Mountain States ACCUTEST LABORATORIES

Reissue #1
11/11/11

Technical Report for

KRW Consulting, Inc.

XOM FRU 297-17A

1101-09A

Accutest Job Number: D28999

Sampling Date: 10/28/11

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: **139**

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.

Accutest Laboratories
4036 Youngfield Street
Wheat Ridge, Co 80033
Phone: 303-425-6021
Fax: 303-425-6854

November 11, 2011

Mr. Dwayne Knudson
KRW Consulting, Inc.
8000 W. 14th Ave. St. 200
Lakewood, CO 80214

Subject: Reissue Report D28999 - Revision 1

Dear Mr. Knudson:

Based on a follow-up review of this report, it was identified that copper was not reported. Copper has been added to the report and the report is being reissued. We regret this omission. Please accept our apologies.

Any questions or concerns should be directed to the undersigned at 303-425-6021.

Sincerely,

Scott Heideman
Laboratory Manager

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Sample Summary

KRW Consulting, Inc.

Job No: D28999

XOM FRU 297-17A
Project No: 1101-09A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D28999-1	10/28/11	11:00	DF	10/29/11	SO	Soil	RESERVE PIT MIX 2:1
D28999-1A	10/28/11	11:00	DF	10/29/11	SO	Soil	RESERVE PIT MIX 2:1
D28999-1R	10/28/11	11:00	DF	10/29/11	SO	Soil	RESERVE PIT MIX 2:1

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	KRW Consulting, Inc.	**Job No**	D28999
Site:	XOM FRU 297-17A	**Report Dat**	11/7/2011 1:16:46 PM

On 10/29/2011, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 0.4 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D28999 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:** V3V825

- All samples were analyzed within the recommended method holding time.
- Sample(s) D28995-1MS, D28995-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO **Batch ID:** OP4752

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D28973-1MS, D28973-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- The matrix spike (MS) recovery(s) of Indeno(1,2,3-cd)pyrene are outside control limits. Outside control limits due to matrix interference. Refer to Blank Spike.
- The matrix spike duplicate (MSD) recovery(s) of Indeno(1,2,3-cd)pyrene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene are outside control limits. Variability of recovery may be due to sample matrix/homogeneity.
- The RPD(s) for the MS and MSD recoveries of Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Fluorene, Pyrene are outside control limits for sample OP4752-MSD. Variability of recovery may be due to sample matrix/homogeneity.

Volatiles by GC By Method SW846 8015B

Matrix SO **Batch ID:** GGB774

- All samples were analyzed within the recommended method holding time.
- Sample(s) D28995-1MS, D28995-1MSD 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:** OP4765

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D29012-2MS, D29012-2MSD were used as the QC samples indicated.

Metals By Method SW846 6010B

Matrix AQ **Batch ID:** MP6151

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D28973-1AMS, D28973-1AMSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Sodium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Matrix SO **Batch ID:** MP6147

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D28973-1MS, D28973-1MSD, D28973-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) and matrix spike duplicate (MSD) recovery(s) of Selenium are outside control limits. Spike recovery indicates possible matrix interference.
- The matrix spike (MS) recovery(s) of Barium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The serial dilution RPD(s) for Nickel, Zinc, Selenium are outside control limits for sample MP6147-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- The serial dilution RPD(s) for Barium are outside control limits for sample MP6147-SD1. Serial dilution indicates possible matrix interference.
- D28999-1 for Selenium: Elevated detection limit due to dilution required for possible matrix interference.

Metals By Method SW846 6020

Matrix SO **Batch ID:** MP6148

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D28973-1MS, D28973-1MSD, D28973-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Arsenic are outside control limits for sample MP6148-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Metals By Method SW846 7471A

Matrix SO **Batch ID:** MP6142

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D28823-1MSD, D28823-1MS were used as the QC samples for the metals analysis.
- The matrix spike (MS) and matrix spike duplicate (MSD) recovery(s) of Mercury are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO **Batch ID:** GN12266

- Sample(s) D28994-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO **Batch ID:** GN12261

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix	SO	Batch ID:	R10618

- The data for SW846 3060/7196A M meets quality control requirements.
- D28999-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix	SO	Batch ID:	M:GP13739

- The data for SW846 3060A/7196A meets quality control requirements.
- D28999-1 for Chromium, Hexavalent: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method SW846 9045C

Matrix	SO	Batch ID:	GN12269

- The following sample was run outside of holding time for method SW846 9045C: D28999-1.

Wet Chemistry By Method USDA HANDBOOK 60

Matrix	SO	Batch ID:	MP6151

- D28999-1A 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**	D28999
Site:	KRWCCOL: XOM FRU 297-17A	**Report Date**	11/7/2011 11:44:59 AM

1 Sample(s) was collected on 10/28/2011 and were received at Accutest on 10/29/2011 properly preserved, at 1.5 Deg. C and intact. These Samples received an Accutest job number of D28999. 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:** GP13739

- 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) D29035-1DUP, D29035-1MS were used as the QC samples for Chromium, Hexavalent.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety.The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(D28999).

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	RESERVE PIT MIX 2:1		
Lab Sample ID:	D28999-1	**Date Sampled:**	10/28/11
Matrix:	SO - Soil	**Date Received:**	10/29/11
Method:	SW846 8260B	**Percent Solids:**	84.1
Project:	XOM FRU 297-17A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V14388.D	1	11/02/11	DC	n/a	n/a	V3V825
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.07 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	34.9	68	30	ug/kg	J
108-88-3	Toluene	97.7	140	68	ug/kg	J
100-41-4	Ethylbenzene	ND	140	34	ug/kg	
1330-20-7	Xylene (total)	ND	270	140	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	98%		61-130%
460-00-4	4-Bromofluorobenzene	99%		53-131%
17060-07-0	1,2-Dichloroethane-D4	95%		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: RESERVE PIT MIX 2:1
Lab Sample ID: D28999-1
Matrix: SO - Soil
Method: SW846 8270C BY SIM SW846 3546
Project: XOM FRU 297-17A

Date Sampled: 10/28/11
Date Received: 10/29/11
Percent Solids: 84.1

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G06714.D	5	11/01/11	TMB	10/31/11	OP4752	E3G246
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	40	32	ug/kg	
120-12-7	Anthracene	ND	40	36	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	44	ug/kg	
218-01-9	Chrysene	ND	99	44	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	99	73	ug/kg	
206-44-0	Fluoranthene	46.2	40	40	ug/kg	
86-73-7	Fluorene	63.3	40	34	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	120	110	ug/kg	
91-20-3	Naphthalene	77.6	40	38	ug/kg	
129-00-0	Pyrene	ND	40	38	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	15%		10-145%
321-60-8	2-Fluorobiphenyl	39%		10-130%
1718-51-0	Terphenyl-d14	41%		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: RESERVE PIT MIX 2:1
Lab Sample ID: D28999-1
Matrix: SO - Soil
Method: SW846 8015B
Project: XOM FRU 297-17A

Date Sampled: 10/28/11
Date Received: 10/29/11
Percent Solids: 84.1

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB13669.D	1	10/31/11	SK	n/a	n/a	GGB774
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)	ND	14	6.8	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	89%		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: RESERVE PIT MIX 2:1
Lab Sample ID: D28999-1
Matrix: SO - Soil
Method: SW846-8015B SW846 3546
Project: XOM FRU 297-17A

Date Sampled: 10/28/11
Date Received: 10/29/11
Percent Solids: 84.1

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD11224.D	1	11/01/11	TR	11/01/11	OP4765	GFD559
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)	398	16	10	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	79%		61-142%

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

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

Report of Analysis

Client Sample ID:	RESERVE PIT MIX 2:1		
Lab Sample ID:	D28999-1	**Date Sampled:**	10/28/11
Matrix:	SO - Soil	**Date Received:**	10/29/11
		Percent Solids:	84.1
Project:	XOM FRU 297-17A		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	5.4	0.49	mg/kg	5	10/31/11	11/01/11	GJ	SW846 6020 [3]	SW846 3010A [6]
Barium	4880	12	mg/kg	10	10/31/11	11/01/11	JB	SW846 6010B [2]	SW846 3010A [5]
Cadmium	< 1.2	1.2	mg/kg	1	10/31/11	11/01/11	JB	SW846 6010B [2]	SW846 3010A [5]
Chromium	32.5	1.2	mg/kg	1	10/31/11	11/01/11	JB	SW846 6010B [2]	SW846 3010A [5]
Copper	12.8	1.2	mg/kg	1	10/31/11	11/01/11	JB	SW846 6010B [2]	SW846 3010A [5]
Lead	13.4	6.1	mg/kg	1	10/31/11	11/01/11	JB	SW846 6010B [2]	SW846 3010A [5]
Mercury	< 0.11	0.11	mg/kg	1	10/31/11	10/31/11	JM	SW846 7471A [1]	SW846 7471A [4]
Nickel	17.7	3.7	mg/kg	1	10/31/11	11/01/11	JB	SW846 6010B [2]	SW846 3010A [5]
Selenium [a]	< 61	61	mg/kg	10	10/31/11	11/01/11	JB	SW846 6010B [2]	SW846 3010A [5]
Silver	< 3.7	3.7	mg/kg	1	10/31/11	11/01/11	JB	SW846 6010B [2]	SW846 3010A [5]
Zinc	37.6	3.7	mg/kg	1	10/31/11	11/01/11	JB	SW846 6010B [2]	SW846 3010A [5]

(1) Instrument QC Batch: MA1933
(2) Instrument QC Batch: MA1936
(3) Instrument QC Batch: MA1938
(4) Prep QC Batch: MP6142
(5) Prep QC Batch: MP6147
(6) Prep QC Batch: MP6148

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

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RESERVE PIT MIX 2:1		
Lab Sample ID:	D28999-1	**Date Sampled:**	10/28/11
Matrix:	SO - Soil	**Date Received:**	10/29/11
		Percent Solids:	84.1
Project:	XOM FRU 297-17A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent [a]	0.85	0.47	mg/kg	1	11/03/11 17:13	AMA	SW846 3060A/7196A
Chromium, Trivalent [b]	31.7	1.7	mg/kg	1	11/03/11 17:13	AMA	SW846 3060/7196A M
Redox Potential Vs H2	204		mv	1	10/31/11	JD	ASTM D1498-76M
Solids, Percent	84.1		%	1	10/31/11	SWT	SM19 2540B M
Specific Conductivity	4590	1.0	umhos/cm	1	11/01/11	JD	DEPT.OF AG, BOOK N9
pH	12.17		su	1	10/31/11 15:10	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: RESERVE PIT MIX 2:1
Lab Sample ID: D28999-1A
Matrix: SO - Soil
Project: XOM FRU 297-17A

Date Sampled: 10/28/11
Date Received: 10/29/11
Percent Solids: 84.1

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	144	2.0	mg/l	1	11/01/11	11/01/11	JB	SW846 6010B [1]	EPA 200.7 [2]
Magnesium	< 1.0	1.0	mg/l	1	11/01/11	11/01/11	JB	SW846 6010B [1]	EPA 200.7 [2]
Sodium	341	2.0	mg/l	1	11/01/11	11/01/11	JB	SW846 6010B [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA1936
(2) Prep QC Batch: MP6151

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RESERVE PIT MIX 2:1		
Lab Sample ID:	D28999-1A	**Date Sampled:**	10/28/11
Matrix:	SO - Soil	**Date Received:**	10/29/11
		Percent Solids:	84.1
Project:	XOM FRU 297-17A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	7.80		ratio	1	11/01/11 14:08	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

PAGE ___ OF ___

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 # D28999

Client / Reporting Information

Company Name: KRW Consulting Inc
Street Address: 8000 W. 14th Ave St. 200
City: Lakewood State: Co Zip: 80214
Project Contact: Dwayn Knudson E-mail:
Phone #: 303-239-9011 Fax #:
Sampler(s) Name(s): Don Friess Phone #: 303-5195498

Project Information

Project Name: FRU 297-17A
Street:
City:
Project#: 1101-094
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	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfate	LAB USE ONLY
	Reserve pit mix 2:1		10/28/11	11:00am	Don	SO	5					X					

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 Picance Creek XOM Team

Turnaround Time (Business days)

Approved By (Accutest PM): / Date:

- Std. 10 Business Days
- Std. 5 Business Days (By Contract only)
- 5 Day RUSH
- 3 Day EMERGENCY
- 2 Day EMERGENCY
- 1 Day EMERGENCY

Emergency & Rush T/A data available VIA Lablink

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		10/28/11 16:00	1 Rifle Service Center	2		2
3			3	4		4
5			5			

Custody Seal # Fed Ex Intact Not Intact Preserved where applicable On Ice Cooler Temp. 0.4

D28999: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D28999 **Client:** KRW CONSULTING INC **Immediate Client Services Action Required:** No

Date / Time Received: 10/29/2011 8:45:00 AM **No. Coolers:** 1 **Client Service Action Required at Login:** No

Project: FRU 297-17A **Airbill #'s:** FX SAT

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

D28999: Chain of Custody
Page 2 of 2

Mountain States ACCUTEST LABORATORIES

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D28999
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V825-MB	3V14379.D	1	11/01/11	DC	n/a	n/a	V3V825

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

D28999-1

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	99%	61-130%
460-00-4	4-Bromofluorobenzene	100%	53-131%
17060-07-0	1,2-Dichloroethane-D4	89%	62-130%

Blank Spike Summary

Job Number: D28999
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V825-BS	3V14380.D	1	11/01/11	DC	n/a	n/a	V3V825

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

D28999-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	50.9	102	70-130
100-41-4	Ethylbenzene	50	48.4	97	70-130
108-88-3	Toluene	50	46.6	93	70-130
1330-20-7	Xylene (total)	150	147	98	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	97%	61-130%
460-00-4	4-Bromofluorobenzene	102%	53-131%
17060-07-0	1,2-Dichloroethane-D4	97%	62-130%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D28999
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D28995-1MS	3V14382.D	1	11/01/11	DC	n/a	n/a	V3V825
D28995-1MSD	3V14383.D	1	11/02/11	DC	n/a	n/a	V3V825
D28995-1	3V14381.D	1	11/01/11	DC	n/a	n/a	V3V825

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

D28999-1

CAS No.	Compound	D28995-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3230	3410	106	3490	108	2	70-134/30
100-41-4	Ethylbenzene	ND		3230	3350	104	3330	103	1	70-137/30
108-88-3	Toluene	ND		3230	3190	99	3160	98	1	70-130/30
1330-20-7	Xylene (total)	ND		9680	10000	103	9950	103	1	61-131/30

CAS No.	Surrogate Recoveries	MS	MSD	D28995-1	Limits
2037-26-5	Toluene-D8	99%	98%	99%	61-130%
460-00-4	4-Bromofluorobenzene	103%	106%	103%	53-131%
17060-07-0	1,2-Dichloroethane-D4	98%	98%	96%	62-130%

Mountain States ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3110111.S\
Data File : 3V14388.D
Acq On : 2 Nov 2011 2:56 am
Operator : DONC
Sample : D28999-1, 50x
Misc : MS2894,V3V825,5.071,,100,5,1
ALS Vial : 36 Sample Multiplier: 1

Quant Time: Nov 03 13:05:31 2011
Quant Method : C:\msdchem\1\METHODS\V3AP816TVH816.M
Quant Title : 8260
QLast Update : Tue Oct 25 11:42:01 2011
Response via : Initial Calibration

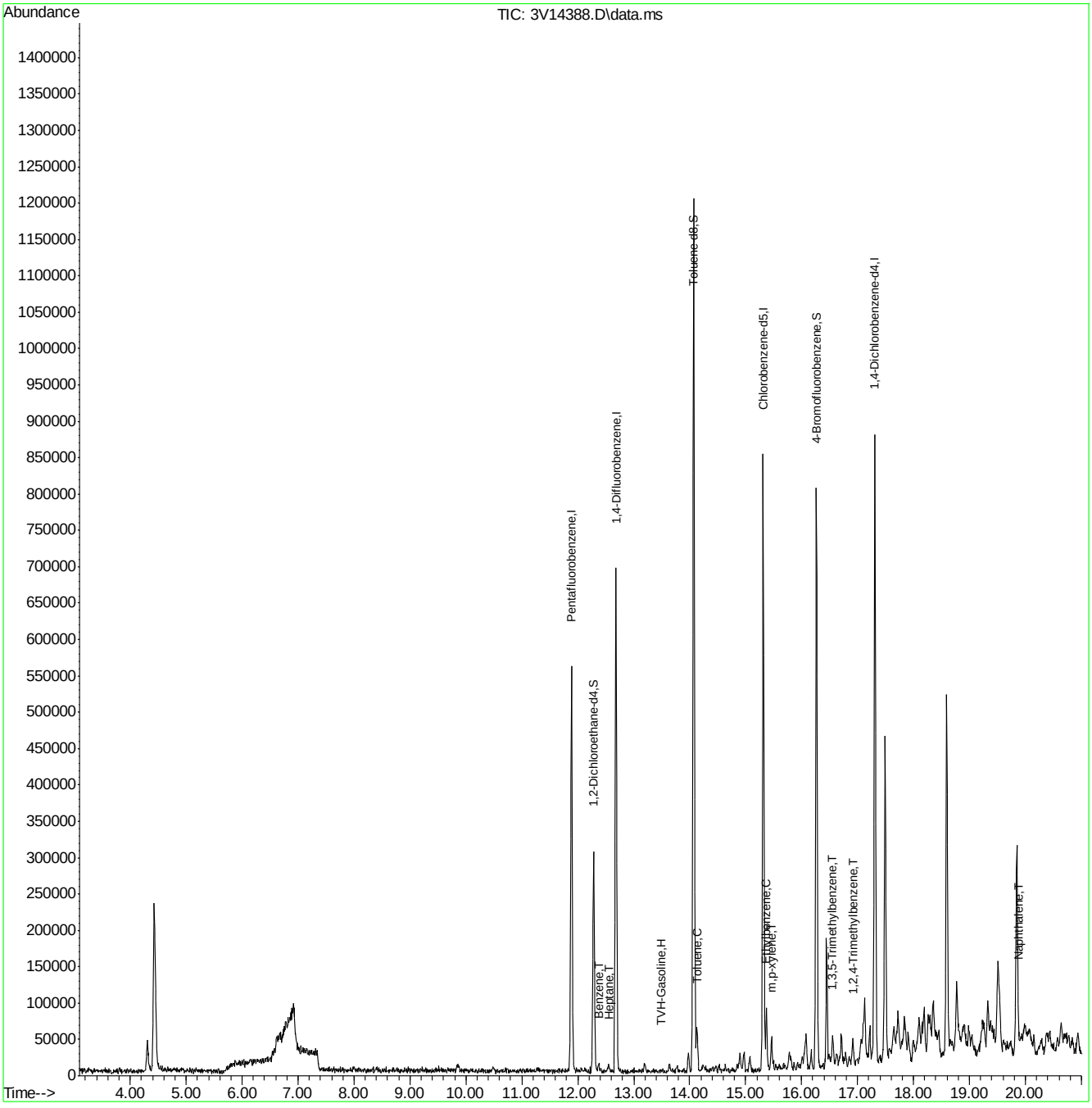
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.886	168	364839	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.679	114	598134	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.316	117	519399	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.309	152	273600	50.00	ug/l	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.284	102	47576	47.62	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 95.24%			
61) Toluene-d8	14.071	98	795164	48.95	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 97.90%			
69) 4-Bromofluorobenzene	16.266	95	258241	49.36	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 98.72%			
Target Compounds						Qvalue
1) TVH-Gasoline	13.491	TIC	1237681m	62.25	ug/l	
43) Heptane	12.553	43	4060	0.66	ug/l #	47
50) Benzene	12.377	78	8601	0.51	ug/l	100
62) Toluene	14.135	92	16541	1.43	ug/l	98
66) Ethylbenzene	15.380	91	4907	0.23	ug/l	80
72) m,p-xylene	15.467	106	13853	1.34	ug/l	94
80) 1,3,5-Trimethylbenzene	16.555	105	12893	0.74	ug/l	97
82) 1,2,4-Trimethylbenzene	16.911	105	15287	0.85	ug/l	87
91) Naphthalene	19.882	128	15911	1.05	ug/l	100

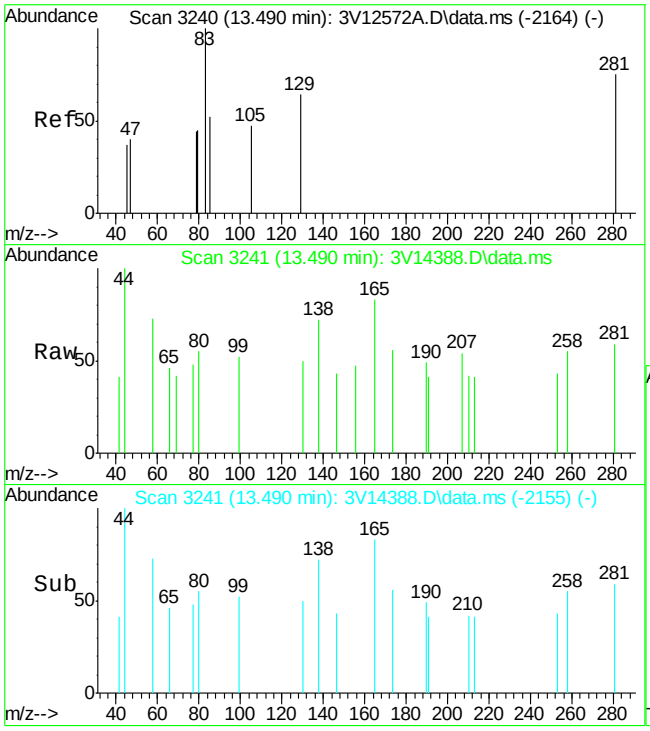
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3110111.S\
Data File : 3V14388.D
Acq On : 2 Nov 2011 2:56 am
Operator : DONC
Sample : D28999-1, 50x
Misc : MS2894,V3V825,5.071,,100,5,1
ALS Vial : 36 Sample Multiplier: 1

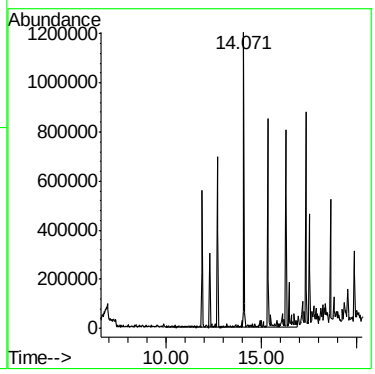
Quant Time: Nov 03 13:05:31 2011
Quant Method : C:\msdchem\1\METHODS\V3AP816TVH816.M
Quant Title : 8260
QLast Update : Tue Oct 25 11:42:01 2011
Response via : Initial Calibration

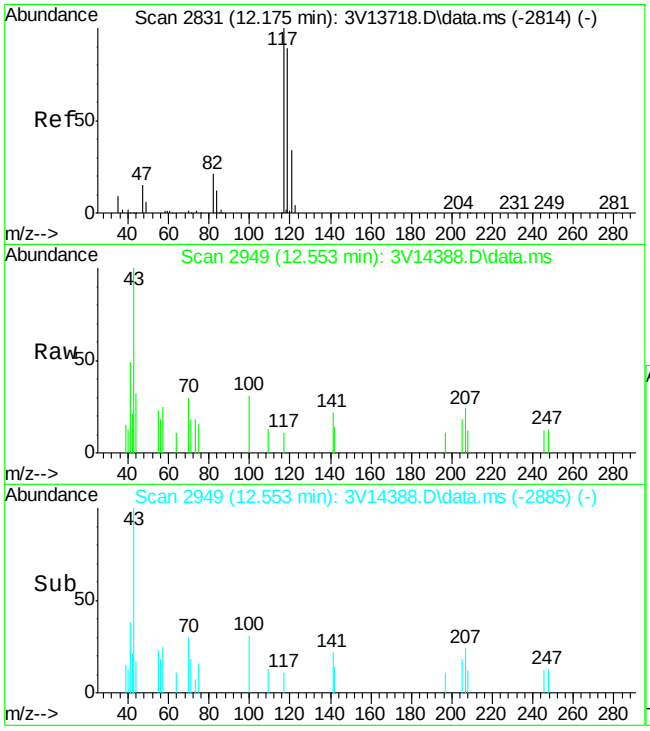




#1
TVH-Gasoline
Concen: 62.25 ug/l m
RT: 13.491 min Scan# 3241
Delta R.T. 0.000 min
Lab File: 3V14388.D
Acq: 2 Nov 2011 2:56 am

Tgt Ion:TIC Resp: 1237681

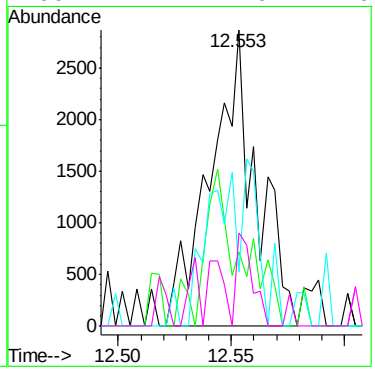


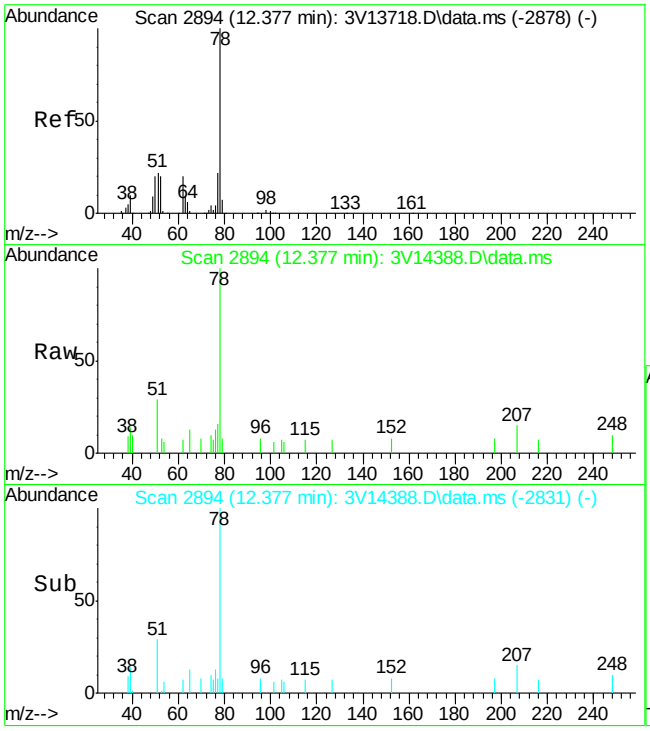


#43
Heptane
Concen: 0.66 ug/l
RT: 12.553 min Scan# 2949
Delta R.T. 0.004 min
Lab File: 3V14388.D
Acq: 2 Nov 2011 2:56 am

Tgt Ion: 43 Resp: 4060

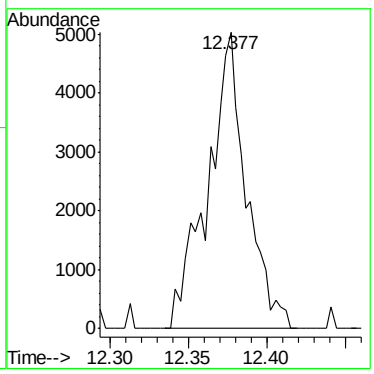
Ion	Ratio	Lower	Upper
43	100		
57	0.0	34.7	74.7#
71	33.0	48.0	88.0#
100	11.1	4.9	44.9

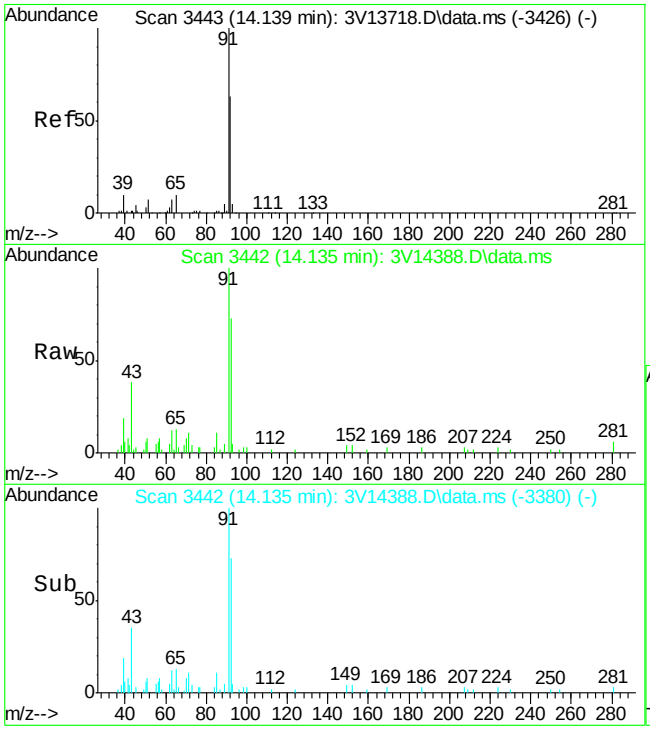




#50
Benzene
Concen: 0.51 ug/l
RT: 12.377 min Scan# 2894
Delta R.T. 0.001 min
Lab File: 3V14388.D
Acq: 2 Nov 2011 2:56 am

Tgt Ion: 78 Resp: 8601

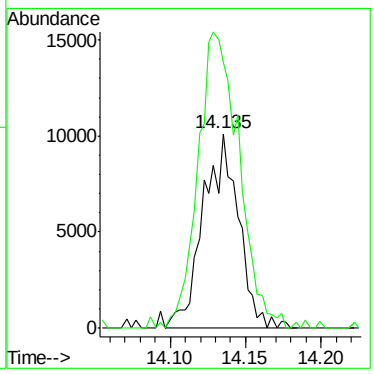


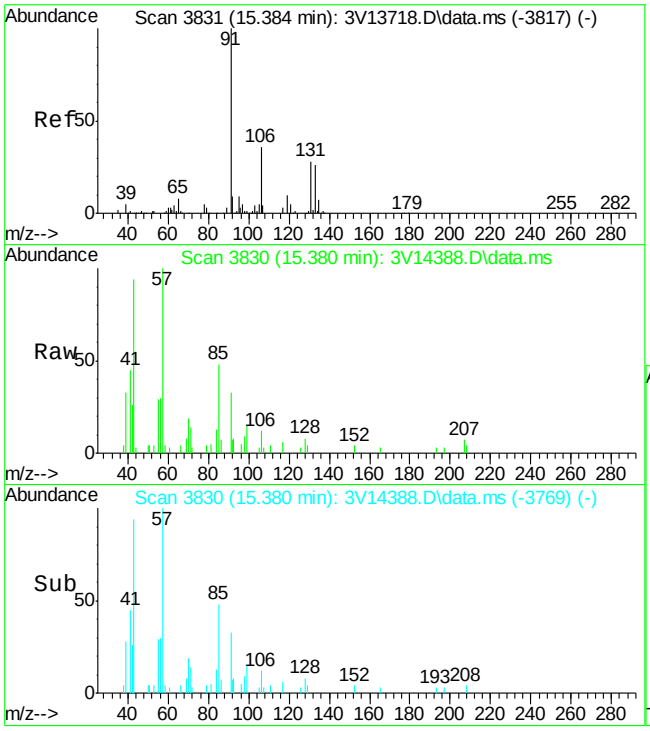


#62
Toluene
Concen: 1.43 ug/l
RT: 14.135 min Scan# 3442
Delta R.T. -0.002 min
Lab File: 3V14388.D
Acq: 2 Nov 2011 2:56 am

Tgt Ion: 92 Resp: 16541

Ion	Ratio	Lower	Upper
92	100		
91	176.4	153.3	193.3

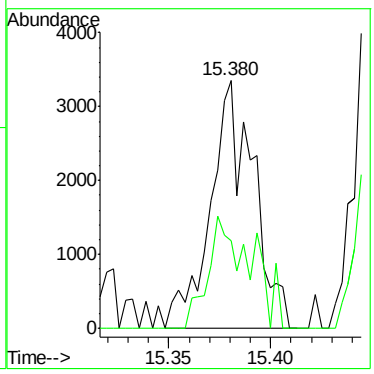


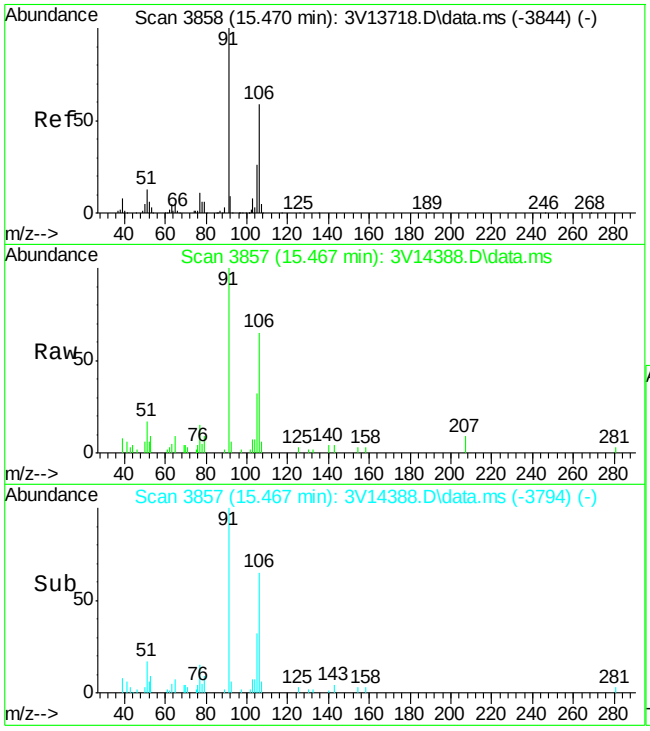


#66
Ethylbenzene
Concen: 0.23 ug/l
RT: 15.380 min Scan# 3830
Delta R.T. -0.006 min
Lab File: 3V14388.D
Acq: 2 Nov 2011 2:56 am

Tgt Ion: 91 Resp: 4907

Ion	Ratio	Lower	Upper
91	100		
106	45.9	14.5	54.5

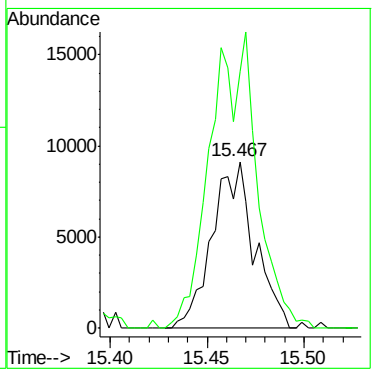


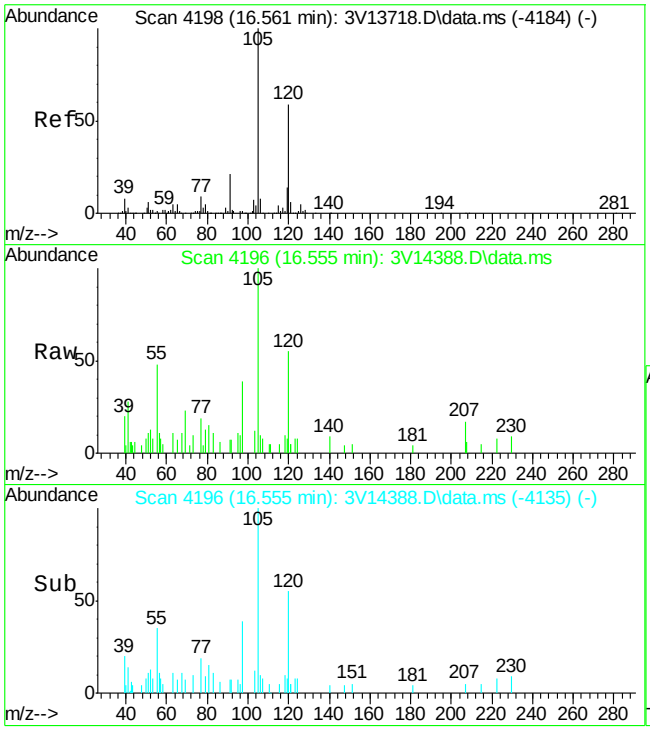


#72
m,p-xylene
Concen: 1.34 ug/l
RT: 15.467 min Scan# 3857
Delta R.T. 0.001 min
Lab File: 3V14388.D
Acq: 2 Nov 2011 2:56 am

Tgt Ion:106 Resp: 13853

Ion	Ratio	Lower	Upper
106	100		
91	194.7	165.3	205.3

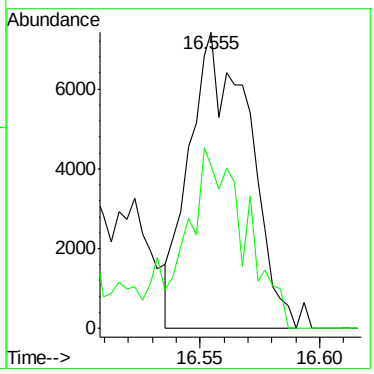


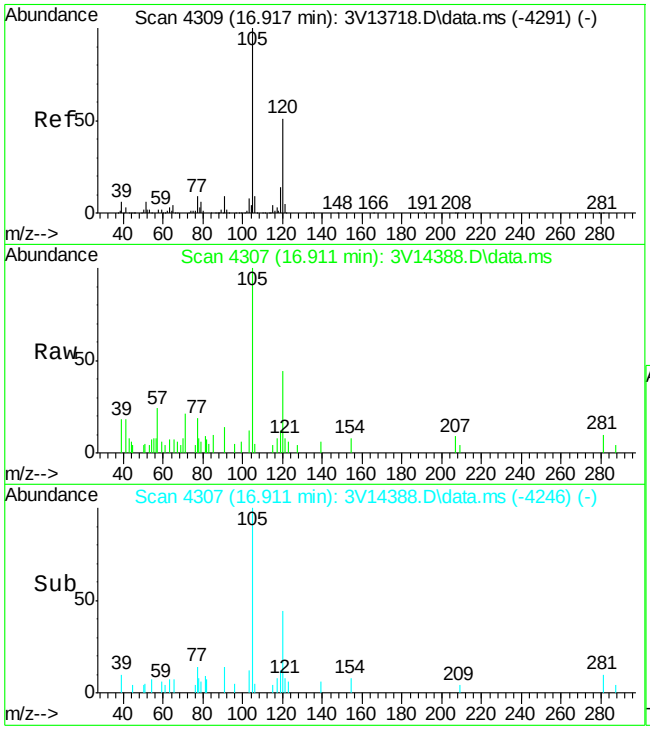


#80
1,3,5-Trimethylbenzene
Concen: 0.74 ug/l
RT: 16.555 min Scan# 4196
Delta R.T. -0.006 min
Lab File: 3V14388.D
Acq: 2 Nov 2011 2:56 am

Tgt Ion:105 Resp: 12893

Ion	Ratio	Lower	Upper
105	100		
120	56.5	43.3	64.9

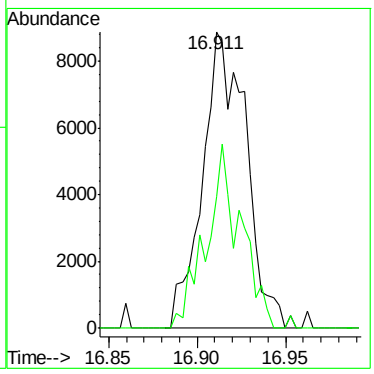


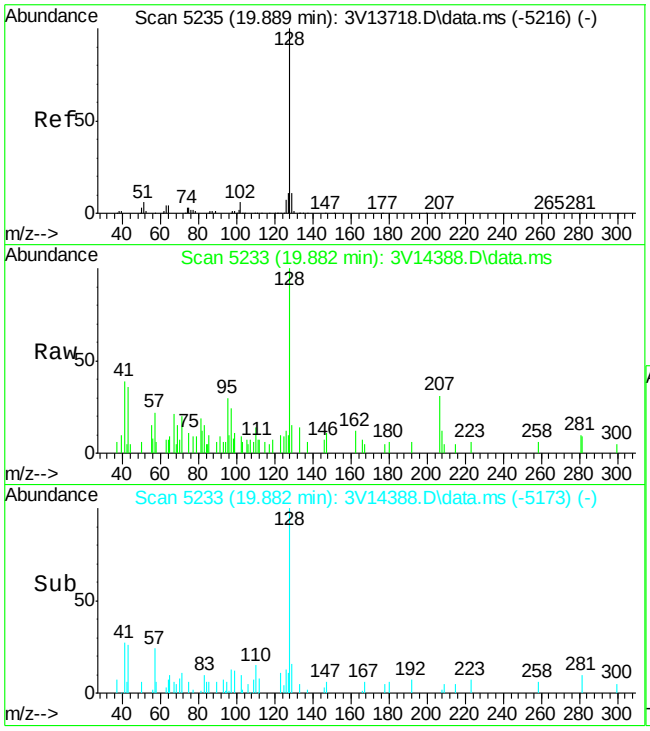


#82
1,2,4-Trimethylbenzene
Concen: 0.85 ug/l
RT: 16.911 min Scan# 4307
Delta R.T. -0.006 min
Lab File: 3V14388.D
Acq: 2 Nov 2011 2:56 am

Tgt Ion:105 Resp: 15287

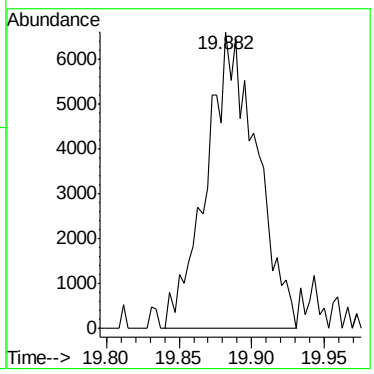
Ion	Ratio	Lower	Upper
105	100		
120	49.3	47.0	70.6





#91
Naphthalene
Concen: 1.05 ug/l
RT: 19.882 min Scan# 5233
Delta R.T. -0.009 min
Lab File: 3V14388.D
Acq: 2 Nov 2011 2:56 am

Tgt Ion:128 Resp: 15911



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3110111.S\
Data File : 3V14379.D
Acq On : 1 Nov 2011 10:18 pm
Operator : DONC
Sample : MB
Misc : MS2894,V3V825,5,,100,5,1
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Nov 03 12:56:42 2011
Quant Method : C:\msdchem\1\METHODS\V3AP816TVH816.M
Quant Title : 8260
QLast Update : Tue Oct 25 11:42:01 2011
Response via : Initial Calibration

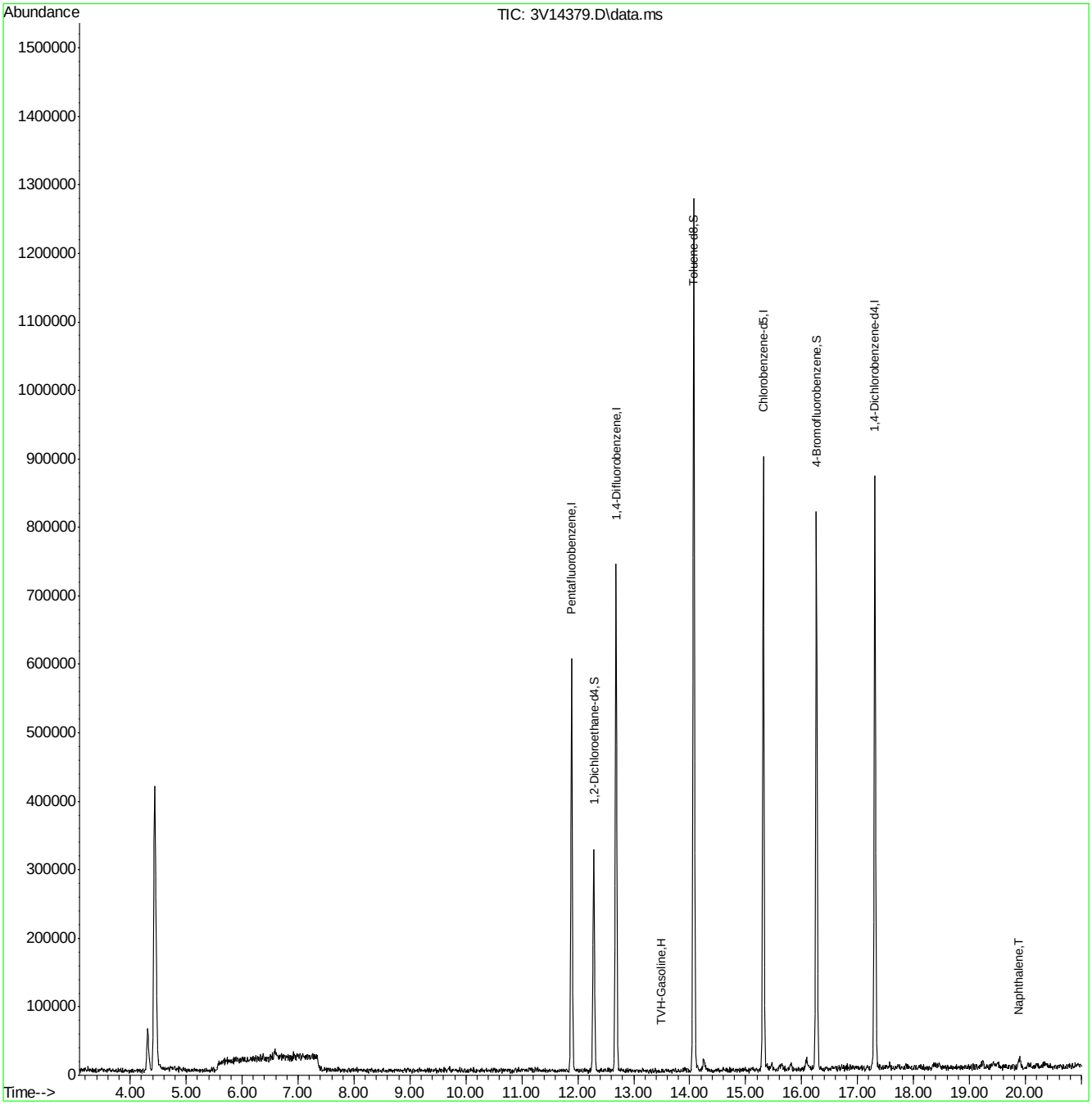
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.889	168	388162	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.685	114	640580	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.316	117	536655	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.308	152	272248	50.00	ug/l	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.280	102	47158	44.36	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 88.72%			
61) Toluene-d8	14.074	98	834495	49.72	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 99.44%			
69) 4-Bromofluorobenzene	16.262	95	269102	49.78	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 99.56%			
Target Compounds						Qvalue
1) TVH-Gasoline	13.491	TIC	185572m	22.74	ug/l	
91) Naphthalene	19.879	128	17600	1.16	ug/l	100

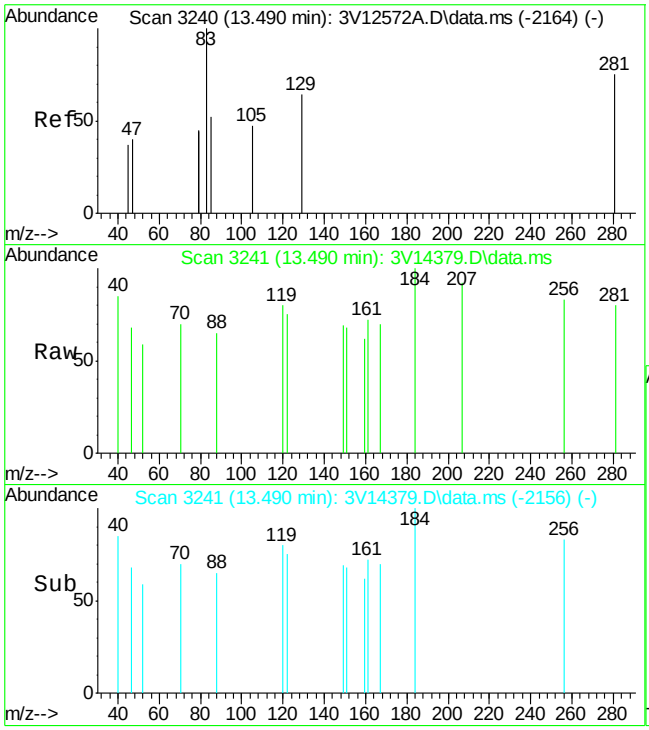
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3110111.S\
Data File : 3V14379.D
Acq On : 1 Nov 2011 10:18 pm
Operator : DONC
Sample : MB
Misc : MS2894,V3V825,5,,100,5,1
ALS Vial : 27 Sample Multiplier: 1

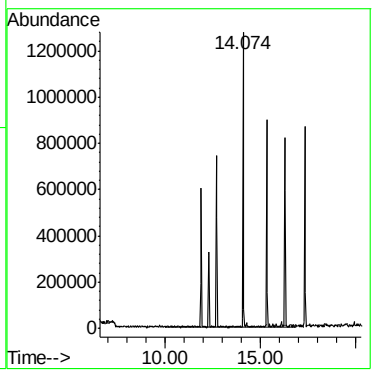
Quant Time: Nov 03 12:56:42 2011
Quant Method : C:\msdchem\1\METHODS\V3AP816TVH816.M
Quant Title : 8260
QLast Update : Tue Oct 25 11:42:01 2011
Response via : Initial Calibration

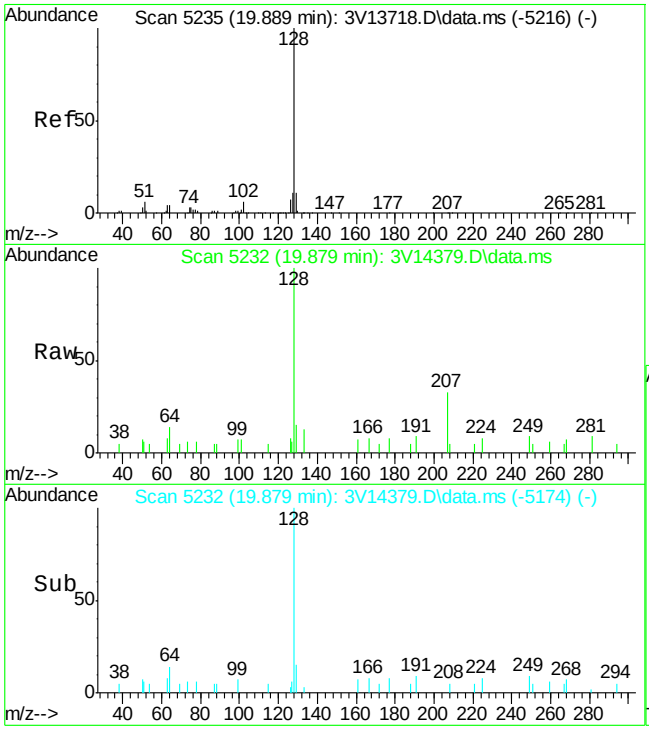




#1
TVH-Gasoline
Concen: 22.74 ug/l m
RT: 13.491 min Scan# 3241
Delta R.T. 0.000 min
Lab File: 3V14379.D
Acq: 1 Nov 2011 10:18 pm

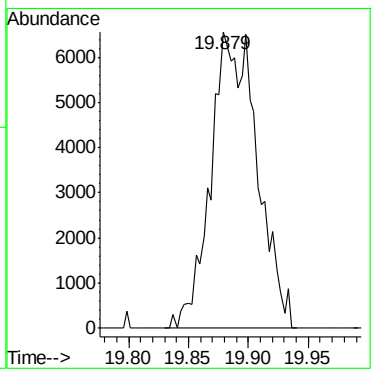
Tgt Ion:TIC Resp: 185572





#91
Naphthalene
Concen: 1.16 ug/l
RT: 19.879 min Scan# 5232
Delta R.T. -0.012 min
Lab File: 3V14379.D
Acq: 1 Nov 2011 10:18 pm

Tgt Ion:128 Resp: 17600



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: D28999
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4752-MB	3G06707.D	1	10/31/11	TMB	10/31/11	OP4752	E3G246

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

D28999-1

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	82%	10-145%
321-60-8	2-Fluorobiphenyl	85%	10-130%
1718-51-0	Terphenyl-d14	115%	22-130%

Blank Spike Summary

Job Number: D28999
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4752-BS	3G06708.D	1	10/31/11	TMB	10/31/11	OP4752	E3G246

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

D28999-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	69.9	84	34-130
120-12-7	Anthracene	83.3	75.8	91	35-130
56-55-3	Benzo(a)anthracene	83.3	72.3	87	36-130
50-32-8	Benzo(a)pyrene	83.3	68.7	82	36-130
205-99-2	Benzo(b)fluoranthene	83.3	69.9	84	35-130
207-08-9	Benzo(k)fluoranthene	83.3	69.0	83	37-130
218-01-9	Chrysene	83.3	72.3	87	40-130
53-70-3	Dibenzo(a,h)anthracene	83.3	71.4	86	32-130
206-44-0	Fluoranthene	83.3	71.2	85	38-130
86-73-7	Fluorene	83.3	73.2	88	35-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	68.6	82	28-130
91-20-3	Naphthalene	83.3	70.4	84	35-130
129-00-0	Pyrene	83.3	67.5	81	37-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	91%	10-145%
321-60-8	2-Fluorobiphenyl	85%	10-130%
1718-51-0	Terphenyl-d14	101%	22-130%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D28999
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4752-MS	3G06710.D	5	11/01/11	TMB	10/31/11	OP4752	E3G246
OP4752-MSD	3G06711.D	5	11/01/11	TMB	10/31/11	OP4752	E3G246
D28973-1	3G06709.D	5	10/31/11	TMB	10/31/11	OP4752	E3G246

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

D28999-1

CAS No.	Compound	D28973-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		183	116	63	77.2	42	40* [a]	10-155/30
120-12-7	Anthracene	ND		183	174	95	112	61	43* [a]	10-155/30
56-55-3	Benzo(a)anthracene	ND		183	242	132	152	83	46* [a]	10-175/30
50-32-8	Benzo(a)pyrene	ND		183	201	110	ND	0* [b]	200* [a]	10-164/30
205-99-2	Benzo(b)fluoranthene	ND		183	212	116	ND	0* [b]	200* [a]	10-165/30
207-08-9	Benzo(k)fluoranthene	ND		183	163	89	97.2	53	51* [a]	10-178/30
218-01-9	Chrysene	ND		183	162	88	96.8	53	50* [a]	10-147/30
53-70-3	Dibenzo(a,h)anthracene	ND		183	162	88	ND	0* [b]	200* [a]	10-144/30
206-44-0	Fluoranthene	ND		183	227	124	133	73	52* [a]	10-207/30
86-73-7	Fluorene	ND		183	178	97	118	64	41* [a]	10-163/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		183	ND	0* [b]	ND	0* [b]	nc	10-180/30
91-20-3	Naphthalene	ND		183	161	88	136	74	17	10-198/30
129-00-0	Pyrene	ND		183	181	99	118	64	42* [a]	10-189/30

CAS No.	Surrogate Recoveries	MS	MSD	D28973-1	Limits
4165-60-0	Nitrobenzene-d5	46%	23%	7%* [c]	10-145%
321-60-8	2-Fluorobiphenyl	52%	36%	30%	10-130%
1718-51-0	Terphenyl-d14	70%	42%	45%	22-130%

(a) Variability of recovery may be due to sample matrix/homogeneity.
(b) Outside control limits due to matrix interference. Refer to Blank Spike.
(c) Outside control limits due to possible matrix interference. Confirmed by re-extraction and reanalysis.

Mountain States ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson
11/01/11 10:52

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\103111\
Data File : 3g06714.D
Acq On : 1 Nov 2011 2:39 am
Operator : TamiB
Sample : D28999-1,5x
Misc : OP4752,E3G246,30.02,,,1,5
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Nov 01 10:07:33 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G246.M
Quant Title : PAHSIM BASE
QLast Update : Tue Nov 01 09:52:42 2011
Response via : Initial Calibration

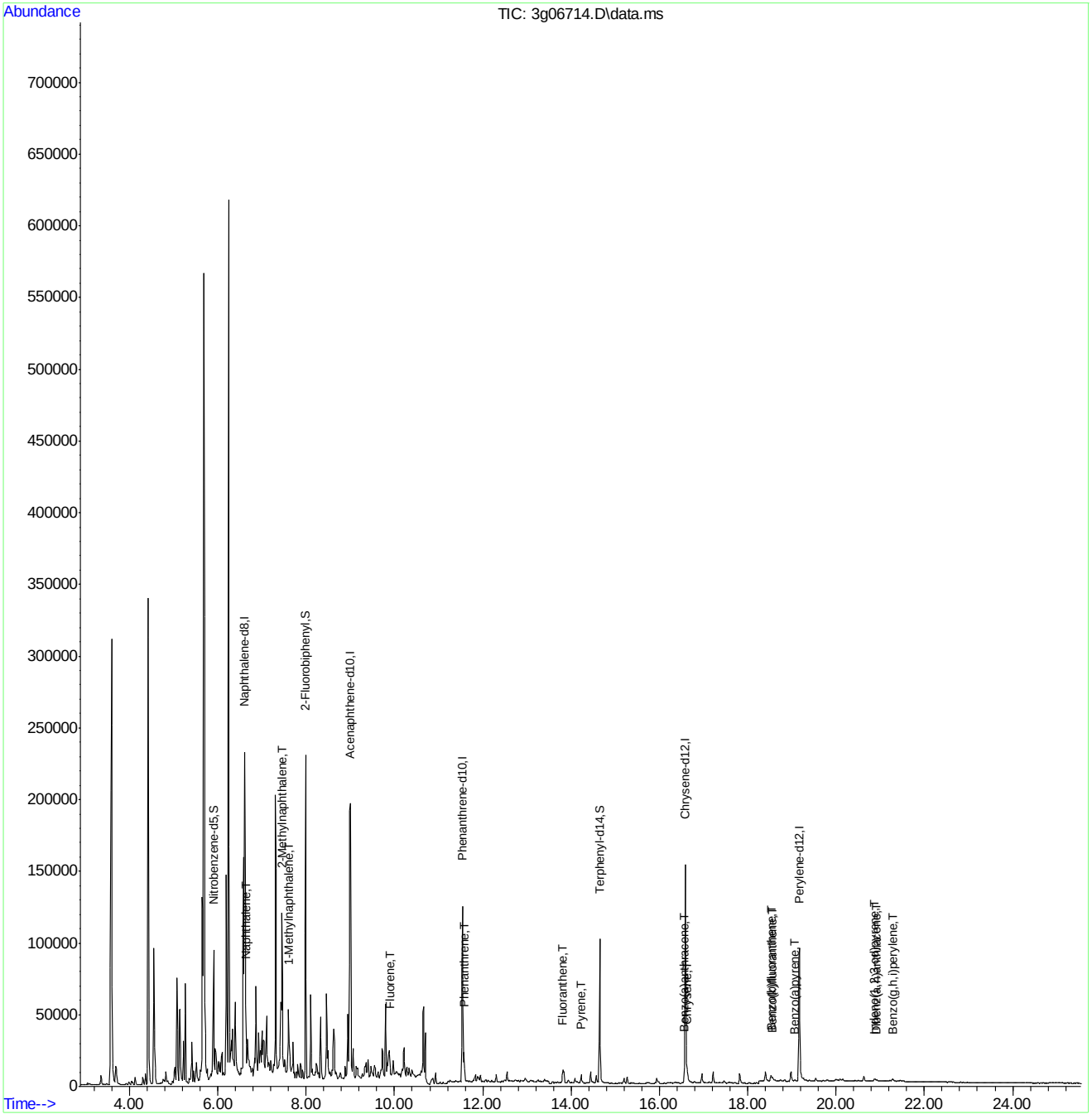
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.605	136	232370	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.003	164	117953	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.538	188	154062	4.00	ug/mL	0.00
18) Chrysene-d12	16.591	240	166967	4.00	ug/mL	0.00
23) Perylene-d12	19.172	264	134362	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.907	82	11776m	1.51	ug/mL	0.00
7) 2-Fluorobiphenyl	7.987	172	195099	3.93	ug/mL	0.00
20) Terphenyl-d14	14.648	244	114250	4.15	ug/mL	0.00
Target Compounds						Qvalue
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	6.630	128	29886	0.39	ug/mL	90
8) 2-Methylnaphthalene	7.453	142	60327	1.47	ug/mL	96
9) 1-Methylnaphthalene	7.603	142	23489m	0.57	ug/mL	
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	9.889	166	11380	0.32	ug/mL#	34
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	11.577	178	20663	0.42	ug/mL	98
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	13.817	202	6843	0.23	ug/mL	73
19) Pyrene	14.229	202	5224	0.15	ug/mL	91
21) Benzo(a)anthracene	16.558	228	4365m	0.17	ug/mL	
22) Chrysene	16.630	228	7328	0.14	ug/mL	96
24) Benzo(b)fluoranthene	18.530	252	4703m	0.22	ug/mL	
25) Benzo(k)fluoranthene	18.562	252	2603m	0.10	ug/mL	
26) Benzo(a)pyrene	19.067	252	1776	0.13	ug/mL#	77
27) Indeno(1,2,3-cd)pyrene	20.876	276	1737	0.16	ug/mL#	50
28) Dibenz(a,h)anthracene	20.918	278	1069m	0.13	ug/mL	
29) Benzo(g,h,i)perylene	21.286	276	2202	0.11	ug/mL	92

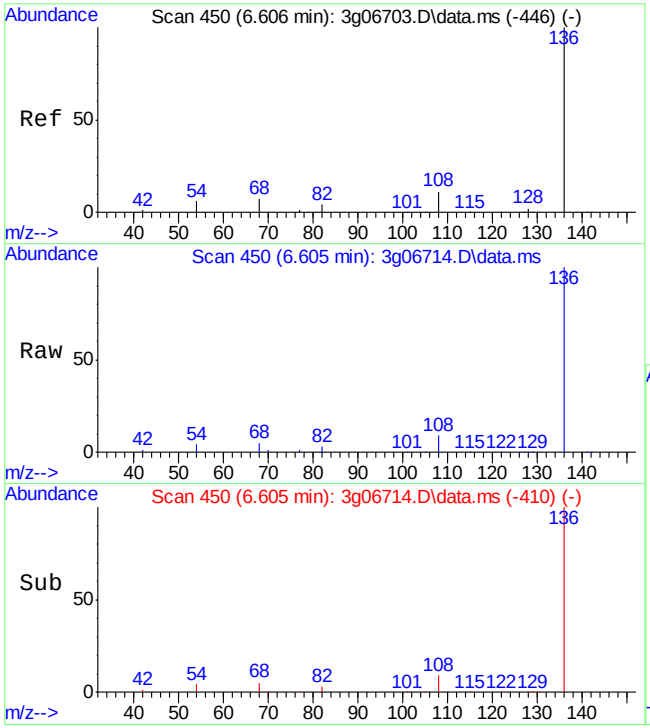
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\103111\
Data File : 3g06714.D
Acq On : 1 Nov 2011 2:39 am
Operator : TamiB
Sample : D28999-1,5x
Misc : OP4752,E3G246,30.02,,,1,5
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Nov 01 10:07:33 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G246.M
Quant Title : PAHSIM BASE
QLast Update : Tue Nov 01 09:52:42 2011
Response via : Initial Calibration

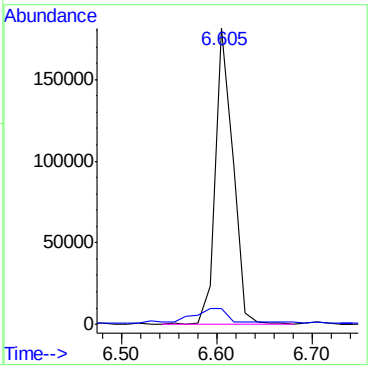


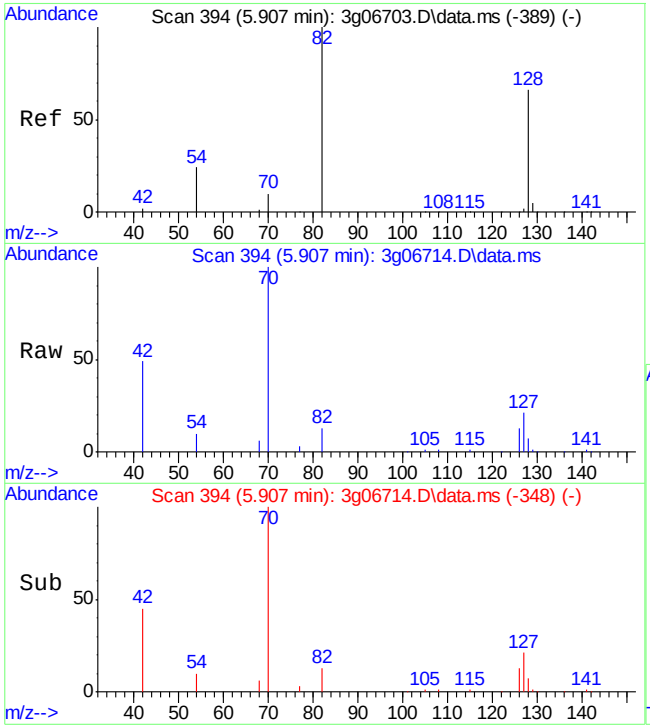


#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.605 min Scan# 450
Delta R.T. -0.000 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:136 Resp: 232370

Ion	Ratio	Lower	Upper
136	100		
68	10.4	0.0	28.1

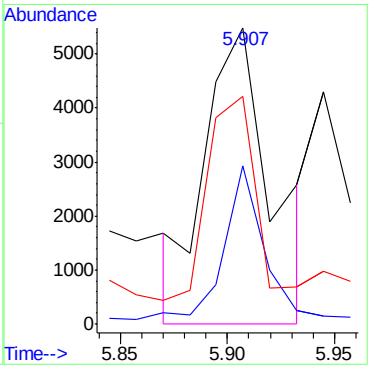


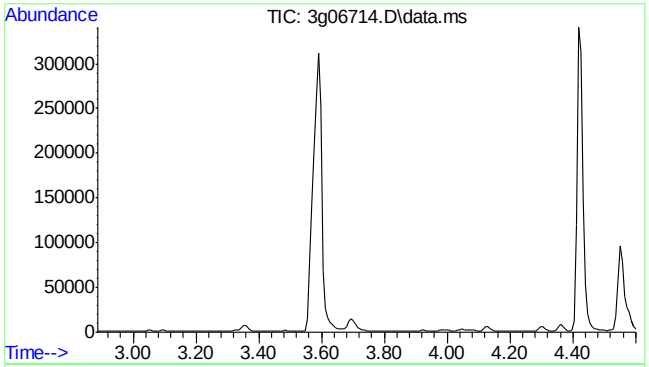


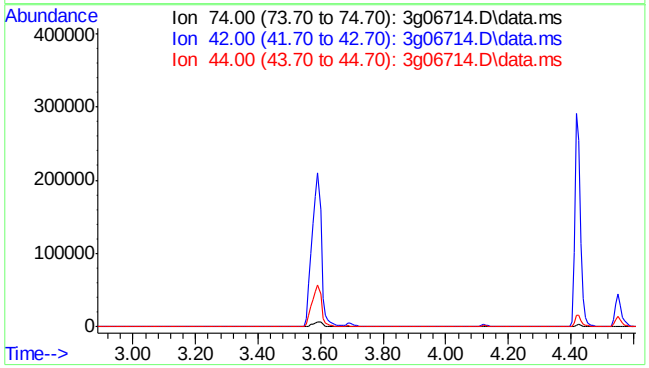
#2
Nitrobenzene-d5
Concen: 1.51 ug/mL m
RT: 5.907 min Scan# 394
Delta R.T. -0.000 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion: 82 Resp: 11776

Ion	Ratio	Lower	Upper
82	100		
128	0.0	28.3	68.3#
54	0.0	14.8	54.8#





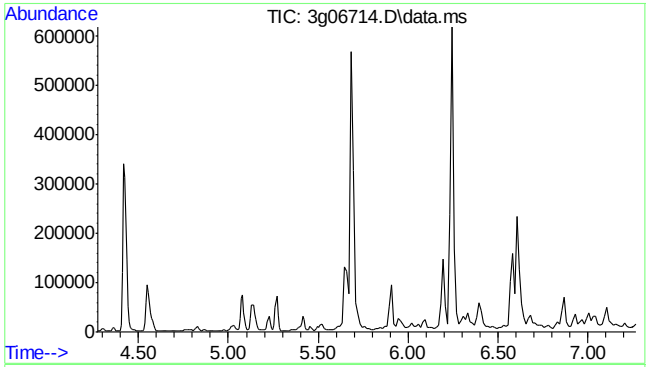


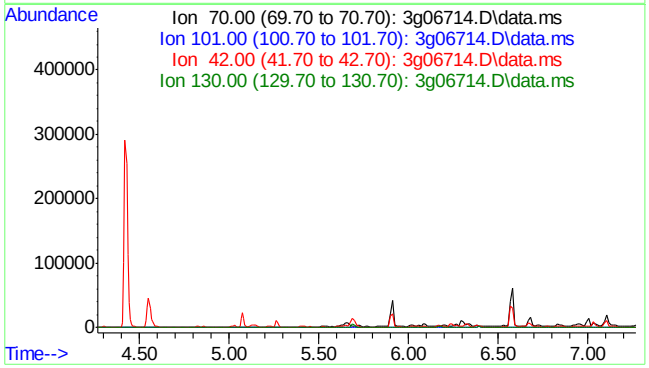
#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 3.11 min

Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion: 74

Sig	Exp Ratio
74	100
42	41.9
44	3.1



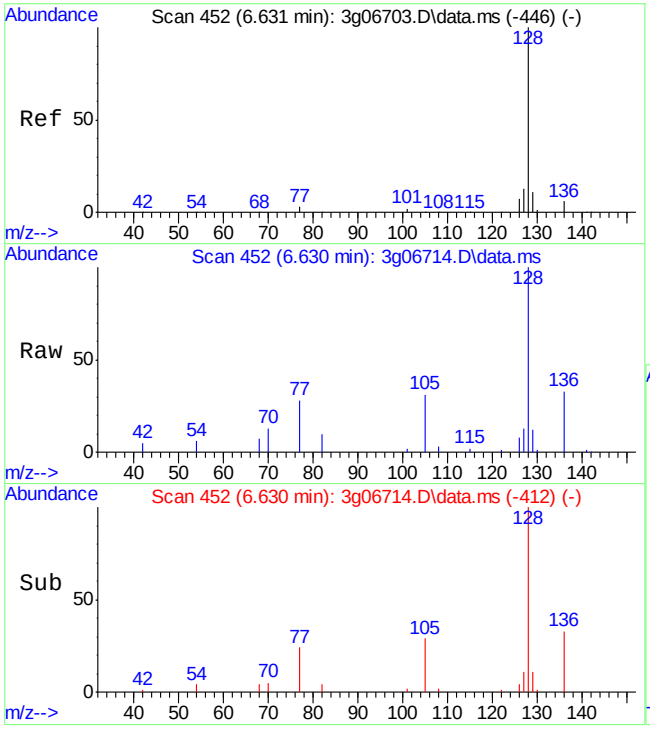


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.77 min

Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion: 70

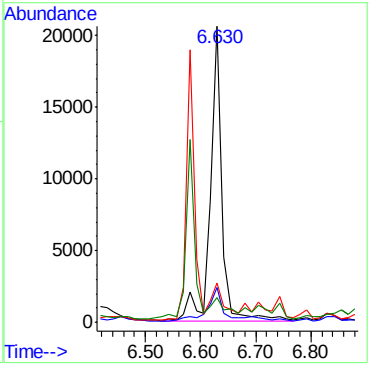
Sig	Exp Ratio
70	100
101	12.6
42	35.8
130	27.2

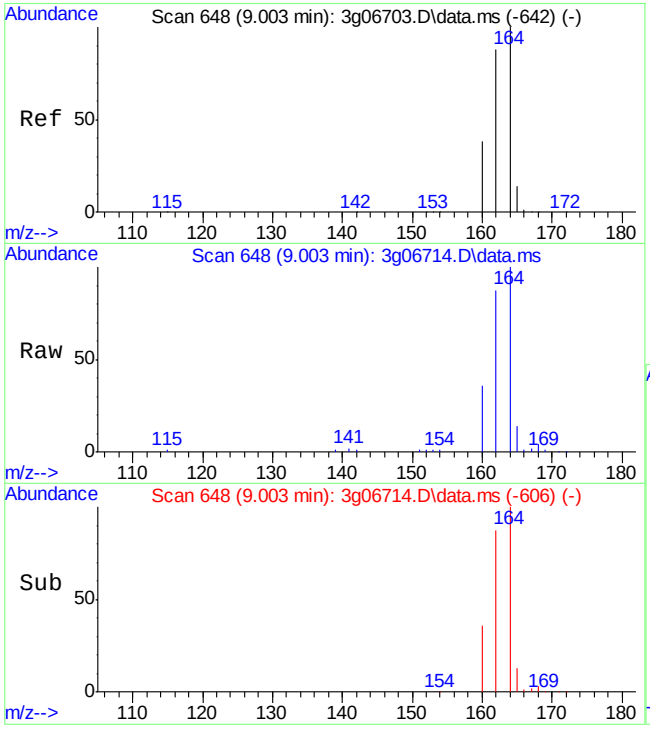


#5
Naphthalene
Concen: 0.39 ug/mL
RT: 6.630 min Scan# 452
Delta R.T. -0.000 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:128 Resp: 29886

Ion	Ratio	Lower	Upper
128	100		
129	15.4	0.0	30.8
127	7.9	0.0	32.9
126	6.2	0.0	27.2

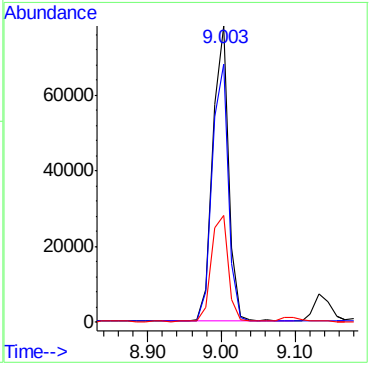


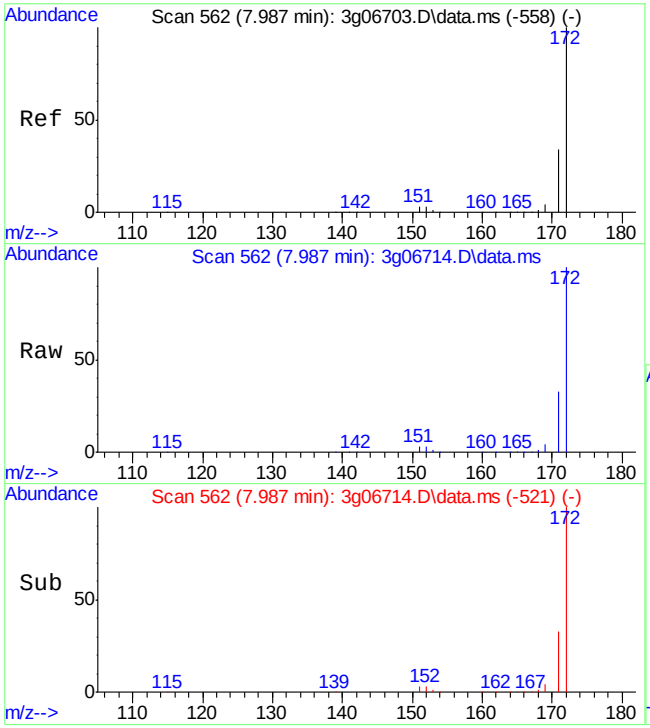


#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 9.003 min Scan# 648
Delta R.T. -0.000 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:164 Resp: 117953

Ion	Ratio	Lower	Upper
164	100		
162	88.2	72.0	112.0
160	38.1	21.5	61.5

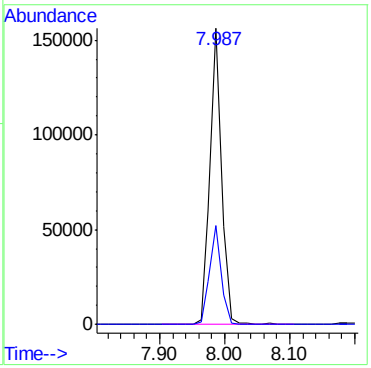


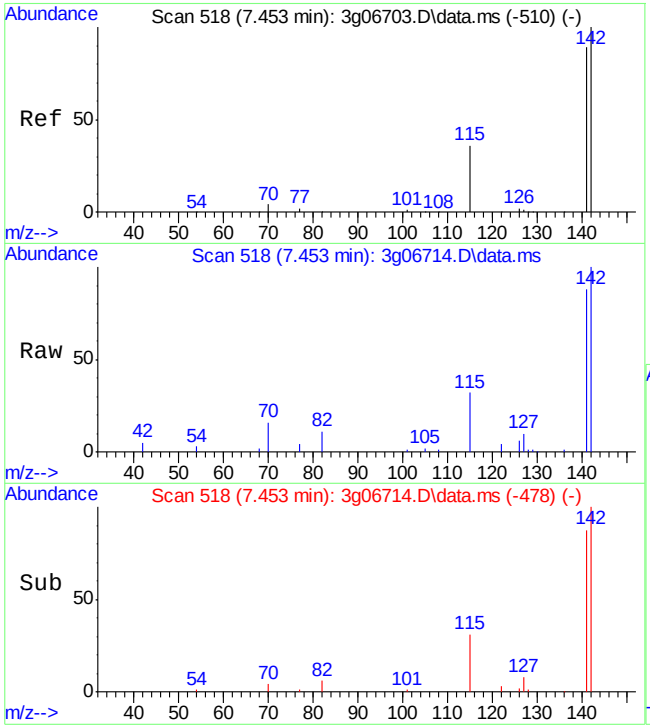


#7
2-Fluorobiphenyl
Concen: 3.93 ug/mL
RT: 7.987 min Scan# 562
Delta R.T. -0.000 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:172 Resp: 195099

Ion	Ratio	Lower	Upper
172	100		
171	33.4	13.8	53.8

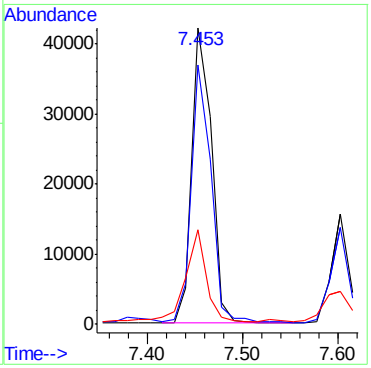


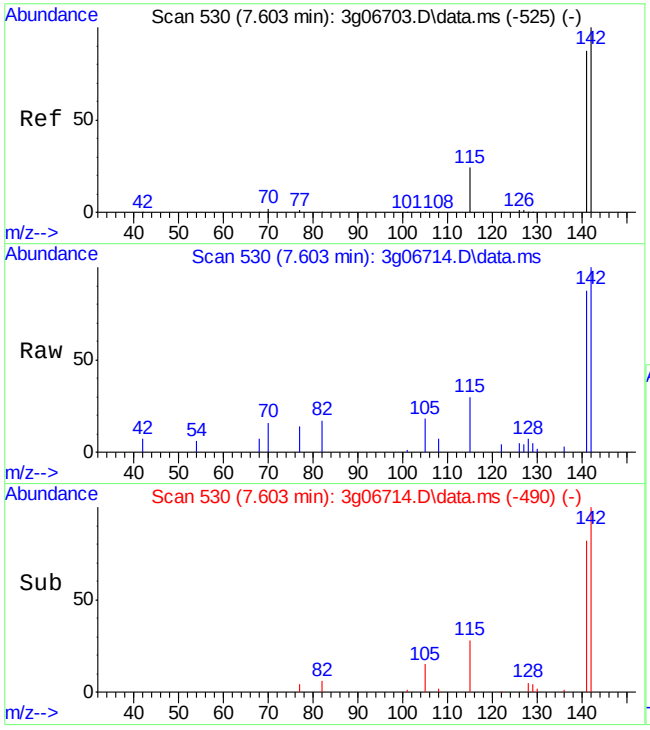


#8
2-Methylnaphthalene
Concen: 1.47 ug/mL
RT: 7.453 min Scan# 518
Delta R.T. -0.000 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:142 Resp: 60327

Ion	Ratio	Lower	Upper
142	100		
141	86.7	64.0	104.0
115	33.3	9.6	49.6

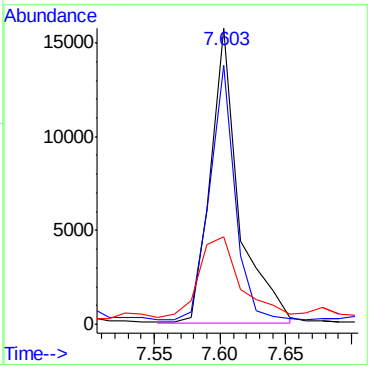


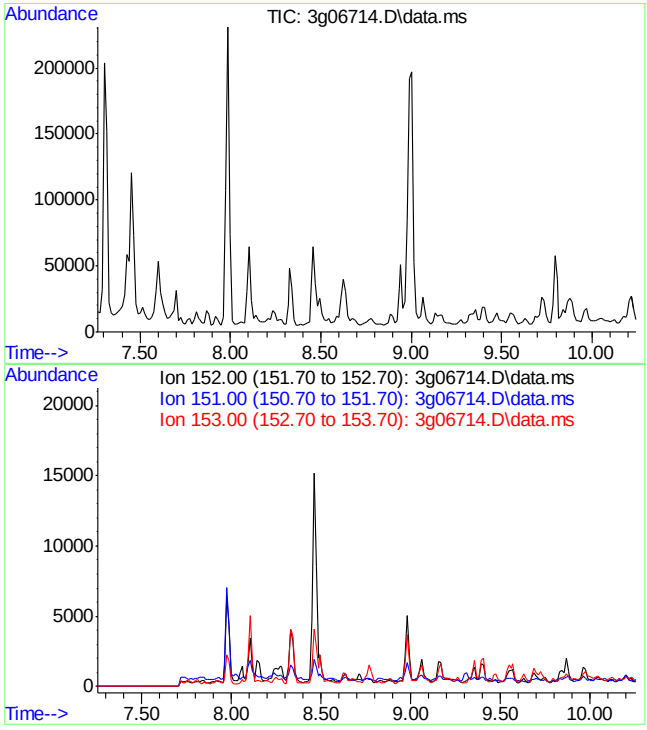


#9
1-Methylnaphthalene
Concen: 0.57 ug/mL m
RT: 7.603 min Scan# 530
Delta R.T. -0.000 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:142 Resp: 23489

Ion	Ratio	Lower	Upper
142	100		
141	223.9	70.9	106.3#
115	85.5	25.4	38.2#



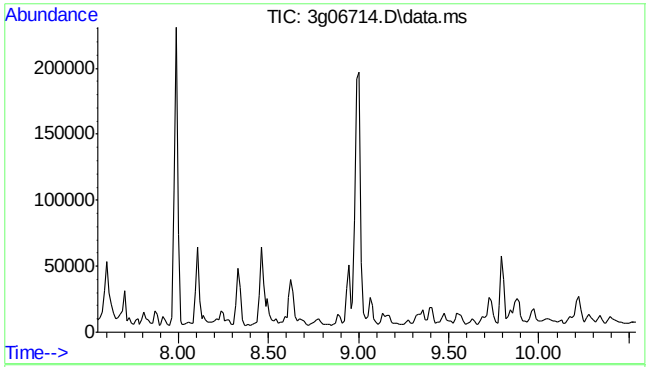


#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.75 min

Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion: 152

Sig	Exp Ratio
152	100
151	19.6
153	12.8

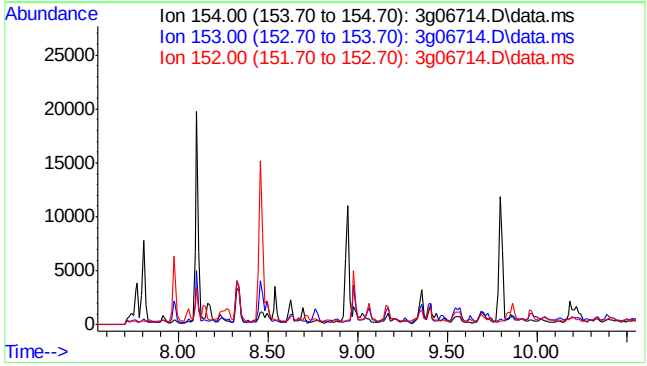


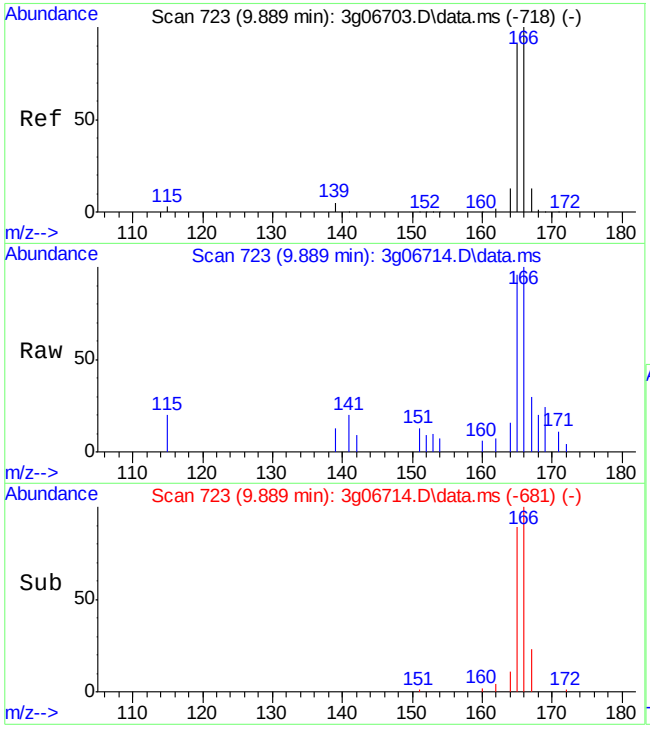
#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 9.05 min

Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion: 154

Sig	Exp Ratio
154	100
153	106.0
152	50.3

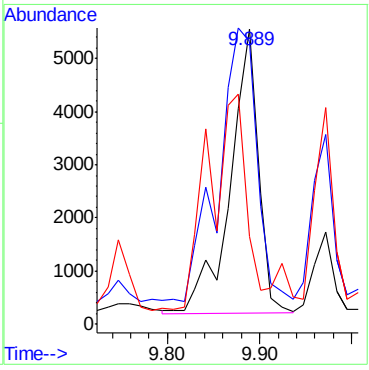


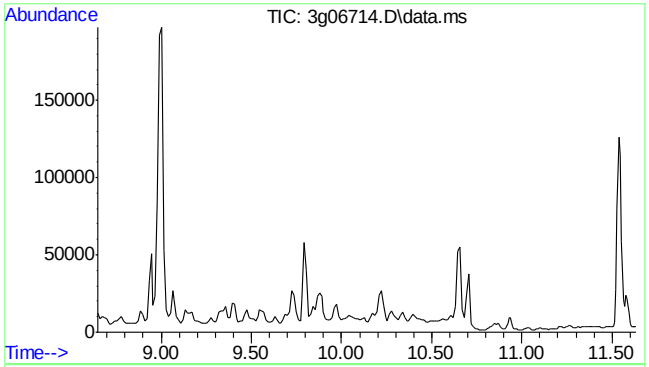


#12
Fluorene
Concen: 0.32 ug/mL
RT: 9.889 min Scan# 723
Delta R.T. -0.000 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:166 Resp: 11380

Ion	Ratio	Lower	Upper
166	100		
165	131.6	71.1	111.1#
167	103.4	0.0	33.2#



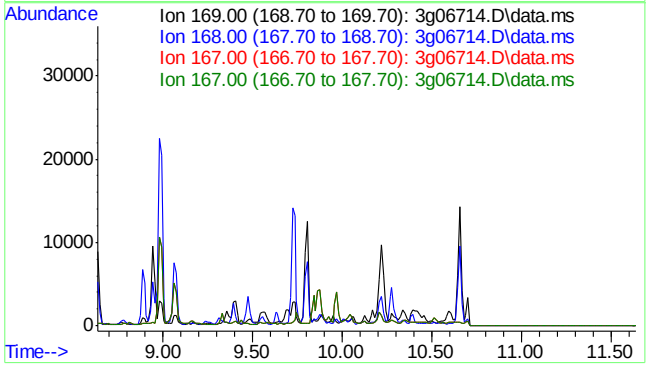


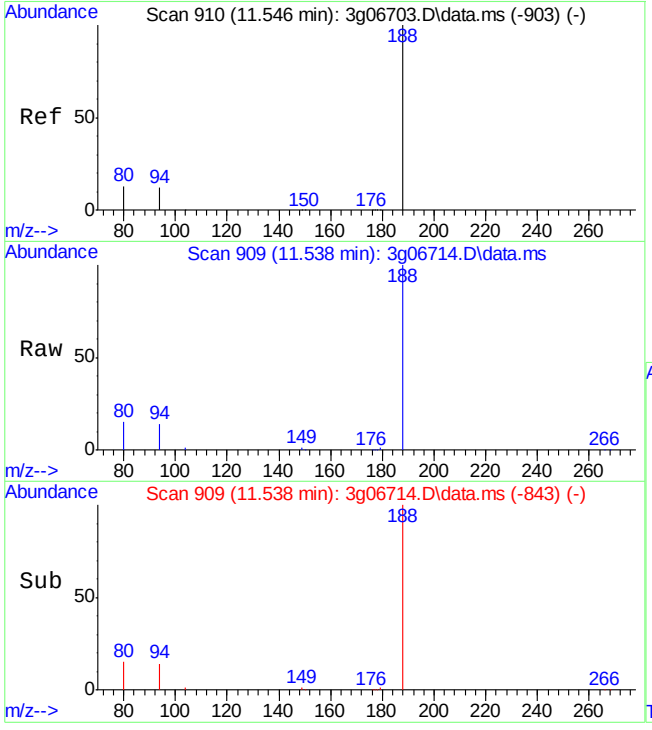
#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.14 min

Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion: 169

Sig	Exp Ratio
169	100
168	60.5
167	32.1
167	32.1

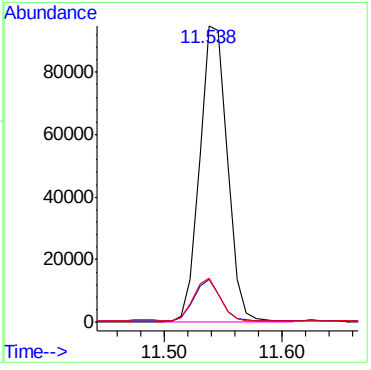


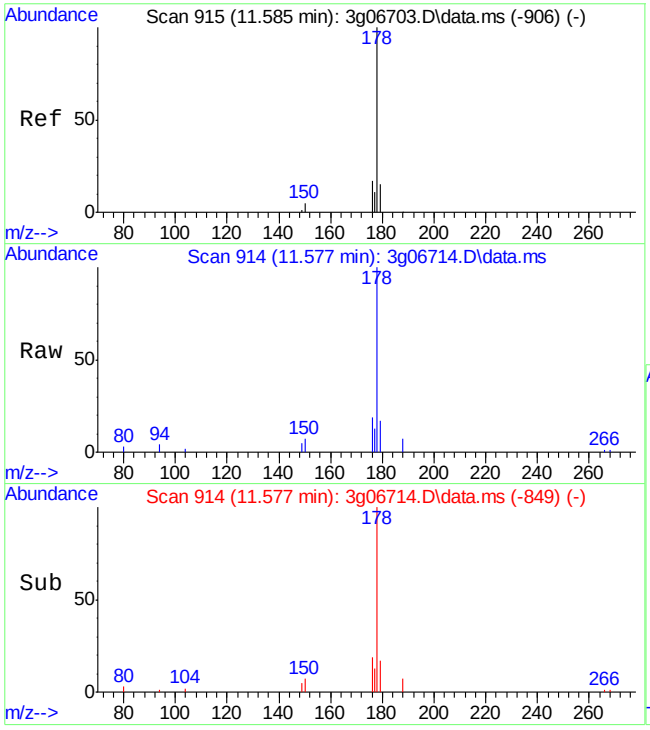


#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.538 min Scan# 909
Delta R.T. -0.008 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:188 Resp: 154062

Ion	Ratio	Lower	Upper
188	100		
94	13.2	0.0	36.9
80	13.7	0.0	38.3

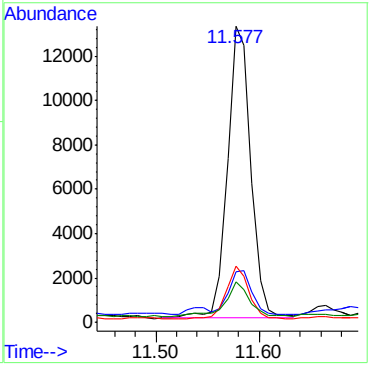


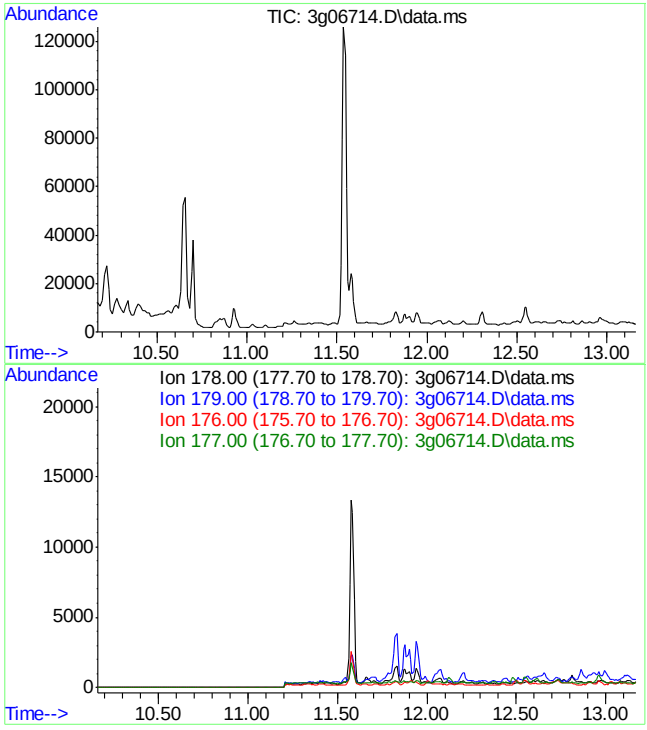


#15
Phenanthrene
Concen: 0.42 ug/mL
RT: 11.577 min Scan# 914
Delta R.T. -0.008 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:178 Resp: 20663

Ion	Ratio	Lower	Upper
178	100		
179	15.0	0.0	35.1
176	17.5	0.0	38.3
177	12.1	0.0	30.7



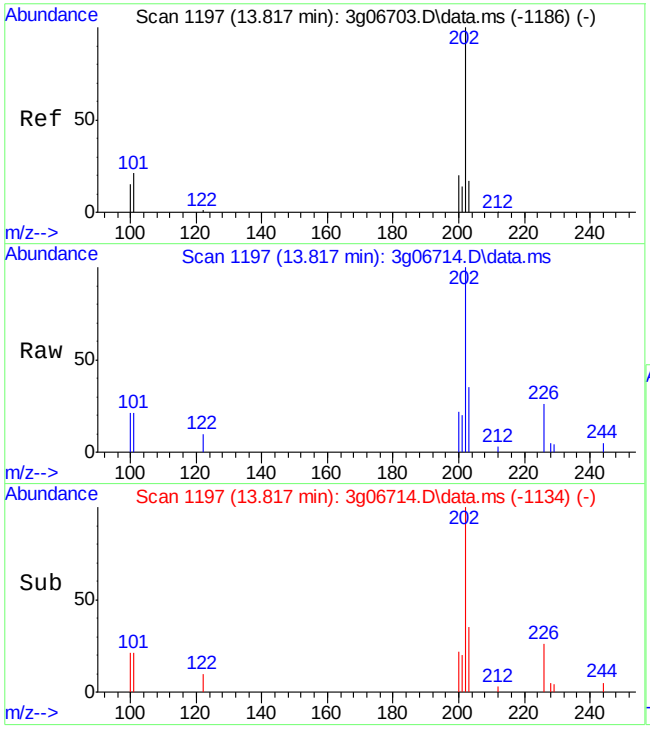


#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.66 min

Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion: 178

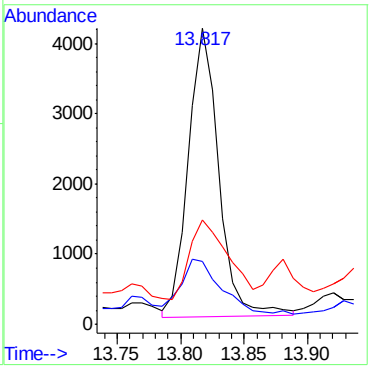
Sig	Exp Ratio
178	100
179	15.1
176	17.6
177	9.1

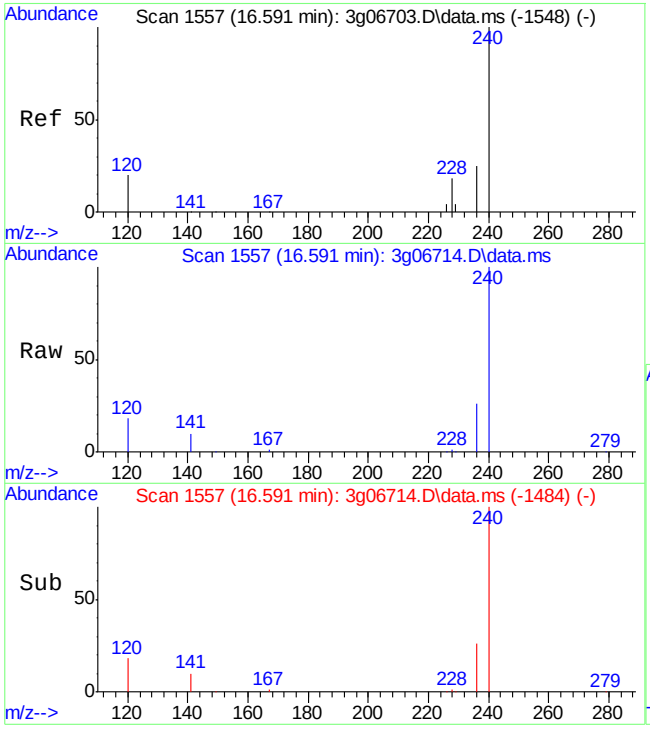


#17
Fluoranthene
Concen: 0.23 ug/mL
RT: 13.817 min Scan# 1197
Delta R.T. -0.000 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:202 Resp: 6843

Ion	Ratio	Lower	Upper
202	100		
101	26.2	0.1	40.1
203	36.1	0.0	37.1

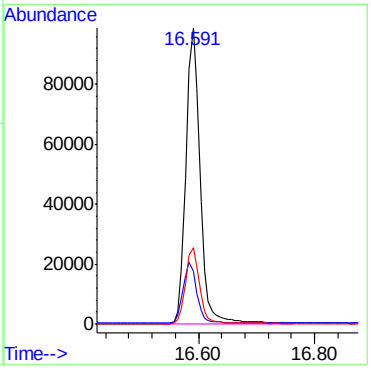


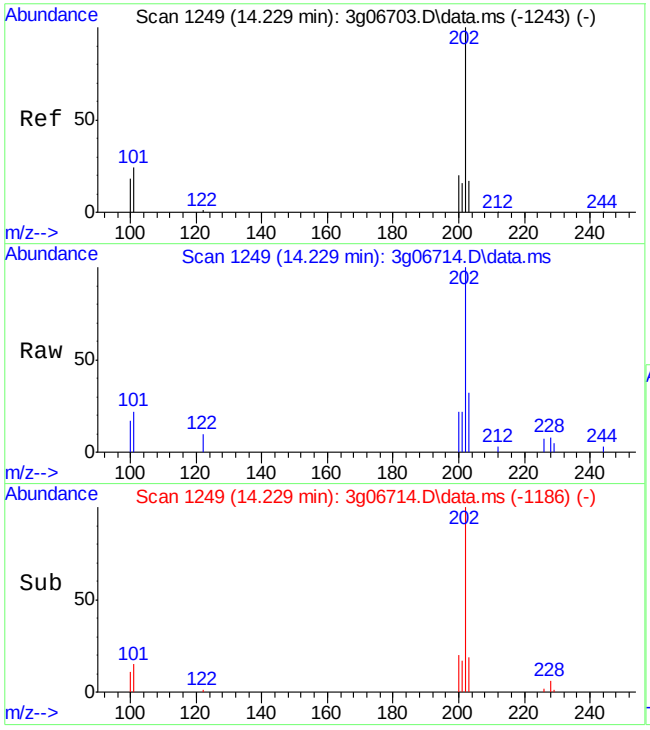


#18
Chrysene-d12
Concen: 4.00 ug/mL
RT: 16.591 min Scan# 1557
Delta R.T. -0.000 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:240 Resp: 166967

Ion	Ratio	Lower	Upper
240	100		
120	20.1	0.0	39.5
236	25.6	4.0	44.0

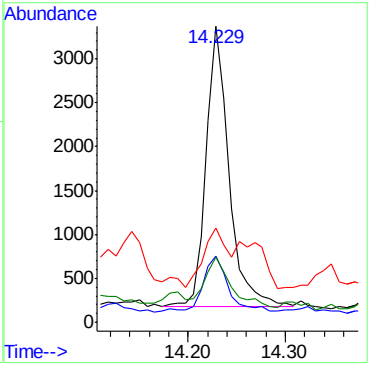


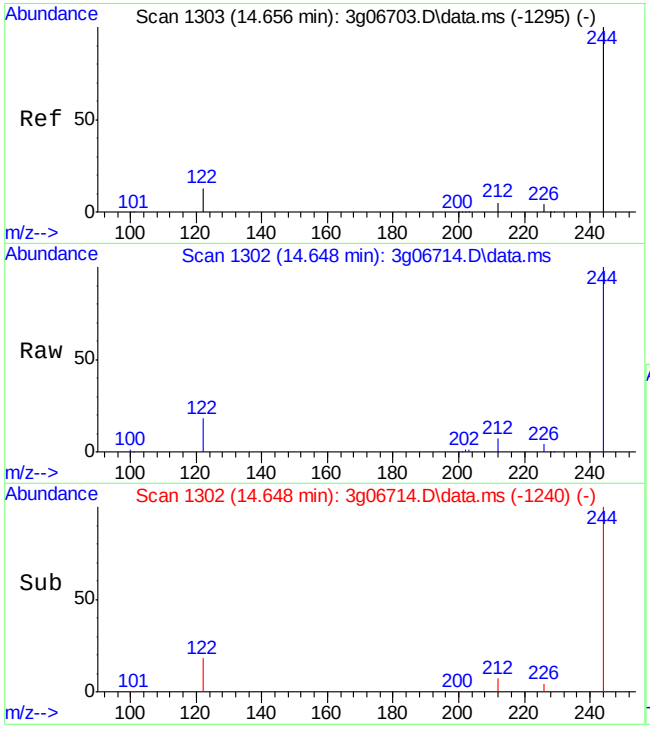


#19
Pyrene
Concen: 0.15 ug/mL
RT: 14.229 min Scan# 1249
Delta R.T. -0.000 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:202 Resp: 5224

Ion	Ratio	Lower	Upper
202	100		
200	22.5	0.0	39.7
203	21.8	0.0	37.6
201	21.3	0.0	36.5

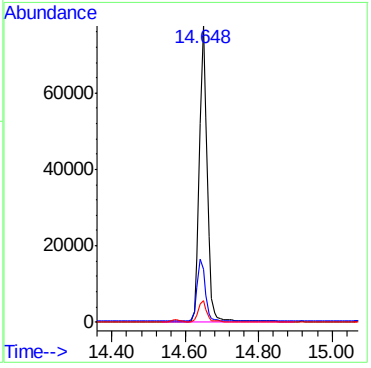


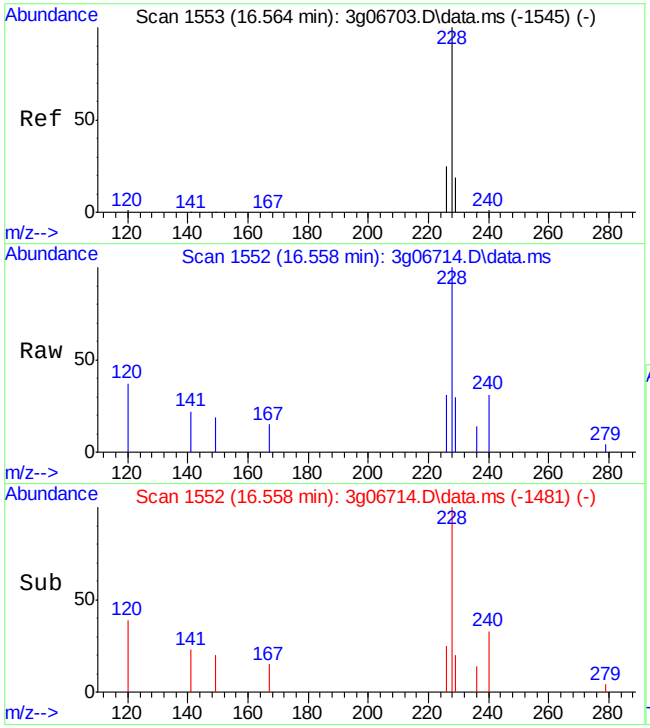


#20
Terphenyl-d14
Concen: 4.15 ug/mL
RT: 14.648 min Scan# 1302
Delta R.T. -0.008 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:244 Resp: 114250

Ion	Ratio	Lower	Upper
244	100		
122	21.5	0.0	39.5
212	7.2	0.0	26.0

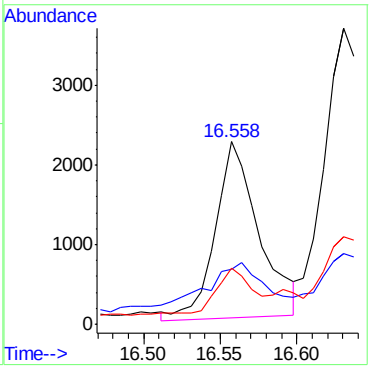


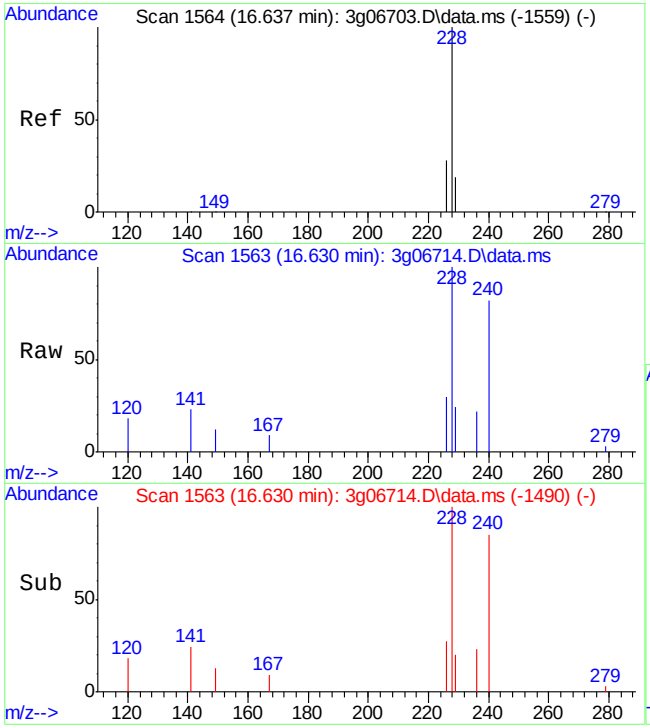


#21
Benzo(a)anthracene
Concen: 0.17 ug/mL m
RT: 16.558 min Scan# 1552
Delta R.T. -0.007 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:228 Resp: 4365

Ion	Ratio	Lower	Upper
228	100		
229	29.1	0.0	39.5
226	44.6	5.5	45.5

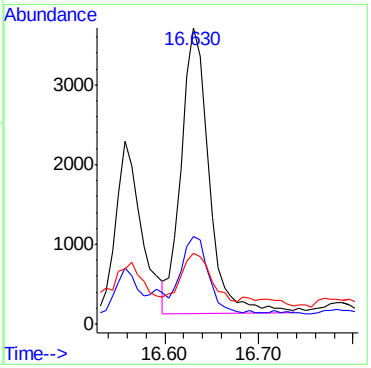


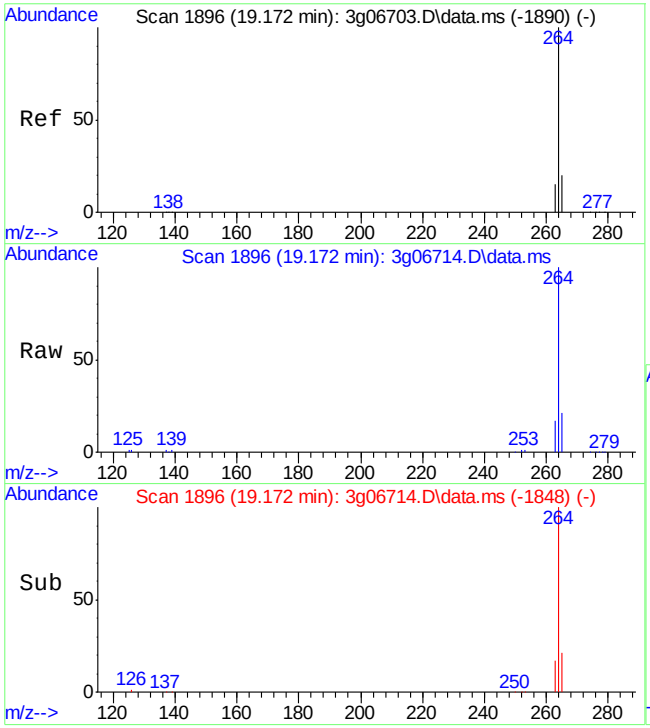


#22
Chrysene
Concen: 0.14 ug/mL
RT: 16.630 min Scan# 1563
Delta R.T. -0.007 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:228 Resp: 7328

Ion	Ratio	Lower	Upper
228	100		
226	26.5	8.1	48.1
229	17.4	0.0	39.8

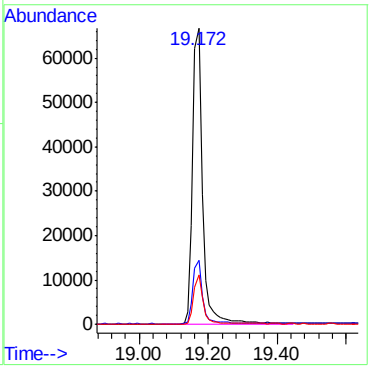


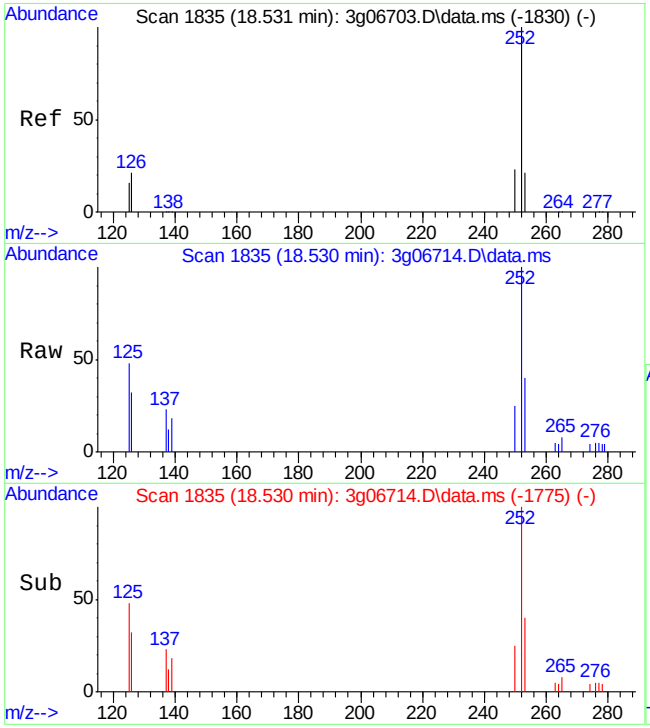


#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 19.172 min Scan# 1896
Delta R.T. -0.000 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:264 Resp: 134362

Ion	Ratio	Lower	Upper
264	100		
265	21.1	0.8	40.8
263	15.6	0.0	35.9

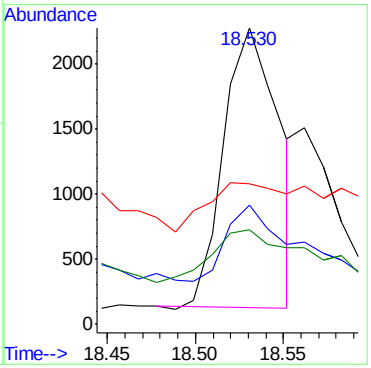


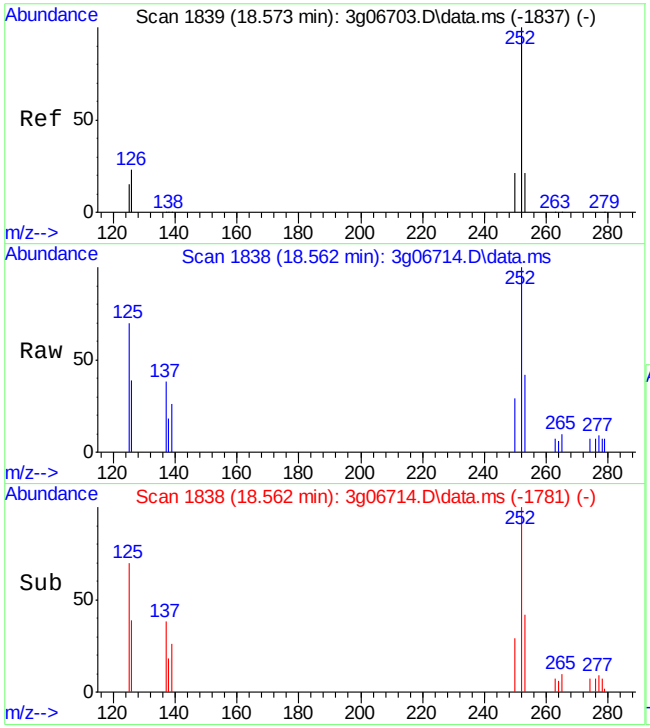


#24
Benzo(b)fluoranthene
Concen: 0.22 ug/mL m
RT: 18.530 min Scan# 1835
Delta R.T. -0.000 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:252 Resp: 4703

Ion	Ratio	Lower	Upper
252	100		
253	41.7	1.5	41.5#
125	23.6	0.0	37.0
126	33.2	2.7	42.7

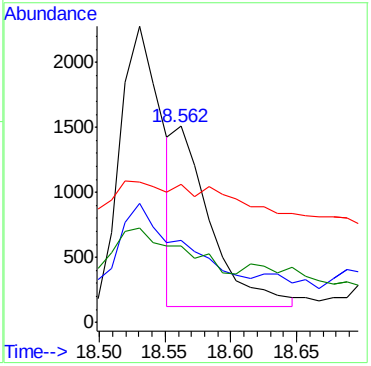


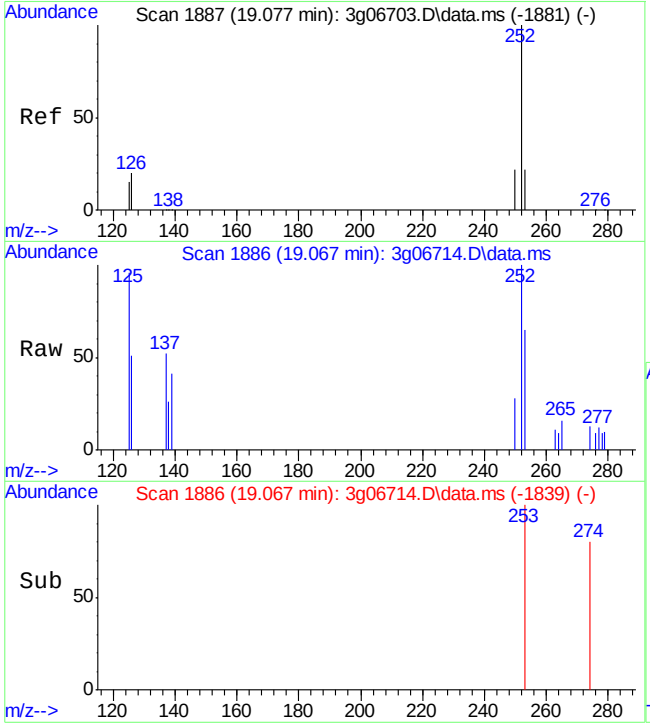


#25
Benzo(k)fluoranthene
Concen: 0.10 ug/mL m
RT: 18.562 min Scan# 1838
Delta R.T. -0.011 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:252 Resp: 2603

Ion	Ratio	Lower	Upper
252	100		
253	75.4	1.8	41.8#
125	42.7	0.0	35.0#
126	59.9	1.7	41.7#

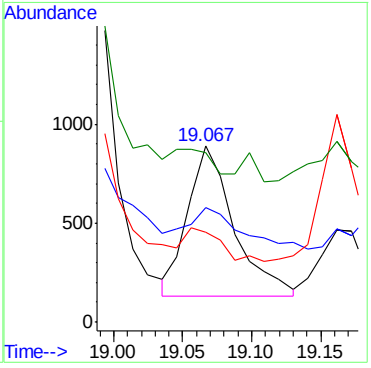


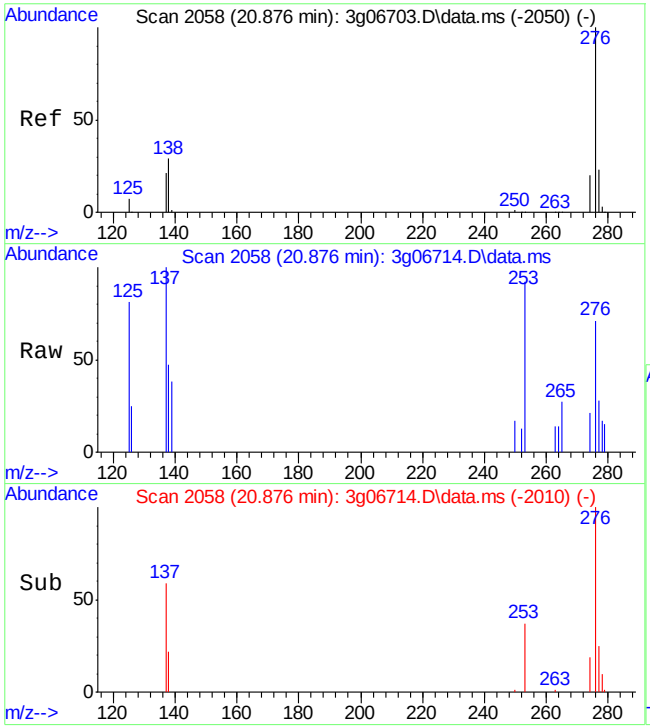


#26
Benzo(a)pyrene
Concen: 0.13 ug/mL
RT: 19.067 min Scan# 1886
Delta R.T. -0.011 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:252 Resp: 1776

Ion	Ratio	Lower	Upper
252	100		
253	33.5	1.7	41.7
126	23.6	2.1	42.1
125	0.0	0.0	39.5

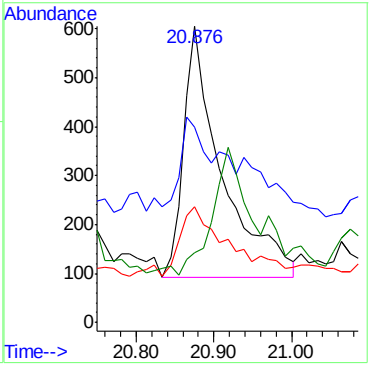


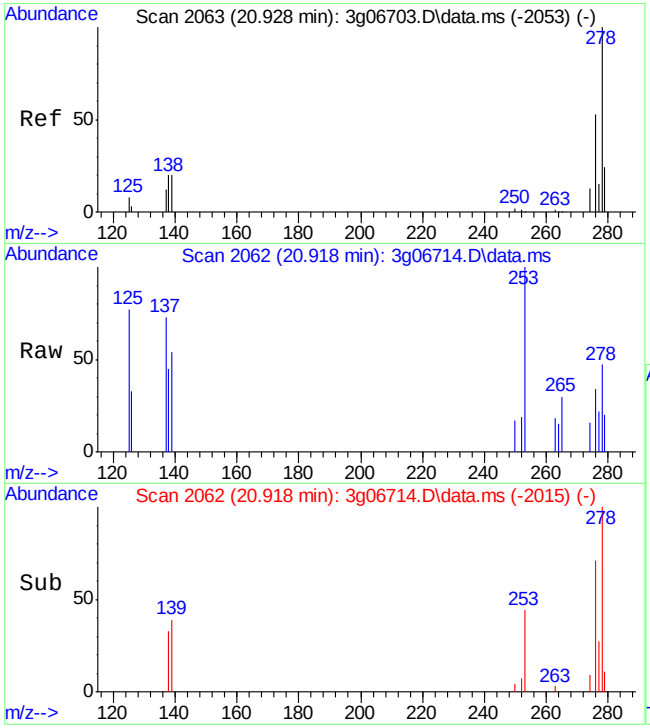


#27
Indeno(1,2,3-cd)pyrene
Concen: 0.16 ug/mL
RT: 20.876 min Scan# 2058
Delta R.T. -0.000 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:276 Resp: 1737

Ion	Ratio	Lower	Upper
276	100		
138	32.6	6.6	46.6
277	36.9	26.2	66.2
278	61.7	127.1	167.1#

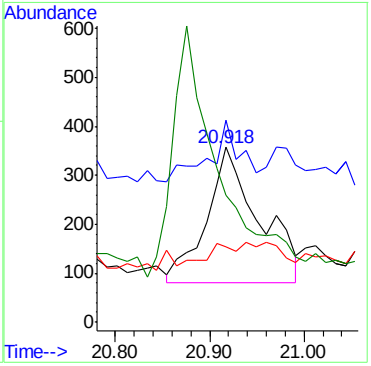


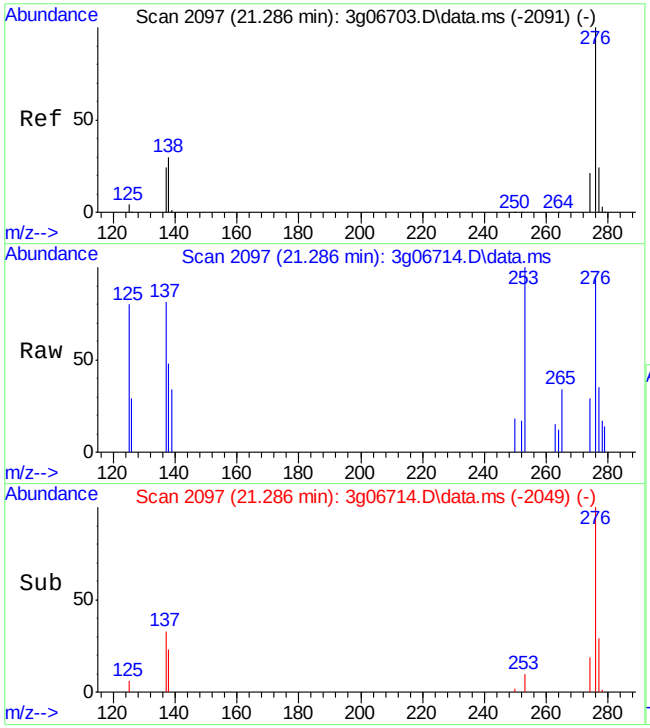


#28
Dibenz(a,h)anthracene
Concen: 0.13 ug/mL m
RT: 20.918 min Scan# 2062
Delta R.T. -0.011 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:278 Resp: 1069

Ion	Ratio	Lower	Upper
278	100		
139	4.8	2.3	42.3
279	8.8	3.4	43.4
276	50.2	107.2	147.2#

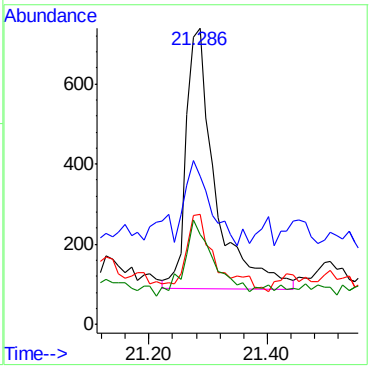




#29
Benzo(g,h,i)perylene
Concen: 0.11 ug/mL
RT: 21.286 min Scan# 2097
Delta R.T. -0.000 min
Lab File: 3g06714.D
Acq: 1 Nov 11 2:39 am

Tgt Ion:276 Resp: 2202

Ion	Ratio	Lower	Upper
276	100		
138	28.1	8.0	48.0
277	20.3	3.0	43.0
274	29.7	0.0	39.1



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\103111\
Data File : 3g06707.D
Acq On : 31 Oct 2011 10:12 pm
Operator : TamiB
Sample : OP4752-MB
Misc : OP4752,E3G246,30,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 01 09:55:10 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G246.M
Quant Title : PAHSIM BASE
QLast Update : Tue Nov 01 09:52:42 2011
Response via : Initial Calibration

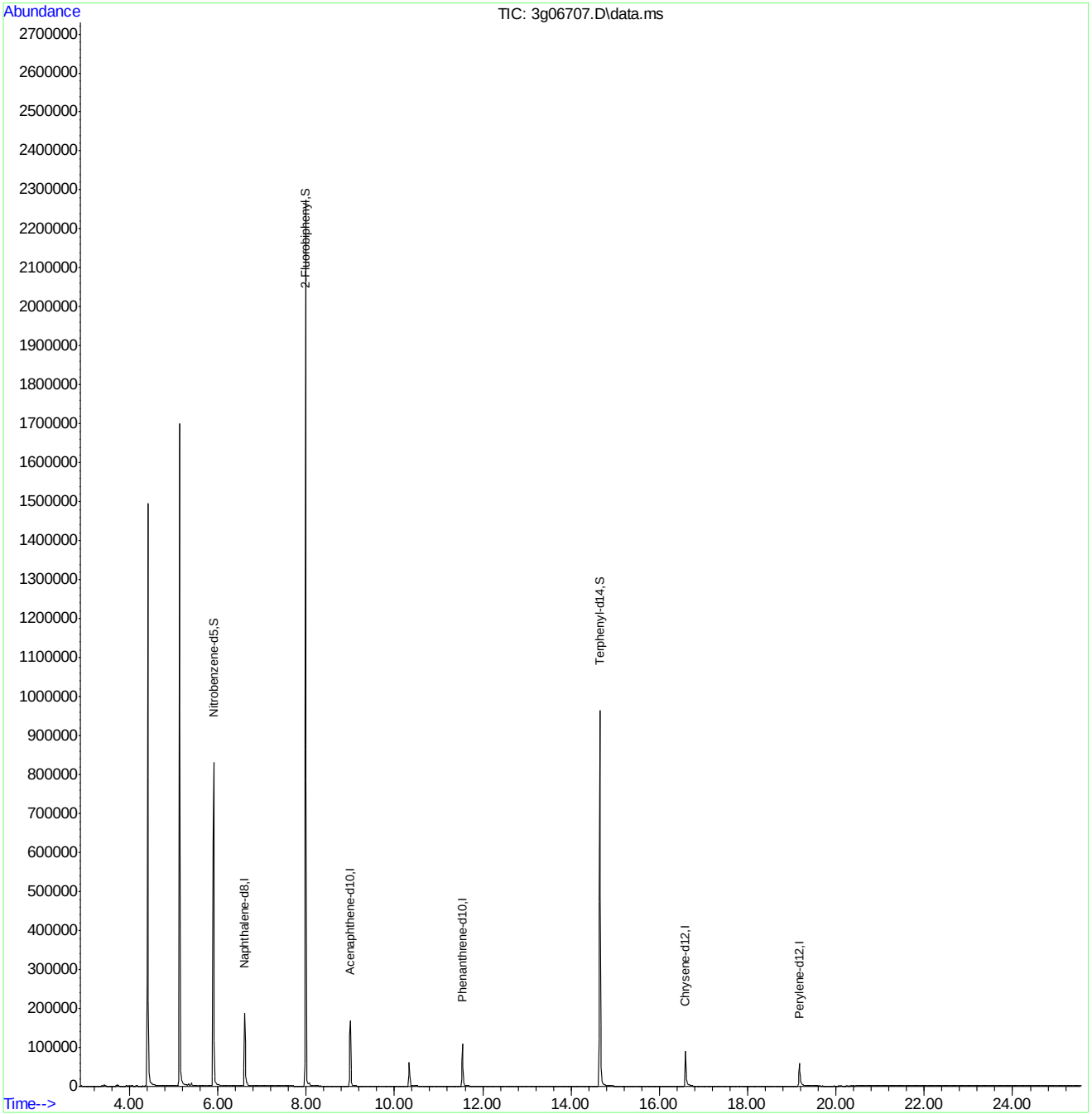
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.606	136	234882	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.003	164	107346	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.546	188	136756	4.00	ug/mL	0.00
18) Chrysene-d12	16.591	240	127873	4.00	ug/mL	0.00
23) Perylene-d12	19.172	264	96839	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.907	82	598625	41.02	ug/mL	0.00
7) 2-Fluorobiphenyl	7.987	172	1918701	42.47	ug/mL	0.00
20) Terphenyl-d14	14.656	244	1210511	57.39	ug/mL	0.00
Target Compounds						Qvalue
3) N-Nitrosodimethylamine	0.000		0	N.D.		d
4) N-Nitrosodi-propylamine	0.000		0	N.D.		d
5) Naphthalene	0.000		0	N.D.		d
8) 2-Methylnaphthalene	0.000		0	N.D.		d
9) 1-Methylnaphthalene	0.000		0	N.D.		d
10) Acenaphthylene	0.000		0	N.D.		d
11) Acenaphthene	0.000		0	N.D.		d
12) Fluorene	0.000		0	N.D.		
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

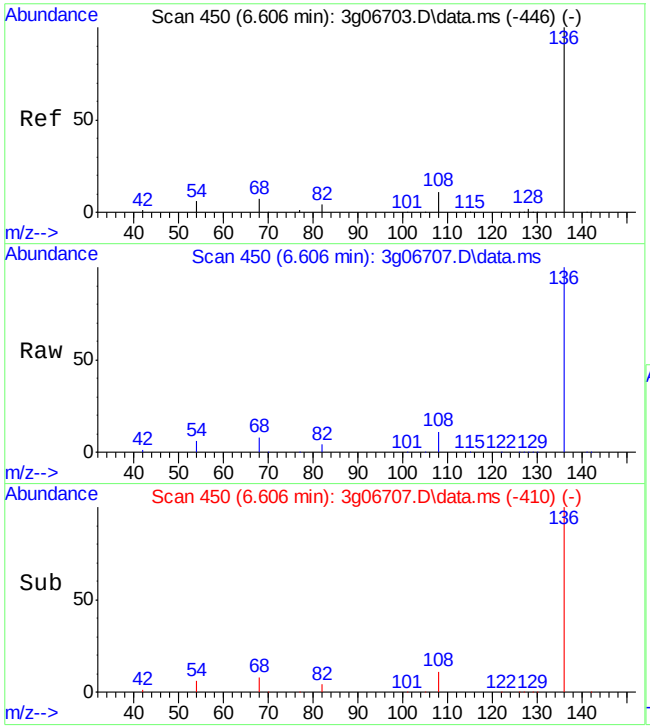
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\103111\
Data File : 3g06707.D
Acq On : 31 Oct 2011 10:12 pm
Operator : TamiB
Sample : OP4752-MB
Misc : OP4752,E3G246,30,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 01 09:55:10 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G246.M
Quant Title : PAHSIM BASE
QLast Update : Tue Nov 01 09:52:42 2011
Response via : Initial Calibration

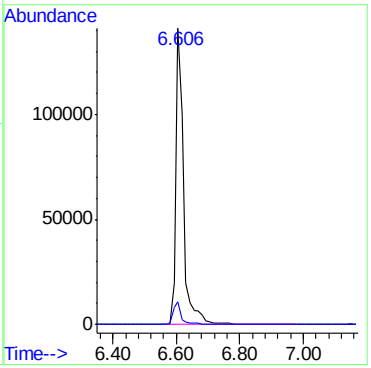


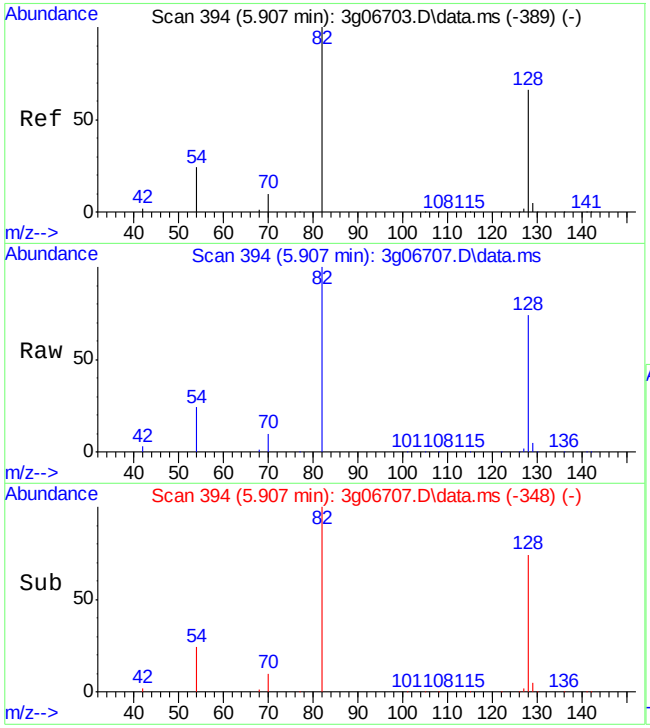


#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.606 min Scan# 450
Delta R.T. -0.000 min
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion:136 Resp: 234882

Ion	Ratio	Lower	Upper
136	100		
68	8.0	0.0	28.1

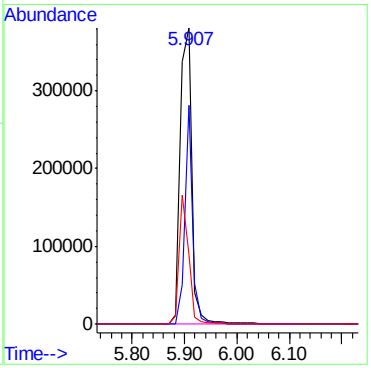


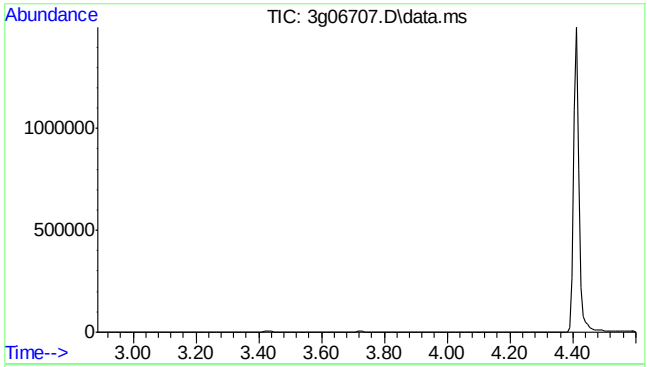


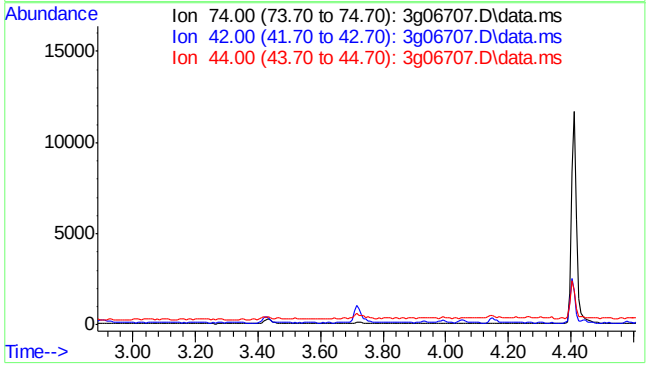
#2
Nitrobenzene-d5
Concen: 41.02 ug/mL
RT: 5.907 min Scan# 394
Delta R.T. -0.000 min
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 82 Resp: 598625

Ion	Ratio	Lower	Upper
82	100		
128	50.2	28.3	68.3
54	35.6	14.8	54.8





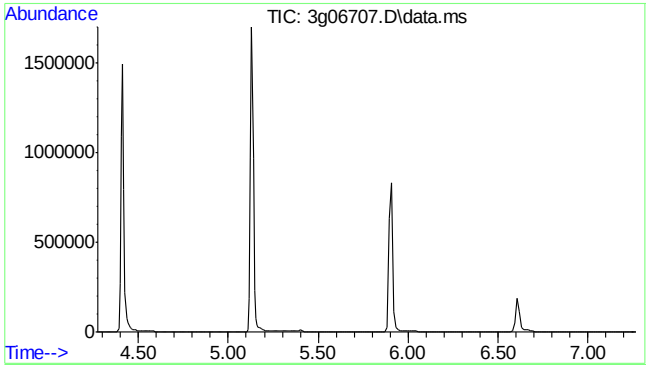


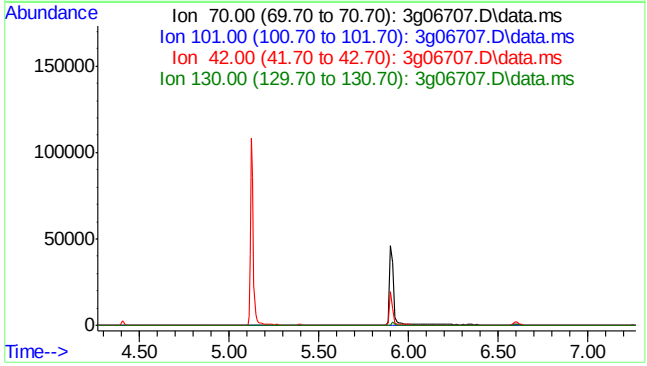
#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 3.11 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 74

Sig	Exp Ratio
74	100
42	41.9
44	3.1



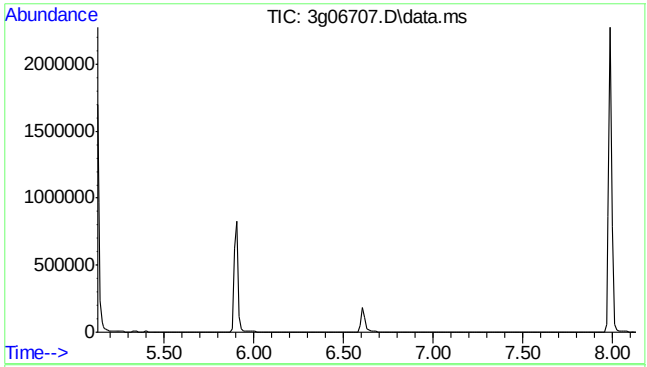


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.77 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 70

Sig	Exp Ratio
70	100
101	12.6
42	35.8
130	27.2

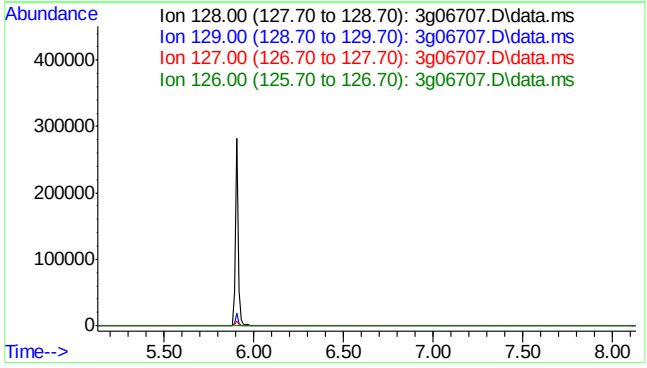


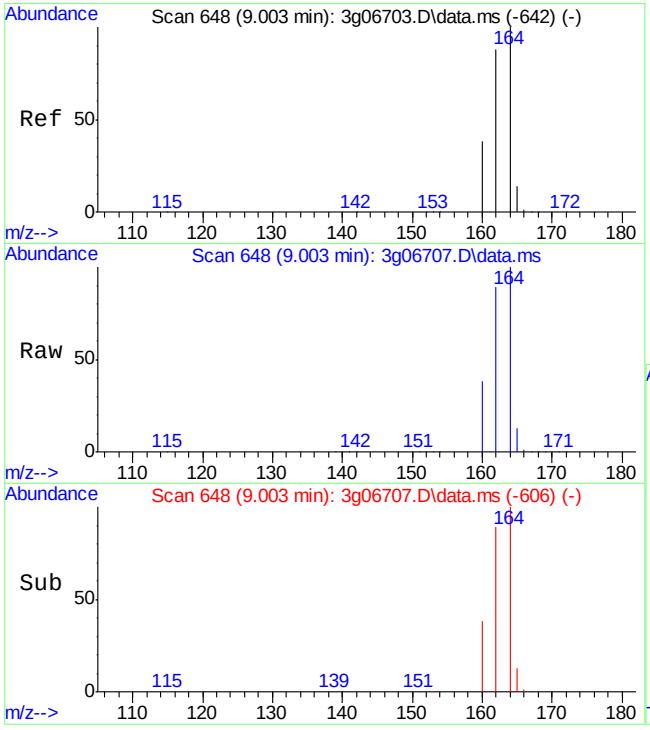
#5
Naphthalene
Concen: N.D. ug/mL
Expected RT: 6.63 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 128

Sig	Exp Ratio
128	100
129	10.8
127	12.9
126	7.2

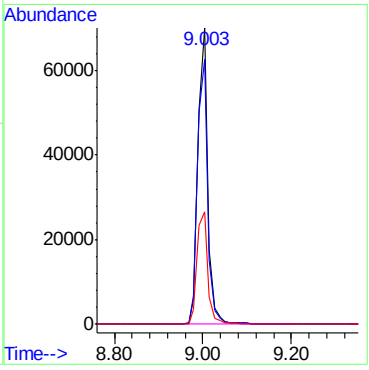


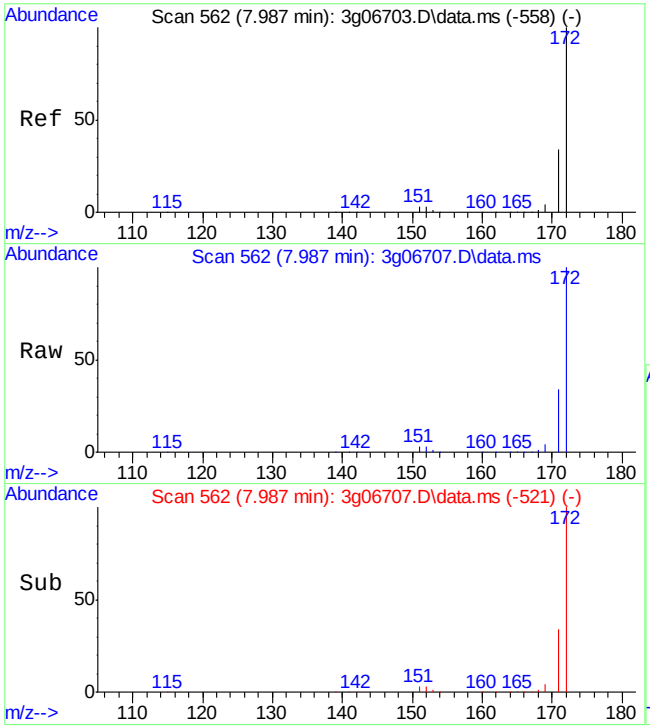


#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 9.003 min Scan# 648
Delta R.T. -0.000 min
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion:164 Resp: 107346

Ion	Ratio	Lower	Upper
164	100		
162	92.9	72.0	112.0
160	41.3	21.5	61.5

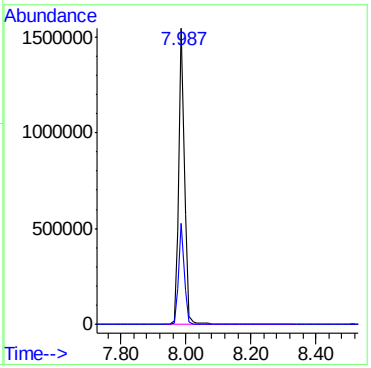


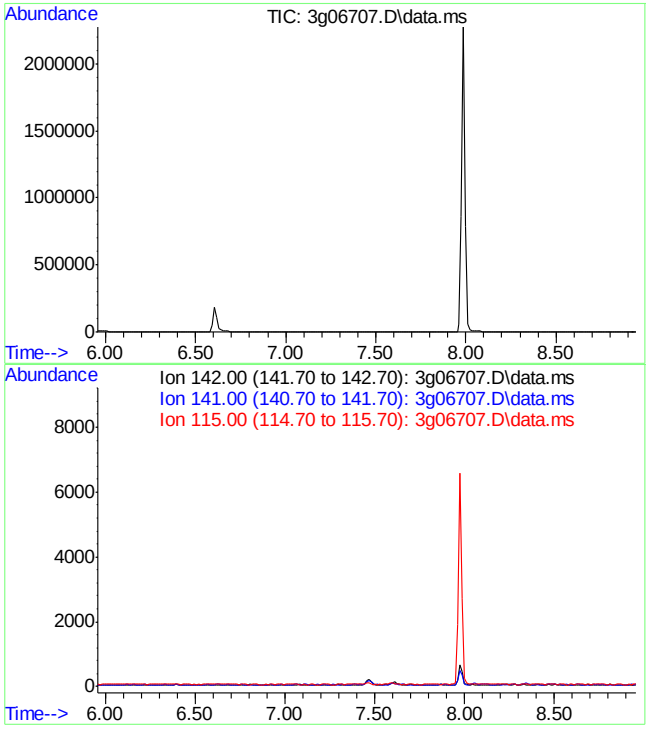


#7
2-Fluorobiphenyl
Concen: 42.47 ug/mL
RT: 7.987 min Scan# 562
Delta R.T. -0.000 min
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion:172 Resp: 1918701

Ion	Ratio	Lower	Upper
172	100		
171	34.0	13.8	53.8



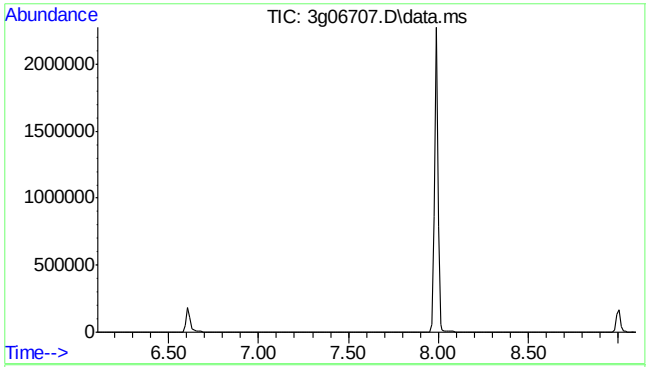


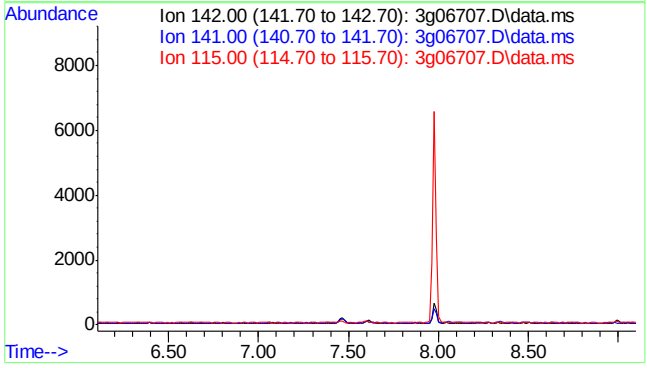
#8
2-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.45 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 142

Sig	Exp Ratio
142	100
141	84.0
115	29.6



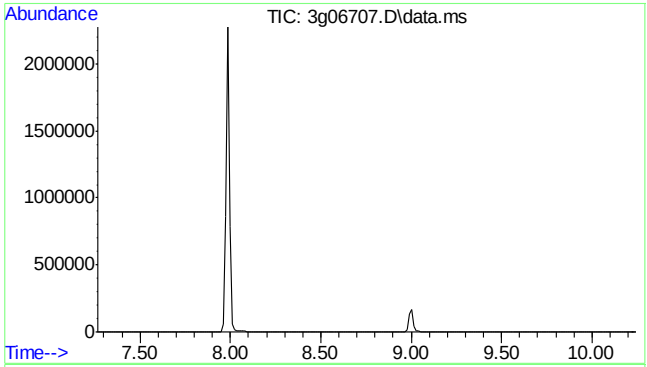


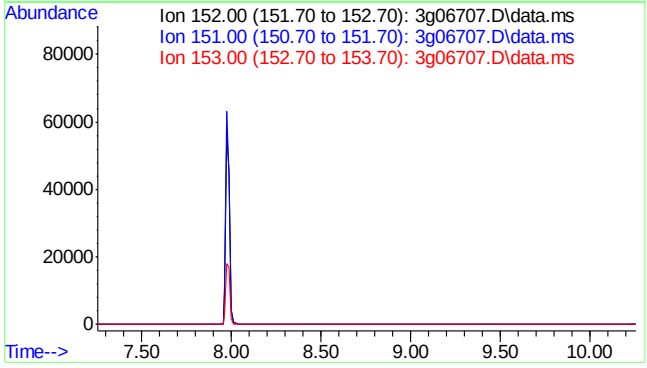
#9
1-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.60 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 142

Sig	Exp Ratio
142	100
141	88.6
115	31.8



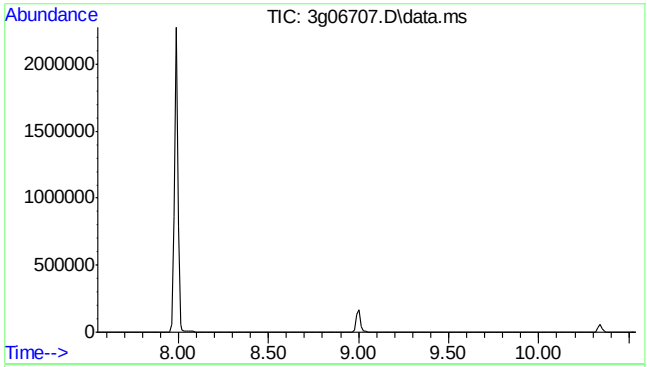


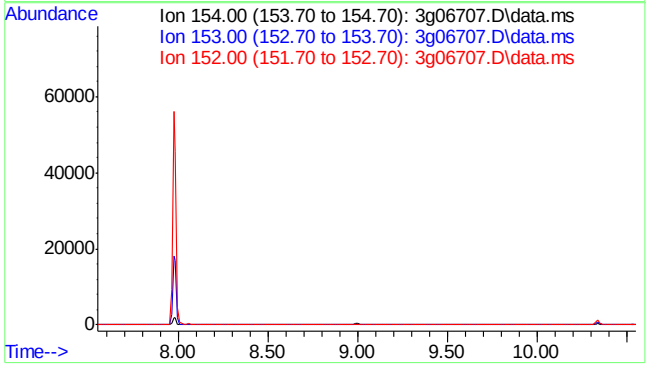
#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.75 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 152

Sig	Exp Ratio
152	100
151	19.6
153	12.8



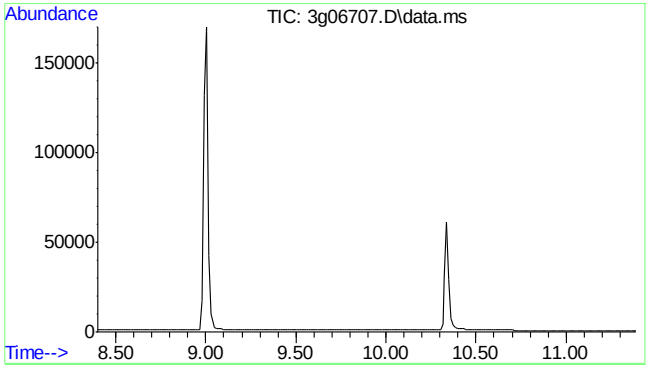


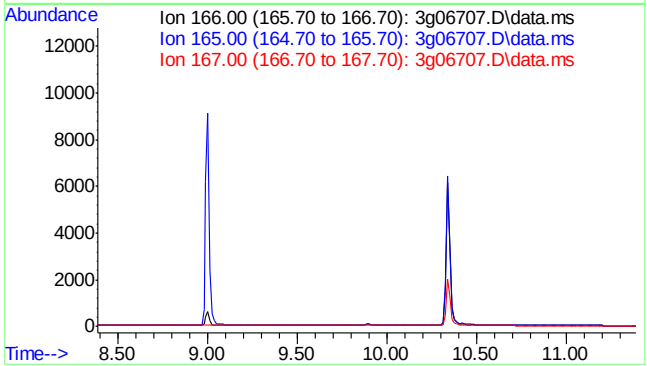
#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 9.05 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 154

Sig	Exp Ratio
154	100
153	106.0
152	50.3



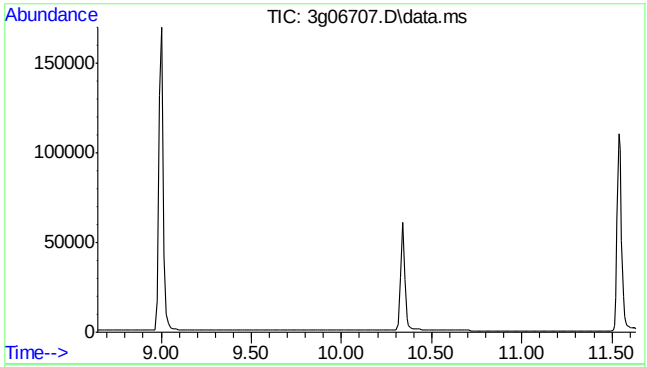


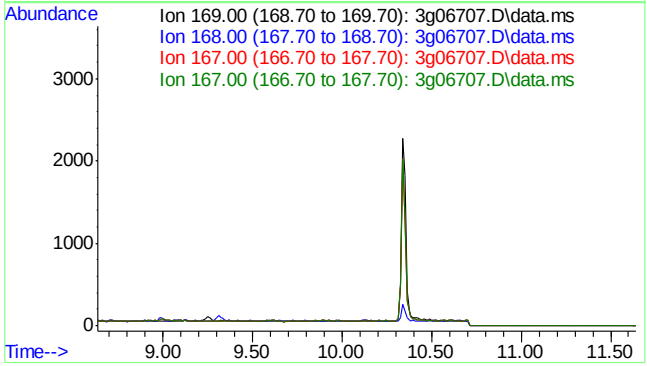
#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 9.89 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 166

Sig	Exp Ratio
166	100
165	91.1
167	13.2



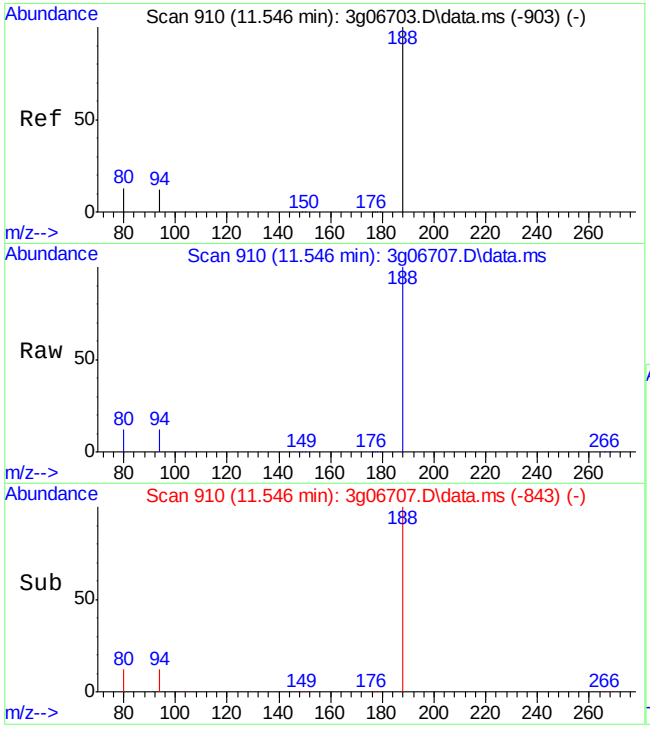


#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.14 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 169

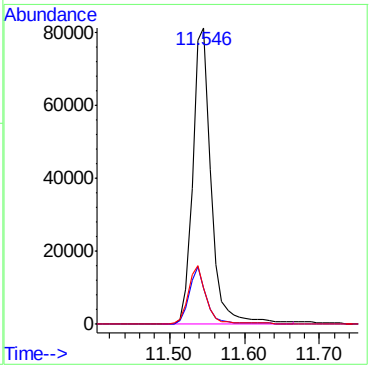
Sig	Exp Ratio
169	100
168	60.5
167	32.1
167	32.1

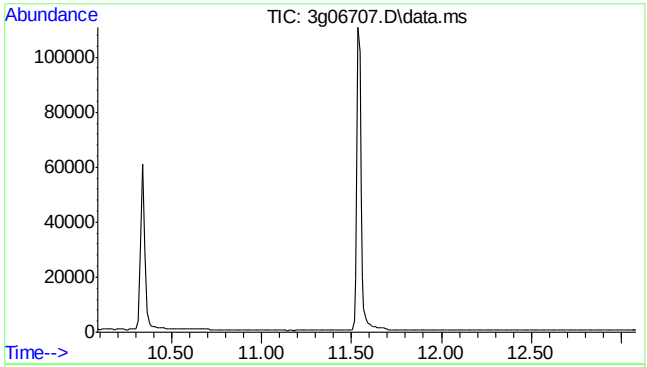


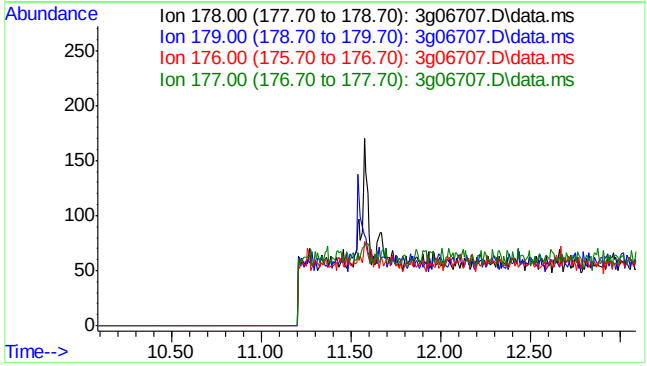
#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.546 min Scan# 910
Delta R.T. -0.000 min
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion:188 Resp: 136756

Ion	Ratio	Lower	Upper
188	100		
94	17.6	0.0	36.9
80	18.8	0.0	38.3





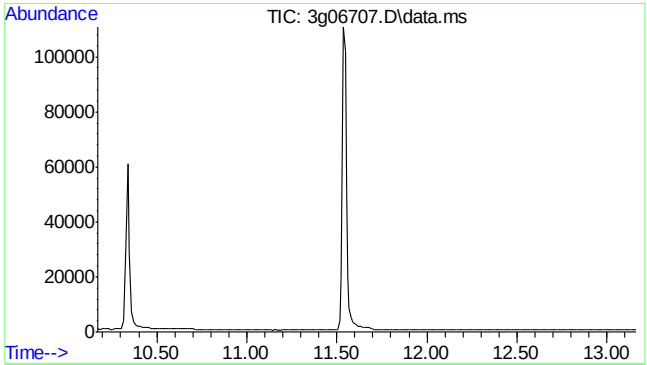


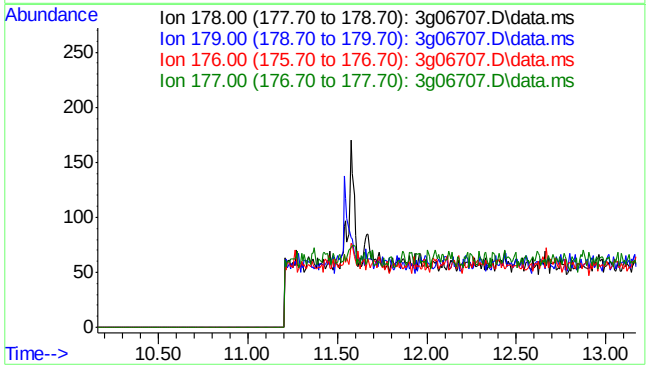
#15
Phenanthrene
Concen: N.D. ug/mL
Expected RT: 11.59 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 178

Sig	Exp Ratio
178	100
179	15.1
176	18.3
177	10.7



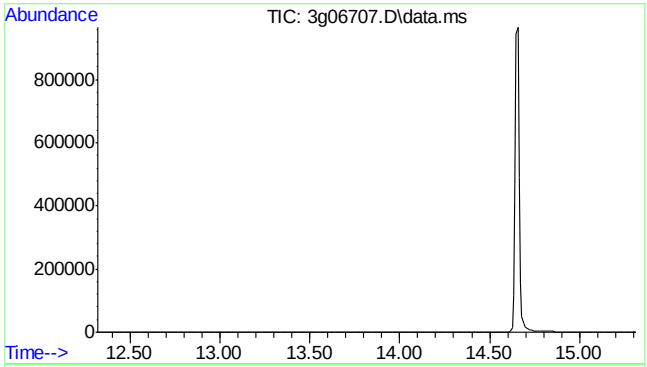


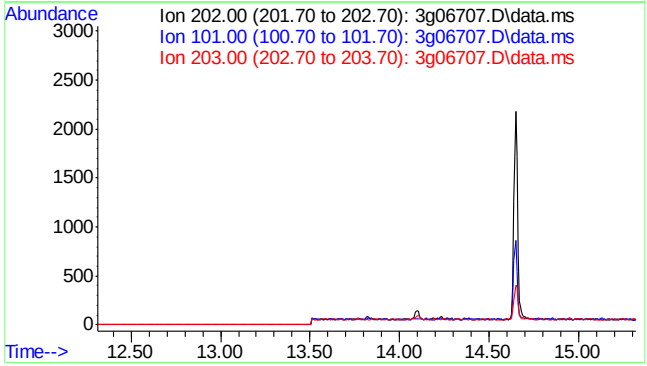
#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.66 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 178

Sig	Exp Ratio
178	100
179	15.1
176	17.6
177	9.1



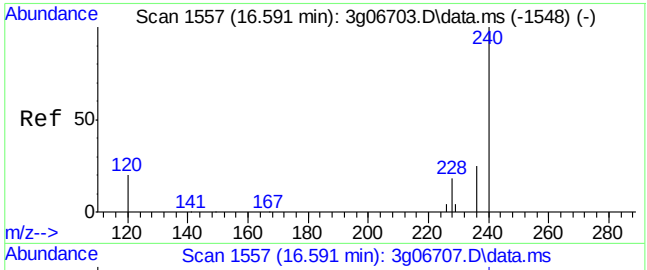


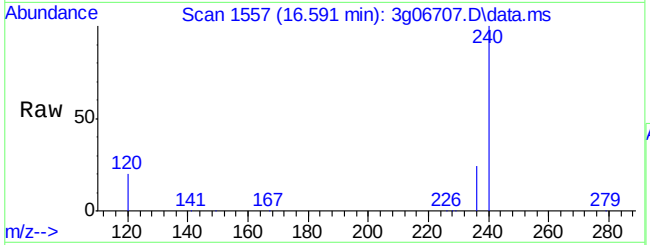
#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 13.82 min

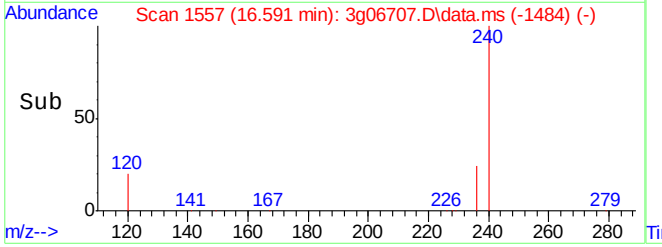
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 202

Sig	Exp Ratio
202	100
101	20.1
203	17.1



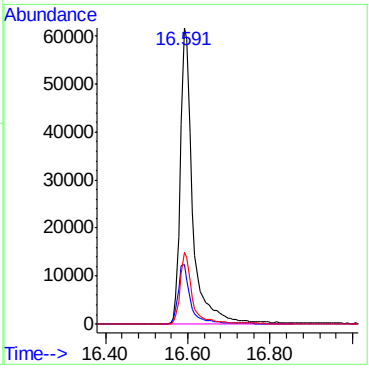


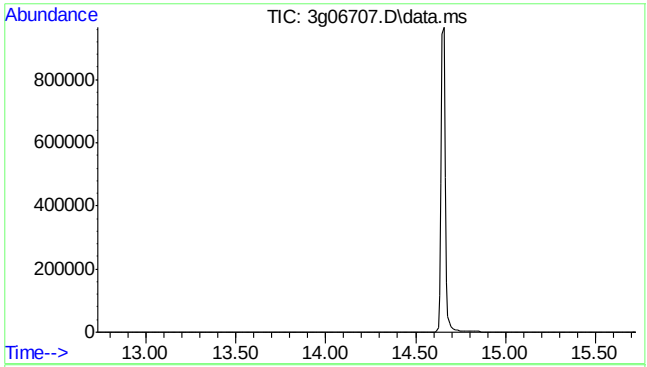


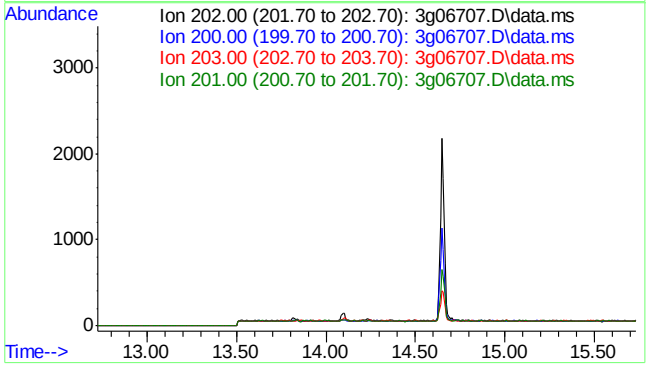
#18
Chrysene-d12
Concen: 4.00 ug/mL
RT: 16.591 min Scan# 1557
Delta R.T. -0.000 min
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion:240 Resp: 127873

Ion	Ratio	Lower	Upper
240	100		
120	20.0	0.0	39.5
236	23.5	4.0	44.0





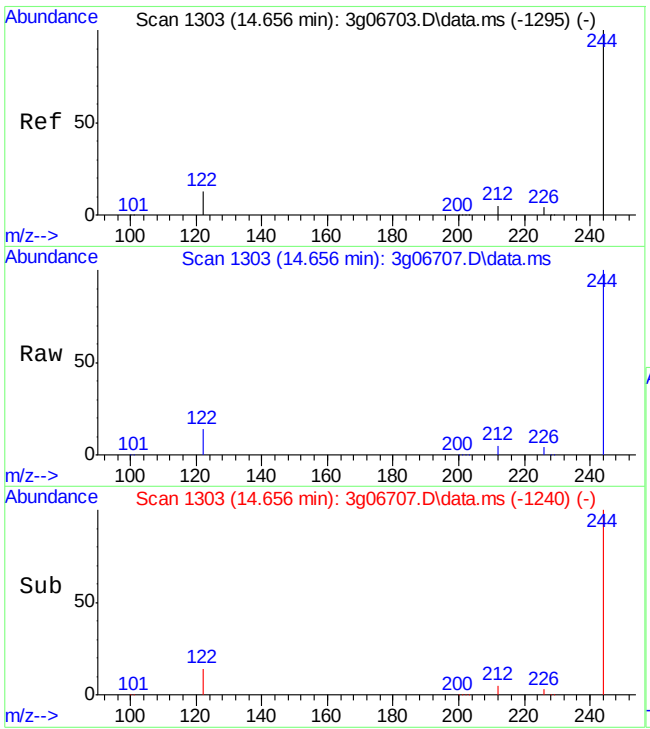


#19
Pyrene
Concen: N.D. ug/mL
Expected RT: 14.23 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 202

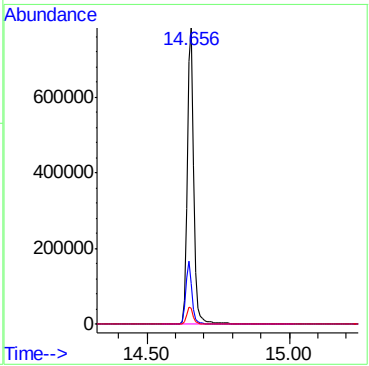
Sig	Exp Ratio
202	100
200	19.7
203	17.6
201	16.5

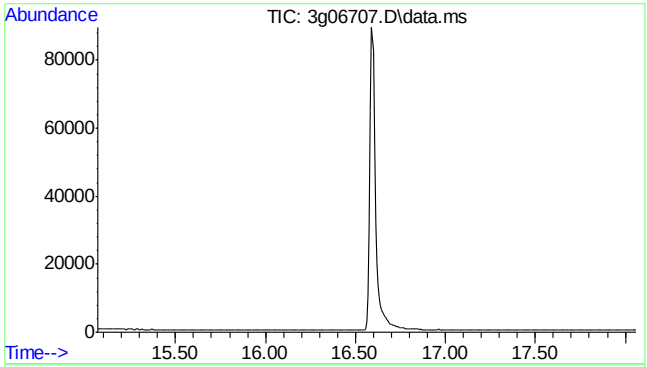


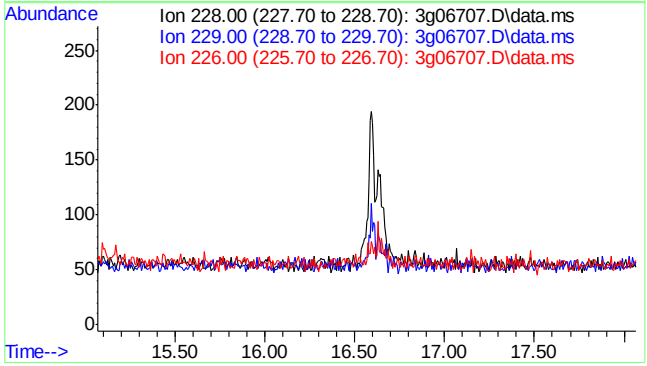
#20
Terphenyl-d14
Concen: 57.39 ug/mL
RT: 14.656 min Scan# 1303
Delta R.T. -0.000 min
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion:244 Resp: 1210511

Ion	Ratio	Lower	Upper
244	100		
122	20.3	0.0	39.5
212	5.9	0.0	26.0





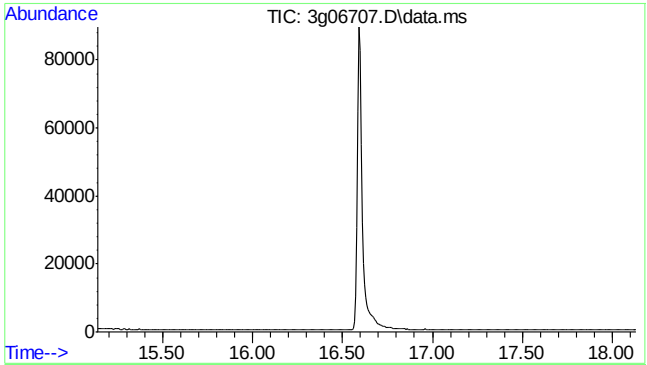


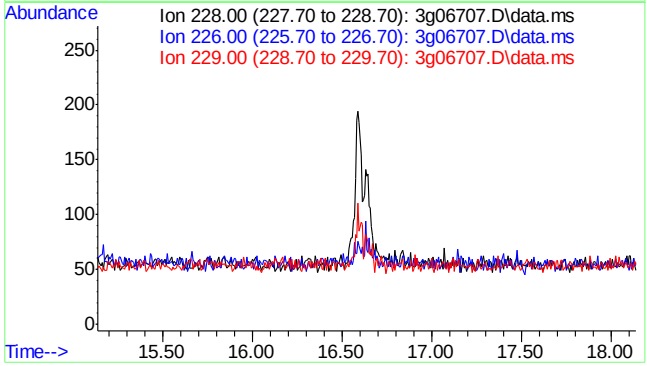
#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.56 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 228

Sig	Exp Ratio
228	100
229	19.5
226	25.5



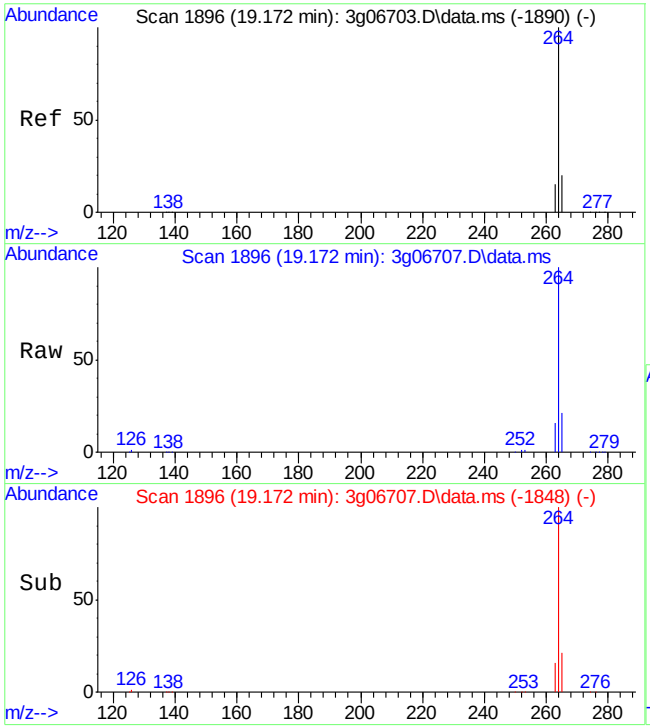


#22
Chrysene
Concen: N.D. ug/mL
Expected RT: 16.64 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 228

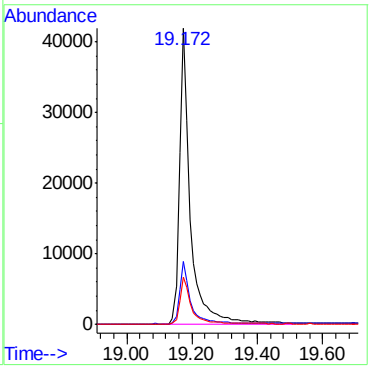
Sig	Exp Ratio
228	100
226	28.1
229	19.8

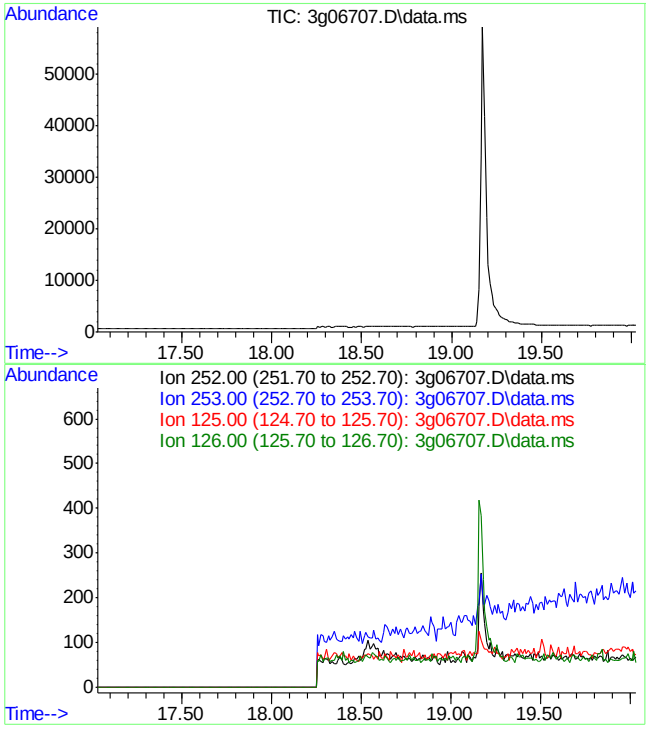


#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 19.172 min Scan# 1896
Delta R.T. -0.000 min
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion:264 Resp: 96839

Ion	Ratio	Lower	Upper
264	100		
265	20.5	0.8	40.8
263	16.6	0.0	35.9



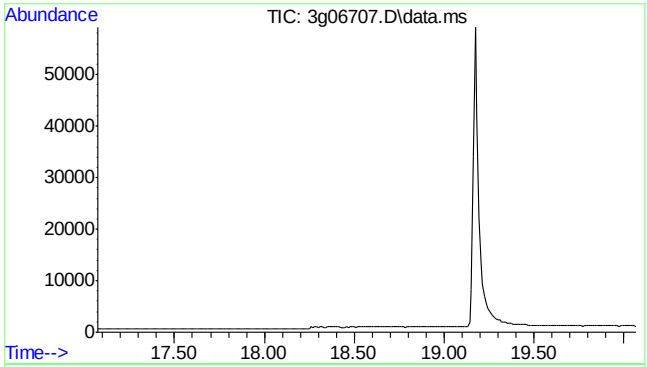


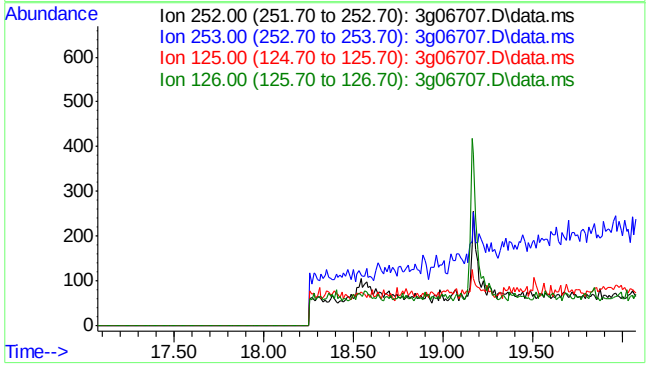
#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.53 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	21.5
125	17.0
126	22.7



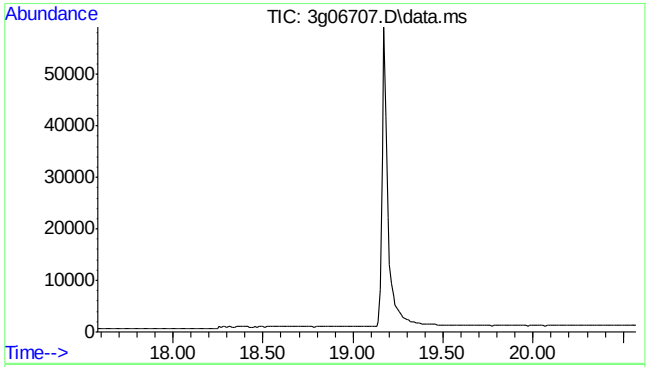


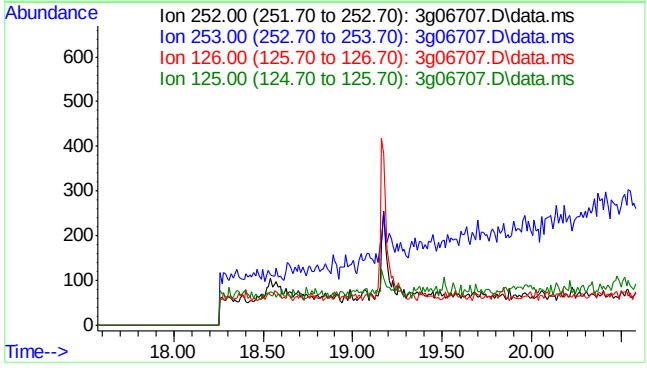
#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.57 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	21.8
125	15.0
126	21.7



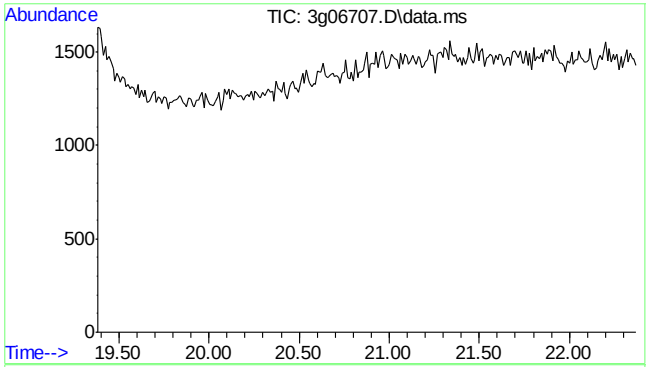


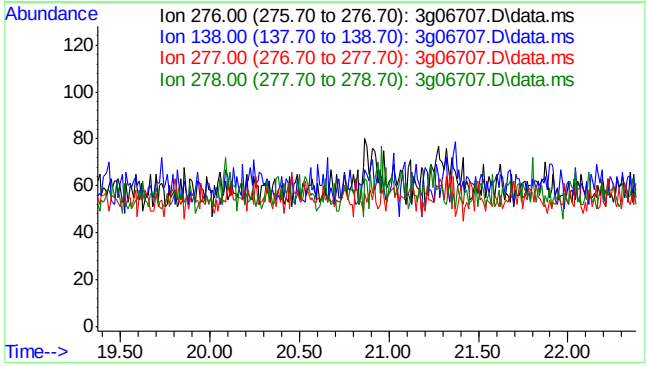
#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 19.08 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	21.7
126	22.1
125	19.5



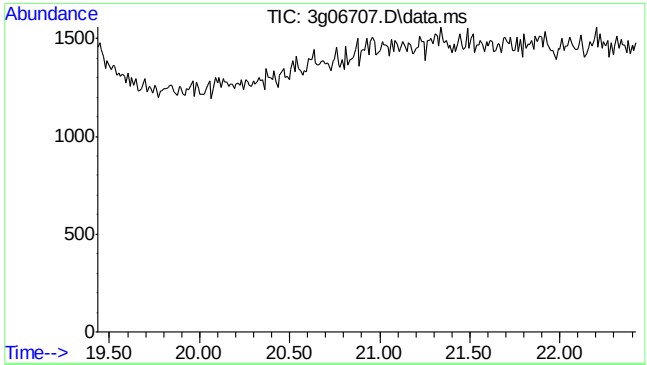


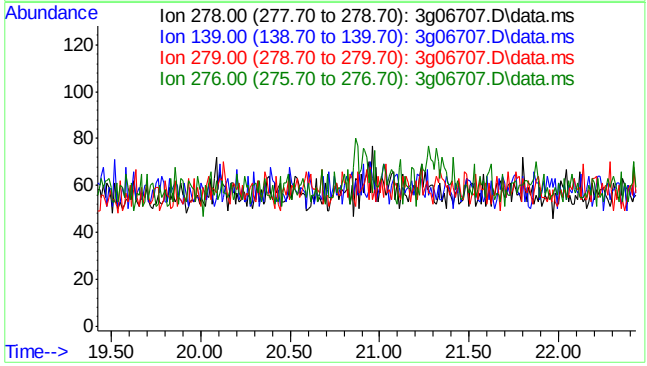
#27
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 20.88 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 276

Sig	Exp Ratio
276	100
138	26.6
277	46.2
278	147.1



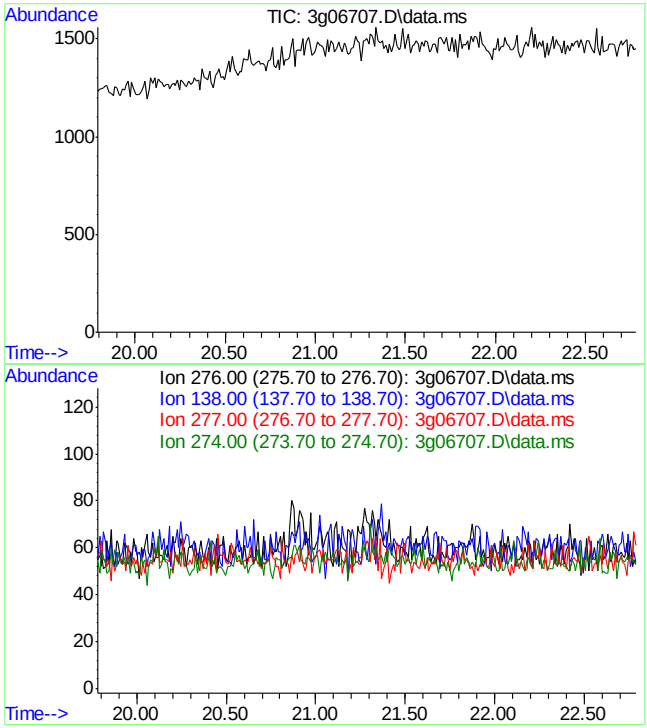


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 20.93 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 278

Sig	Exp Ratio
278	100
139	22.3
279	23.4
276	127.2



#29
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 21.29 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 276

Sig	Exp Ratio
276	100
138	28.0
277	23.0
274	19.1

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: D28999
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB774-MB	GB13660.D	1	10/31/11	SK	n/a	n/a	GGB774

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

D28999-1

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	86%	60-140%

Blank Spike Summary

Job Number: D28999
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB774-BS	GB13661.D	1	10/31/11	SK	n/a	n/a	GGB774

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

D28999-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	121	110	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	98%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D28999
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D28995-1MS	GB13663.D	1	10/31/11	SK	n/a	n/a	GGB774
D28995-1MSD	GB13664.D	1	10/31/11	SK	n/a	n/a	GGB774
D28995-1	GB13662.D	1	10/31/11	SK	n/a	n/a	GGB774

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

D28999-1

CAS No.	Compound	D28995-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		142	159	112	158	111	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D28995-1	Limits
120-82-1	1,2,4-Trichlorobenzene	96%	97%	85%	60-140%

Mountain States ACCUTEST LABORATORIES

GC Volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 11/01/11 11:50

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\103111\GB13669.D\FID1A.CH Vial: 12
Signal #2 : Y:\1\DATA\103111\GB13669.D\FID2B.CH
Acq On : 31 Oct 2011 4:58 pm Operator: StephK
Sample : D28999-1, 50X Inst : GC/MS Ins
Misc : GC2365,GGB774,5.071,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 01 08:25:42 2011 Quant Results File: TB740GB740SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Oct 31 15:05:04 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	14.45	3092630	89.131	%	m
10) S	1,2,4-Trichlorobenzene (P)	14.45	21998398	109.387	%	
	Target Compounds					
1) H	TVH-Gasoline	7.33	9017717	<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	7.77	207202	0.446	ug/L	
7) T	Ethylbenzene	0.00	0	N.D.	ug/L	d
8) T	m,p-Xylene	10.57	478706	0.479	ug/L	
9) T	o-Xylene	0.00	0	N.D.	ug/L	d
11) T	Naphthalene	14.64	3705182	16.065	ug/L	

10.1.1 10

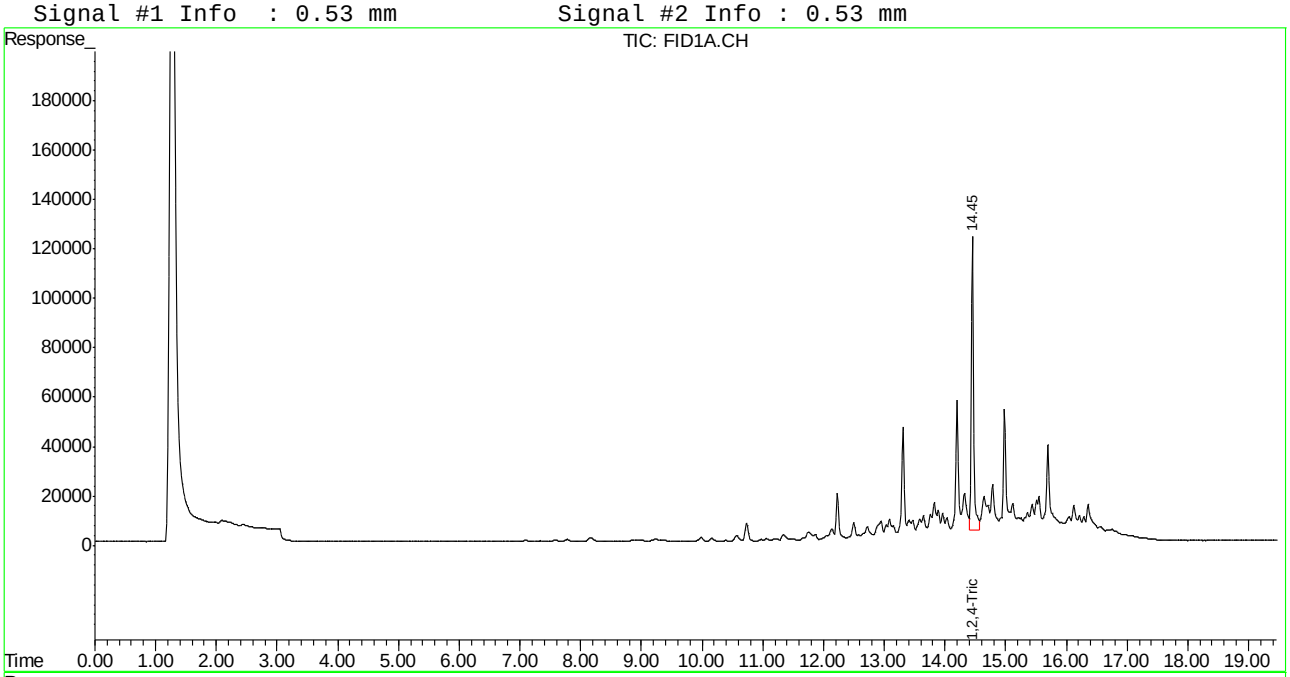
(f)=RT Delta > 1/2 Window (m)=manual int.

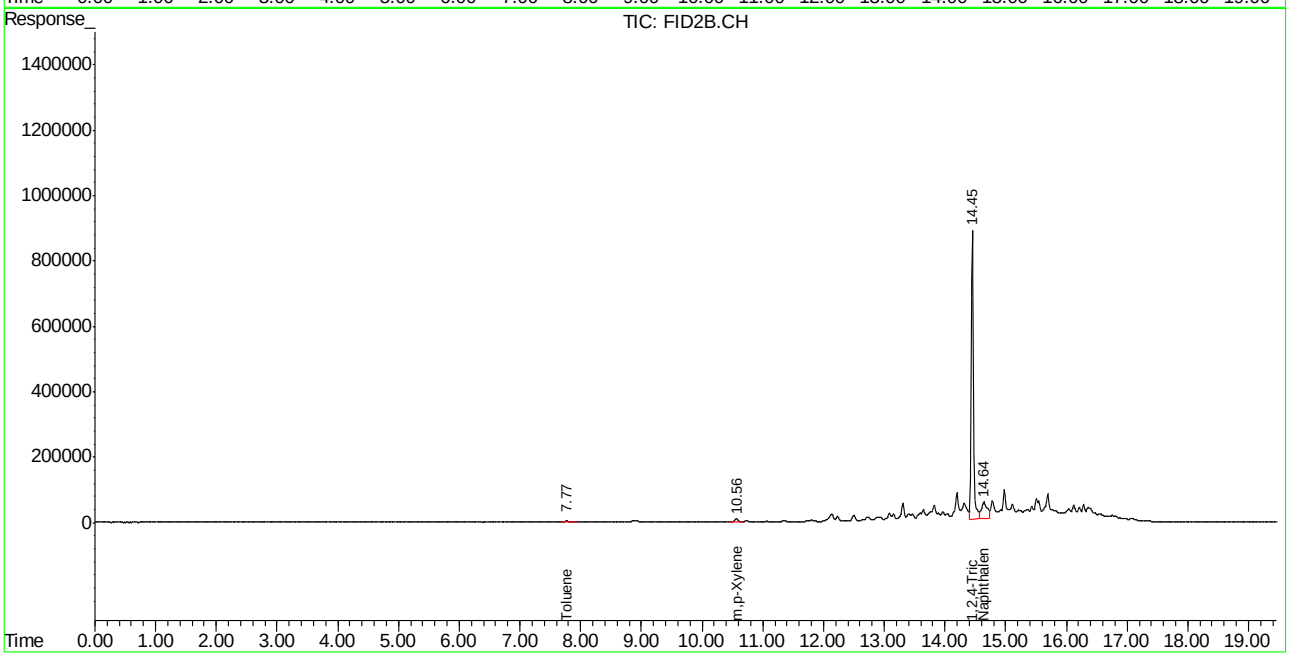
Quantitation Report (QT Reviewed)

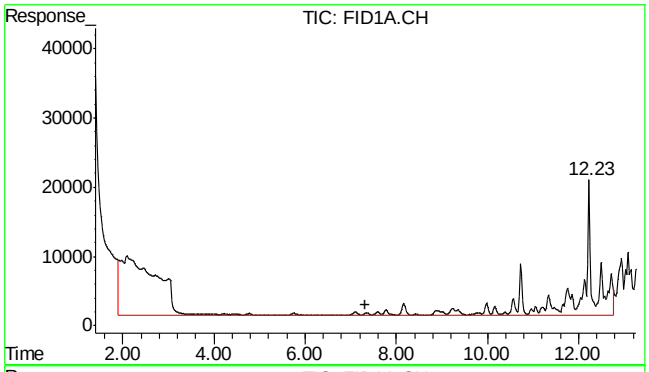
Signal #1 : Y:\1\DATA\103111\GB13669.D\FID1A.CH Vial: 12
Signal #2 : Y:\1\DATA\103111\GB13669.D\FID2B.CH
Acq On : 31 Oct 2011 4:58 pm Operator: StephK
Sample : D28999-1, 50X Inst : GC/MS Ins
Misc : GC2365,GGB774,5.071,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 1 8:26 2011 Quant Results File: TB740GB740SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Oct 31 15:05:04 2011
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

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

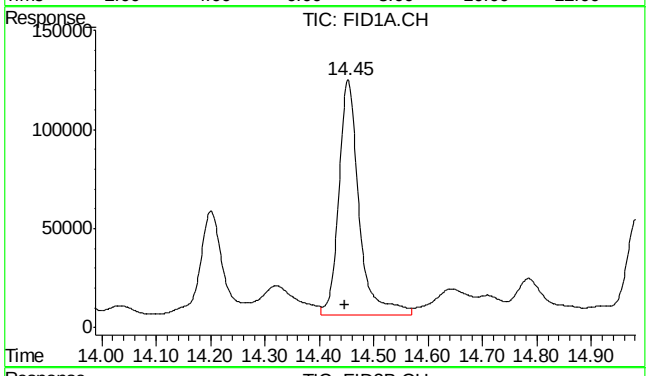






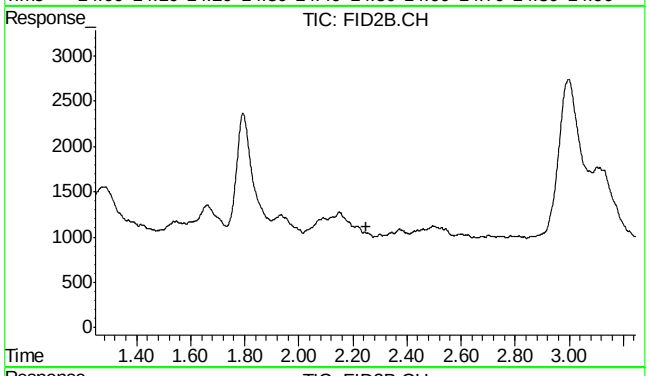
#1 TVH-Gasoline

R.T.: 7.330 min
Delta R.T.: 0.000 min
Response: 9017717
Conc: N.D.



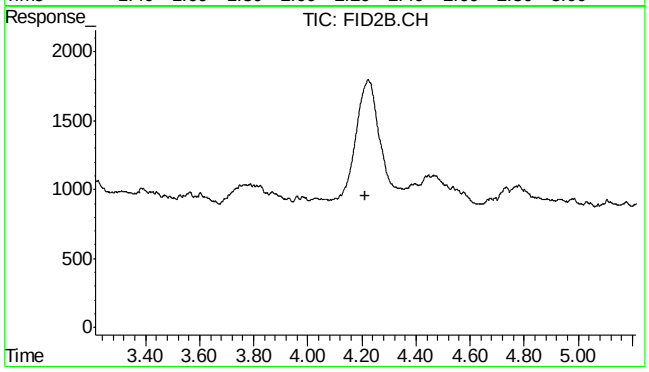
#2 1,2,4-Trichlorobenzene

R.T.: 14.452 min
Delta R.T.: 0.006 min
Response: 3092630
Conc: 89.13 % m



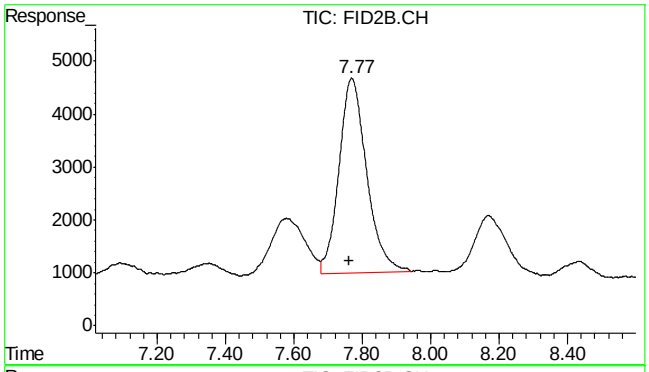
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.248 min
Response: 0
Conc: N.D.



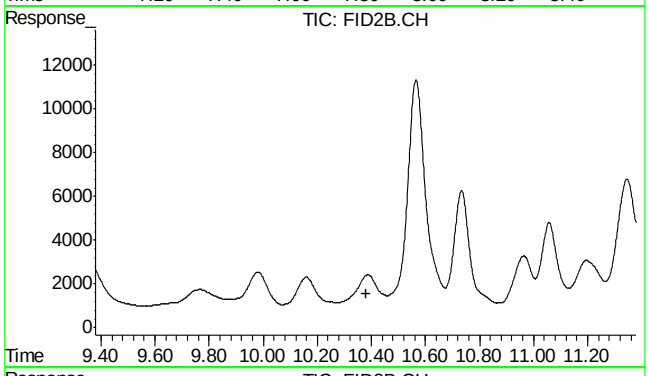
#5 Benzene

R.T.: 0.000 min
Exp R.T. : 4.214 min
Response: 0
Conc: N.D.



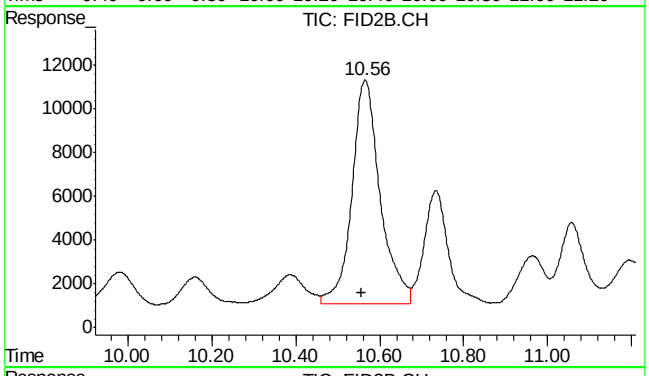
#6 Toluene

R.T.: 7.770 min
Delta R.T.: 0.008 min
Response: 207202
Conc: 0.45 ug/L



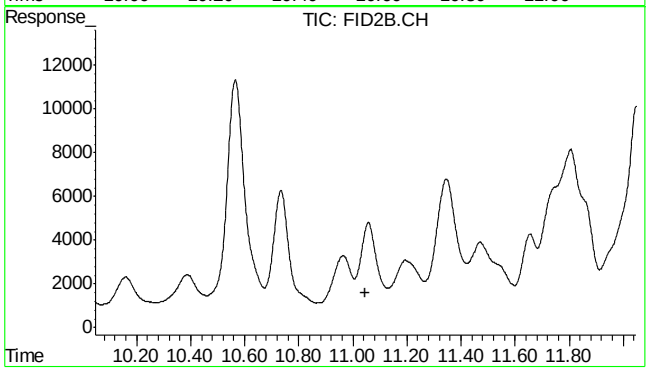
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.380 min
Response: 0
Conc: N.D.



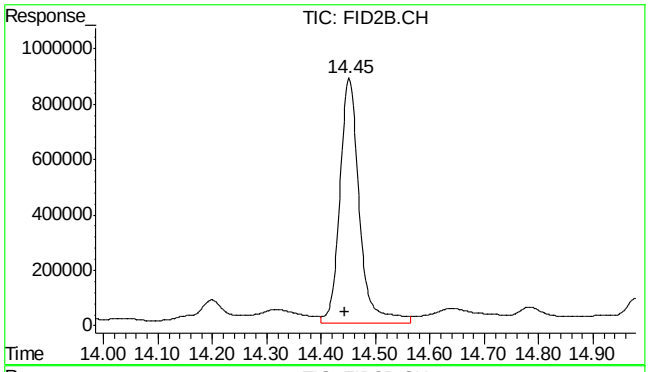
#8 m,p-Xylene

R.T.: 10.565 min
Delta R.T.: 0.008 min
Response: 478706
Conc: 0.48 ug/L



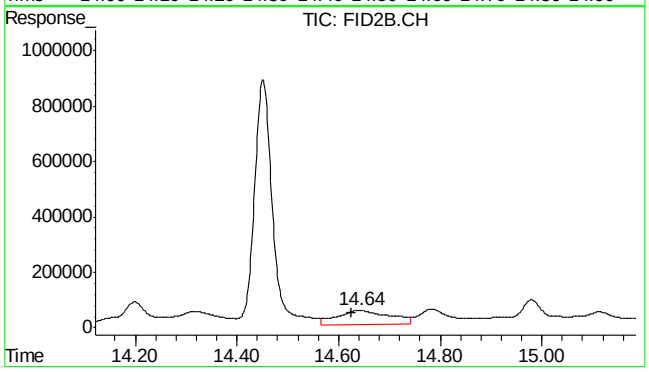
#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 11.047 min
Response: 0
Conc: N.D.



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

R.T.: 14.452 min
Delta R.T.: 0.007 min
Response: 21998398
Conc: 109.39 %



#11 Naphthalene

R.T.: 14.641 min
Delta R.T.: 0.014 min
Response: 3705182
Conc: 16.07 ug/L

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 11/01/11 11:50

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\103111\GB13660.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\103111\GB13660.D\FID2B.CH
Acq On : 31 Oct 2011 11:36 am Operator: StephK
Sample : MB, S Inst : GC/MS Ins
Misc : GC2365,GGB774,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Oct 31 11:57:44 2011 Quant Results File: TB740GB740SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Oct 31 11:32:53 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	14.44	2971189	85.631	%	m
10) S	1,2,4-Trichlorobenzene (P)	14.44	21383565	106.330	%	
	Target Compounds					
1) H	TVH-Gasoline	7.33	5637549	<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	7.76	182712	0.393	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	14.62	251170	1.331	ug/L	

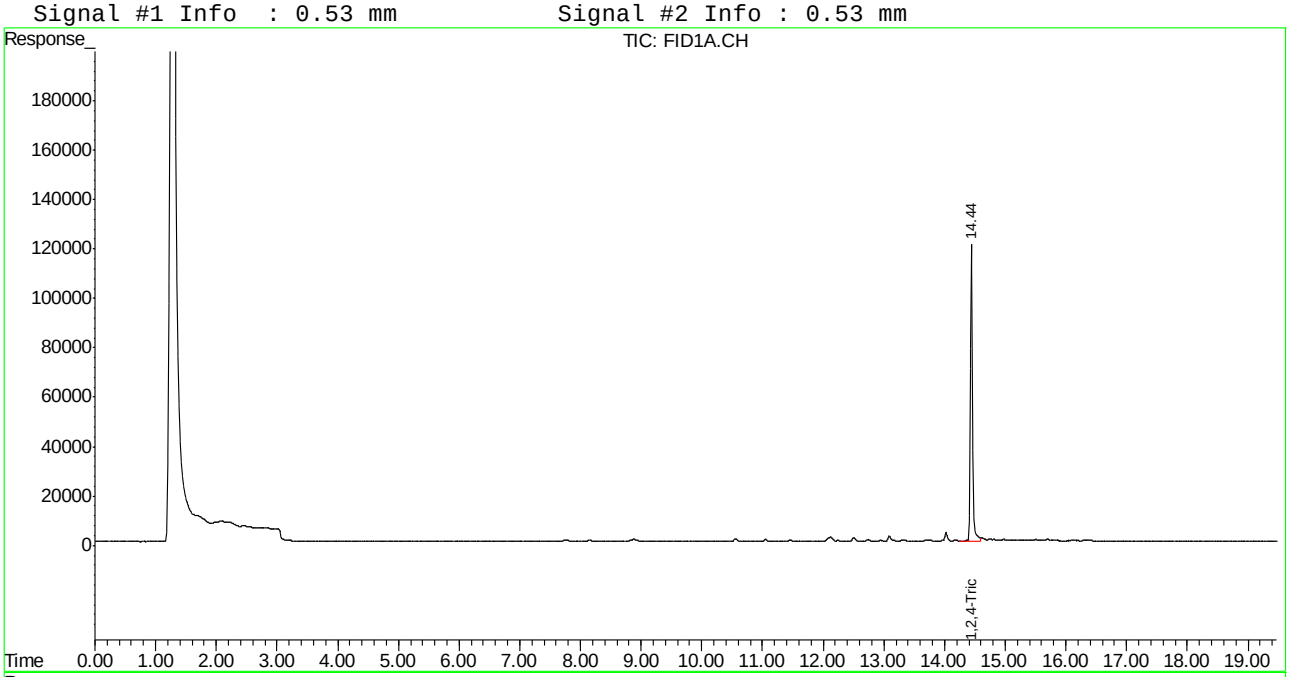
(f)=RT Delta > 1/2 Window (m)=manual int.

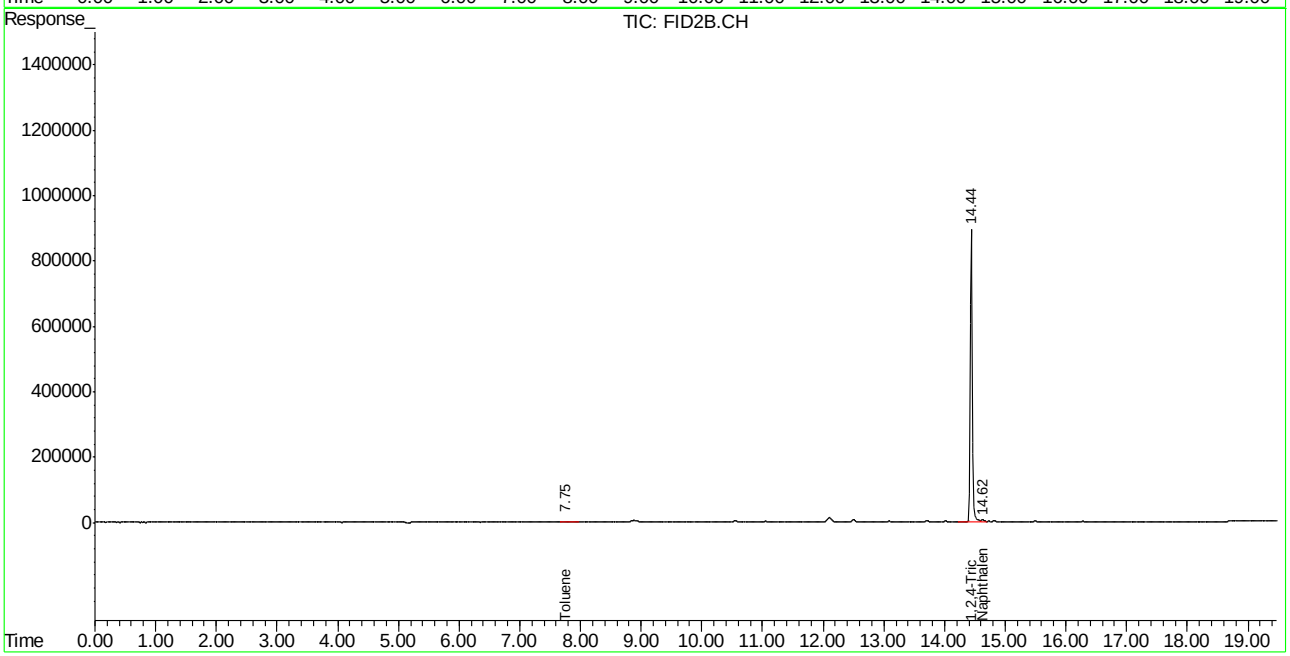
Quantitation Report (QT Reviewed)

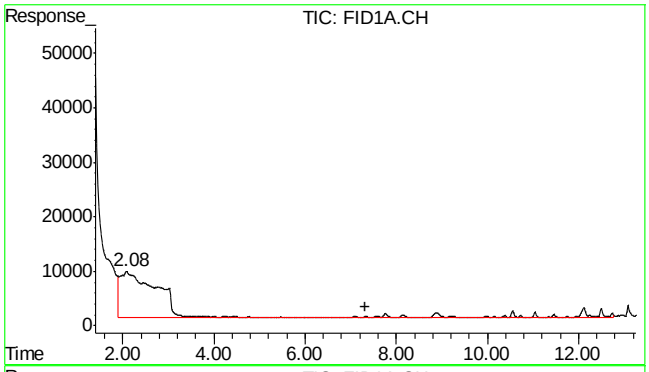
Signal #1 : Y:\1\DATA\103111\GB13660.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\103111\GB13660.D\FID2B.CH
Acq On : 31 Oct 2011 11:36 am Operator: StephK
Sample : MB, S Inst : GC/MS Ins
Misc : GC2365,GGB774,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Oct 31 11:57 2011 Quant Results File: TB740GB740SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Oct 31 11:32:53 2011
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

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

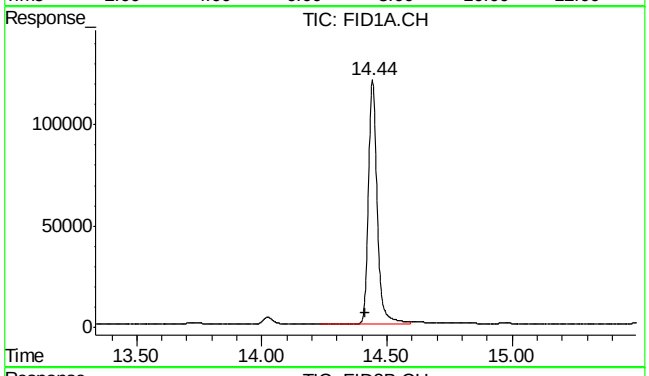






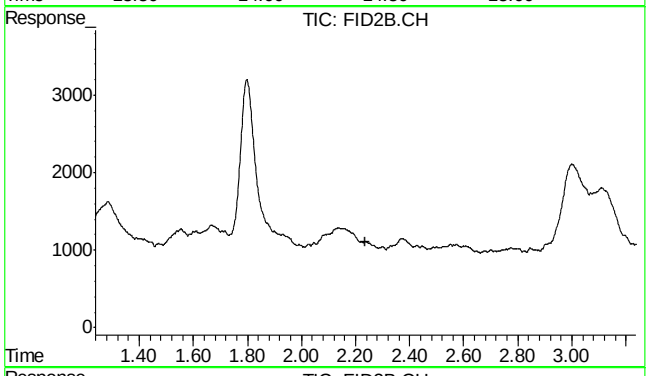
#1 TVH-Gasoline

R.T.: 7.330 min
Delta R.T.: 0.000 min
Response: 5637549
Conc: N.D.



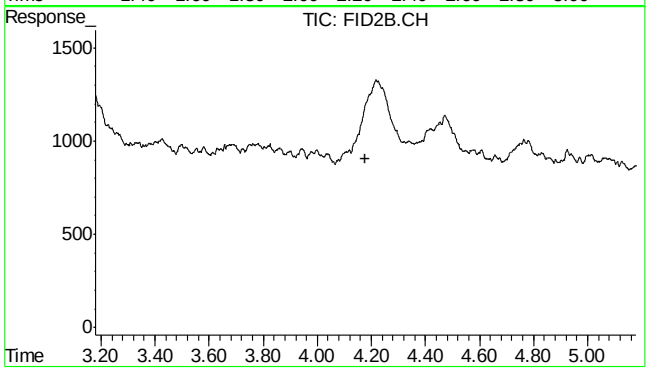
#2 1,2,4-Trichlorobenzene

R.T.: 14.442 min
Delta R.T.: 0.028 min
Response: 2971189
Conc: 85.63 % m



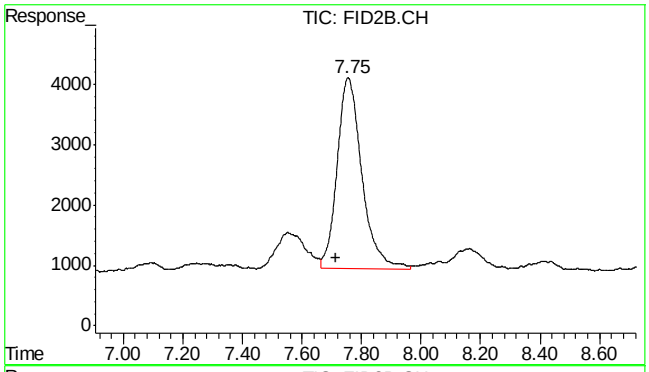
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.237 min
Response: 0
Conc: N.D.



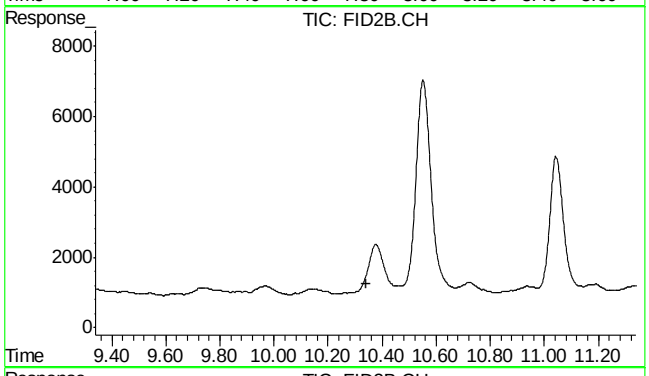
#5 Benzene

R.T.: 0.000 min
Exp R.T. : 4.179 min
Response: 0
Conc: N.D.



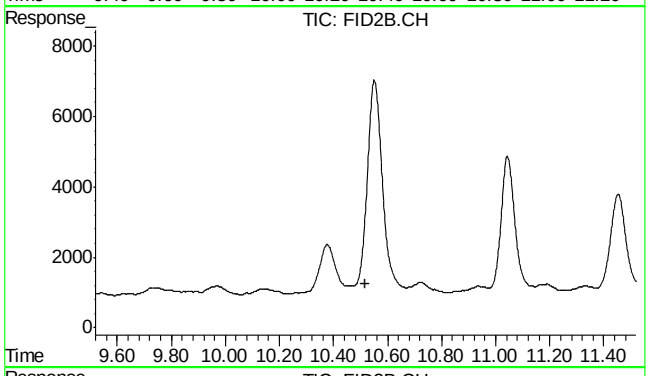
#6 Toluene

R.T.: 7.755 min
Delta R.T.: 0.040 min
Response: 182712
Conc: 0.39 ug/L



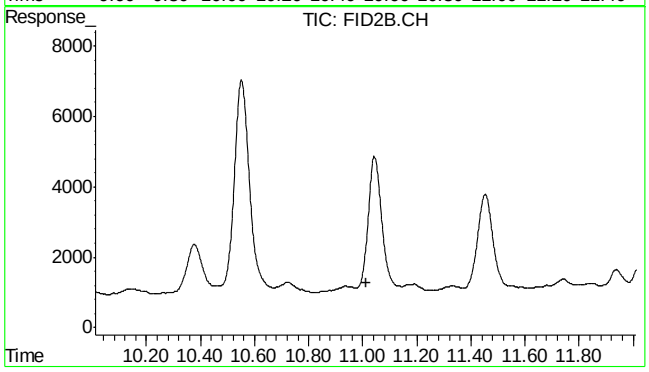
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.340 min
Response: 0
Conc: N.D.



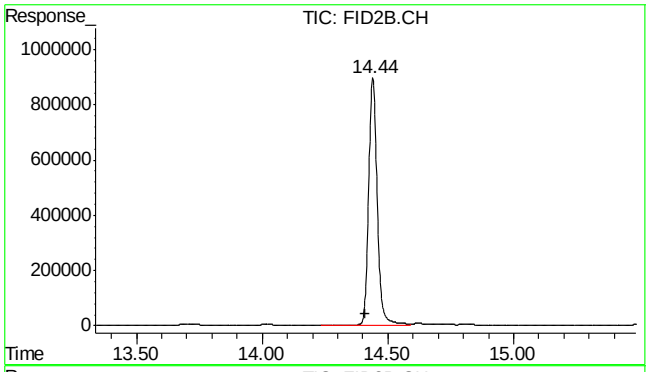
#8 m,p-Xylene

R.T.: 0.000 min
Exp R.T. : 10.518 min
Response: 0
Conc: N.D.



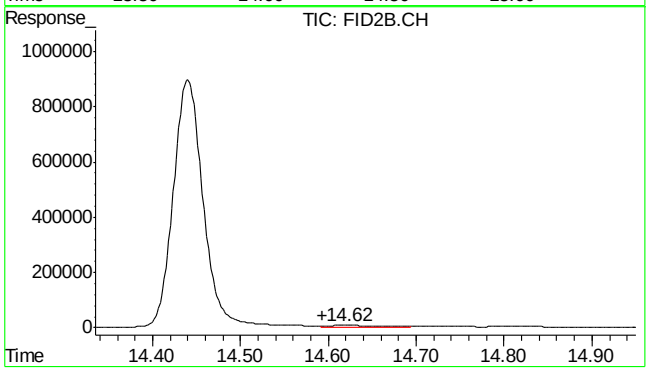
#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 11.011 min
Response: 0
Conc: N.D.



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

R.T.: 14.440 min
Delta R.T.: 0.029 min
Response: 21383565
Conc: 106.33 %



#11 Naphthalene

R.T.: 14.622 min
Delta R.T.: 0.028 min
Response: 251170
Conc: 1.33 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: D28999
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4765-MB	FD11207.D	1	11/01/11	TR	11/01/11	OP4765	GFD559

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

D28999-1

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	120%	61-142%

Blank Spike Summary

Job Number: D28999
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4765-BS	FD11208.D	1	11/01/11	TR	11/01/11	OP4765	GFD559

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

D28999-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	726	109	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	107%	61-142%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D28999
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4765-MS	FD11209.D	1	11/01/11	TR	11/01/11	OP4765	GFD559
OP4765-MSD	FD11210.D	1	11/01/11	TR	11/01/11	OP4765	GFD559
D29012-2	FD11211.D	1	11/01/11	TR	11/01/11	OP4765	GFD559

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

D28999-1

CAS No.	Compound	D29012-2 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND		738	715	97	826	112	14	24-157/35

CAS No.	Surrogate Recoveries	MS	MSD	D29012-2	Limits
84-15-1	o-Terphenyl	102%	111%	110%	61-142%

Mountain States ACCUTEST LABORATORIES

GC Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 11/02/11 10:02

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\NOV\FD110111\FD11224.D Vial: 19
Acq On : 11-1-2011 08:51:45 PM Operator: TEDR
Sample : D28999-1 Inst : FID5
Misc : OP4765,GFD559,30.09,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Nov 02 07:18:57 2011 Quant Results File: GFD530.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD530.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Oct 28 07:04:31 2011
Response via : Initial Calibration
DataAcq Meth : JH080911.M

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

	Compound	R.T.	Response	Conc	Units	
	System Monitoring Compounds					
1) S	O-Terphenyl	9.69	31214812	792.210	mg/L	m
	Target Compounds					
2) H	TPH-DRO (c10-c28)	7.48	207238209	5036.488	mg/L	

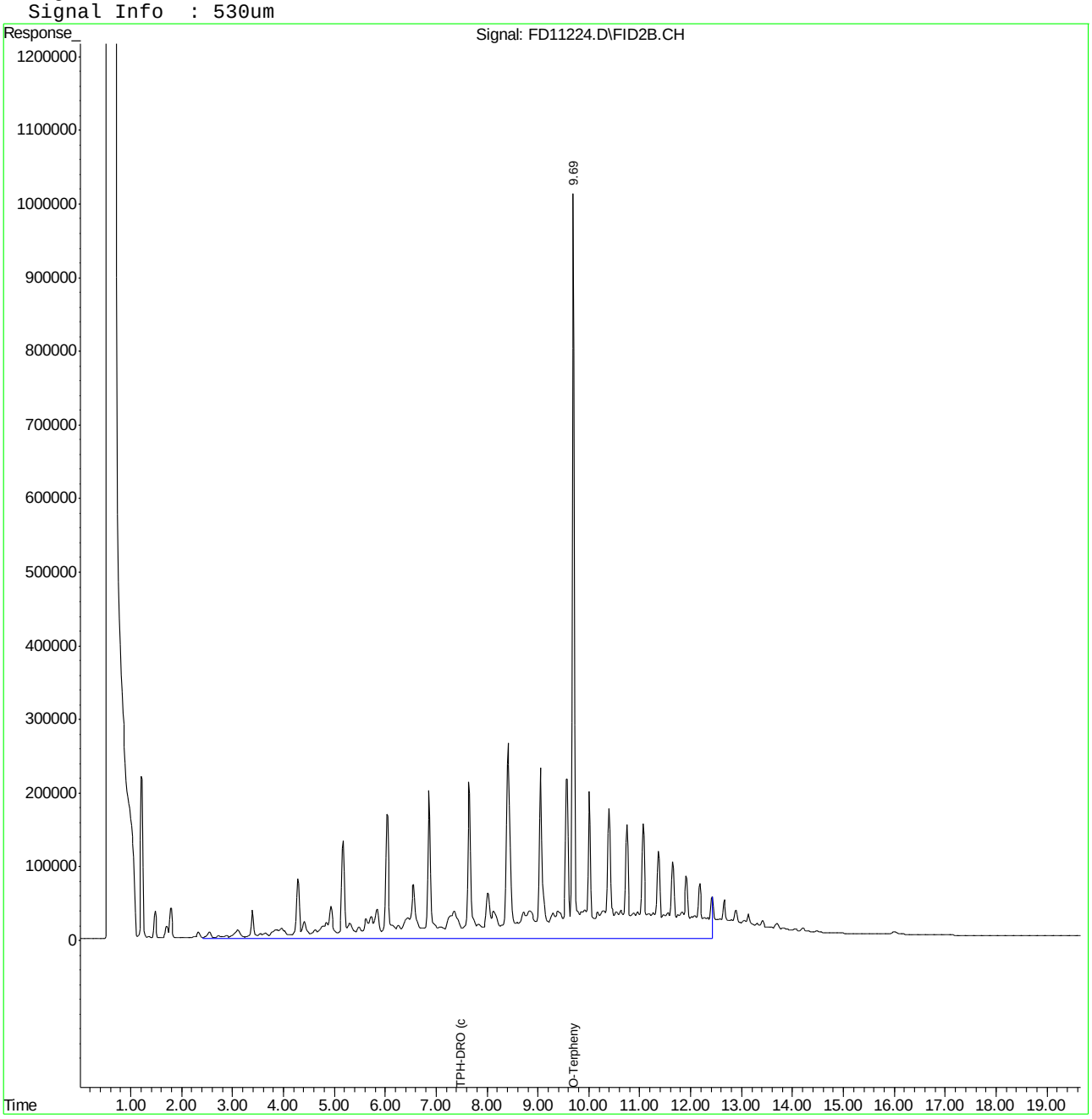
(f)=RT Delta > 1/2 Window (m)=manual int.

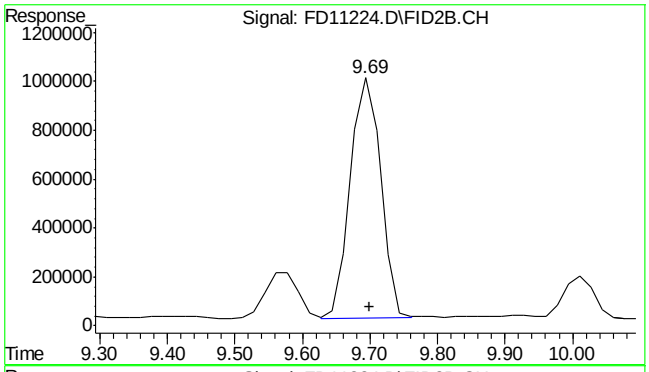
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\NOV\FD110111\FD11224.D Vial: 19
Acq On : 11-1-2011 08:51:45 PM Operator: TEDR
Sample : D28999-1 Inst : FID5
Misc : OP4765,GFD559,30.09,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Nov 2 7:20 2011 Quant Results File: GFD530.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD530.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Oct 28 07:04:31 2011
Response via : Multiple Level Calibration
DataAcq Meth : JH080911.M

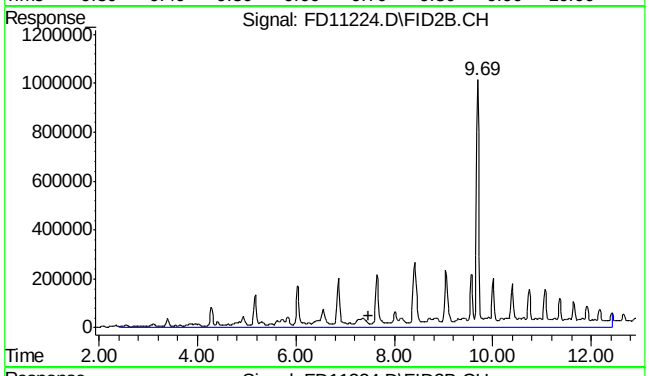
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





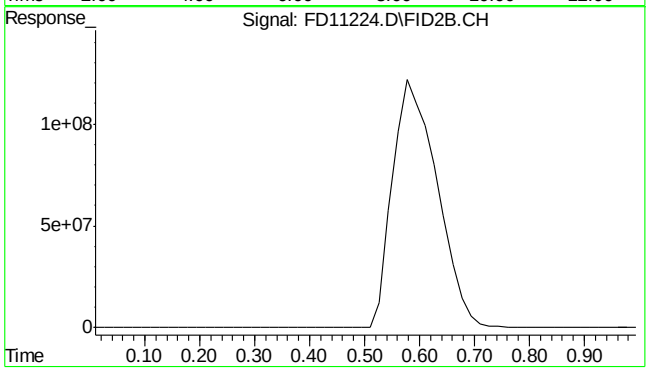
#1 O-Terphenyl

R.T.: 9.694 min
Delta R.T.: -0.006 min
Response: 31214812
Conc: 792.21 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 7.480 min
Delta R.T.: 0.000 min
Response: 207238209
Conc: 5036.49 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
11/02/11 10:02

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\NOV\FD110111\FD11207.D Vial: 3
Acq On : 11-1-2011 01:27:18 PM Operator: TEDR
Sample : OP4765-MB Inst : FID5
Misc : OP4765,GFD559,30.00,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Nov 01 14:20:41 2011 Quant Results File: GFD530.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD530.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Oct 28 07:04:31 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	9.70	52174983	1202.003	mg/L	m
	Target Compounds					

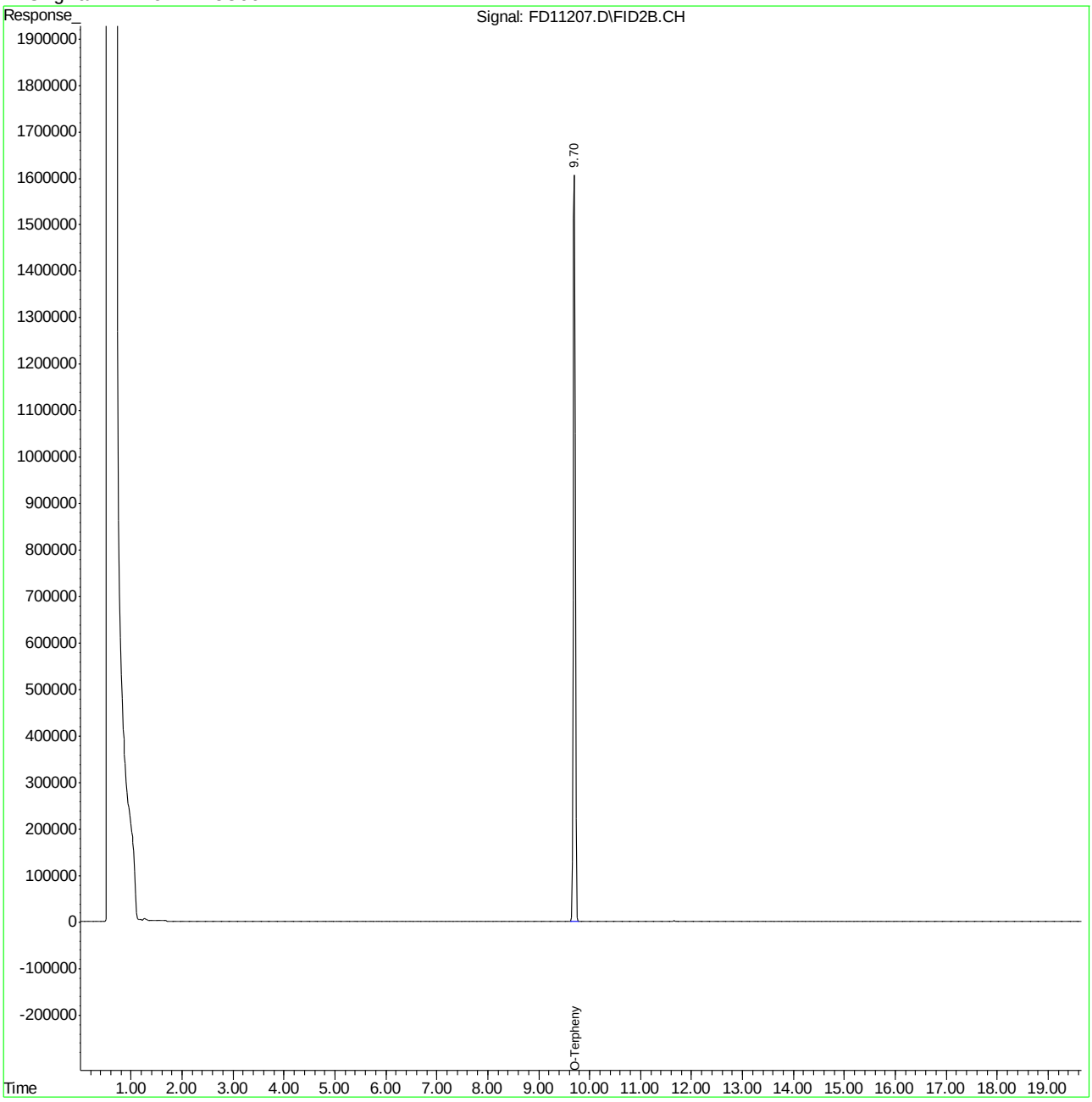
(f)=RT Delta > 1/2 Window (m)=manual int.

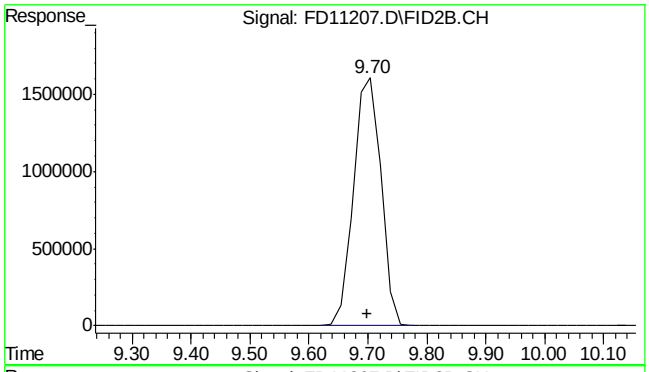
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\NOV\FD110111\FD11207.D Vial: 3
Acq On : 11-1-2011 01:27:18 PM Operator: TEDR
Sample : OP4765-MB Inst : FID5
Misc : OP4765,GFD559,30.00,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Nov 1 14:21 2011 Quant Results File: GFD530.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD530.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Oct 28 07:04:31 2011
Response via : Multiple Level Calibration
DataAcq Meth : JH080911.M

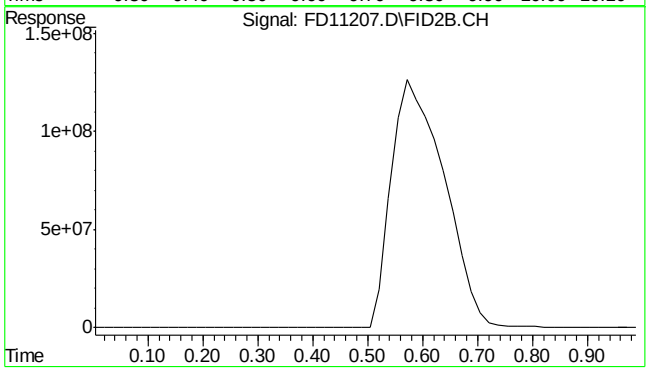
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.699 min
Delta R.T.: -0.001 min
Response: 52174983
Conc: 1202.00 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: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6142 Methods: SW846 7471A
Matrix Type: SOLID Units: mg/kg

Prep Date: 10/31/11

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.10	.0011	.013	-0.000090	<0.10

Associated samples MP6142: D28999-1

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: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6142 Methods: SW846 7471A
Matrix Type: SOLID Units: mg/kg

Prep Date: 10/31/11

Metal	D28823-1 Original	MS	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.0	0.31	0.384	80.6N(a)	85-115

Associated samples MP6142: D28999-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6142 Methods: SW846 7471A
Matrix Type: SOLID Units: mg/kg

Prep Date: 10/31/11

Metal	D28823-1 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.0	0.27	0.46	58.7N(a)	13.8	20

Associated samples MP6142: D28999-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6142
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 10/31/11

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.39	0.4	97.5	80-120

Associated samples MP6142: D28999-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6147
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 10/31/11

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	0.31	<1.0
Beryllium	1.0	.044	.1		
Boron	5.0	.48	.48		
Cadmium	1.0	.027	.27	-0.010	<1.0
Calcium	40	.96	1.1		
Chromium	1.0	.018	.031	0.040	<1.0
Cobalt	0.50	.035	.035		
Copper	1.0	.085	.16	0.0	<1.0
Iron	7.0	.34	2		
Lead	5.0	.16	.21	0.14	<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	-0.010	<3.0
Phosphorus	10	1.1	1.2		
Potassium	200	5.5	9.2		
Selenium	5.0	.38	.5	0.49	<5.0
Silicon	5.0	.38	.51		
Silver	3.0	.018	.051	-0.010	<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	0.14	<3.0

Associated samples MP6147: D28999-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6147
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6147
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 10/31/11

Metal	D28973-1 Original	MS	Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	19200	22800	425	848.0(a)	75-125
Beryllium					
Boron					
Cadmium	0.0	93.6	106	87.6	75-125
Calcium					
Chromium	16.1	104	106	82.9	75-125
Cobalt					
Copper	21.7	125	106	97.5	75-125
Iron					
Lead	9.2	198	212	89.1	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	11.2	96.4	106	80.4	75-125
Phosphorus					
Potassium					
Selenium	15.8	295	212	131.5N(b	75-125
Silicon					
Silver	0.0	40.9	42.5	94.6	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	26.9	110	106	78.4	75-125

Associated samples MP6147: D28999-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6147
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6147 Methods: SW846 6010B
Matrix Type: SOLID Units: mg/kg

Prep Date: 10/31/11

Metal	D28973-1 Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	19200	22500	420	784.8(a)	1.3	20
Beryllium						
Boron						
Cadmium	0.0	93.3	105	88.1	0.3	20
Calcium						
Chromium	16.1	105	105	84.7	1.0	20
Cobalt						
Copper	21.7	129	105	102.2	3.1	20
Iron						
Lead	9.2	200	210	90.9	1.0	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	11.2	97.5	105	82.2	1.1	20
Phosphorus						
Potassium						
Selenium	15.8	294	210	132.3N(b	0.3	20
Silicon						
Silver	0.0	41.0	42	95.9	0.2	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	26.9	112	105	81.0	1.8	20

Associated samples MP6147: D28999-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6147 Methods: SW846 6010B
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6147
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 10/31/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	180	200	90.0	80-120
Beryllium				
Boron				
Cadmium	43.7	50	87.4	80-120
Calcium				
Chromium	44.6	50	89.2	80-120
Cobalt				
Copper	46.6	50	93.2	80-120
Iron				
Lead	91.0	100	91.0	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	43.3	50	86.6	80-120
Phosphorus				
Potassium				
Selenium	89.3	100	89.3	80-120
Silicon				
Silver	18.9	20	94.5	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	43.0	50	86.0	80-120

Associated samples MP6147: D28999-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6147
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6147
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date: 10/31/11

Metal	D28973-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	76500	108000	18.2*(a)	0-10
Beryllium				
Boron				
Cadmium	0.00	0.00	NC	0-10
Calcium				
Chromium	76.8	81.5	5.8	0-10
Cobalt				
Copper	103	89.5	27.9 (b)	0-10
Iron				
Lead	43.7	35.0		0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	53.5	54.5	36.6 (b)	0-10
Phosphorus				
Potassium				
Selenium	28.8	240	220.0(b)	0-10
Silicon				
Silver	0.00	0.00	NC	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	128	142	13.2 (b)	0-10

Associated samples MP6147: D28999-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6147
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6148 Methods: SW846 6020
Matrix Type: SOLID Units: mg/kg

Prep Date: 10/31/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	0.17	<0.40
Barium	1.0	.0035	.1		
Beryllium	0.10	.0075	.014		
Boron	20	.97	1		
Cadmium	0.050	.023	.048		
Calcium	200	1.8	8.2		
Chromium	1.0	.021	.24		
Cobalt	0.10	.0033	.003		
Copper	1.0	.011	.063		
Iron	20	.81	3.7		
Lead	0.25	.0012	.015		
Magnesium	50	.067	2.6		
Manganese	0.50	.007	.029		
Molybdenum	0.50	.0044	.023		
Nickel	1.0	.0029	.031		
Phosphorus	30	1.8	3.5		
Potassium	100	2	3.2		
Selenium	0.20	.075	.19		
Silver	0.050	.0008	.002		
Sodium	250	.8	4.4		
Strontium	10	.004	.04		
Thallium	0.10	.015	.02		
Tin	5.0	.006	.028		
Titanium	1.0	.035	.062		
Uranium	0.25	.00038	.0009		
Vanadium	2.0	.052	.29		
Zinc	5.0	.039	.12		

Associated samples MP6148: D28999-1

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: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6148
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 10/31/11

Metal	D28973-1 Original	MS	Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	4.4	215	212	99.2	75-125
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6148: D28999-1

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: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6148 Methods: SW846 6020
Matrix Type: SOLID Units: mg/kg

Prep Date: 10/31/11

Metal	D28973-1 Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	4.4	219	210	102.1	1.8	20
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP6148: D28999-1

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: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6148
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 10/31/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	98.0	100	98.0	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 MP6148: D28999-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6148
Matrix Type: SOLID

Methods: SW846 6020
Units: ug/l

Prep Date: 10/31/11

Metal	D28973-1 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	21.1	18.9	10.3 (a)	0-10
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP6148: D28999-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6151
Matrix Type: AQUEOUS

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

Prep Date: 11/01/11

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	8.5	<2000
Chromium	50	.9	4		
Cobalt	25	1.8	1.8		
Copper	50	4.3	14		
Iron	350	17	65		
Lead	250	8	11		
Lithium	10	1.4	6		
Magnesium	1000	29	50	24.0	<1000
Manganese	25	.27	1.6		
Molybdenum	50	2.3	4.4		
Nickel	150	2.2	5		
Phosphorus	500	55	100		
Potassium	5000	280	280		
Selenium	250	19	19		
Silicon	250	19	19		
Silver	150	.9	1.6		
Sodium	2000	570	570	-14	<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 MP6151: D28999-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6151
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: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6151
Matrix Type: AQUEOUS

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

Prep Date: 11/01/11

Metal	D28973-1A Original MS		Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	293000	410000	125000	93.6	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	214	135000	125000	107.8	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	949000	1030000	125000	64.8 (a)	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6151: D28999-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6151
Matrix Type: AQUEOUS

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

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6151
Matrix Type: AQUEOUS

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

Prep Date: 11/01/11

Metal	D28973-1A Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	293000	429000	125000	108.8	4.5	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	214	138000	125000	110.2	2.2	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	949000	1100000	125000	120.8	6.6	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP6151: D28999-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6151
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: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6151
Matrix Type: AQUEOUS

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

Prep Date: 11/01/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	139000	125000	111.2	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	135000	125000	108.0	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	136000	125000	108.8	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP6151: D28999-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D28999
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-17A

QC Batch ID: MP6151
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(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: D28999
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	GP5819/GN12277			umhos/cm	9980	9890	99.1	90-110%
pH	GN12269			su	8.00	8.04	100.5	99.3-100.7%

Associated Samples:
Batch GN12269: D28999-1
Batch GP5819: D28999-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D28999
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	GN12266	D28994-1	mv	386	399	3.3	0-20%

Associated Samples:
Batch GN12266: D28999-1
(*) 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 #:	D28999
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 C		
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
D28999 -1	10/28/11	11:00 AM		Soil	1						X					

Turnaround Information

[X] 3 - 5 Business Day Rush
[ ] Other (Days)

RUSH!

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

Approved By:

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.

12C

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

Relinquished by:	Date & Time:	Received By:	Date & Time:
1 Jacqueline Porter	10/31/11 1350	1 Fedex	1
Relinquished by:	Date & Time:	Received By:	Date & Time:
2 Fedex	11/1/11 10:00	2	2
Relinquished by:	Date & Time:	Received By:	Date & Time:
3		3	3

For Subcontract Laborartory Use Only

Seal #:
Headspace: Yes [ ] No [ ] NA [ ]
Preserved where applicable: [ ]
Temperature °C 1.5 C
On Ice [✓]

D28999: Chain of Custody
Page 1 of 2
Accutest Labs of New England, Inc.

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D28999 **Client:** AMS **Immediate Client Services Action Required:** No

Date / Time Received: 11/1/2011 **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

D28999: 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: D28999
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	GP13739/GN36758	0.40	0.25	mg/kg	40	42.0	105.0	80-120%
Chromium, Hexavalent	GP13739/GN36758			mg/kg	1070	1160	108.4	80-120%

Associated Samples:
Batch GP13739: D28999-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D28999
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	GP13739/GN36758	D29035-1	mg/kg	0.25	0.25	0.0	0-20%

Associated Samples:
Batch GP13739: D28999-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D28999
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	GP13739/GN36758	D29035-1	mg/kg	0.25	48.2	46.0	95.0	75-125%
Chromium, Hexavalent	GP13739/GN36758	D29035-1	mg/kg	0.25	1020	1210	118.7	75-125%

Associated Samples:
Batch GP13739: D28999-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits