting, Inc.

Job No: D29759

XOM FRU 297-17A
Project No: 1108-13A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D29759-1	11/23/11	10:45	DLS	11/28/11	SO	Soil	RP MIX BLEND 11/22
D29759-1A	11/23/11	10:45	DLS	11/28/11	SO	Soil	RP MIX BLEND 11/22

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	KRW Consulting, Inc.	**Job No**	D29759
Site:	XOM FRU 297-17A	**Report Dat**	12/9/2011 4:11:50 PM

On 11/28/2011, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 9.9 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D29759 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:** V5V1104

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D29747-1MS, D29747-1MSD were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO **Batch ID:** OP4929

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D29647-1RMS, D29647-1RMSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- D29759-1: confirmation run.
- D29759-1 for Fluorene, Naphthalene: QC outside of control limits; results may be biased high.

Volatiles by GC By Method SW846 8015B

Matrix SO **Batch ID:** GGB798

- All samples were analyzed within the recommended method holding time.
- Sample(s) D29759-1MS, D29759-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GC By Method SW846-8015B

Matrix SO **Batch ID:** OP4919

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D29759-1MS, D29759-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Metals By Method SW846 6010B

Matrix AQ **Batch ID:** MP6360

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D29759-1AMS, D29759-1AMSD were used as the QC samples for the metals analysis.

Matrix SO **Batch ID:** MP6361

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D29760-1MS, D29760-1MSD, D29760-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Barium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The serial dilution RPD(s) for Cadmium, Selenium, Silver are outside control limits for sample MP6361-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- D29759-1 for Selenium: Elevated detection limit due to dilution required for possible matrix interference.
- The serial dilution RPD(s) for Chromium, Nickel, Zinc are outside control limits for sample MP6361-SD1. Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020

Matrix SO **Batch ID:** MP6362

- All samples were digested and analyzed within the recommended method holding time.
- Sample(s) D29759-1MS, D29759-1MSD, D29759-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Arsenic are outside control limits for sample MP6362-SD1. Probable cause due to sample homogeneity.
- MP6362-MB1 for Arsenic: All sample results < RL or > 10x MB concentration.

Metals By Method SW846 7471A

Matrix SO **Batch ID:** MP6363

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D25269-9MS, D25269-9MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO **Batch ID:** GN12695

- Sample(s) D29644-1RDUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO **Batch ID:** GN12681

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO **Batch ID:** R10926

- The data for SW846 3060/7196A M meets quality control requirements.
- D29759-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix	SO	Batch ID:	M:GP13862

- The data for SW846 3060A/7196A meets quality control requirements.
- D29759-1 for Chromium, Hexavalent: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method SW846 9045C

Matrix	SO	Batch ID:	GN12694

- The following sample was run outside of holding time for method SW846 9045C: D29759-1.

Wet Chemistry By Method USDA HANDBOOK 60

Matrix	SO	Batch ID:	MP6360

- D29759-1A for Sodium Adsorption Ratio: Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+(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**	D29759
Site:	KRWCCOL: XOM FRU 297-17A	**Report Date**	12/1/2011 4:13:30 PM

1 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 11/23/2011 and were received at Accutest on 11/28/2011 properly preserved, at 2.0 Deg. C and intact. These Samples received an Accutest job number of D29759. 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:** GP13862

- 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) D29745-1MS, D29745-1DUP were used as the QC samples for Chromium, Hexavalent.
- RPD(s) for Duplicate for Chromium, Hexavalent are outside control limits for sample GP13862-D1. RPD acceptable due to low duplicate and sample concentrations.

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(D29759).

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	RP MIX BLEND 11/22		
Lab Sample ID:	D29759-1	**Date Sampled:**	11/23/11
Matrix:	SO - Soil	**Date Received:**	11/28/11
Method:	SW846 8260B	**Percent Solids:**	84.7
Project:	XOM FRU 297-17A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V18484.D	1	11/28/11	DC	n/a	n/a	V5V1104
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.00 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	68	30	ug/kg	
108-88-3	Toluene	ND	140	68	ug/kg	
100-41-4	Ethylbenzene	ND	140	34	ug/kg	
1330-20-7	Xylene (total)	ND	270	140	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	76%		61-130%
460-00-4	4-Bromofluorobenzene	86%		53-131%
17060-07-0	1,2-Dichloroethane-D4	103%		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

Accutest Laboratories

Report of Analysis

Client Sample ID:	RP MIX BLEND 11/22		
Lab Sample ID:	D29759-1	**Date Sampled:**	11/23/11
Matrix:	SO - Soil	**Date Received:**	11/28/11
Method:	SW846 8270C BY SIM SW846 3546	**Percent Solids:**	84.7
Project:	XOM FRU 297-17A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G07169.D	5	12/08/11	DC	11/30/11	OP4929	E3G262
Run #2 [a]	3G07175.D	10	12/08/11	DC	11/30/11	OP4929	E3G262

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

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	39	31	ug/kg	
120-12-7	Anthracene	ND	39	35	ug/kg	
56-55-3	Benzo(a)anthracene	ND	98	51	ug/kg	
50-32-8	Benzo(a)pyrene	ND	98	71	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	98	73	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	98	43	ug/kg	
218-01-9	Chrysene	ND	98	43	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	98	73	ug/kg	
206-44-0	Fluoranthene	ND	39	39	ug/kg	
86-73-7	Fluorene [b]	178	39	33	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	120	110	ug/kg	
91-20-3	Naphthalene [b]	105	39	37	ug/kg	
129-00-0	Pyrene	ND	39	37	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	92%	90%	10-145%
321-60-8	2-Fluorobiphenyl	82%	89%	10-130%
1718-51-0	Terphenyl-d14	84%	92%	22-130%

(a) confirmation run.
(b) QC outside of control limits; results may be biased high.

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

Client Sample ID: RP MIX BLEND 11/22
Lab Sample ID: D29759-1
Matrix: SO - Soil
Method: SW846 8015B
Project: XOM FRU 297-17A

Date Sampled: 11/23/11
Date Received: 11/28/11
Percent Solids: 84.7

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB14103.D	1	11/29/11	SK	n/a	n/a	GGB798
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	10.3	14	6.8	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	91%		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

Client Sample ID: RP MIX BLEND 11/22
Lab Sample ID: D29759-1
Matrix: SO - Soil
Method: SW846-8015B SW846 3546
Project: XOM FRU 297-17A

Date Sampled: 11/23/11
Date Received: 11/28/11
Percent Solids: 84.7

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD11937.D	1	12/04/11	TR	11/29/11	OP4919	GFD613
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	593	16	10	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	85%		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:	RP MIX BLEND 11/22		
Lab Sample ID:	D29759-1	**Date Sampled:**	11/23/11
Matrix:	SO - Soil	**Date Received:**	11/28/11
		Percent Solids:	84.7
Project:	XOM FRU 297-17A		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	4.5	0.50	mg/kg	5	11/30/11	11/30/11	GJ	SW846 6020 [1]	SW846 3050B [5]
Barium	6490	12	mg/kg	10	11/30/11	12/01/11	JB	SW846 6010B [2]	SW846 3050B [4]
Cadmium	< 1.2	1.2	mg/kg	1	11/30/11	11/30/11	JB	SW846 6010B [2]	SW846 3050B [4]
Chromium	47.4	1.2	mg/kg	1	11/30/11	11/30/11	JB	SW846 6010B [2]	SW846 3050B [4]
Copper	10.8	1.2	mg/kg	1	11/30/11	11/30/11	JB	SW846 6010B [2]	SW846 3050B [4]
Lead	10.8	6.2	mg/kg	1	11/30/11	11/30/11	JB	SW846 6010B [2]	SW846 3050B [4]
Mercury	< 0.11	0.11	mg/kg	1	11/30/11	11/30/11	JB	SW846 7471A [3]	SW846 7471A [6]
Nickel	19.6	3.7	mg/kg	1	11/30/11	11/30/11	JB	SW846 6010B [2]	SW846 3050B [4]
Selenium [a]	< 62	62	mg/kg	10	11/30/11	12/01/11	JB	SW846 6010B [2]	SW846 3050B [4]
Silver	< 3.7	3.7	mg/kg	1	11/30/11	11/30/11	JB	SW846 6010B [2]	SW846 3050B [4]
Zinc	39.2	3.7	mg/kg	1	11/30/11	11/30/11	JB	SW846 6010B [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA2010
(2) Instrument QC Batch: MA2011
(3) Instrument QC Batch: MA2012
(4) Prep QC Batch: MP6361
(5) Prep QC Batch: MP6362
(6) Prep QC Batch: MP6363

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

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RP MIX BLEND 11/22		
Lab Sample ID:	D29759-1	**Date Sampled:**	11/23/11
Matrix:	SO - Soil	**Date Received:**	11/28/11
		Percent Solids:	84.7
Project:	XOM FRU 297-17A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent [a]	< 0.47	0.47	mg/kg	1	11/30/11 16:41	AMA	SW846 3060A/7196A
Chromium, Trivalent [b]	47.0	1.7	mg/kg	1	11/30/11 19:07	JB	SW846 3060/7196A M
Redox Potential Vs H2	212		mv	1	11/29/11	JD	ASTM D1498-76M
Solids, Percent	84.7		%	1	11/29/11	SWT	SM19 2540B M
Specific Conductivity	3840	1.0	umhos/cm	1	11/29/11	CJ	DEPT.OF AG, BOOK N9
pH	12.36		su	1	11/29/11 15:00	JD	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:	RP MIX BLEND 11/22		
Lab Sample ID:	D29759-1A	**Date Sampled:**	11/23/11
Matrix:	SO - Soil	**Date Received:**	11/28/11
		Percent Solids:	84.7
Project:	XOM FRU 297-17A		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	45.1	2.0	mg/l	1	11/29/11	11/29/11	JB	SW846 6010B [1]	EPA 200.7 [2]
Magnesium	< 1.0	1.0	mg/l	1	11/29/11	11/29/11	JB	SW846 6010B [1]	EPA 200.7 [2]
Sodium	424	2.0	mg/l	1	11/29/11	11/29/11	JB	SW846 6010B [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA2009
(2) Prep QC Batch: MP6360

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RP MIX BLEND 11/22		
Lab Sample ID:	D29759-1A	**Date Sampled:**	11/23/11
Matrix:	SO - Soil	**Date Received:**	11/28/11
		Percent Solids:	84.7
Project:	XOM FRU 297-17A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	17.3		ratio	1	11/29/11 20:42	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

PAGE 1 OF 1

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 # D29759

Client / Reporting Information

Company Name: KRW CONSULTING
Street Address: 8000 W 14TH AVE STE 200
City: LAKEWOOD State: CO Zip: 80214
Project Contact: DWAYNE KNUDSON E-mail:
Phone #: (970) 675 4066 Fax #:
Sampler(s) Name(s): DAVID SANDERS Phone #: (720) 273 9941

Project Information

Project Name: XOM FRU 297-17A
Street:
City:
Project#: 1108-13A
Client PO#:
Project Manager: JOE HESS

Billing Information (If different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention: PO#:

Requested Analysis (see TEST CODE sheet): TABLE 910

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

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfate	TABLE 910	LAB USE ONLY
	RP MIX BLEND 11/22		11-23-11	10:45	DLS	SO	5					X						01
																		11C

Turnaround Time (Business days)

- ☐ Std. 10 Business Days
- ☐ Std. 5 Business Days (By Contract only)
- ☐ 5 Day RI SH
- ☒ 3 Day EMERGENCY
- ☐ 2 Day EMERGENCY
- ☐ 1 Day EMERGENCY

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- ☐ Commercial "A" (Level 1)
- ☐ Commercial "B" (Level 2)
- ☐ Commercial "B" +Narrative
- ☐ FULLT1 (Level 3+4)
- ☐ State Forms
- ☐ EDD Format
- ☒ PDF

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary

Comments / Special Instructions

PLEASE EMAIL RESULTS TO KRW PICEANCE TEAM

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 [signature]		1 JACOB DORTER 11/25/11 1230	2		2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # FEDEX ☒ Intact ☐ Not intact	Preserved where applicable ☒	On Ice ☒ Cooler Temp. 9.9° melted

D29759: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D29759 **Client:** KRW CONSULTING **Immediate Client Services Action Required:** No

Date / Time Received: 11/28/2011 12:30:00 P **No. Coolers:** 1 **Client Service Action Required at Login:** No

Project: XOM FRU 297-17A **Airbill #'s:** Fedex

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	Infared gun		
3. Cooler media:	Ice (bag)		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	
2. Trip Blank listed on COC:	☐		☐	
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume rec'd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www/accutest.com

D29759: Chain of Custody
Page 2 of 2

Mountain States ACCUTEST LABORATORIES

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D29759
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1104-MB	5V18467.D	1	11/28/11	DC	n/a	n/a	V5V1104

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

D29759-1

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	96%	61-130%
460-00-4	4-Bromofluorobenzene	92%	53-131%
17060-07-0	1,2-Dichloroethane-D4	122%	62-130%

Blank Spike Summary

Job Number: D29759
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1104-BS	5V18468.D	1	11/28/11	DC	n/a	n/a	V5V1104

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

D29759-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	58.6	117	70-130
100-41-4	Ethylbenzene	50	50.8	102	70-130
108-88-3	Toluene	50	48.7	97	70-130
1330-20-7	Xylene (total)	150	159	106	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	97%	61-130%
460-00-4	4-Bromofluorobenzene	108%	53-131%
17060-07-0	1,2-Dichloroethane-D4	125%	62-130%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D29759
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D29747-1MS	5V18470.D	1	11/28/11	DC	n/a	n/a	V5V1104
D29747-1MSD	5V18471.D	1	11/28/11	DC	n/a	n/a	V5V1104
D29747-1	5V18469.D	1	11/28/11	DC	n/a	n/a	V5V1104

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

D29759-1

CAS No.	Compound	D29747-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		2560	2830	110	3070	120	8	70-134/30
100-41-4	Ethylbenzene	32.1	J	2560	2440	94	2590	100	6	70-137/30
108-88-3	Toluene	108		2560	2260	84	2370	88	5	70-130/30
1330-20-7	Xylene (total)	462		7690	7910	97	8260	101	4	61-131/30

CAS No.	Surrogate Recoveries	MS	MSD	D29747-1	Limits
2037-26-5	Toluene-D8	86%	83%	92%	61-130%
460-00-4	4-Bromofluorobenzene	112%	113%	101%	53-131%
17060-07-0	1,2-Dichloroethane-D4	118%	118%	121%	62-130%

Mountain States ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5112811.S\
Data File : 5V18484.D
Acq On : 28 Nov 2011 8:52 pm
Operator : DONC
Sample : D29759-1, 50x
Misc : MS3001,V5V1104,5.001,,100,5,1
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Nov 29 08:06:31 2011
Quant Method : C:\msdchem\1\METHODS\V5AP1092TVH1092.M
Quant Title : 8260
QLast Update : Tue Nov 01 10:41:21 2011
Response via : Initial Calibration

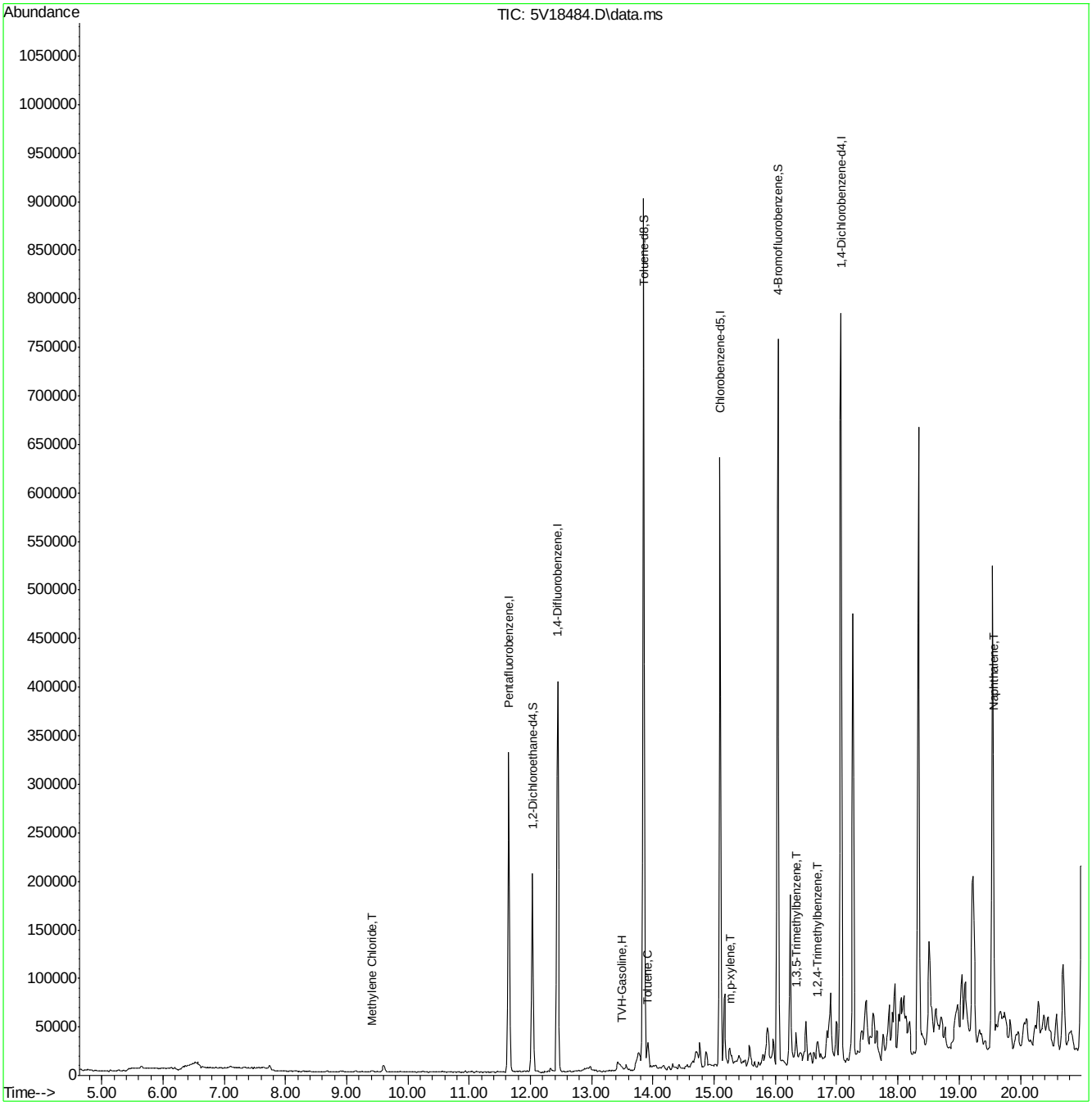
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	237746	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	319944	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	339355	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	249957	50.00	ug/l	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.035	102	29129	51.47	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 102.94%			
61) Toluene-d8	13.851	98	575325	38.14	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 76.28%			
69) 4-Bromofluorobenzene	16.043	95	228868	43.03	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 86.06%			
Target Compounds						Qvalue
1) TVH-Gasoline	13.491	TIC	1063809m	95.77	ug/l	
17) Methylene Chloride	9.421	84	1098	0.34	ug/l	88
62) Toluene	13.908	92	2789	0.28	ug/l #	56
72) m,p-xylene	15.255	106	3421	0.41	ug/l #	57
80) 1,3,5-Trimethylbenzene	16.340	105	10299	0.57	ug/l	94
82) 1,2,4-Trimethylbenzene	16.682	105	11054	0.60	ug/l #	83
91) Naphthalene	19.559	128	12495	1.79	ug/l	100

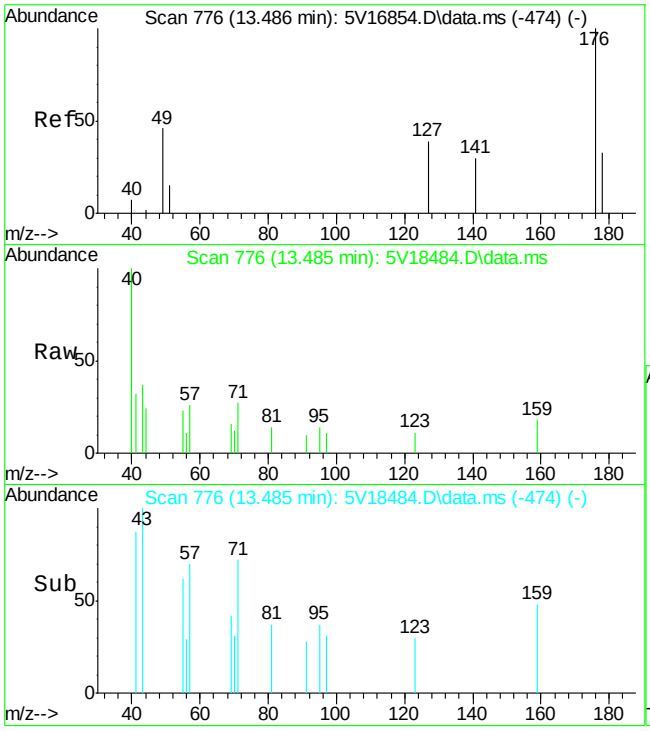
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5112811.S\
Data File : 5V18484.D
Acq On : 28 Nov 2011 8:52 pm
Operator : DONC
Sample : D29759-1, 50x
Misc : MS3001,V5V1104,5.001,,100,5,1
ALS Vial : 22 Sample Multiplier: 1

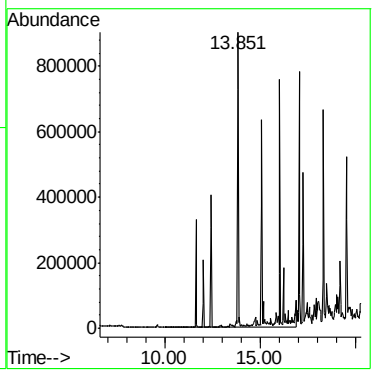
Quant Time: Nov 29 08:06:31 2011
Quant Method : C:\msdchem\1\METHODS\V5AP1092TVH1092.M
Quant Title : 8260
QLast Update : Tue Nov 01 10:41:21 2011
Response via : Initial Calibration

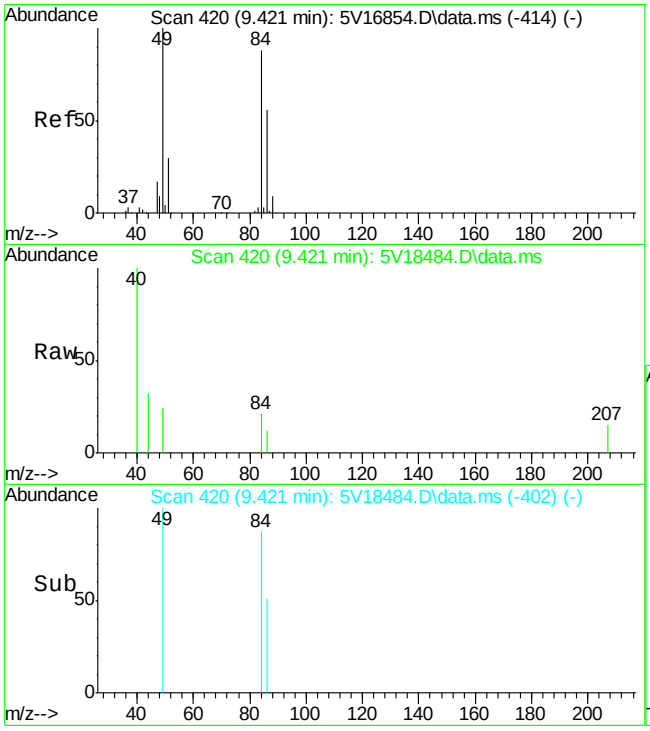




#1
TVH-Gasoline
Concen: 95.77 ug/l m
RT: 13.491 min Scan# 776
Delta R.T. 0.000 min
Lab File: 5V18484.D
Acq: 28 Nov 2011 8:52 pm

Tgt Ion:TIC Resp: 1063809

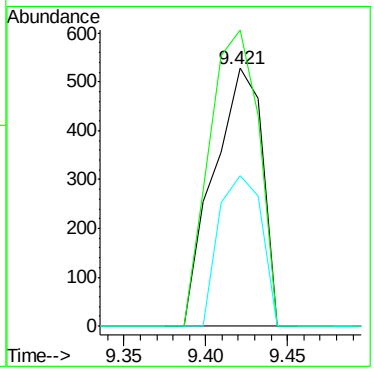


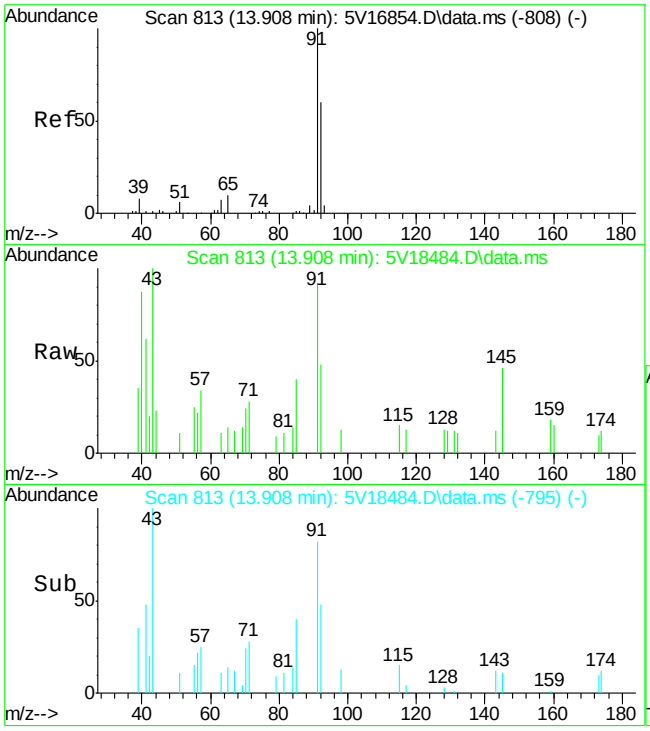


#17
Methylene Chloride
Concen: 0.34 ug/l
RT: 9.421 min Scan# 420
Delta R.T. 0.000 min
Lab File: 5V18484.D
Acq: 28 Nov 2011 8:52 pm

Tgt Ion: 84 Resp: 1098

Ion	Ratio	Lower	Upper
84	100		
49	116.7	108.8	148.8
86	51.6	43.2	83.2

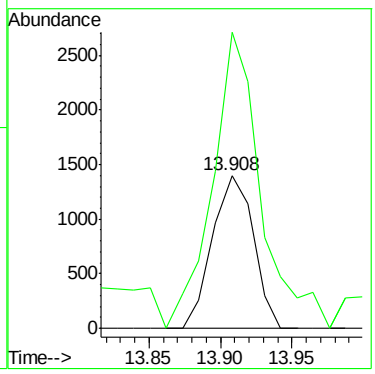


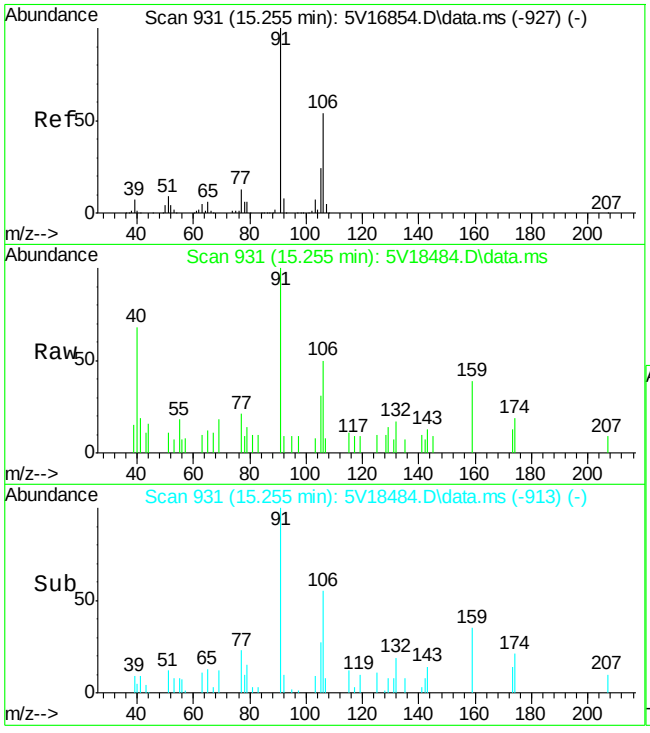


#62
Toluene
Concen: 0.28 ug/l
RT: 13.908 min Scan# 813
Delta R.T. 0.000 min
Lab File: 5V18484.D
Acq: 28 Nov 2011 8:52 pm

Tgt Ion: 92 Resp: 2789

Ion	Ratio	Lower	Upper
92	100		
91	227.6	147.5	187.5#

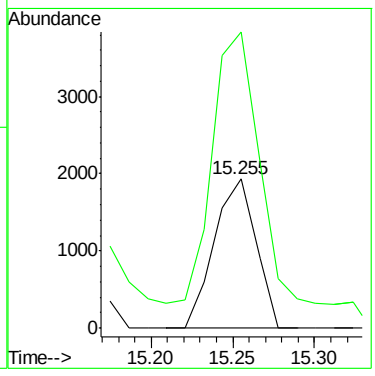


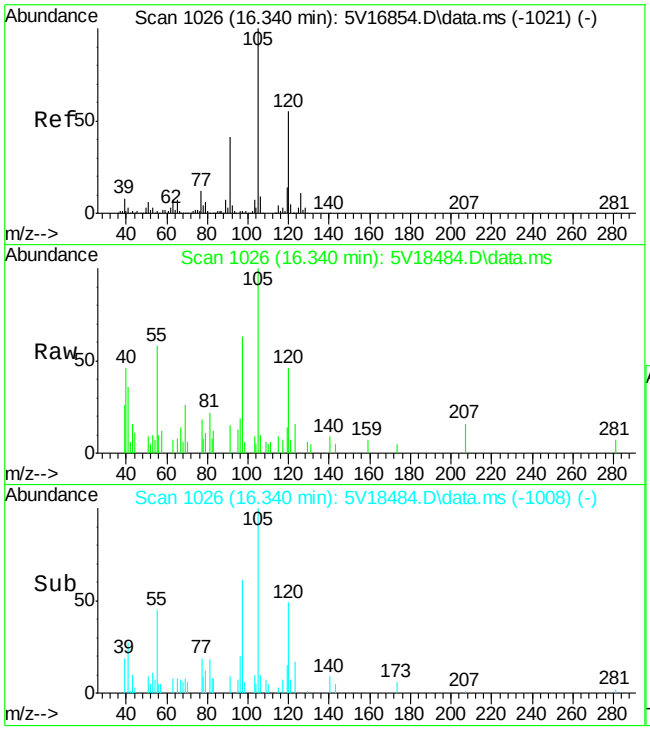


#72
m,p-xylene
Concen: 0.41 ug/l
RT: 15.255 min Scan# 931
Delta R.T. 0.001 min
Lab File: 5V18484.D
Acq: 28 Nov 2011 8:52 pm

Tgt Ion:106 Resp: 3421

Ion	Ratio	Lower	Upper
106	100		
91	263.0	178.3	218.3#

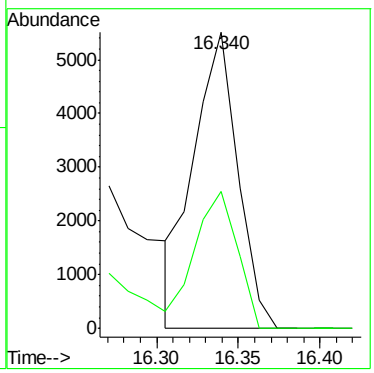


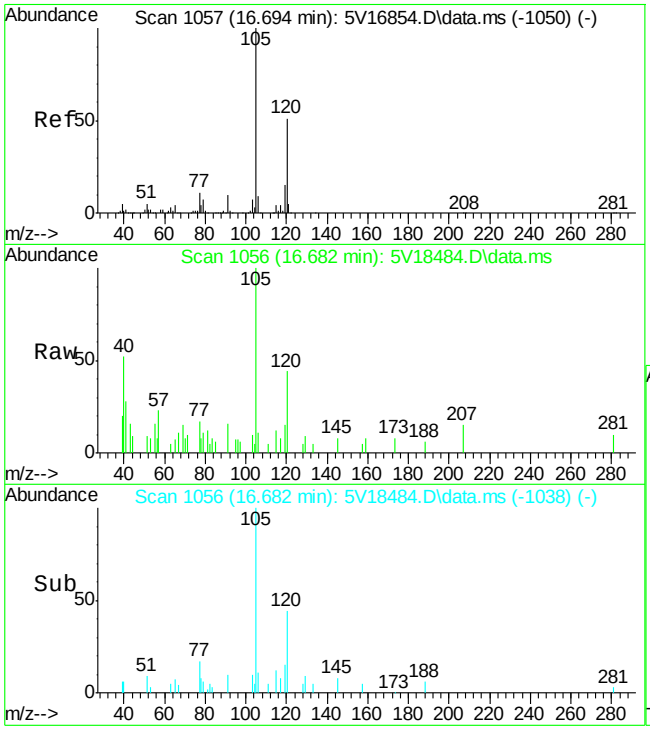


#80
1,3,5-Trimethylbenzene
Concen: 0.57 ug/l
RT: 16.340 min Scan# 1026
Delta R.T. 0.000 min
Lab File: 5V18484.D
Acq: 28 Nov 2011 8:52 pm

Tgt Ion:105 Resp: 10299

Ion	Ratio	Lower	Upper
105	100		
120	44.8	39.2	58.8

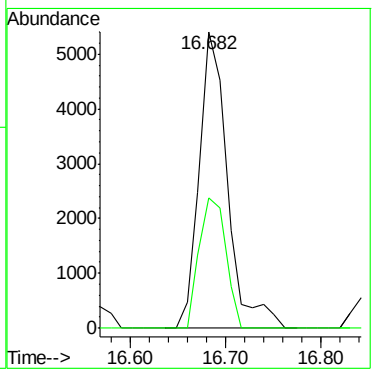


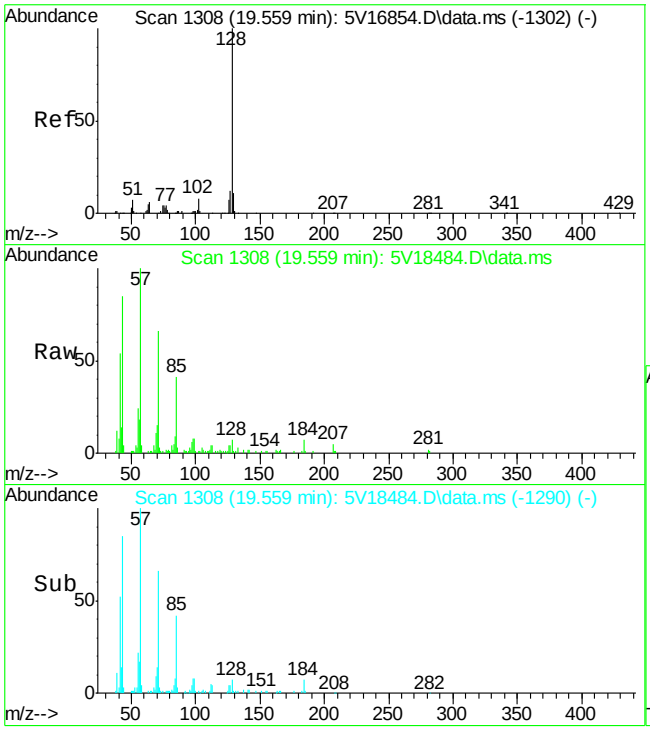


#82
1,2,4-Trimethylbenzene
Concen: 0.60 ug/l
RT: 16.682 min Scan# 1056
Delta R.T. 0.000 min
Lab File: 5V18484.D
Acq: 28 Nov 2011 8:52 pm

Tgt Ion:105 Resp: 11054

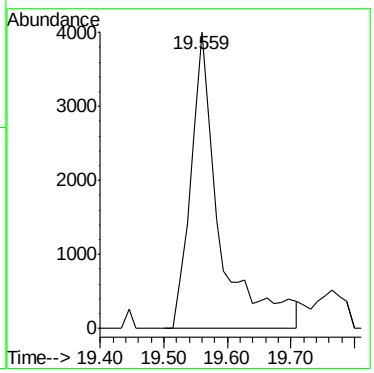
Ion	Ratio	Lower	Upper
105	100		
120	41.3	43.0	64.6#





#91
Naphthalene
Concen: 1.79 ug/l
RT: 19.559 min Scan# 1308
Delta R.T. 0.001 min
Lab File: 5V18484.D
Acq: 28 Nov 2011 8:52 pm

Tgt Ion:128 Resp: 12495



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5112811.S\
Data File : 5V18467.D
Acq On : 28 Nov 2011 11:55 am
Operator : DONC
Sample : MB, MEB112811
Misc : MS3001,V5V1104,5,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 29 07:36:22 2011
Quant Method : C:\msdchem\1\METHODS\V5AP1092TVH1092.M
Quant Title : 8260
QLast Update : Tue Nov 01 10:41:21 2011
Response via : Initial Calibration

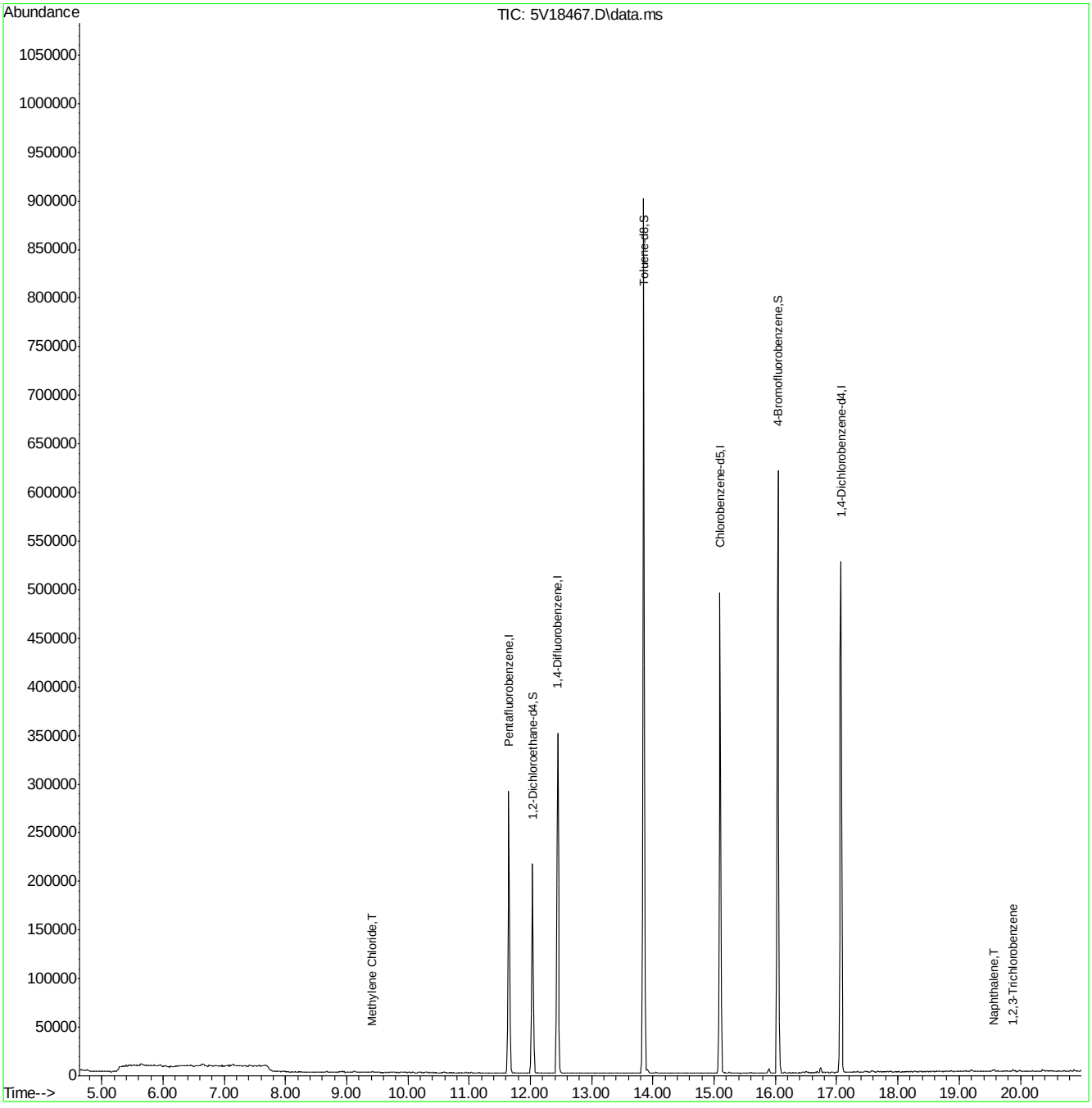
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	198965	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	263855	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	259267	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	165006	50.00	ug/l	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.035	102	28851	61.22	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 122.44%			
61) Toluene-d8	13.851	98	555717	48.22	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 96.44%			
69) 4-Bromofluorobenzene	16.043	95	186984	46.01	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.02%			
Target Compounds						Qvalue
1) TVH-Gasoline	13.491	TIC	-2839m	36.52	ug/l	
17) Methylene Chloride	9.421	84	832	0.31	ug/l #	81
91) Naphthalene	19.571	128	2363	0.96	ug/l	100
93) 1,2,3-Trichlorobenzene	19.879	180	1307	0.31	ug/l #	75

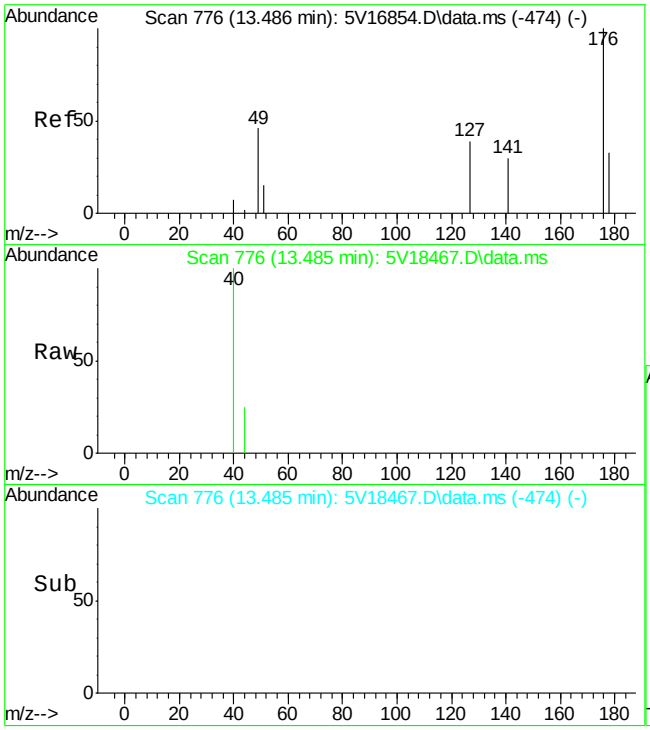
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5112811.S\
Data File : 5V18467.D
Acq On : 28 Nov 2011 11:55 am
Operator : DONC
Sample : MB, MEB112811
Misc : MS3001,V5V1104,5,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

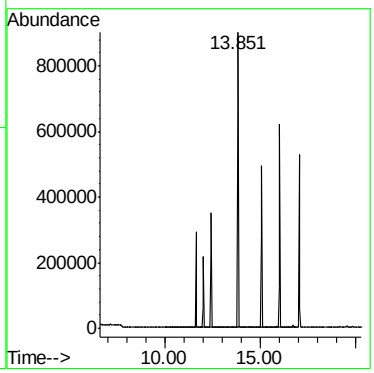
Quant Time: Nov 29 07:36:22 2011
Quant Method : C:\msdchem\1\METHODS\V5AP1092TVH1092.M
Quant Title : 8260
QLast Update : Tue Nov 01 10:41:21 2011
Response via : Initial Calibration

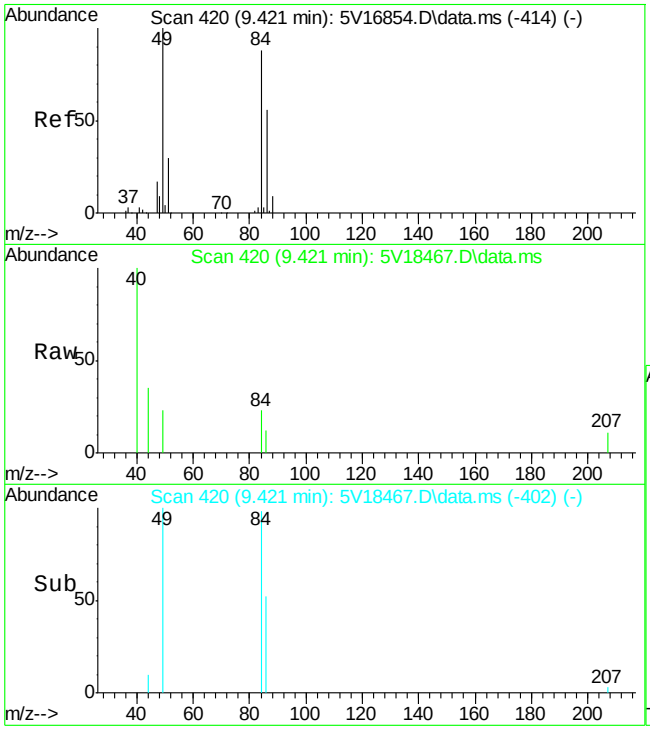




#1
TVH-Gasoline
Concen: 36.52 ug/l m
RT: 13.491 min Scan# 776
Delta R.T. 0.000 min
Lab File: 5V18467.D
Acq: 28 Nov 2011 11:55 am

Tgt Ion:TIC Resp: -2839

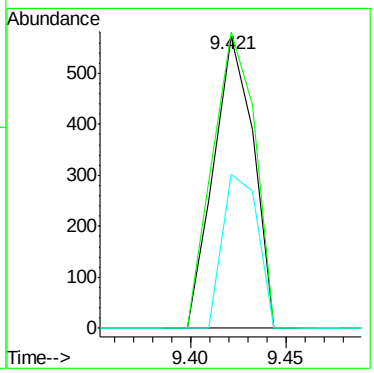


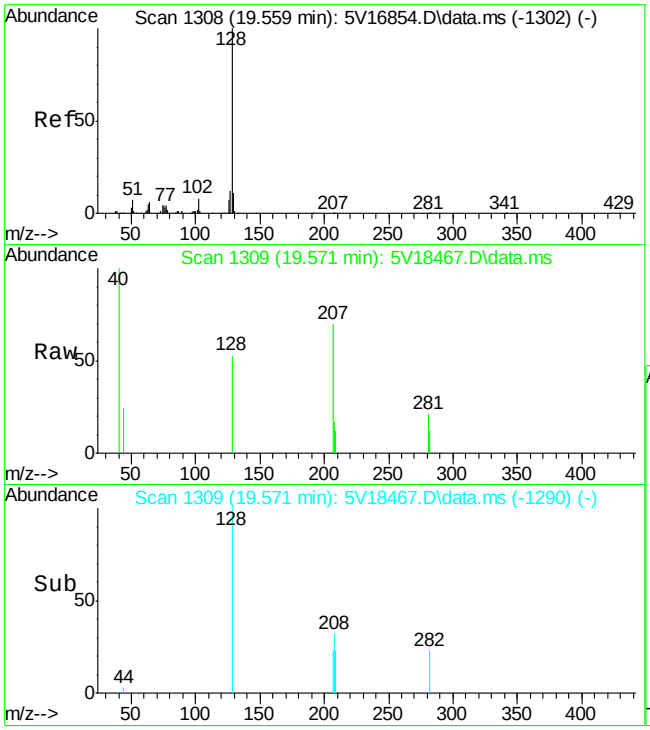


#17
Methylene Chloride
Concen: 0.31 ug/l
RT: 9.421 min Scan# 420
Delta R.T. 0.000 min
Lab File: 5V18467.D
Acq: 28 Nov 2011 11:55 am

Tgt Ion: 84 Resp: 832

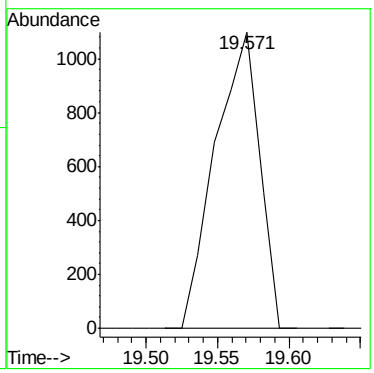
Ion	Ratio	Lower	Upper
84	100		
49	107.8	108.8	148.8#
86	46.9	43.2	83.2

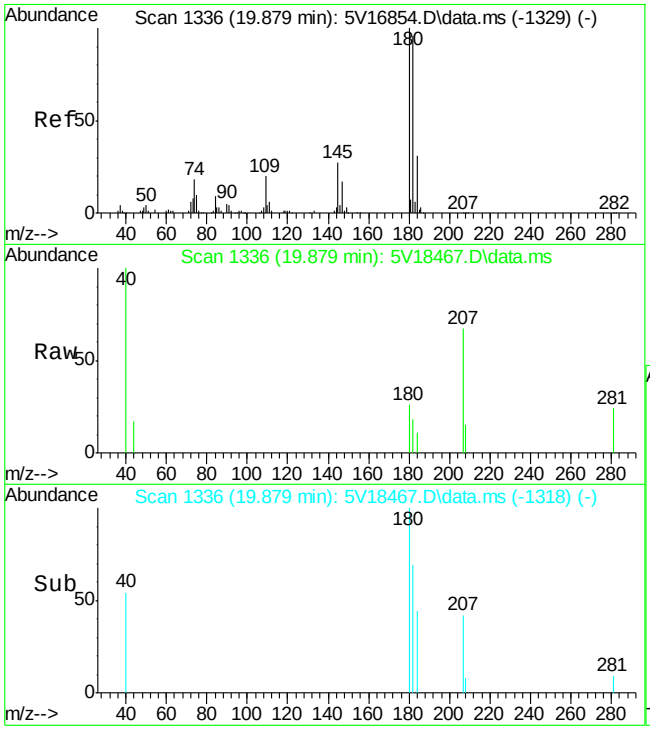




#91
Naphthalene
Concen: 0.96 ug/l
RT: 19.571 min Scan# 1309
Delta R.T. 0.013 min
Lab File: 5V18467.D
Acq: 28 Nov 2011 11:55 am

Tgt Ion:128 Resp: 2363

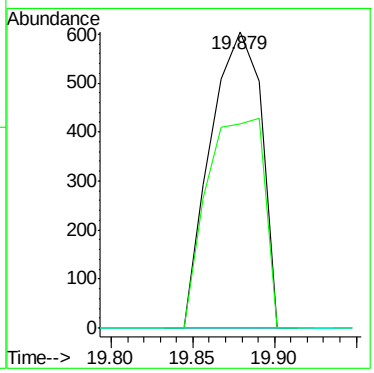




#93
1,2,3-Trichlorobenzene
Concen: 0.31 ug/l
RT: 19.879 min Scan# 1336
Delta R.T. 0.000 min
Lab File: 5V18467.D
Acq: 28 Nov 2011 11:55 am

Tgt Ion:180 Resp: 1307

Ion	Ratio	Lower	Upper
180	100		
182	79.6	77.0	115.6
145	0.0	22.1	33.1#



Mountain States ACCUTEST LABORATORIES

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

Job Number: D29759
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4929-MB	3G07152.D	1	12/07/11	DC	11/30/11	OP4929	E3G262

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

D29759-1

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	92%	10-145%
321-60-8	2-Fluorobiphenyl	88%	10-130%
1718-51-0	Terphenyl-d14	101%	22-130%

Blank Spike Summary

Job Number: D29759
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4929-BS	3G07153.D	1	12/07/11	DC	11/30/11	OP4929	E3G262

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

D29759-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	61.9	74	34-130
120-12-7	Anthracene	83.3	69.7	84	35-130
56-55-3	Benzo(a)anthracene	83.3	72.0	86	36-130
50-32-8	Benzo(a)pyrene	83.3	62.3	75	36-130
205-99-2	Benzo(b)fluoranthene	83.3	66.7	80	35-130
207-08-9	Benzo(k)fluoranthene	83.3	70.4	84	37-130
218-01-9	Chrysene	83.3	67.9	81	40-130
53-70-3	Dibenzo(a,h)anthracene	83.3	64.0	77	32-130
206-44-0	Fluoranthene	83.3	58.9	71	38-130
86-73-7	Fluorene	83.3	70.1	84	35-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	60.6	73	28-130
91-20-3	Naphthalene	83.3	65.2	78	35-130
129-00-0	Pyrene	83.3	70.9	85	37-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	77%	10-145%
321-60-8	2-Fluorobiphenyl	72%	10-130%
1718-51-0	Terphenyl-d14	91%	22-130%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D29759
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4929-MS	3G07154.D	1	12/07/11	DC	11/30/11	OP4929	E3G262
OP4929-MSD	3G07155.D	1	12/07/11	DC	11/30/11	OP4929	E3G262
D29647-1R [a]	3G07176.D	5	12/08/11	DC	11/30/11	OP4929	E3G262

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

D29759-1

CAS No.	Compound	D29647-1R ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		92.2	72.3	78	68.0	74	6	10-155/30
120-12-7	Anthracene	ND		92.2	65.9	71	61.6	67	7	10-155/30
56-55-3	Benzo(a)anthracene	ND		92.2	71.8	78	74.4	81	4	10-175/30
50-32-8	Benzo(a)pyrene	ND		92.2	57.0	62	62.2	67	9	10-164/30
205-99-2	Benzo(b)fluoranthene	ND		92.2	67.5	73	67.4	73	0	10-165/30
207-08-9	Benzo(k)fluoranthene	ND		92.2	69.2	75	72.6	79	5	10-178/30
218-01-9	Chrysene	ND		92.2	72.0	78	74.1	80	3	10-147/30
53-70-3	Dibenzo(a,h)anthracene	ND		92.2	64.8	70	68.8	74	6	10-144/30
206-44-0	Fluoranthene	ND		92.2	94.0	102	83.4	90	12	10-207/30
86-73-7	Fluorene	79.5		92.2	139	65	130	55	7	10-163/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		92.2	62.7	68	64.7	70	3	10-180/30
91-20-3	Naphthalene	ND		92.2	89.5	97	85.4	92	5	10-198/30
129-00-0	Pyrene	ND		92.2	61.4	67	68.9	75	12	10-189/30

CAS No.	Surrogate Recoveries	MS	MSD	D29647-1R	Limits
4165-60-0	Nitrobenzene-d5	82%	83%	78%	10-145%
321-60-8	2-Fluorobiphenyl	68%	67%	71%	10-130%
1718-51-0	Terphenyl-d14	62%	66%	71%	22-130%

(a) Elevated RL due to matrix interference.

Mountain States ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\120711\
Data File : 3g07169.D
Acq On : 8 Dec 2011 8:57 am
Operator : DONC
Sample : D29759-1, 5x
Misc : OP4929,E3G262,30.04,,,1,5
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 08 10:09:51 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G262.M
Quant Title : PAHSIM BASE
QLast Update : Thu Dec 08 09:26:11 2011
Response via : Initial Calibration

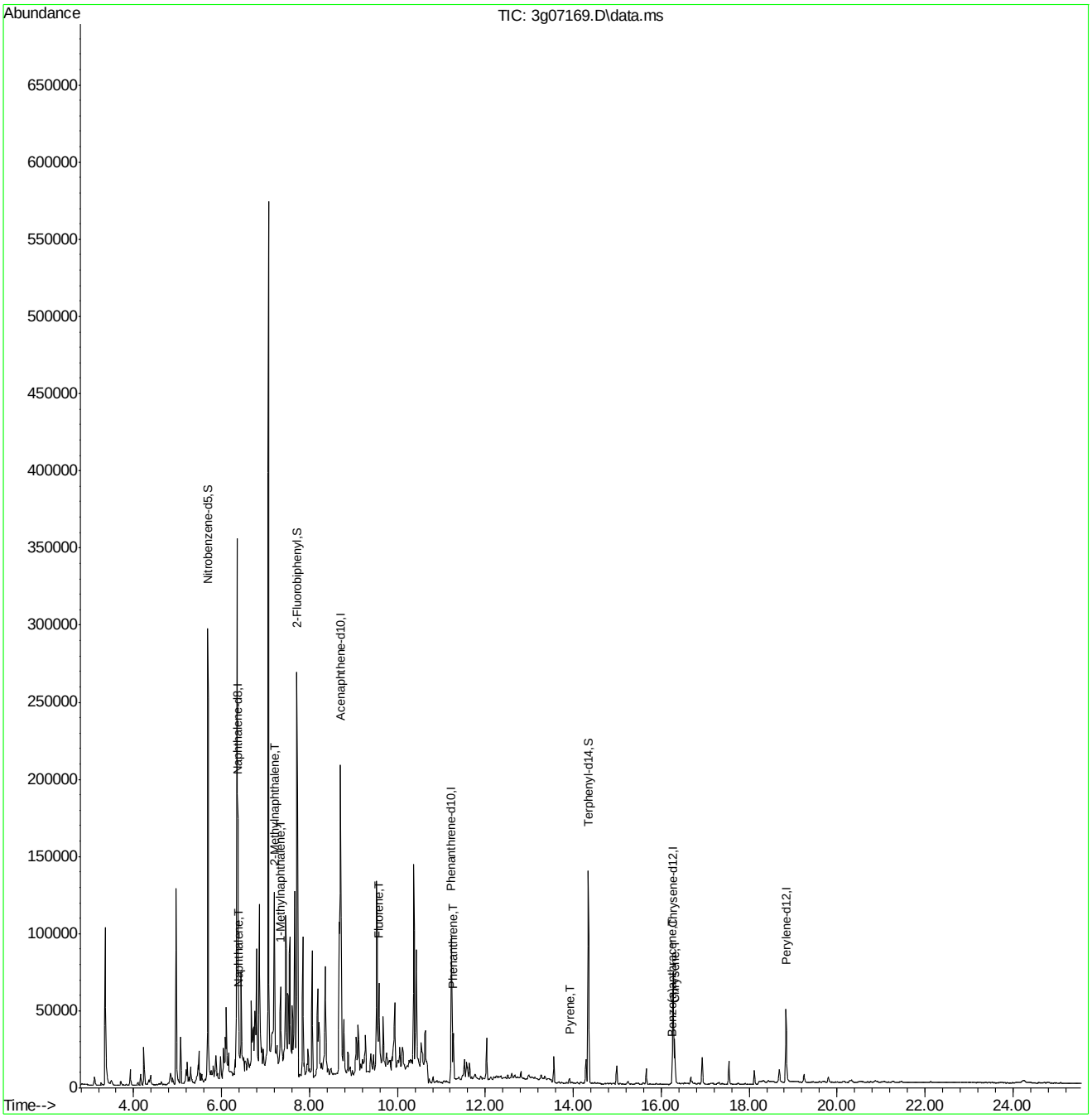
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.370	136	131281	4.00	ug/mL	0.00
6) Acenaphthene-d10	8.709	164	74924	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.232	188	114414	4.00	ug/mL	0.00
18) Chrysene-d12	16.269	240	89129	4.00	ug/mL	0.00
23) Perylene-d12	18.838	264	58784	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.685	82	144997	9.24	ug/mL	-0.01
7) 2-Fluorobiphenyl	7.716	172	240283	8.17	ug/mL	-0.01
20) Terphenyl-d14	14.342	244	150321	8.43	ug/mL	-0.02
Target Compounds						Qvalue
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	6.395	128	21865	0.53	ug/mL#	1
8) 2-Methylnaphthalene	7.206	142	57701	2.11	ug/mL	84
9) 1-Methylnaphthalene	7.343	142	19652	0.76	ug/mL#	66
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	9.583	166	22824	0.91	ug/mL#	9
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	11.271	178	30656	0.74	ug/mL	78
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	13.915	202	3391	0.10	ug/mL	89
21) Benzo(a)anthracene	16.243	228	817	0.03	ug/mL#	17
22) Chrysene	16.316	228	2076	0.08	ug/mL#	42
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	

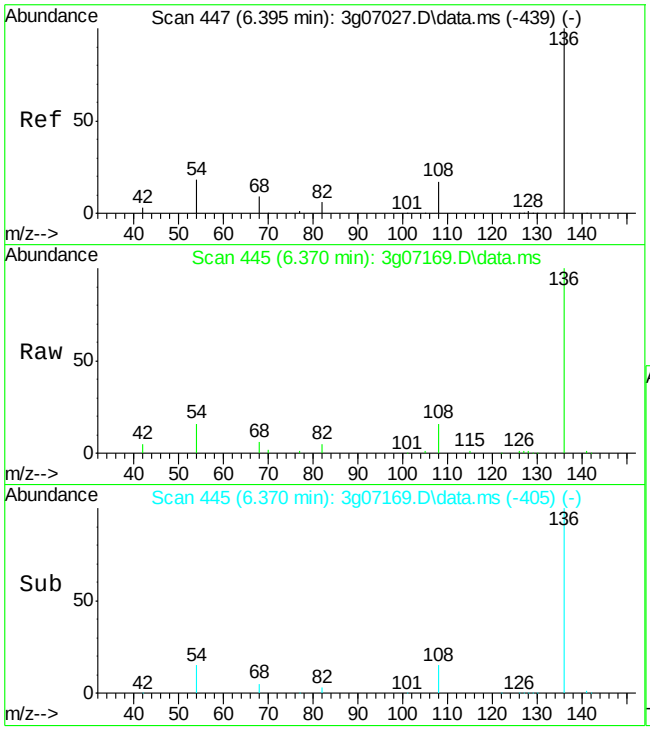
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\120711\
Data File : 3g07169.D
Acq On : 8 Dec 2011 8:57 am
Operator : DONC
Sample : D29759-1, 5x
Misc : OP4929,E3G262,30.04,,,1,5
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 08 10:09:51 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G262.M
Quant Title : PAHSIM BASE
QLast Update : Thu Dec 08 09:26:11 2011
Response via : Initial Calibration

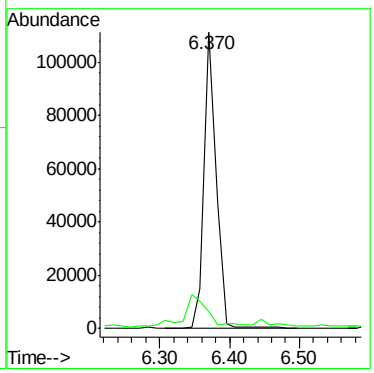


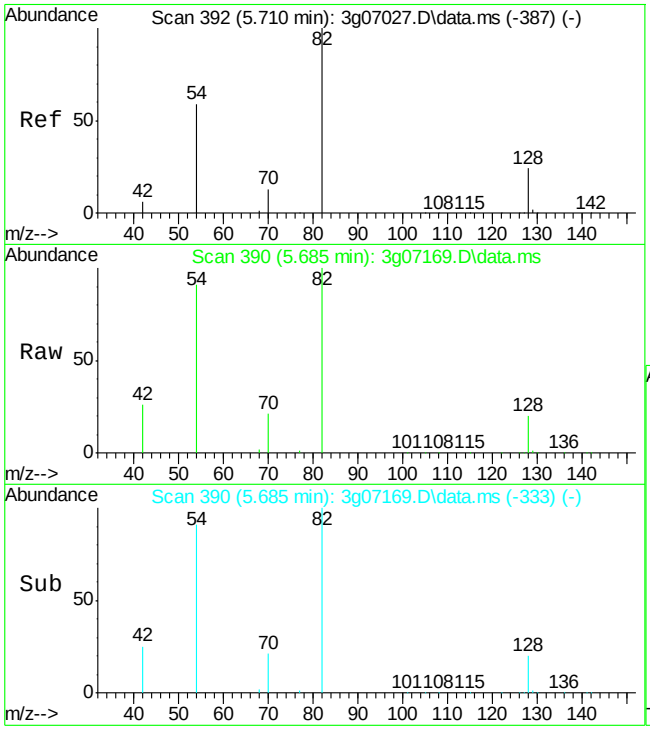


#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.370 min Scan# 445
Delta R.T. 0.000 min
Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion:136 Resp: 131281

Ion	Ratio	Lower	Upper
136	100		
68	20.2	0.0	27.5

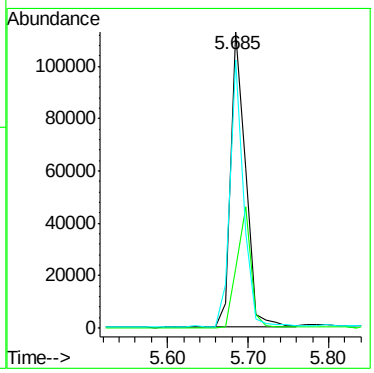


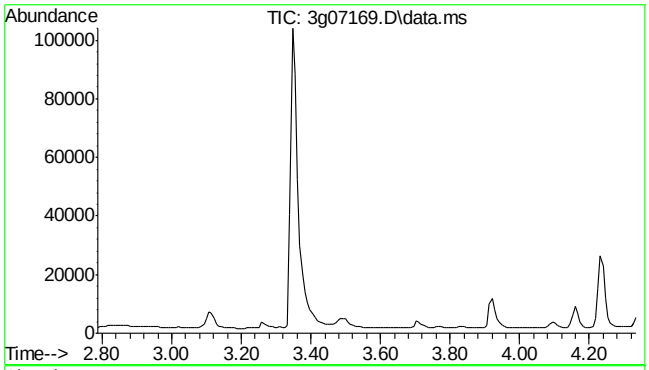


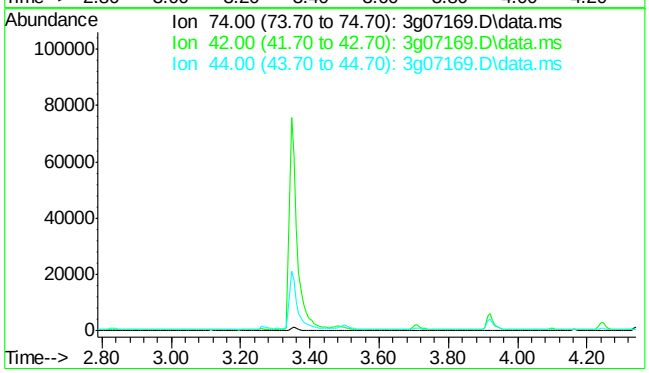
#2
Nitrobenzene-d5
Concen: 9.24 ug/mL
RT: 5.685 min Scan# 390
Delta R.T. -0.012 min
Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion: 82 Resp: 144997

Ion	Ratio	Lower	Upper
82	100		
128	39.3	22.2	62.2
54	84.3	32.9	72.9#





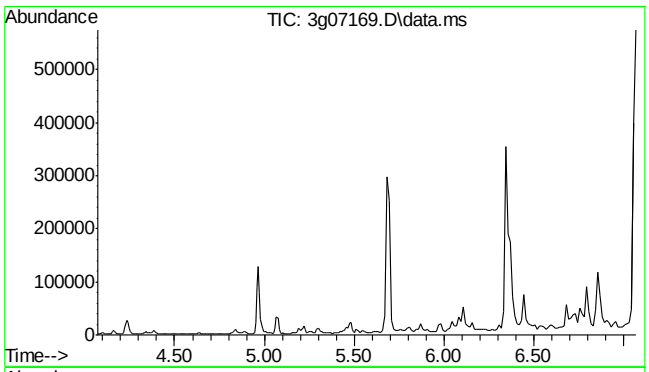


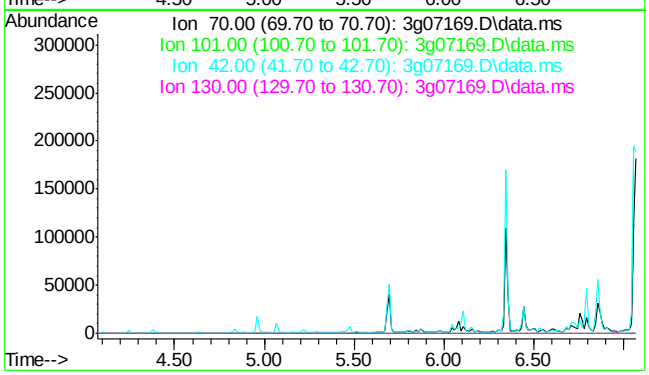
#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.84 min

Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion: 74

Sig	Exp Ratio
74	100
42	62.7
44	4.7



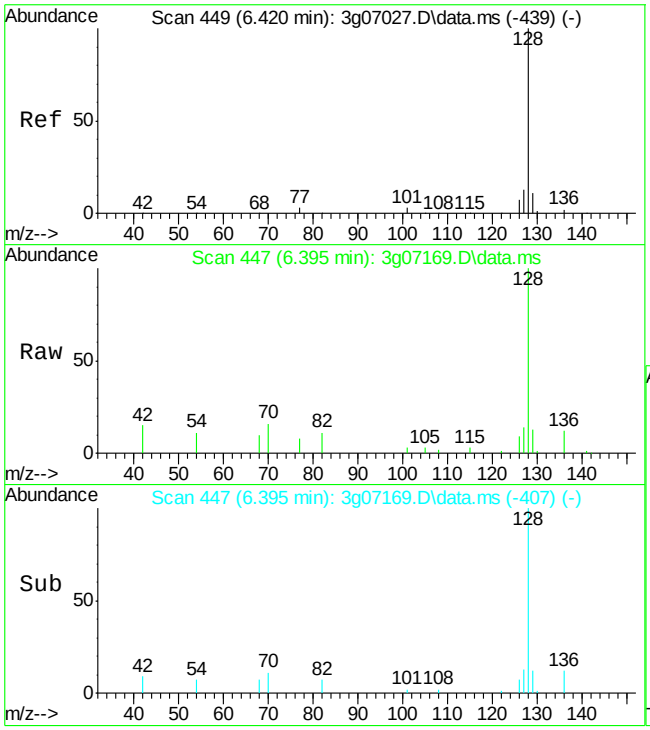


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.57 min

Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion: 70

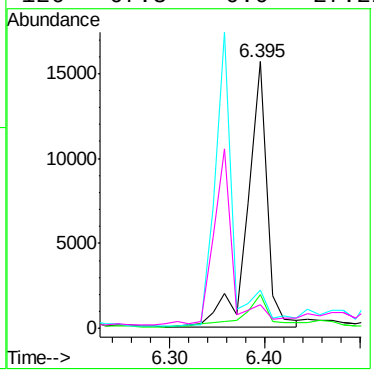
Sig	Exp Ratio
70	100
101	12.9
42	56.3
130	25.7

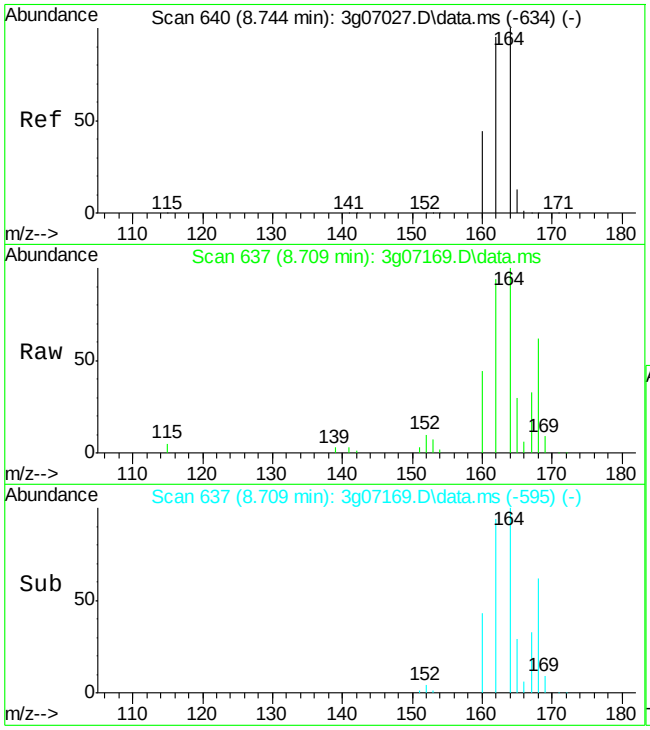


#5
Naphthalene
Concen: 0.53 ug/mL
RT: 6.395 min Scan# 447
Delta R.T. 0.000 min
Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion:128 Resp: 21865

Ion	Ratio	Lower	Upper
128	100		
129	16.1	0.0	31.0
127	104.1	0.0	32.5#
126	67.3	0.0	27.2#

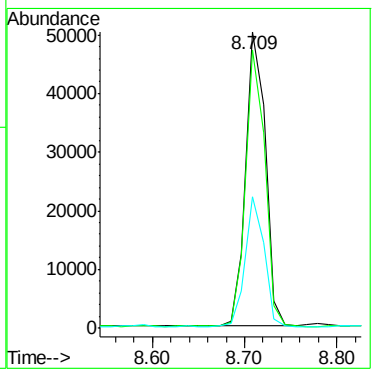


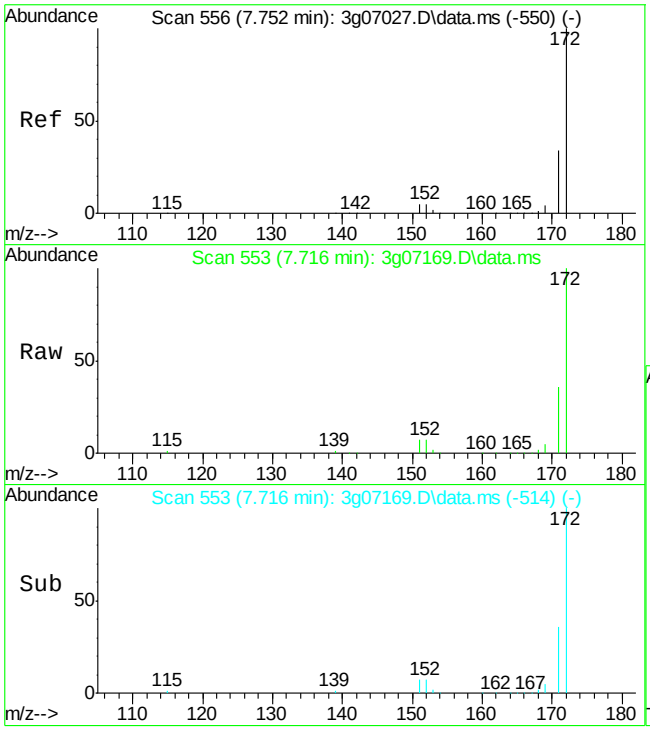


#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 8.709 min Scan# 637
Delta R.T. 0.000 min
Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion:164 Resp: 74924

Ion	Ratio	Lower	Upper
164	100		
162	92.5	71.7	111.7
160	42.8	21.3	61.3

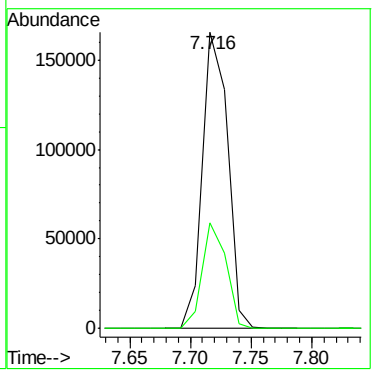


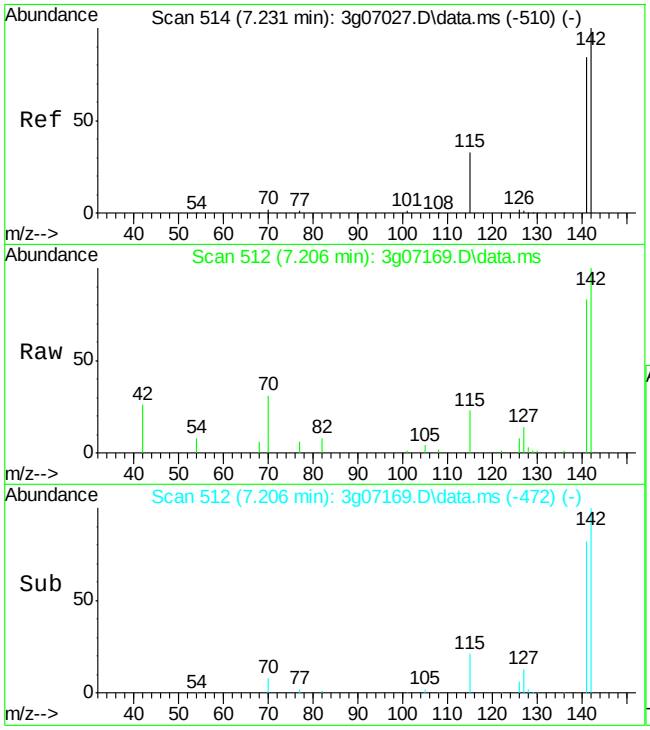


#7
2-Fluorobiphenyl
Concen: 8.17 ug/mL
RT: 7.716 min Scan# 553
Delta R.T. -0.012 min
Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion:172 Resp: 240283

Ion	Ratio	Lower	Upper
172	100		
171	34.2	12.5	52.5

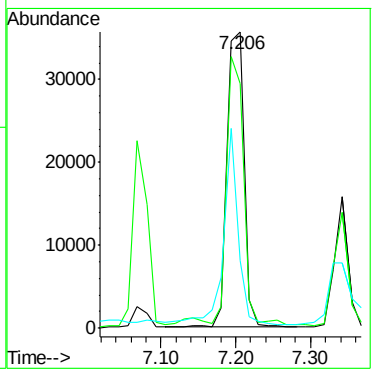


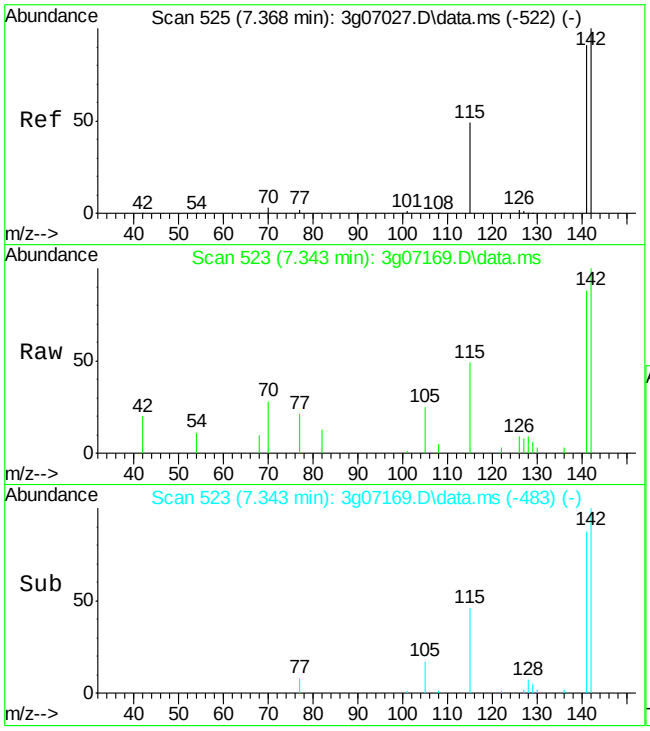


#8
2-Methylnaphthalene
Concen: 2.11 ug/mL
RT: 7.206 min Scan# 512
Delta R.T. 0.000 min
Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion:142 Resp: 57701

Ion	Ratio	Lower	Upper
142	100		
141	89.9	62.4	102.4
115	55.7	16.5	56.5

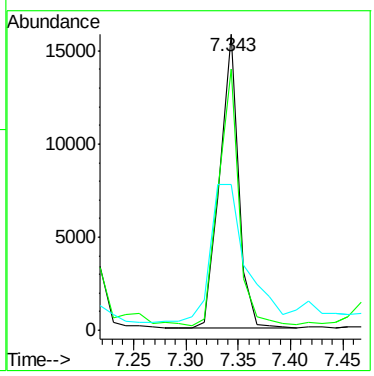


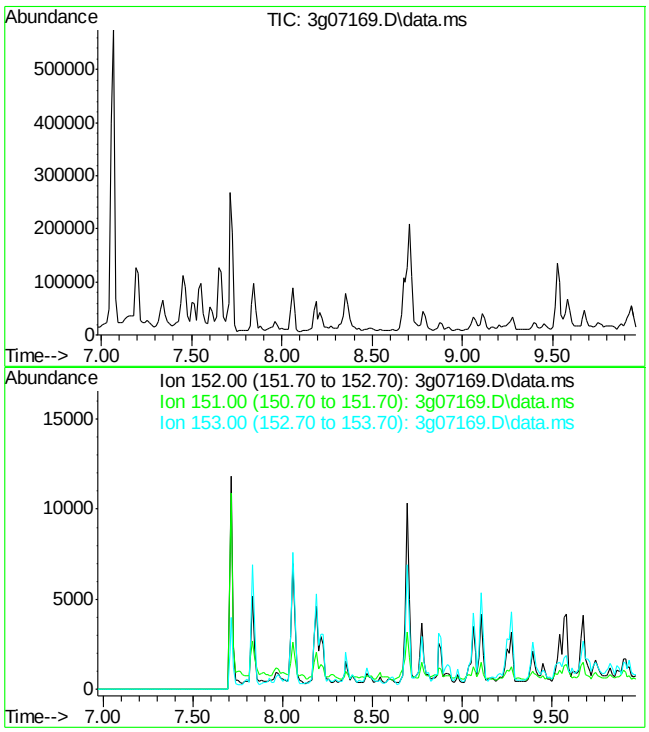


#9
1-Methylnaphthalene
Concen: 0.76 ug/mL
RT: 7.343 min Scan# 523
Delta R.T. 0.000 min
Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion:142 Resp: 19652

Ion	Ratio	Lower	Upper
142	100		
141	94.9	68.1	102.1
115	91.4	31.3	46.9#



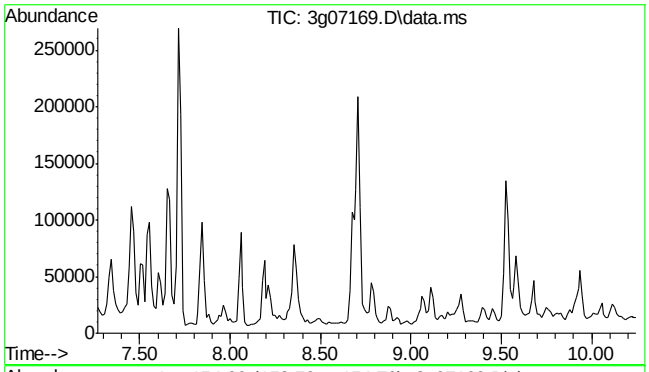


#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.47 min

Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion: 152

Sig	Exp Ratio
152	100
151	18.8
153	13.0

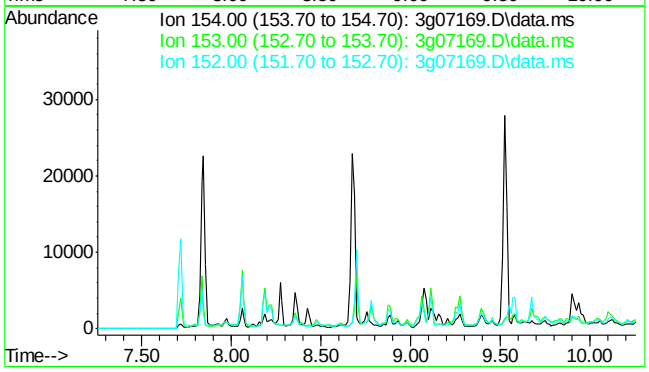


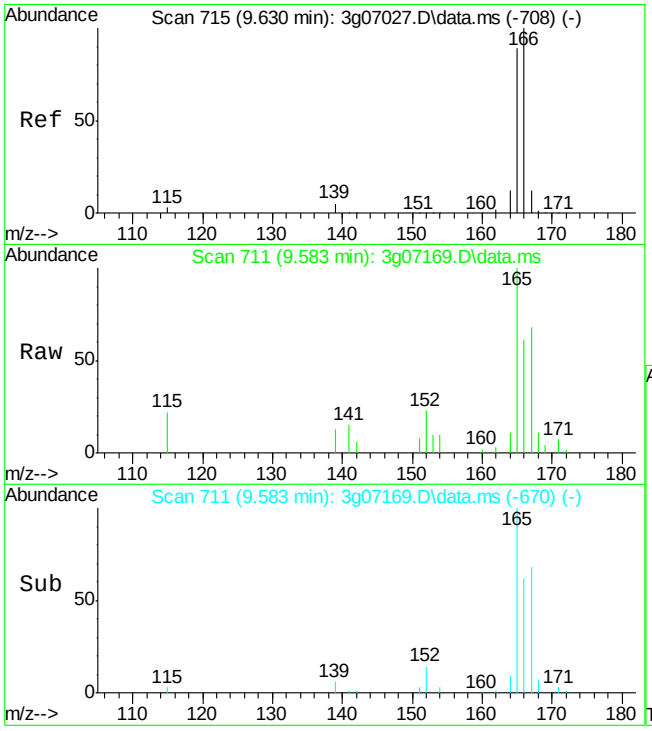
#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 8.76 min

Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion: 154

Sig	Exp Ratio
154	100
153	102.1
152	48.4

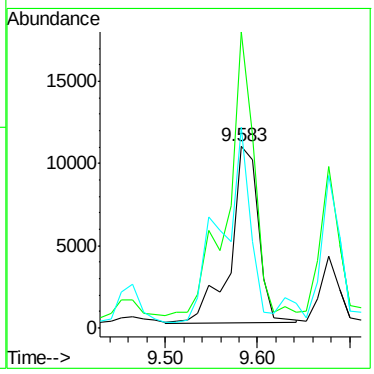


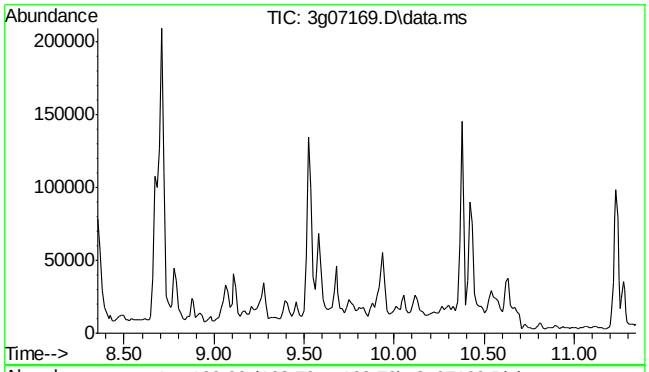


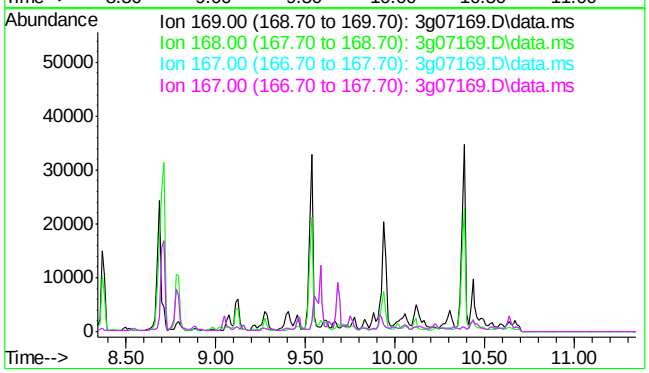
#12
Fluorene
Concen: 0.91 ug/mL
RT: 9.583 min Scan# 711
Delta R.T. -0.012 min
Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion:166 Resp: 22824

Ion	Ratio	Lower	Upper
166	100		
165	153.3	69.2	109.2#
167	113.8	0.0	32.0#





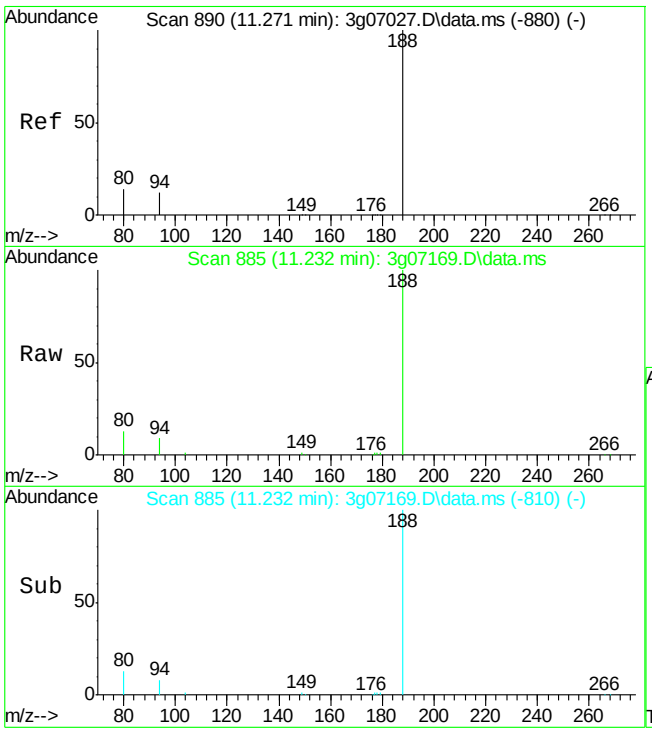


#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 9.84 min

Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion: 169

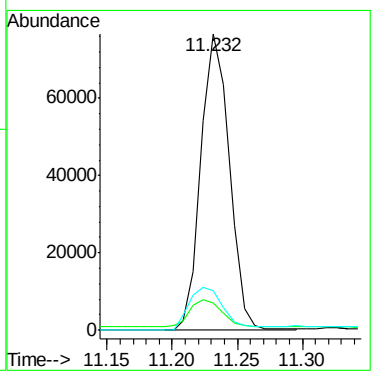
Sig	Exp Ratio
169	100
168	60.5
167	32.9
167	32.9

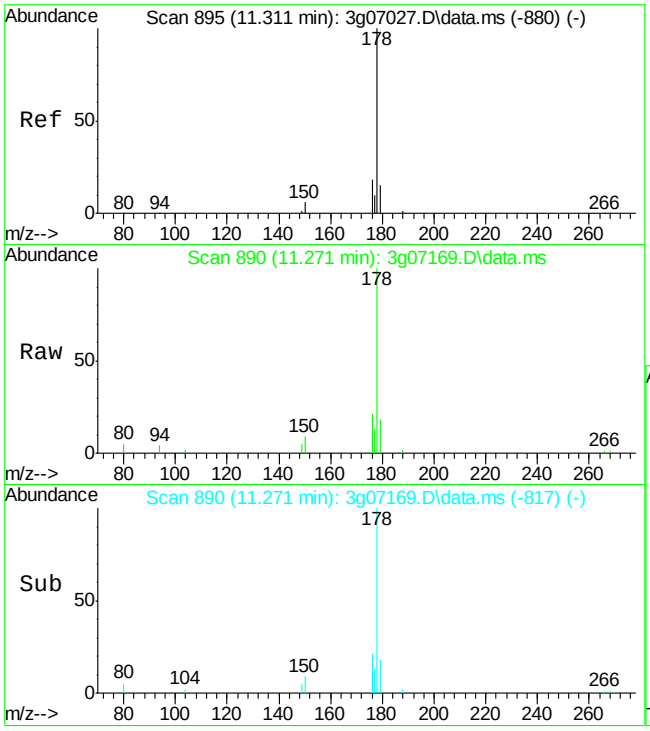


#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.232 min Scan# 885
Delta R.T. 0.000 min
Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion:188 Resp: 114414

Ion	Ratio	Lower	Upper
188	100		
94	10.4	0.0	34.2
80	18.4	0.0	36.8

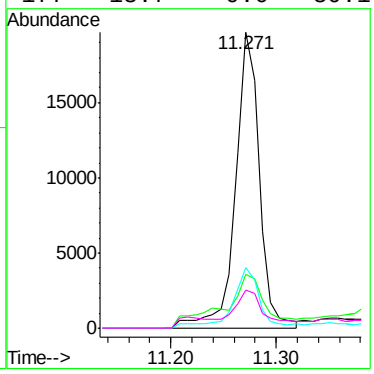


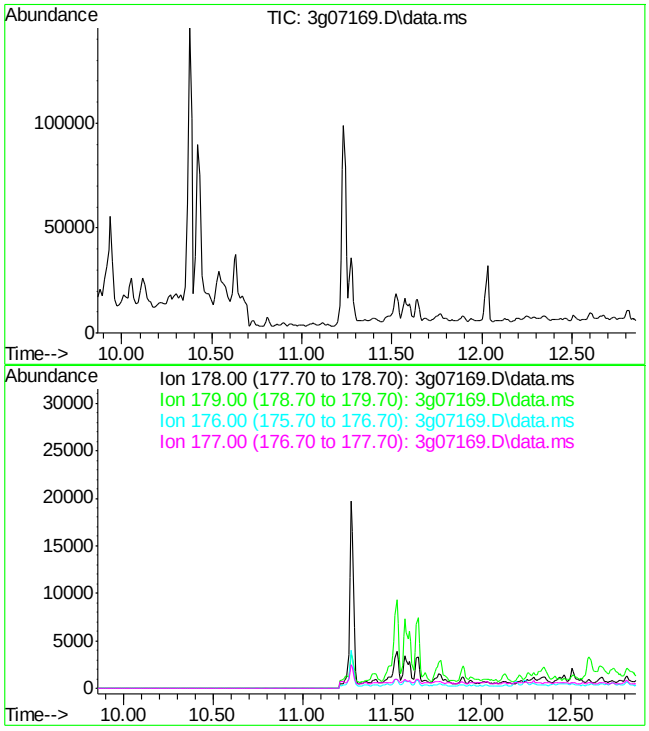


#15
Phenanthrene
Concen: 0.74 ug/mL
RT: 11.271 min Scan# 890
Delta R.T. -0.008 min
Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion:178 Resp: 30656

Ion	Ratio	Lower	Upper
178	100		
179	32.4	0.0	35.3
176	23.7	0.0	38.3
177	13.7	0.0	30.1



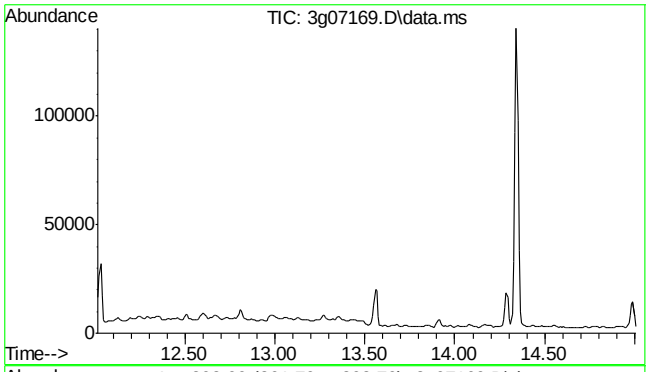


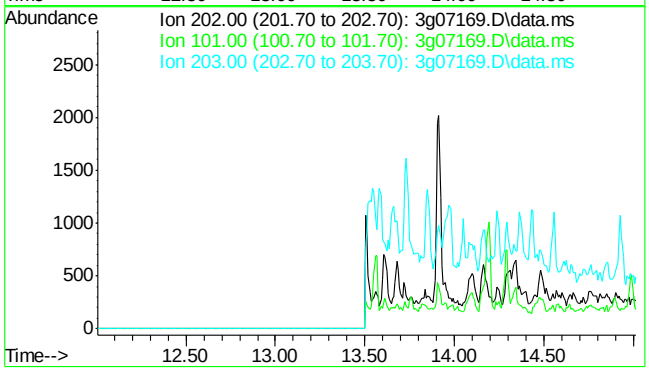
#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.36 min

Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion: 178

Sig	Exp Ratio
178	100
179	15.1
176	17.8
177	8.7



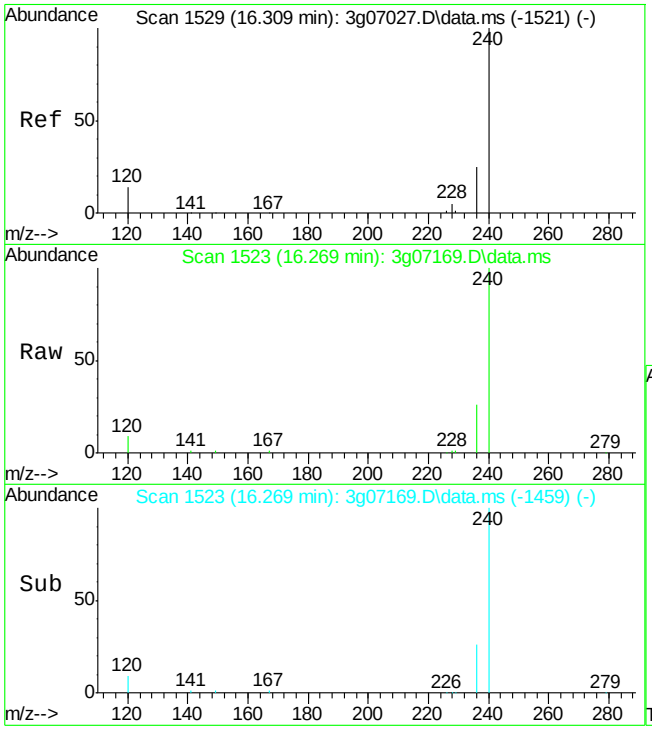


#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 13.51 min

Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion: 202

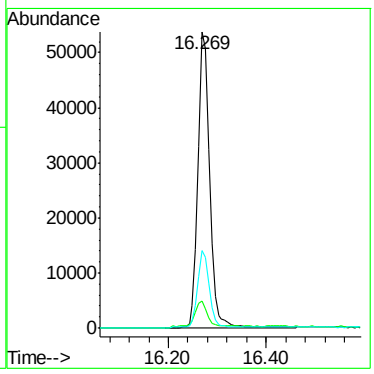
Sig	Exp Ratio
202	100
101	12.8
203	18.0

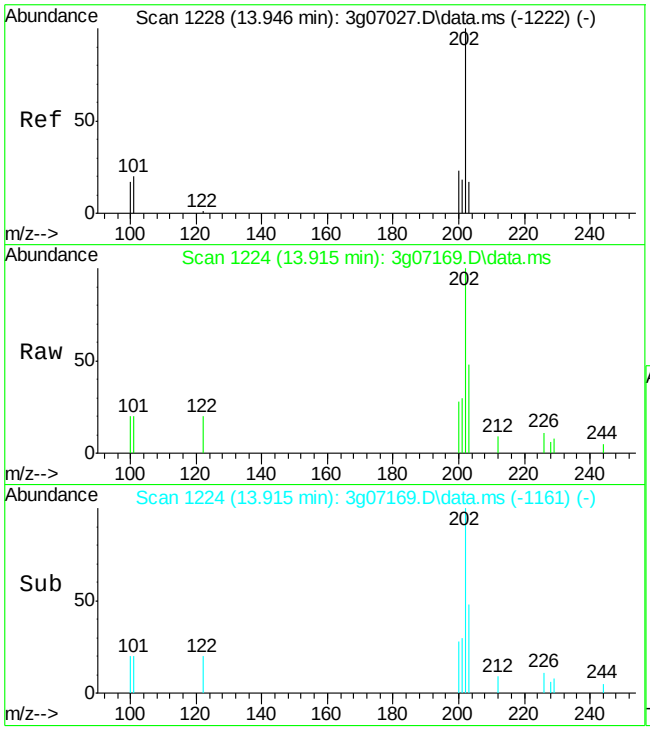


#18
Chrysene-d12
Concen: 4.00 ug/mL
RT: 16.269 min Scan# 1523
Delta R.T. -0.007 min
Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion:240 Resp: 89129

Ion	Ratio	Lower	Upper
240	100		
120	11.6	0.0	38.6
236	26.7	5.2	45.2

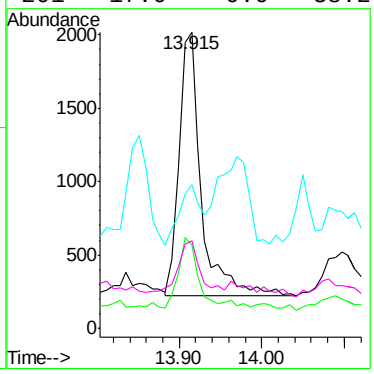


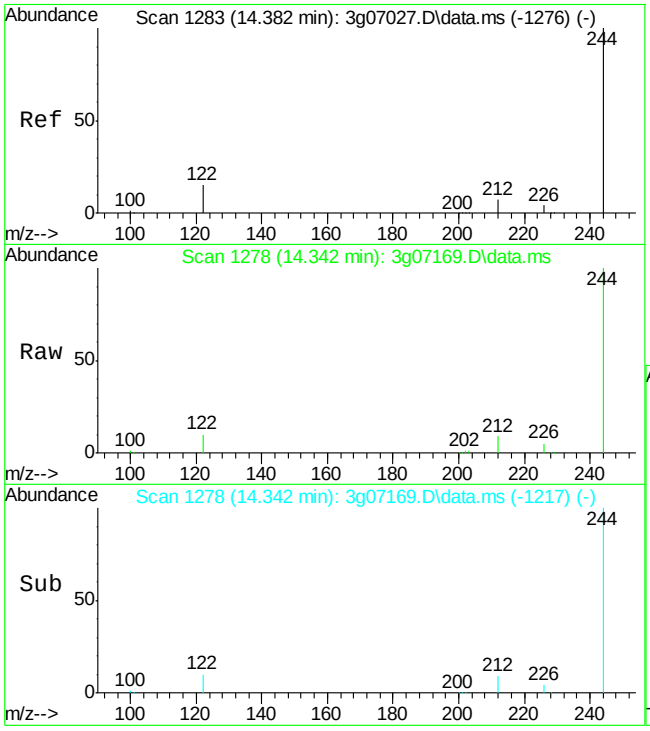


#19
Pyrene
Concen: 0.10 ug/mL
RT: 13.915 min Scan# 1224
Delta R.T. 0.000 min
Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion:202 Resp: 3391

Ion	Ratio	Lower	Upper
202	100		
200	25.1	2.1	42.1
203	28.7	0.0	37.8
201	17.0	0.0	38.2

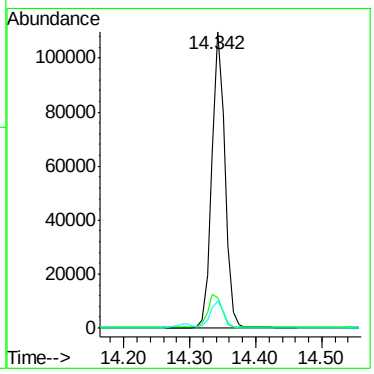


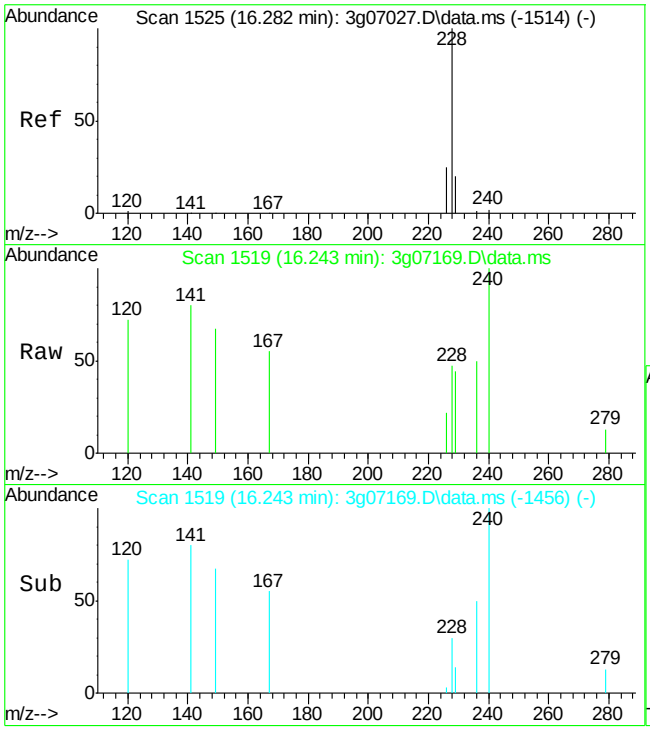


#20
Terphenyl-d14
Concen: 8.43 ug/mL
RT: 14.342 min Scan# 1278
Delta R.T. -0.016 min
Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion:244 Resp: 150321

Ion	Ratio	Lower	Upper
244	100		
122	11.8	0.8	40.8
212	9.3	0.0	27.2

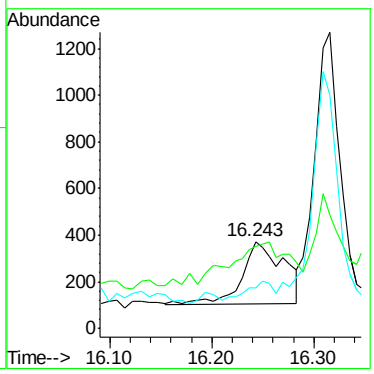


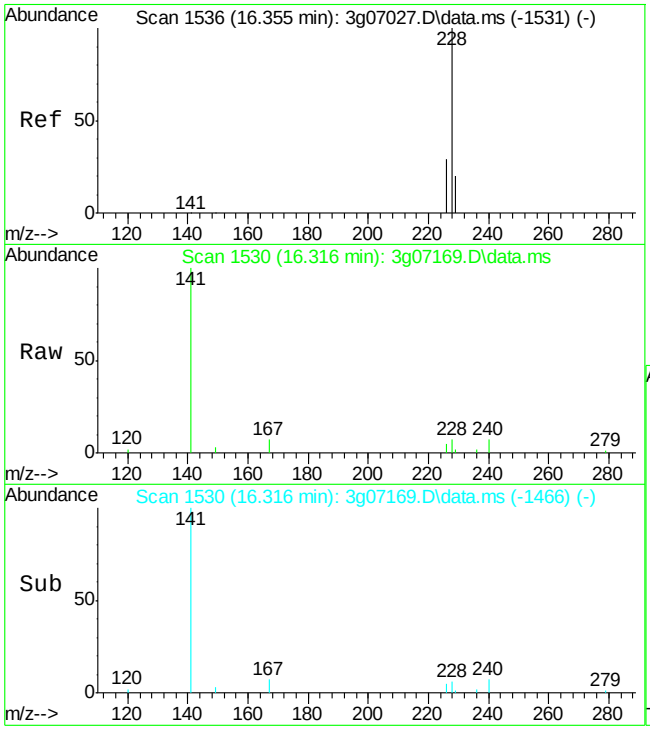


#21
Benzo(a)anthracene
Concen: 0.03 ug/mL
RT: 16.243 min Scan# 1519
Delta R.T. -0.006 min
Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion:228 Resp: 817

Ion	Ratio	Lower	Upper
228	100		
229	97.9	0.0	39.6#
226	17.4	6.6	46.6

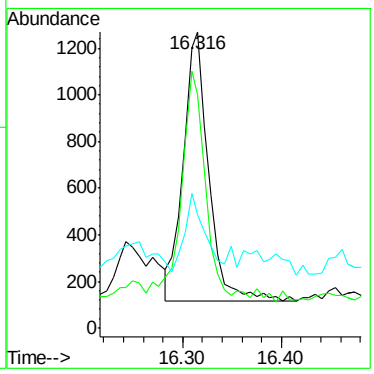


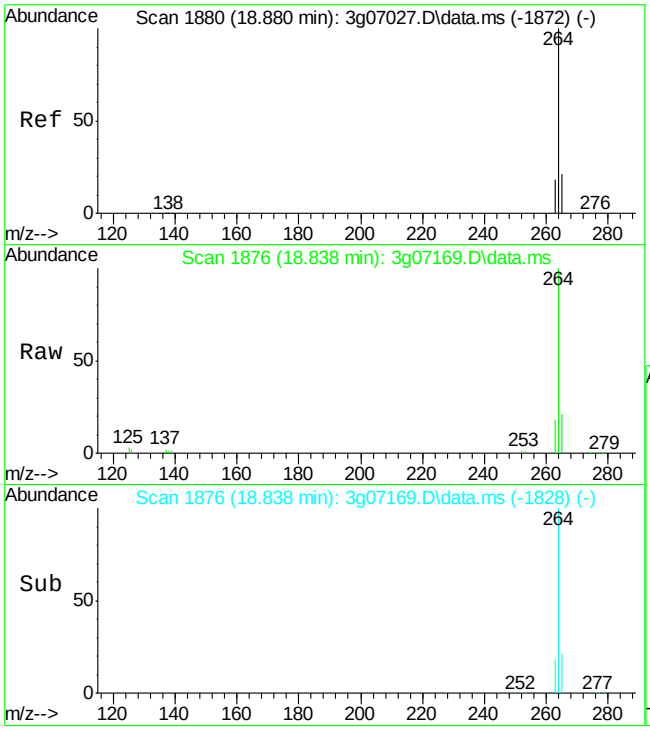


#22
Chrysene
Concen: 0.08 ug/mL
RT: 16.316 min Scan# 1530
Delta R.T. -0.013 min
Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion:228 Resp: 2076

Ion	Ratio	Lower	Upper
228	100		
226	75.5	7.4	47.4#
229	23.3	0.0	39.2

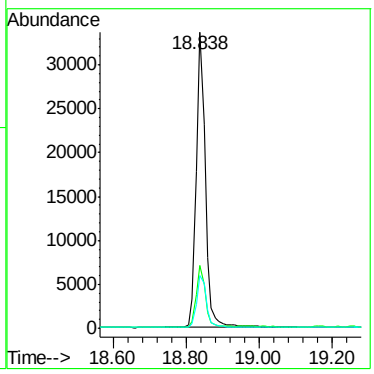


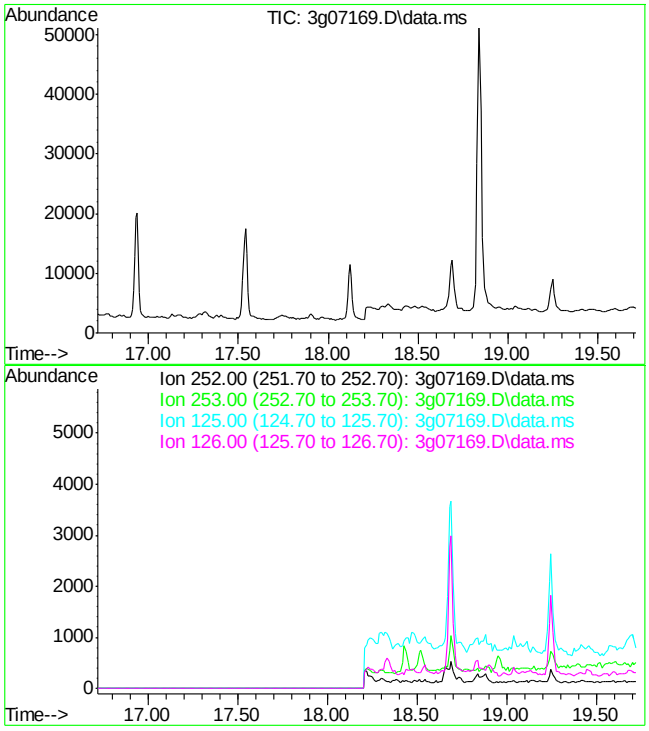


#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 18.838 min Scan# 1876
Delta R.T. 0.000 min
Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion:264 Resp: 58784

Ion	Ratio	Lower	Upper
264	100		
265	20.6	1.0	41.0
263	19.5	0.0	38.6



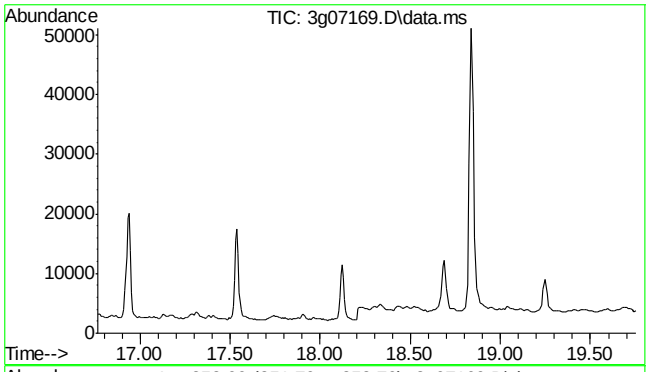


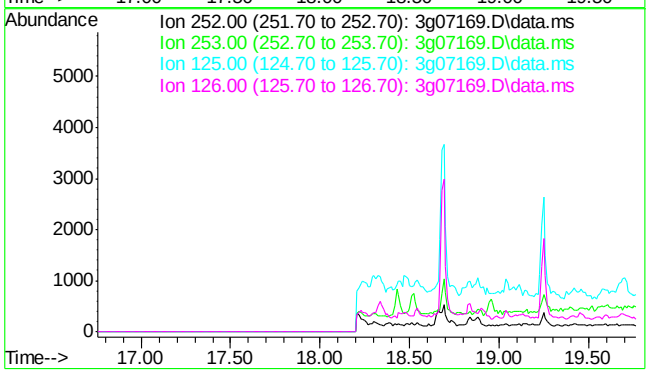
#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.22 min

Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	66.5
125	35.4
126	50.6



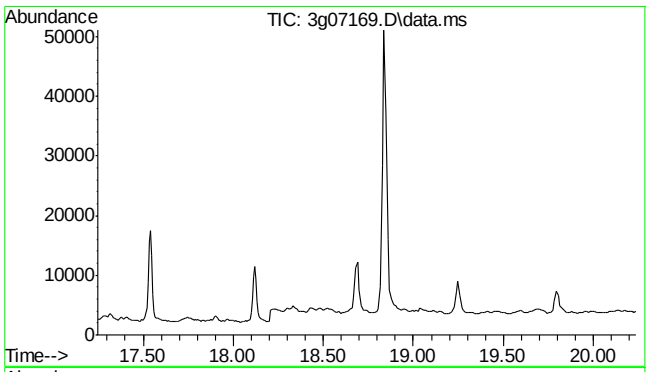


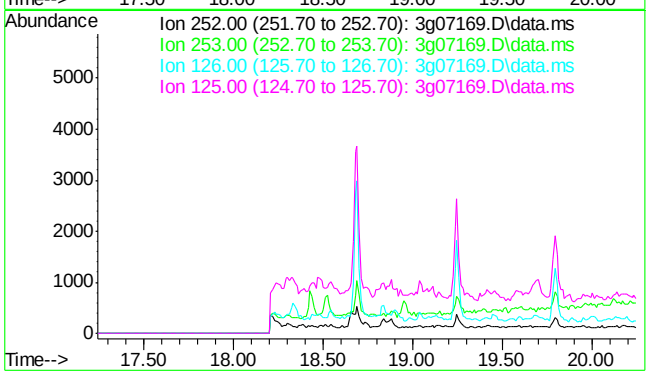
#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.26 min

Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	37.7
125	20.1
126	28.7



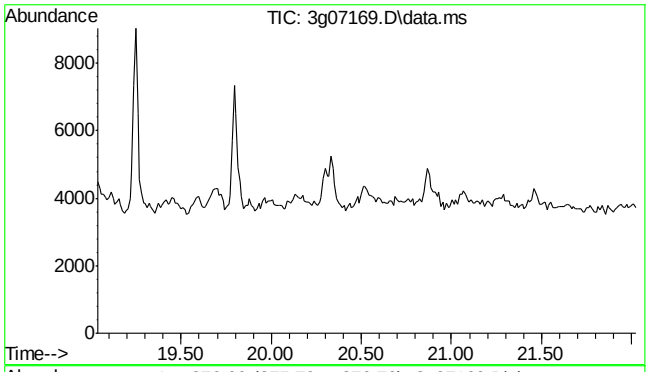


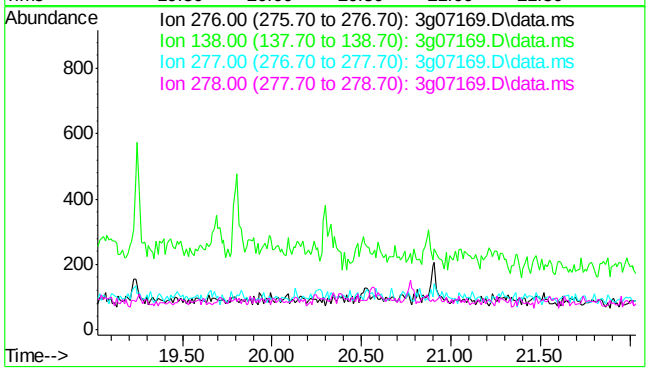
#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 18.74 min

Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	21.4
126	18.6
125	14.0



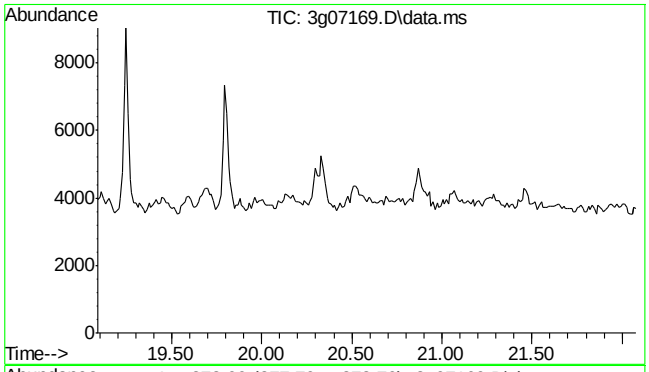


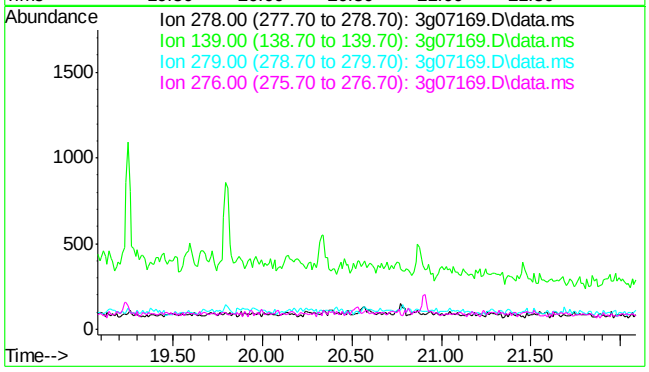
#27
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 20.53 min

Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion: 276

Sig	Exp Ratio
276	100
138	28.2
277	28.3
278	3.7



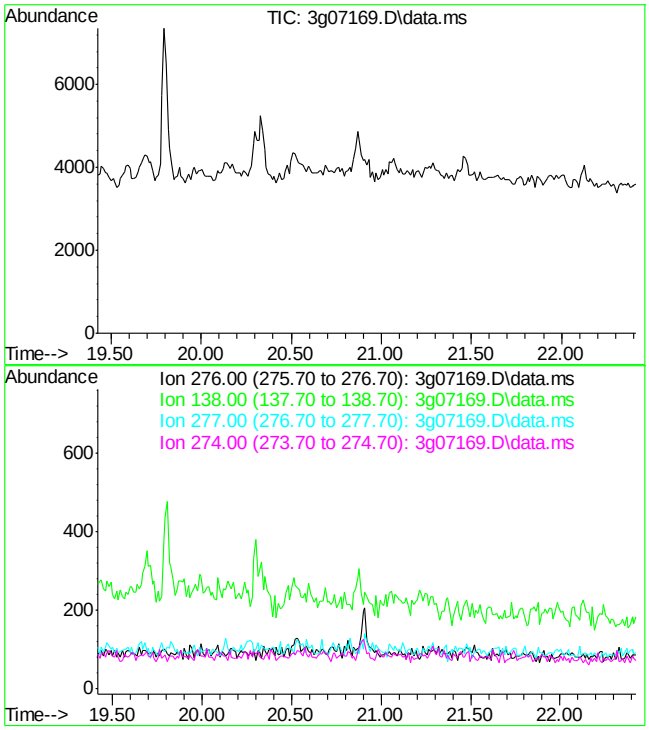


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 20.58 min

Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion: 278

Sig	Exp Ratio
278	100
139	18.1
279	23.6
276	125.3



#29
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 20.92 min

Lab File: 3g07169.D
Acq: 8 Dec 11 8:57 am

Tgt Ion: 276

Sig	Exp Ratio
276	100
138	23.3
277	23.1
274	20.6

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\120711\
Data File : 3g07175.D
Acq On : 8 Dec 2011 12:47 pm
Operator : DONC
Sample : D29759-1, 10x
Misc : OP4929,E3G262,30.04,,,1,10
ALS Vial : 35 Sample Multiplier: 1

Quant Time: Dec 09 07:30:29 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G262.M
Quant Title : PAHSIM BASE
QLast Update : Thu Dec 08 09:26:11 2011
Response via : Initial Calibration

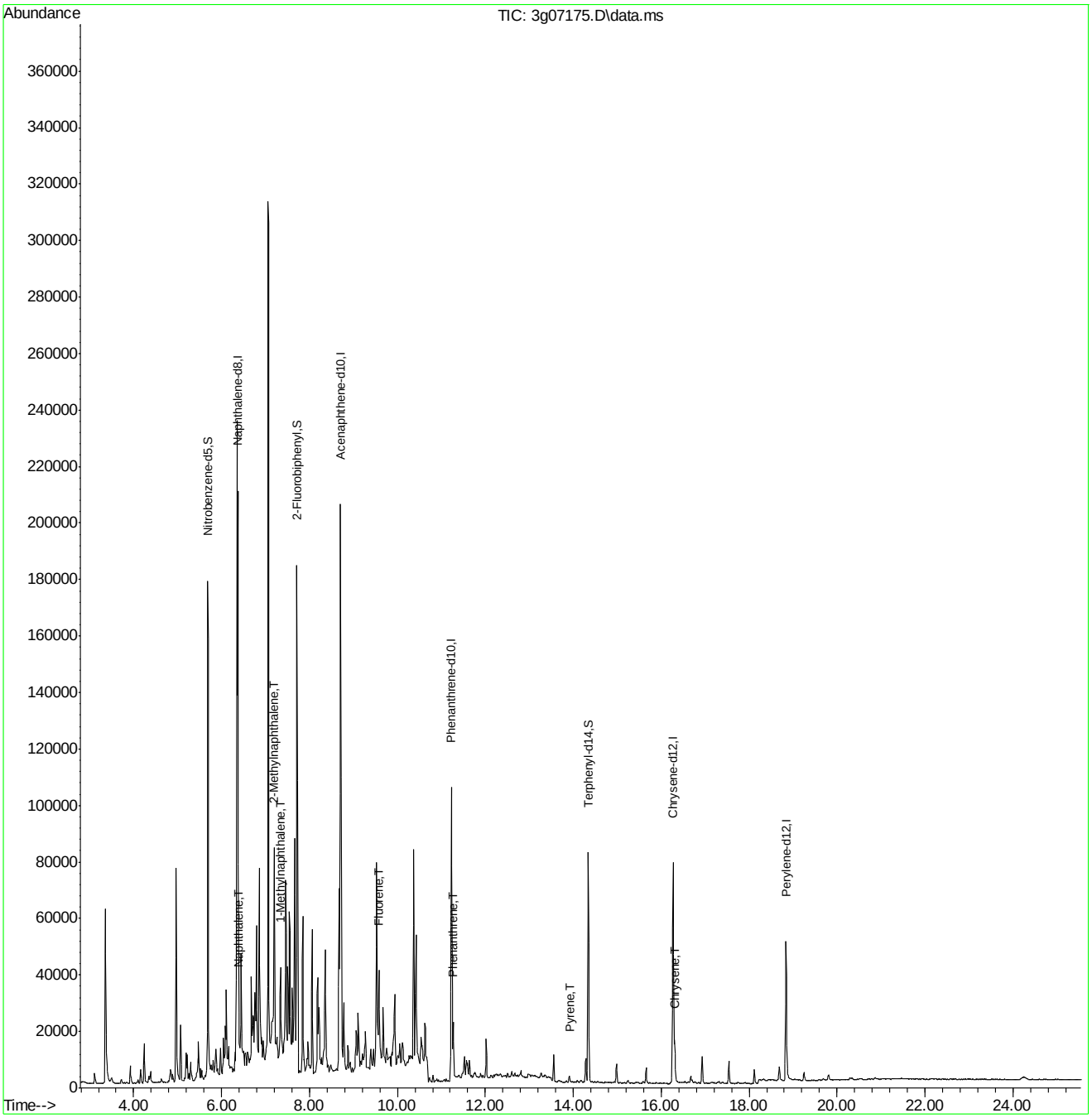
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.370	136	168961	4.00	ug/mL	0.00
6) Acenaphthene-d10	8.709	164	89391	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.232	188	122087	4.00	ug/mL	0.00
18) Chrysene-d12	16.269	240	97380	4.00	ug/mL	0.00
23) Perylene-d12	18.838	264	64260	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.685	82	89835	4.51	ug/mL	-0.01
7) 2-Fluorobiphenyl	7.716	172	156804	4.47	ug/mL	-0.01
20) Terphenyl-d14	14.342	244	89872	4.61	ug/mL	-0.02
Target Compounds						Qvalue
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	6.395	128	15327	0.29	ug/mL#	1
8) 2-Methylnaphthalene	7.193	142	39375	1.21	ug/mL	86
9) 1-Methylnaphthalene	7.343	142	13040	0.42	ug/mL#	65
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	9.583	166	14312	0.48	ug/mL#	9
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	11.271	178	19067	0.43	ug/mL	77
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	13.915	202	2177	0.06	ug/mL	91
21) Benzo(a)anthracene	0.000		0	N.D.	d	
22) Chrysene	16.315	228	1018	0.03	ug/mL#	13
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	

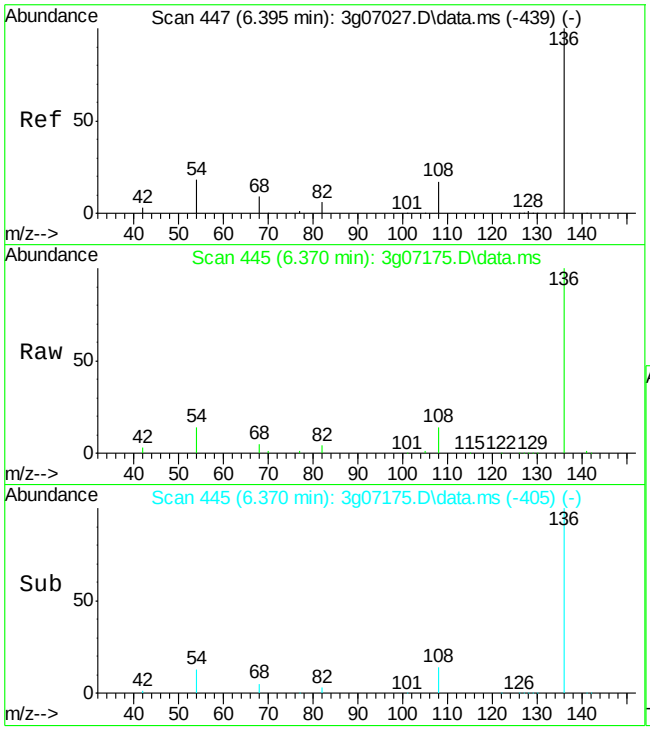
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\120711\
Data File : 3g07175.D
Acq On : 8 Dec 2011 12:47 pm
Operator : DONC
Sample : D29759-1, 10x
Misc : OP4929,E3G262,30.04,,,1,10
ALS Vial : 35 Sample Multiplier: 1

Quant Time: Dec 09 07:30:29 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G262.M
Quant Title : PAHSIM BASE
QLast Update : Thu Dec 08 09:26:11 2011
Response via : Initial Calibration

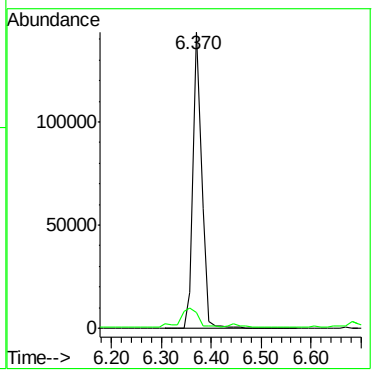


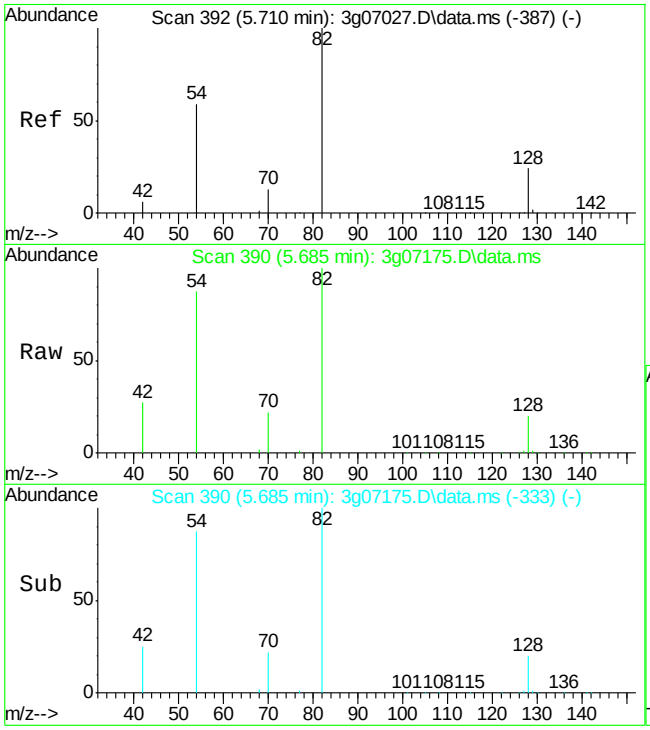


#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.370 min Scan# 445
Delta R.T. 0.000 min
Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion:136 Resp: 168961

Ion	Ratio	Lower	Upper
136	100		
68	14.1	0.0	27.5

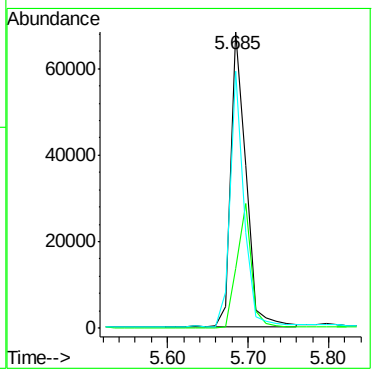


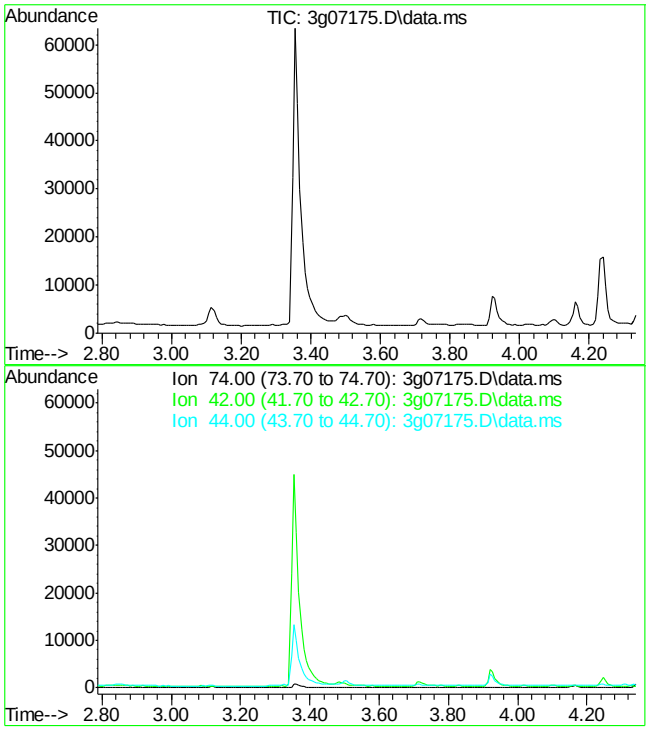


#2
Nitrobenzene-d5
Concen: 4.51 ug/mL
RT: 5.685 min Scan# 390
Delta R.T. -0.012 min
Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion: 82 Resp: 89835

Ion	Ratio	Lower	Upper
82	100		
128	42.0	22.2	62.2
54	80.4	32.9	72.9#



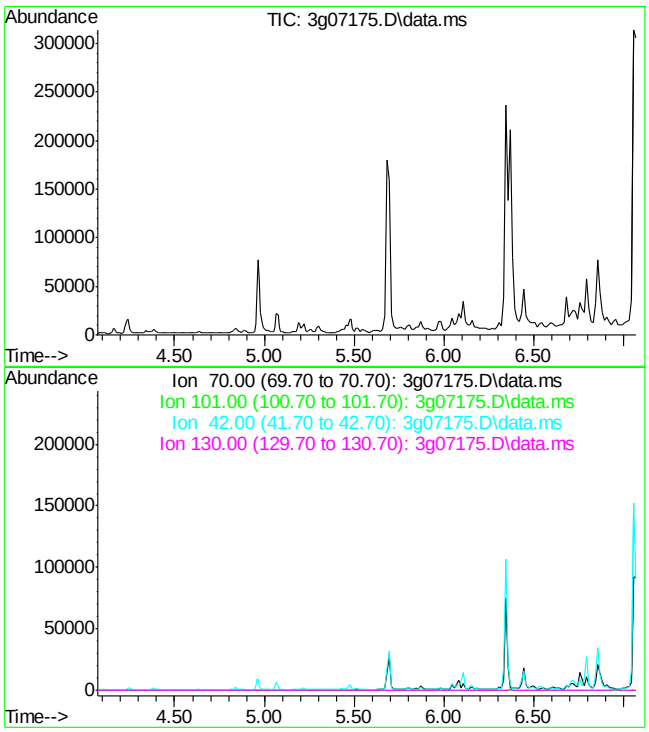


#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.84 min

Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion: 74

Sig	Exp Ratio
74	100
42	62.7
44	4.7

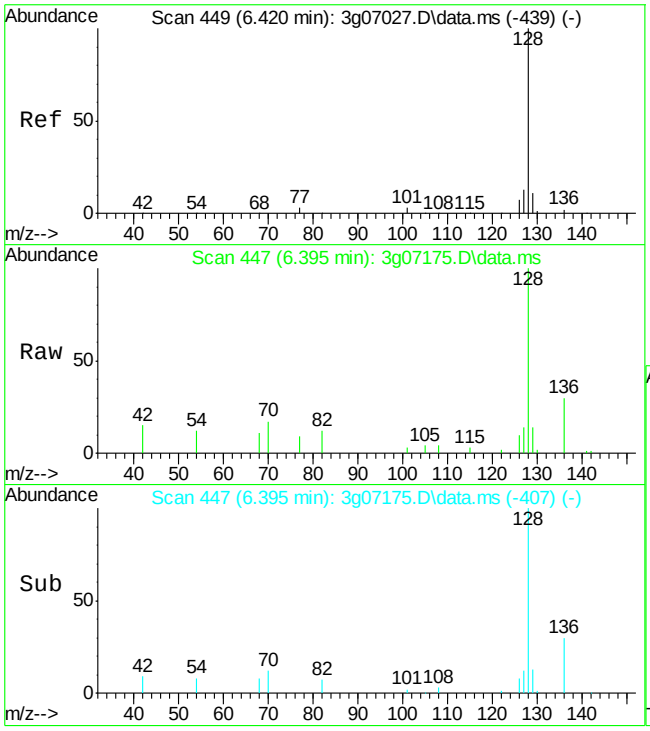


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.57 min

Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion: 70

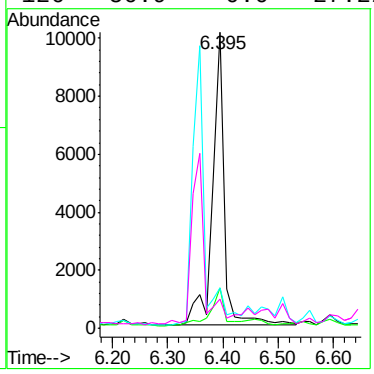
Sig	Exp Ratio
70	100
101	12.9
42	56.3
130	25.7

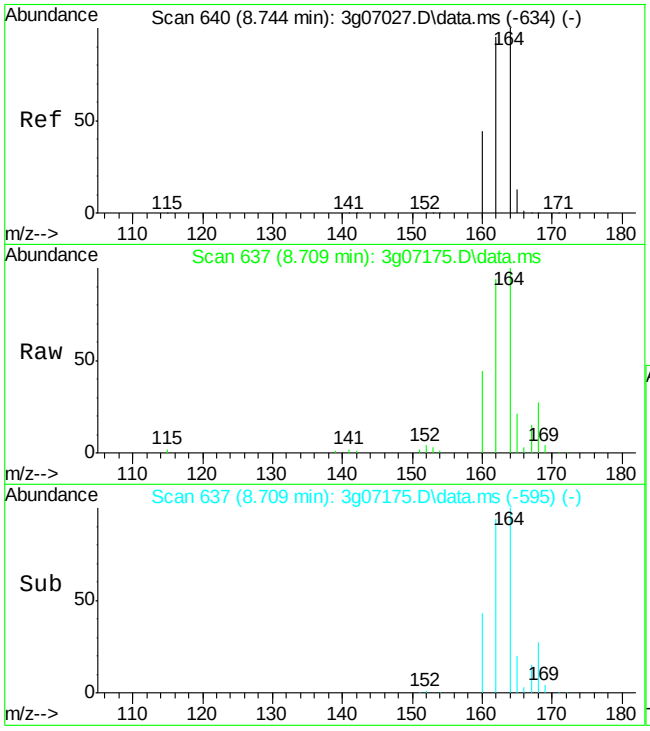


#5
Naphthalene
Concen: 0.29 ug/mL
RT: 6.395 min Scan# 447
Delta R.T. 0.000 min
Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion:128 Resp: 15327

Ion	Ratio	Lower	Upper
128	100		
129	16.0	0.0	31.0
127	96.9	0.0	32.5#
126	56.9	0.0	27.2#

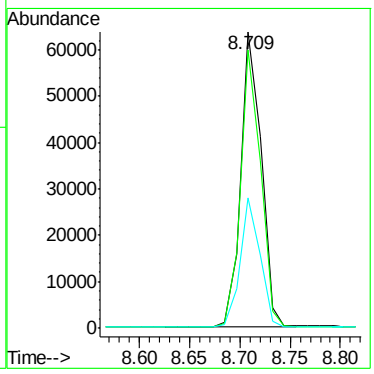


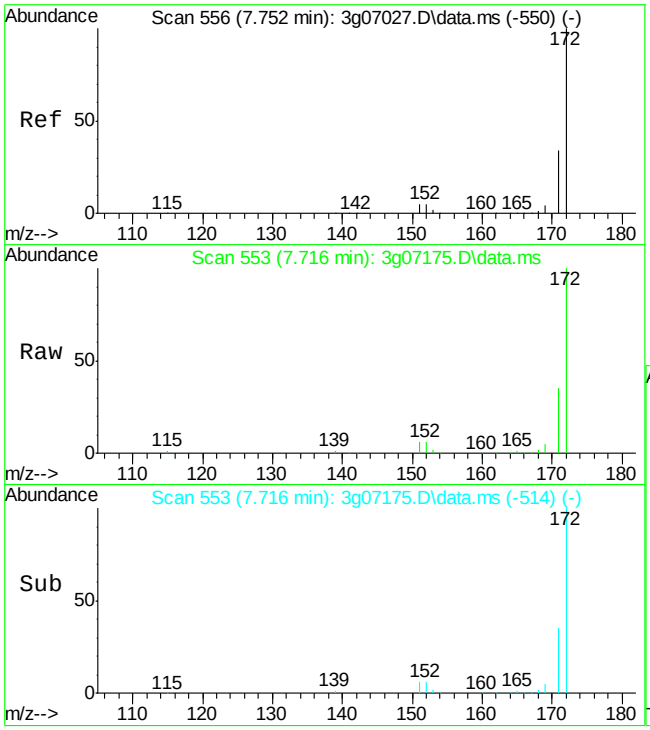


#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 8.709 min Scan# 637
Delta R.T. 0.000 min
Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion:164 Resp: 89391

Ion	Ratio	Lower	Upper
164	100		
162	92.6	71.7	111.7
160	43.0	21.3	61.3

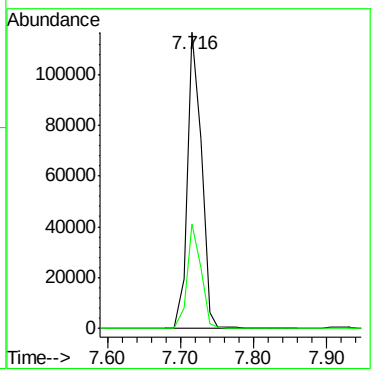


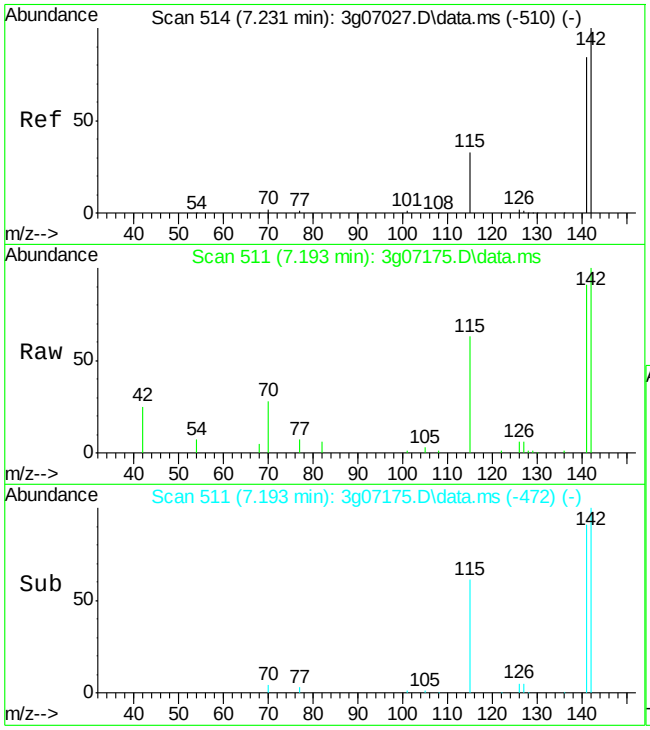


#7
2-Fluorobiphenyl
Concen: 4.47 ug/mL
RT: 7.716 min Scan# 553
Delta R.T. -0.012 min
Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion:172 Resp: 156804

Ion	Ratio	Lower	Upper
172	100		
171	34.6	12.5	52.5

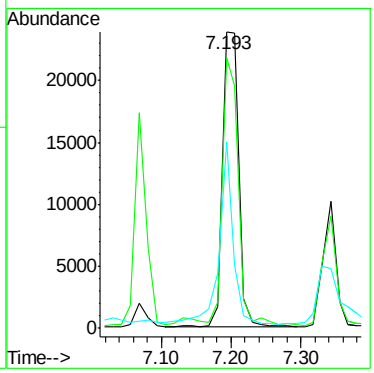


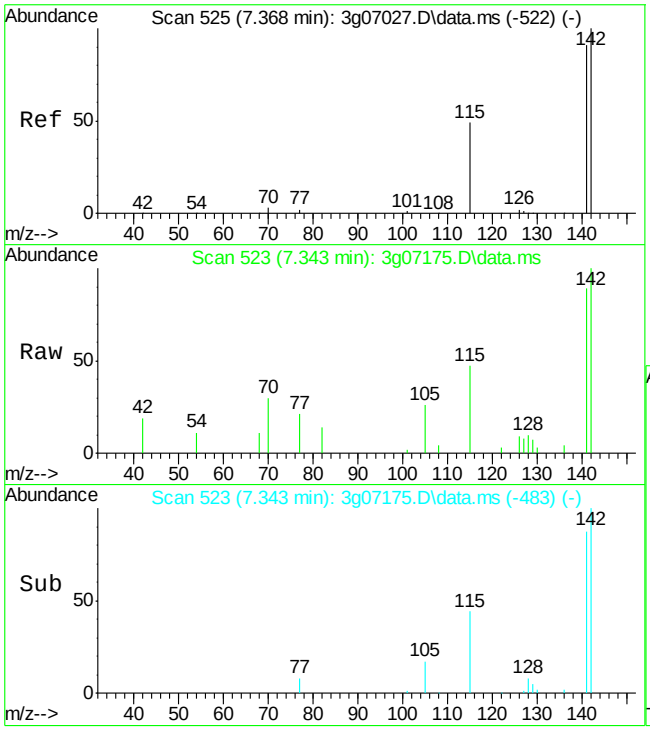


#8
2-Methylnaphthalene
Concen: 1.21 ug/mL
RT: 7.193 min Scan# 511
Delta R.T. -0.012 min
Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion:142 Resp: 39375

Ion	Ratio	Lower	Upper
142	100		
141	89.2	62.4	102.4
115	53.7	16.5	56.5

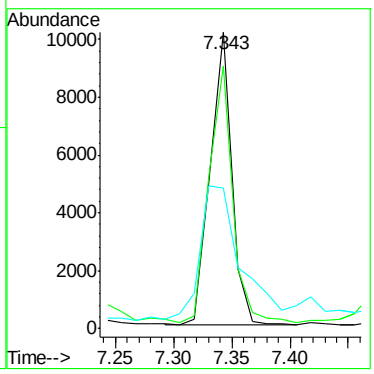


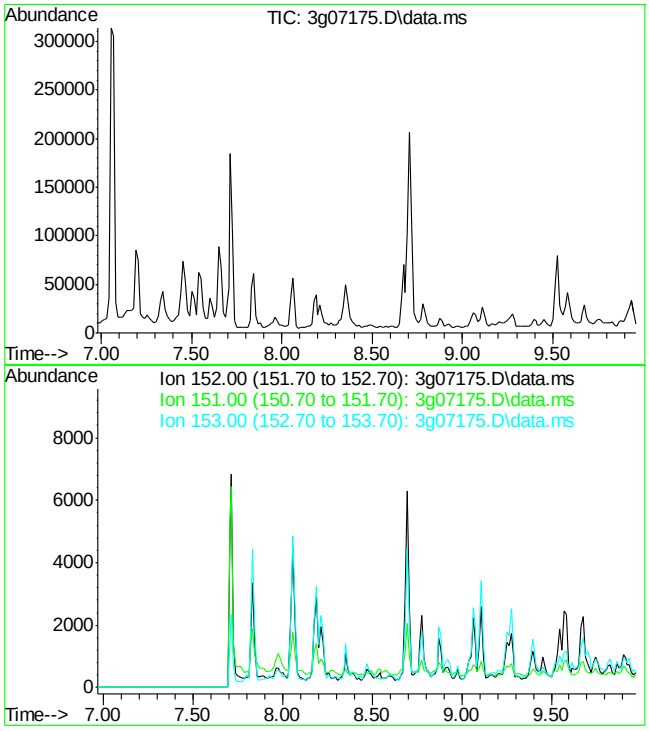


#9
1-Methylnaphthalene
Concen: 0.42 ug/mL
RT: 7.343 min Scan# 523
Delta R.T. 0.000 min
Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion:142 Resp: 13040

Ion	Ratio	Lower	Upper
142	100		
141	96.4	68.1	102.1
115	89.8	31.3	46.9#



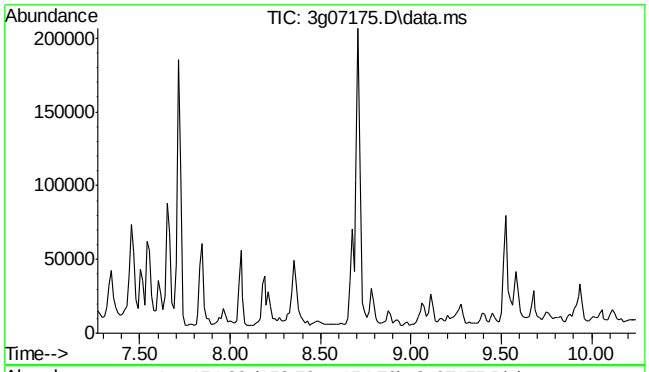


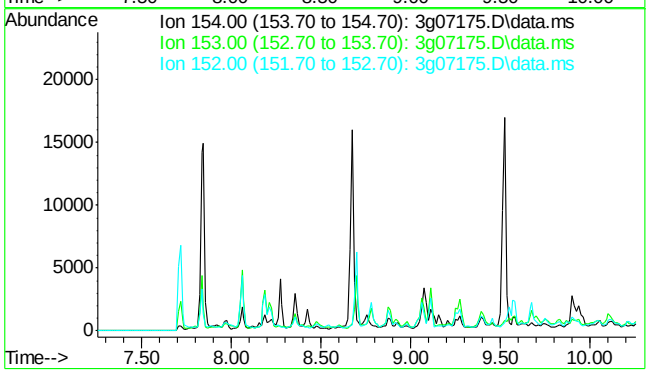
#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.47 min

Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion: 152

Sig	Exp Ratio
152	100
151	18.8
153	13.0



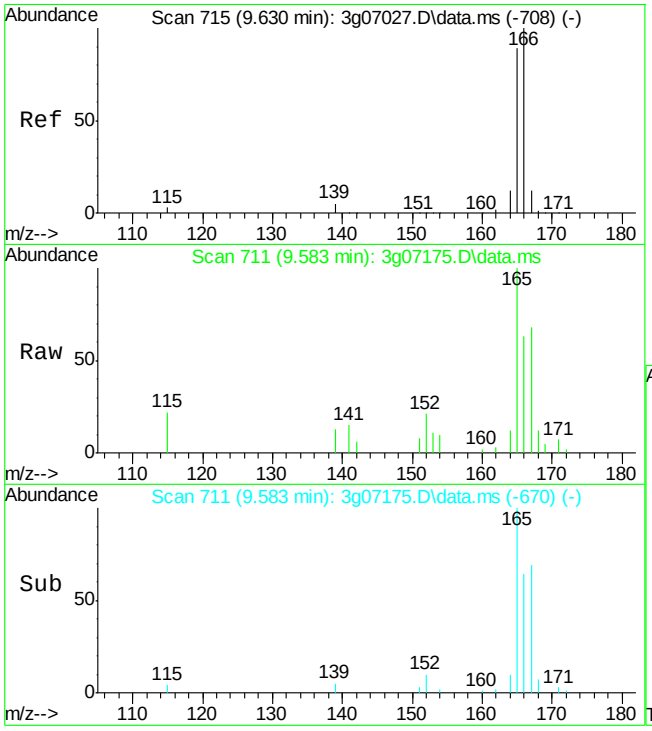


#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 8.76 min

Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion: 154

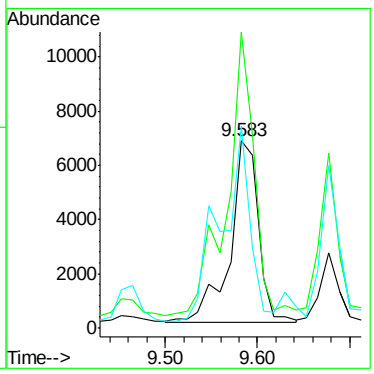
Sig	Exp Ratio
154	100
153	102.1
152	48.4

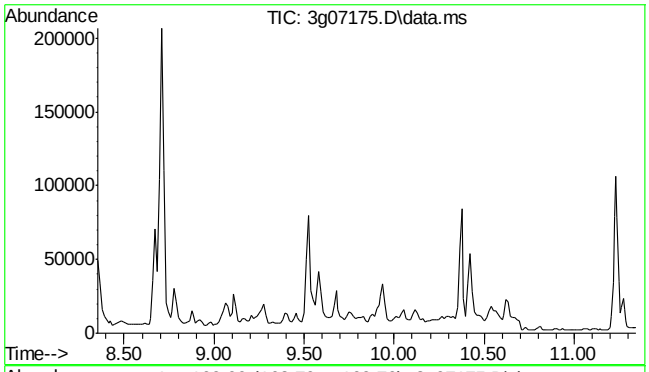


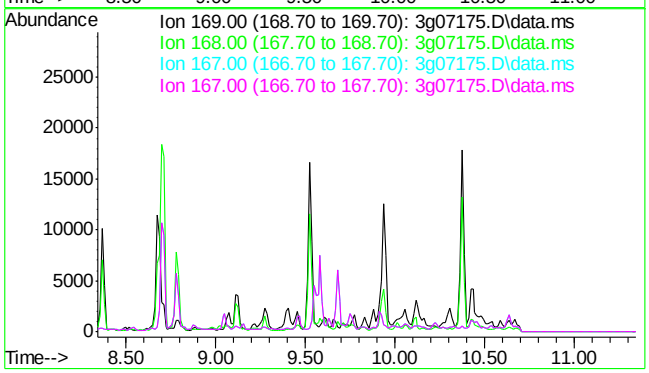
#12
Fluorene
Concen: 0.48 ug/mL
RT: 9.583 min Scan# 711
Delta R.T. -0.012 min
Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion:166 Resp: 14312

Ion	Ratio	Lower	Upper
166	100		
165	153.9	69.2	109.2#
167	111.7	0.0	32.0#





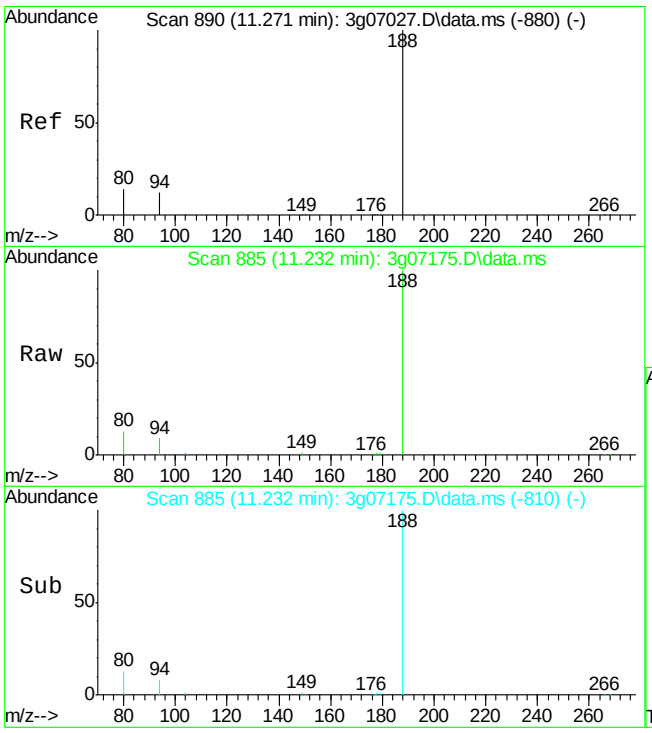


#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 9.84 min

Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion: 169

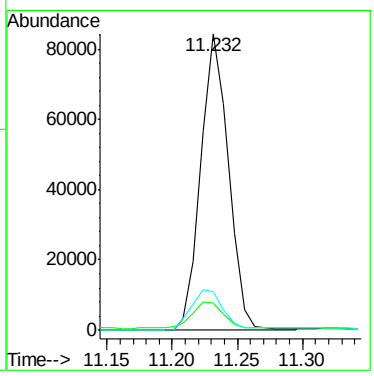
Sig	Exp Ratio
169	100
168	60.5
167	32.9
167	32.9

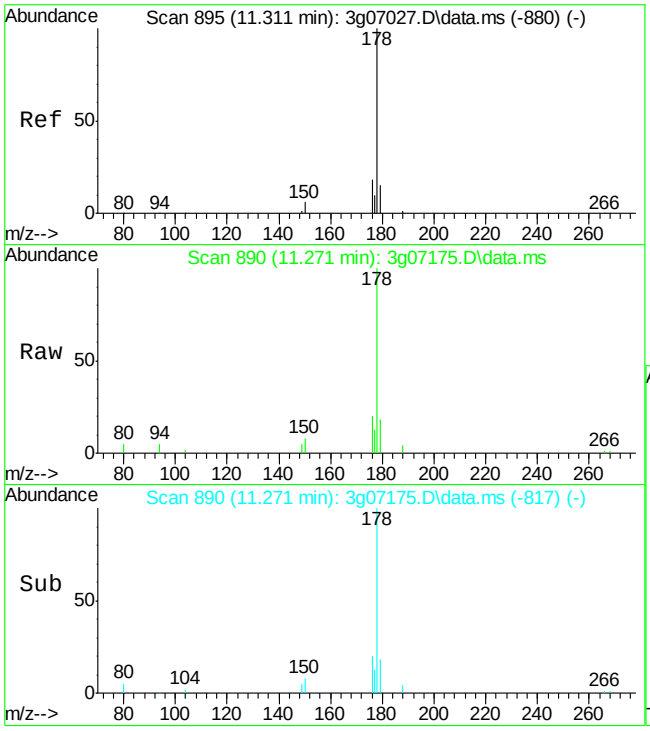


#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.232 min Scan# 885
Delta R.T. 0.000 min
Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion:188 Resp: 122087

Ion	Ratio	Lower	Upper
188	100		
94	10.5	0.0	34.2
80	18.5	0.0	36.8

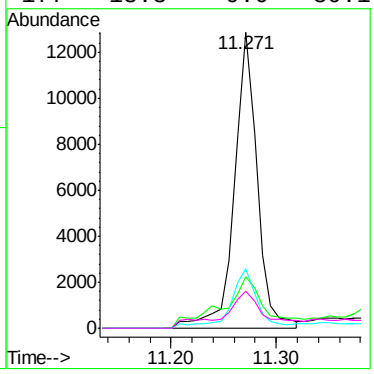


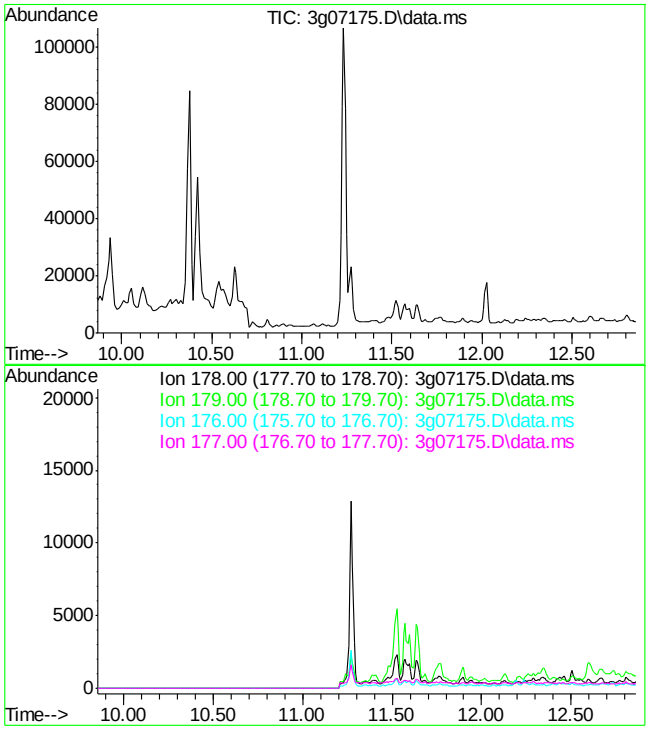


#15
Phenanthrene
Concen: 0.43 ug/mL
RT: 11.271 min Scan# 890
Delta R.T. -0.008 min
Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion:178 Resp: 19067

Ion	Ratio	Lower	Upper
178	100		
179	33.5	0.0	35.3
176	24.1	0.0	38.3
177	13.3	0.0	30.1



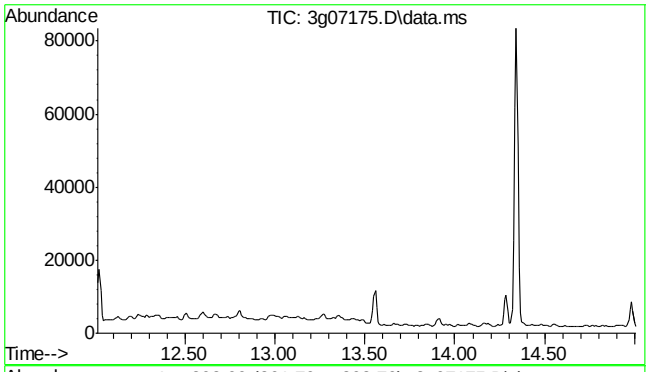


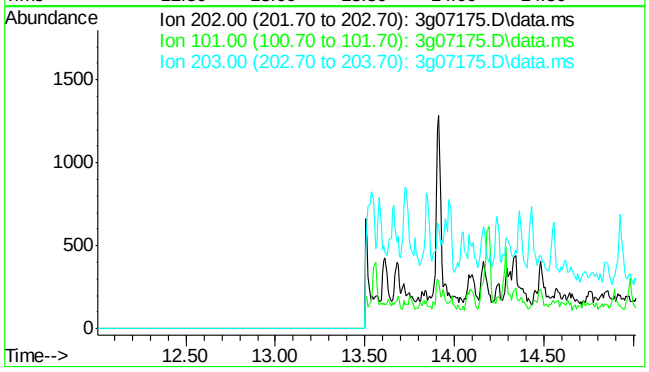
#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.36 min

Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion: 178

Sig	Exp Ratio
178	100
179	15.1
176	17.8
177	8.7



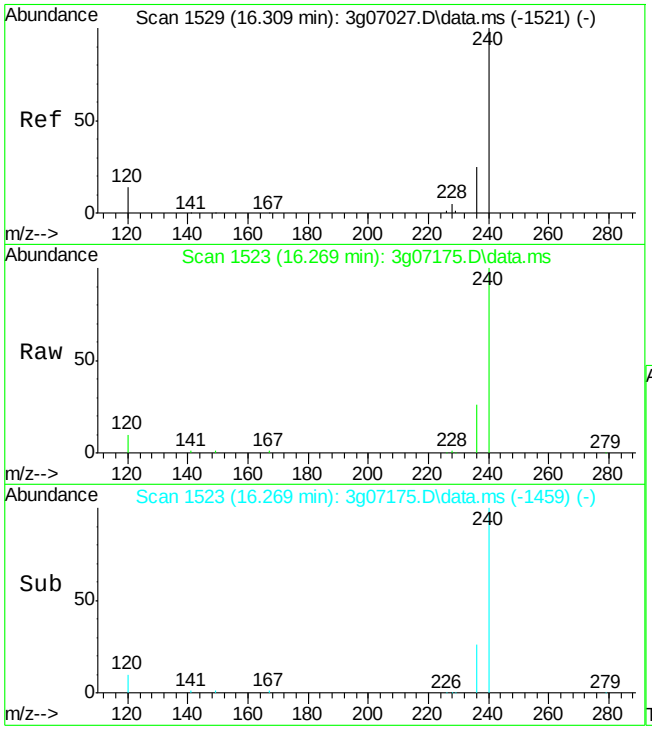


#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 13.51 min

Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion: 202

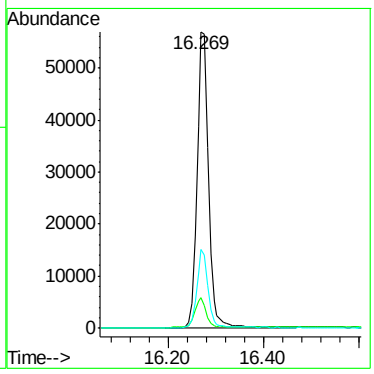
Sig	Exp Ratio
202	100
101	12.8
203	18.0

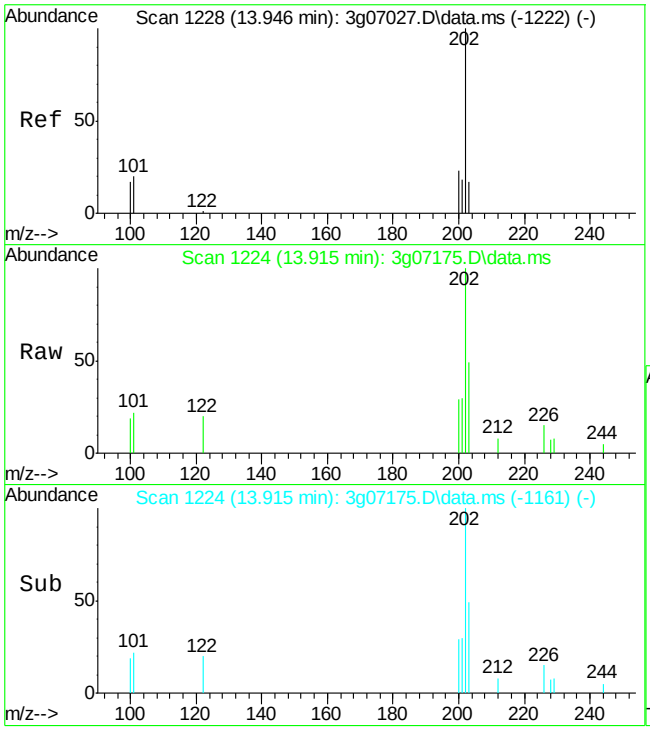


#18
Chrysene-d12
Concen: 4.00 ug/mL
RT: 16.269 min Scan# 1523
Delta R.T. -0.007 min
Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion:240 Resp: 97380

Ion	Ratio	Lower	Upper
240	100		
120	11.3	0.0	38.6
236	26.4	5.2	45.2

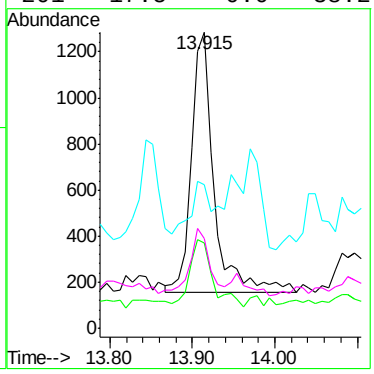


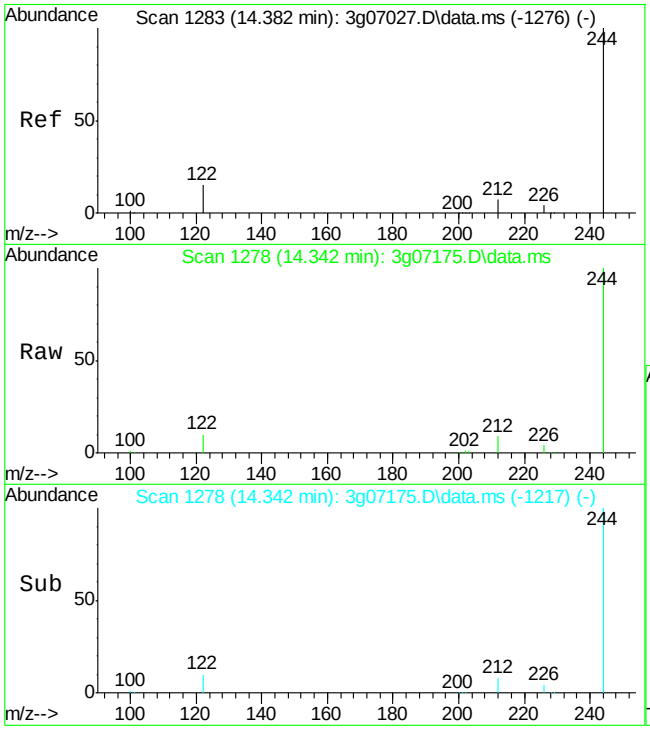


#19
Pyrene
Concen: 0.06 ug/mL
RT: 13.915 min Scan# 1224
Delta R.T. 0.000 min
Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion:202 Resp: 2177

Ion	Ratio	Lower	Upper
202	100		
200	26.4	2.1	42.1
203	10.2	0.0	37.8
201	17.5	0.0	38.2

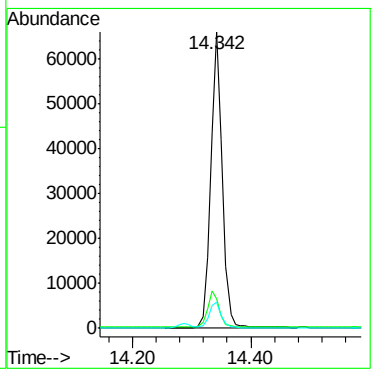


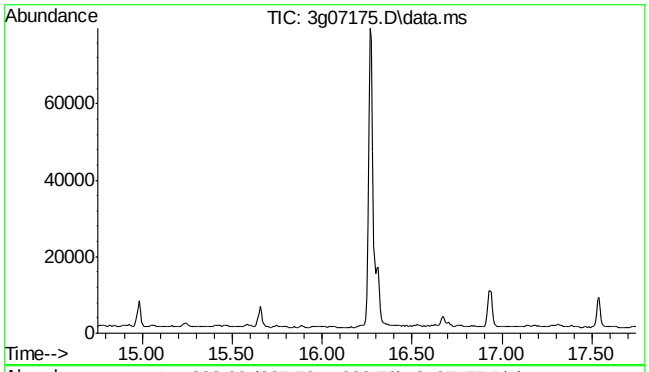


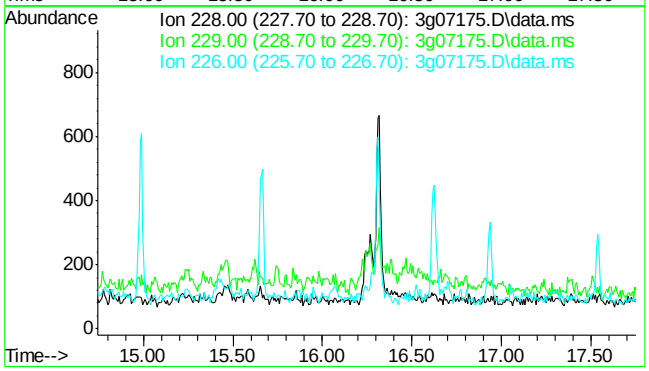
#20
Terphenyl-d14
Concen: 4.61 ug/mL
RT: 14.342 min Scan# 1278
Delta R.T. -0.016 min
Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion:244 Resp: 89872

Ion	Ratio	Lower	Upper
244	100		
122	12.5	0.8	40.8
212	9.0	0.0	27.2





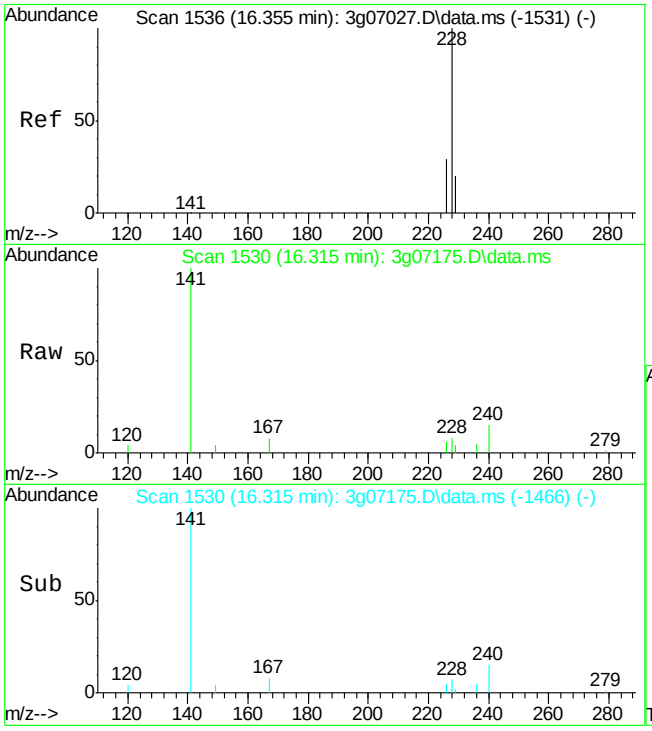


#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.25 min

Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion: 228

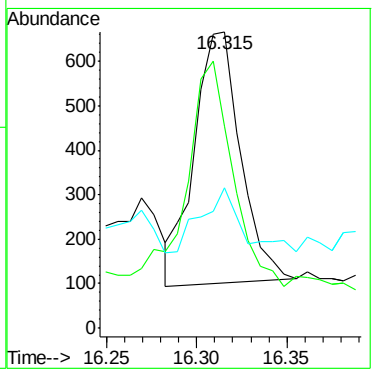
Sig	Exp Ratio
228	100
229	19.6
226	26.6

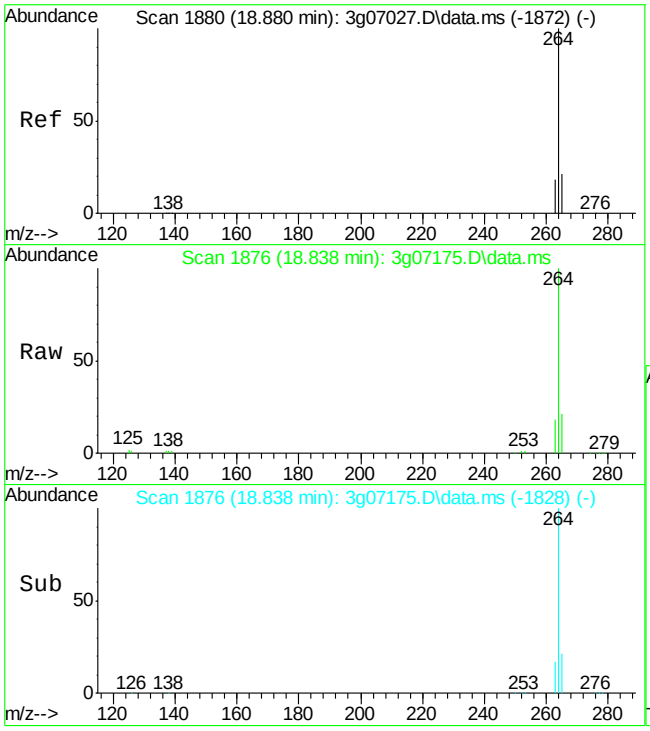


#22
Chrysene
Concen: 0.03 ug/mL
RT: 16.315 min Scan# 1530
Delta R.T. -0.013 min
Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion:228 Resp: 1018

Ion	Ratio	Lower	Upper
228	100		
226	90.0	7.4	47.4#
229	36.8	0.0	39.2

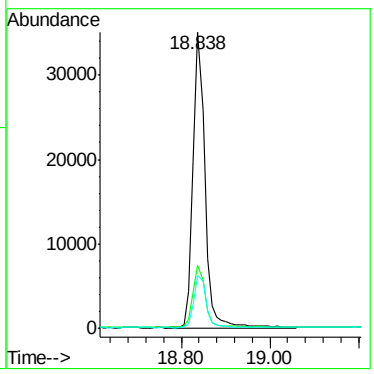


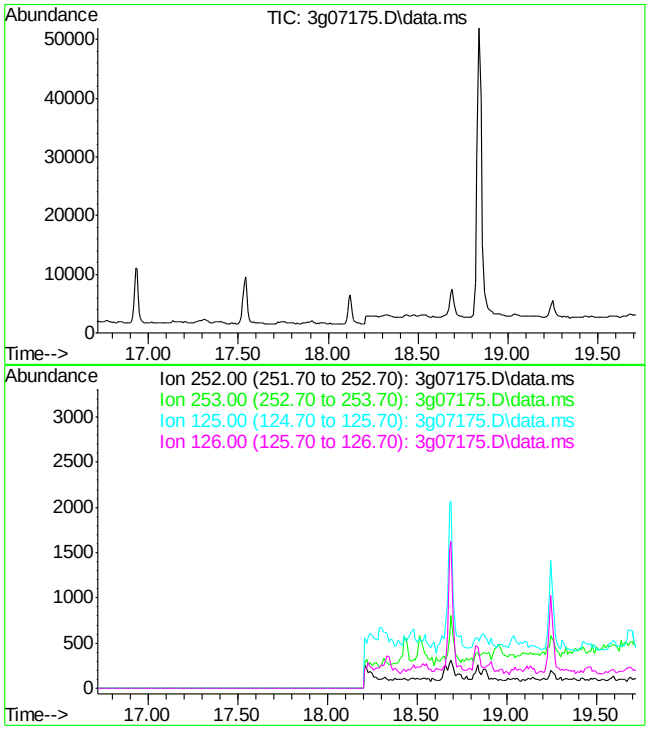


#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 18.838 min Scan# 1876
Delta R.T. 0.000 min
Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion:264 Resp: 64260

Ion	Ratio	Lower	Upper
264	100		
265	21.6	1.0	41.0
263	18.4	0.0	38.6



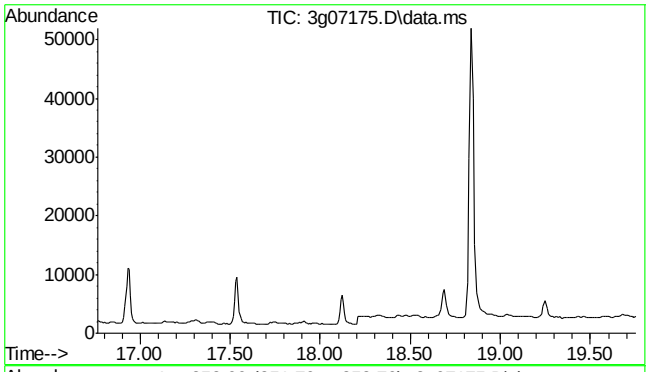


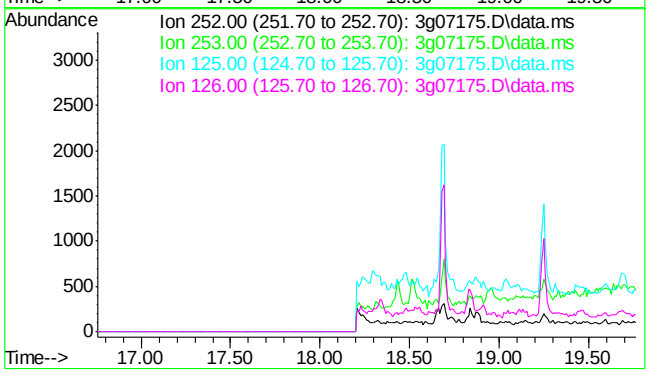
#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.22 min

Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	66.5
125	35.4
126	50.6



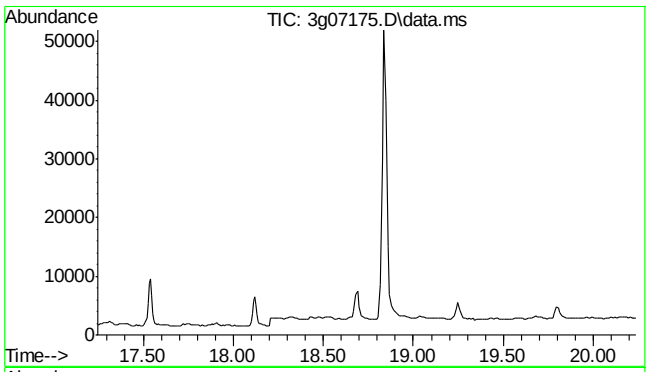


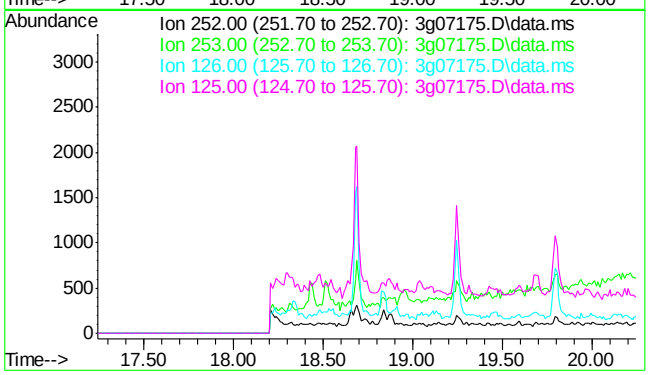
#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.26 min

Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	37.7
125	20.1
126	28.7



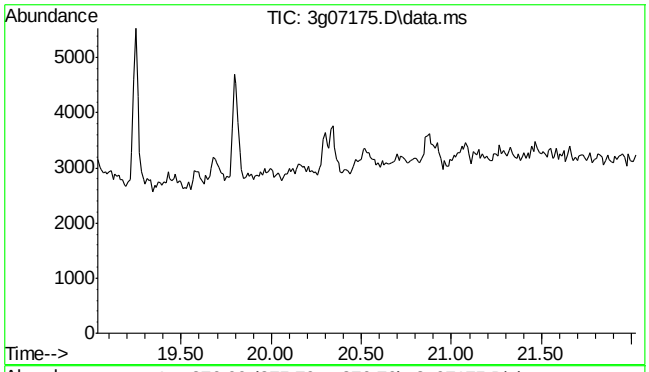


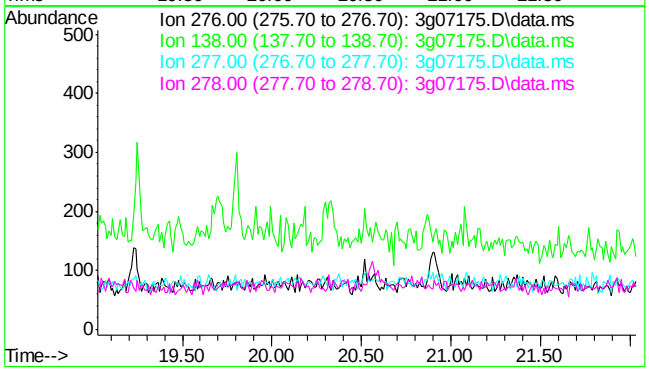
#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 18.74 min

Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	21.4
126	18.6
125	14.0



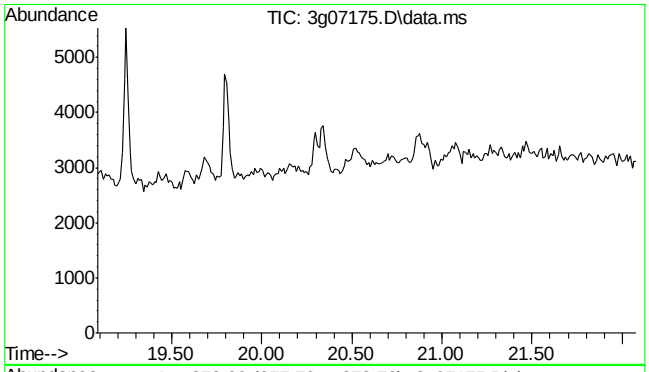


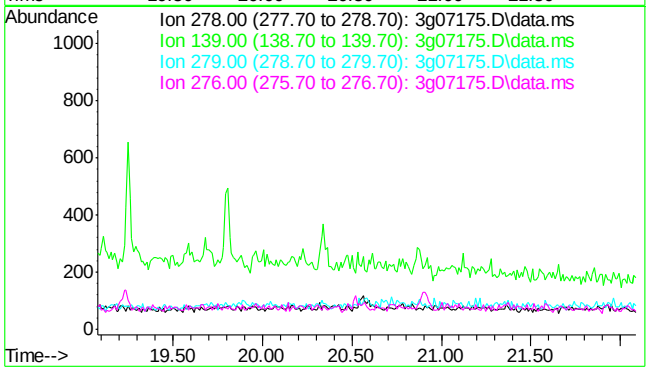
#27
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 20.53 min

Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion: 276

Sig	Exp Ratio
276	100
138	28.2
277	28.3
278	3.7



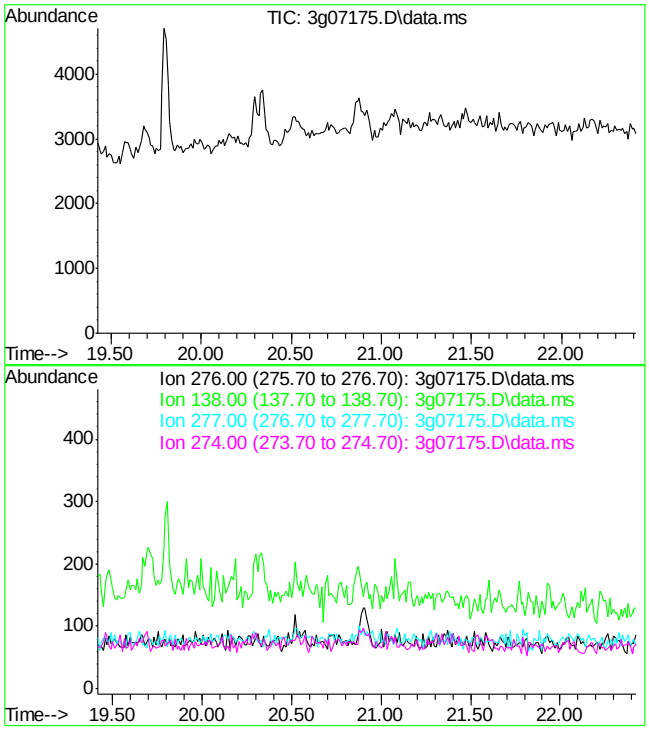


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 20.58 min

Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion: 278

Sig	Exp Ratio
278	100
139	18.1
279	23.6
276	125.3



#29
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 20.92 min

Lab File: 3g07175.D
Acq: 8 Dec 11 12:47 pm

Tgt Ion: 276

Sig	Exp Ratio
276	100
138	23.3
277	23.1
274	20.6

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\120711\
Data File : 3g07152.D
Acq On : 7 Dec 2011 9:58 pm
Operator : DONC
Sample : OP4929-MB
Misc : OP4929,E3G262,30,,,1,1
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Dec 08 09:47:15 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G262.M
Quant Title : PAHSIM BASE
QLast Update : Thu Dec 08 09:26:11 2011
Response via : Initial Calibration

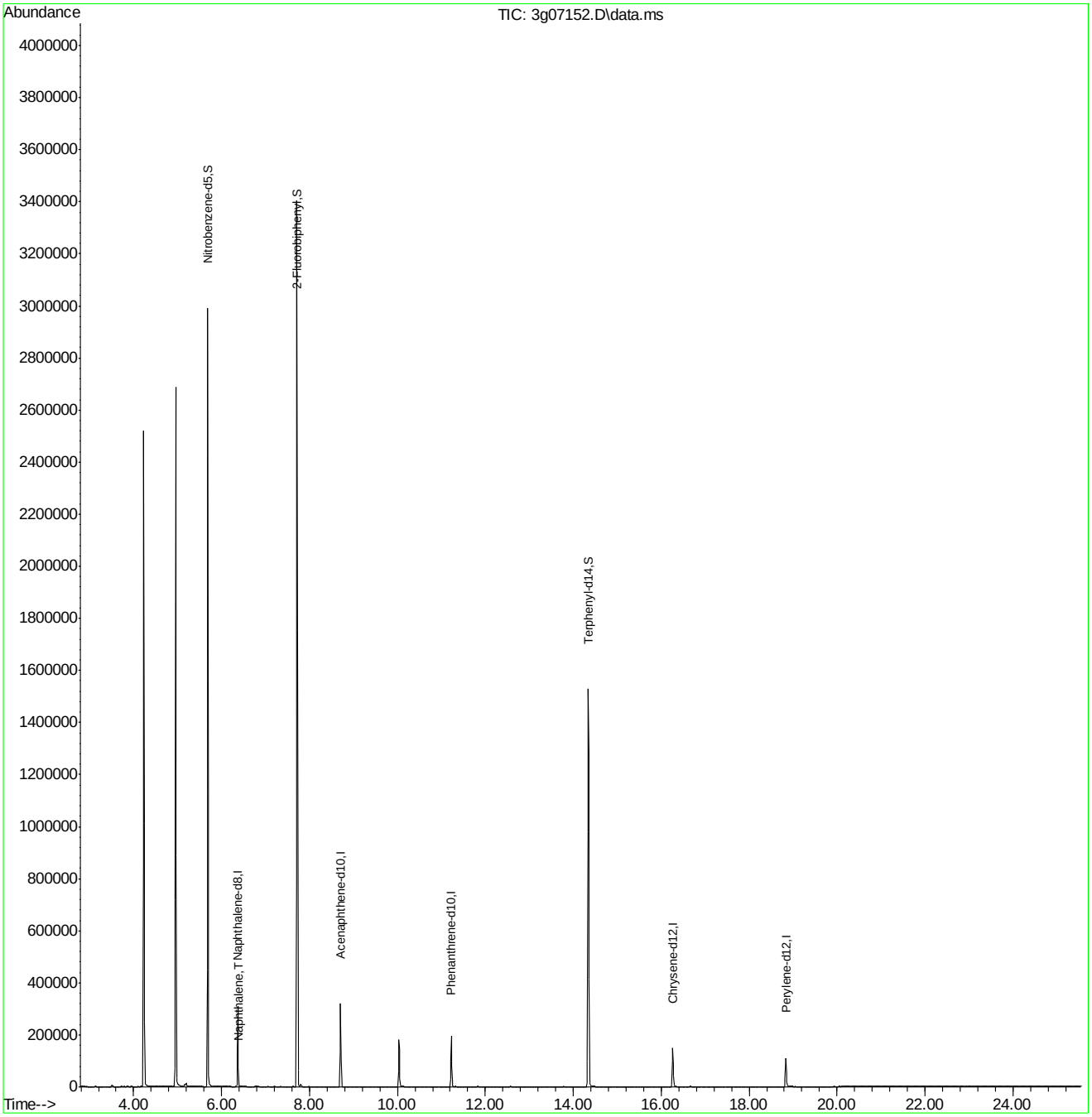
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.370	136	271050	4.00	ug/mL	0.00
6) Acenaphthene-d10	8.709	164	166538	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.232	188	222176	4.00	ug/mL	0.00
18) Chrysene-d12	16.263	240	176214	4.00	ug/mL	-0.01
23) Perylene-d12	18.838	264	152019	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.685	82	1506607	46.01	ug/mL	-0.01
7) 2-Fluorobiphenyl	7.716	172	2865854	43.84	ug/mL	-0.01
20) Terphenyl-d14	14.342	244	1788307	50.71	ug/mL	-0.02
Target Compounds						Qvalue
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	6.395	128	862	0.01	ug/mL	71
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.		
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)

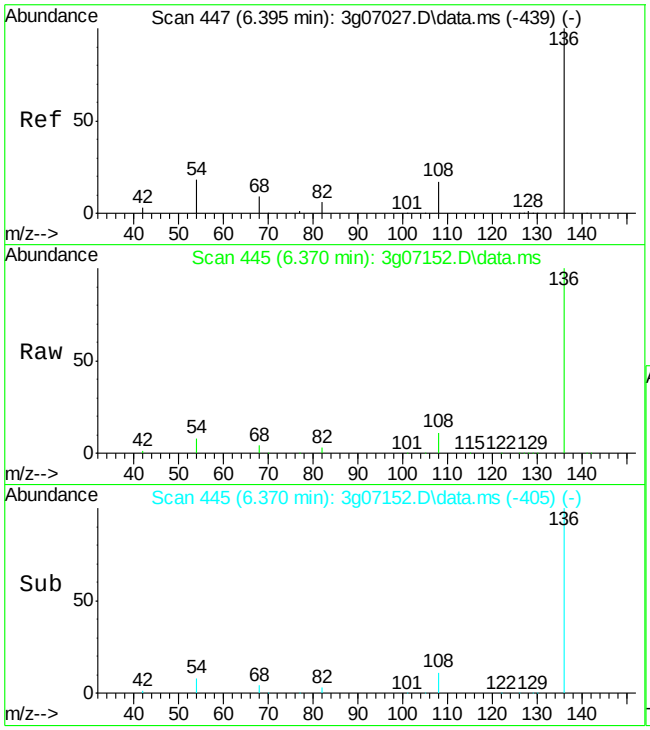
Data Path : C:\msdchem\1\DATA\120711\
Data File : 3g07152.D
Acq On : 7 Dec 2011 9:58 pm
Operator : DONC
Sample : OP4929-MB
Misc : OP4929,E3G262,30,,,1,1
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Dec 08 09:47:15 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G262.M
Quant Title : PAHSIM BASE
QLast Update : Thu Dec 08 09:26:11 2011
Response via : Initial Calibration



SIMPE3G262.M Thu Dec 08 09:47:19 2011 3G

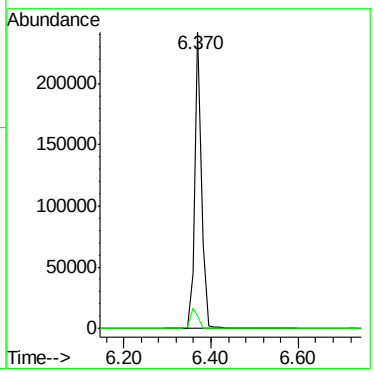
Page: 2

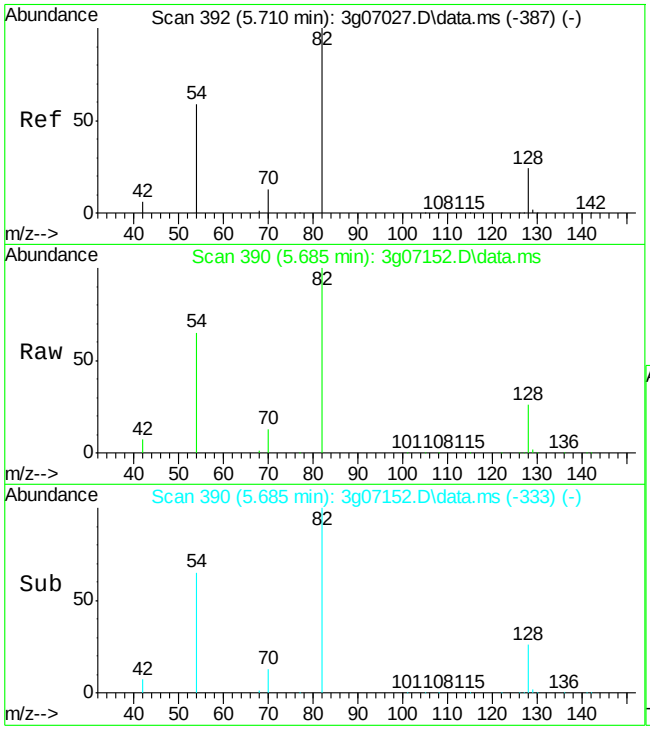


#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.370 min Scan# 445
Delta R.T. 0.000 min
Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion:136 Resp: 271050

Ion	Ratio	Lower	Upper
136	100		
68	7.9	0.0	27.5

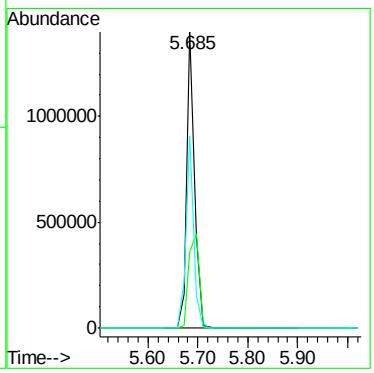


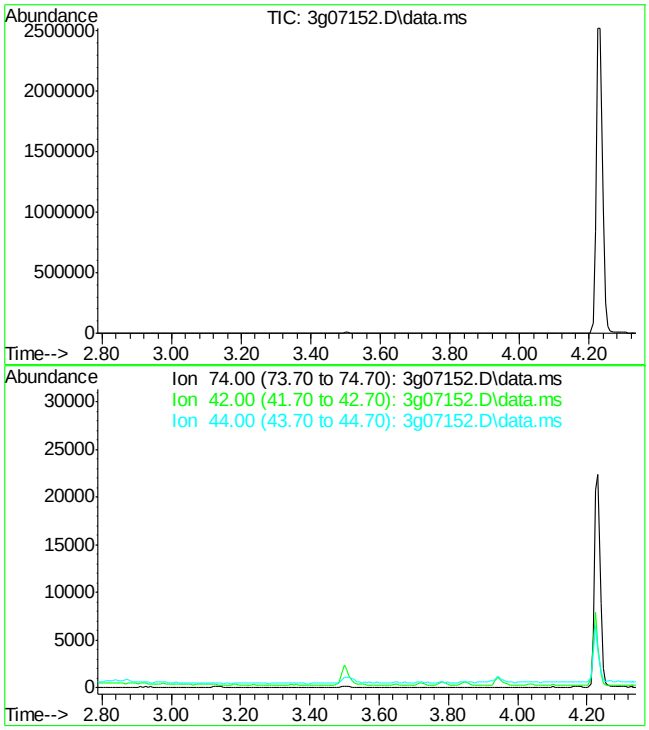


#2
Nitrobenzene-d5
Concen: 46.01 ug/mL
RT: 5.685 min Scan# 390
Delta R.T. -0.012 min
Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 82 Resp: 1506607

Ion	Ratio	Lower	Upper
82	100		
128	41.8	22.2	62.2
54	64.2	32.9	72.9



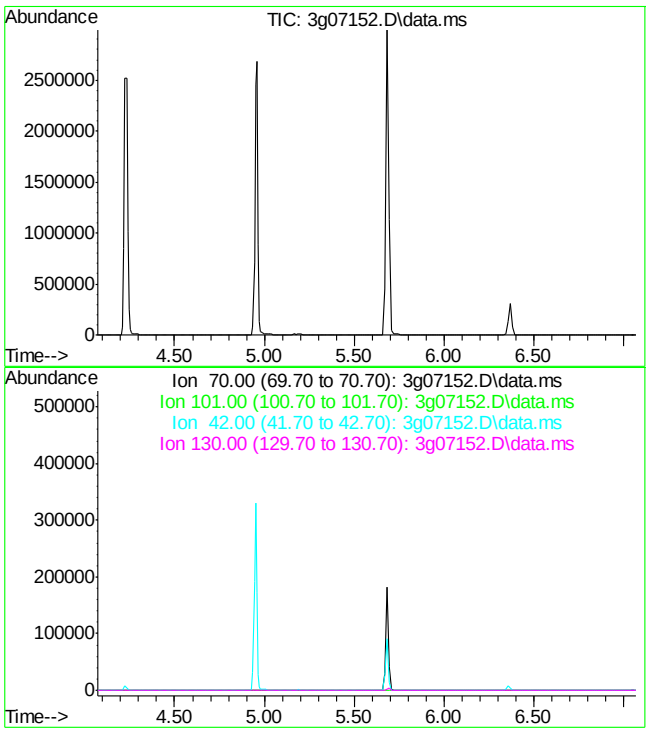


#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.84 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 74

Sig	Exp Ratio
74	100
42	62.7
44	4.7

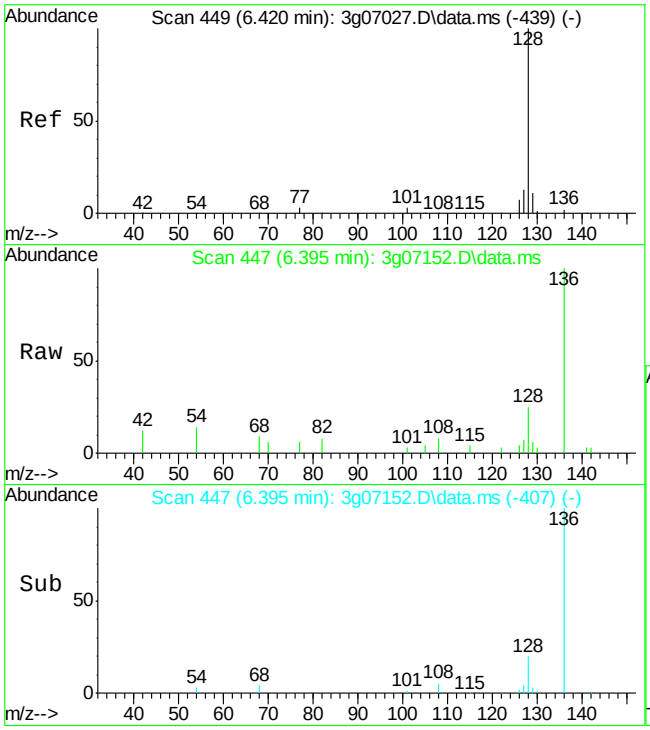


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.57 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 70

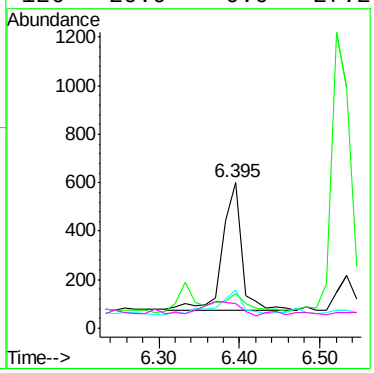
Sig	Exp Ratio
70	100
101	12.9
42	56.3
130	25.7

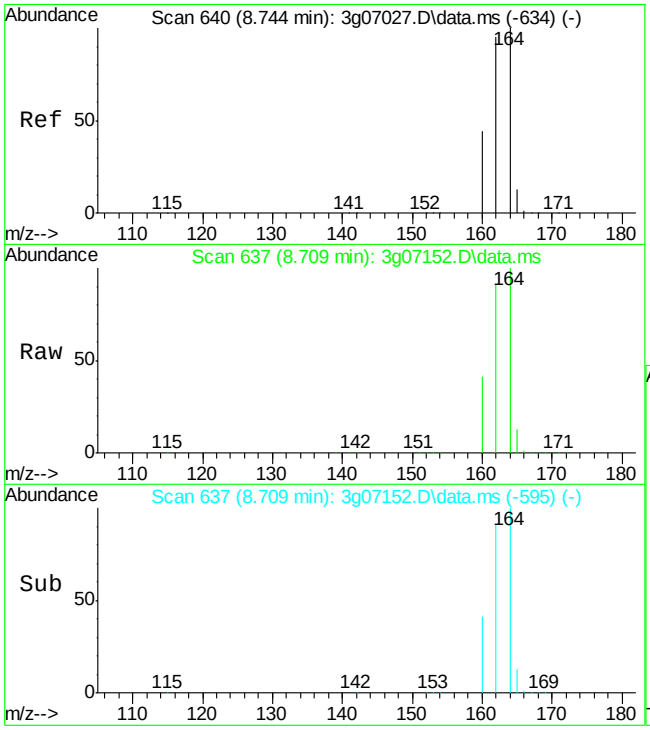


#5
Naphthalene
Concen: 0.01 ug/mL
RT: 6.395 min Scan# 447
Delta R.T. 0.000 min
Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion:128 Resp: 862

Ion	Ratio	Lower	Upper
128	100		
129	19.1	0.0	31.0
127	24.4	0.0	32.5
126	20.9	0.0	27.2

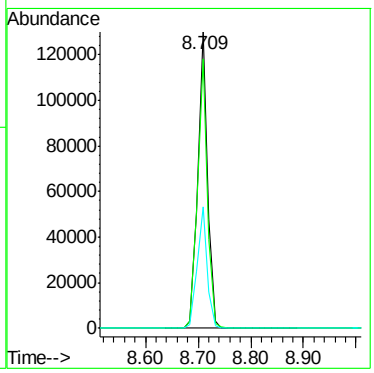


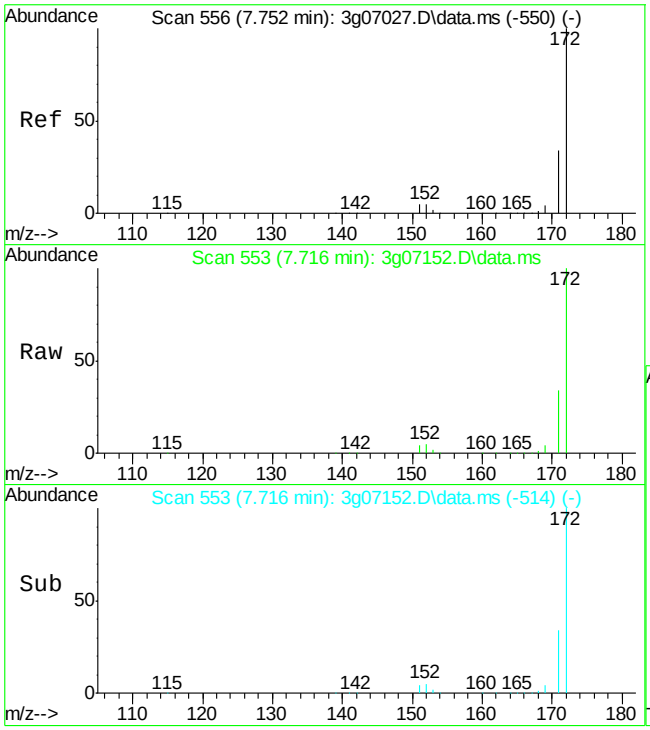


#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 8.709 min Scan# 637
Delta R.T. 0.000 min
Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion:164 Resp: 166538

Ion	Ratio	Lower	Upper
164	100		
162	91.0	71.7	111.7
160	41.2	21.3	61.3

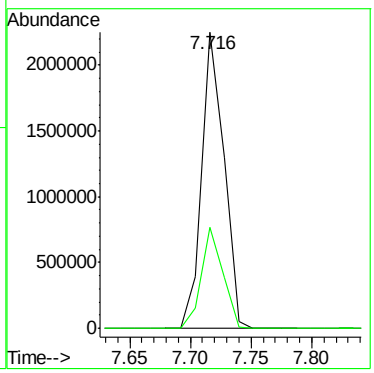


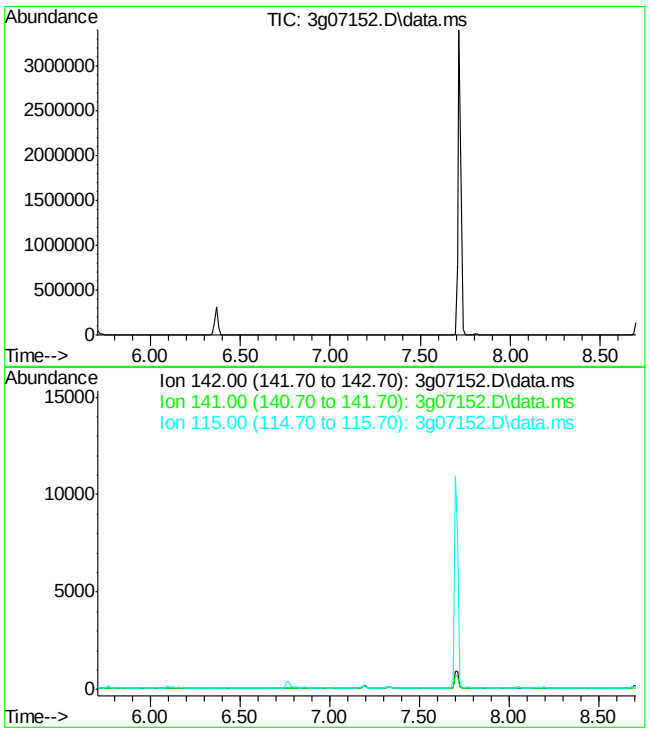


#7
2-Fluorobiphenyl
Concen: 43.84 ug/mL
RT: 7.716 min Scan# 553
Delta R.T. -0.012 min
Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion:172 Resp: 2865854

Ion	Ratio	Lower	Upper
172	100		
171	33.1	12.5	52.5



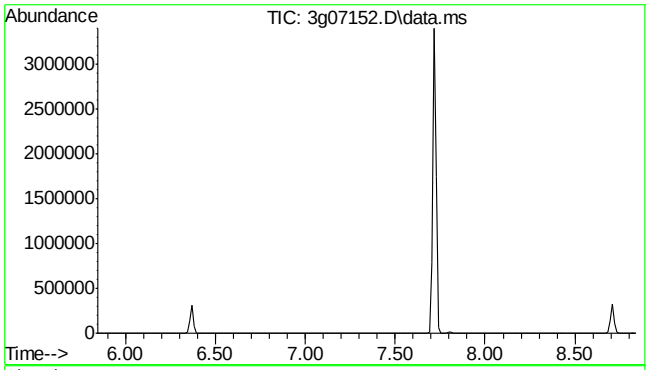


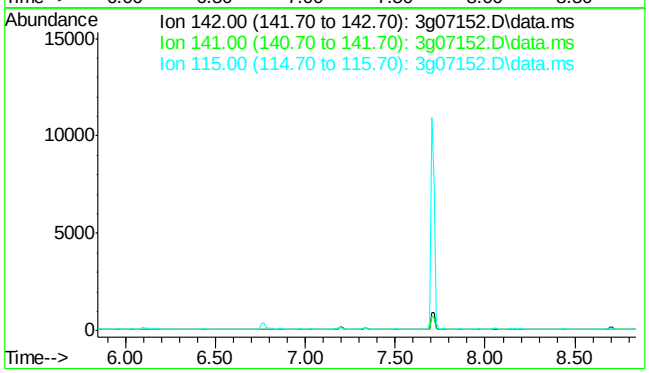
#8
2-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.21 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 142

Sig	Exp Ratio
142	100
141	82.4
115	36.5



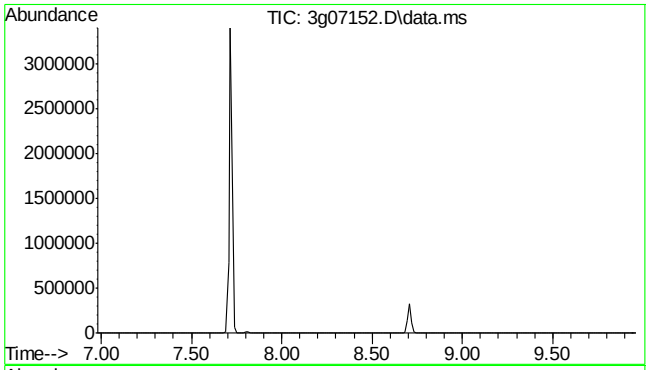


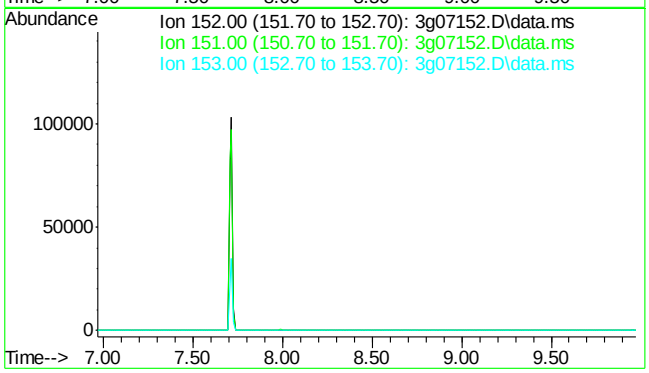
#9
1-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.34 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 142

Sig	Exp Ratio
142	100
141	85.1
115	39.1



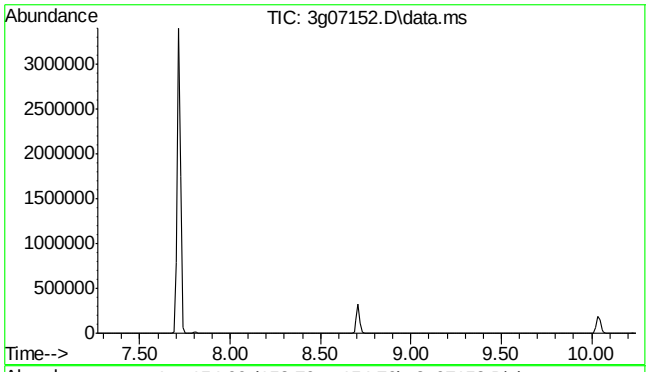


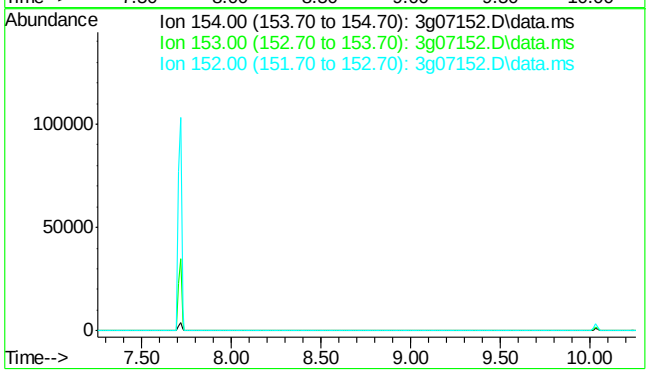
#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.47 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 152

Sig	Exp Ratio
152	100
151	18.8
153	13.0



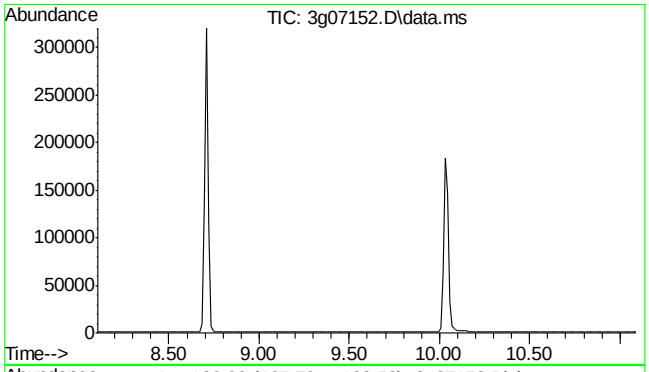


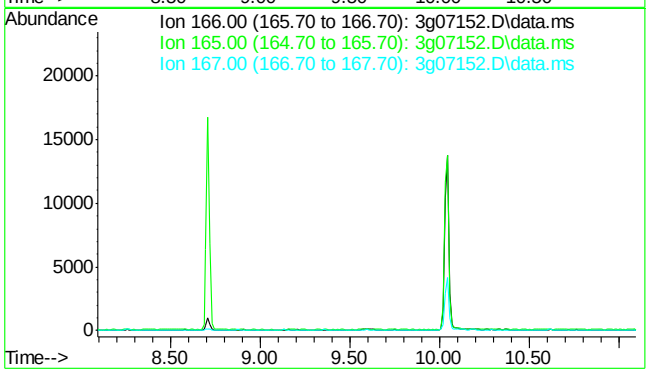
#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 8.76 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 154

Sig	Exp Ratio
154	100
153	102.1
152	48.4



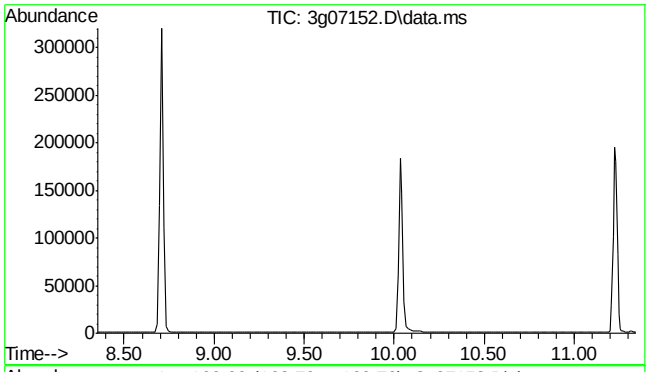


#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 9.59 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 166

Sig	Exp Ratio
166	100
165	89.2
167	12.0

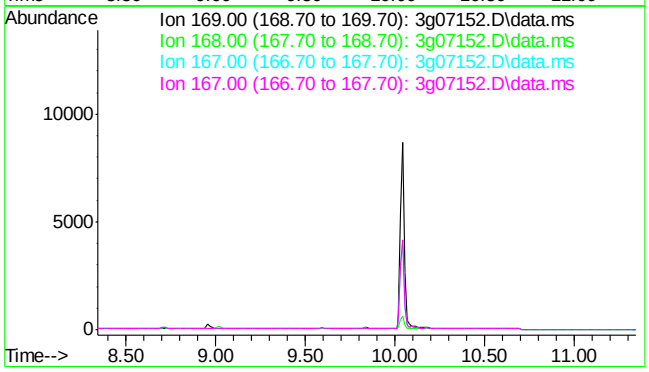


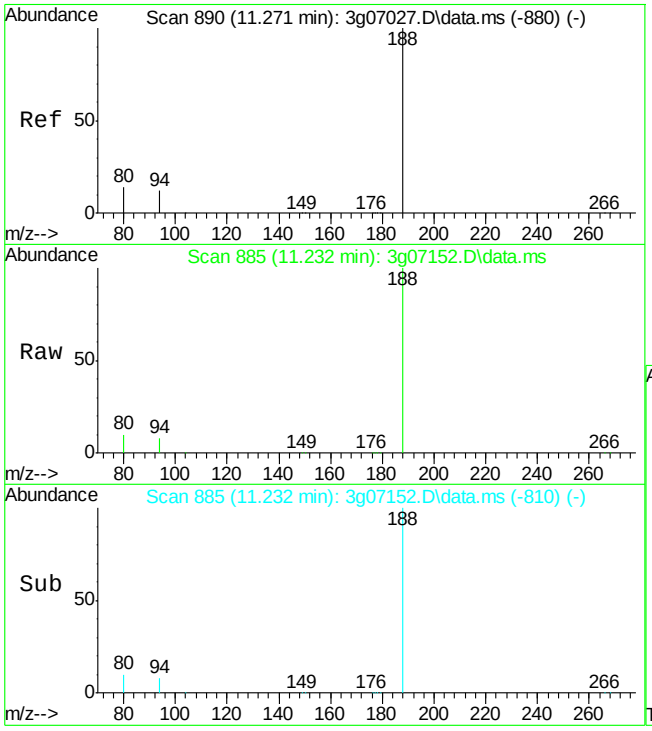
#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 9.84 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 169

Sig	Exp Ratio
169	100
168	60.5
167	32.9
167	32.9

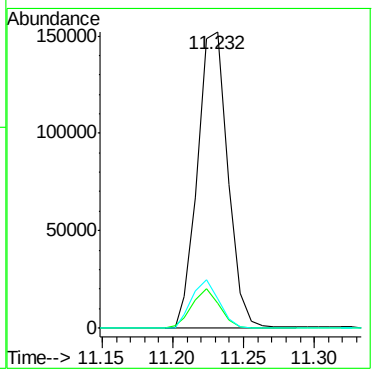


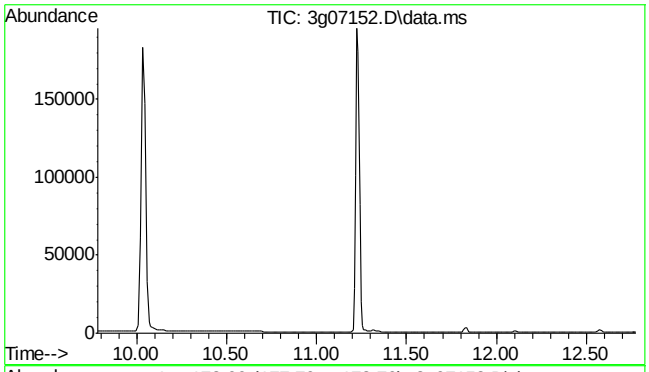


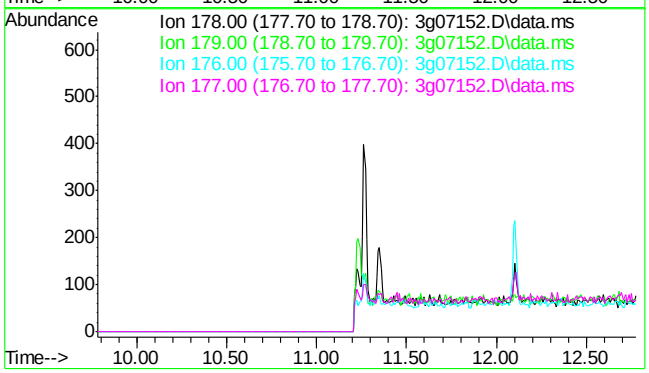
#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.232 min Scan# 885
Delta R.T. 0.000 min
Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion:188 Resp: 222176

Ion	Ratio	Lower	Upper
188	100		
94	11.9	0.0	34.2
80	15.1	0.0	36.8





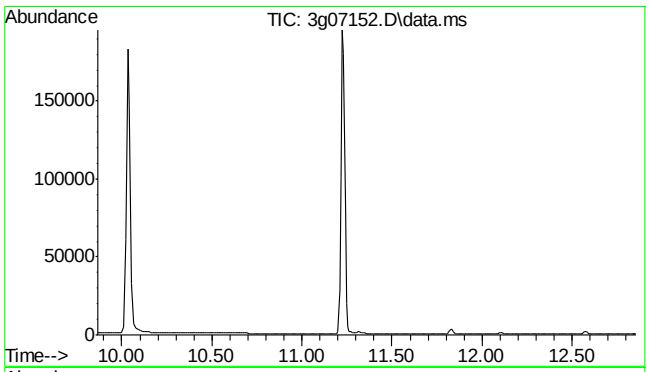


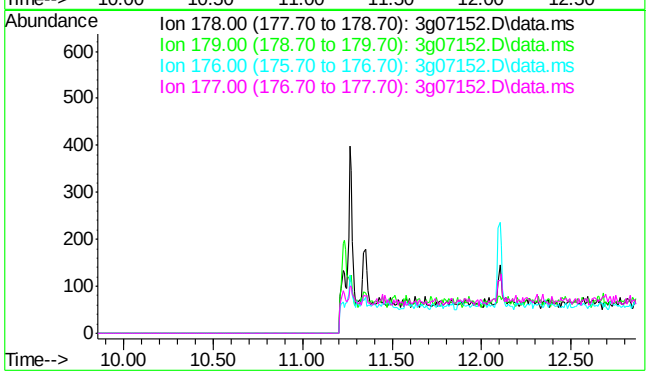
#15
Phenanthrene
Concen: N.D. ug/mL
Expected RT: 11.28 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 178

Sig	Exp Ratio
178	100
179	15.3
176	18.3
177	10.1



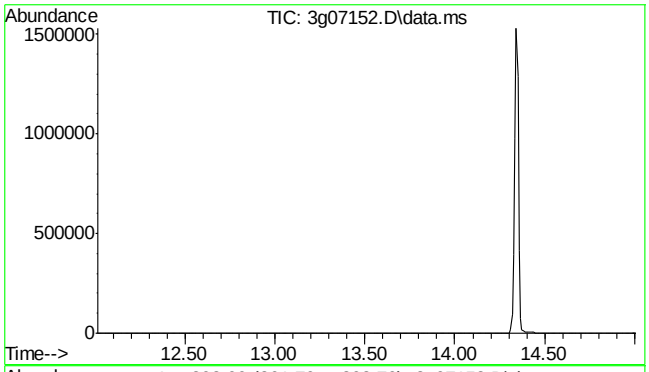


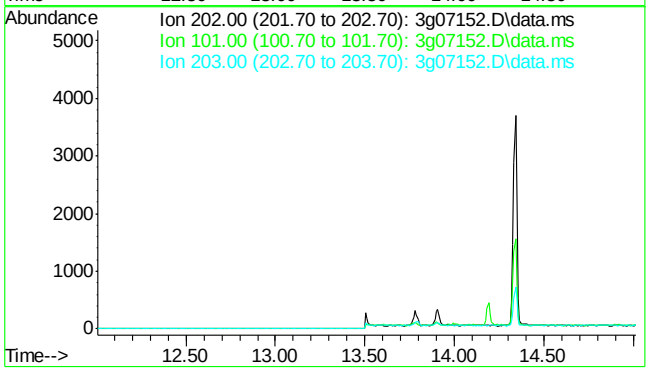
#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.36 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 178

Sig	Exp Ratio
178	100
179	15.1
176	17.8
177	8.7



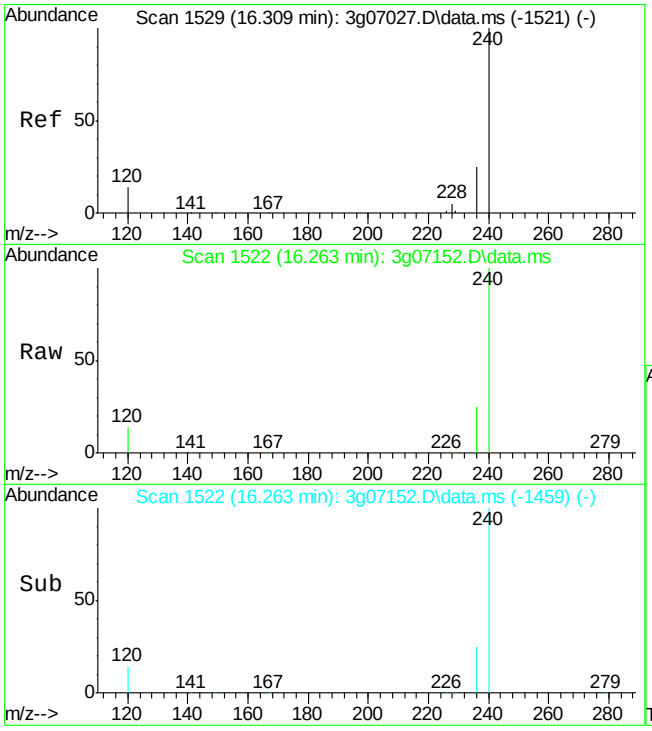


#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 13.51 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 202

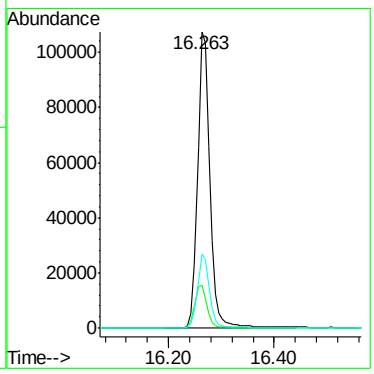
Sig	Exp Ratio
202	100
101	12.8
203	18.0

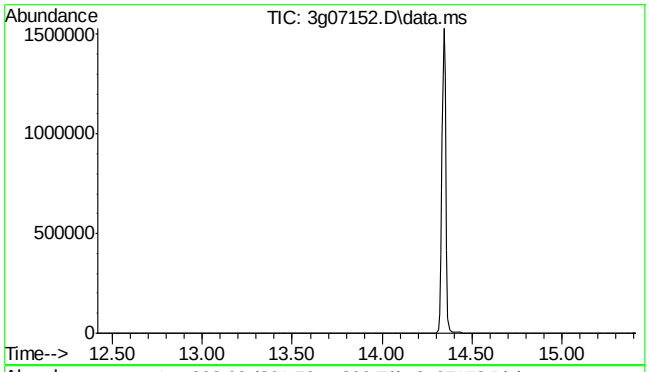


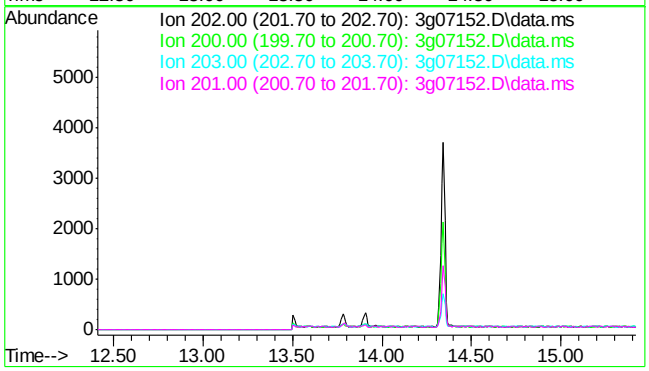
#18
Chrysene-d12
Concen: 4.00 ug/mL
RT: 16.263 min Scan# 1522
Delta R.T. -0.013 min
Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion:240 Resp: 176214

Ion	Ratio	Lower	Upper
240	100		
120	14.5	0.0	38.6
236	24.8	5.2	45.2





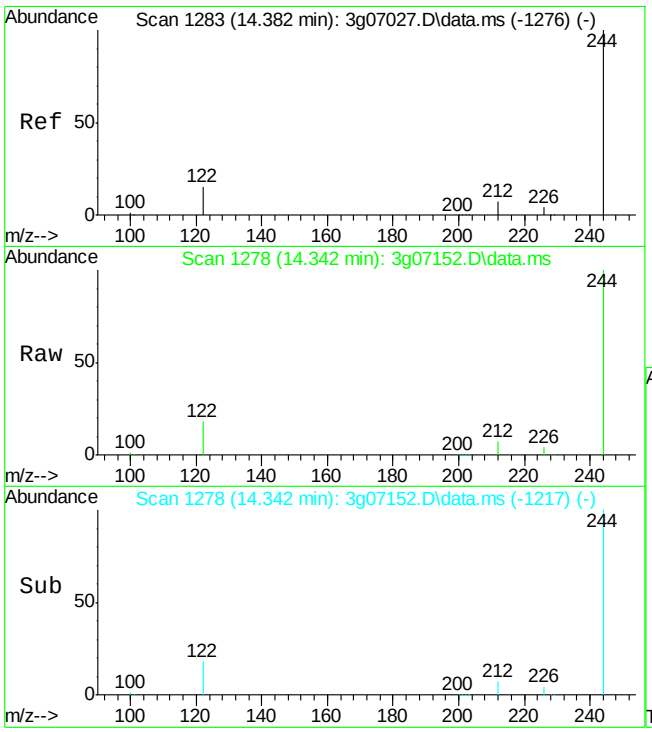


#19
Pyrene
Concen: N.D. ug/mL
Expected RT: 13.91 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 202

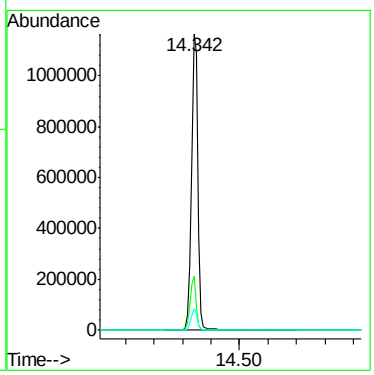
Sig	Exp Ratio
202	100
200	22.1
203	17.8
201	18.2

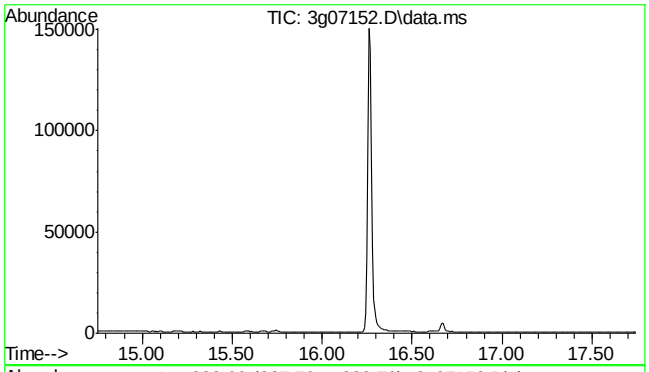


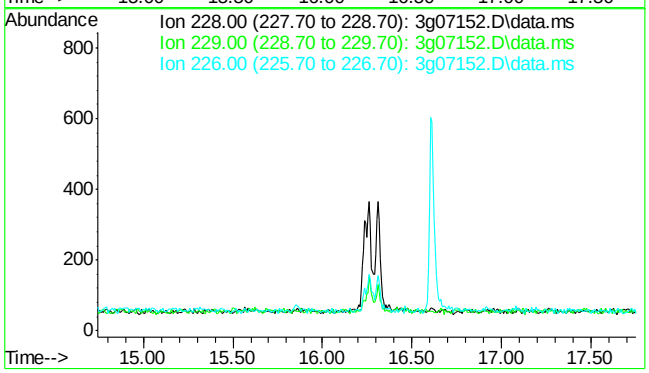
#20
Terphenyl-d14
Concen: 50.71 ug/mL
RT: 14.342 min Scan# 1278
Delta R.T. -0.016 min
Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion:244 Resp: 1788307

Ion	Ratio	Lower	Upper
244	100		
122	16.9	0.8	40.8
212	7.0	0.0	27.2





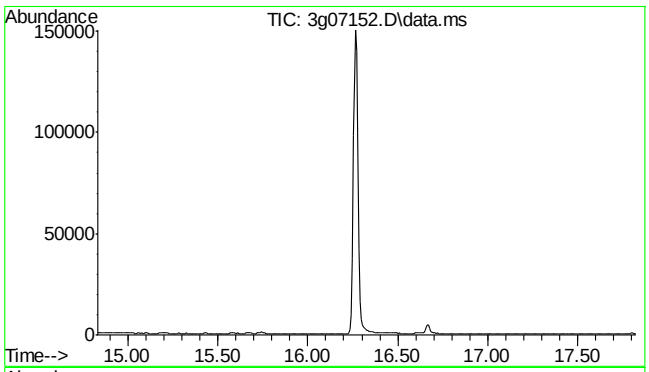


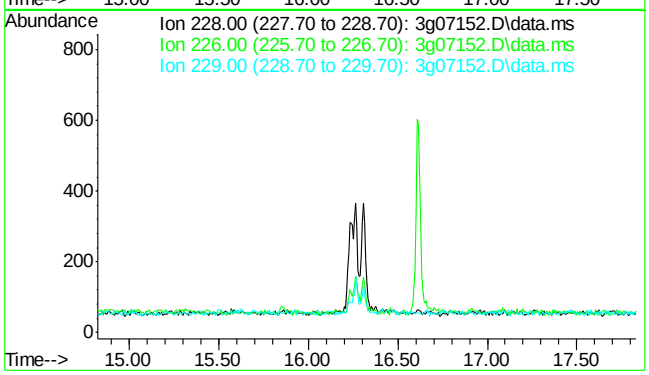
#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.25 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 228

Sig	Exp Ratio
228	100
229	19.6
226	26.6



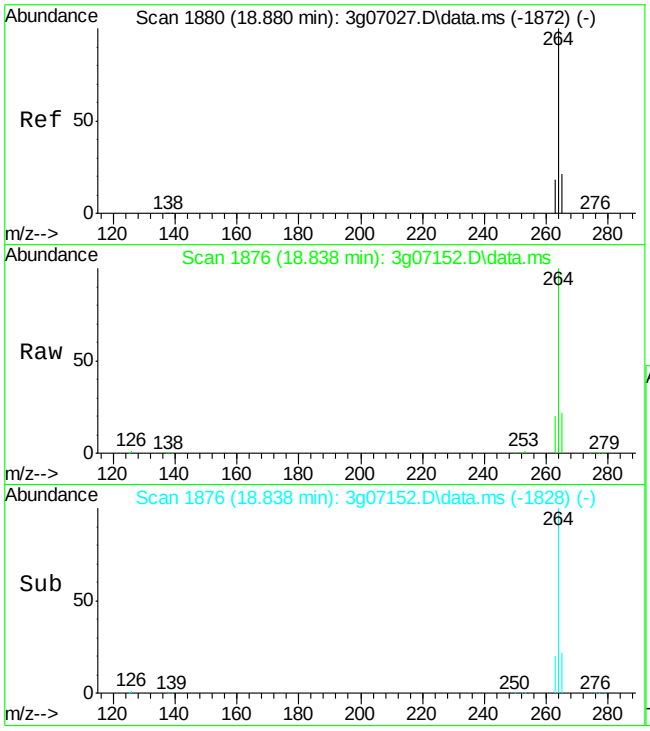


#22
Chrysene
Concen: N.D. ug/mL
Expected RT: 16.33 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 228

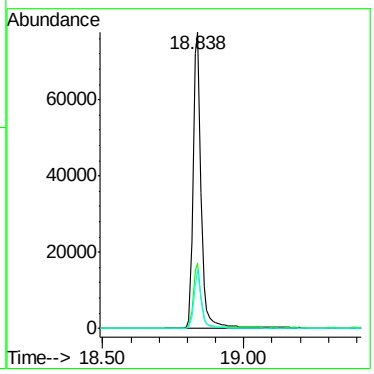
Sig	Exp Ratio
228	100
226	27.4
229	19.2

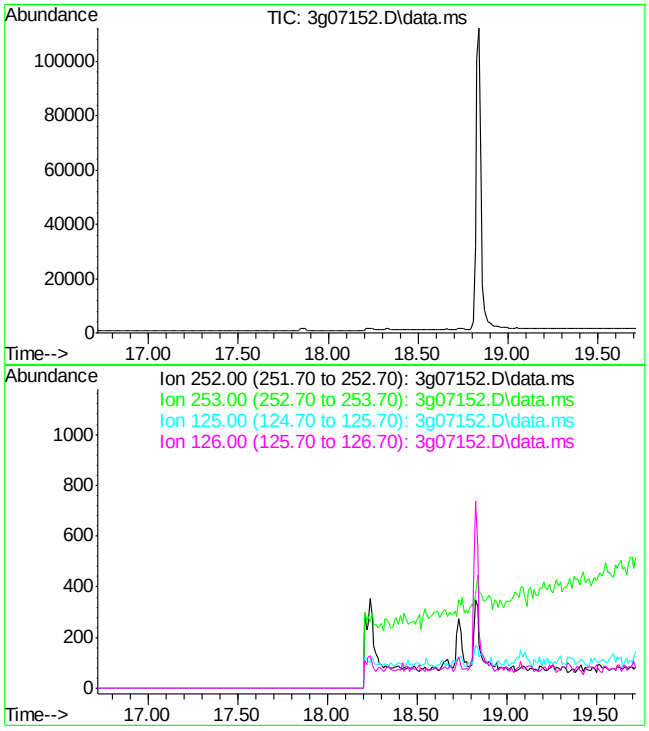


#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 18.838 min Scan# 1876
Delta R.T. 0.000 min
Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion:264 Resp: 152019

Ion	Ratio	Lower	Upper
264	100		
265	21.1	1.0	41.0
263	18.4	0.0	38.6



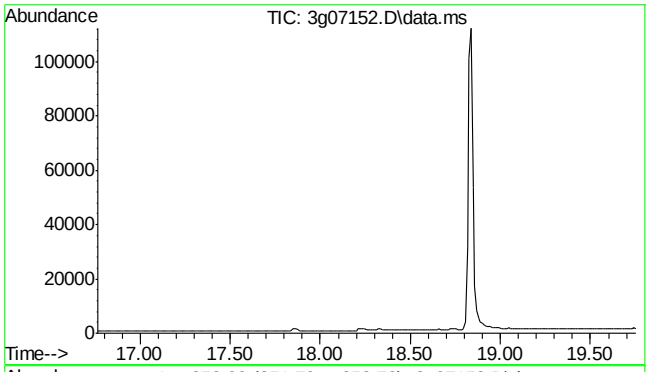


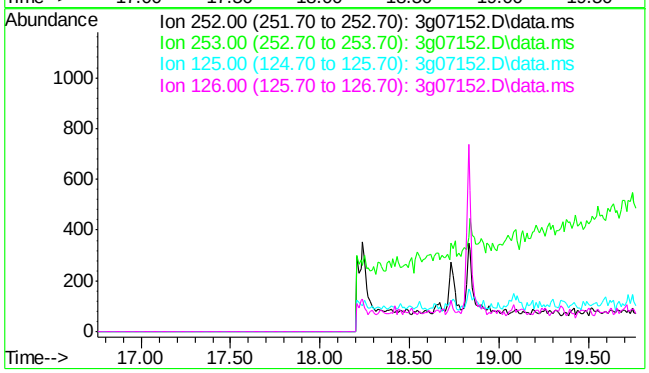
#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.22 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	66.5
125	35.4
126	50.6



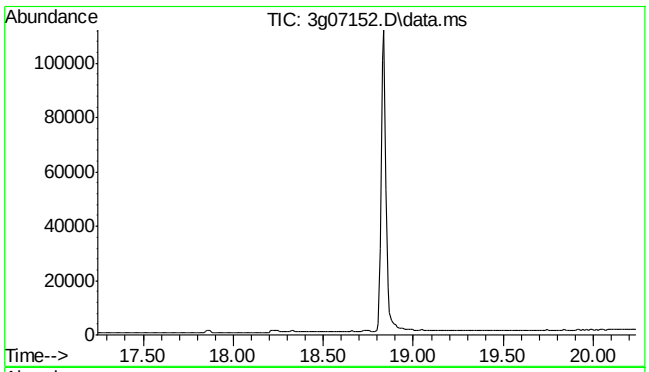


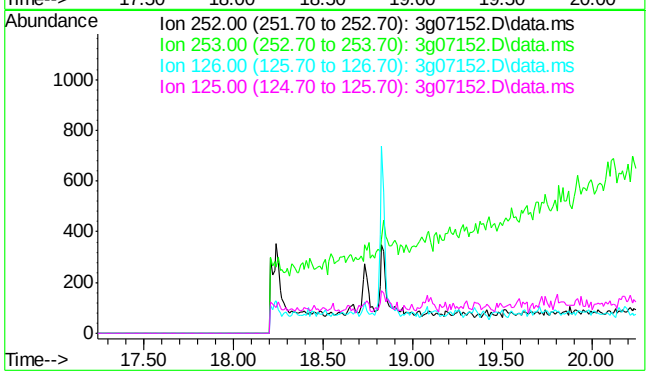
#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.26 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	37.7
125	20.1
126	28.7



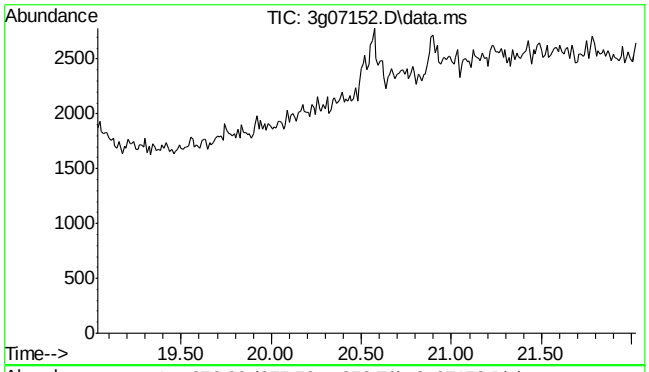


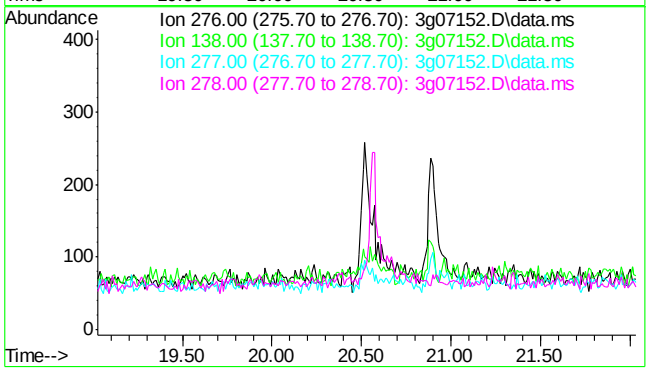
#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 18.74 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	21.4
126	18.6
125	14.0



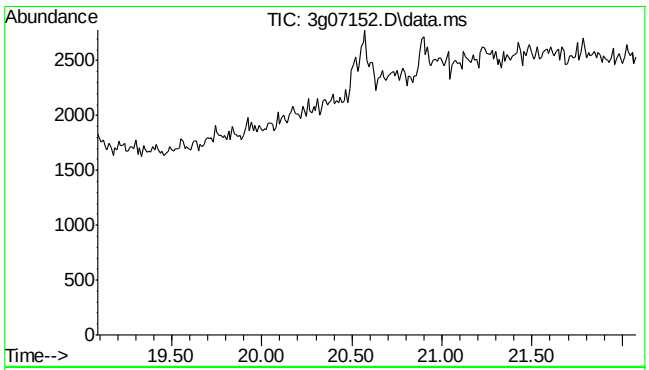


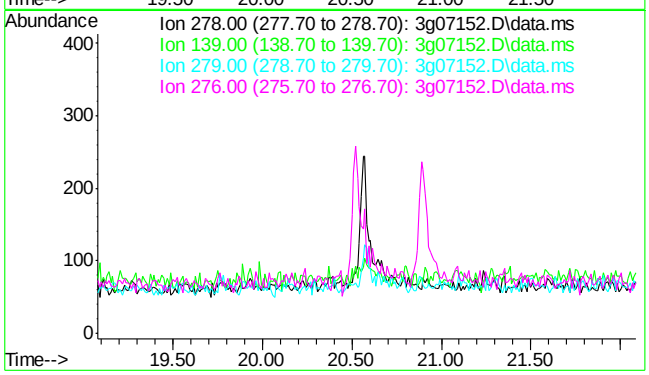
#27
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 20.53 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 276

Sig	Exp Ratio
276	100
138	28.2
277	28.3
278	3.7



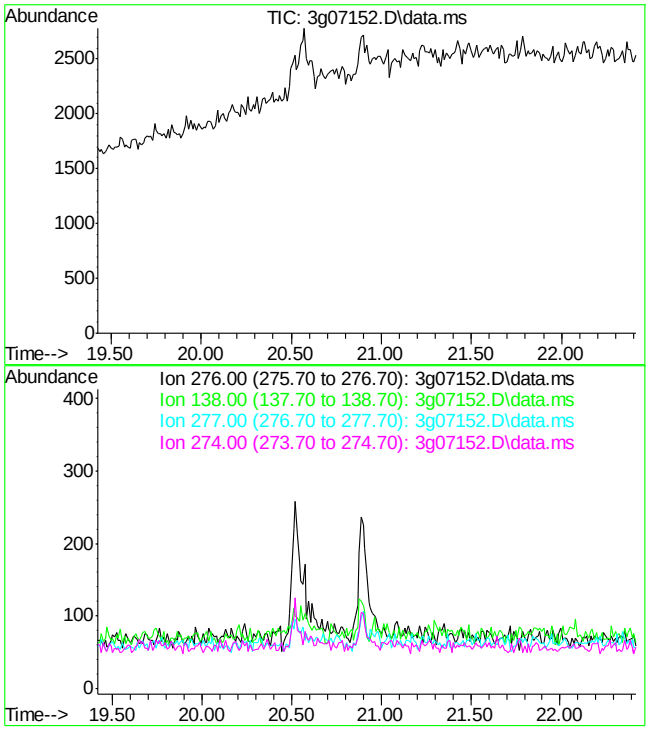


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 20.58 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 278

Sig	Exp Ratio
278	100
139	18.1
279	23.6
276	125.3



#29
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 20.92 min

Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion: 276

Sig	Exp Ratio
276	100
138	23.3
277	23.1
274	20.6

Mountain States ACCUTEST LABORATORIES

GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D29759
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB798-MB	GB14101.D	1	11/29/11	SK	n/a	n/a	GGB798

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

D29759-1

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	93%	60-140%

Blank Spike Summary

Job Number: D29759
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB798-BS	GB14102.D	1	11/29/11	SK	n/a	n/a	GGB798

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

D29759-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	114	104	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	108%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D29759
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D29759-1MS	GB14104.D	1	11/29/11	SK	n/a	n/a	GGB798
D29759-1MSD	GB14105.D	1	11/29/11	SK	n/a	n/a	GGB798
D29759-1	GB14103.D	1	11/29/11	SK	n/a	n/a	GGB798

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

D29759-1

CAS No.	Compound	D29759-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	10.3	J	150	156	97	155	97	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D29759-1	Limits
120-82-1	1,2,4-Trichlorobenzene	104%	110%	91%	60-140%

Mountain States ACCUTEST LABORATORIES

GC Volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 11/30/11 10:54

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\112911\GB14103.D\FID1A.CH Vial: 4
Signal #2 : Y:\1\DATA\112911\GB14103.D\FID2B.CH
Acq On : 29 Nov 2011 12:43 pm Operator: StephK
Sample : D29759-1, 50X Inst : GC/MS Ins
Misc : GC2437,GGB798,5.001,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 29 12:57:55 2011 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Tue Nov 29 11:36:10 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	14.39	2664890	91.091	%	m
10) S	1,2,4-Trichlorobenzene (P)	14.39	25327688	110.197	%	
	Target Compounds					
1) H	TVH-Gasoline	7.32	10790977	0.152	mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5) T	Benzene	4.16	160670	0.281	ug/L	
6) T	Toluene	7.69	608353	1.074	ug/L	
7) T	Ethylbenzene	10.32	117757	0.242	ug/L	
8) T	m,p-Xylene	10.50	1082118	1.505	ug/L	
9) T	o-Xylene	10.99	272878	0.293	ug/L	
11) T	Naphthalene	14.58	7882139	30.623	ug/L	

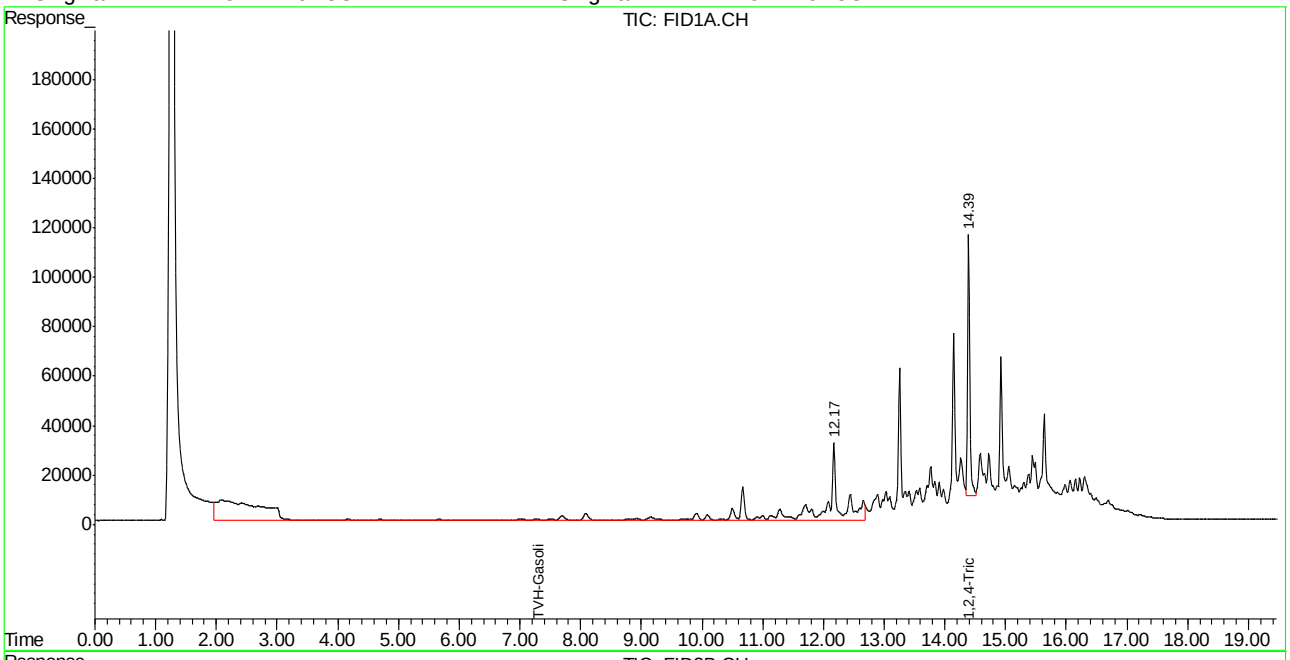
(f)=RT Delta > 1/2 Window (m)=manual int.

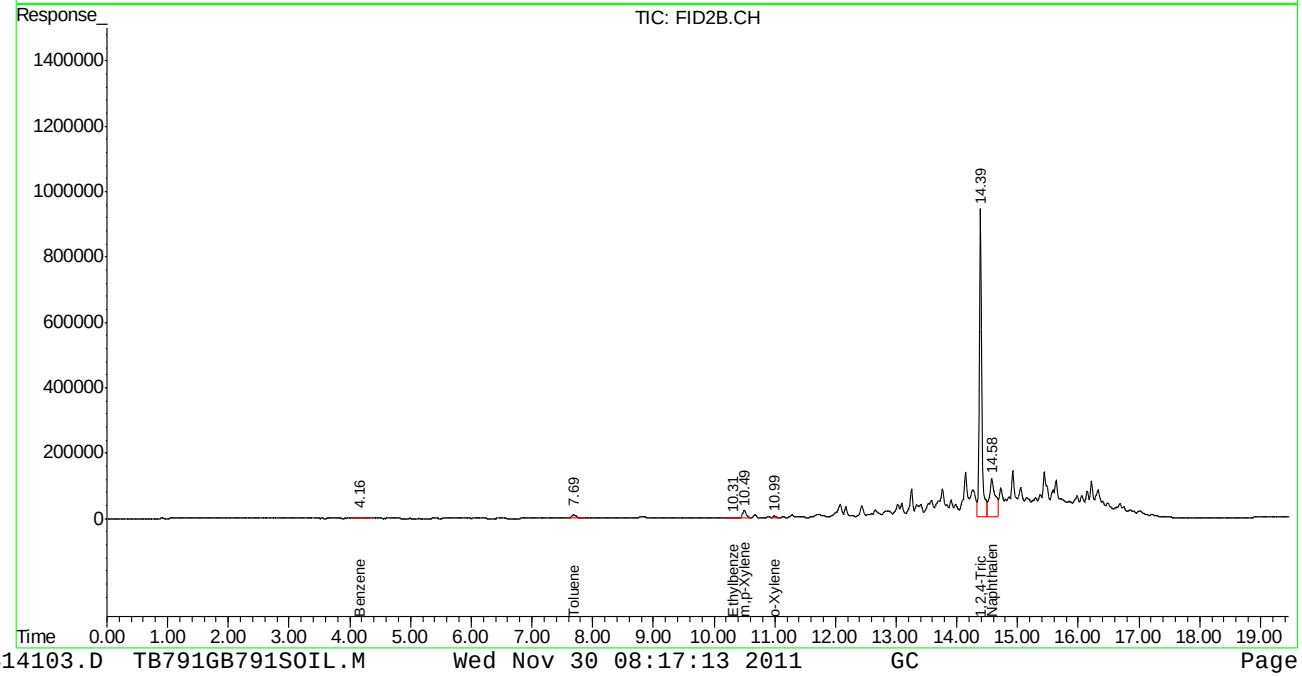
Quantitation Report (QT Reviewed)

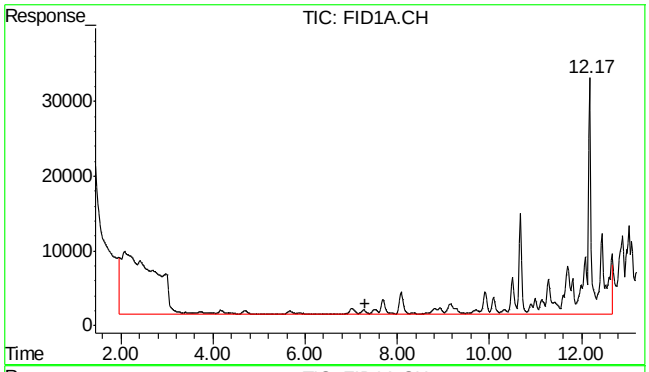
Signal #1 : Y:\1\DATA\112911\GB14103.D\FID1A.CH Vial: 4
Signal #2 : Y:\1\DATA\112911\GB14103.D\FID2B.CH
Acq On : 29 Nov 2011 12:43 pm Operator: StephK
Sample : D29759-1, 50X Inst : GC/MS Ins
Misc : GC2437,GGB798,5.001,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 29 12:57 2011 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Tue Nov 29 11:36:10 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

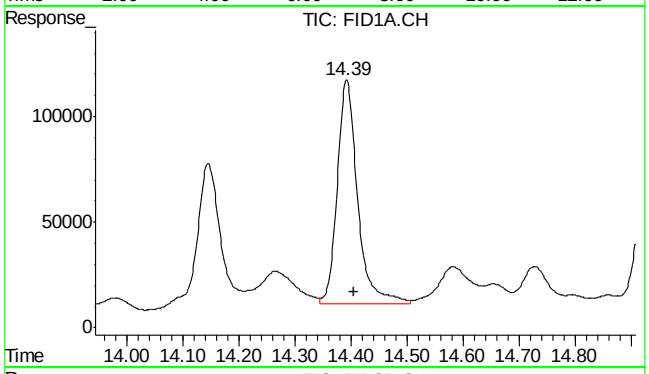






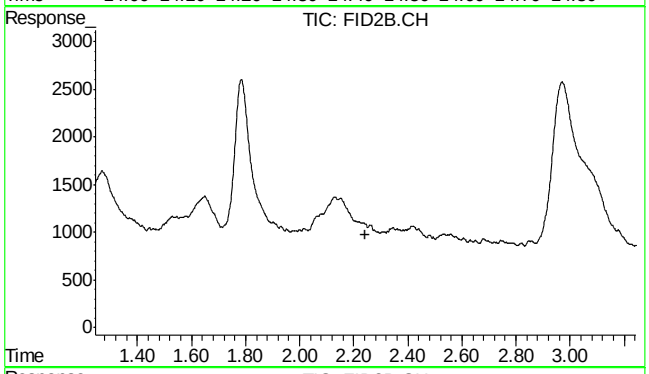
#1 TVH-Gasoline

R.T.: 7.315 min
Delta R.T.: 0.000 min
Response: 10790977
Conc: 0.15 mg/L m



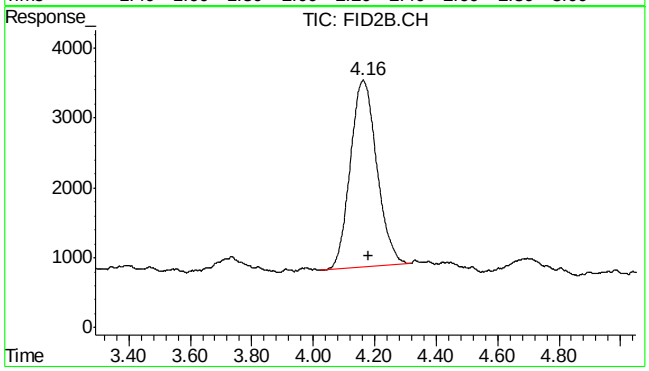
#2 1,2,4-Trichlorobenzene

R.T.: 14.391 min
Delta R.T.: -0.013 min
Response: 2664890
Conc: 91.09 % m



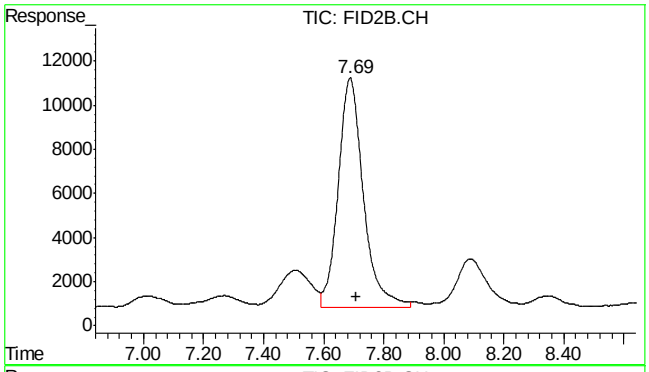
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.244 min
Response: 0
Conc: N.D.



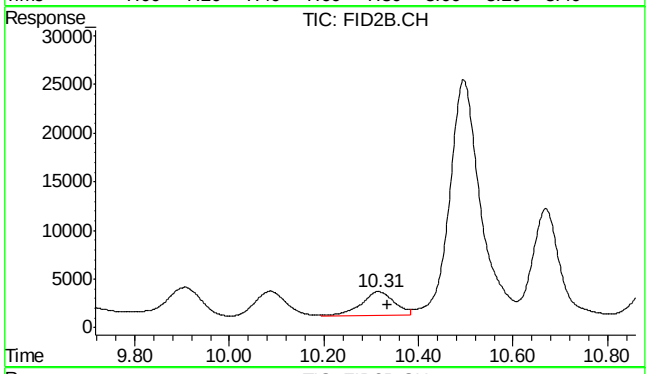
#5 Benzene

R.T.: 4.163 min
Delta R.T.: -0.015 min
Response: 160670
Conc: 0.28 ug/L



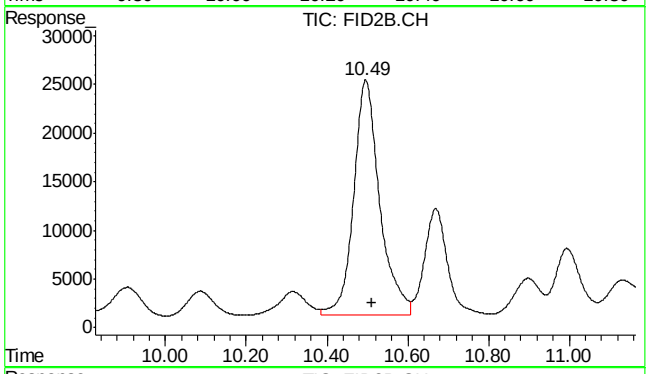
#6 Toluene

R.T.: 7.689 min
Delta R.T.: -0.021 min
Response: 608353
Conc: 1.07 ug/L



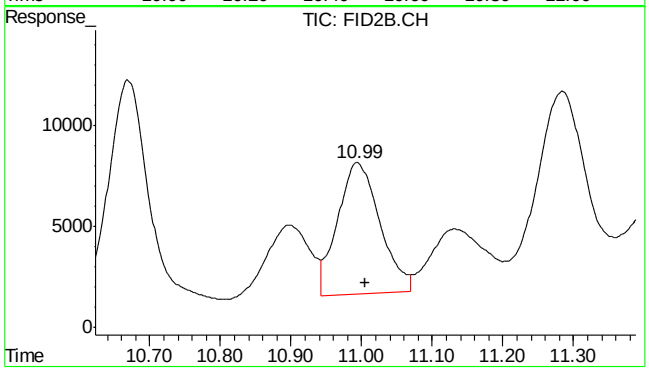
#7 Ethylbenzene

R.T.: 10.316 min
Delta R.T.: -0.018 min
Response: 117757
Conc: 0.24 ug/L



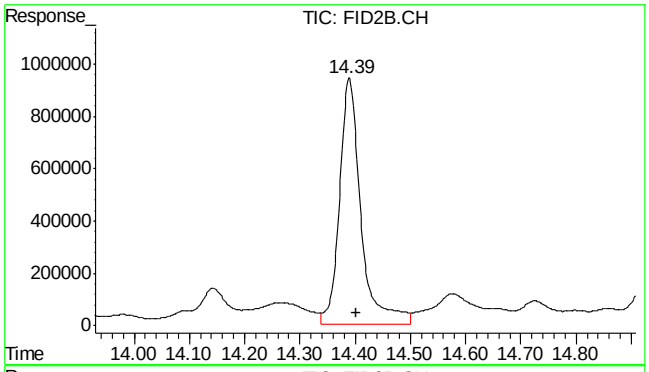
#8 m,p-Xylene

R.T.: 10.496 min
Delta R.T.: -0.016 min
Response: 1082118
Conc: 1.50 ug/L



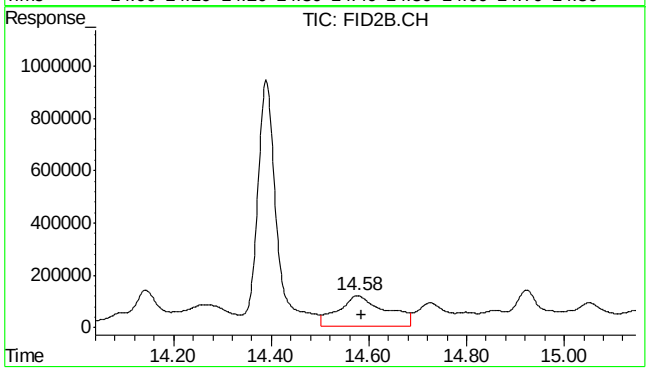
#9 o-Xylene

R.T.: 10.994 min
Delta R.T.: -0.010 min
Response: 272878
Conc: 0.29 ug/L



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

R.T.: 14.390 min
Delta R.T.: -0.013 min
Response: 25327688
Conc: 110.20 %



#11 Naphthalene

R.T.: 14.576 min
Delta R.T.: -0.008 min
Response: 7882139
Conc: 30.62 ug/L

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 11/30/11 10:54

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\112911\GB14101.D\FID1A.CH Vial: 2
Signal #2 : Y:\1\DATA\112911\GB14101.D\FID2B.CH
Acq On : 29 Nov 2011 11:32 am Operator: StephK
Sample : MB, S Inst : GC/MS Ins
Misc : GC2437,GGB798,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 29 10:57:03 2011 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Tue Nov 29 10:18:20 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	14.41	2709662	92.622 %		m
10) S	1,2,4-Trichlorobenzene (P)	14.41	22554142	98.130 %		
	Target Compounds					
1) H	TVH-Gasoline	7.32	5280135	<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	7.72	176271	0.311	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	14.59	417773	1.623	ug/L	

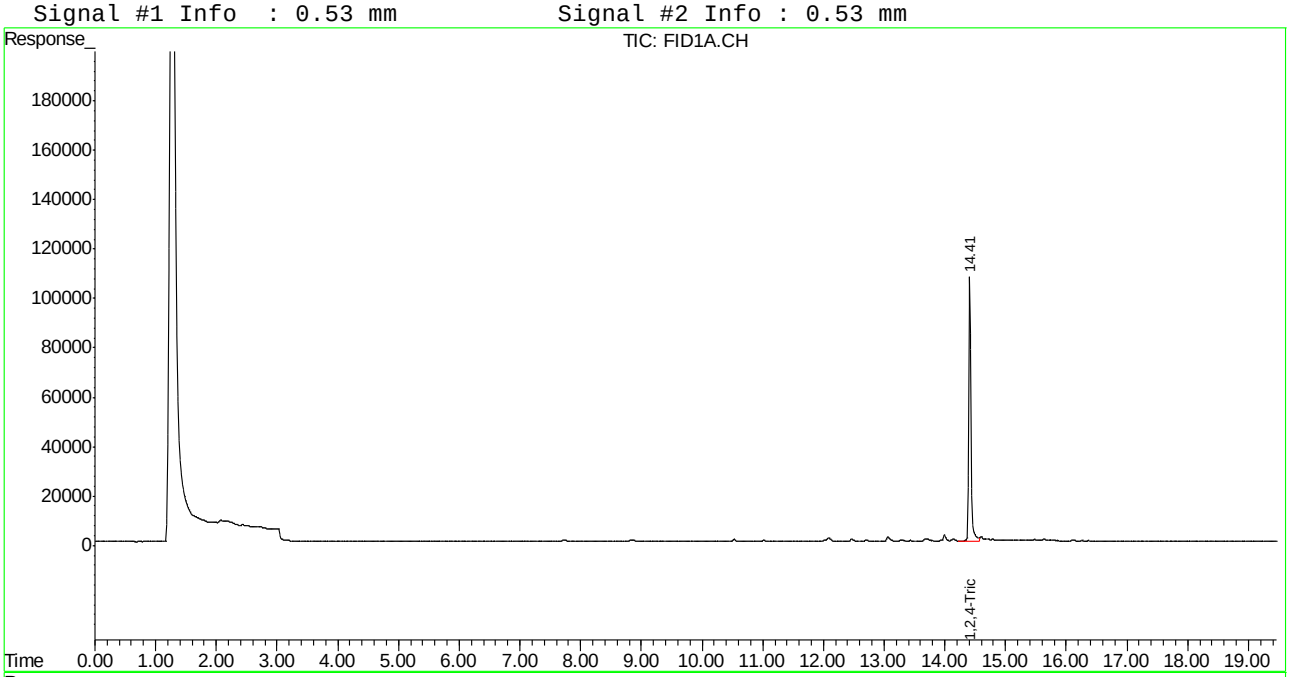
(f)=RT Delta > 1/2 Window (m)=manual int.

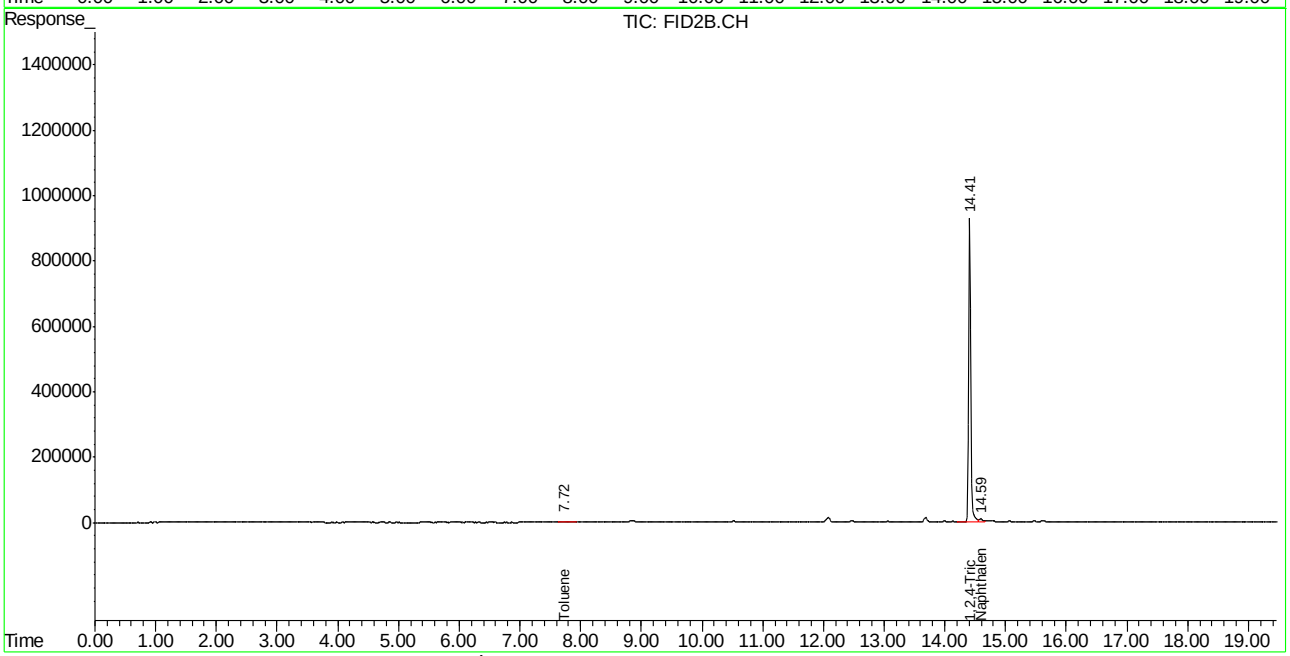
Quantitation Report (QT Reviewed)

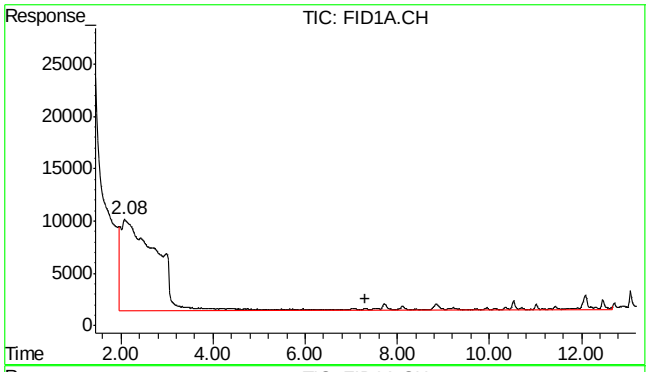
Signal #1 : Y:\1\DATA\112911\GB14101.D\FID1A.CH Vial: 2
Signal #2 : Y:\1\DATA\112911\GB14101.D\FID2B.CH
Acq On : 29 Nov 2011 11:32 am Operator: StephK
Sample : MB, S Inst : GC/MS Ins
Misc : GC2437,GGB798,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 29 10:56 2011 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Tue Nov 29 10:18:20 2011
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

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

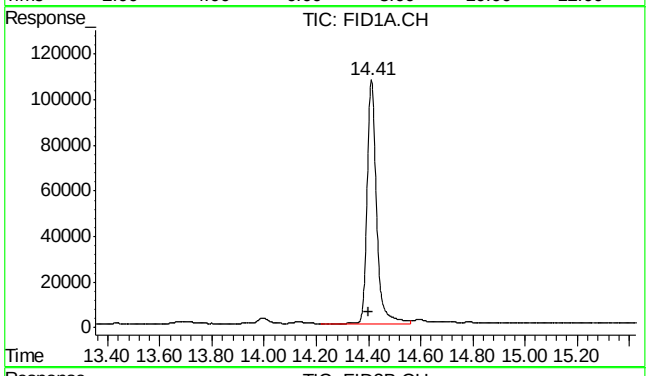






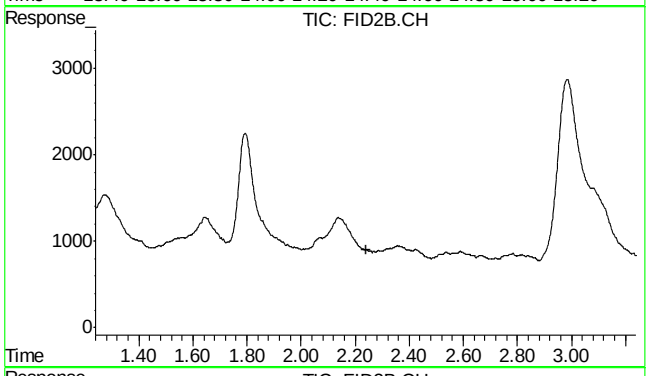
#1 TVH-Gasoline

R.T.: 7.315 min
Delta R.T.: 0.000 min
Response: 5280135
Conc: N.D.



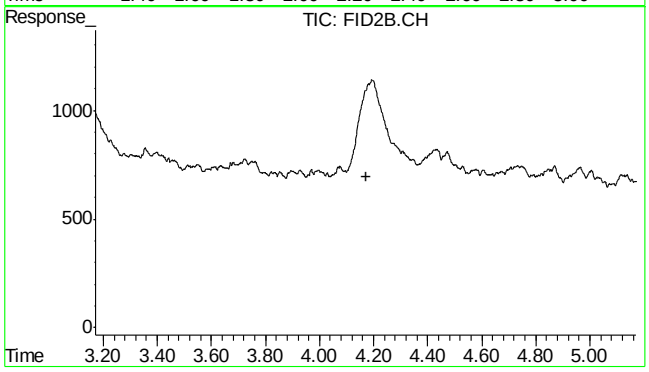
#2 1,2,4-Trichlorobenzene

R.T.: 14.410 min
Delta R.T.: 0.010 min
Response: 2709662
Conc: 92.62 % m



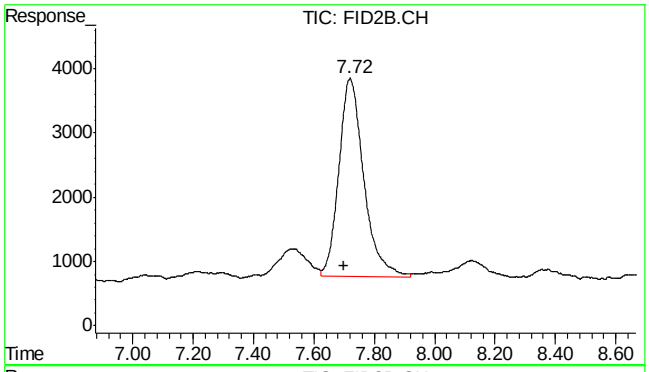
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.240 min
Response: 0
Conc: N.D.



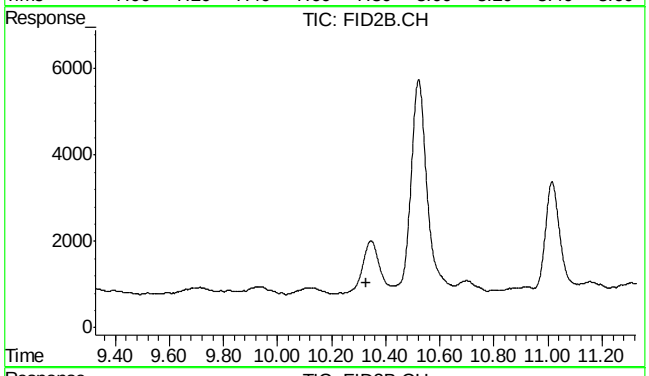
#5 Benzene

R.T.: 0.000 min
Exp R.T. : 4.171 min
Response: 0
Conc: N.D.



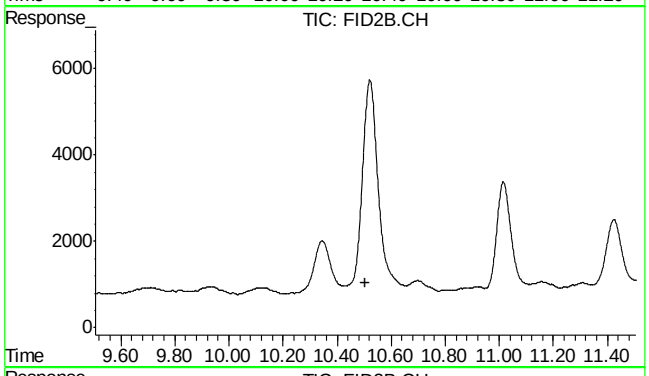
#6 Toluene

R.T.: 7.720 min
Delta R.T.: 0.020 min
Response: 176271
Conc: 0.31 ug/L



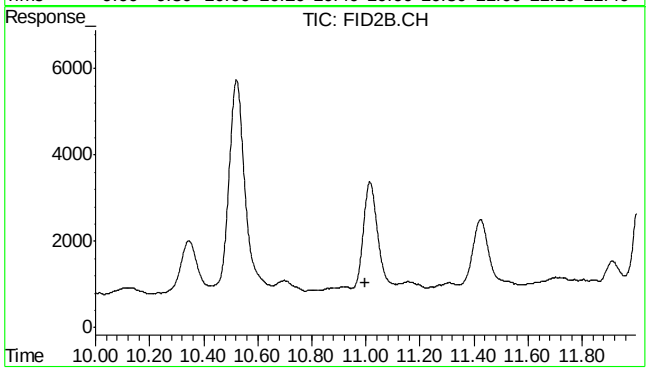
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.326 min
Response: 0
Conc: N.D.



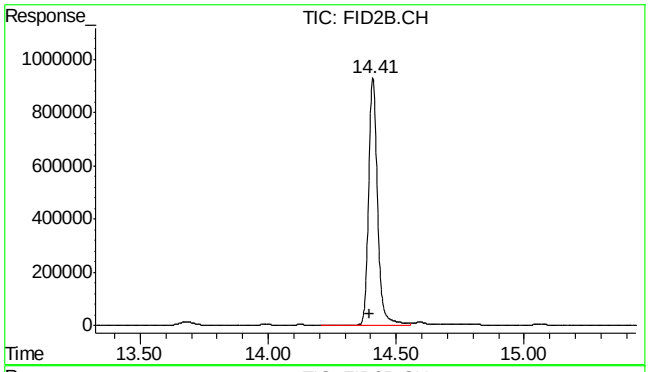
#8 m,p-Xylene

R.T.: 0.000 min
Exp R.T. : 10.505 min
Response: 0
Conc: N.D.



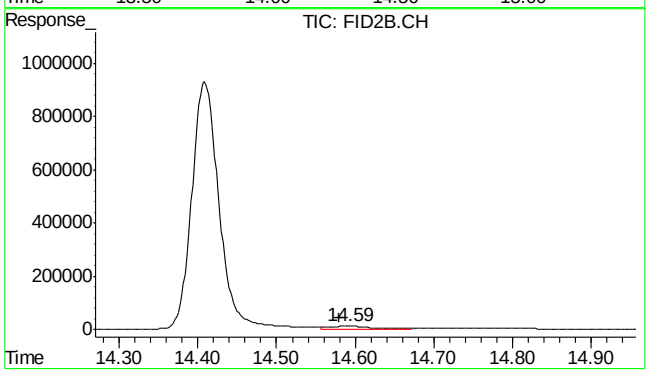
#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 10.999 min
Response: 0
Conc: N.D.



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

R.T.:	14.409 min
Delta R.T.:	0.011 min
Response:	22554142
Conc:	98.13 %



#11 Naphthalene

R.T.:	14.592 min
Delta R.T.:	0.011 min
Response:	417773
Conc:	1.62 ug/L

Mountain States ACCUTEST LABORATORIES

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D29759
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4919-MB	FD11933.D	1	12/04/11	TR	11/29/11	OP4919	GFD613

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

D29759-1

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: D29759
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4919-BS	FD11934.D	1	12/04/11	TR	11/29/11	OP4919	GFD613

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

D29759-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	613	92	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	101%	61-142%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D29759
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4919-MS	FD11935.D	1	12/04/11	TR	11/29/11	OP4919	GFD613
OP4919-MSD	FD11936.D	1	12/04/11	TR	11/29/11	OP4919	GFD613
D29759-1	FD11937.D	1	12/04/11	TR	11/29/11	OP4919	GFD613

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

D29759-1

CAS No.	Compound	D29759-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	593		787	833	30	848	32	2	20-183/43

CAS No.	Surrogate Recoveries	MS	MSD	D29759-1	Limits
84-15-1	o-Terphenyl	59%	60%	85%	43-136%

Mountain States ACCUTEST LABORATORIES

GC Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 12/05/11 15:10

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\DEC\FD120411\FD11937.D Vial: 7
Acq On : 12-4-2011 01:28:31 PM Operator: TEDR
Sample : D29759-1 Inst : FID5
Misc : OP4919,GFD613,30.01,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Dec 04 18:20:18 2011 Quant Results File: GFD599.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD599.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Nov 29 09:00:39 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	9.65	45199824	854.016	mg/L	m
	Target Compounds					
2)	H TPH-DRO (c10-c28)	7.46	381541174	7530.506	mg/L	

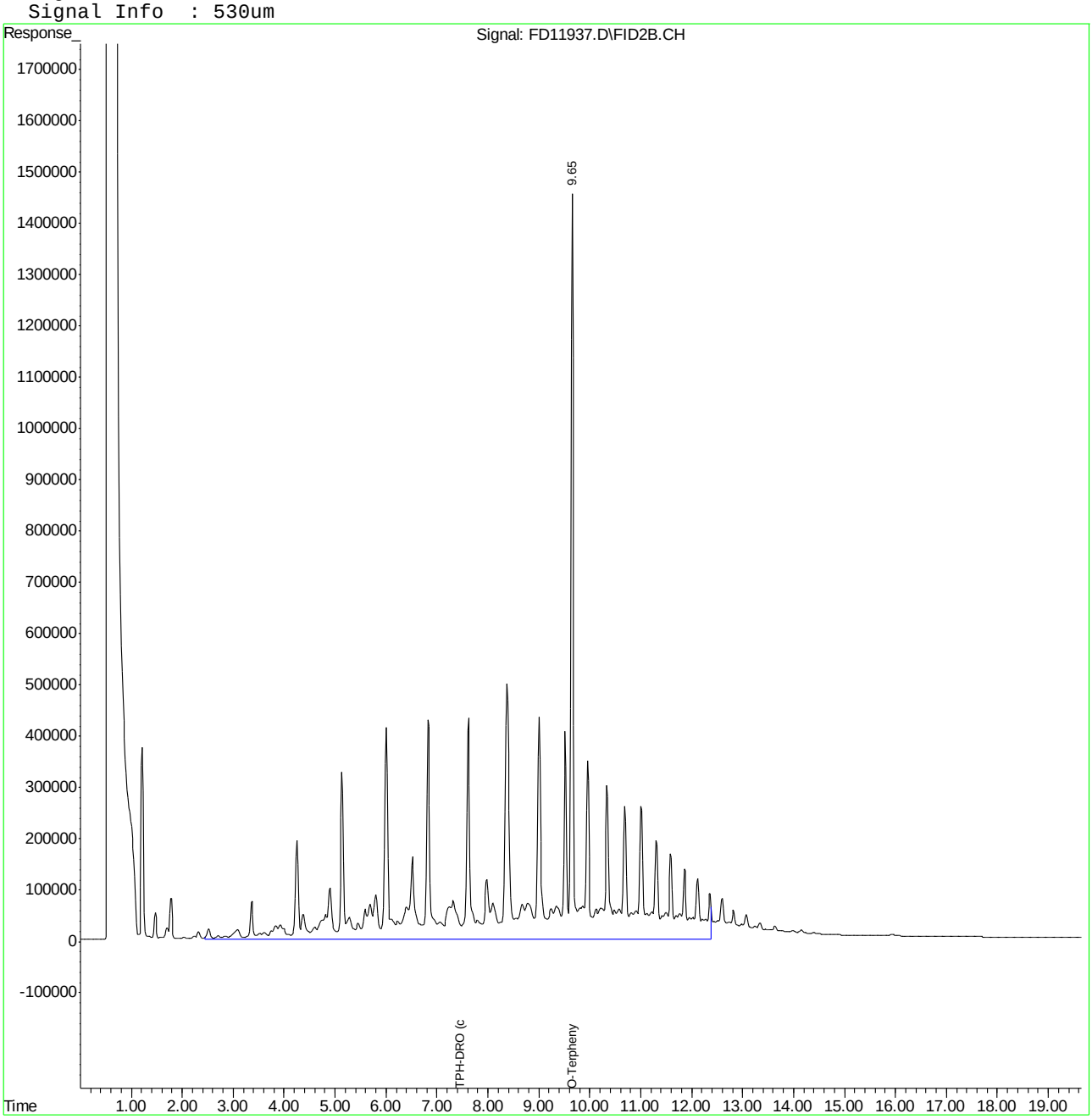
(f)=RT Delta > 1/2 Window (m)=manual int.

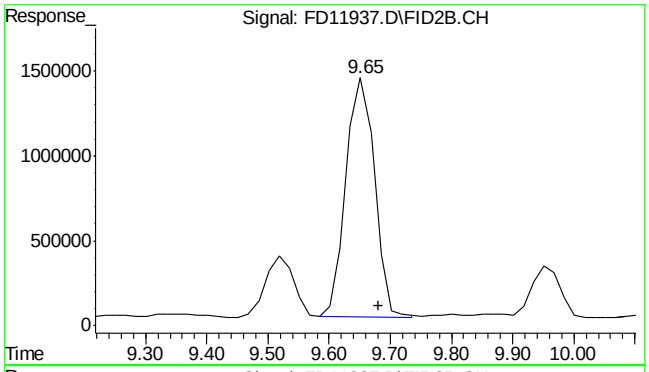
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\DEC\FD120411\FD11937.D Vial: 7
Acq On : 12-4-2011 01:28:31 PM Operator: TEDR
Sample : D29759-1 Inst : FID5
Misc : OP4919,GFD613,30.01,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Dec 4 18:20 2011 Quant Results File: GFD599.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD599.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Nov 29 09:00:39 2011
Response via : Multiple Level Calibration
DataAcq Meth : JH080911.M

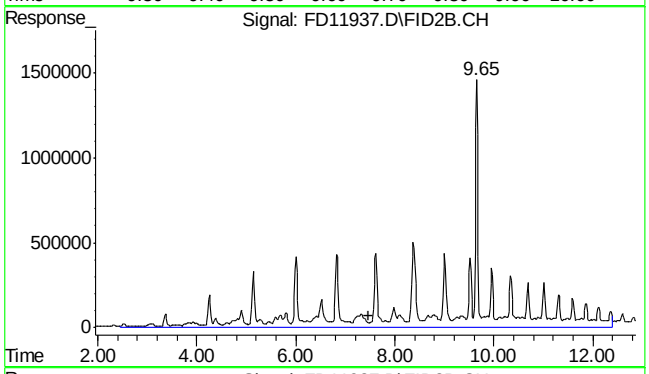
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





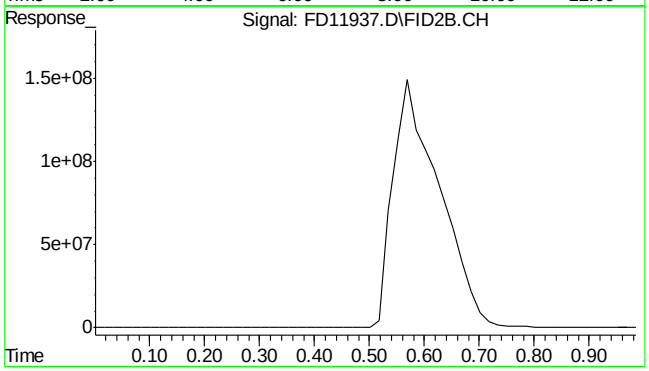
#1 O-Terphenyl

R.T.: 9.651 min
Delta R.T.: -0.029 min
Response: 45199824
Conc: 854.02 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 7.455 min
Delta R.T.: 0.000 min
Response: 381541174
Conc: 7530.51 mg/L m



#9 5a-Androstane

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

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 12/05/11 15:10

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\DEC\FD120411\FD11933.D Vial: 3
Acq On : 04 Dec 2011 11:46 am Operator: TEDR
Sample : OP4919-MB Inst : FID5
Misc : OP4919,GFD613,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Dec 04 12:13:21 2011 Quant Results File: GFD599.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD599.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Nov 29 09:00:39 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	9.65	51862949	984.269 mg/L m
	Target Compounds			
2) H	TPH-DRO (c10-c28)	7.46	2084125	40.327 mg/L

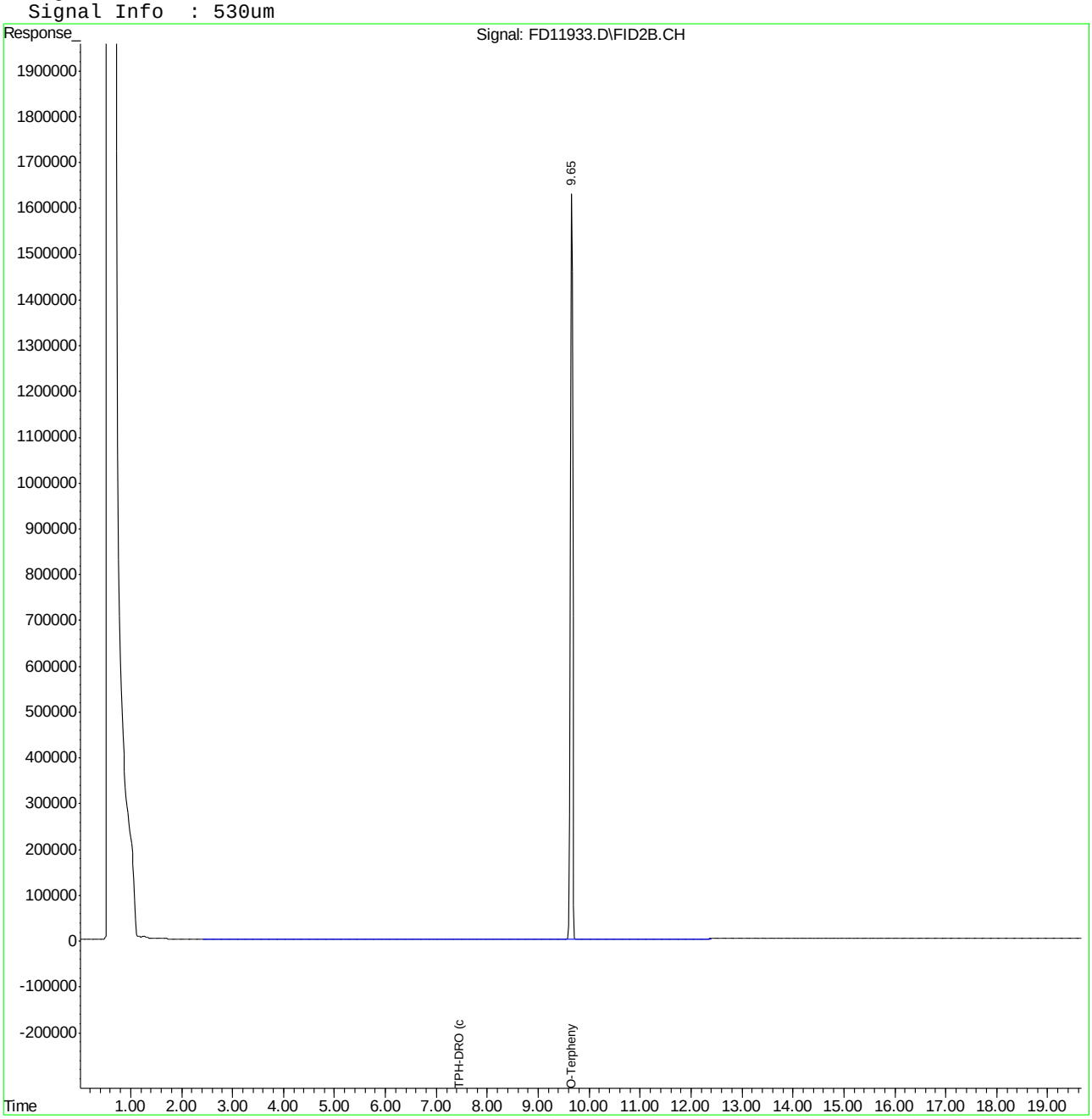
(f)=RT Delta > 1/2 Window (m)=manual int.

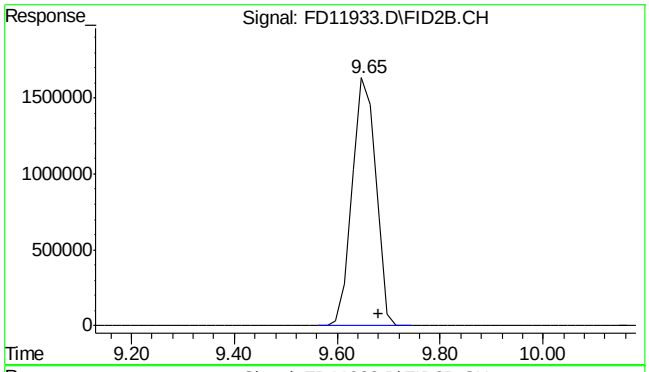
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\DEC\FD120411\FD11933.D Vial: 3
Acq On : 04 Dec 2011 11:46 am Operator: TEDR
Sample : OP4919-MB Inst : FID5
Misc : OP4919,GFD613,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Dec 4 16:22 2011 Quant Results File: GFD599.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD599.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Nov 29 09:00:39 2011
Response via : Multiple Level Calibration
DataAcq Meth : JH080911.M

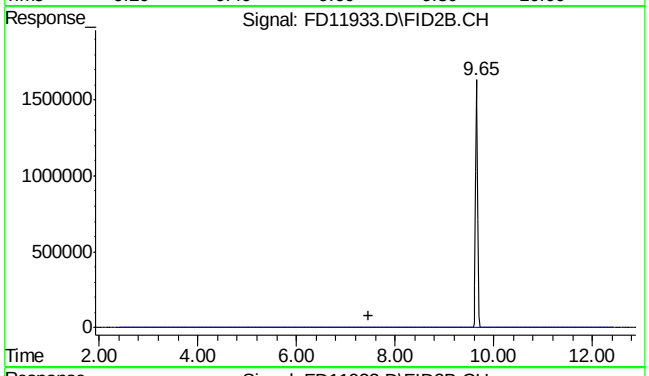
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





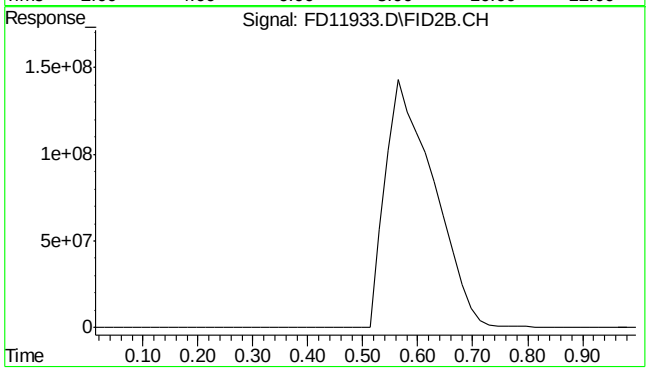
#1 O-Terphenyl

R.T.: 9.652 min
Delta R.T.: -0.028 min
Response: 51862949
Conc: 984.27 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 7.455 min
Delta R.T.: 0.000 min
Response: 2084125
Conc: 40.33 mg/L m



#9 5a-Androstane

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

Mountain States ACCUTEST LABORATORIES

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: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6360
Matrix Type: AQUEOUS

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

Prep Date: 11/29/11

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	3.0	<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	-15	<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	-150	<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 MP6360: D29759-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6360
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6360
Matrix Type: AQUEOUS

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

Prep Date: 11/29/11

Metal	D29759-1A Original MS		Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	45100	176000	125000	104.7	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	127	126000	125000	100.7	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	424000	543000	125000	95.2	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6360: D29759-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6360
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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6360
Matrix Type: AQUEOUS

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

Prep Date: 11/29/11

Metal	D29759-1A Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	45100	176000	125000	104.7	0.0	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	127	128000	125000	102.3	1.6	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	424000	544000	125000	96.0	0.2	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP6360: D29759-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6360
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: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6360
Matrix Type: AQUEOUS

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

Prep Date: 11/29/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	133000	125000	106.4	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	127000	125000	101.6	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	131000	125000	104.8	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP6360: D29759-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6360
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6361
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/30/11

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	0.030	<1.0
Beryllium	1.0	.044	.1		
Boron	5.0	.48	.48		
Cadmium	1.0	.027	.27	0.0	<1.0
Calcium	40	.96	1.1		
Chromium	1.0	.018	.031	-0.030	<1.0
Cobalt	0.50	.035	.035		
Copper	1.0	.085	.16	-0.050	<1.0
Iron	7.0	.34	2		
Lead	5.0	.16	.21	-0.11	<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	-0.060	<3.0
Phosphorus	10	1.1	1.2		
Potassium	200	5.5	9.2		
Selenium	5.0	.38	.5	0.070	<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	0.10	<3.0

Associated samples MP6361: D29759-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6361
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6361
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/30/11

Metal	D29760-1 Original	MS	Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	2480	2990	241	211.4(a)	75-125
Beryllium					
Boron					
Cadmium	0.11	56.0	60.3	92.7	75-125
Calcium					
Chromium	48.4	103	60.3	90.5	75-125
Cobalt					
Copper	11.3	66.3	60.3	91.2	75-125
Iron					
Lead	14.2	122	121	89.4	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	18.8	71.0	60.3	86.6	75-125
Phosphorus					
Potassium					
Selenium	2.1	110	121	89.5	75-125
Silicon					
Silver	0.11	22.1	24.1	91.2	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	52.0	102	60.3	82.9	75-125

Associated samples MP6361: D29759-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6361
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.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6361
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/30/11

Metal	D29760-1 Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	2480	2720	239	100.5	9.5	20
Beryllium						
Boron						
Cadmium	0.11	55.7	59.7	93.1	0.5	20
Calcium						
Chromium	48.4	99.2	59.7	85.1	3.8	20
Cobalt						
Copper	11.3	67.5	59.7	94.1	1.8	20
Iron						
Lead	14.2	122	119	90.3	0.0	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	18.8	69.7	59.7	85.3	1.8	20
Phosphorus						
Potassium						
Selenium	2.1	109	119	89.5	0.9	20
Silicon						
Silver	0.11	22.1	23.9	92.1	0.0	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	52.0	99.7	59.7	79.9	2.3	20

Associated samples MP6361: D29759-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6361
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6361
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/30/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	184	200	92.0	80-120
Beryllium				
Boron				
Cadmium	46.5	50	93.0	80-120
Calcium				
Chromium	47.3	50	94.6	80-120
Cobalt				
Copper	45.3	50	90.6	80-120
Iron				
Lead	95.2	100	95.2	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	46.2	50	92.4	80-120
Phosphorus				
Potassium				
Selenium	91.3	100	91.3	80-120
Silicon				
Silver	18.9	20	94.5	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	47.5	50	95.0	80-120

Associated samples MP6361: D29759-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6361
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6361
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date: 11/30/11

Metal	D29760-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	22200	24200	9.1	0-10
Beryllium				
Boron				
Cadmium	1.00	0.00	100.0(a)	0-10
Calcium				
Chromium	434	478	10.1*(b)	0-10
Cobalt				
Copper	101	102	0.4	0-10
Iron				
Lead	128	123	4.0	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	168	190	12.5*(b)	0-10
Phosphorus				
Potassium				
Selenium	18.9	31.5	66.7 (a)	0-10
Silicon				
Silver	1.00	3.50	250.0(a)	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	467	554	18.6*(b)	0-10

Associated samples MP6361: D29759-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6361
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: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6362
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 11/30/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	0.29	* (a)
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 MP6362: D29759-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) All sample results < RL or > 10x MB concentration.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6362
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 11/30/11

Metal	D29759-1 Original	MS	Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	4.5	129	120	103.3	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 MP6362: D29759-1

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: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6362
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 11/30/11

Metal	D29759-1 Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	4.5	129	119	104.4	0.0	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 MP6362: D29759-1

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: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6362
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 11/30/11

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

Associated samples MP6362: D29759-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6362
Matrix Type: SOLID

Methods: SW846 6020
Units: ug/l

Prep Date: 11/30/11

Metal	D29759-1 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	36.6	58.0	58.5*(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 MP6362: D29759-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6363 Methods: SW846 7471A
Matrix Type: SOLID Units: mg/kg

Prep Date: 11/30/11

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.10	.0011	.013	-0.0026	<0.10

Associated samples MP6363: D29759-1

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: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6363
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 11/30/11

Metal	D25269-9 Original	MS	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.045	0.39	0.4	86.3	85-115

Associated samples MP6363: D29759-1

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: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6363 Methods: SW846 7471A
Matrix Type: SOLID Units: mg/kg

Prep Date: 11/30/11

Metal	D25269-9 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.045	0.36	0.364	86.6	8.0	20

Associated samples MP6363: D29759-1

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: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6363
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 11/30/11

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

Associated samples MP6363: D29759-1

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

Mountain States ACCUTEST LABORATORIES

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: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP6017/GN12683			umhos/cm	10008	9880	98.7	90-110%
pH	GN12694			su	8.00	8.04	100.5	99.3-100.7%

Associated Samples:
Batch GN12694: D29759-1
Batch GP6017: D29759-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D29759
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Redox Potential Vs H2	GN12695	D29644-1R	mv	204	223	8.7	0-20%

Associated Samples:
Batch GN12695: D29759-1
(*) Outside of QC limits

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST

4036 Youngfield St., Wheat Ridge, CO 80033
303-425-6021 FAX: 303-425-6854

Accutest Job #:	D29759
Accutest Quote #:	0
AMS P.O. #:	
Project No.:	

Client Information			Subcontract Laboratory Information		
Name: Accutest Mountain States (AMS)			Name: Accutest - New England		
Address: 4036 Youngfield St.			Address: 495 Technology Center West, BLDG O		
City: Wheat Ridge,	State: CO	Zip: 80033	City: Marlborough	State: MA	Zip: 01752
Send Report to: Tiffany Pham			Contact: Sample Management		
Any questions contact: Shea Greiner					
Phone/Fax #: (303) 425-6021; (303)425-6854			Phone: (508) 481-6200		

Field ID / Point of Collection	Collection Date	Collection Time		Matrix	# of bottles	Preservation: HCL	NaOH	HNO3	H2SO4	None	XCRA					Comments
D29759 -1	11/23/11	10:45 AM		Soil	1						X					

Turnaround Information

[X] 1 - 2 Business Day Rush — Approved By:
[ ] Other _____ (Days)

RUSH!

10 Day Turnaround Hardcopy, RUSH is FAX Data unless previously approved.

Data Deliverable Information

- [ ] Commercial "A"
- [ ] Commercial "B"
- [ ] Commercial "BN"
- [ ] Reduced Tier 1
- [ ] Full Tier 1
- [ ] PDF
- [ ] Compact Disk Deliverable
- [ ] Electronic Delivery: _____
- [ ] State Forms
- [ ] Other (Specify) _____

Comments / Remarks

Please use Colorado regulations and RLs.

SA

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by:	Date & Time:	Received By:	Date & Time:
1		1 FedEx	1
2 FedEx	11/24/11 9:30	2	2 11/24/11 9:30
3		3	3

For Subcontract Laboratory Use Only

Seal #: | Headspace: Yes ☐ No ☐ NA ☐

Preserved where applicable: ☐

Temperature °C 2.0 On Ice ☑

D29759: Chain of Custody
Page 1 of 2
Accutest Labs of New England, Inc.

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D29759 **Client:** AMS **Immediate Client Services Action Required:** No

Date / Time Received: 11/29/2011 **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:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	Infared gun		
3. Cooler media:	Ice (bag)		

Quality Control Preservatio	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:508.481.6200

495 Technology Center West, Bldg One
F: 508.481.7753

Marlborough, MA
www/accutest.com

Mountain States ACCUTEST LABORATORIES

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: D29759
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: XOM FRU 297-17A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP13862/GN37061	0.40	0.0	mg/kg	40	39.0	97.5	80-120%
Chromium, Hexavalent	GP13862/GN37061			mg/kg	966	1100	113.9	80-120%

Associated Samples:
Batch GP13862: D29759-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D29759
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: XOM FRU 297-17A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP13862/GN37061	D29745-1	mg/kg	0.21	0.26	21.3(a)	0-20%

Associated Samples:
Batch GP13862: D29759-1
(*) Outside of QC limits
(a) RPD acceptable due to low duplicate and sample concentrations.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D29759
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: XOM FRU 297-17A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP13862/GN37061	D29745-1	mg/kg	0.21	41.5	39.8	95.5	75-125%
Chromium, Hexavalent	GP13862/GN37061	D29745-1	mg/kg	0.21	939	1050	111.8	75-125%

Associated Samples:
Batch GP13862: D29759-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits