Mountain States ACCUTEST LABORATORIES

12/09/11

Technical Report for

KRW Consulting, Inc.

XOM FRU 297-17A

1108-13A

Accutest Job Number: D29760

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: **138**

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.

Sections:

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Sample Summary

KRW Consulting, Inc.

Job No: D29760

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

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
D29760-1	11/23/11	11:00	DLS	11/28/11	SO	Soil	FW SUBLINER
D29760-1A	11/23/11	11:00	DLS	11/28/11	SO	Soil	FW SUBLINER

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	KRW Consulting, Inc.	**Job No**	D29760
Site:	XOM FRU 297-17A	**Report Dat**	12/9/2011 3:43:54 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 D29760 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 within the recommended method holding time.
- All samples were 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.

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 within the recommended method holding time.
- 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.

Metals By Method SW846 6010B

Matrix AQ **Batch ID:** MP6360

- All samples were digested 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) D29759-1AMS, D29759-1AMSD were used as the QC samples for the metals analysis.

Matrix SO **Batch ID:** MP6361

- All samples were digested 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) 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).
- 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 within the recommended method holding time.
- All samples were 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 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) 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:** R10927

- The data for SW846 3060/7196A M meets quality control requirements.
- D29760-1 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.
- D29760-1 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: D29760-1.

Wet Chemistry By Method USDA HANDBOOK 60

Matrix	SO	Batch ID:	MP6360

- D29760-1A 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**	D29760
Site:	KRWCCOL: XOM FRU 297-17A	**Report Date**	12/1/2011 4:10:24 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 Deg. C and intact. These Samples received an Accutest job number of D29760. 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(D29760).

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	FW SUBLINER		
Lab Sample ID:	D29760-1	**Date Sampled:**	11/23/11
Matrix:	SO - Soil	**Date Received:**	11/28/11
Method:	SW846 8260B	**Percent Solids:**	84.6
Project:	XOM FRU 297-17A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V18485.D	1	11/28/11	DC	n/a	n/a	V5V1104
Run #2							

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	67	30	ug/kg	
108-88-3	Toluene	ND	130	67	ug/kg	
100-41-4	Ethylbenzene	ND	130	34	ug/kg	
1330-20-7	Xylene (total)	ND	270	130	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	79%		61-130%
460-00-4	4-Bromofluorobenzene	88%		53-131%
17060-07-0	1,2-Dichloroethane-D4	108%		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:	FW SUBLINER		
Lab Sample ID:	D29760-1	**Date Sampled:**	11/23/11
Matrix:	SO - Soil	**Date Received:**	11/28/11
Method:	SW846 8270C BY SIM SW846 3546	**Percent Solids:**	84.6
Project:	XOM FRU 297-17A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G07170.D	5	12/08/11	DC	11/30/11	OP4929	E3G262
Run #2							

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

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	39	32	ug/kg	
120-12-7	Anthracene	ND	39	35	ug/kg	
56-55-3	Benzo(a)anthracene	ND	99	51	ug/kg	
50-32-8	Benzo(a)pyrene	ND	99	71	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	99	73	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	99	43	ug/kg	
218-01-9	Chrysene	50.2	99	43	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	99	73	ug/kg	
206-44-0	Fluoranthene	114	39	39	ug/kg	
86-73-7	Fluorene	139	39	33	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	120	110	ug/kg	
91-20-3	Naphthalene	98.2	39	37	ug/kg	
129-00-0	Pyrene	38.4	39	37	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	79%		10-145%
321-60-8	2-Fluorobiphenyl	68%		10-130%
1718-51-0	Terphenyl-d14	81%		22-130%

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:	FW SUBLINER		
Lab Sample ID:	D29760-1	**Date Sampled:**	11/23/11
Matrix:	SO - Soil	**Date Received:**	11/28/11
Method:	SW846 8015B	**Percent Solids:**	84.6
Project:	XOM FRU 297-17A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB14106.D	1	11/29/11	SK	n/a	n/a	GGB798
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	9.21	13	6.7	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	90%		60-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	FW SUBLINER		
Lab Sample ID:	D29760-1	**Date Sampled:**	11/23/11
Matrix:	SO - Soil	**Date Received:**	11/28/11
Method:	SW846-8015B SW846 3546	**Percent Solids:**	84.6
Project:	XOM FRU 297-17A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD11938.D	1	12/04/11	TR	11/29/11	OP4919	GFD613
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	314	16	10	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	54%		43-136%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FW SUBLINER
Lab Sample ID: D29760-1
Matrix: SO - Soil
Project: XOM FRU 297-17A

Date Sampled: 11/23/11
Date Received: 11/28/11
Percent Solids: 84.6

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	6.0	0.45	mg/kg	5	11/30/11	11/30/11	GJ	SW846 6020 [1]	SW846 3050B [5]
Barium	2480	1.1	mg/kg	1	11/30/11	11/30/11	JB	SW846 6010B [2]	SW846 3050B [4]
Cadmium	< 1.1	1.1	mg/kg	1	11/30/11	11/30/11	JB	SW846 6010B [2]	SW846 3050B [4]
Chromium	48.4	1.1	mg/kg	1	11/30/11	11/30/11	JB	SW846 6010B [2]	SW846 3050B [4]
Copper	11.3	1.1	mg/kg	1	11/30/11	11/30/11	JB	SW846 6010B [2]	SW846 3050B [4]
Lead	14.2	5.6	mg/kg	1	11/30/11	11/30/11	JB	SW846 6010B [2]	SW846 3050B [4]
Mercury	< 0.10	0.10	mg/kg	1	11/30/11	11/30/11	JB	SW846 7471A [3]	SW846 7471A [6]
Nickel	18.8	3.3	mg/kg	1	11/30/11	11/30/11	JB	SW846 6010B [2]	SW846 3050B [4]
Selenium	< 5.6	5.6	mg/kg	1	11/30/11	11/30/11	JB	SW846 6010B [2]	SW846 3050B [4]
Silver	< 3.3	3.3	mg/kg	1	11/30/11	11/30/11	JB	SW846 6010B [2]	SW846 3050B [4]
Zinc	52.0	3.3	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

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FW SUBLINER		
Lab Sample ID:	D29760-1	**Date Sampled:**	11/23/11
Matrix:	SO - Soil	**Date Received:**	11/28/11
		Percent Solids:	84.6
Project:	XOM FRU 297-17A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent [a]	< 0.46	0.46	mg/kg	1	11/30/11 16:41	AMA	SW846 3060A/7196A
Chromium, Trivalent [b]	48.0	1.6	mg/kg	1	11/30/11 17:49	JB	SW846 3060/7196A M
Redox Potential Vs H2	292		mv	1	11/29/11	JD	ASTM D1498-76M
Solids, Percent	84.6		%	1	11/29/11	SWT	SM19 2540B M
Specific Conductivity	1400	1.0	umhos/cm	1	11/29/11	CJ	DEPT.OF AG, BOOK N9
pH	11.31		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:	FW SUBLINER		
Lab Sample ID:	D29760-1A	**Date Sampled:**	11/23/11
Matrix:	SO - Soil	**Date Received:**	11/28/11
		Percent Solids:	84.6
Project:	XOM FRU 297-17A		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	26.3	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	265	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:	FW SUBLINER		
Lab Sample ID:	D29760-1A	**Date Sampled:**	11/23/11
Matrix:	SO - Soil	**Date Received:**	11/28/11
		Percent Solids:	84.6
Project:	XOM FRU 297-17A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	13.9		ratio	1	11/29/11 22:00	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

CHAIN OF CUSTODY

ACCUTEST LABORATORIES
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 #: D29760

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)6754066 Fax #:
Sampler(s) Name(s): DAVID SANDERS Phone #: (720)2739941

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 #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfite	Requested Analysis	LAB USE ONLY
	FW SUBLINER		11-23-11	11:00	DLS	SO	5					X					X	OI

Turnaround Time (Business days)

- ☐ Std. 10 Business Days
- ☐ Std. 5 Business Days (By Contract only)
- ☐ 5 Day R/ 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			JACOBSON 11/25/11 1230	2		2
3			3	4		4
5			5			

Custody Seal # Fedex ☒ Intact ☐ Not Intact | Preserved where applicable ☒ | On Ice ☒ | Cooler Temp. 4.9

D29760: Chain of Custody
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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D29760 **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

D29760: Chain of Custody
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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: D29760
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

D29760-1

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: D29760
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

D29760-1

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: D29760
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

D29760-1

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 : 5V18485.D
Acq On : 28 Nov 2011 9:24 pm
Operator : DONC
Sample : D29760-1, 50x
Misc : MS3001,V5V1104,5.077,,100,5,1
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Nov 29 08:08:00 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

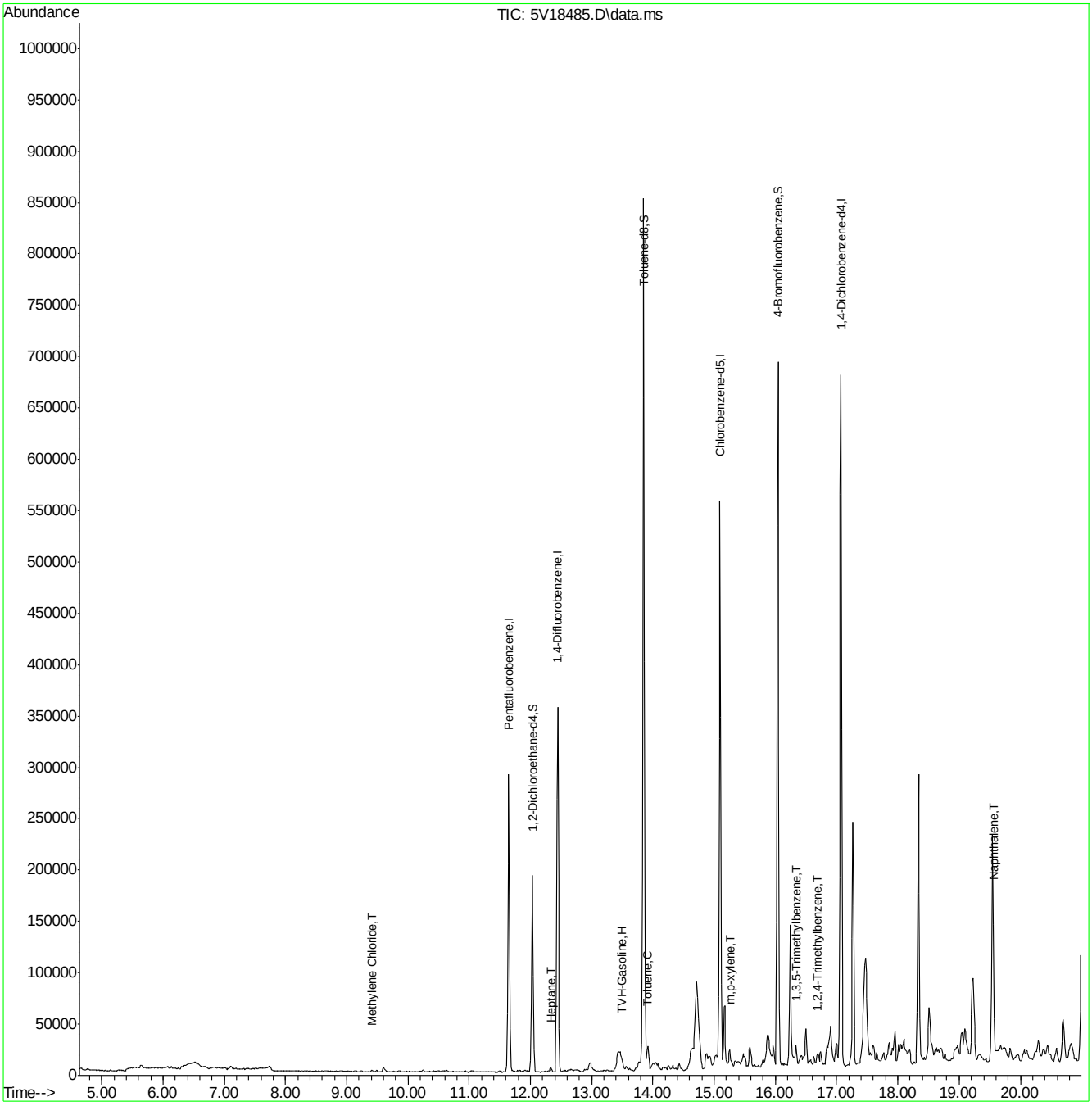
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	207471	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	281440	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	301598	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	218881	50.00	ug/l	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.035	102	26578	53.89	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 107.78%			
61) Toluene-d8	13.850	98	532570	39.73	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 79.46%			
69) 4-Bromofluorobenzene	16.042	95	207812	43.96	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 87.92%			
Target Compounds						Qvalue
1) TVH-Gasoline	13.491	TIC	1313987m	109.64	ug/l	
17) Methylene Chloride	9.421	84	848	0.30	ug/l #	76
43) Heptane	12.332	43	1941	0.43	ug/l #	84
62) Toluene	13.907	92	2812	0.31	ug/l #	55
72) m,p-xylene	15.255	106	4513	0.65	ug/l	90
80) 1,3,5-Trimethylbenzene	16.339	105	8913	0.56	ug/l	88
82) 1,2,4-Trimethylbenzene	16.682	105	7038	0.44	ug/l #	71
91) Naphthalene	19.559	128	5327	1.19	ug/l	100

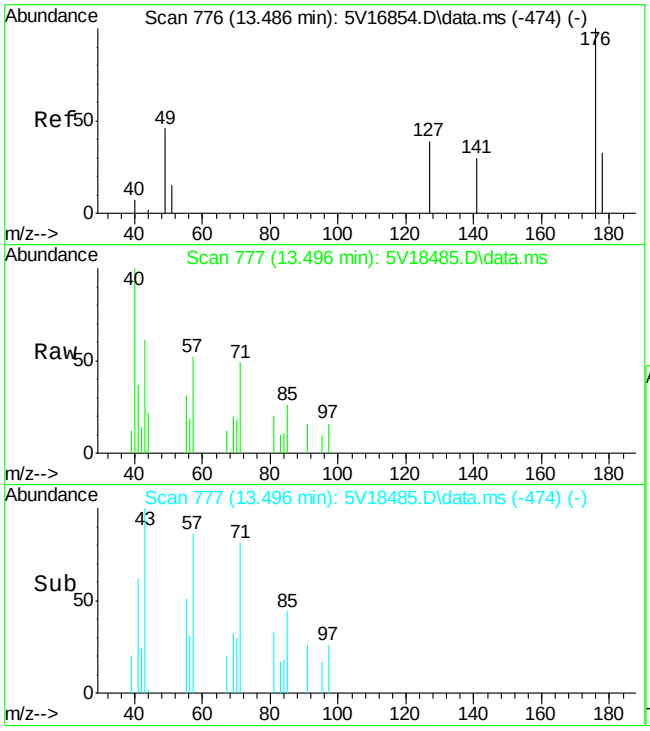
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5112811.S\
Data File : 5V18485.D
Acq On : 28 Nov 2011 9:24 pm
Operator : DONC
Sample : D29760-1, 50x
Misc : MS3001,V5V1104,5.077,,100,5,1
ALS Vial : 23 Sample Multiplier: 1

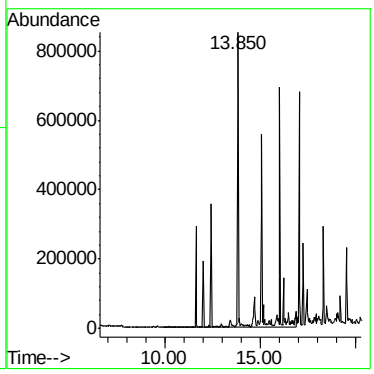
Quant Time: Nov 29 08:08:00 2011
Quant Method : C:\msdchem\1\METHODS\V5AP1092TVH1092.M
Quant Title : 8260
QLast Update : Tue Nov 01 10:41:21 2011
Response via : Initial Calibration

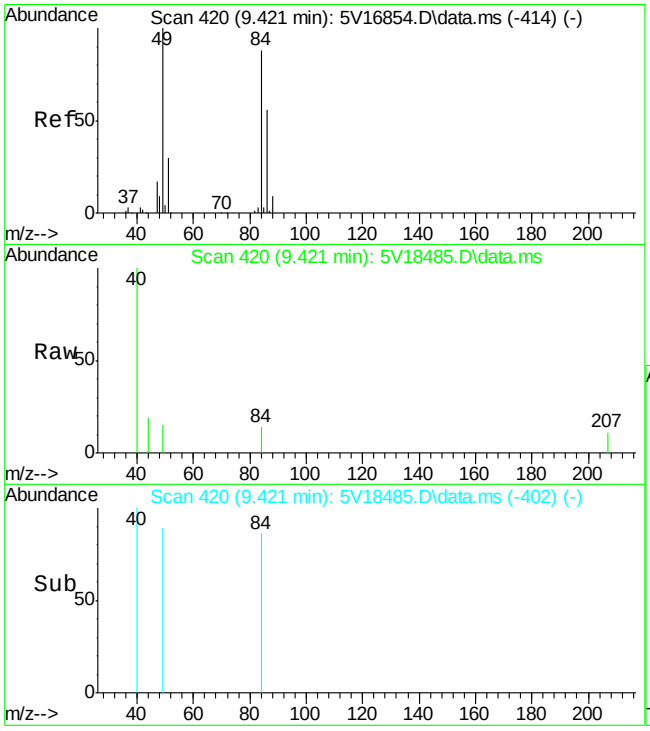




#1
TVH-Gasoline
Concen: 109.64 ug/l m
RT: 13.491 min Scan# 777
Delta R.T. 0.000 min
Lab File: 5V18485.D
Acq: 28 Nov 2011 9:24 pm

Tgt Ion:TIC Resp: 1313987

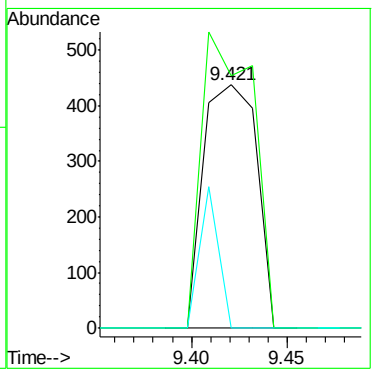


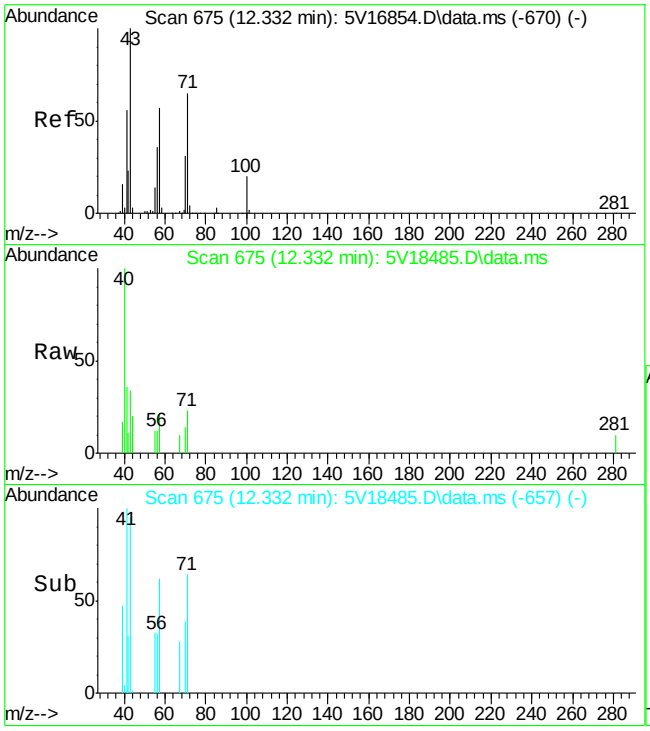


#17
Methylene Chloride
Concen: 0.30 ug/l
RT: 9.421 min Scan# 420
Delta R.T. -0.000 min
Lab File: 5V18485.D
Acq: 28 Nov 2011 9:24 pm

Tgt Ion: 84 Resp: 848

Ion	Ratio	Lower	Upper
84	100		
49	118.0	108.8	148.8
86	20.6	43.2	83.2#

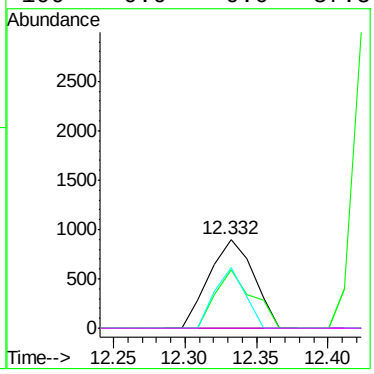


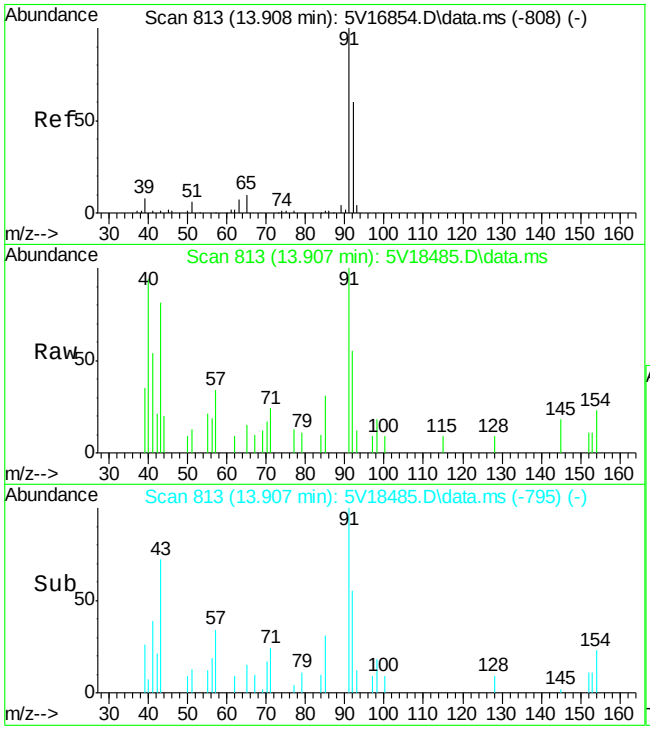


#43
Heptane
Concen: 0.43 ug/l
RT: 12.332 min Scan# 675
Delta R.T. -0.000 min
Lab File: 5V18485.D
Acq: 28 Nov 2011 9:24 pm

Tgt Ion: 43 Resp: 1941

Ion	Ratio	Lower	Upper
43	100		
57	54.7	30.8	70.8
71	45.7	39.2	79.2
100	0.0	0.0	37.5

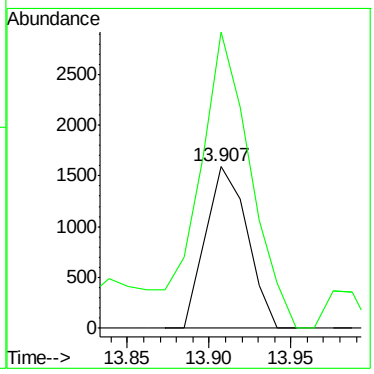


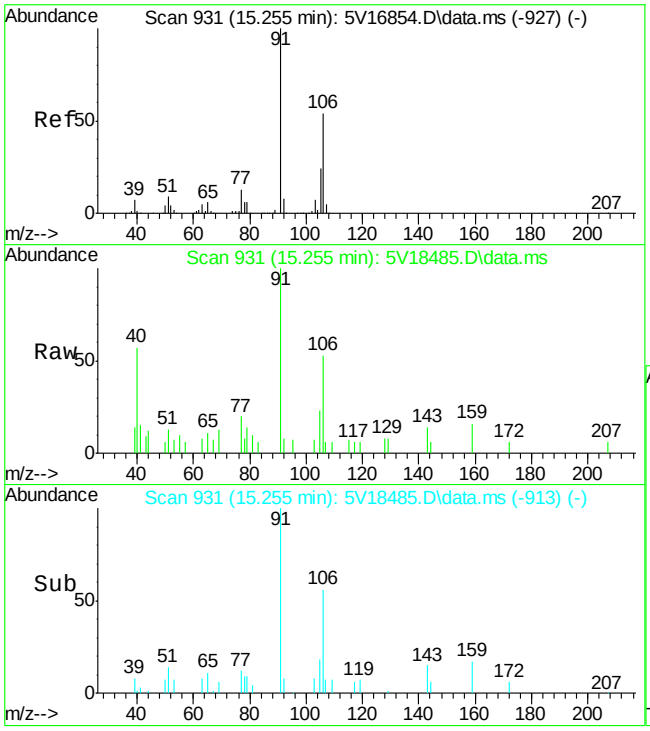


#62
Toluene
Concen: 0.31 ug/l
RT: 13.907 min Scan# 813
Delta R.T. -0.000 min
Lab File: 5V18485.D
Acq: 28 Nov 2011 9:24 pm

Tgt Ion: 92 Resp: 2812

Ion	Ratio	Lower	Upper
92	100		
91	228.3	147.5	187.5#

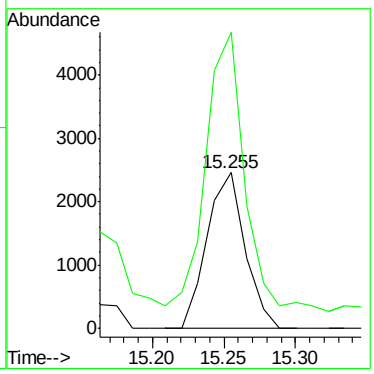


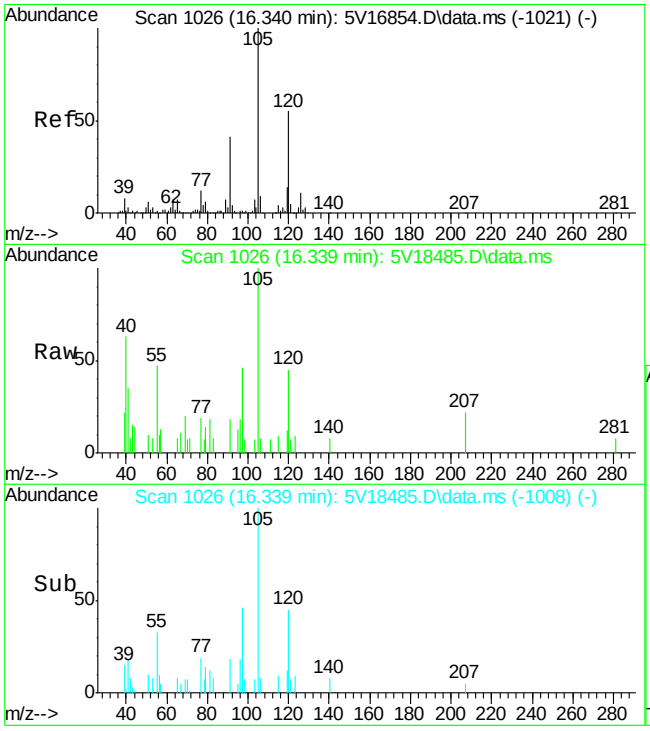


#72
m,p-xylene
Concen: 0.65 ug/l
RT: 15.255 min Scan# 931
Delta R.T. 0.001 min
Lab File: 5V18485.D
Acq: 28 Nov 2011 9:24 pm

Tgt Ion:106 Resp: 4513

Ion	Ratio	Lower	Upper
106	100		
91	183.8	178.3	218.3

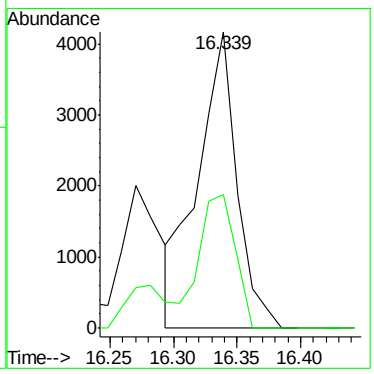


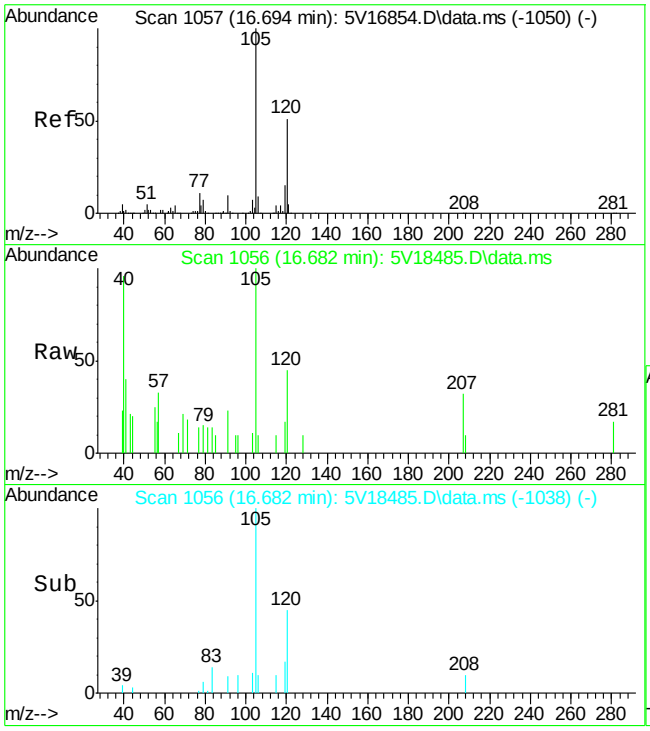


#80
1,3,5-Trimethylbenzene
Concen: 0.56 ug/l
RT: 16.339 min Scan# 1026
Delta R.T. -0.000 min
Lab File: 5V18485.D
Acq: 28 Nov 2011 9:24 pm

Tgt Ion:105 Resp: 8913

Ion	Ratio	Lower	Upper
105	100		
120	40.5	39.2	58.8

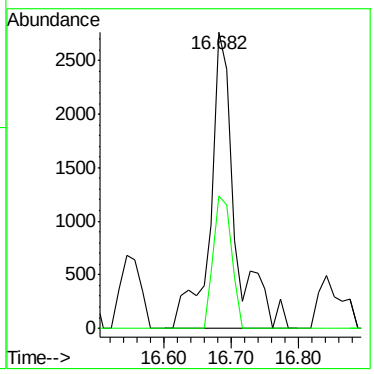


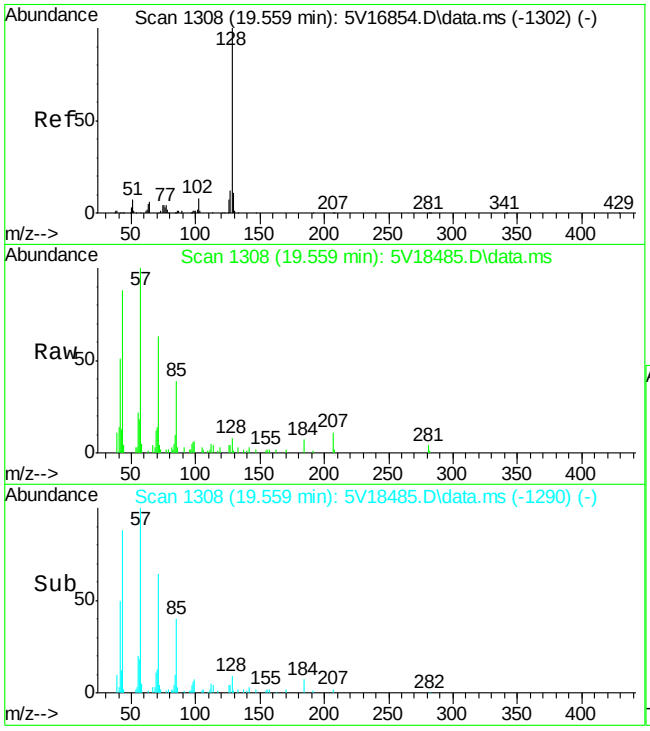


#82
1,2,4-Trimethylbenzene
Concen: 0.44 ug/l
RT: 16.682 min Scan# 1056
Delta R.T. -0.000 min
Lab File: 5V18485.D
Acq: 28 Nov 2011 9:24 pm

Tgt Ion:105 Resp: 7038

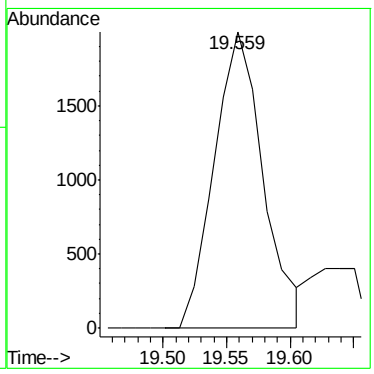
Ion	Ratio	Lower	Upper
105	100		
120	32.9	43.0	64.6#





#91
Naphthalene
Concen: 1.19 ug/l
RT: 19.559 min Scan# 1308
Delta R.T. 0.001 min
Lab File: 5V18485.D
Acq: 28 Nov 2011 9:24 pm

Tgt Ion:128 Resp: 5327



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

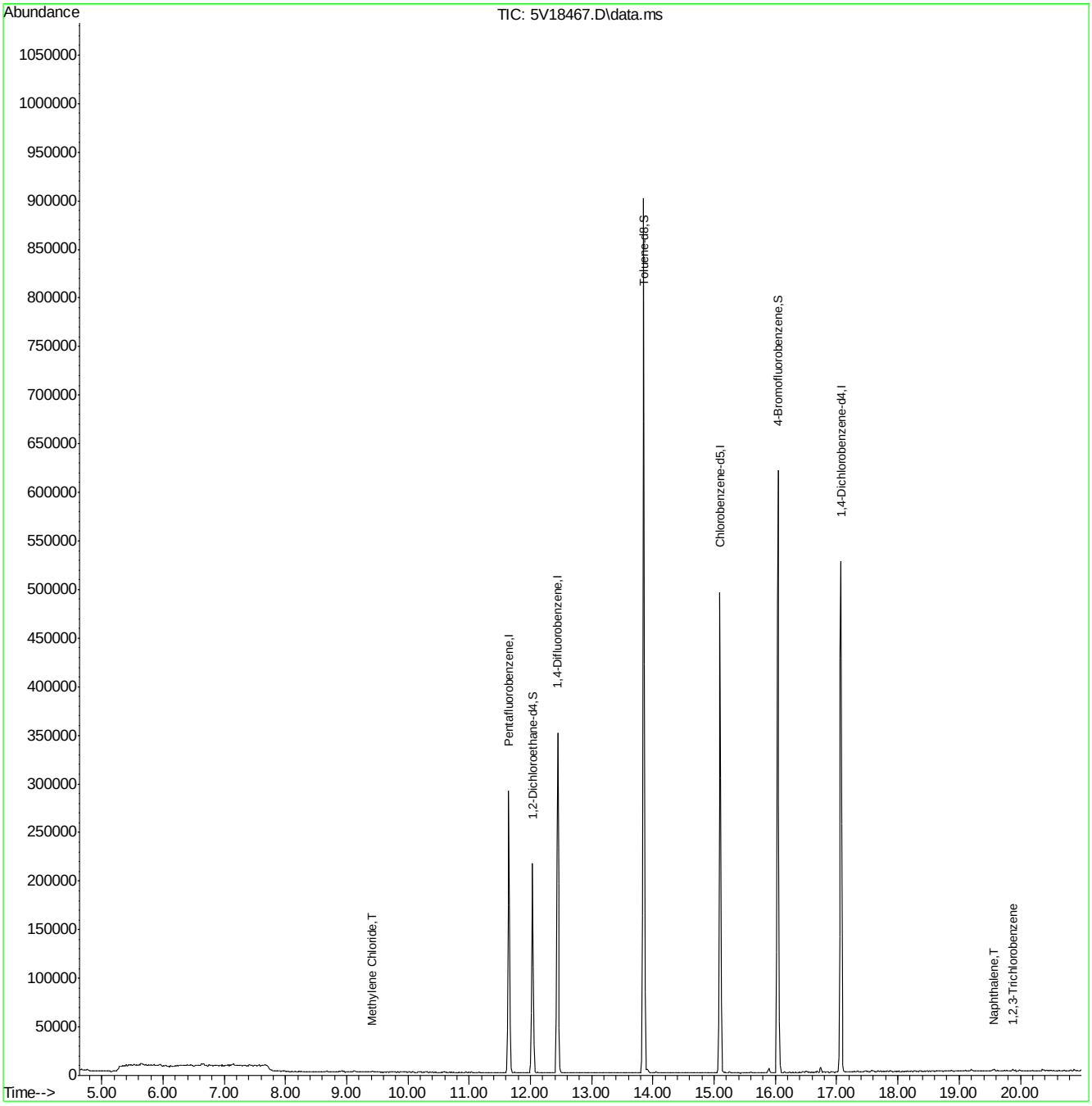
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	198965	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	263855	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	259267	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	165006	50.00	ug/l	0.00
System Monitoring 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

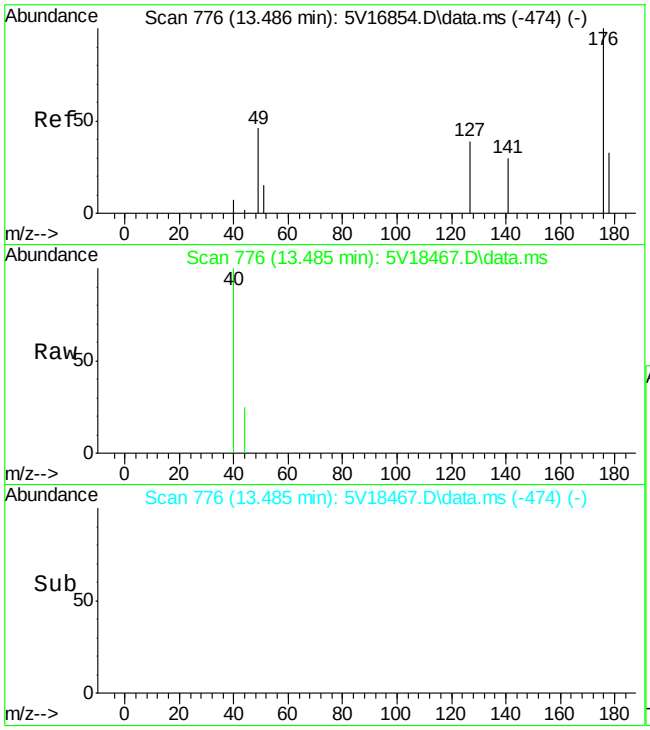
(#) = qualifier out of range (m) = manual integration (+) = signals summed

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

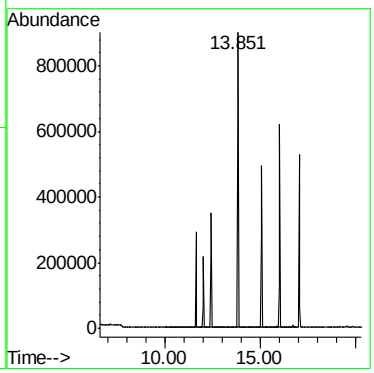
Quant Time: Nov 29 07:36:22 2011
Quant Method : C:\msdchem\1\METHODS\V5AP1092TVH1092.M
Quant Title : 8260
QLast Update : Tue Nov 01 10:41:21 2011
Response via : Initial Calibration

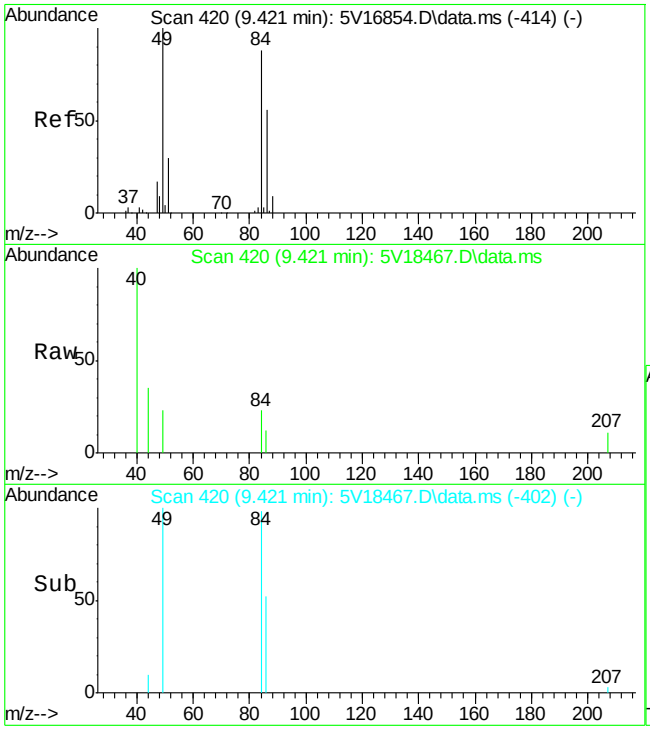




#1
TVH-Gasoline
Concen: 36.52 ug/l m
RT: 13.491 min Scan# 776
Delta R.T. 0.000 min
Lab File: 5V18467.D
Acq: 28 Nov 2011 11:55 am

Tgt Ion:TIC Resp: -2839

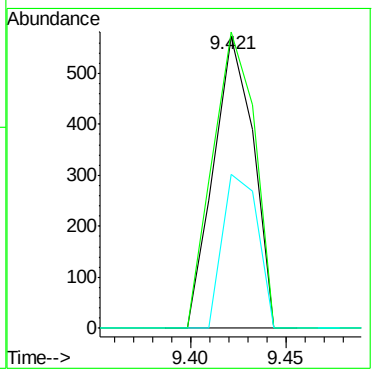


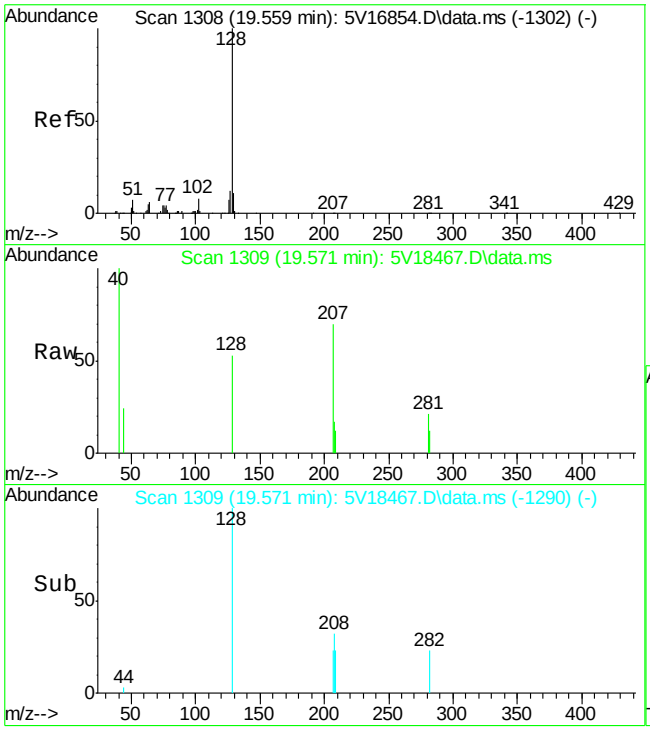


#17
Methylene Chloride
Concen: 0.31 ug/l
RT: 9.421 min Scan# 420
Delta R.T. 0.000 min
Lab File: 5V18467.D
Acq: 28 Nov 2011 11:55 am

Tgt Ion: 84 Resp: 832

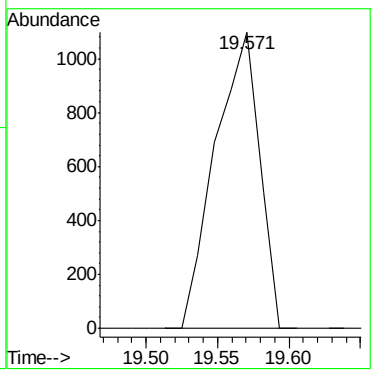
Ion	Ratio	Lower	Upper
84	100		
49	107.8	108.8	148.8#
86	46.9	43.2	83.2

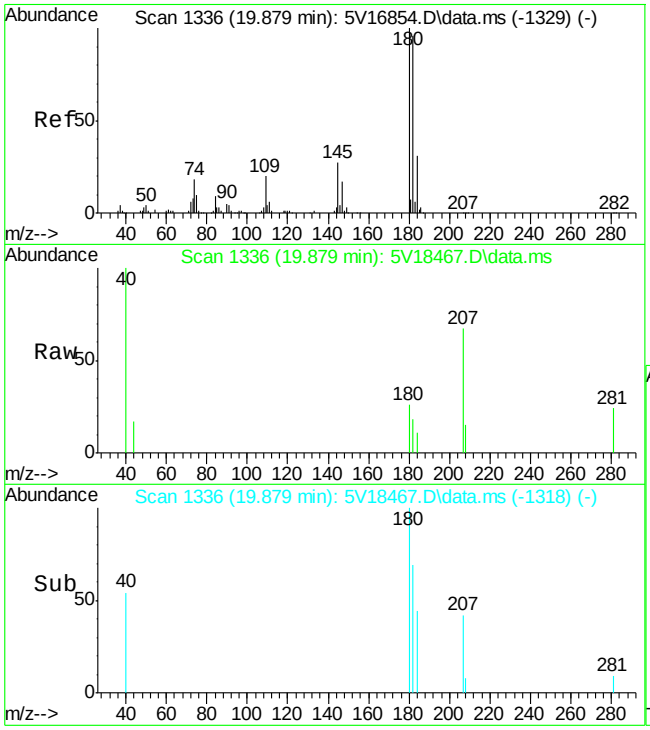




#91
Naphthalene
Concen: 0.96 ug/l
RT: 19.571 min Scan# 1309
Delta R.T. 0.013 min
Lab File: 5V18467.D
Acq: 28 Nov 2011 11:55 am

Tgt Ion:128 Resp: 2363

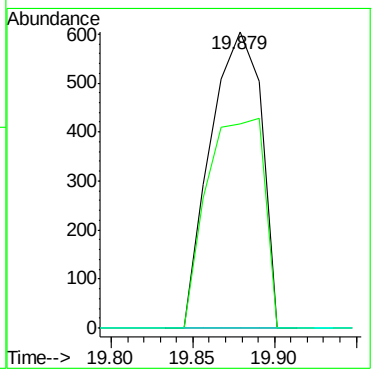




#93
1,2,3-Trichlorobenzene
Concen: 0.31 ug/l
RT: 19.879 min Scan# 1336
Delta R.T. 0.000 min
Lab File: 5V18467.D
Acq: 28 Nov 2011 11:55 am

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: D29760
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

D29760-1

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: D29760
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

D29760-1

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: D29760
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

D29760-1

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

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson
12/09/11 15:21

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\120711\
Data File : 3g07170.D
Acq On : 8 Dec 2011 9:35 am
Operator : DONC
Sample : D29760-1, 5x
Misc : OP4929,E3G262,30.00,,,1,5
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Dec 08 10:12:27 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

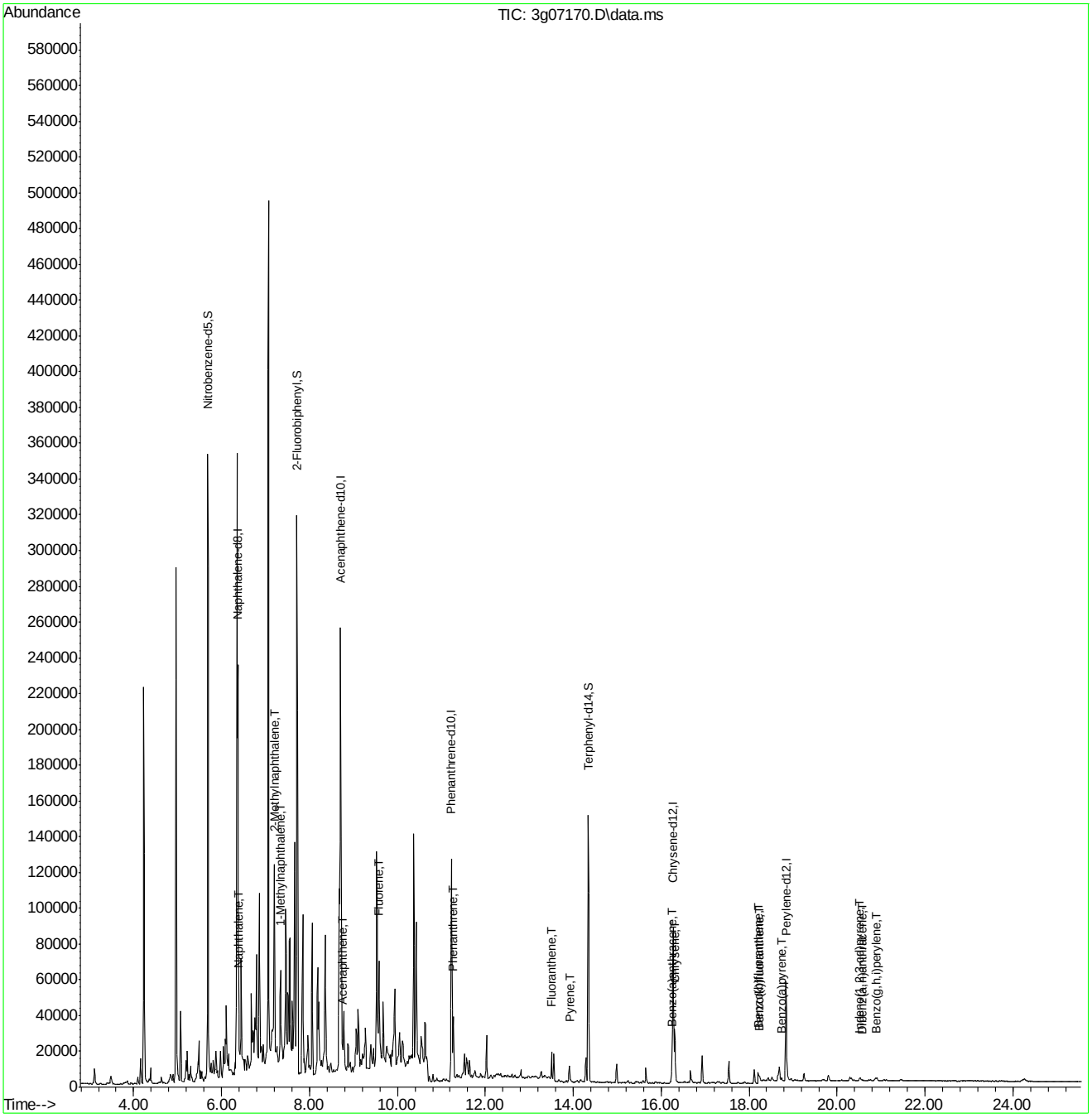
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.370	136	184861	4.00	ug/mL	0.00
6) Acenaphthene-d10	8.709	164	104835	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.232	188	147581	4.00	ug/mL	0.00
18) Chrysene-d12	16.269	240	104927	4.00	ug/mL	0.00
23) Perylene-d12	18.838	264	70850	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.685	82	173828	7.88	ug/mL	-0.01
7) 2-Fluorobiphenyl	7.716	172	279054	6.78	ug/mL	-0.01
20) Terphenyl-d14	14.342	244	169336	8.06	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	28829	0.50	ug/mL#	8
8) 2-Methylnaphthalene	7.206	142	61574	1.61	ug/mL	84
9) 1-Methylnaphthalene	7.343	142	22657	0.62	ug/mL#	69
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	8.756	154	4097	0.13	ug/mL#	54
12) Fluorene	9.583	166	24779	0.70	ug/mL#	12
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	11.271	178	35800	0.67	ug/mL	83
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	13.503	202	9455	0.58	ug/mL	76
19) Pyrene	13.915	202	7968	0.19	ug/mL	92
21) Benzo(a)anthracene	16.243	228	5555	0.18	ug/mL	83
22) Chrysene	16.309	228	8225	0.25	ug/mL	83
24) Benzo(b)fluoranthene	18.207	252	3791m	0.33	ug/mL	
25) Benzo(k)fluoranthene	18.228	252	3573m	0.19	ug/mL	
26) Benzo(a)pyrene	18.743	252	1828	0.16	ug/mL#	74
27) Indeno(1,2,3-cd)pyrene	20.520	276	1155m	0.14	ug/mL	
28) Dibenz(a,h)anthracene	20.573	278	1151	0.10	ug/mL	85
29) Benzo(g,h,i)perylene	20.899	276	1722	0.08	ug/mL	80

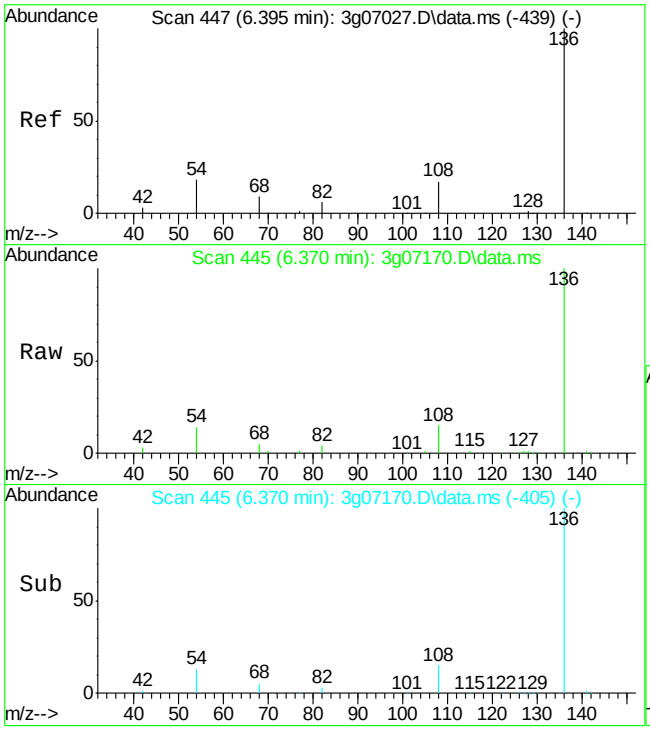
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\120711\
Data File : 3g07170.D
Acq On : 8 Dec 2011 9:35 am
Operator : DONC
Sample : D29760-1, 5x
Misc : OP4929,E3G262,30.00,,,1,5
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Dec 08 10:12:27 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

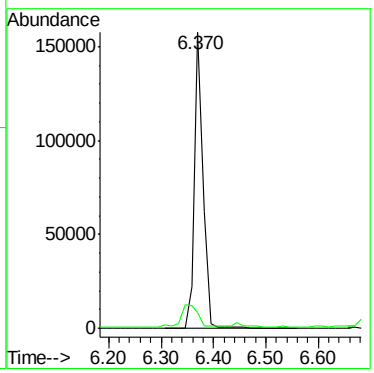


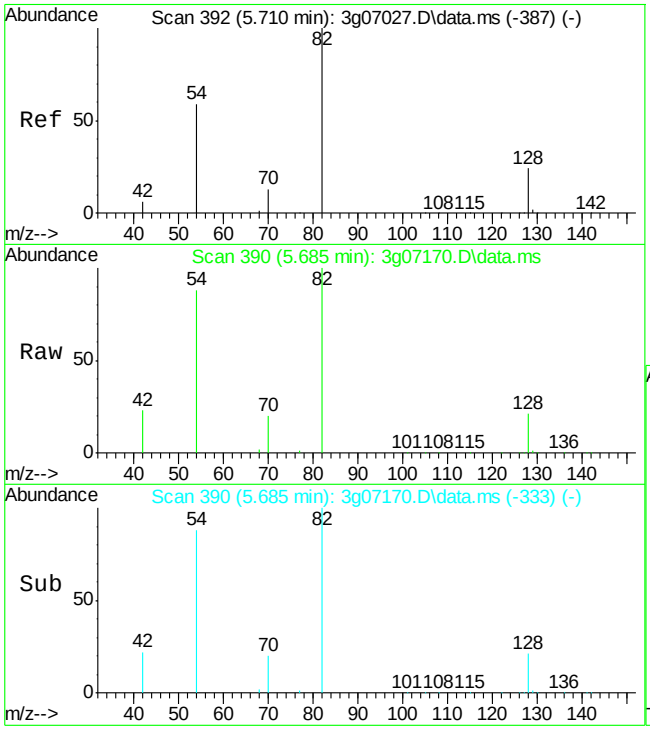


#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.370 min Scan# 445
Delta R.T. 0.000 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:136 Resp: 184861

Ion	Ratio	Lower	Upper
136	100		
68	15.6	0.0	27.5

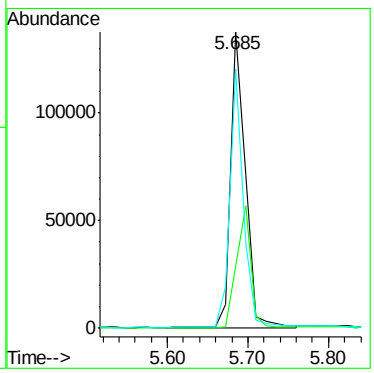


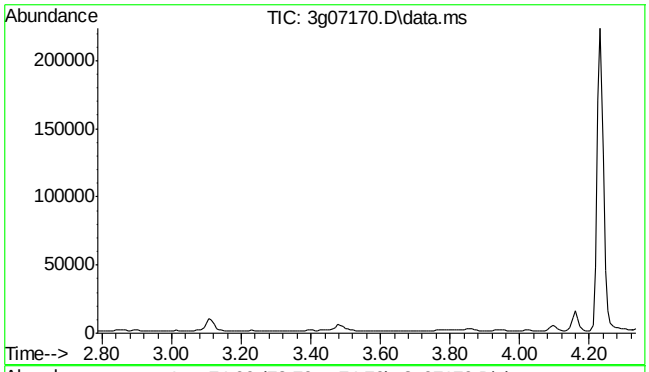


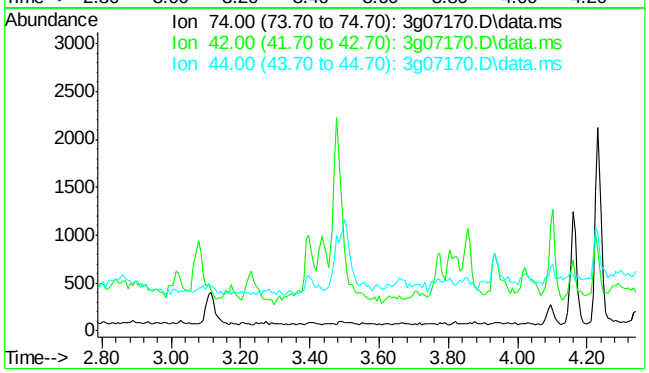
#2
Nitrobenzene-d5
Concen: 7.88 ug/mL
RT: 5.685 min Scan# 390
Delta R.T. -0.012 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion: 82 Resp: 173828

Ion	Ratio	Lower	Upper
82	100		
128	40.6	22.2	62.2
54	80.8	32.9	72.9#





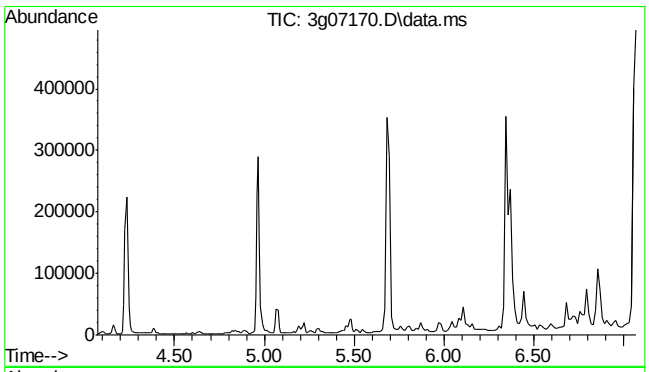


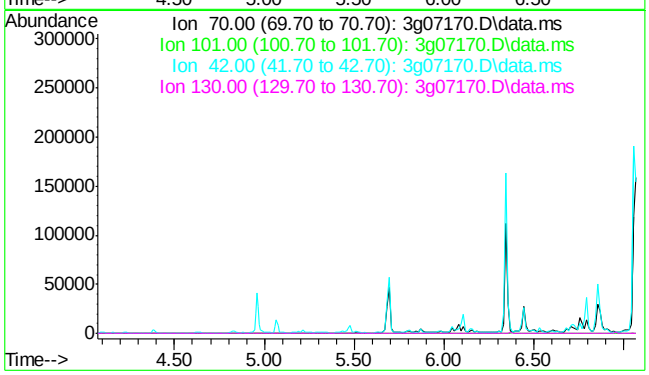
#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.84 min

Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion: 74

Sig	Exp Ratio
74	100
42	62.7
44	4.7



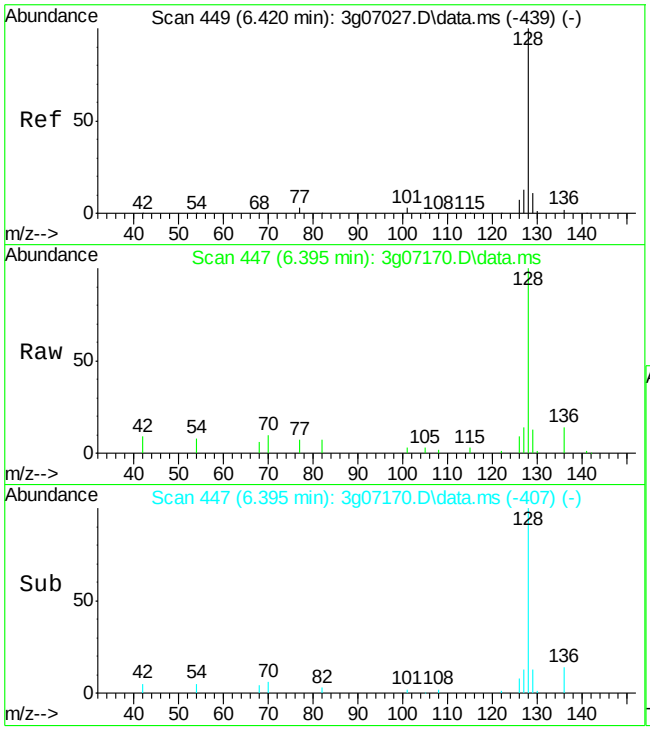


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.57 min

Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion: 70

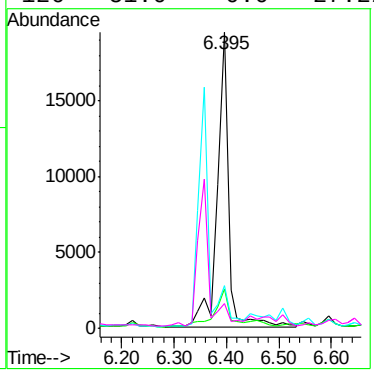
Sig	Exp Ratio
70	100
101	12.9
42	56.3
130	25.7

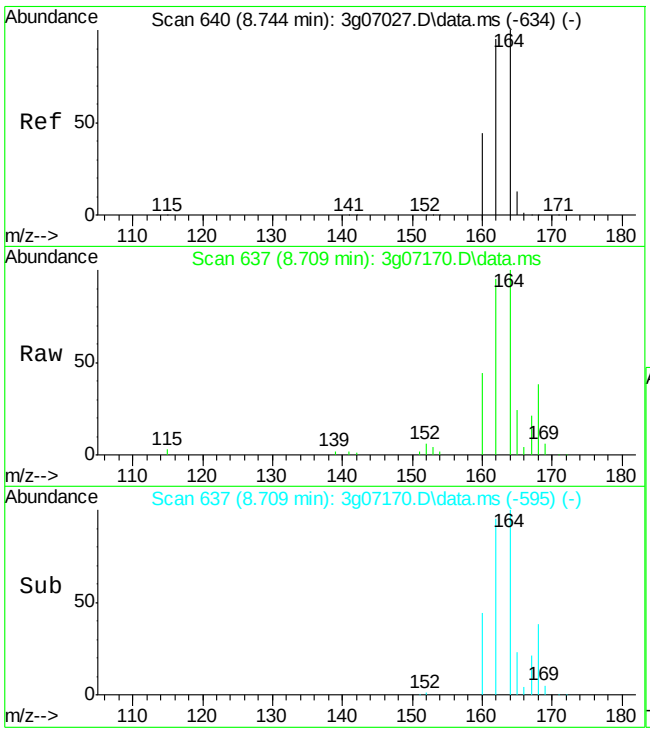


#5
Naphthalene
Concen: 0.50 ug/mL
RT: 6.395 min Scan# 447
Delta R.T. 0.000 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:128 Resp: 28829

Ion	Ratio	Lower	Upper
128	100		
129	16.1	0.0	31.0
127	67.5	0.0	32.5#
126	51.0	0.0	27.2#

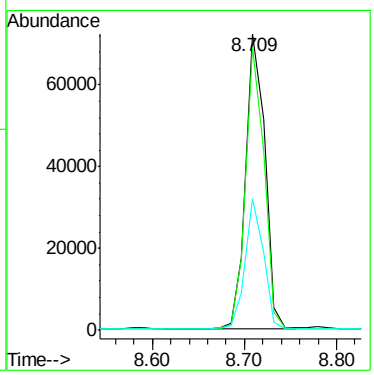


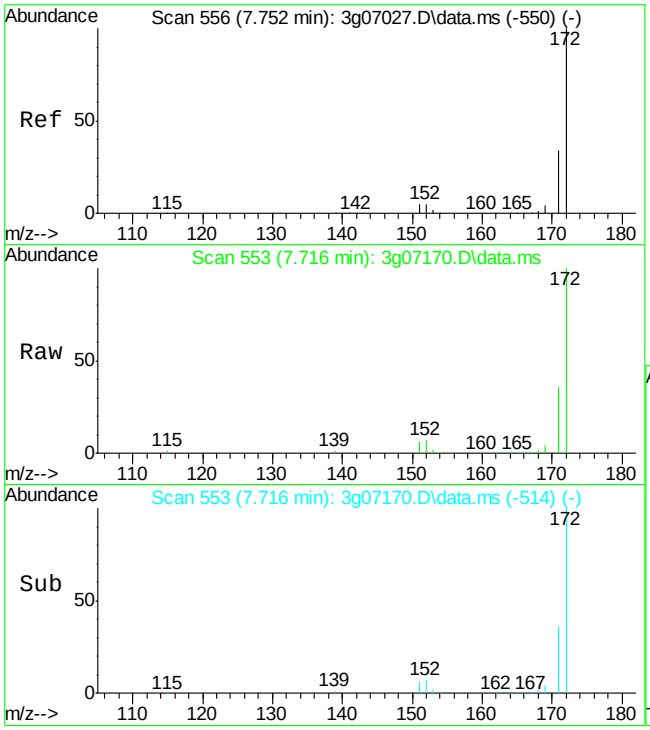


#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 8.709 min Scan# 637
Delta R.T. 0.000 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:164 Resp: 104835

Ion	Ratio	Lower	Upper
164	100		
162	91.7	71.7	111.7
160	42.6	21.3	61.3

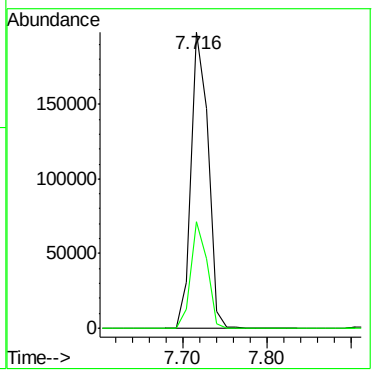


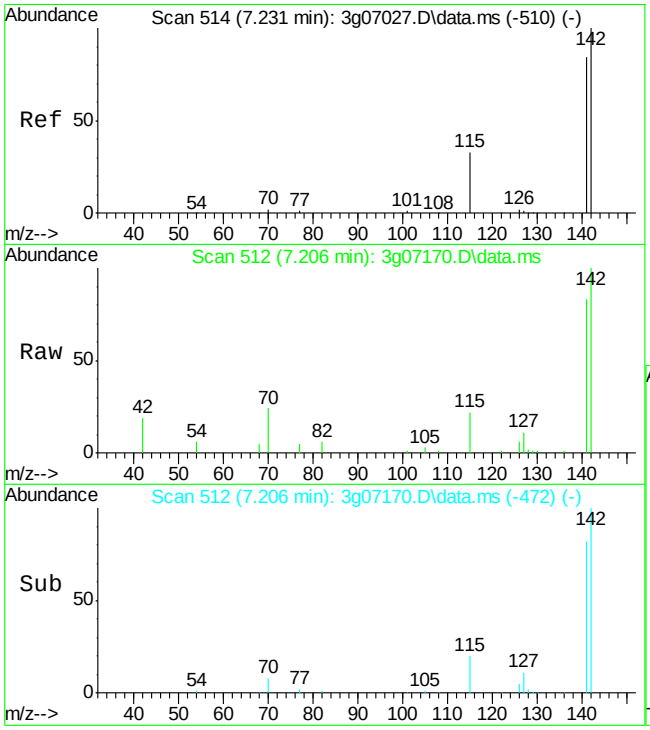


#7
2-Fluorobiphenyl
Concen: 6.78 ug/mL
RT: 7.716 min Scan# 553
Delta R.T. -0.012 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:172 Resp: 279054

Ion	Ratio	Lower	Upper
172	100		
171	34.6	12.5	52.5

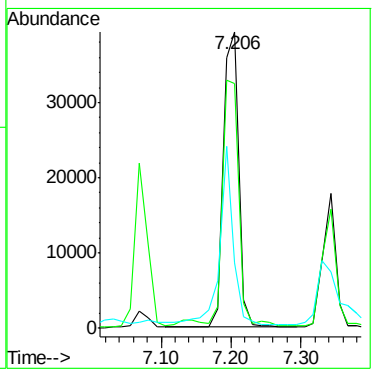


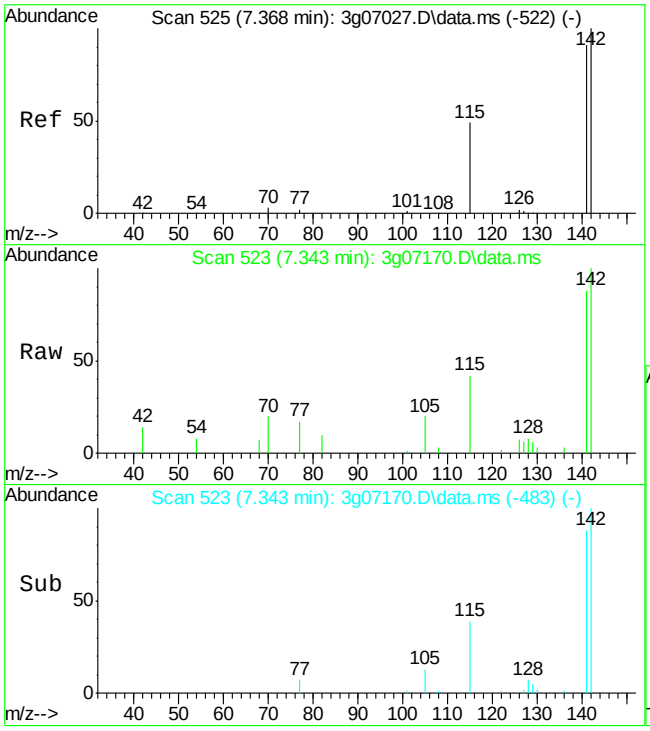


#8
2-Methylnaphthalene
Concen: 1.61 ug/mL
RT: 7.206 min Scan# 512
Delta R.T. 0.000 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:142 Resp: 61574

Ion	Ratio	Lower	Upper
142	100		
141	91.0	62.4	102.4
115	53.9	16.5	56.5

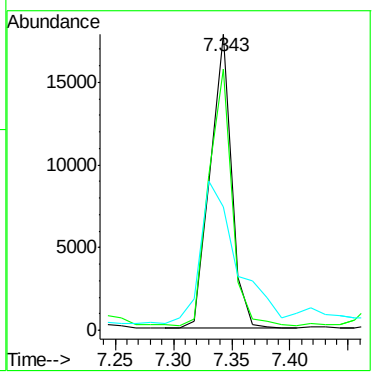


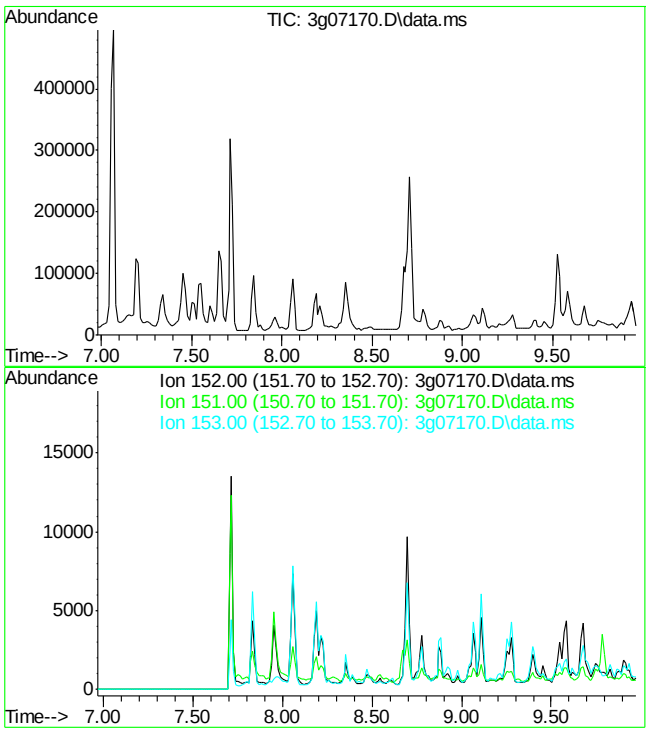


#9
1-Methylnaphthalene
Concen: 0.62 ug/mL
RT: 7.343 min Scan# 523
Delta R.T. 0.000 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:142 Resp: 22657

Ion	Ratio	Lower	Upper
142	100		
141	95.5	68.1	102.1
115	84.9	31.3	46.9#



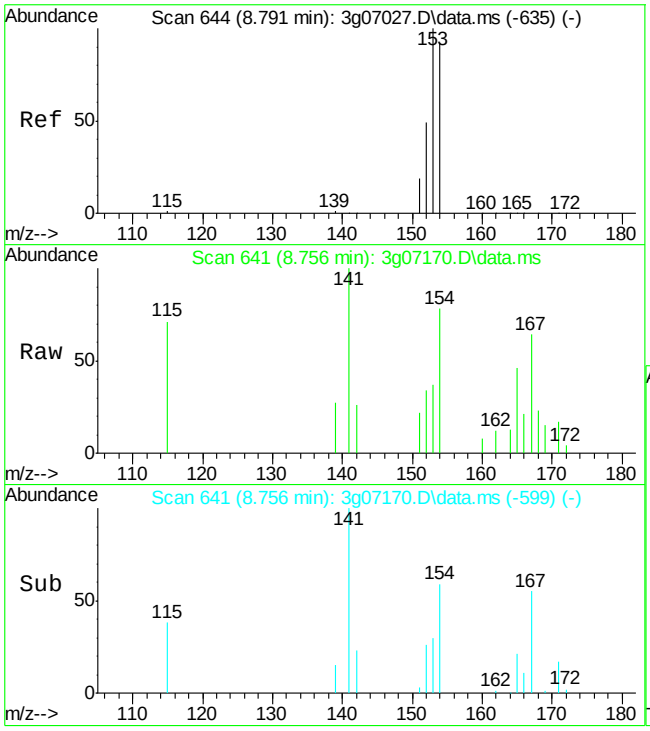


#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.47 min

Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion: 152

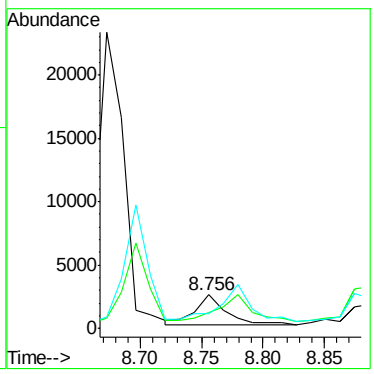
Sig	Exp Ratio
152	100
151	18.8
153	13.0

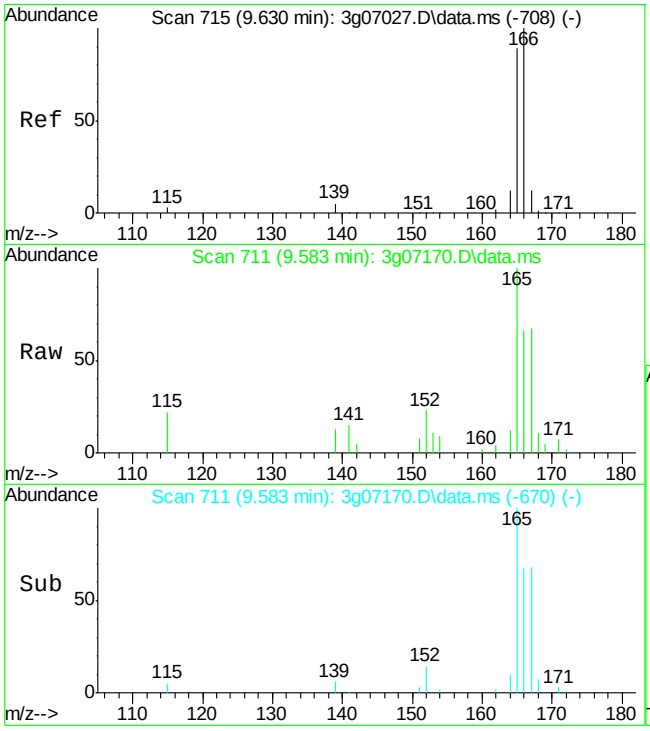


#11
Acenaphthene
Concen: 0.13 ug/mL
RT: 8.756 min Scan# 641
Delta R.T. 0.000 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:154 Resp: 4097

Ion	Ratio	Lower	Upper
154	100		
153	110.6	82.1	122.1
152	132.8	28.4	68.4#

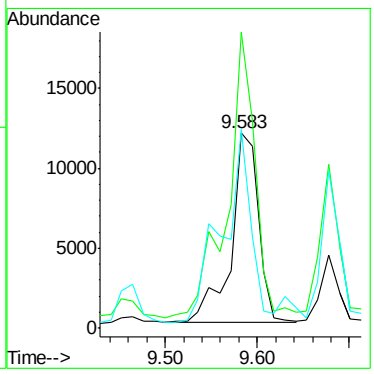


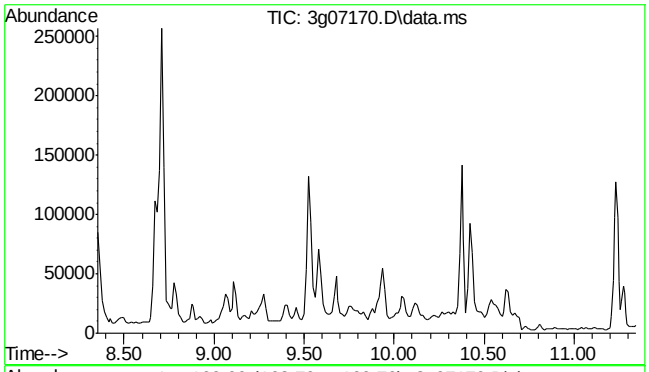


#12
Fluorene
Concen: 0.70 ug/mL
RT: 9.583 min Scan# 711
Delta R.T. -0.012 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:166 Resp: 24779

Ion	Ratio	Lower	Upper
166	100		
165	151.6	69.2	109.2#
167	106.6	0.0	32.0#



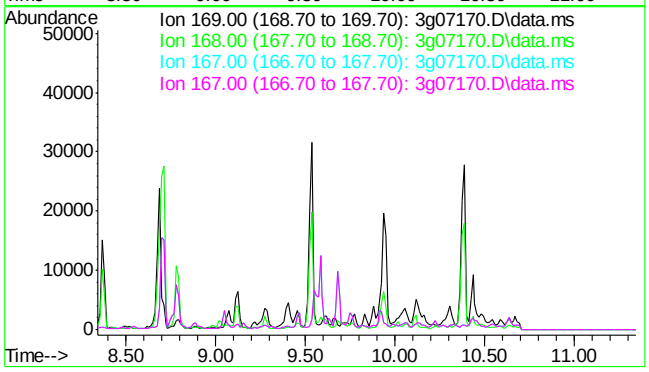


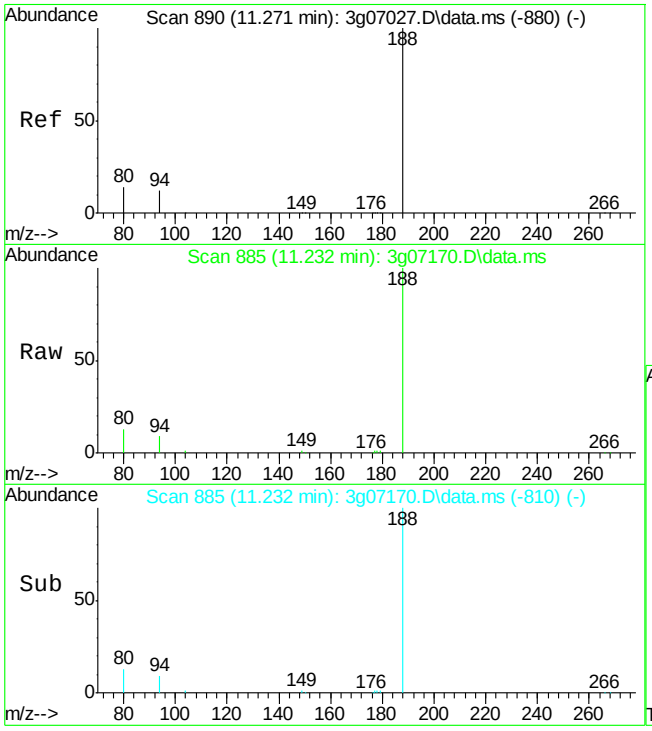
#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 9.84 min

Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion: 169

Sig	Exp Ratio
169	100
168	60.5
167	32.9
167	32.9

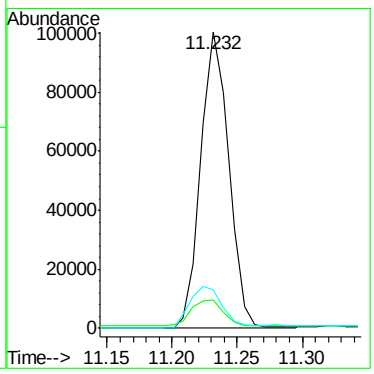


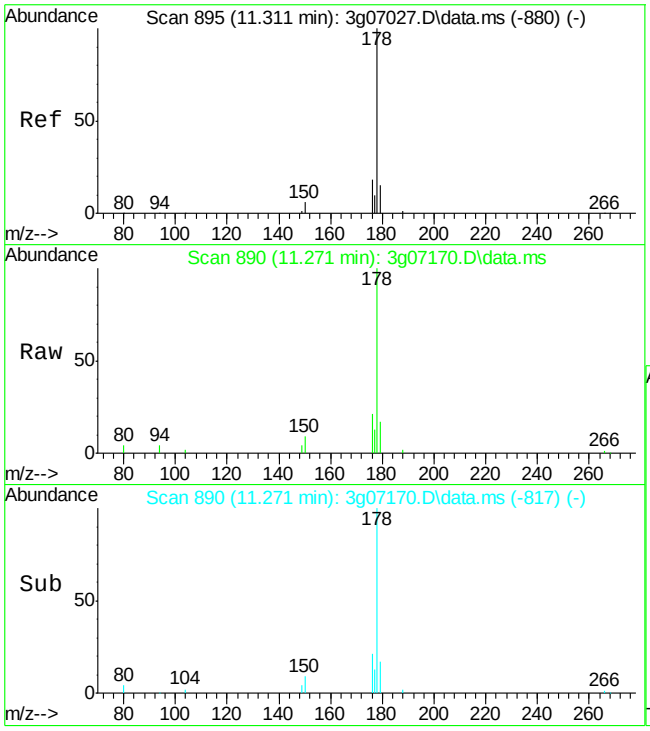


#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.232 min Scan# 885
Delta R.T. 0.000 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:188 Resp: 147581

Ion	Ratio	Lower	Upper
188	100		
94	10.2	0.0	34.2
80	16.9	0.0	36.8

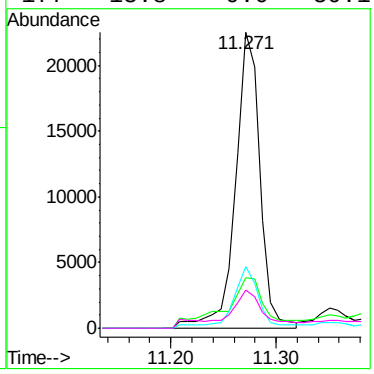


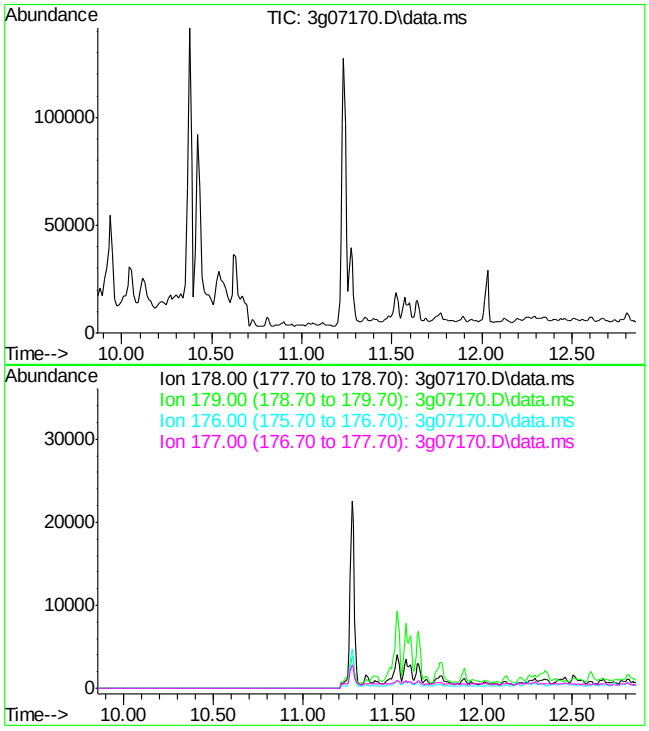


#15
Phenanthrene
Concen: 0.67 ug/mL
RT: 11.271 min Scan# 890
Delta R.T. -0.008 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:178 Resp: 35800

Ion	Ratio	Lower	Upper
178	100		
179	27.7	0.0	35.3
176	22.4	0.0	38.3
177	13.8	0.0	30.1



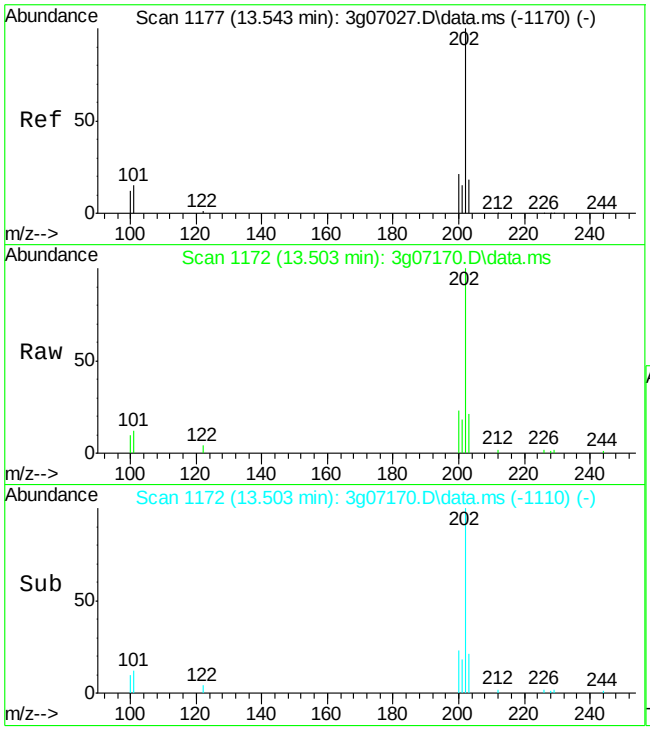


#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.36 min

Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion: 178

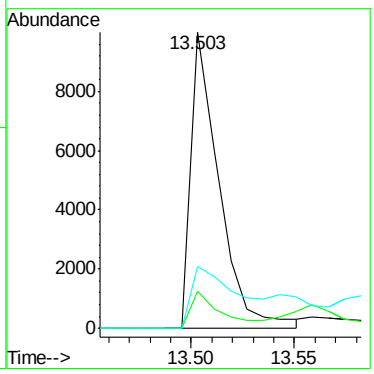
Sig	Exp Ratio
178	100
179	15.1
176	17.8
177	8.7

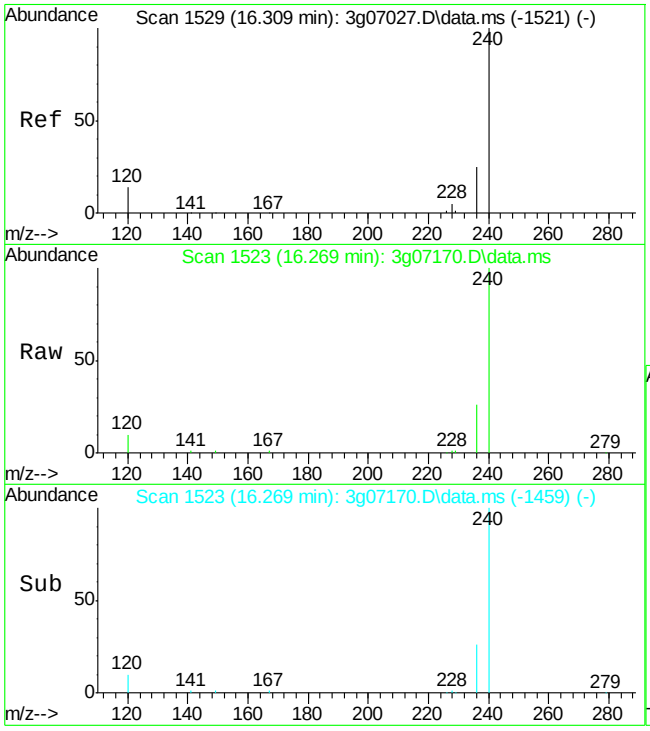


#17
Fluoranthene
Concen: 0.58 ug/mL
RT: 13.503 min Scan# 1172
Delta R.T. -0.008 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:202 Resp: 9455

Ion	Ratio	Lower	Upper
202	100		
101	12.6	0.0	32.8
203	35.7	0.0	38.0

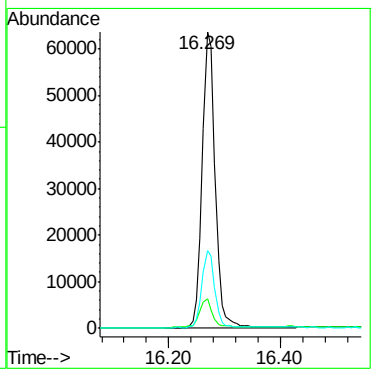


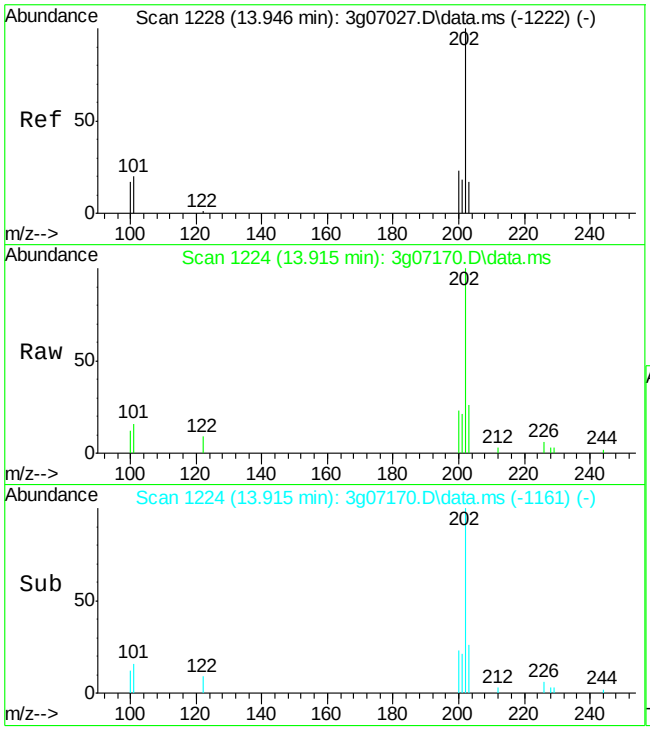


#18
Chrysene-d12
Concen: 4.00 ug/mL
RT: 16.269 min Scan# 1523
Delta R.T. -0.006 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:240 Resp: 104927

Ion	Ratio	Lower	Upper
240	100		
120	11.1	0.0	38.6
236	25.0	5.2	45.2

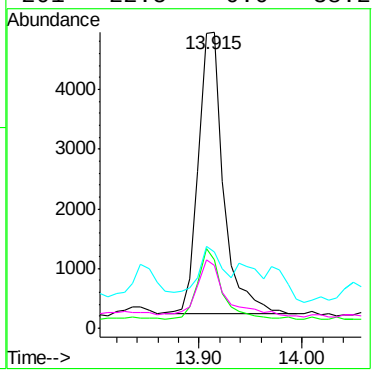


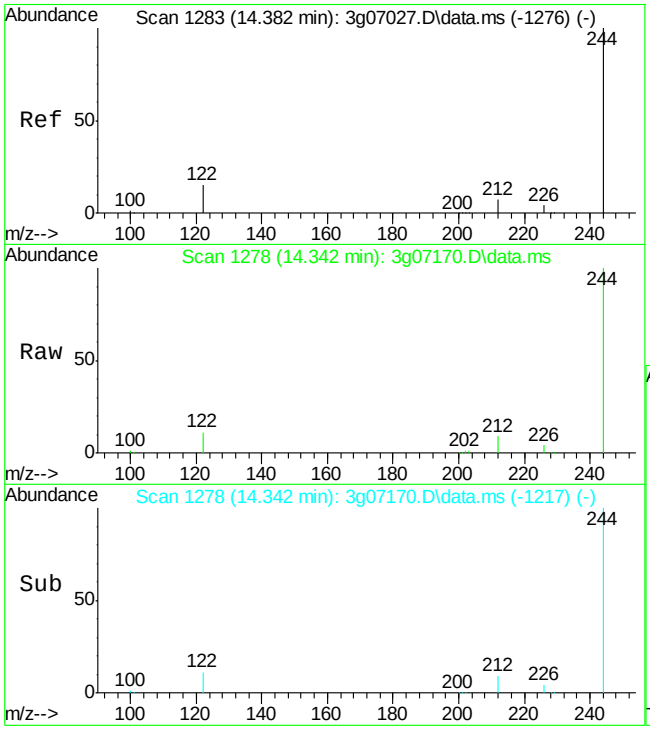


#19
Pyrene
Concen: 0.19 ug/mL
RT: 13.915 min Scan# 1224
Delta R.T. 0.000 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:202 Resp: 7968

Ion	Ratio	Lower	Upper
202	100		
200	25.0	2.1	42.1
203	13.9	0.0	37.8
201	22.5	0.0	38.2

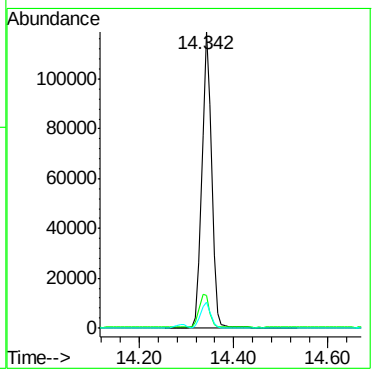


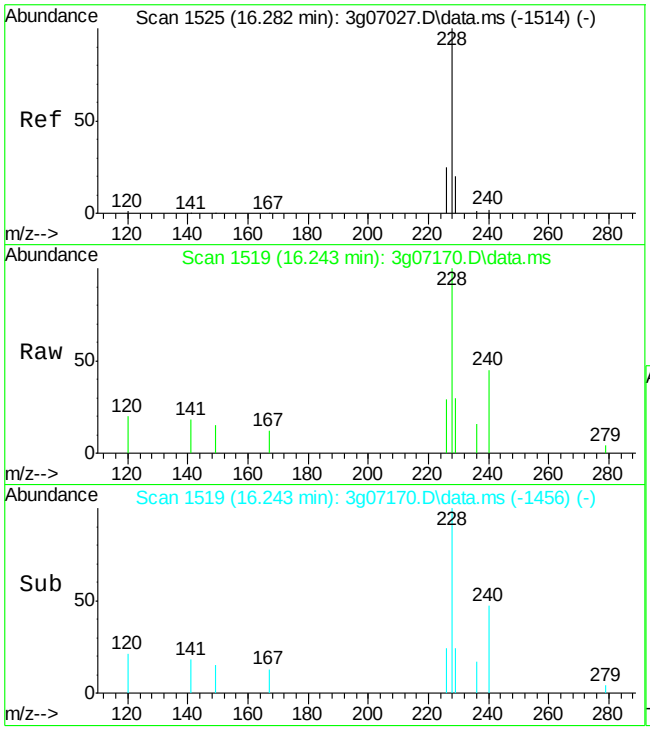


#20
Terphenyl-d14
Concen: 8.06 ug/mL
RT: 14.342 min Scan# 1278
Delta R.T. -0.016 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:244 Resp: 169336

Ion	Ratio	Lower	Upper
244	100		
122	12.0	0.8	40.8
212	8.8	0.0	27.2

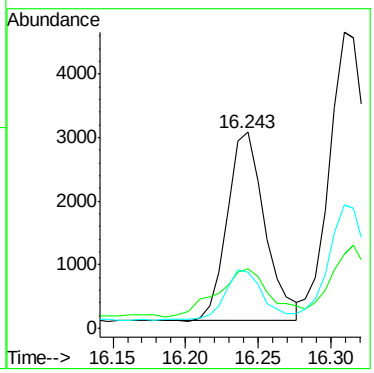


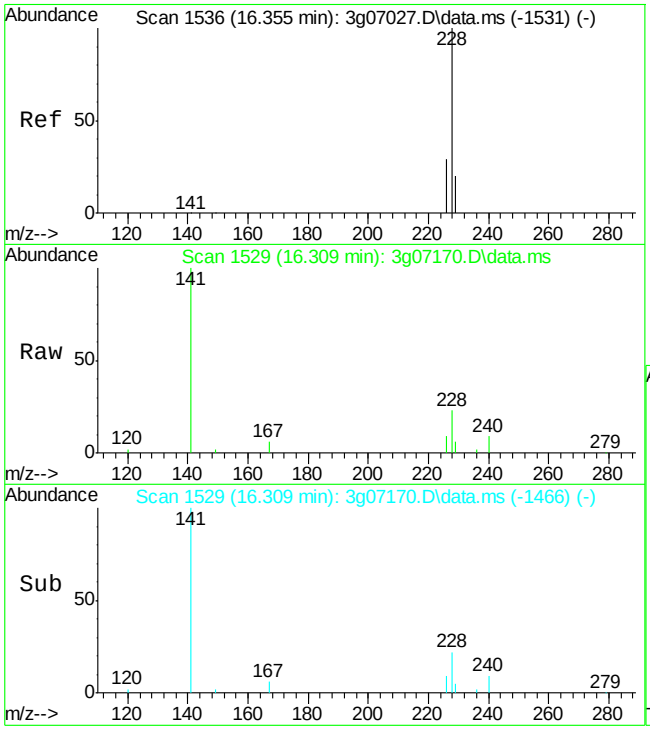


#21
Benzo(a)anthracene
Concen: 0.18 ug/mL
RT: 16.243 min Scan# 1519
Delta R.T. -0.006 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:228 Resp: 5555

Ion	Ratio	Lower	Upper
228	100		
229	35.1	0.0	39.6
226	29.3	6.6	46.6

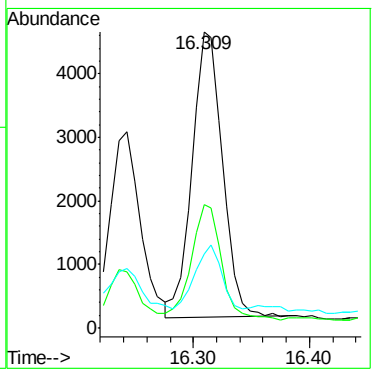


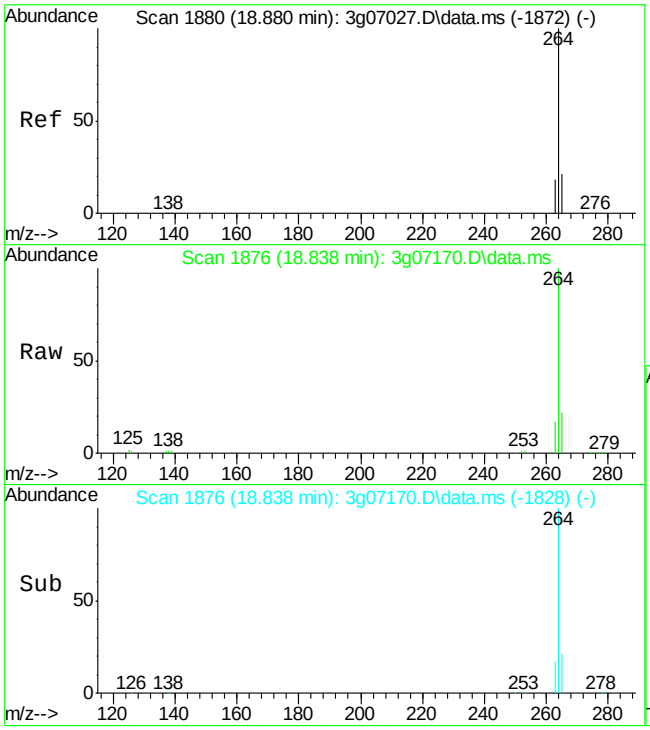


#22
Chrysene
Concen: 0.25 ug/mL
RT: 16.309 min Scan# 1529
Delta R.T. -0.020 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:228 Resp: 8225

Ion	Ratio	Lower	Upper
228	100		
226	40.8	7.4	47.4
229	21.3	0.0	39.2

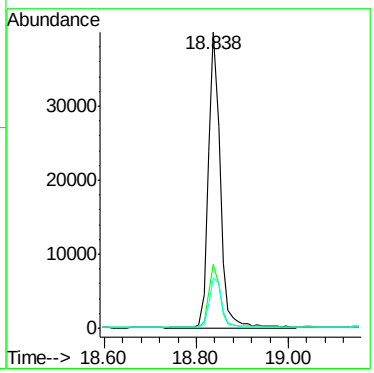


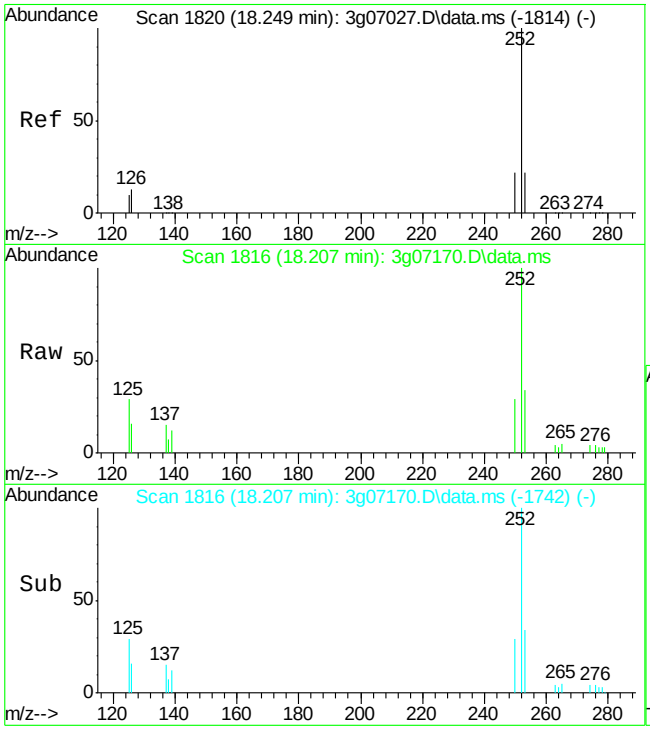


#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 18.838 min Scan# 1876
Delta R.T. 0.000 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:264 Resp: 70850

Ion	Ratio	Lower	Upper
264	100		
265	20.9	1.0	41.0
263	17.8	0.0	38.6

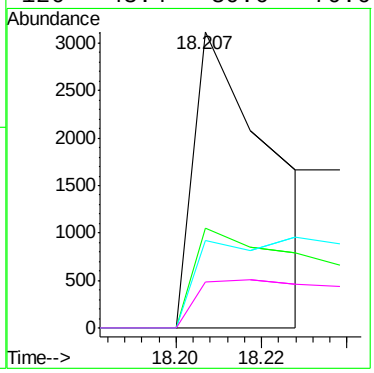


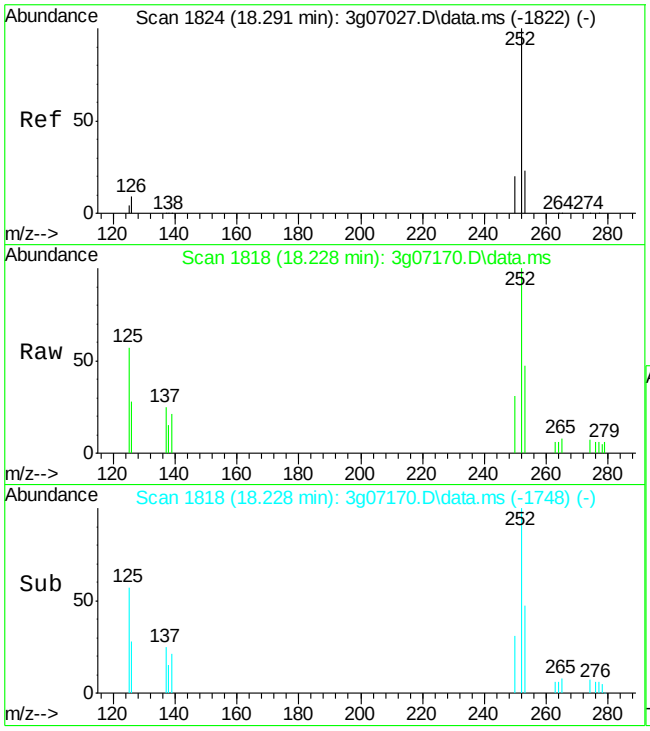


#24
Benzo(b)fluoranthene
Concen: 0.33 ug/mL m
RT: 18.207 min Scan# 1816
Delta R.T. -0.010 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:252 Resp: 3791

Ion	Ratio	Lower	Upper
252	100		
253	103.0	46.5	86.5#
125	88.2	15.4	55.4#
126	43.4	30.6	70.6

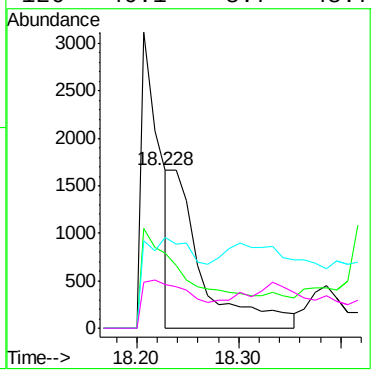


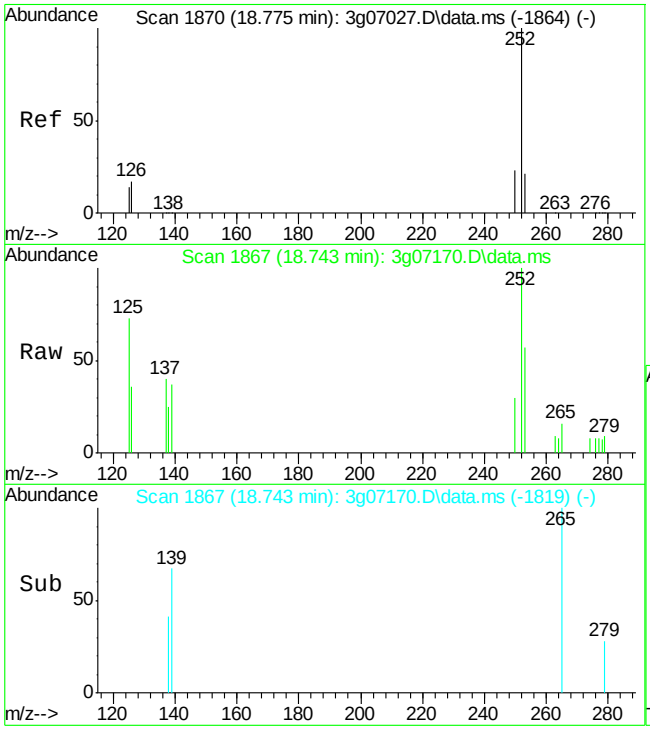


#25
Benzo(k)fluoranthene
Concen: 0.19 ug/mL m
RT: 18.228 min Scan# 1818
Delta R.T. -0.031 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:252 Resp: 3573

Ion	Ratio	Lower	Upper
252	100		
253	109.2	17.7	57.7#
125	93.6	0.1	40.1#
126	46.1	8.7	48.7

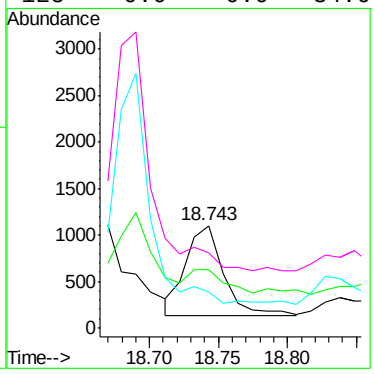


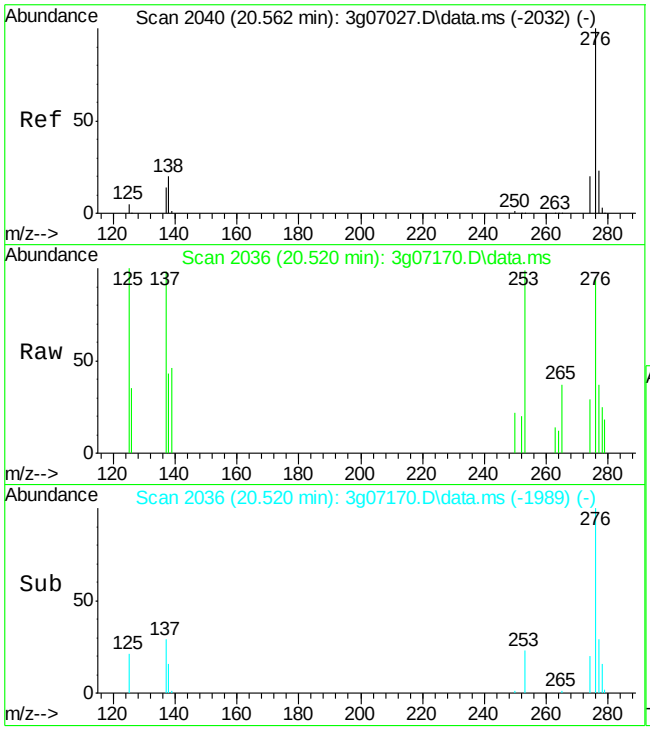


#26
Benzo(a)pyrene
Concen: 0.16 ug/mL
RT: 18.743 min Scan# 1867
Delta R.T. 0.000 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:252 Resp: 1828

Ion	Ratio	Lower	Upper
252	100		
253	25.2	1.4	41.4
126	0.0	0.0	38.6
125	0.0	0.0	34.0

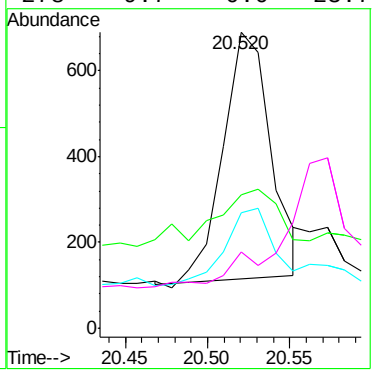


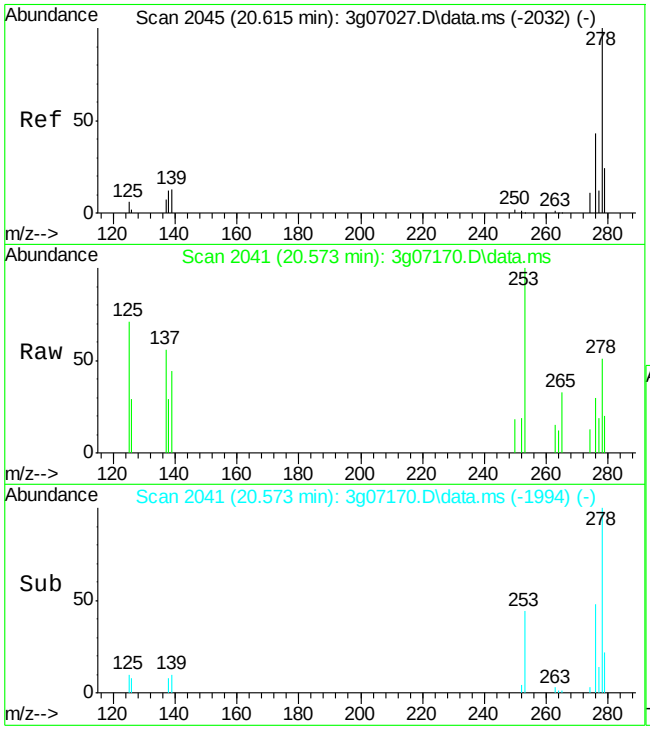


#27
Indeno(1,2,3-cd)pyrene
Concen: 0.14 ug/mL m
RT: 20.520 min Scan# 2036
Delta R.T. -0.010 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:276 Resp: 1155

Ion	Ratio	Lower	Upper
276	100		
138	59.8	8.2	48.2#
277	39.7	8.3	48.3
278	9.7	0.0	23.7

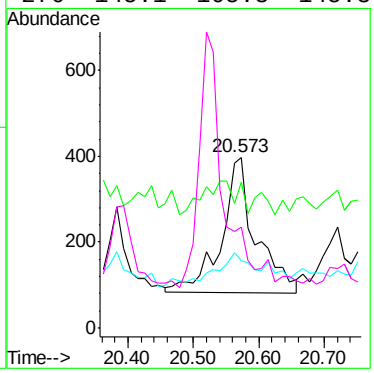


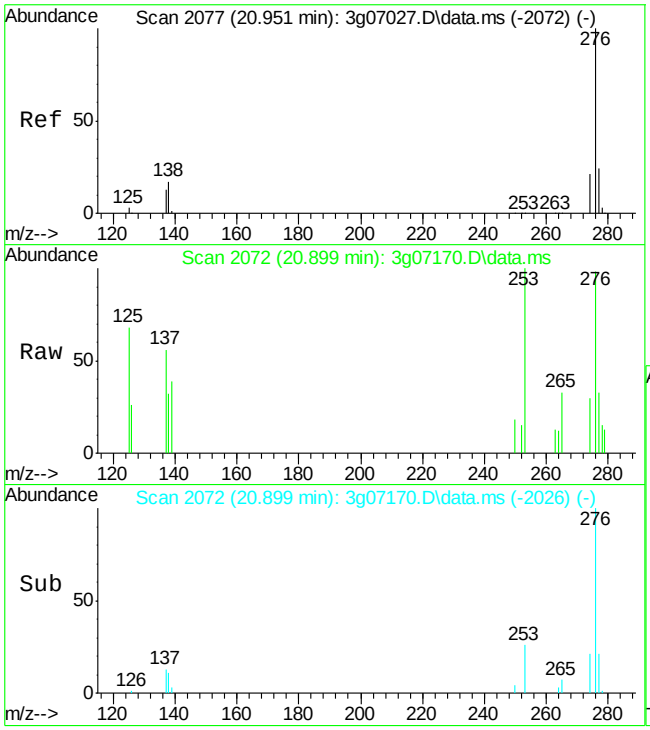


#28
Dibenz(a,h)anthracene
Concen: 0.10 ug/mL
RT: 20.573 min Scan# 2041
Delta R.T. -0.010 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:278 Resp: 1151

Ion	Ratio	Lower	Upper
278	100		
139	23.5	0.0	38.1
279	25.8	3.6	43.6
276	145.1	105.3	145.3

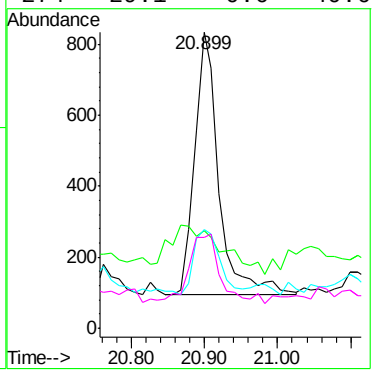




#29
Benzo(g,h,i)perylene
Concen: 0.08 ug/mL
RT: 20.899 min Scan# 2072
Delta R.T. -0.021 min
Lab File: 3g07170.D
Acq: 8 Dec 11 9:35 am

Tgt Ion:276 Resp: 1722

Ion	Ratio	Lower	Upper
276	100		
138	40.1	3.3	43.3
277	26.7	3.1	43.1
274	29.1	0.6	40.6



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

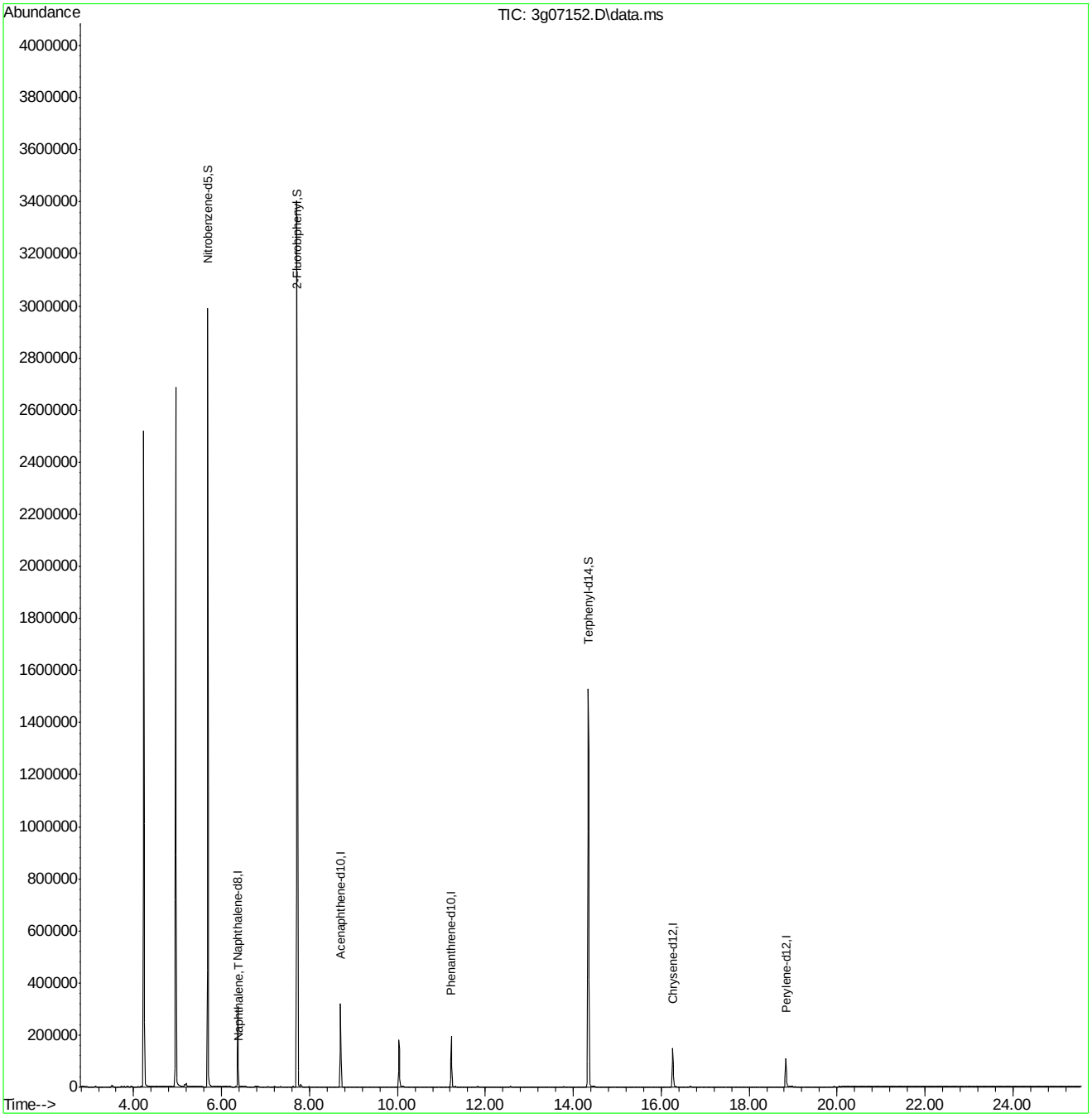
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.370	136	271050	4.00	ug/mL	0.00
6) Acenaphthene-d10	8.709	164	166538	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.232	188	222176	4.00	ug/mL	0.00
18) Chrysene-d12	16.263	240	176214	4.00	ug/mL	-0.01
23) Perylene-d12	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	

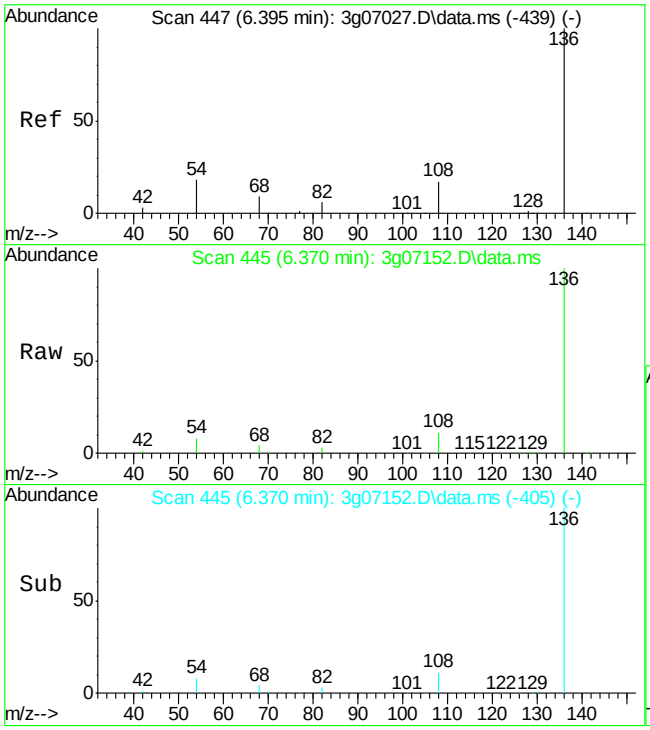
(#) = qualifier out of range (m) = manual integration (+) = signals summed

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

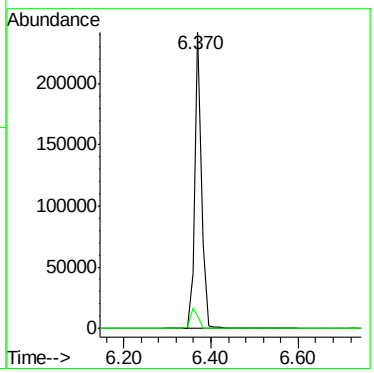


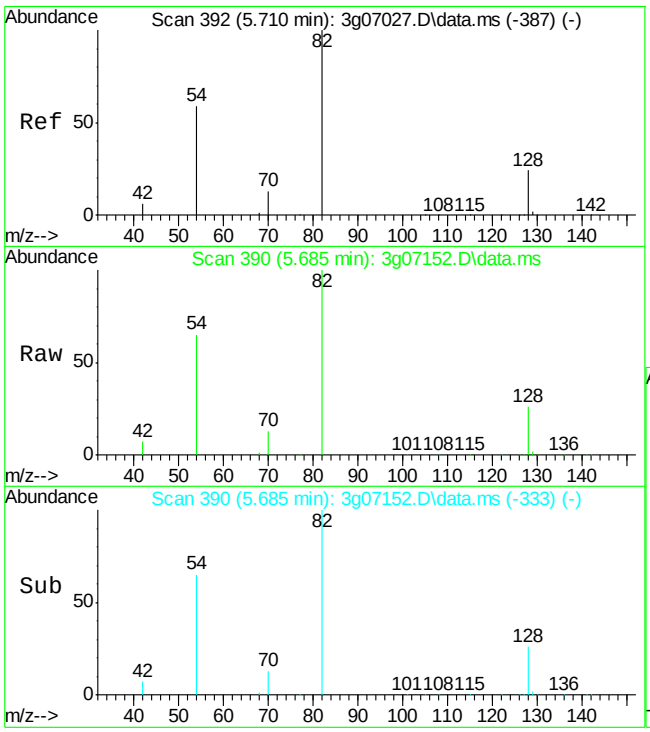


#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.370 min Scan# 445
Delta R.T. 0.000 min
Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion:136 Resp: 271050

Ion	Ratio	Lower	Upper
136	100		
68	7.9	0.0	27.5

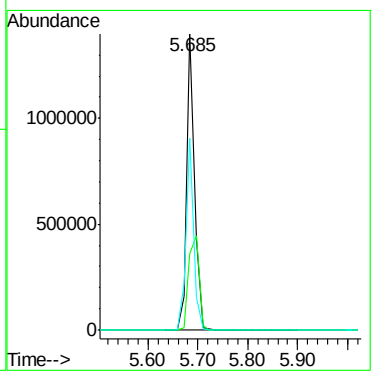


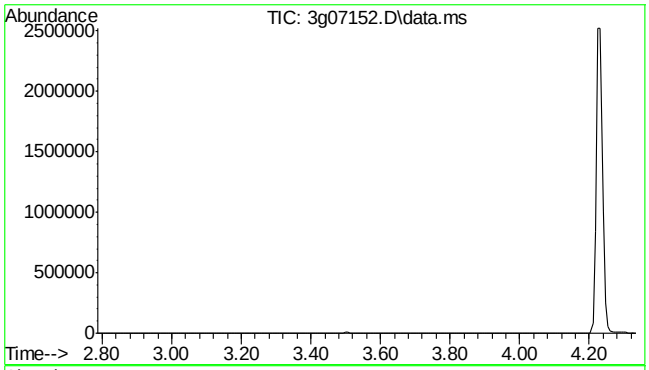


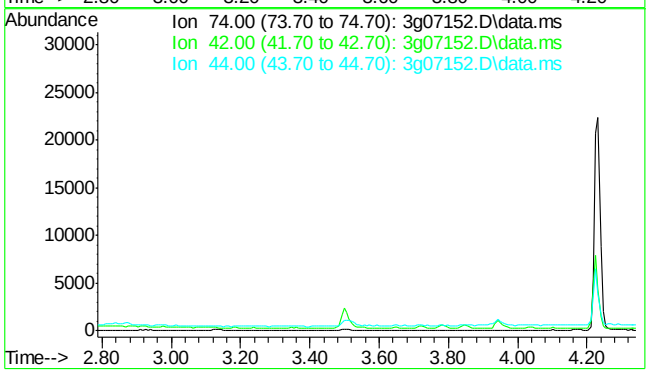
#2
Nitrobenzene-d5
Concen: 46.01 ug/mL
RT: 5.685 min Scan# 390
Delta R.T. -0.012 min
Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

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





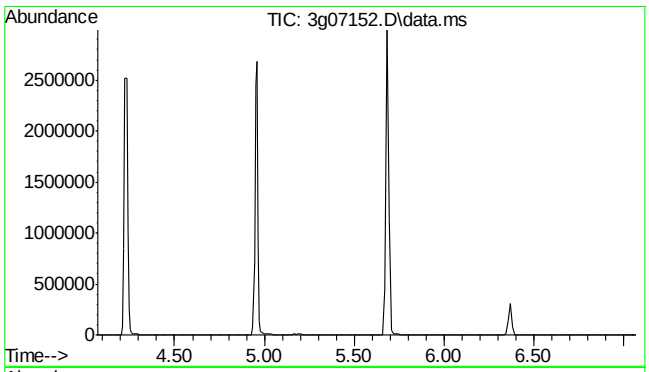


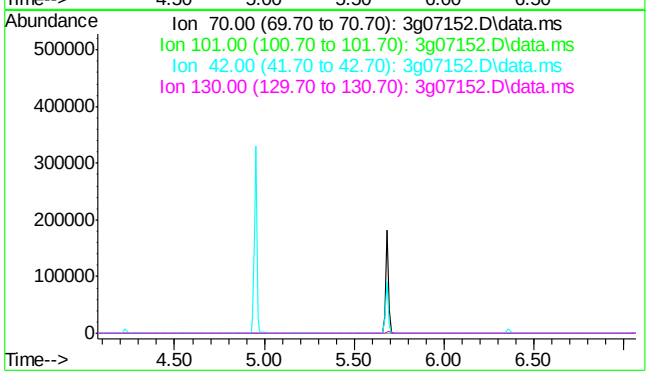
#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.84 min

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



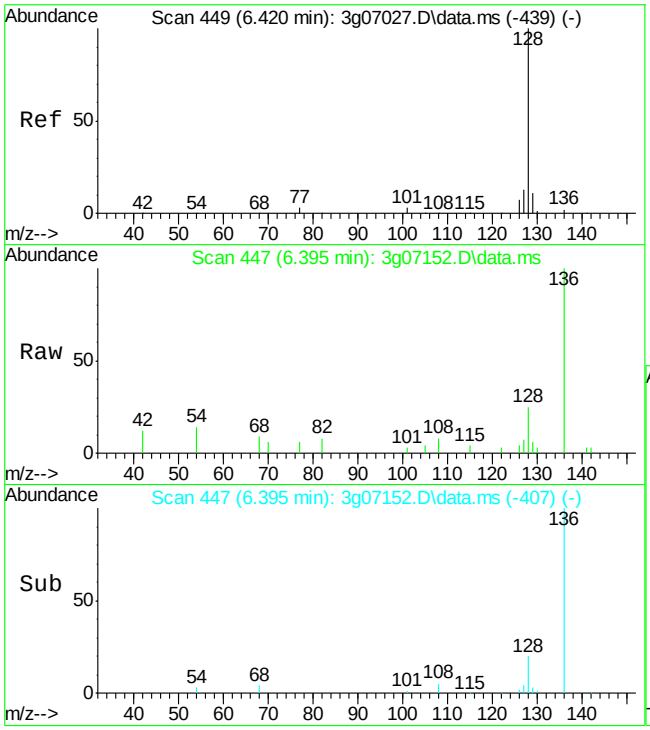


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.57 min

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

Tgt Ion: 70

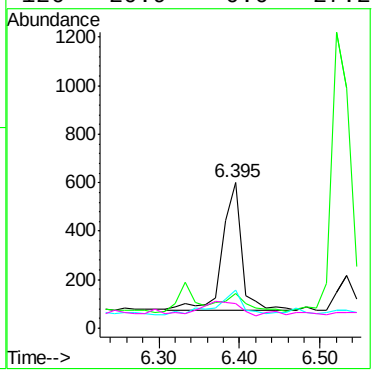
Sig	Exp Ratio
70	100
101	12.9
42	56.3
130	25.7

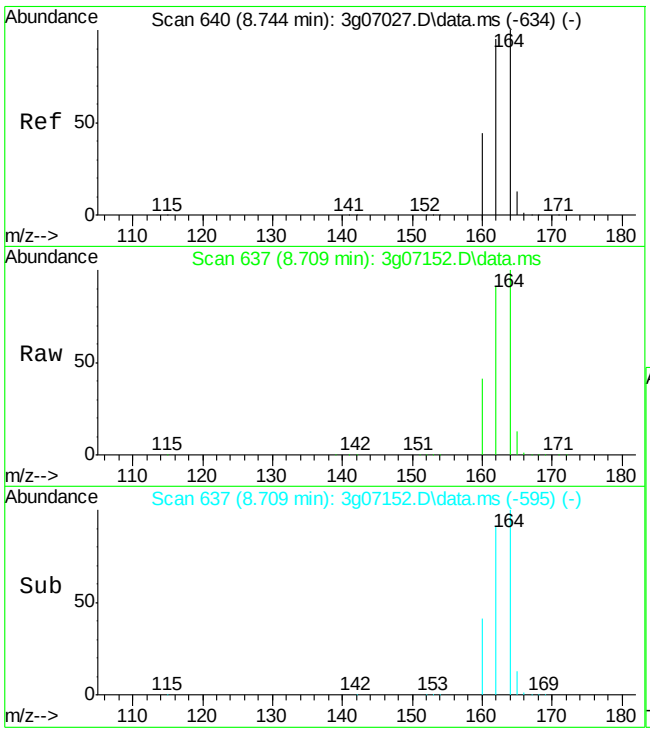


#5
Naphthalene
Concen: 0.01 ug/mL
RT: 6.395 min Scan# 447
Delta R.T. 0.000 min
Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

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

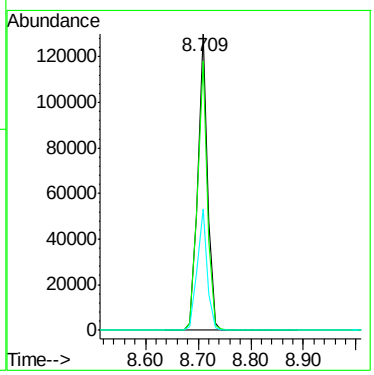


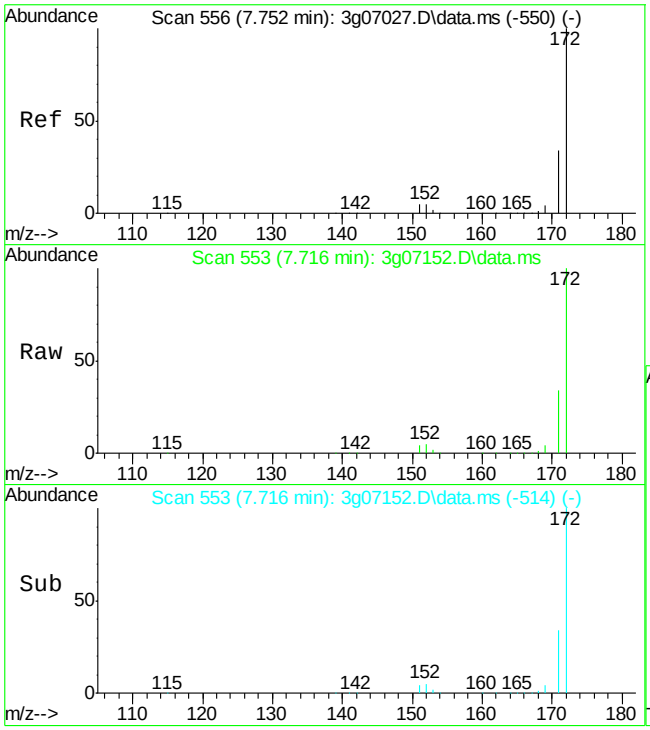


#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 8.709 min Scan# 637
Delta R.T. 0.000 min
Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

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

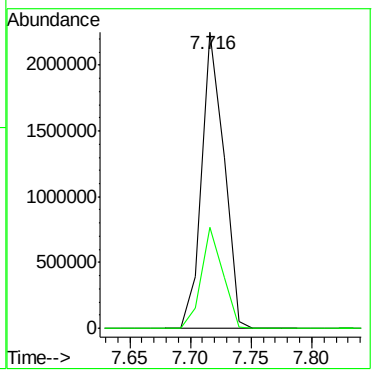


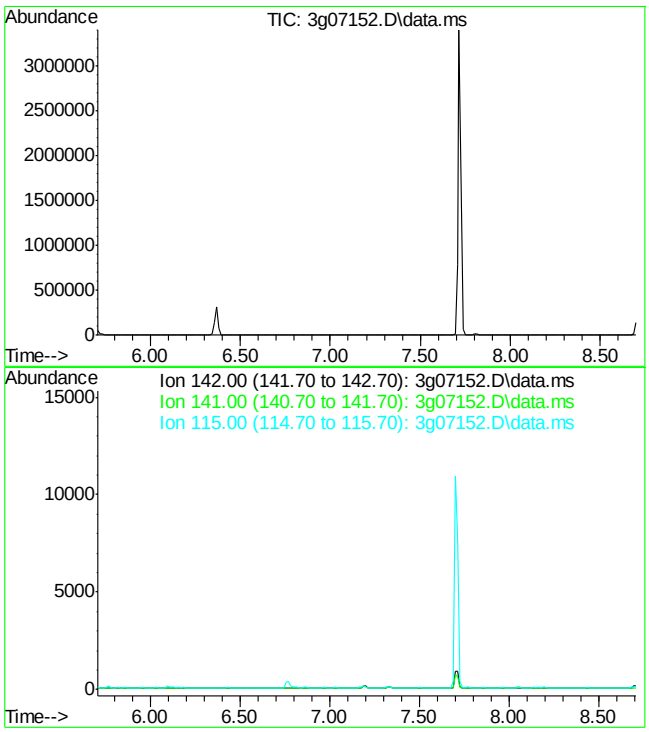


#7
2-Fluorobiphenyl
Concen: 43.84 ug/mL
RT: 7.716 min Scan# 553
Delta R.T. -0.012 min
Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

Tgt Ion:172 Resp: 2865854

Ion	Ratio	Lower	Upper
172	100		
171	33.1	12.5	52.5



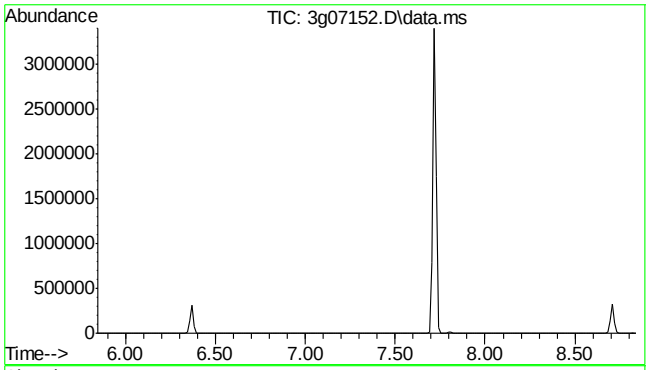


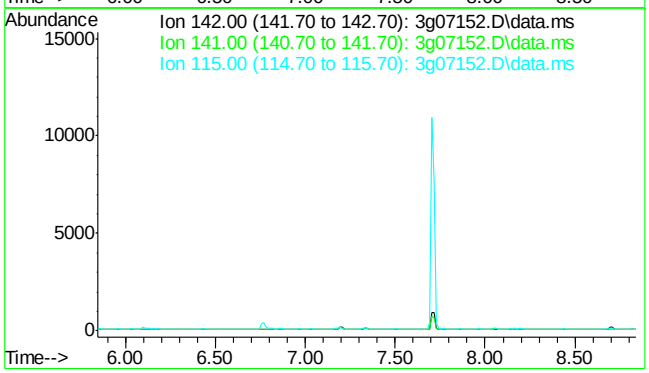
#8
2-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.21 min

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



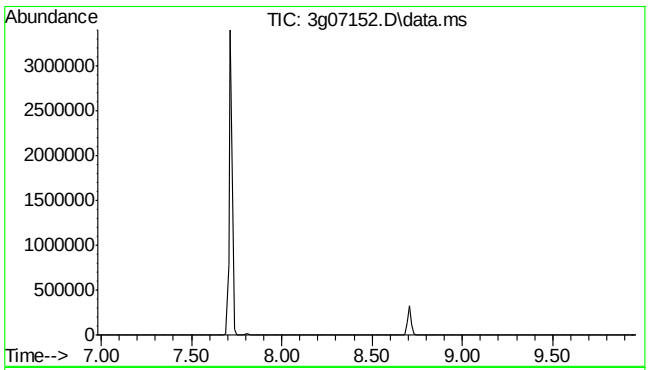


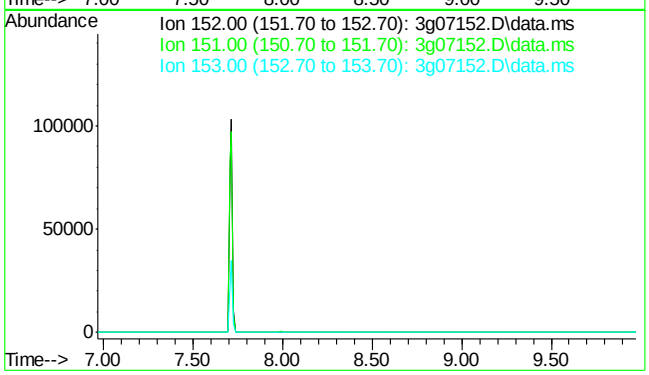
#9
1-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.34 min

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



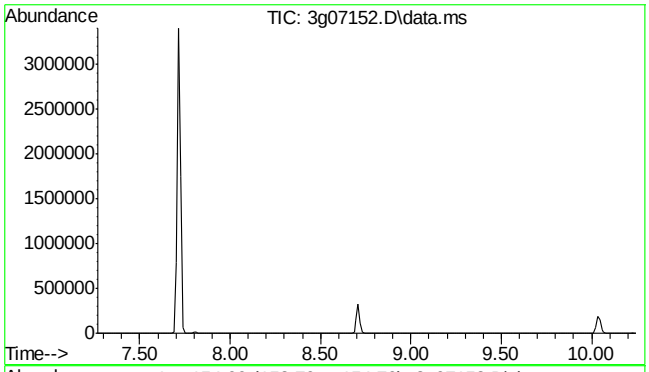


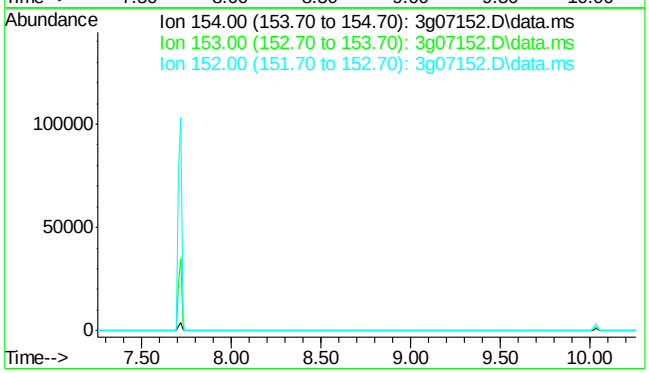
#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.47 min

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



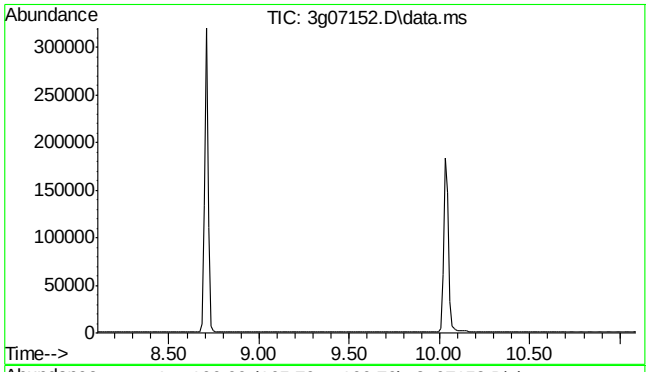


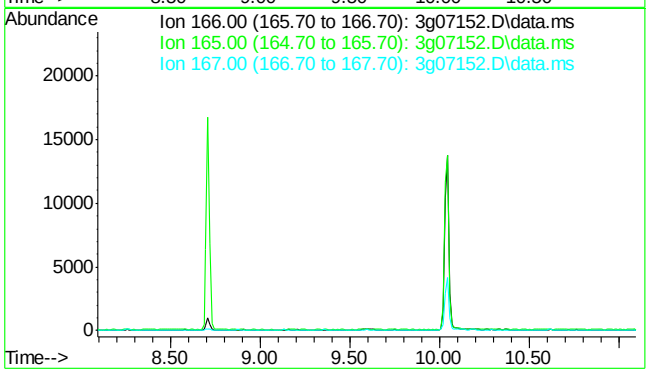
#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 8.76 min

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



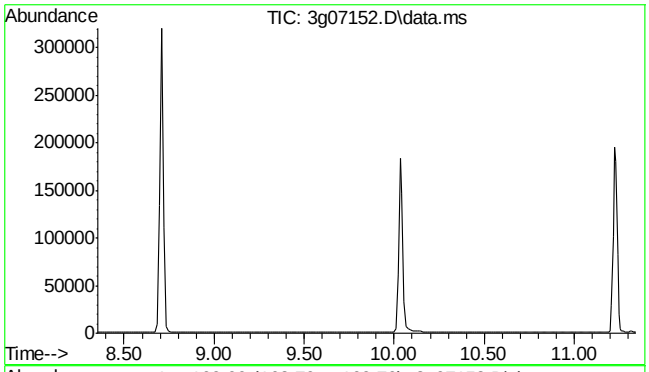


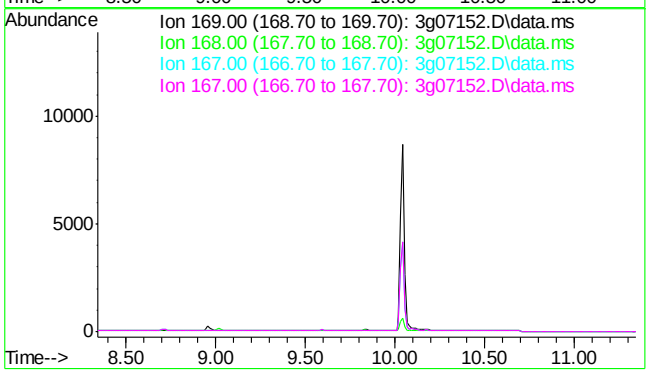
#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 9.59 min

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



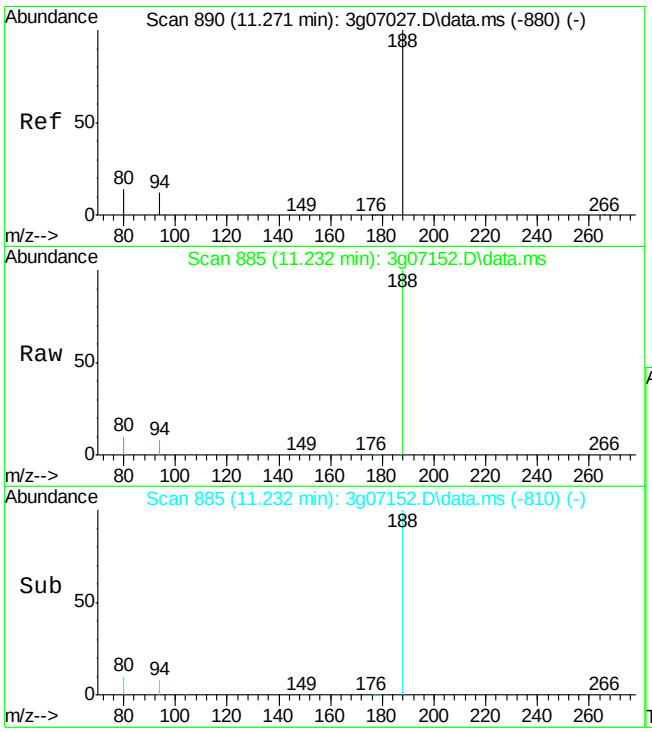


#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 9.84 min

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

Tgt Ion: 169

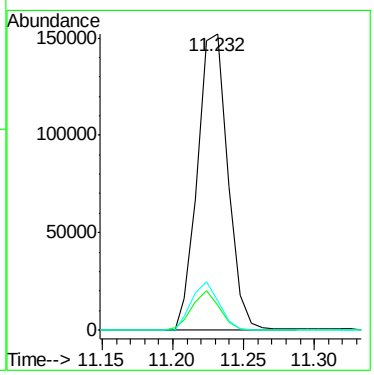
Sig	Exp Ratio
169	100
168	60.5
167	32.9
167	32.9

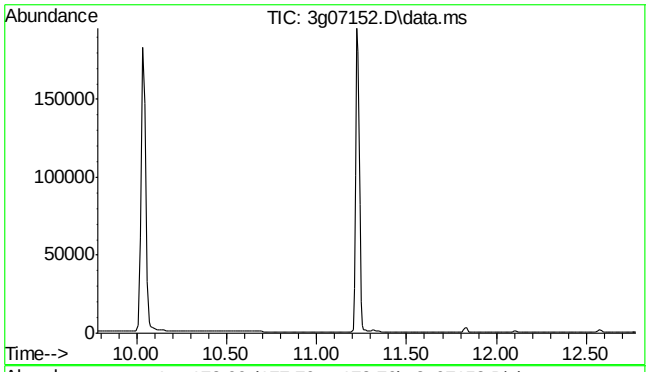


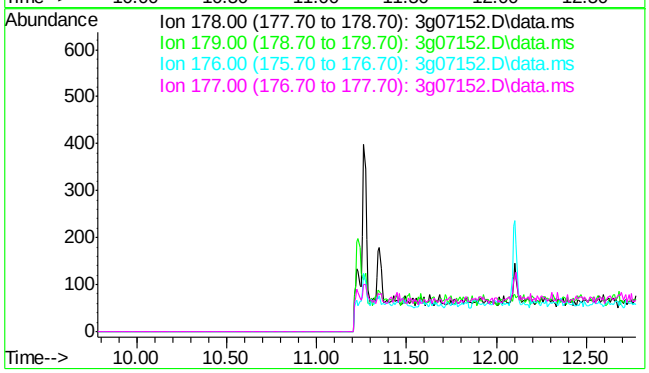
#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.232 min Scan# 885
Delta R.T. 0.000 min
Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

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





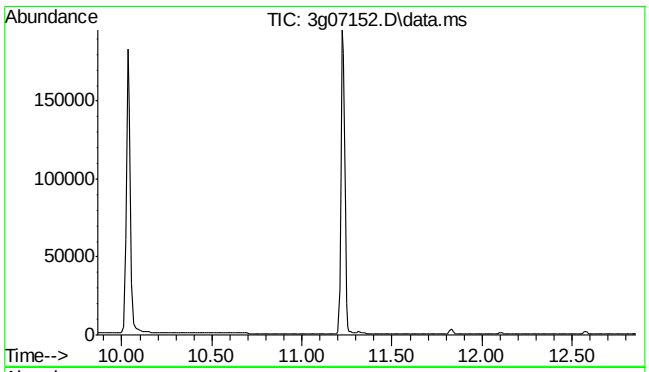


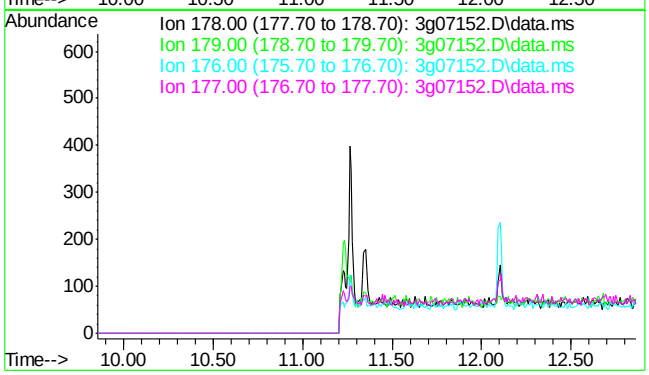
#15
Phenanthrene
Concen: N.D. ug/mL
Expected RT: 11.28 min

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



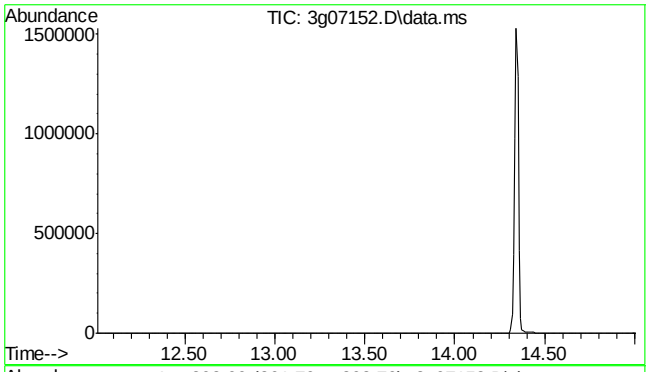


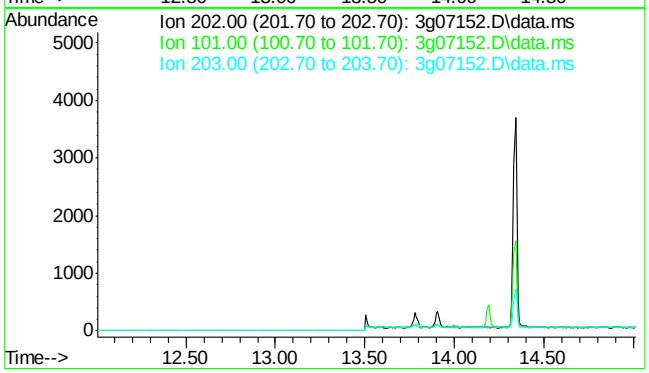
#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.36 min

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



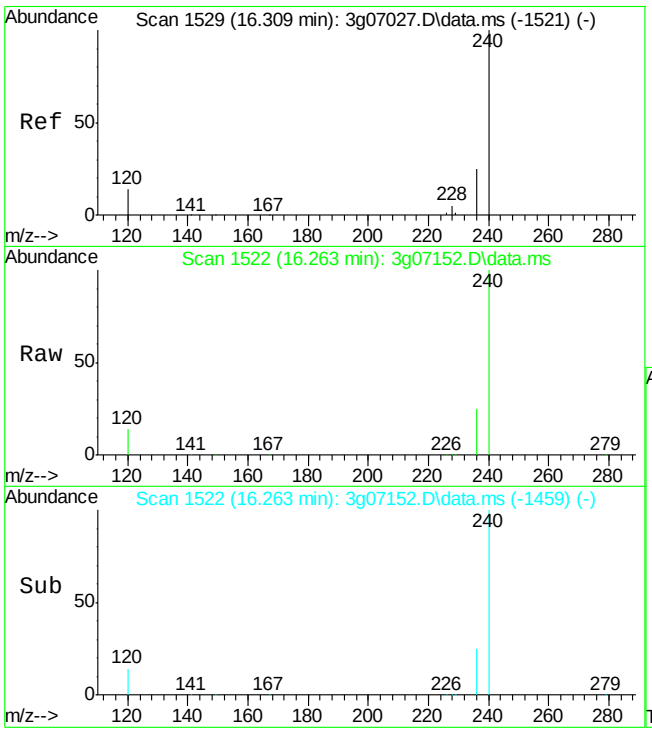


#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 13.51 min

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

Tgt Ion: 202

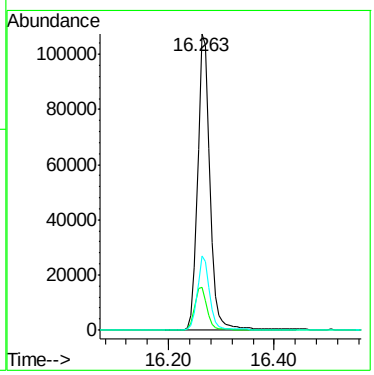
Sig	Exp Ratio
202	100
101	12.8
203	18.0

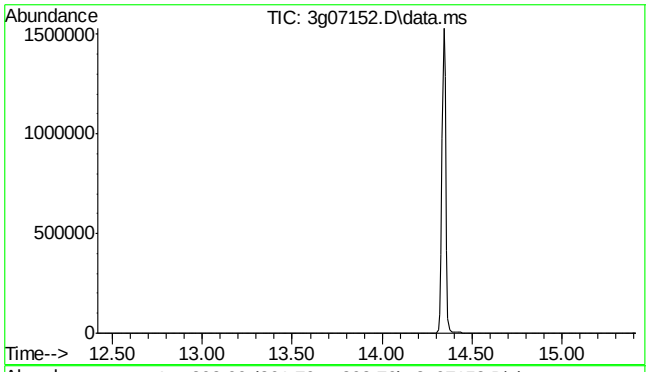


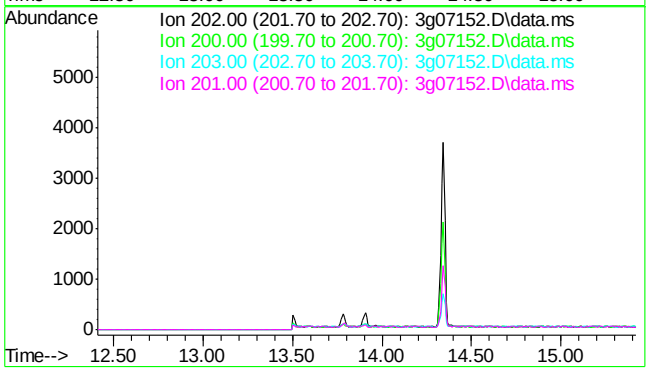
#18
Chrysene-d12
Concen: 4.00 ug/mL
RT: 16.263 min Scan# 1522
Delta R.T. -0.013 min
Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

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





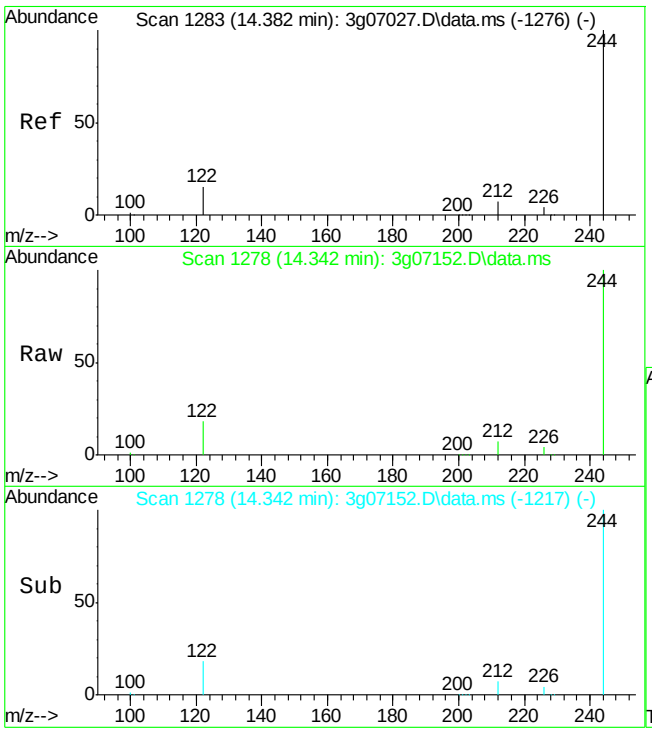


#19
Pyrene
Concen: N.D. ug/mL
Expected RT: 13.91 min

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

Tgt Ion: 202

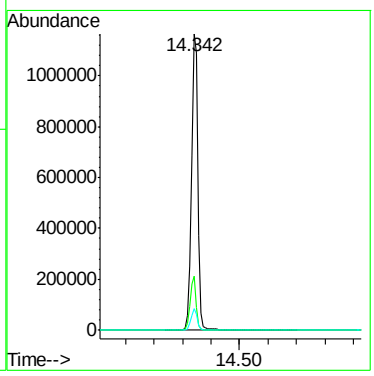
Sig	Exp Ratio
202	100
200	22.1
203	17.8
201	18.2

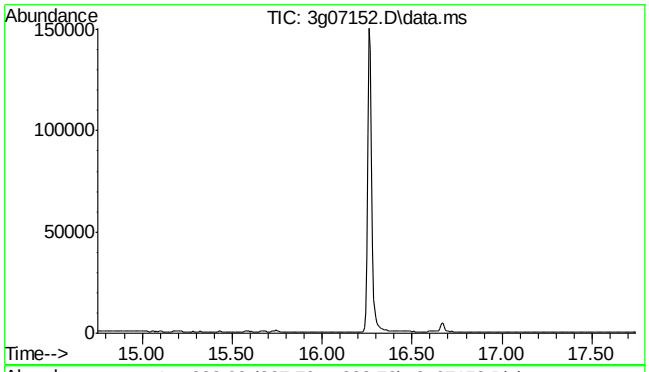


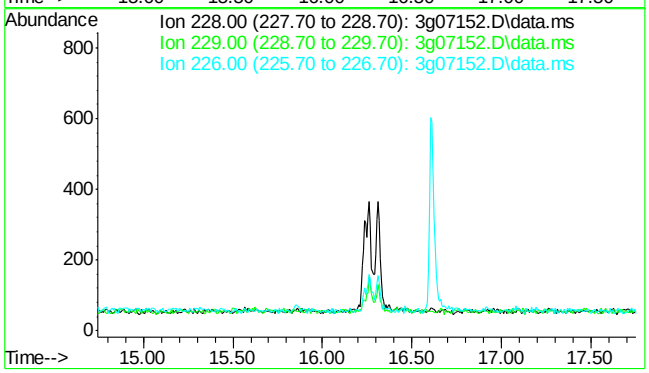
#20
Terphenyl-d14
Concen: 50.71 ug/mL
RT: 14.342 min Scan# 1278
Delta R.T. -0.016 min
Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

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





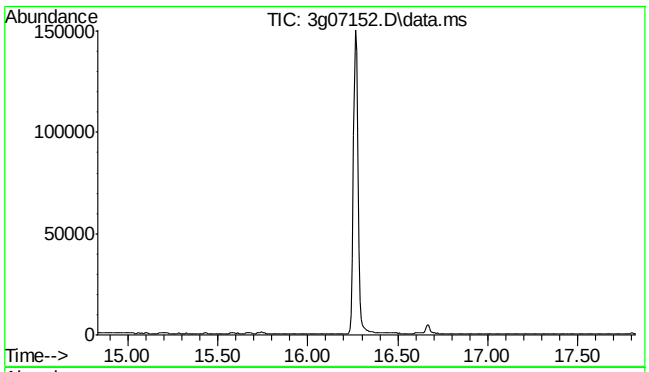


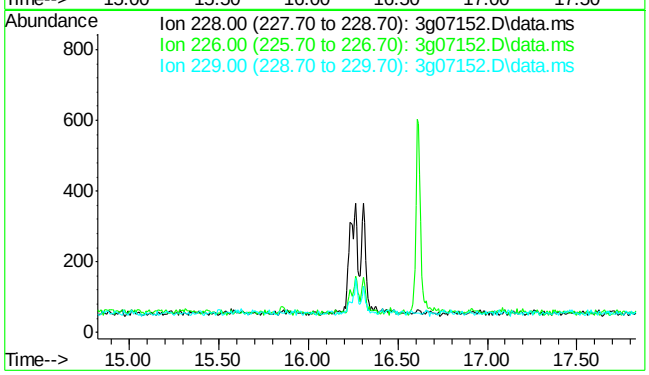
#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.25 min

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



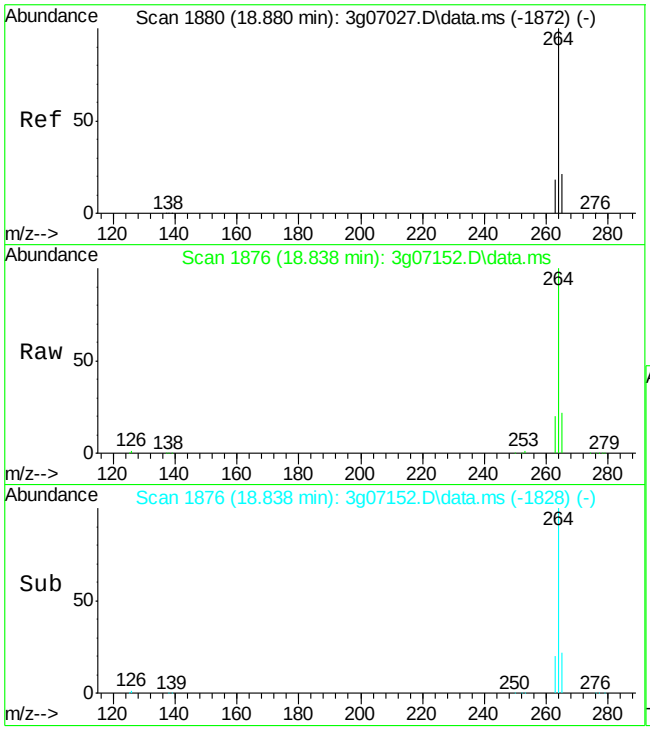


#22
Chrysene
Concen: N.D. ug/mL
Expected RT: 16.33 min

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

Tgt Ion: 228

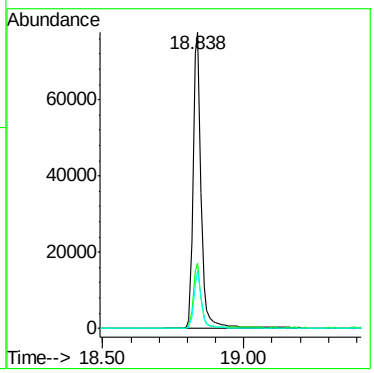
Sig	Exp Ratio
228	100
226	27.4
229	19.2

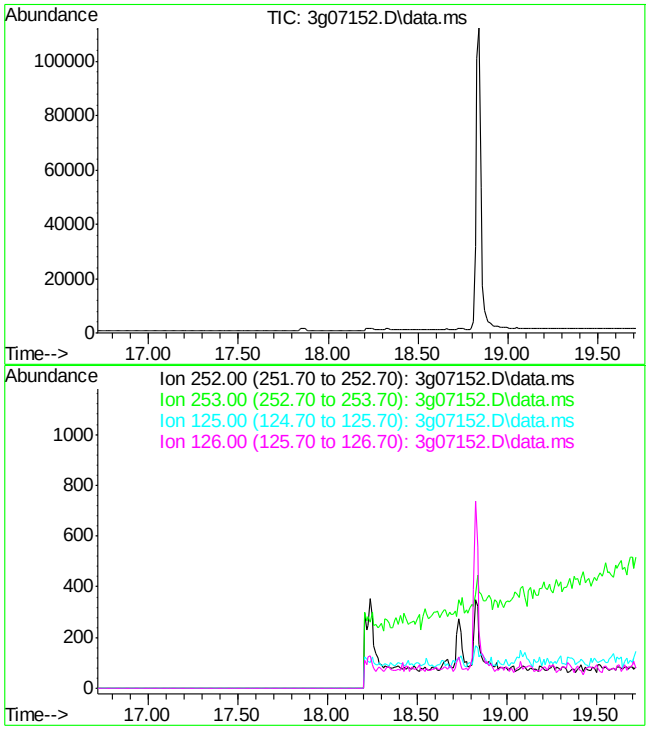


#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 18.838 min Scan# 1876
Delta R.T. 0.000 min
Lab File: 3g07152.D
Acq: 7 Dec 11 9:58 pm

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



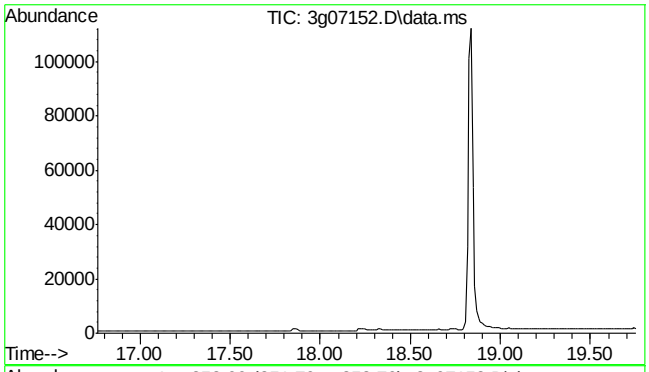


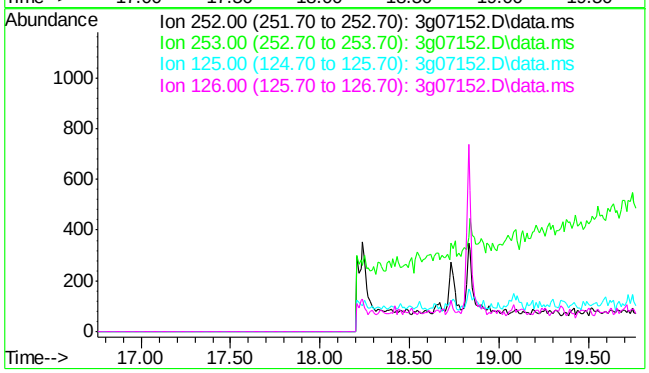
#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.22 min

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



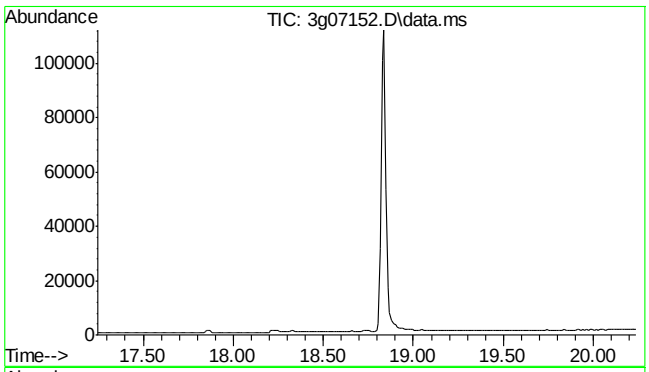


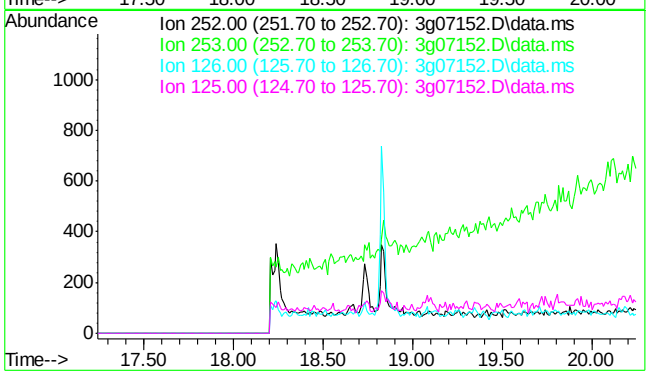
#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.26 min

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



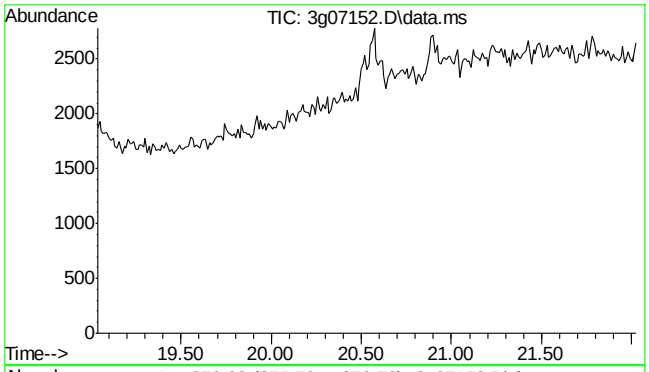


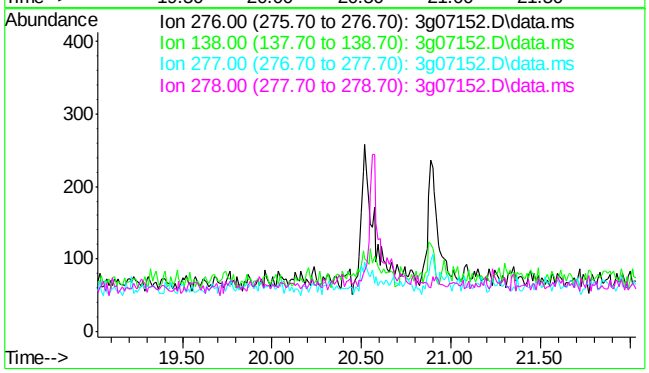
#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 18.74 min

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



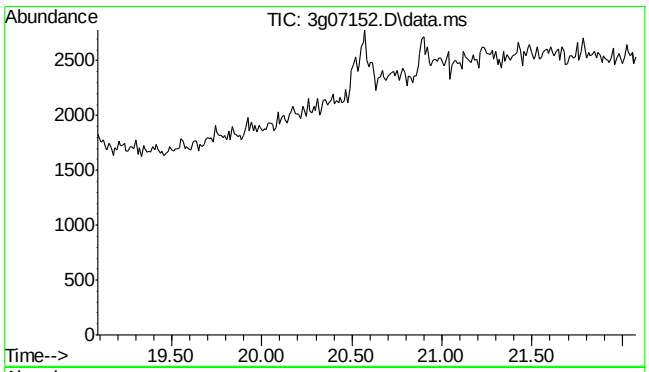


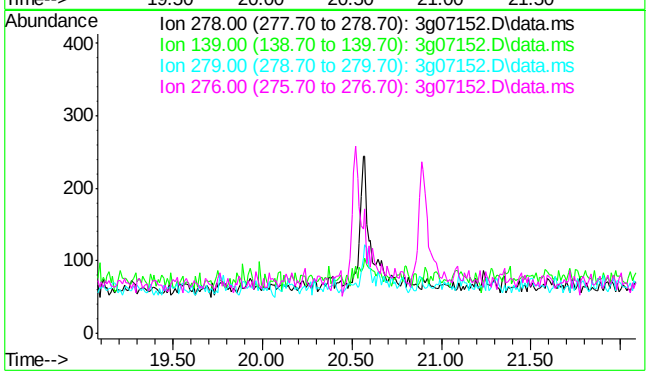
#27
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 20.53 min

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



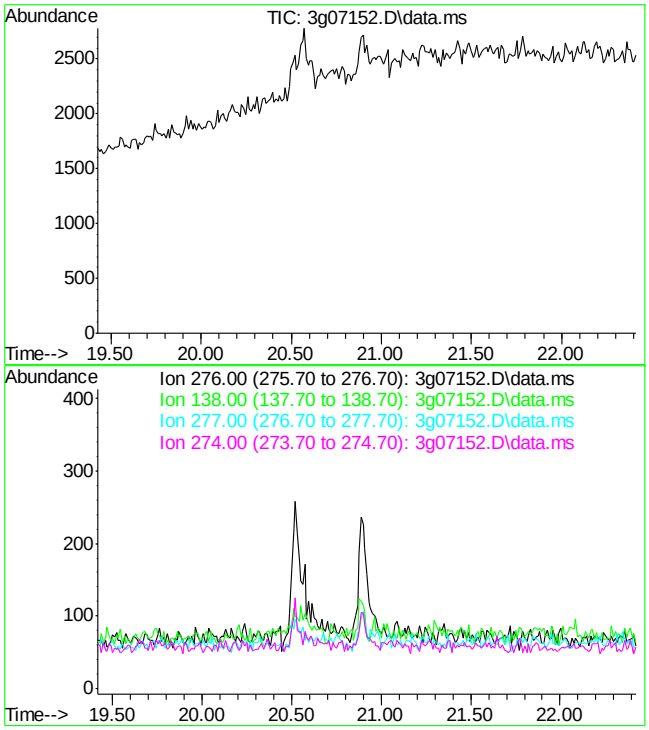


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 20.58 min

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: D29760
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

D29760-1

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: D29760
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

D29760-1

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: D29760
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

D29760-1

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\GB14106.D\FID1A.CH Vial: 7
Signal #2 : Y:\1\DATA\112911\GB14106.D\FID2B.CH
Acq On : 29 Nov 2011 2:31 pm Operator: StephK
Sample : D29760-1, 50X Inst : GC/MS Ins
Misc : GC2437,GGB798,5.077,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 29 14:16:32 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 13:18:36 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	14.40	2628241	89.839	%	m
10) S	1,2,4-Trichlorobenzene (P)	14.40	21848356	95.059	%	
	Target Compounds					
1) H	TVH-Gasoline	7.32	9740172	0.137	mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5) T	Benzene	4.19	97035	0.170	ug/L	
6) T	Toluene	7.71	561632	0.991	ug/L	
7) T	Ethylbenzene	10.33	125568	0.258	ug/L	
8) T	m,p-Xylene	10.51	1025849	1.404	ug/L	
9) T	o-Xylene	11.00	205250	0.147	ug/L	
11) T	Naphthalene	14.58	4002485	15.550	ug/L	

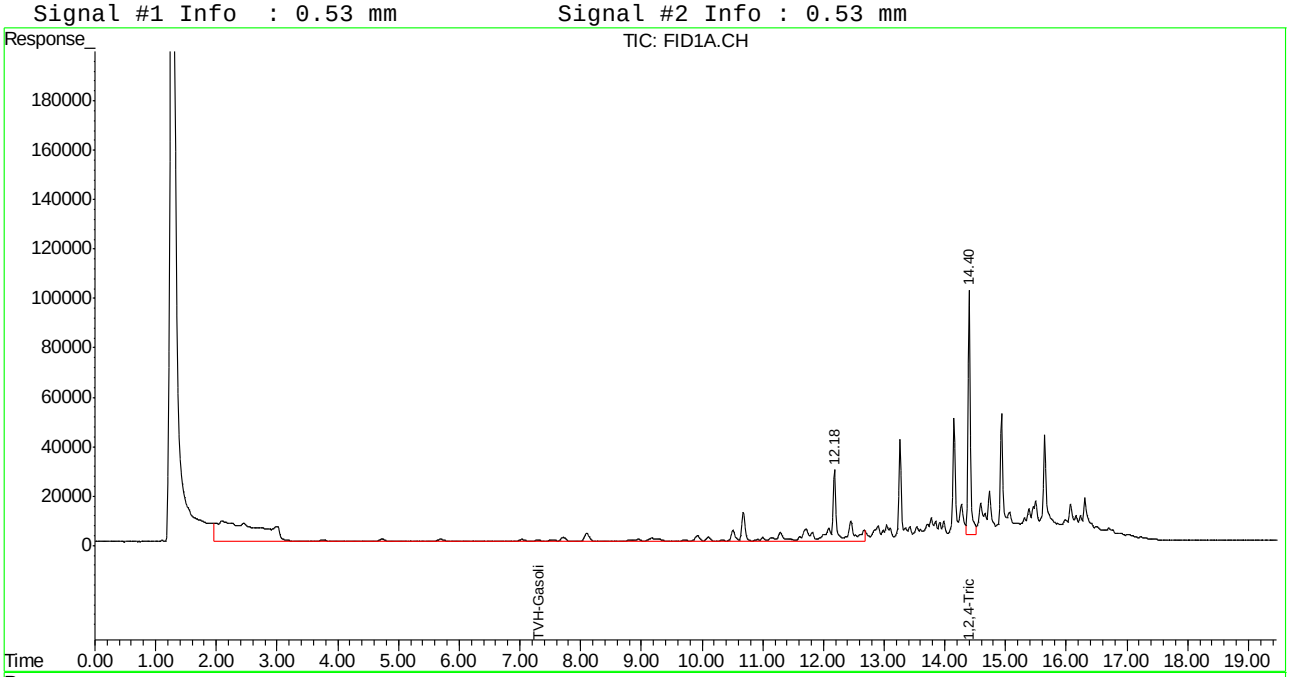
(f)=RT Delta > 1/2 Window (m)=manual int.
GB14106.D TB791GB791SOIL.M Wed Nov 30 08:17:22 2011 GC Page 1

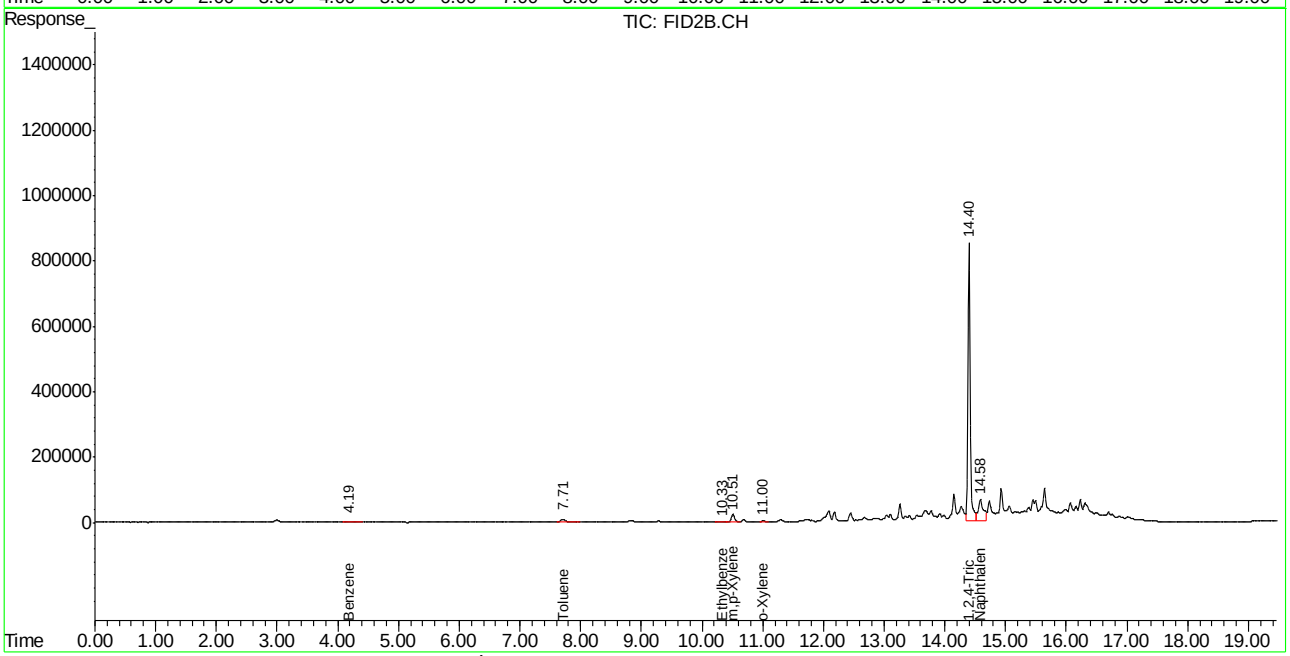
Quantitation Report (QT Reviewed)

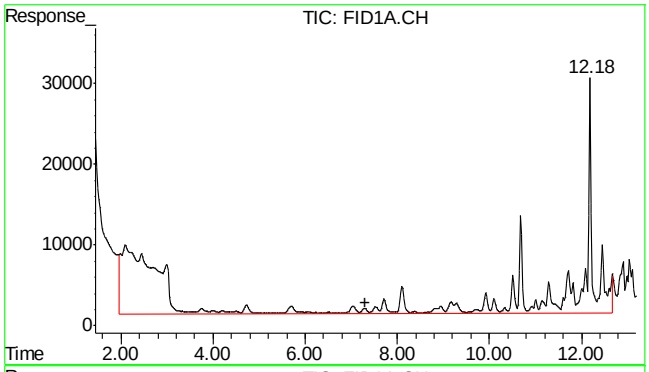
Signal #1 : Y:\1\DATA\112911\GB14106.D\FID1A.CH Vial: 7
Signal #2 : Y:\1\DATA\112911\GB14106.D\FID2B.CH
Acq On : 29 Nov 2011 2:31 pm Operator: StephK
Sample : D29760-1, 50X Inst : GC/MS Ins
Misc : GC2437,GGB798,5.077,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 29 14:15 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 13:18:36 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

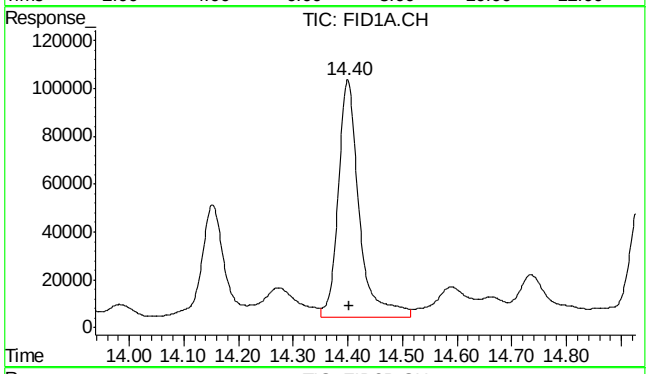






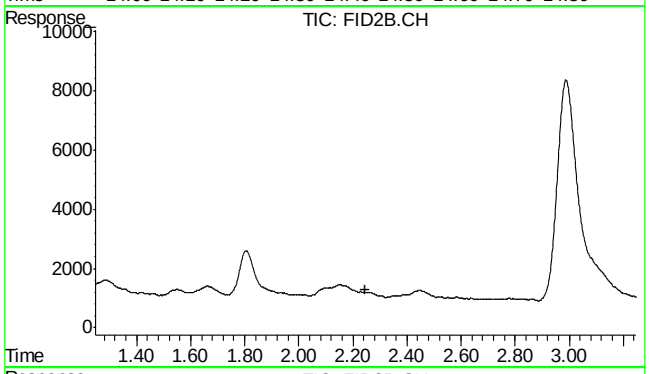
#1 TVH-Gasoline

R.T.: 7.315 min
Delta R.T.: 0.000 min
Response: 9740172
Conc: 0.14 mg/L m



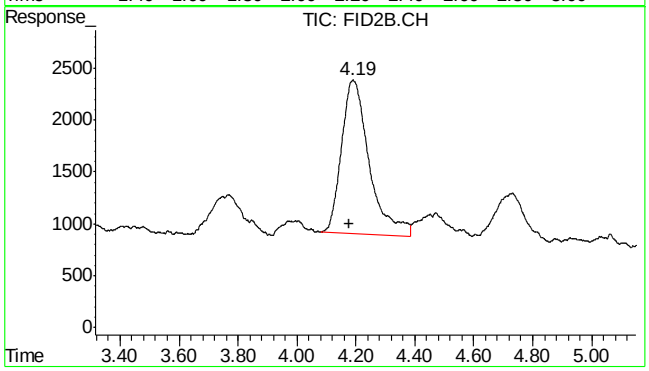
#2 1,2,4-Trichlorobenzene

R.T.: 14.399 min
Delta R.T.: -0.004 min
Response: 2628241
Conc: 89.84 % m



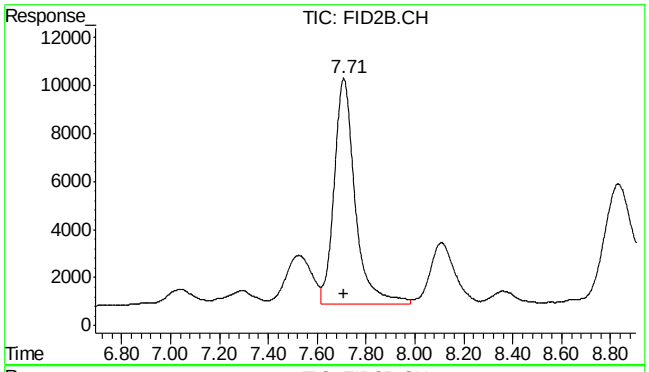
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.247 min
Response: 0
Conc: N.D.



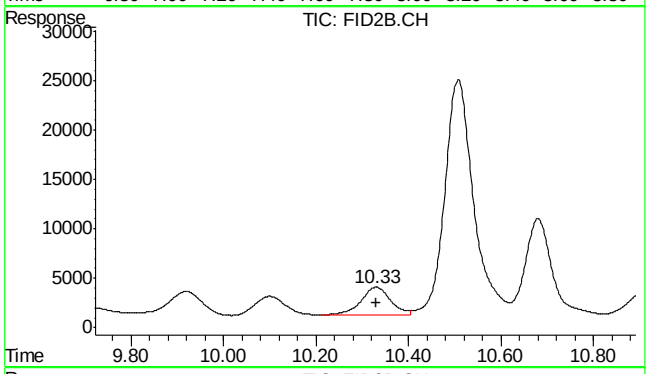
#5 Benzene

R.T.: 4.191 min
Delta R.T.: 0.012 min
Response: 97035
Conc: 0.17 ug/L



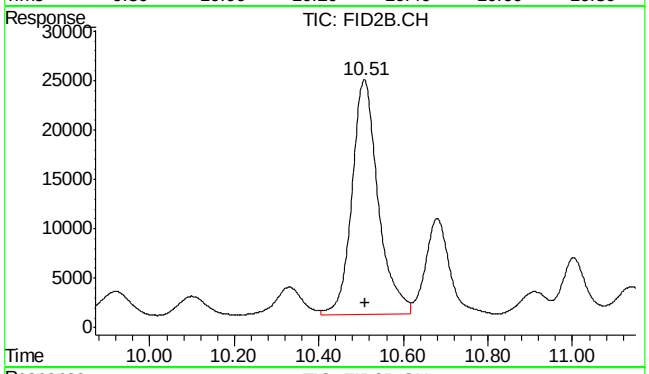
#6 Toluene

R.T.: 7.709 min
Delta R.T.: 0.002 min
Response: 561632
Conc: 0.99 ug/L



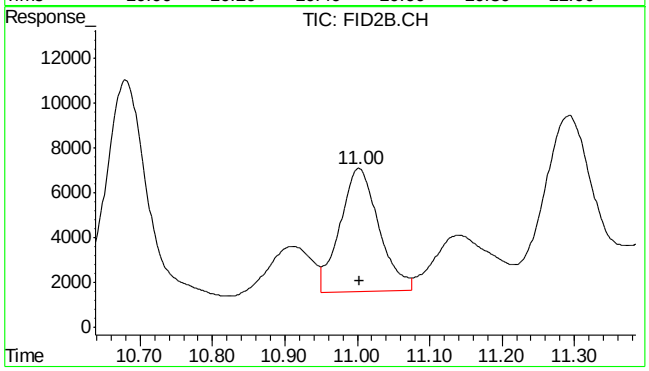
#7 Ethylbenzene

R.T.: 10.330 min
Delta R.T.: 0.000 min
Response: 125568
Conc: 0.26 ug/L



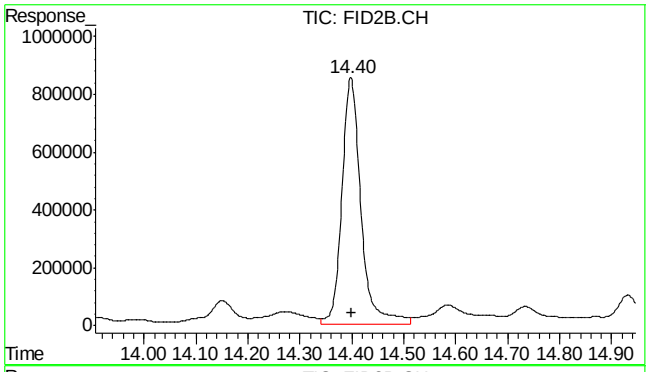
#8 m,p-Xylene

R.T.: 10.508 min
Delta R.T.: -0.003 min
Response: 1025849
Conc: 1.40 ug/L



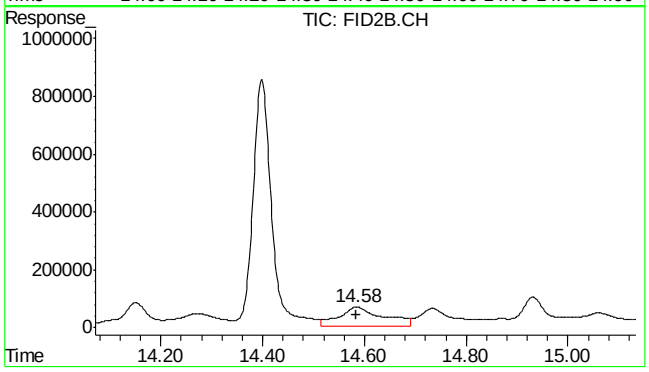
#9 o-Xylene

R.T.: 11.003 min
Delta R.T.: 0.000 min
Response: 205250
Conc: 0.15 ug/L



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

R.T.: 14.399 min
Delta R.T.: -0.002 min
Response: 21848356
Conc: 95.06 %



#11 Naphthalene

R.T.: 14.585 min
Delta R.T.: 0.002 min
Response: 4002485
Conc: 15.55 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	

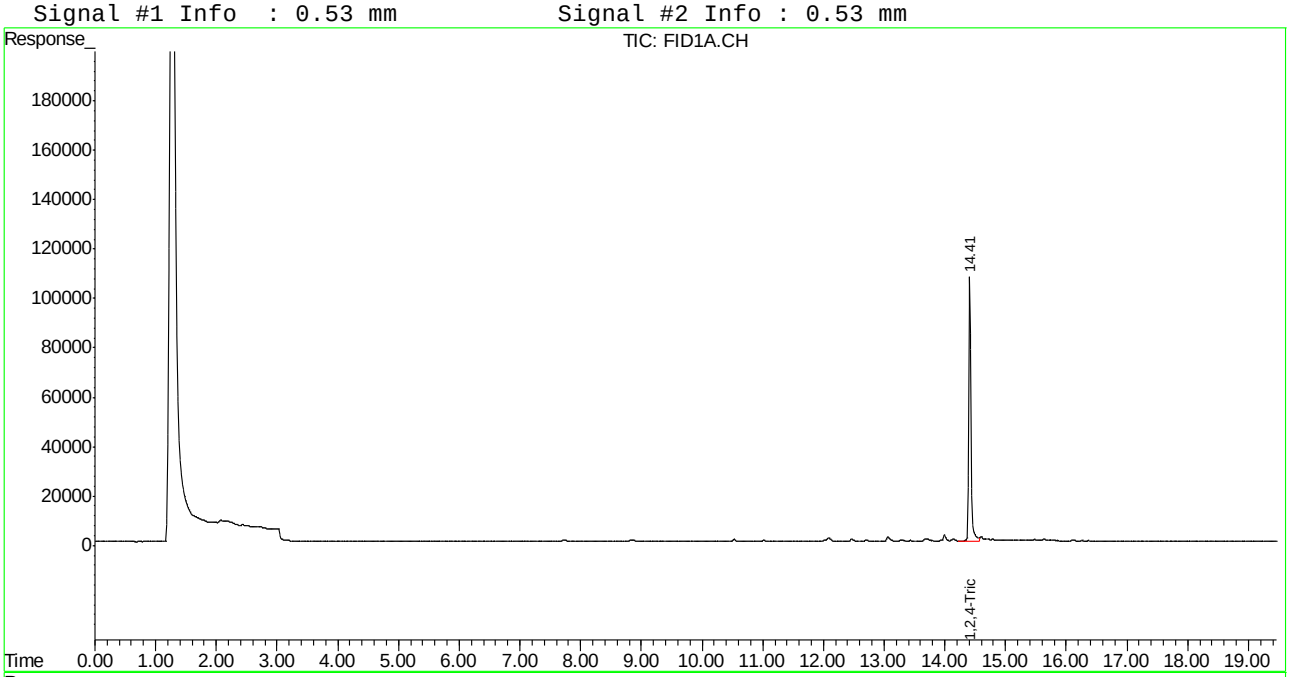
(f)=RT Delta > 1/2 Window (m)=manual int.

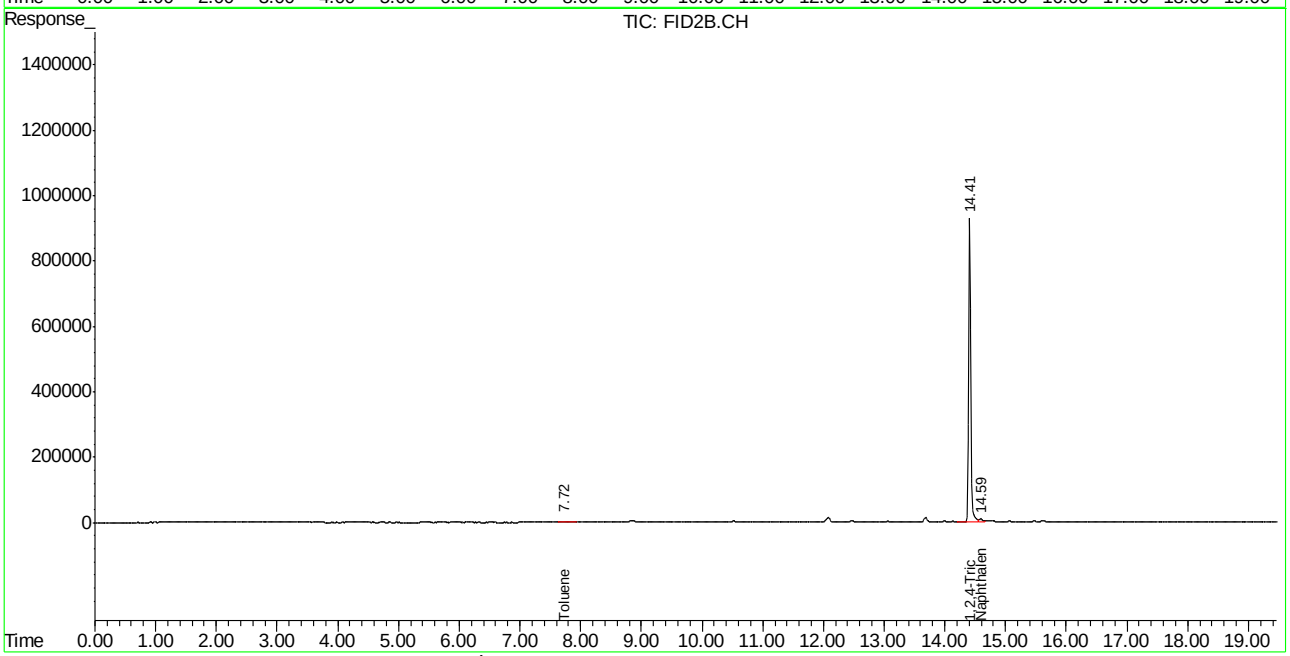
Quantitation Report (QT Reviewed)

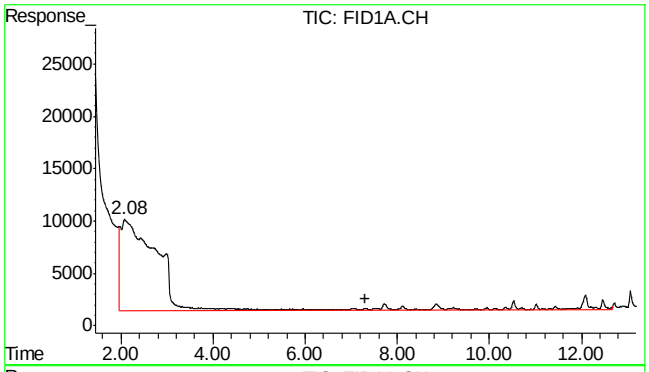
Signal #1 : Y:\1\DATA\112911\GB14101.D\FID1A.CH Vial: 2
Signal #2 : Y:\1\DATA\112911\GB14101.D\FID2B.CH
Acq On : 29 Nov 2011 11:32 am Operator: StephK
Sample : MB, S Inst : GC/MS Ins
Misc : GC2437,GGB798,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov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

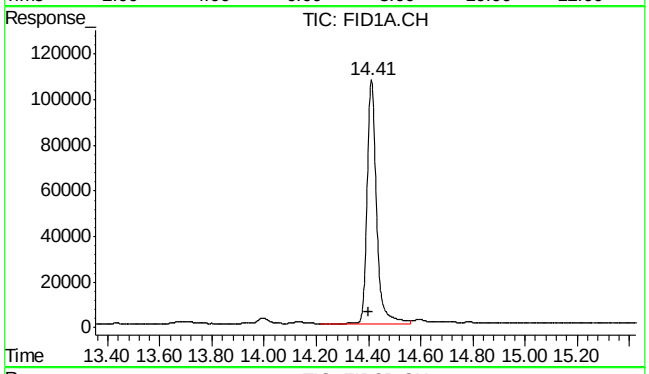






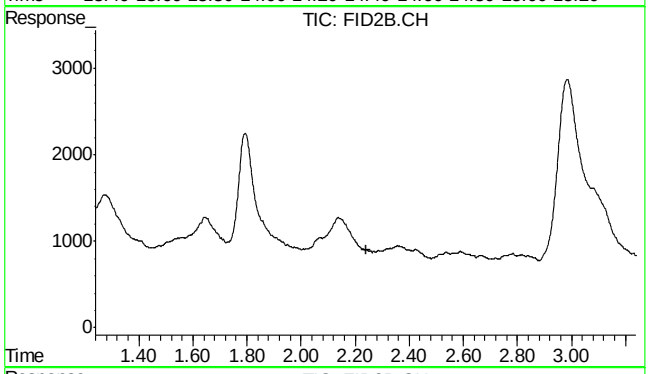
#1 TVH-Gasoline

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



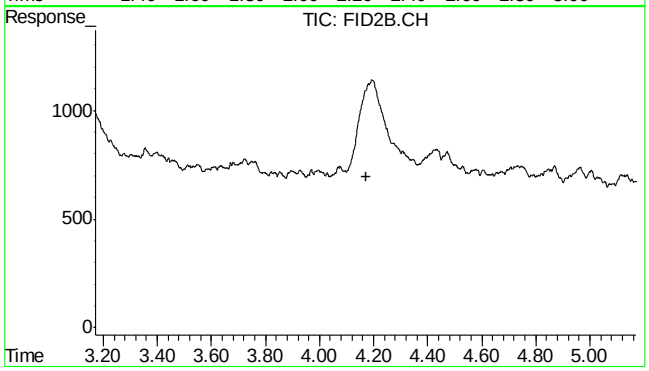
#2 1,2,4-Trichlorobenzene

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



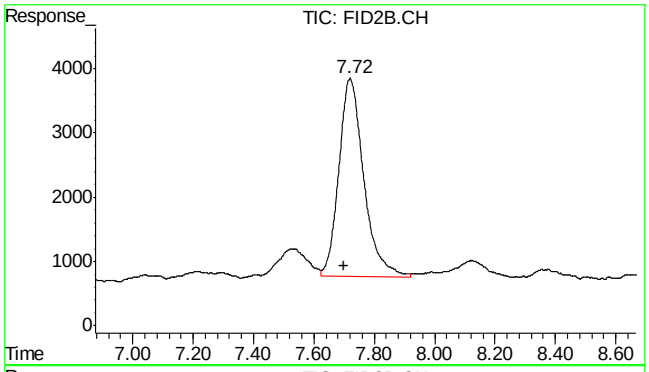
#4 Methyl-t-butyl-ether

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



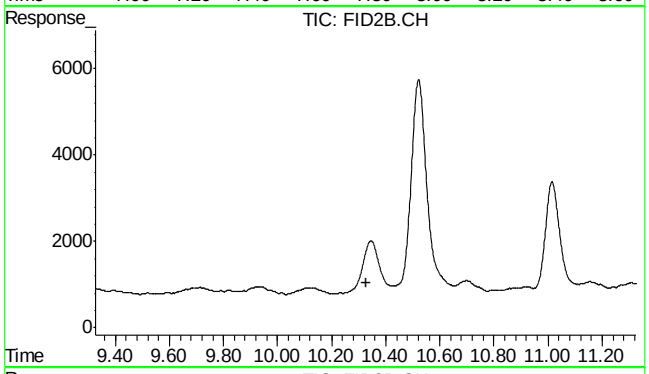
#5 Benzene

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



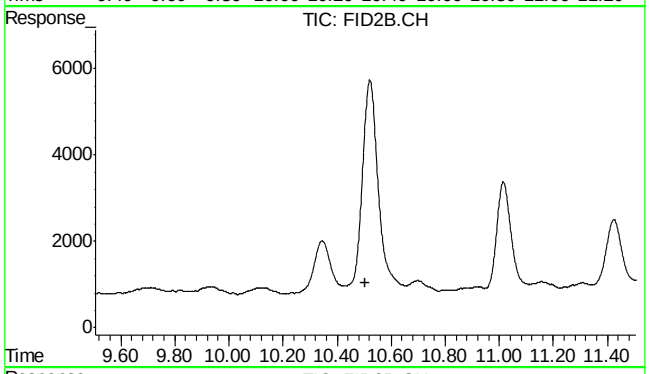
#6 Toluene

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



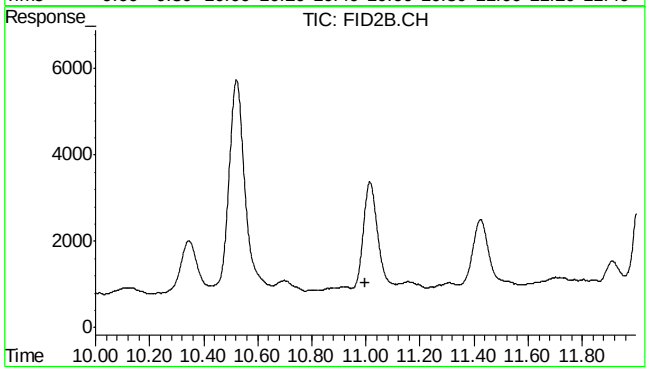
#7 Ethylbenzene

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



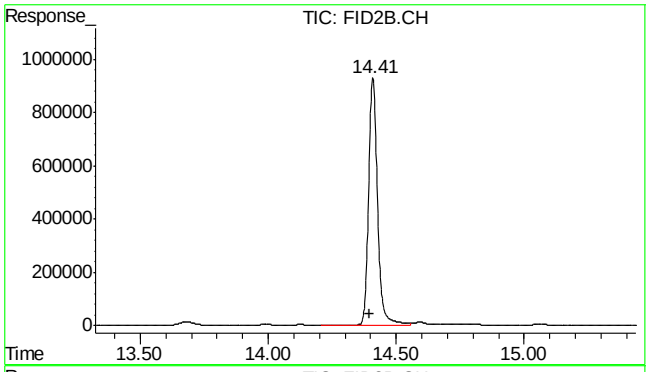
#8 m,p-Xylene

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



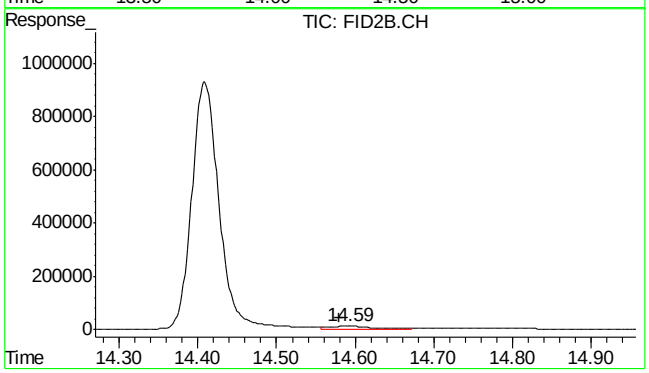
#9 o-Xylene

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: D29760
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

D29760-1

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: D29760
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

D29760-1

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: D29760
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

D29760-1

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\FD11938.D Vial: 8
Acq On : 12-4-2011 01:54:07 PM Operator: TEDR
Sample : D29760-1 Inst : FID5
Misc : OP4919,GFD613,30.10,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Dec 04 18:20:52 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	28605368	535.943	mg/L	m
	Target Compounds					
2) H	TPH-DRO (c10-c28)	7.46	204155157	3991.670	mg/L	

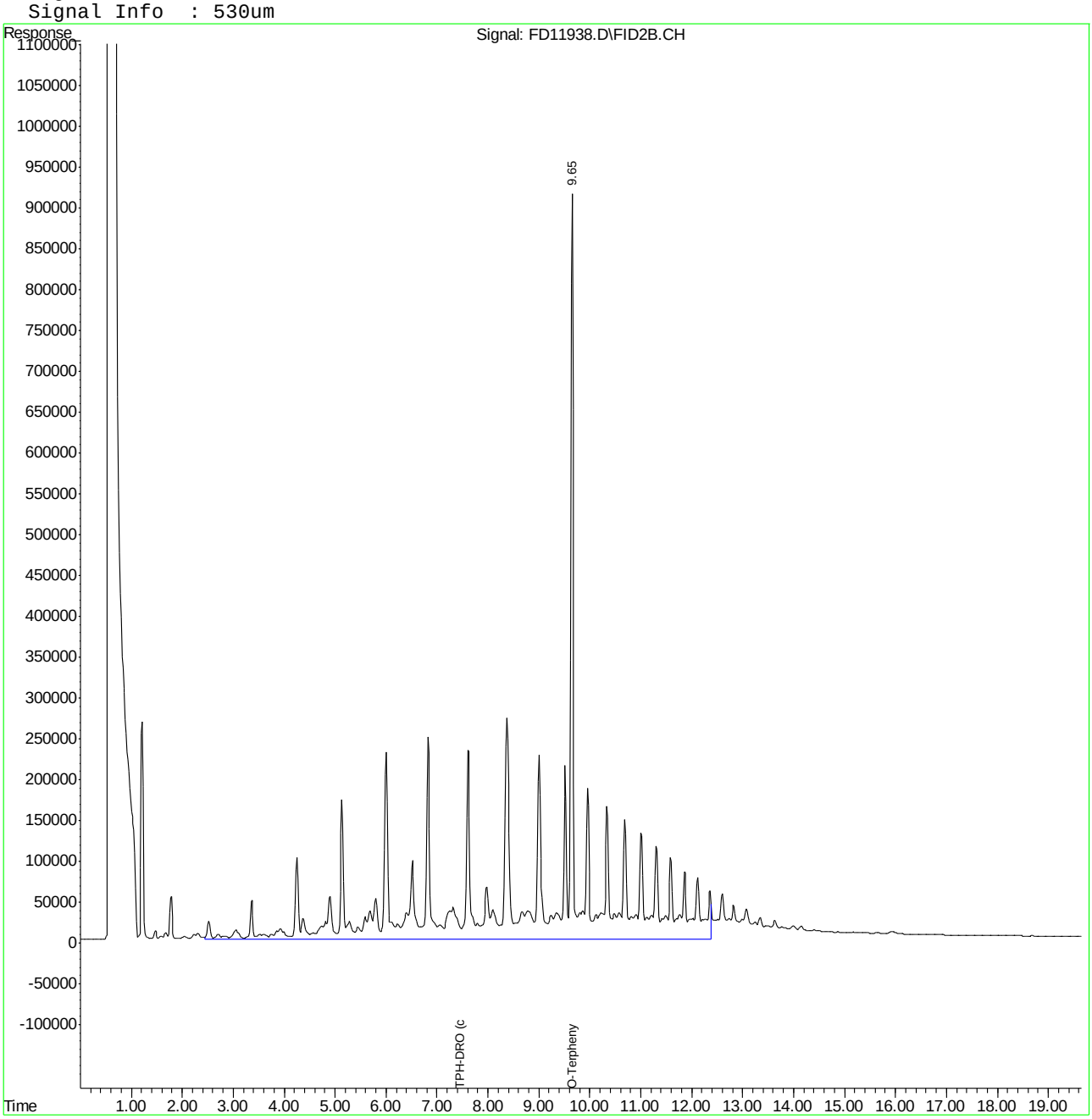
(f)=RT Delta > 1/2 Window (m)=manual int.

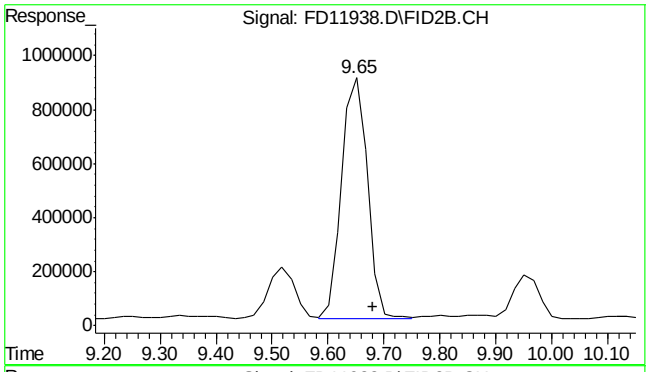
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\DEC\FD120411\FD11938.D Vial: 8
Acq On : 12-4-2011 01:54:07 PM Operator: TEDR
Sample : D29760-1 Inst : FID5
Misc : OP4919,GFD613,30.10,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Dec 4 18:21 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 : Multiple Level Calibration
DataAcq Meth : JH080911.M

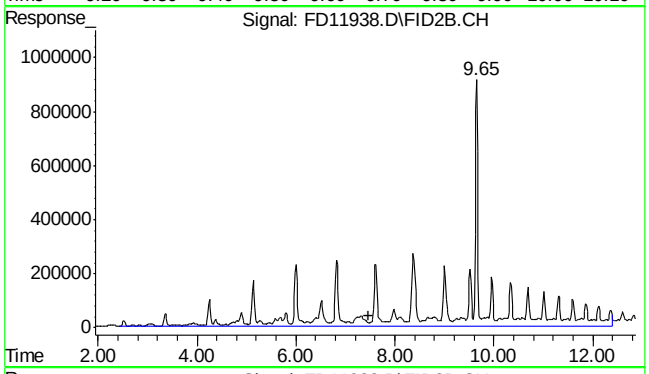
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





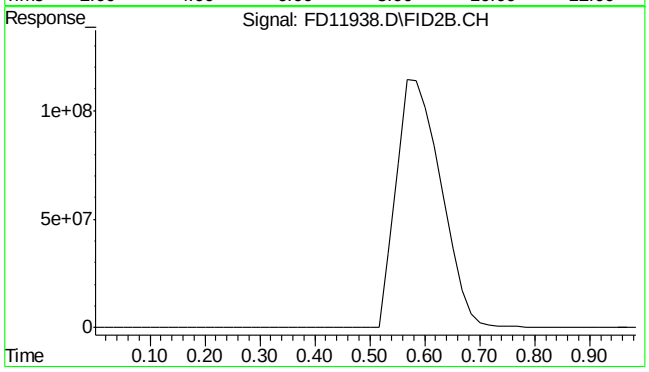
#1 O-Terphenyl

R.T.: 9.647 min
Delta R.T.: -0.033 min
Response: 28605368
Conc: 535.94 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 7.455 min
Delta R.T.: 0.000 min
Response: 204155157
Conc: 3991.67 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

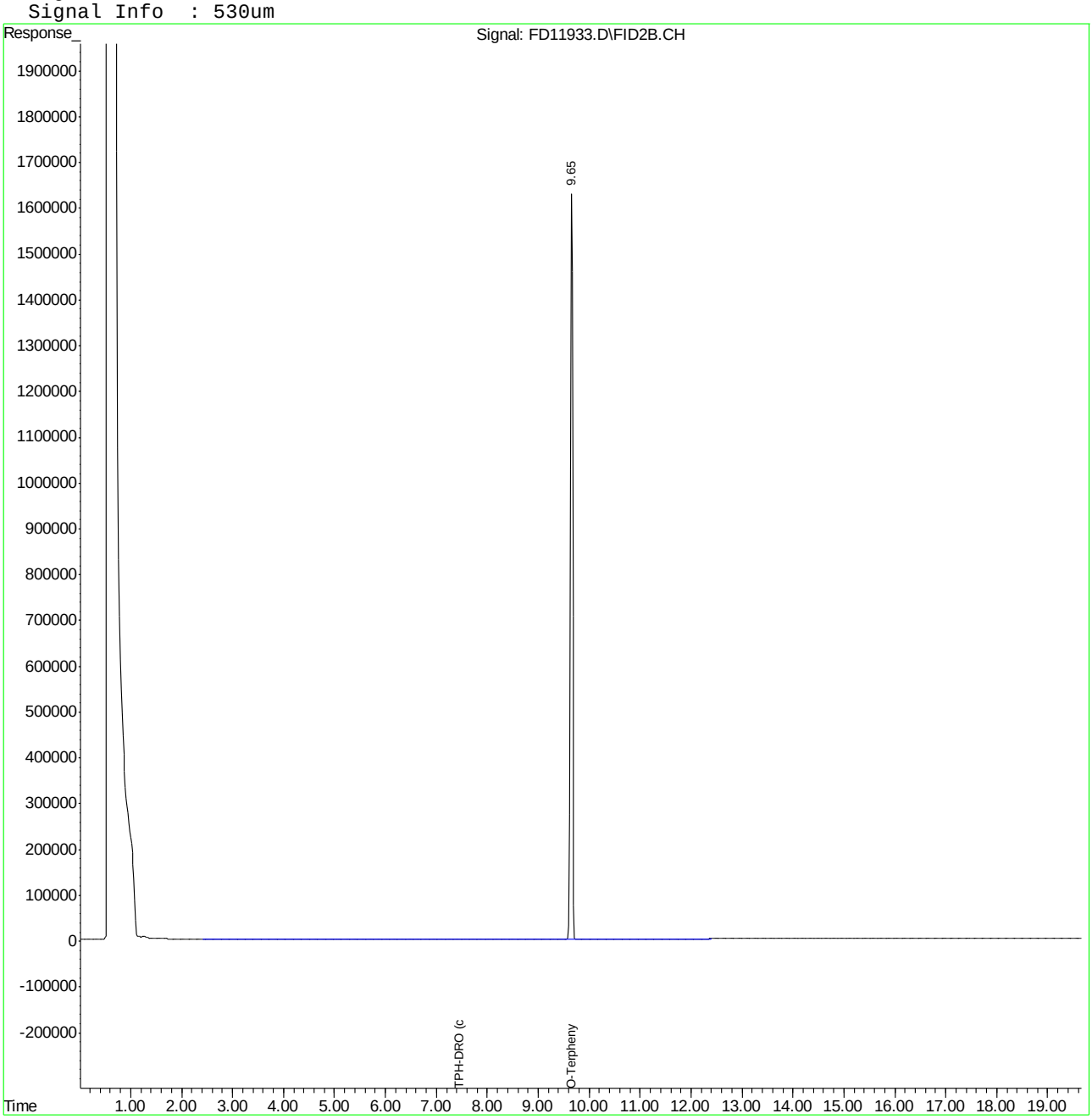
(f)=RT Delta > 1/2 Window (m)=manual int.

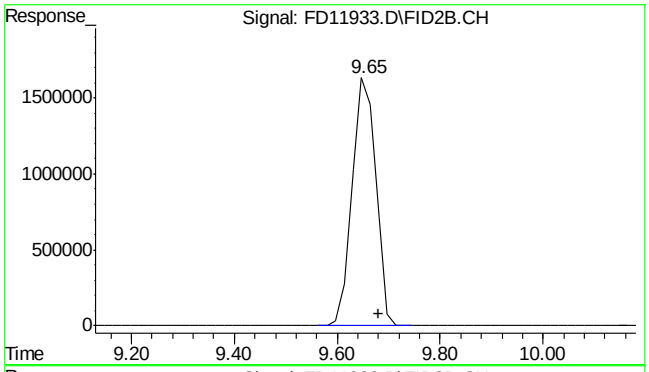
Quantitation Report (QT Reviewed)

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

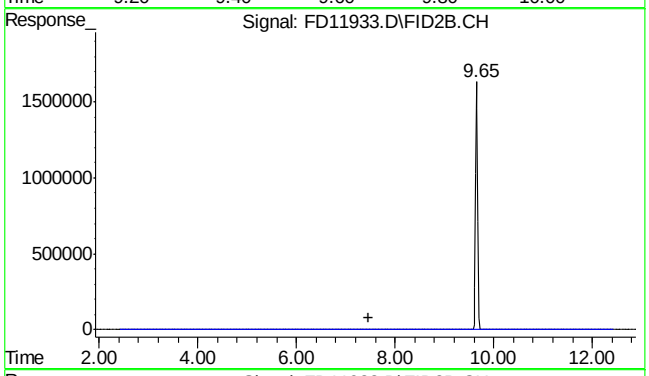
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





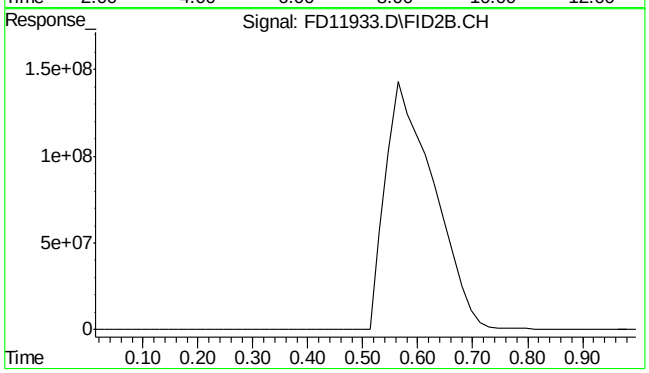
#1 O-Terphenyl

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: D29760
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: D29760-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D29760
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: D29760
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: D29760-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29760
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: D29760
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: D29760-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29760
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: D29760
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: D29760-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D29760
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: D29760
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: D29760-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D29760
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: D29760
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: D29760-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29760
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: D29760
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: D29760-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29760
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: D29760
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: D29760-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D29760
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: D29760
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: D29760-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D29760
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: D29760
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: D29760-1

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: D29760
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: D29760-1

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: D29760
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6362 Methods: SW846 6020
Matrix Type: SOLID 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: D29760-1

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: D29760
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: D29760-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D29760
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: D29760-1

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: D29760
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: D29760-1

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: D29760
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: D29760-1

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: D29760
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: D29760-1

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: D29760
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: D29760-1

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: D29760
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: D29760-1
Batch GP6017: D29760-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D29760
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: D29760-1
(*) 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 #:	D29760
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:		
Any questions contact: Shea Greiner			Sample Management		
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
D29760 -1	11/23/11	11:00 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	11/29/11 9:30	2	2 11/29/11 9:30
3		3	3

For Subcontract Laborartory Use Only

Seal #: Headspace: Yes ☐ No ☐ NA ☐

Preserved where applicable: ☐

Temperature °C 2.6 On Ice ☑

15.1 15

D29760: Chain of Custody
Page 1 of 2
Accutest Labs of New England, Inc.

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D29760 **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

D29760: Chain of Custody
Page 2 of 2

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: D29760
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: D29760-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D29760
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: D29760-1
(*) Outside of QC limits
(a) RPD acceptable due to low duplicate and sample concentrations.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D29760
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: D29760-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits