Mountain States ACCUTEST LABORATORIES

09/18/12

Technical Report for

XTO Energy

T78X-12G

1007-06

Accutest Job Number: D38605

Sampling Date: 09/07/12

Report to:

KRW Consulting, Inc.
8000 West 14th Avenue
Lakewood, CO 80214
dknudson@krwconsulting.com; jhess@krwconsulting.com;
crachak@krwconsulting.com; rrasnic@krwconsulting.com;
ATTN: Dwayne Knudson

Total number of pages in report: **141**

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: Renea Jackson 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP CO00049), TX (T104704511-12-1)

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

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Sections:

Table of Contents

Sample Summary

XTO Energy

Job No: D38605

T78X-12G
Project No: 1007-06

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D38605-1	09/07/12	12:50	DS	09/11/12	SO	Soil	CUT 2 SUBLINER COMPOSITE
D38605-1A	09/07/12	12:50	DS	09/11/12	SO	Soil	CUT 2 SUBLINER COMPOSITE

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	XTO Energy	**Job No**	D38605
Site:	T78X-12G	**Report Date**	9/18/2012 3:24:48 PM

On 09/11/2012, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4.0 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D38605 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:** V5V1445

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D38601-1MS, D38601-1MSD were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO **Batch ID:** OP6608

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D38290-1MS, D38290-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Volatiles by GC By Method SW846 8015B

Matrix SO **Batch ID:** GGB961

- All samples were analyzed within the recommended method holding time.
- Sample(s) D38601-1MS, D38601-1MSD 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:** OP6610

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D38290-2MS, D38290-2MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Metals By Method SW846 6010C

Matrix	AQ	Batch ID:	MP8399

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D38644-1AMS, D38644-1AMSD, D38644-1ASDL 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:	MP8374

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D38290-1MS, D38290-1MSD, D38290-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Barium are outside control limits. Spike recovery indicates possible matrix interference.
- The serial dilution RPD(s) for Cadmium, Silver are outside control limits for sample MP8374-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Metals By Method SW846 6020A

Matrix	SO	Batch ID:	MP8375

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D38290-1MS, D38290-1MSD, D38290-1SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471B

Matrix	SO	Batch ID:	MP8383

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D38290-1MS, D38290-1MSD were used as the QC samples for the metals analysis.
- The matrix spike duplicate (MSD) recovery(s) of Mercury are outside control limits. Probable cause due to matrix interference.

Wet Chemistry By Method ASTM D1498-76M

Matrix	SO	Batch ID:	GN16725

- Sample(s) D38599-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix	SO	Batch ID:	GN16744

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

Wet Chemistry By Method SM2510B-1997 MOD

Matrix	SO	Batch ID:	GP8183

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method SW846 3060/7196A M

Matrix	SO	Batch ID:	R14437

- The data for SW846 3060/7196A M meets quality control requirements.
- D38605-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix	SO	Batch ID:	GP8197

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D38706-1DUP, D38706-1MSD were used as the QC samples for the Chromium, Hexavalent analysis.
- The matrix spike (MS) recovery(s) of Chromium, Hexavalent are outside control limits. Spike recovery indicates possible matrix interference.
- The matrix spike duplicate (MSD) recovery(s) of Chromium, Hexavalent are outside control limits. Probable cause due to matrix interference.

Wet Chemistry By Method SW846 9045D

Matrix	SO	Batch ID:	GN16727

- The following samples were run outside of holding time for method SW846 9045D: D38605-1

Wet Chemistry By Method USDA HANDBOOK 60

Matrix	SO	Batch ID:	MP8399

- D38605-1A 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.

Summary of Hits

Job Number: D38605
Account: XTO Energy
Project: T78X-12G
Collected: 09/07/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D38605-1	**CUT 2 SUBLINER COMPOSITE**					
Naphthalene		0.0178	0.014	0.012	mg/kg	SW846 8270C BY SIM
TPH-DRO (C10-C28)		18.4	16	10	mg/kg	SW846-8015B
Arsenic		6.5	0.12		mg/kg	SW846 6020A
Barium		1530	1.2		mg/kg	SW846 6010C
Chromium		56.2	1.2		mg/kg	SW846 6010C
Copper		10.3	1.2		mg/kg	SW846 6010C
Lead		12.6	5.8		mg/kg	SW846 6010C
Nickel		19.6	3.5		mg/kg	SW846 6010C
Zinc		46.2	3.5		mg/kg	SW846 6010C
Specific Conductivity		477	1.0		umhos/cm	SM2510B-1997 MOD
Chromium, Trivalent [a]		56.2	2.2		mg/kg	SW846 3060/7196A M
Redox Potential Vs H2		244			mv	ASTM D1498-76M
pH		9.58			su	SW846 9045D
D38605-1A	**CUT 2 SUBLINER COMPOSITE**					
Calcium		27.6	2.0		mg/l	SW846 6010C
Magnesium		7.15	1.0		mg/l	SW846 6010C
Sodium		65.9	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio [b]		2.89			ratio	USDA HANDBOOK 60

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)
(b) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	CUT 2 SUBLINER COMPOSITE		
Lab Sample ID:	D38605-1	**Date Sampled:**	09/07/12
Matrix:	SO - Soil	**Date Received:**	09/11/12
Method:	SW846 8260B	**Percent Solids:**	85.6
Project:	T78X-12G		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V23716.D	1	09/12/12	BD	n/a	n/a	V5V1445
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.06 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.066	0.033	mg/kg	
108-88-3	Toluene	ND	0.13	0.066	mg/kg	
100-41-4	Ethylbenzene	ND	0.13	0.025	mg/kg	
1330-20-7	Xylene (total)	ND	0.26	0.13	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	97%		64-130%
460-00-4	4-Bromofluorobenzene	102%		62-131%
17060-07-0	1,2-Dichloroethane-D4	100%		70-130%

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:	CUT 2 SUBLINER COMPOSITE		
Lab Sample ID:	D38605-1	**Date Sampled:**	09/07/12
Matrix:	SO - Soil	**Date Received:**	09/11/12
Method:	SW846 8270C BY SIM SW846 3546	**Percent Solids:**	85.6
Project:	T78X-12G		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G11209.D	1	09/13/12	DC	09/12/12	OP6608	E3G522
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	0.0097	0.0051	mg/kg	
120-12-7	Anthracene	ND	0.0097	0.0051	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.0097	0.0051	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.0097	0.0051	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.0097	0.0051	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.0097	0.0051	mg/kg	
218-01-9	Chrysene	ND	0.0097	0.0051	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0097	0.0051	mg/kg	
206-44-0	Fluoranthene	ND	0.0097	0.0051	mg/kg	
86-73-7	Fluorene	ND	0.0097	0.0051	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.0097	0.0051	mg/kg	
91-20-3	Naphthalene	0.0178	0.014	0.012	mg/kg	
129-00-0	Pyrene	ND	0.0097	0.0051	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	81%		10-145%
321-60-8	2-Fluorobiphenyl	75%		10-130%
1718-51-0	Terphenyl-d14	75%		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:	CUT 2 SUBLINER COMPOSITE		
Lab Sample ID:	D38605-1	**Date Sampled:**	09/07/12
Matrix:	SO - Soil	**Date Received:**	09/11/12
Method:	SW846 8015B	**Percent Solids:**	85.6
Project:	T78X-12G		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB17527.D	1	09/12/12	SK	n/a	n/a	GGB961
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	13	6.6	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	86%		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:	CUT 2 SUBLINER COMPOSITE		
Lab Sample ID:	D38605-1	**Date Sampled:**	09/07/12
Matrix:	SO - Soil	**Date Received:**	09/11/12
Method:	SW846-8015B SW846 3546	**Percent Solids:**	85.6
Project:	T78X-12G		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD17369.D	1	09/12/12	AW	09/12/12	OP6610	GFD890
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)	18.4	16	10	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	83%		43-136%

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

Report of Analysis

Client Sample ID: CUT 2 SUBLINER COMPOSITE
Lab Sample ID: D38605-1
Matrix: SO - Soil
Project: T78X-12G

Date Sampled: 09/07/12
Date Received: 09/11/12
Percent Solids: 85.6

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	6.5	0.12	mg/kg	5	09/12/12	09/18/12	JB	SW846 6020A [4]	SW846 3050B [6]
Barium	1530	1.2	mg/kg	1	09/12/12	09/12/12	JB	SW846 6010C [1]	SW846 3050B [5]
Cadmium	< 1.2	1.2	mg/kg	1	09/12/12	09/12/12	JB	SW846 6010C [1]	SW846 3050B [5]
Chromium	56.2	1.2	mg/kg	1	09/12/12	09/12/12	JB	SW846 6010C [1]	SW846 3050B [5]
Copper	10.3	1.2	mg/kg	1	09/12/12	09/13/12	JM	SW846 6010C [3]	SW846 3050B [5]
Lead	12.6	5.8	mg/kg	1	09/12/12	09/12/12	JB	SW846 6010C [1]	SW846 3050B [5]
Mercury	< 0.11	0.11	mg/kg	1	09/13/12	09/13/12	JM	SW846 7471B [2]	SW846 7471B [7]
Nickel	19.6	3.5	mg/kg	1	09/12/12	09/12/12	JB	SW846 6010C [1]	SW846 3050B [5]
Selenium	< 5.8	5.8	mg/kg	1	09/12/12	09/12/12	JB	SW846 6010C [1]	SW846 3050B [5]
Silver	< 3.5	3.5	mg/kg	1	09/12/12	09/12/12	JB	SW846 6010C [1]	SW846 3050B [5]
Zinc	46.2	3.5	mg/kg	1	09/12/12	09/12/12	JB	SW846 6010C [1]	SW846 3050B [5]

(1) Instrument QC Batch: MA2796
(2) Instrument QC Batch: MA2798
(3) Instrument QC Batch: MA2799
(4) Instrument QC Batch: MA2813
(5) Prep QC Batch: MP8374
(6) Prep QC Batch: MP8375
(7) Prep QC Batch: MP8383

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUT 2 SUBLINER COMPOSITE		
Lab Sample ID:	D38605-1	**Date Sampled:**	09/07/12
Matrix:	SO - Soil	**Date Received:**	09/11/12
		Percent Solids:	85.6
Project:	T78X-12G		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	477	1.0	umhos/cm	1	09/14/12	JK	SM2510B-1997 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	09/18/12	CJ	SW846 3060A/7196A
Chromium, Trivalent [a]	56.2	2.2	mg/kg	1	09/18/12	CJ	SW846 3060/7196A M
Redox Potential Vs H2	244		mv	1	09/12/12	CJ	ASTM D1498-76M
Solids, Percent	85.6		%	1	09/13/12	SWT	SM19 2540B M
pH	9.58		su	1	09/12/12 15:00	CJ	SW846 9045D

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUT 2 SUBLINER COMPOSITE
Lab Sample ID: D38605-1A
Matrix: SO - Soil
Project: T78X-12G

Date Sampled: 09/07/12
Date Received: 09/11/12
Percent Solids: 85.6

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	27.6	2.0	mg/l	1	09/14/12	09/14/12	JM	SW846 6010C [1]	SW846 3010A/M [2]
Magnesium	7.15	1.0	mg/l	1	09/14/12	09/14/12	JM	SW846 6010C [1]	SW846 3010A/M [2]
Sodium	65.9	2.0	mg/l	1	09/14/12	09/14/12	JM	SW846 6010C [1]	SW846 3010A/M [2]

(1) Instrument QC Batch: MA2803
(2) Prep QC Batch: MP8399

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUT 2 SUBLINER COMPOSITE		
Lab Sample ID:	D38605-1A	**Date Sampled:**	09/07/12
Matrix:	SO - Soil	**Date Received:**	09/11/12
		Percent Solids:	85.6
Project:	T78X-12G		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	2.89		ratio	1	09/14/12 14:02	JM	USDA HANDBOOK 60

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

RL = Reporting Limit

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST LABORATORIES
4036 Youngfield Street, Wheat Ridge, CO 80033
TEL. 303-425-6021 FAX: 303-425-6854
www.accutest.com

FED-EX Tracking # | Bottle Order Control #
Accutest Quote # | Accutest Job # D38605

Client / Reporting Information

Company Name: KRW Consulting
Street Address: 8000 West 14th Street; Suite 200
City: Lakewood, CO 80214
Project Contact: Dwayne Knudson
Phone #: 970-488-1098
Sampler(s) Name(s): DAVID SANDERS 970-488-1098

Project Information

Project Name: XTO PCUT-78X-126
Street:
City: State:
Project #: 1007-06
Client Purchase Order #:
Project Manager: Joe Hess

Billing Information (if different from Report to)

Company Name: XTO Energy
Street Address: 21459 CR 5
City: Rifle, CO 81650
Attention: Jessica Dooling

Requested Analysis (see TEST CODE sheet)

T-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	T-910	LAB USE ONLY
	CUT 2 SUBLINER COMPOSITE		9-7-12	12:50	DS	SO	5					X					X	C1

Turnaround Time (Business days)

- [ ] Std. 10 Business Days
- [x] Std. 5 Business Days (By contract only)
- [ ] 3 Day Emergency
- [ ] 2 Day Emergency
- [ ] 1 Day Emergency
- [ ]

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] COMMBN
- [ ] COMMBN+
- [ ]
- [ ] State Forms Required
- [ ] Send Forms to State
- [ ] Report by Fax
- [x] Report by PDF ONLY
- [ ] EDD Format

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial BN = Results/QC/Narrative (+ = chromatograms)

Comments / Special Instructions

Please email to:
KRW Piceance Team

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

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Lori Albinson	9-7-12 7:00	1 Rifle Service	2		2 9-11-12 1200
3			3	4		4
5			5	Custody Seal #	Intact / Not Intact	Preserved where applicable / On Ice / Cooler Temp 4.0

5.1 5

D38605: Chain of Custody
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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D38605 **Client:** KRW CONSULTING **Immediate Client Services Action Required:** No

Date / Time Received: 9/11/2012 12:00:00 PM **No. Coolers:** 1 **Client Service Action Required at Login:** No

Project: XTO PCU T78X-12G **Airbill #'s:** HDCO

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

5.1

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D38605: Chain of Custody
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Mountain States ACCUTEST LABORATORIES

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D38605
Account: XTOKRWR XTO Energy
Project: T78X-12G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1445-MB	5V23701.D	1	09/12/12	BD	n/a	n/a	V5V1445

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

D38605-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	25	ug/kg	
100-41-4	Ethylbenzene	ND	100	19	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	98%	64-130%
460-00-4	4-Bromofluorobenzene	92%	62-131%
17060-07-0	1,2-Dichloroethane-D4	100%	70-130%

Blank Spike Summary

Job Number: D38605
Account: XTOKRWR XTO Energy
Project: T78X-12G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1445-BS	5V23702.D	1	09/12/12	BD	n/a	n/a	V5V1445

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

D38605-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	59.4	119	70-130
100-41-4	Ethylbenzene	50	58.9	118	70-130
108-88-3	Toluene	50	56.8	114	70-130
1330-20-7	Xylene (total)	150	180	120	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	97%	64-130%
460-00-4	4-Bromofluorobenzene	101%	62-131%
17060-07-0	1,2-Dichloroethane-D4	101%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D38605
Account: XTOKRWR XTO Energy
Project: T78X-12G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D38601-1MS	5V23704.D	1	09/12/12	BD	n/a	n/a	V5V1445
D38601-1MSD	5V23705.D	1	09/12/12	BD	n/a	n/a	V5V1445
D38601-1	5V23703.D	1	09/12/12	BD	n/a	n/a	V5V1445

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

D38605-1

CAS No.	Compound	D38601-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3450	3100	90	3080	89	1	64-139/30
100-41-4	Ethylbenzene	ND		3450	3050	88	3080	89	1	68-136/30
108-88-3	Toluene	ND		3450	2910	84	2950	85	1	60-130/30
1330-20-7	Xylene (total)	ND		10400	9480	92	9570	92	1	58-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D38601-1	Limits
2037-26-5	Toluene-D8	95%	96%	97%	64-130%
460-00-4	4-Bromofluorobenzene	109%	110%	102%	62-131%
17060-07-0	1,2-Dichloroethane-D4	100%	98%	100%	70-130%

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5091212.S\
Data File : 5V23716.D
Acq On : 12 Sep 2012 11:30 pm
Operator : BRETD
Sample : D38605-1
Misc : MS4654,V5V1445,5.060,,100,5,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Sep 13 08:55:20 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1442TVH1442.M
Quant Title : 8260
QLast Update : Fri Sep 07 10:53:51 2012
Response via : Initial Calibration

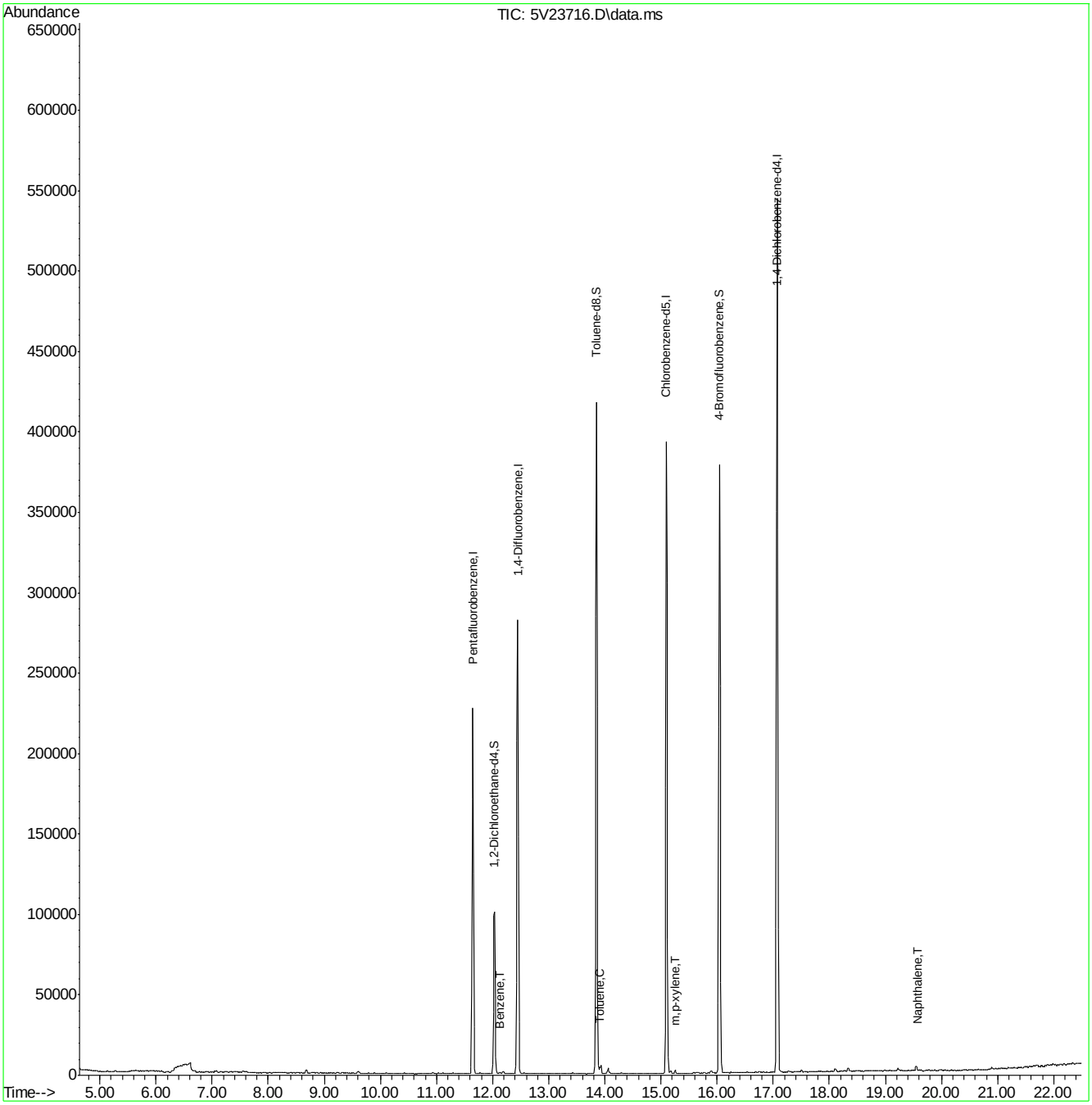
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	168144	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	231122	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	235193	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	174689	50.00	ug/l	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.035	102	16182	50.18	ug/l	0.01
Spiked Amount 50.000	Range 70 - 130		Recovery = 100.36%			
61) Toluene-d8	13.851	98	269419	48.30	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 96.60%			
69) 4-Bromofluorobenzene	16.043	95	129028	50.79	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 101.58%			
Target Compounds						Qvalue
50) Benzene	12.127	78	764	0.11	ug/l	100
62) Toluene	13.908	92	1979	0.39	ug/l	98
72) m,p-xylene	15.255	106	1001	0.25	ug/l	87
91) Naphthalene	19.570	128	473	0.05	ug/l	100

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

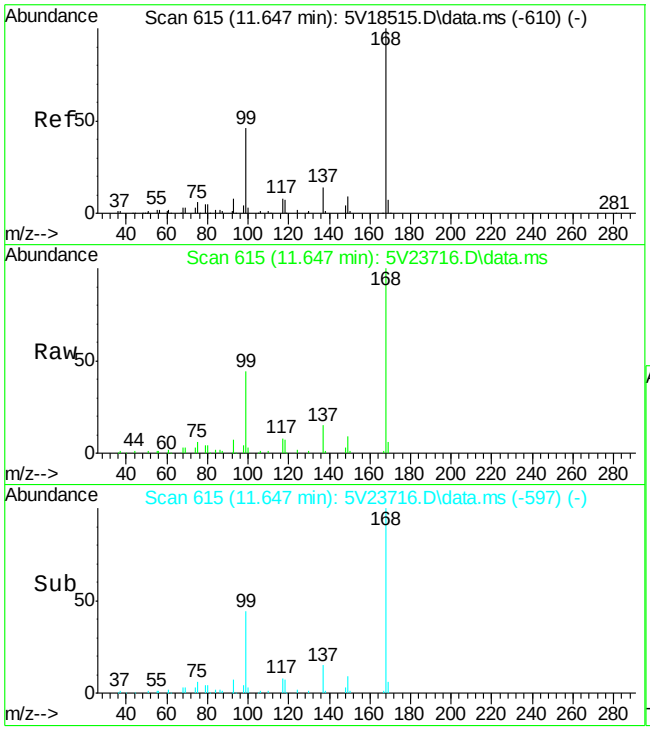
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5091212.S\
Data File : 5V23716.D
Acq On : 12 Sep 2012 11:30 pm
Operator : BRETD
Sample : D38605-1
Misc : MS4654,V5V1445,5.060,,100,5,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Sep 13 08:55:20 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1442TVH1442.M
Quant Title : 8260
QLast Update : Fri Sep 07 10:53:51 2012
Response via : Initial Calibration



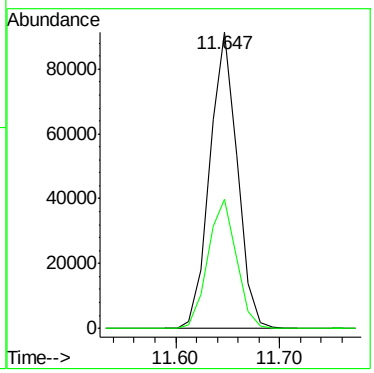
V5AP1442TVH1442.M Thu Sep 13 09:00:25 2012 VOA5 Page: 2

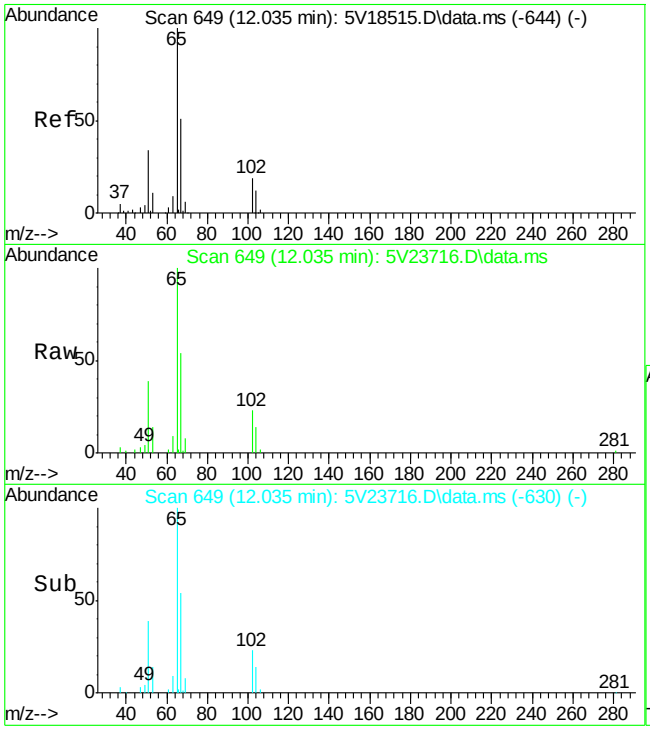


#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.647 min Scan# 615
Delta R.T. 0.000 min
Lab File: 5V23716.D
Acq: 12 Sep 2012 11:30 pm

Tgt Ion:168 Resp: 168144

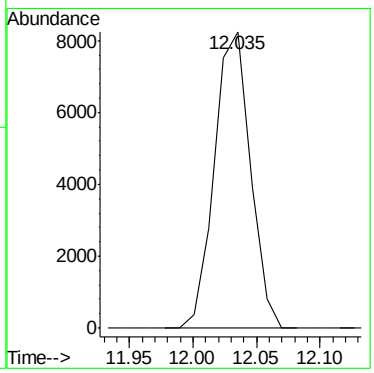
Ion	Ratio	Lower	Upper
168	100		
99	45.0	37.4	56.2

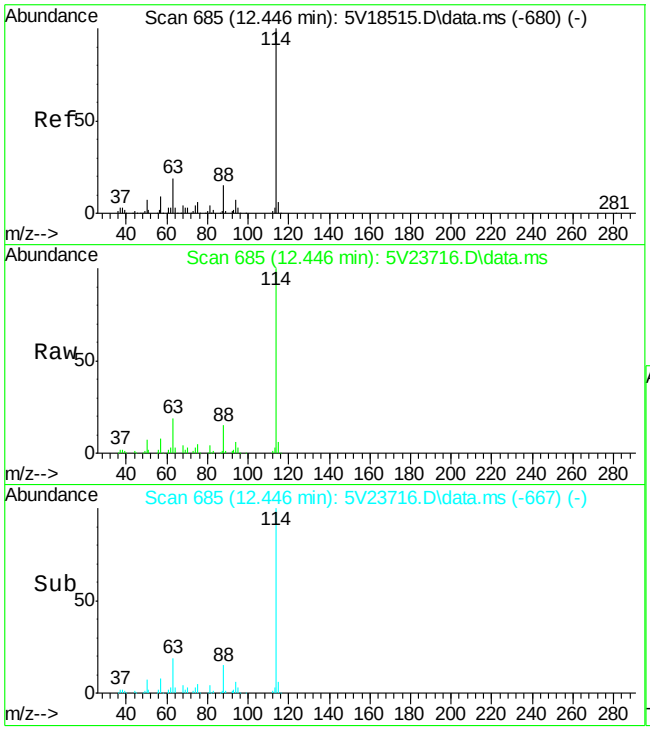




#33
1,2-Dichloroethane-d4
Concen: 50.18 ug/l
RT: 12.035 min Scan# 649
Delta R.T. 0.012 min
Lab File: 5V23716.D
Acq: 12 Sep 2012 11:30 pm

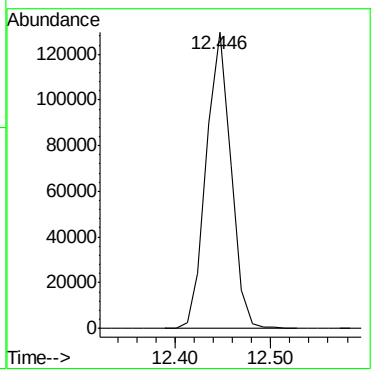
Tgt Ion:102 Resp: 16182

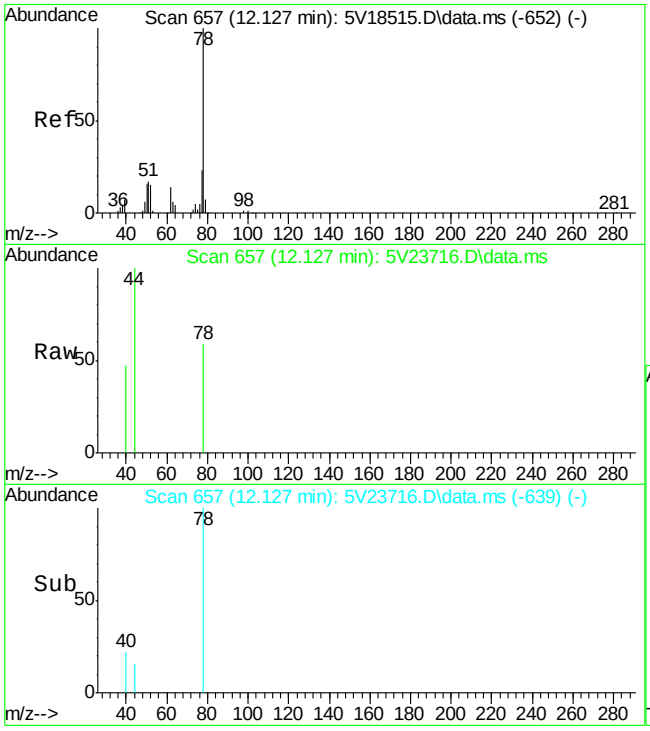




#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.446 min Scan# 685
Delta R.T. 0.000 min
Lab File: 5V23716.D
Acq: 12 Sep 2012 11:30 pm

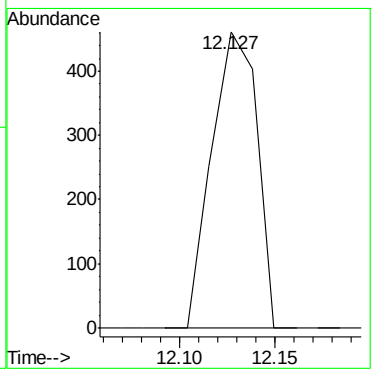
Tgt Ion:114 Resp: 231122

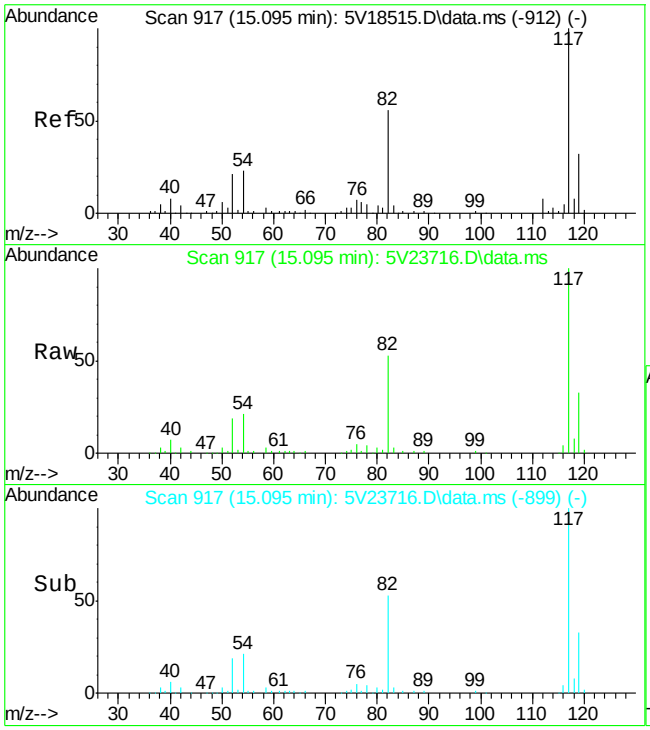




#50
Benzene
Concen: 0.11 ug/l
RT: 12.127 min Scan# 657
Delta R.T. 0.000 min
Lab File: 5V23716.D
Acq: 12 Sep 2012 11:30 pm

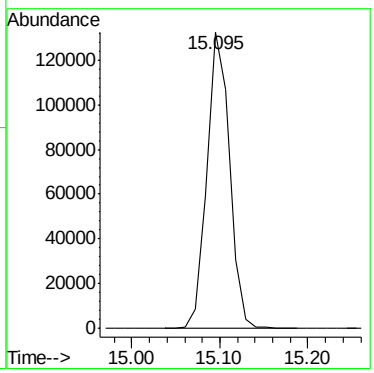
Tgt Ion: 78 Resp: 764

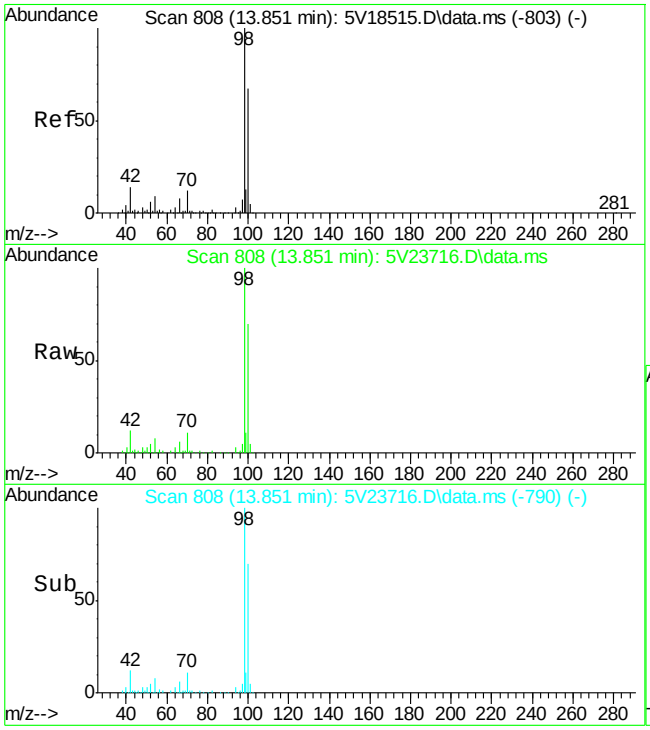




#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.095 min Scan# 917
Delta R.T. 0.000 min
Lab File: 5V23716.D
Acq: 12 Sep 2012 11:30 pm

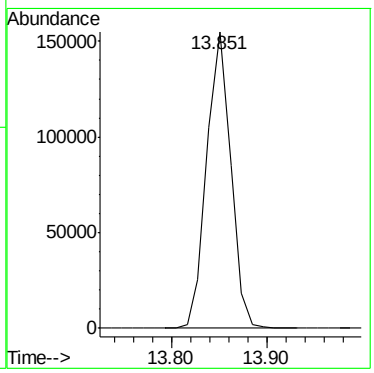
Tgt Ion:117 Resp: 235193

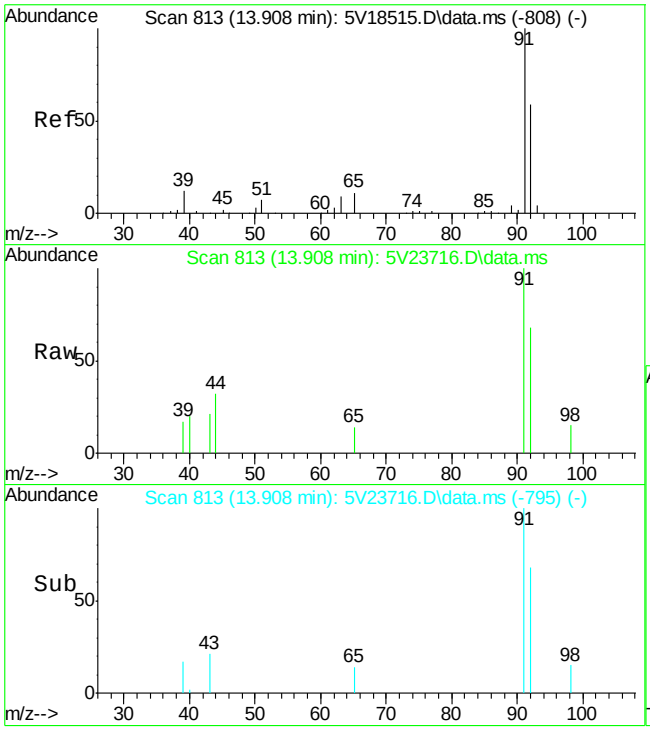




#61
Toluene-d8
Concen: 48.30 ug/l
RT: 13.851 min Scan# 808
Delta R.T. 0.000 min
Lab File: 5V23716.D
Acq: 12 Sep 2012 11:30 pm

Tgt Ion: 98 Resp: 269419

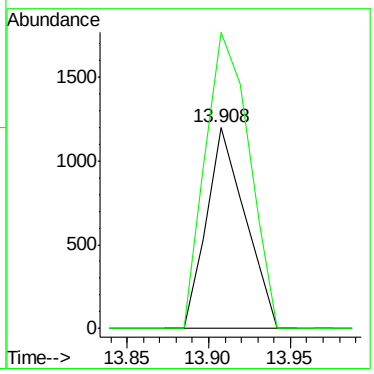


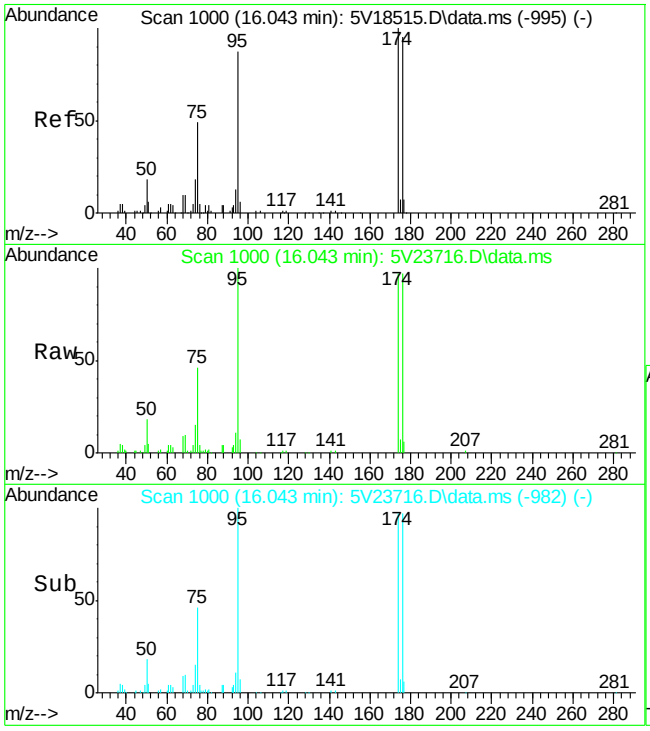


#62
Toluene
Concen: 0.39 ug/l
RT: 13.908 min Scan# 813
Delta R.T. 0.000 min
Lab File: 5V23716.D
Acq: 12 Sep 2012 11:30 pm

Tgt Ion: 92 Resp: 1979

Ion	Ratio	Lower	Upper
92	100		
91	167.0	149.8	189.8

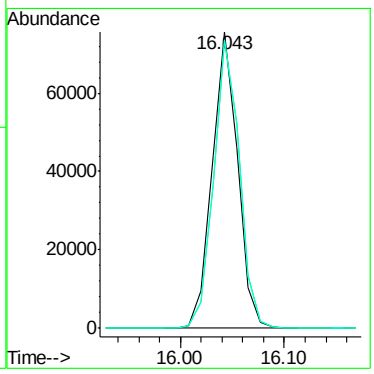


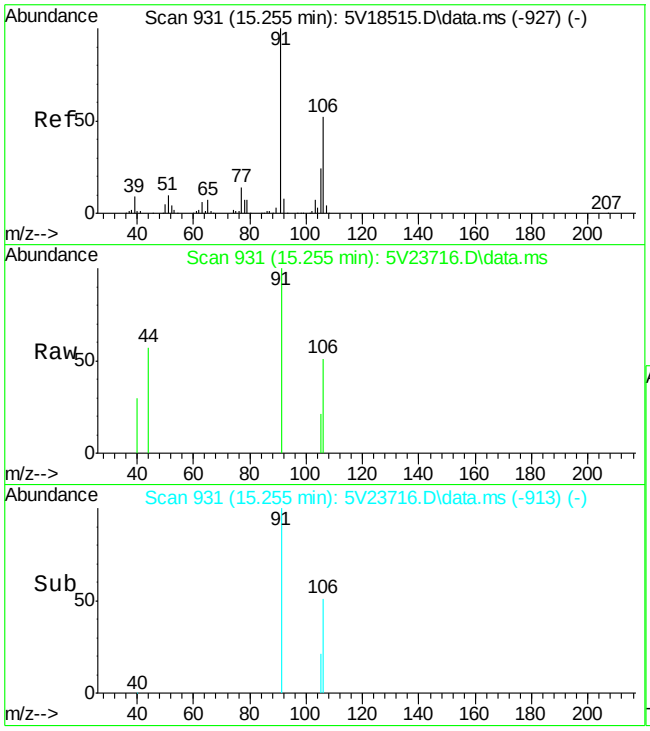


#69
4-Bromofluorobenzene
Concen: 50.79 ug/l
RT: 16.043 min Scan# 1000
Delta R.T. 0.000 min
Lab File: 5V23716.D
Acq: 12 Sep 2012 11:30 pm

Tgt Ion: 95 Resp: 129028

Ion	Ratio	Lower	Upper
95	100		
174	98.4	77.1	117.1
176	98.4	73.4	113.4

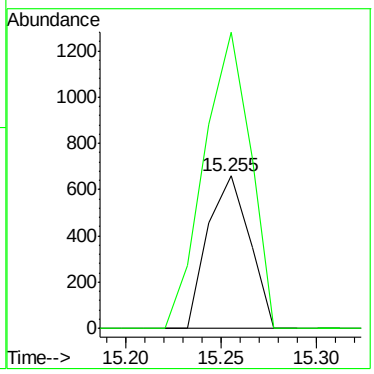


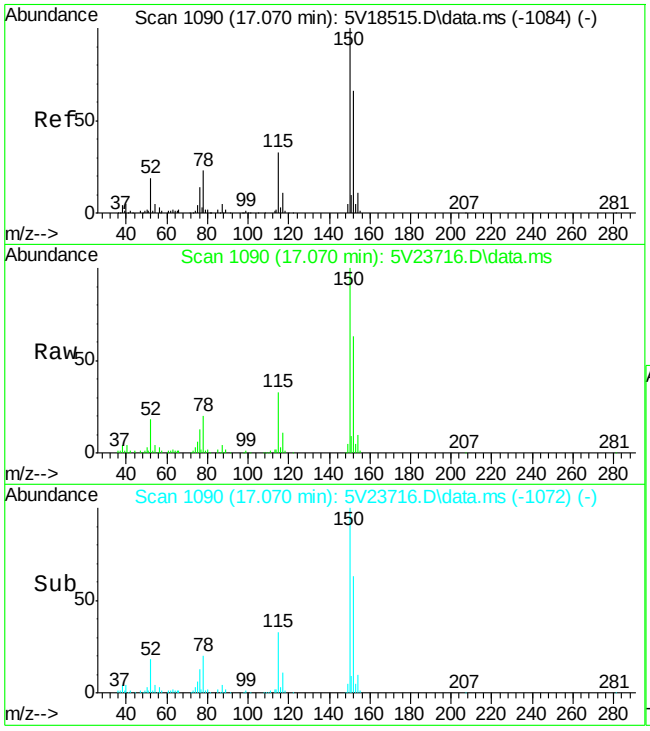


#72
m,p-xylene
Concen: 0.25 ug/l
RT: 15.255 min Scan# 931
Delta R.T. 0.000 min
Lab File: 5V23716.D
Acq: 12 Sep 2012 11:30 pm

Tgt Ion:106 Resp: 1001

Ion	Ratio	Lower	Upper
106	100		
91	217.0	177.1	217.1

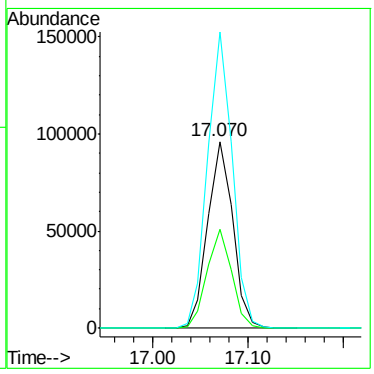


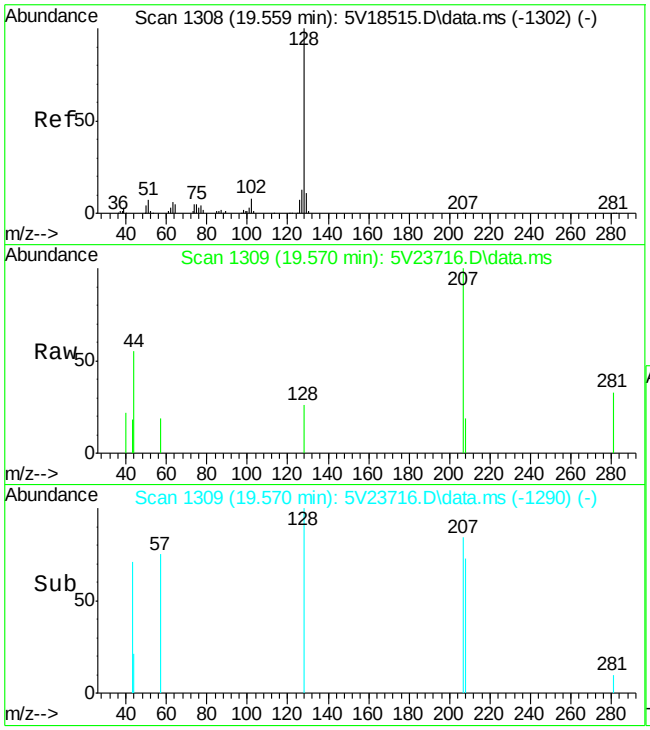


#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.070 min Scan# 1090
Delta R.T. 0.000 min
Lab File: 5V23716.D
Acq: 12 Sep 2012 11:30 pm

Tgt Ion:152 Resp: 174689

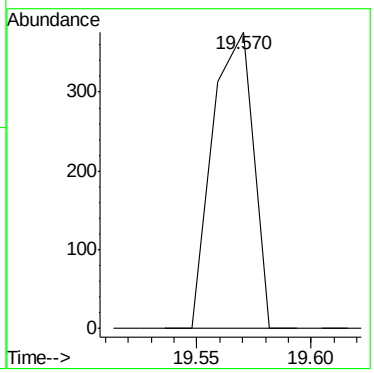
Ion	Ratio	Lower	Upper
152	100		
115	51.9	41.4	62.0
150	156.9	153.9	230.9





#91
Naphthalene
Concen: 0.05 ug/l
RT: 19.570 min Scan# 1309
Delta R.T. 0.012 min
Lab File: 5V23716.D
Acq: 12 Sep 2012 11:30 pm

Tgt Ion:128 Resp: 473



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5091212.S\
Data File : 5V23701.D
Acq On : 12 Sep 2012 2:26 pm
Operator : BRETD
Sample : MB
Misc : MS4654,V5V1445,5.00,,100,5,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 13 08:23:08 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1442TVH1442.M
Quant Title : 8260
QLast Update : Fri Sep 07 10:53:51 2012
Response via : Initial Calibration

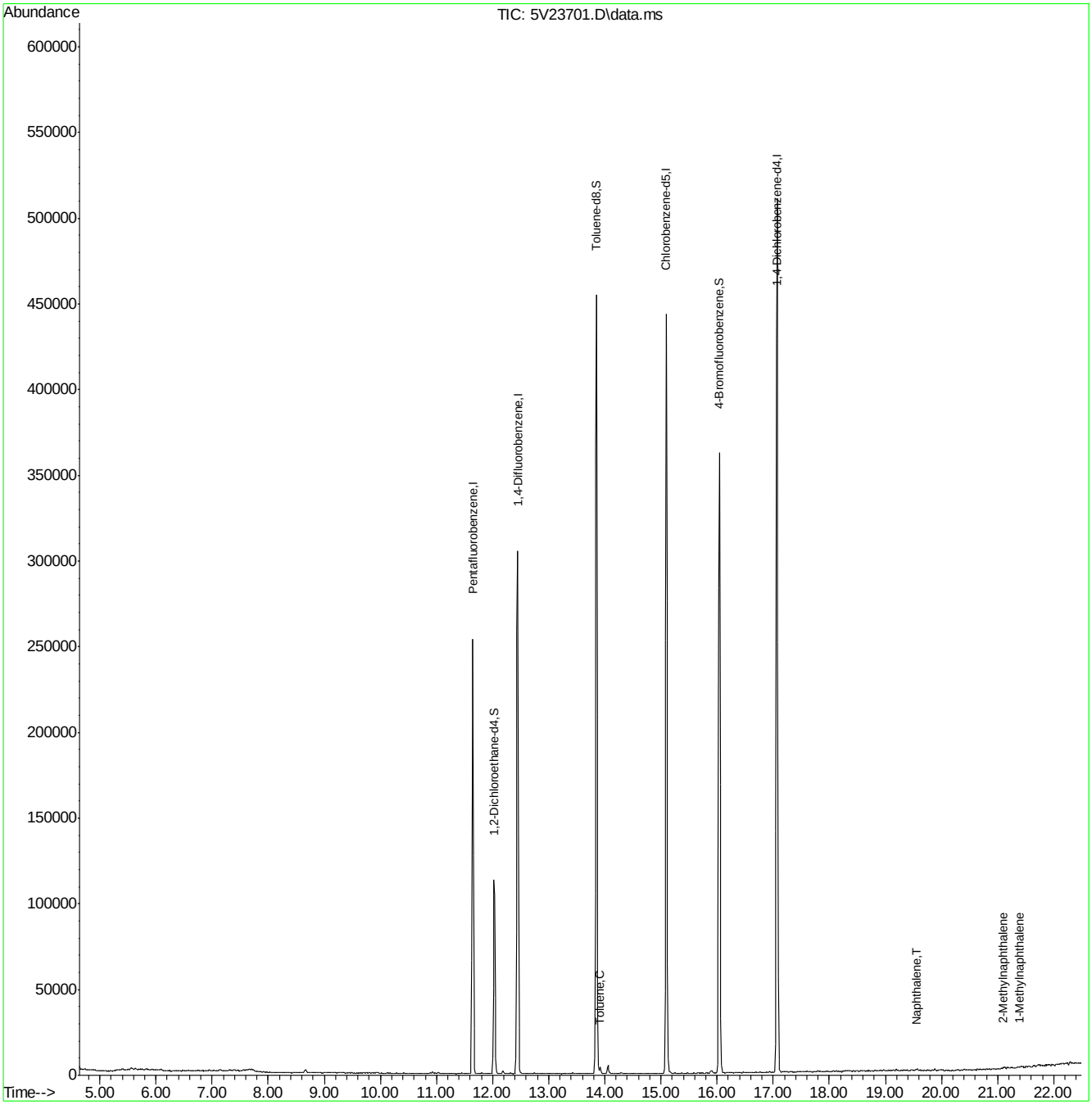
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	190559	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.447	114	257802	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	261061	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	174187	50.00	ug/l	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.024	102	18268	49.98	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 99.96%			
61) Toluene-d8	13.851	98	302769	48.90	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 97.80%			
69) 4-Bromofluorobenzene	16.043	95	129927	46.08	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.16%			
Target Compounds						Qvalue
62) Toluene	13.908	92	816	0.15	ug/l	88
91) Naphthalene	19.559	128	2278	0.23	ug/l	100
94) 2-Methylnaphthalene	21.101	142	419	0.99	ug/l #	52
95) 1-Methylnaphthalene	21.386	142	350	0.67	ug/l #	59

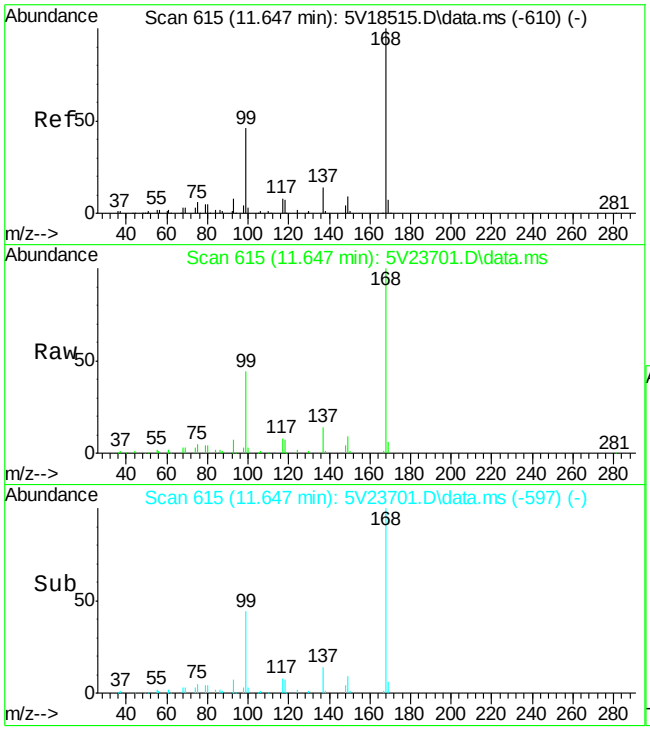
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5091212.S\
Data File : 5V23701.D
Acq On : 12 Sep 2012 2:26 pm
Operator : BRETD
Sample : MB
Misc : MS4654,V5V1445,5.00,,100,5,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 13 08:23:08 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1442TVH1442.M
Quant Title : 8260
QLast Update : Fri Sep 07 10:53:51 2012
Response via : Initial Calibration

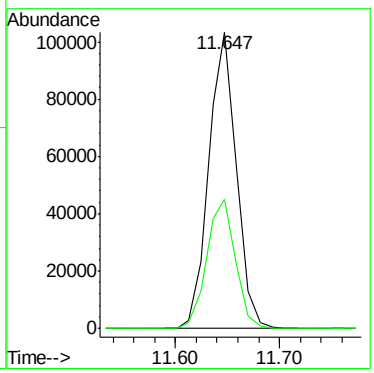


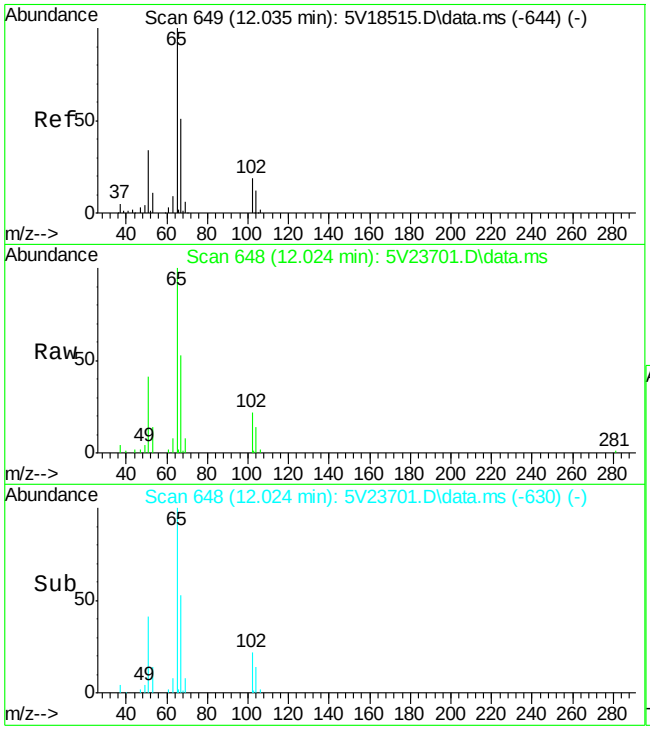


#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.647 min Scan# 615
Delta R.T. 0.000 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

Tgt Ion:168 Resp: 190559

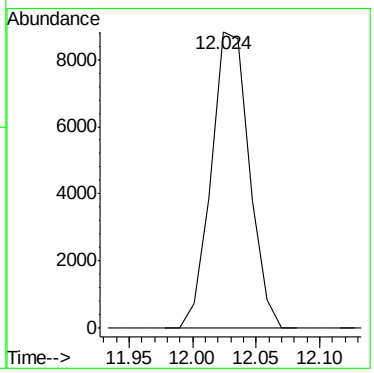
Ion	Ratio	Lower	Upper
168	100		
99	44.9	37.4	56.2

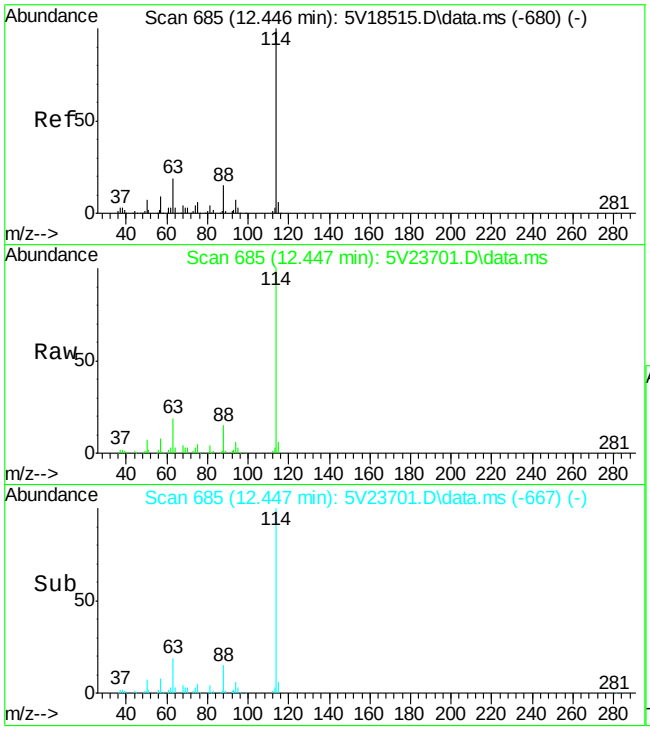




#33
1,2-Dichloroethane-d4
Concen: 49.98 ug/l
RT: 12.024 min Scan# 648
Delta R.T. 0.000 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

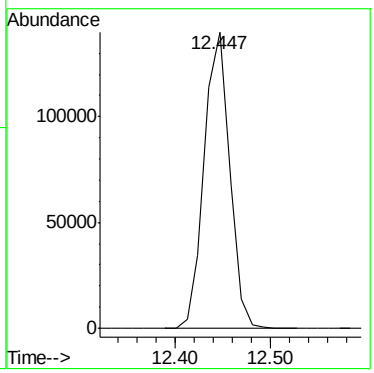
Tgt Ion:102 Resp: 18268

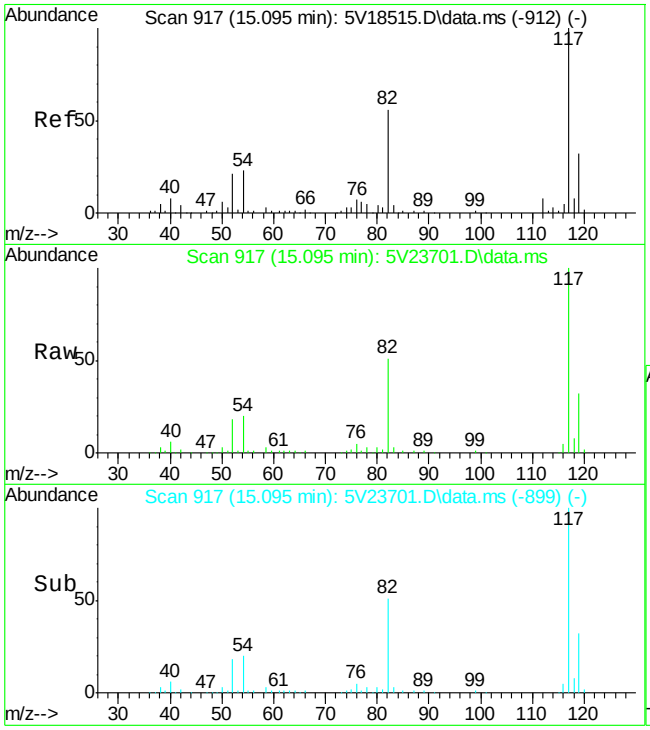




#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.447 min Scan# 685
Delta R.T. 0.000 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

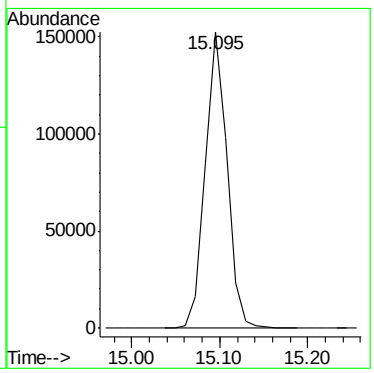
Tgt Ion:114 Resp: 257802

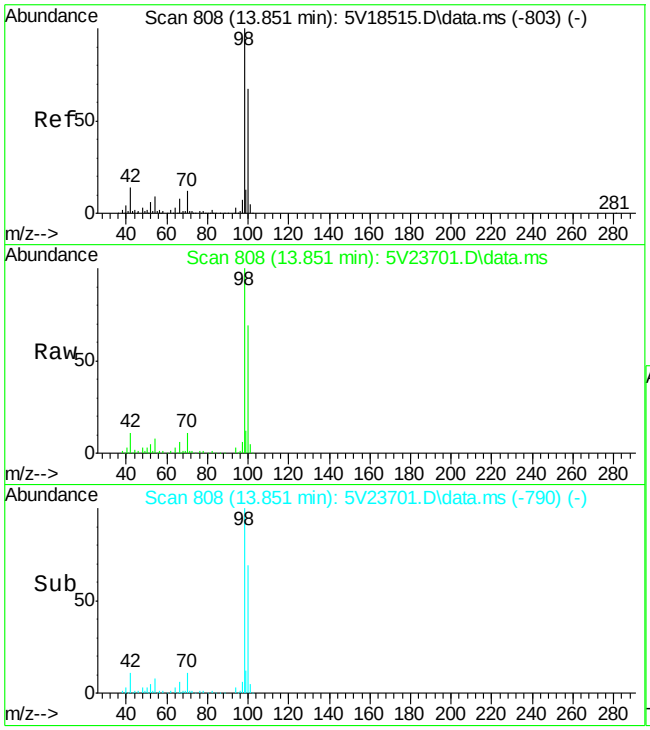




#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.095 min Scan# 917
Delta R.T. 0.000 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

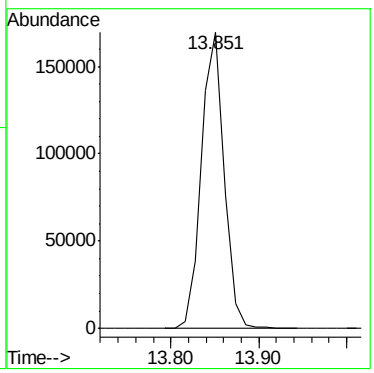
Tgt Ion:117 Resp: 261061

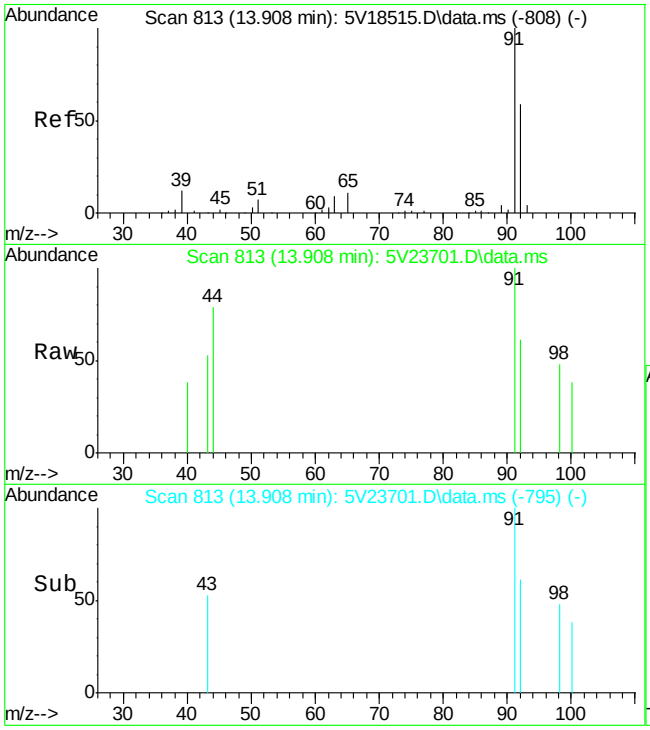




#61
Toluene-d8
Concen: 48.90 ug/l
RT: 13.851 min Scan# 808
Delta R.T. 0.000 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

Tgt Ion: 98 Resp: 302769

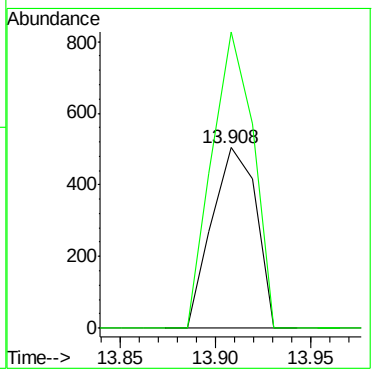


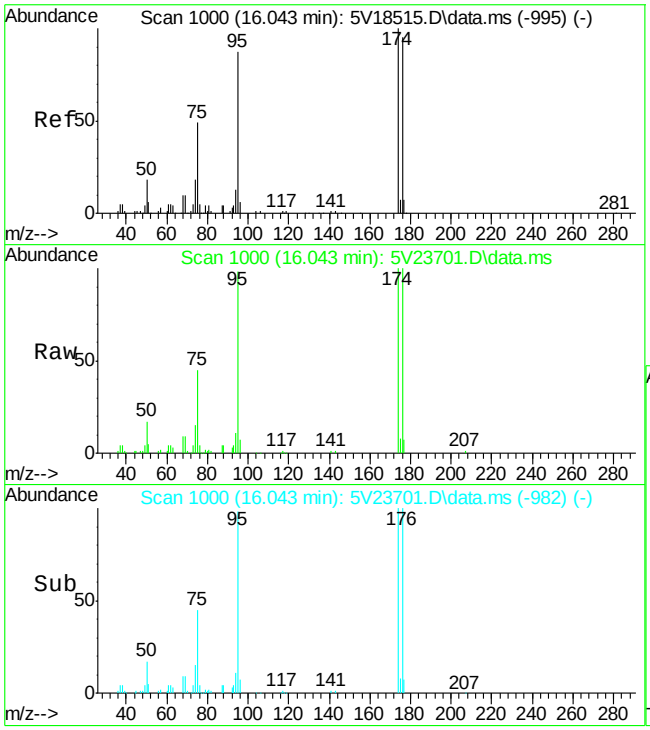


#62
Toluene
Concen: 0.15 ug/l
RT: 13.908 min Scan# 813
Delta R.T. 0.000 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

Tgt Ion: 92 Resp: 816

Ion	Ratio	Lower	Upper
92	100		
91	153.4	149.8	189.8

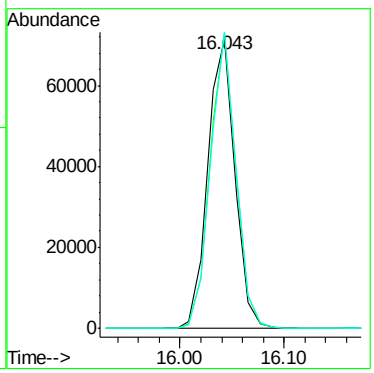


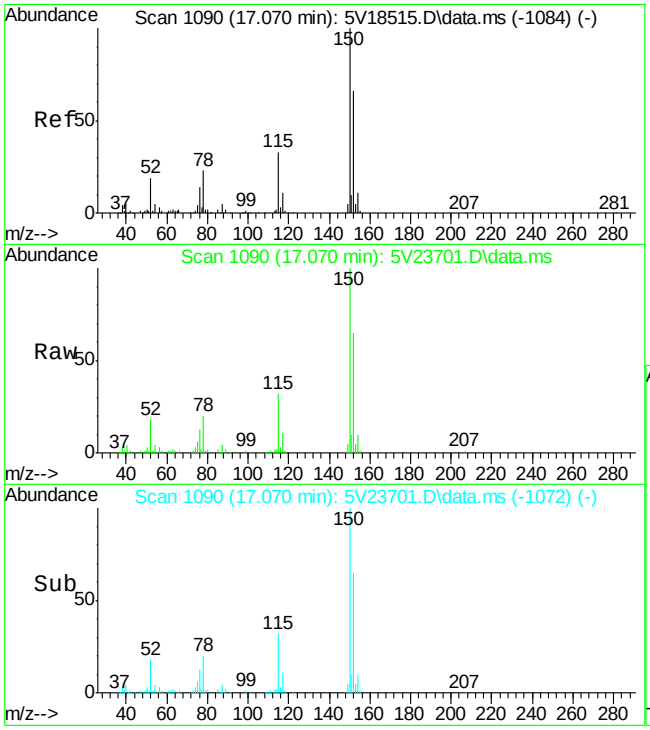


#69
4-Bromofluorobenzene
Concen: 46.08 ug/l
RT: 16.043 min Scan# 1000
Delta R.T. 0.000 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

Tgt Ion: 95 Resp: 129927

Ion	Ratio	Lower	Upper
95	100		
174	97.1	77.1	117.1
176	96.6	73.4	113.4

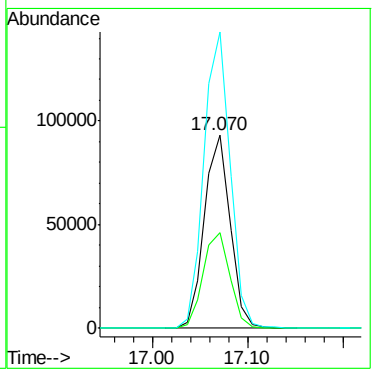


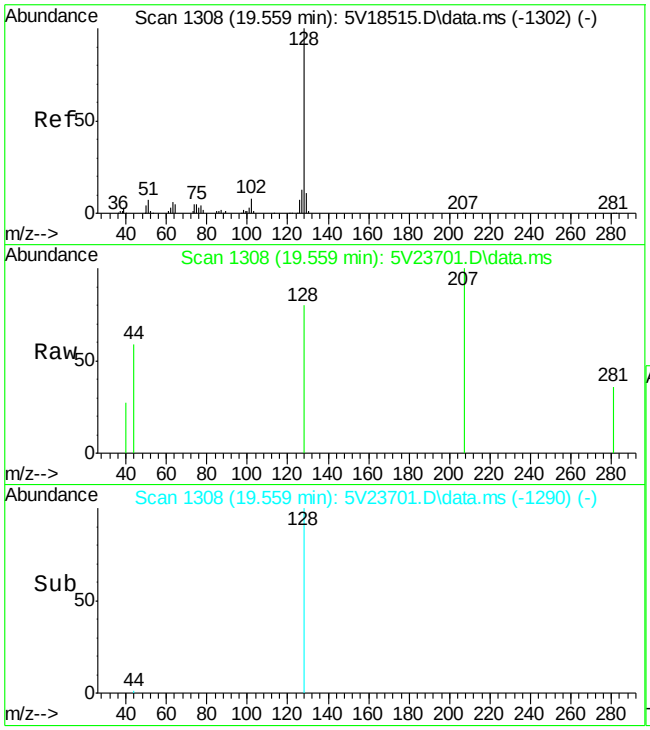


#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.070 min Scan# 1090
Delta R.T. 0.000 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

Tgt Ion:152 Resp: 174187

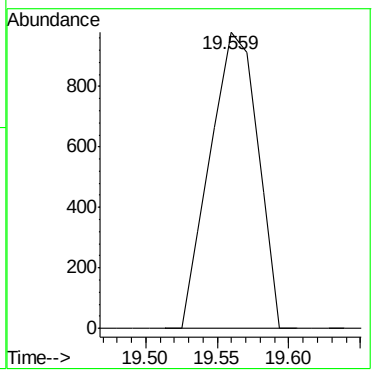
Ion	Ratio	Lower	Upper
152	100		
115	51.1	41.4	62.0
150	155.4	153.9	230.9

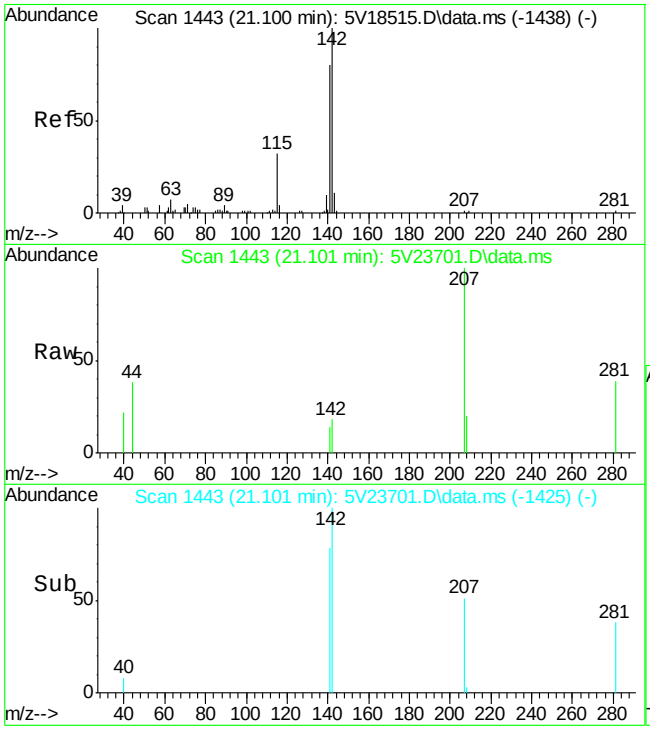




#91
Naphthalene
Concen: 0.23 ug/l
RT: 19.559 min Scan# 1308
Delta R.T. 0.000 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

Tgt Ion:128 Resp: 2278

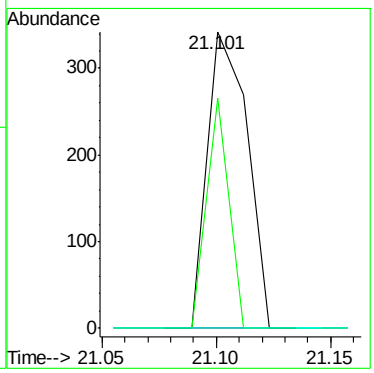


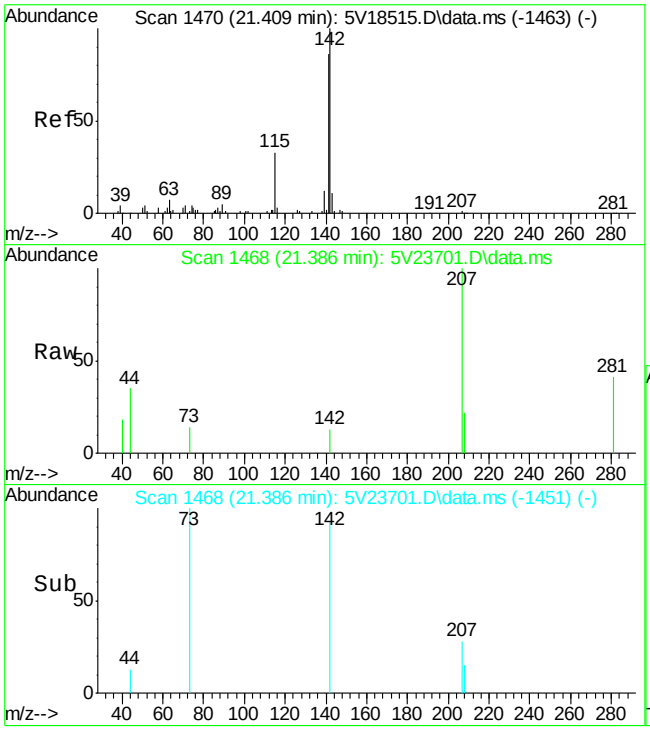


#94
2-Methylnaphthalene
Concen: 0.99 ug/l
RT: 21.101 min Scan# 1443
Delta R.T. 0.001 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

Tgt Ion:142 Resp: 419

Ion	Ratio	Lower	Upper
142	100		
141	43.4	66.2	99.4#
115	0.0	25.9	38.9#

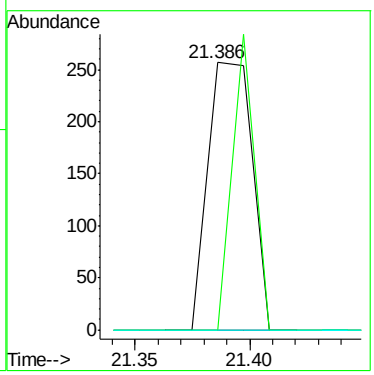




#95
1-Methylnaphthalene
Concen: 0.67 ug/l
RT: 21.386 min Scan# 1468
Delta R.T. -0.010 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

Tgt Ion:142 Resp: 350

Ion	Ratio	Lower	Upper
142	100		
141	55.7	68.9	103.3#
115	0.0	27.3	40.9#



7.2.1

7

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: D38605
Account: XTOKRWR XTO Energy
Project: T78X-12G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6608-MB	3G11193.D	1	09/12/12	DC	09/12/12	OP6608	E3G522

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

D38605-1

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	8.3	4.3	ug/kg	
120-12-7	Anthracene	ND	8.3	4.3	ug/kg	
56-55-3	Benzo(a)anthracene	ND	8.3	4.3	ug/kg	
50-32-8	Benzo(a)pyrene	ND	8.3	4.3	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	8.3	4.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	8.3	4.3	ug/kg	
218-01-9	Chrysene	ND	8.3	4.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	8.3	4.3	ug/kg	
206-44-0	Fluoranthene	ND	8.3	4.3	ug/kg	
86-73-7	Fluorene	ND	8.3	4.3	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	8.3	4.3	ug/kg	
91-20-3	Naphthalene	ND	12	10	ug/kg	
129-00-0	Pyrene	ND	8.3	4.3	ug/kg	

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	97%	10-145%
321-60-8	2-Fluorobiphenyl	97%	10-130%
1718-51-0	Terphenyl-d14	101%	22-130%

Blank Spike Summary

Job Number: D38605
Account: XTOKRWR XTO Energy
Project: T78X-12G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6608-BS	3G11194.D	1	09/12/12	DC	09/12/12	OP6608	E3G522

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

D38605-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	80.9	97	34-130
120-12-7	Anthracene	83.3	87.4	105	35-130
56-55-3	Benzo(a)anthracene	83.3	75.3	90	36-130
50-32-8	Benzo(a)pyrene	83.3	72.7	87	36-130
205-99-2	Benzo(b)fluoranthene	83.3	69.5	83	35-130
207-08-9	Benzo(k)fluoranthene	83.3	79.5	95	37-130
218-01-9	Chrysene	83.3	81.4	98	40-130
53-70-3	Dibenzo(a,h)anthracene	83.3	77.1	93	32-130
206-44-0	Fluoranthene	83.3	80.4	96	38-130
86-73-7	Fluorene	83.3	80.7	97	35-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	74.7	90	28-130
91-20-3	Naphthalene	83.3	80.4	96	35-130
129-00-0	Pyrene	83.3	84.4	101	37-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	93%	10-145%
321-60-8	2-Fluorobiphenyl	90%	10-130%
1718-51-0	Terphenyl-d14	92%	22-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D38605
Account: XTOKRWR XTO Energy
Project: T78X-12G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6608-MS	3G11196.D	1	09/12/12	DC	09/12/12	OP6608	E3G522
OP6608-MSD	3G11197.D	1	09/12/12	DC	09/12/12	OP6608	E3G522
D38290-1	3G11195.D	1	09/12/12	DC	09/12/12	OP6608	E3G522

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

D38605-1

CAS No.	Compound	D38290-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		95.3	89.2	94	89.0	94	0	10-155/30
120-12-7	Anthracene	ND		95.3	105	110	97.4	103	8	10-155/30
56-55-3	Benzo(a)anthracene	ND		95.3	94.5	99	88.7	94	6	10-175/30
50-32-8	Benzo(a)pyrene	ND		95.3	86.3	91	81.1	86	6	10-164/30
205-99-2	Benzo(b)fluoranthene	5.7	J	95.3	85.9	84	81.0	80	6	10-165/30
207-08-9	Benzo(k)fluoranthene	ND		95.3	89.9	94	83.9	89	7	10-178/30
218-01-9	Chrysene	ND		95.3	94.1	99	88.7	94	6	10-147/30
53-70-3	Dibenzo(a,h)anthracene	ND		95.3	92.2	97	85.0	90	8	10-144/30
206-44-0	Fluoranthene	8.0	J	95.3	98.9	95	91.1	88	8	10-207/30
86-73-7	Fluorene	ND		95.3	99.1	104	94.9	100	4	10-163/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		95.3	90.6	95	84.6	89	7	10-180/30
91-20-3	Naphthalene	ND		95.3	97.5	102	93.2	98	5	10-198/30
129-00-0	Pyrene	18.7		95.3	103	88	95.4	81	8	10-189/30

CAS No.	Surrogate Recoveries	MS	MSD	D38290-1	Limits
4165-60-0	Nitrobenzene-d5	84%	80%	74%	10-145%
321-60-8	2-Fluorobiphenyl	80%	78%	71%	10-130%
1718-51-0	Terphenyl-d14	87%	80%	80%	22-130%

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\091212\
Data File : 3g11209.D
Acq On : 13 Sep 2012 1:36 am
Operator : DONC
Sample : D38605-1
Misc : OP6608,E3G522,30.00,,,1,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 13 12:56:49 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G511.M
Quant Title : PAHSIM BASE
QLast Update : Thu Sep 06 09:42:23 2012
Response via : Initial Calibration

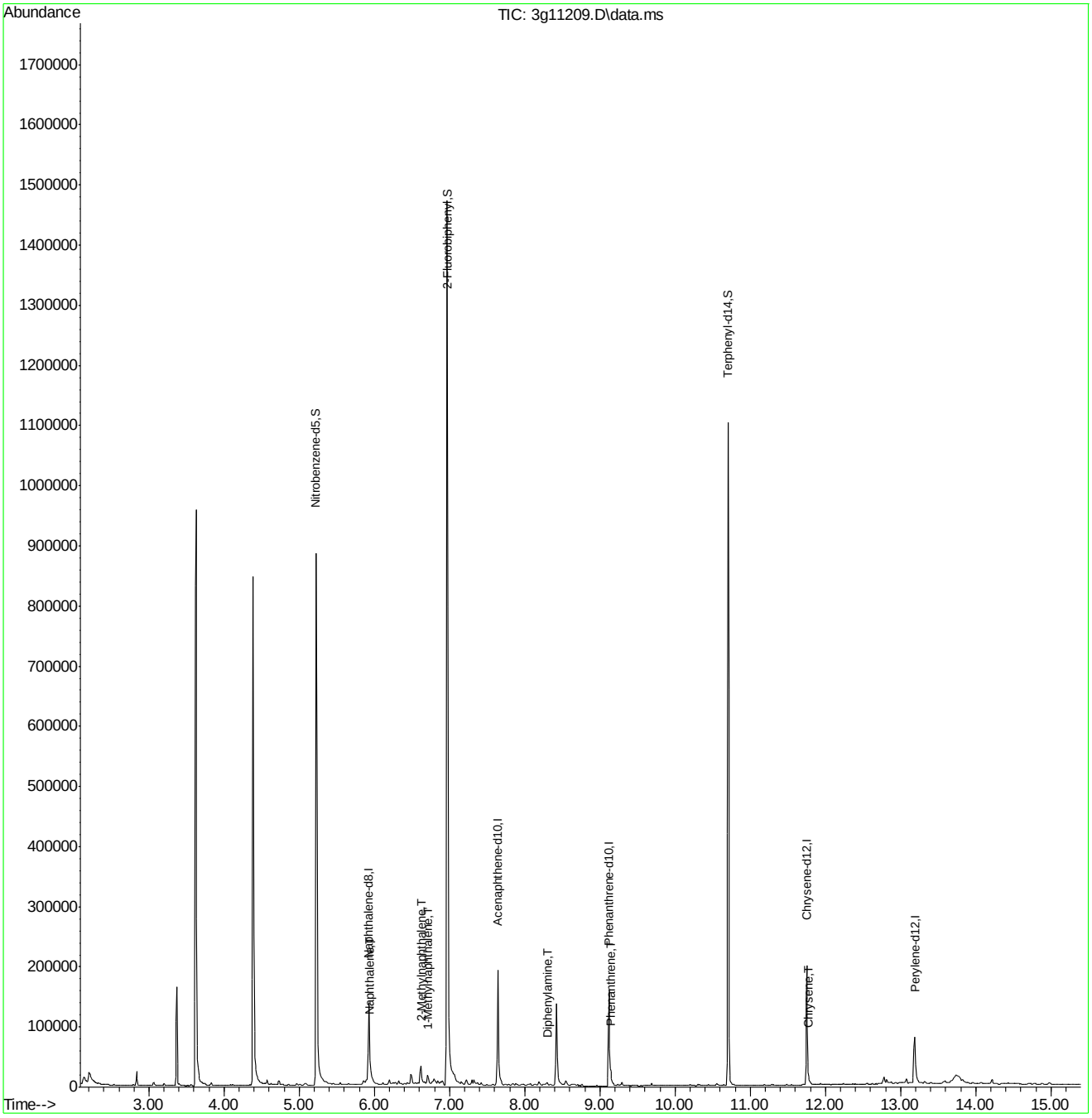
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.922	136	135535	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.640	164	80265	4.0000	ug/mL	0.00
15) Phenanthrene-d10	9.121	188	137117	4.0000	ug/mL	0.00
19) Chrysene-d12	11.753	240	136819	4.0000	ug/mL	0.00
24) Perylene-d12	13.189	264	89151	4.0000	ug/mL	0.01
System Monitoring Compounds						
2) Nitrobenzene-d5	5.223	82	537046	40.2736	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 80.54%			
7) 2-Fluorobiphenyl	6.966	172	1256111	37.6214	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 75.24%			
21) Terphenyl-d14	10.704	244	778125	37.7452	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 75.50%			
Target Compounds						Qvalue
3) N-Nitrosodimethylamine	2.480	74	60	N.D.		
4) N-Nitrosodi-propylamine	0.000	70	0	N.D. d		
5) Naphthalene	5.934	128	17217	0.4565	ug/mL	91
8) 2-Methylnaphthalene	6.620	142	22196	0.9354	ug/mL	97
9) 1-Methylnaphthalene	6.707	142	9923	0.4041	ug/mL	96
10) Acenaphthylene	7.498	152	701	N.D.		
11) Acenaphthene	7.640	154	690	N.D.		
12) Dibenzofuran	7.840	168	1525	N.D.		
13) Fluorene	0.000	166	0	N.D. d		
14) Diphenylamine	8.301	169	2702	0.1024	ug/mL#	63
16) Phenanthrene	9.145	178	12750	0.2651	ug/mL	79
17) Anthracene	0.000	178	0	N.D. d		
18) Fluoranthene	10.324	202	1933	N.D.		
20) Pyrene	10.553	202	2178	N.D.		
22) Benzo(a)anthracene	0.000	228	0	N.D. d		
23) Chrysene	11.772	228	4679	0.0761	ug/mL	80
25) Benzo(b)fluoranthene	0.000	252	0	N.D. d		
26) Benzo(k)fluoranthene	12.778	252	3043	N.D.		
27) Benzo(a)pyrene	13.125	252	709	N.D.		
28) Indeno(1,2,3-cd)pyrene	14.503	276	867	N.D.		
29) Dibenz(a,h)anthracene	14.524	278	759	N.D.		
30) Benzo(g,h,i)perylene	14.503	276	867	N.D.		

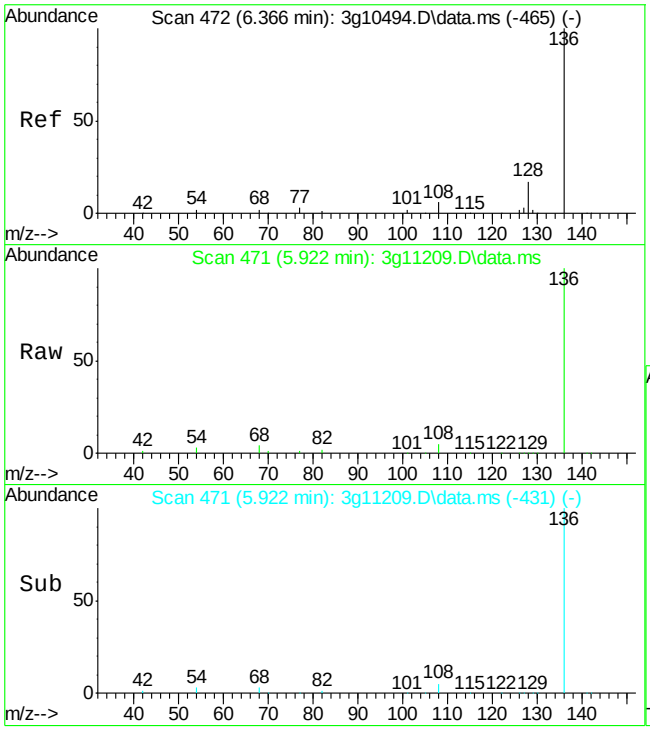
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\091212\
Data File : 3g11209.D
Acq On : 13 Sep 2012 1:36 am
Operator : DONC
Sample : D38605-1
Misc : OP6608,E3G522,30.00,,,1,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 13 12:56:49 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G511.M
Quant Title : PAHSIM BASE
QLast Update : Thu Sep 06 09:42:23 2012
Response via : Initial Calibration

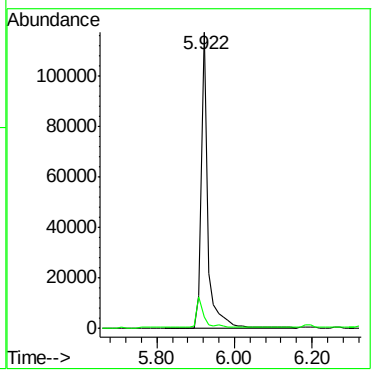


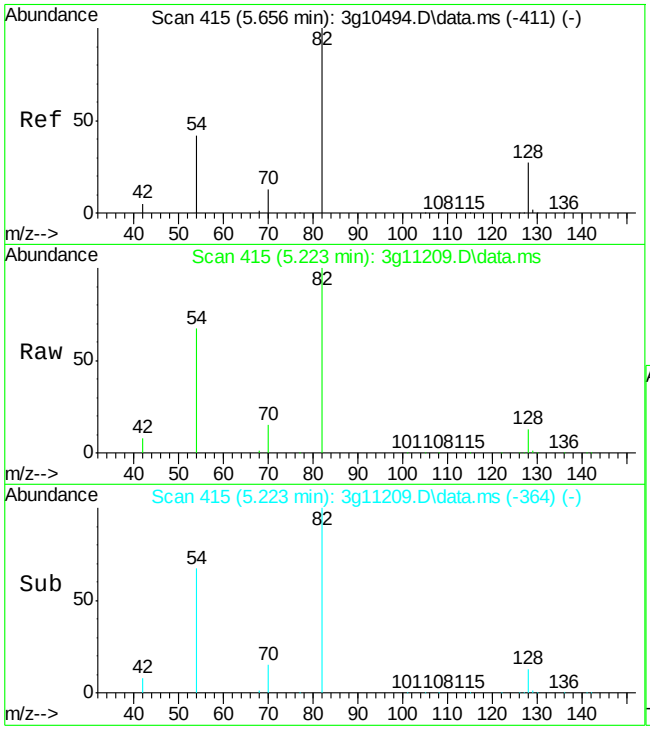


#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.922 min Scan# 471
Delta R.T. -0.000 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:136 Resp: 135535

Ion	Ratio	Lower	Upper
136	100		
68	12.0	0.0	30.4

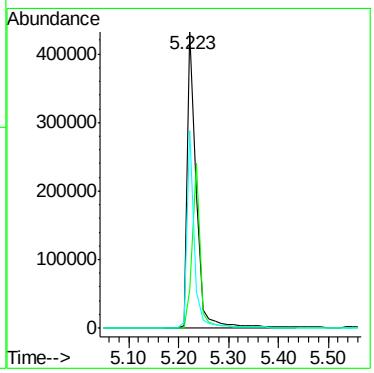


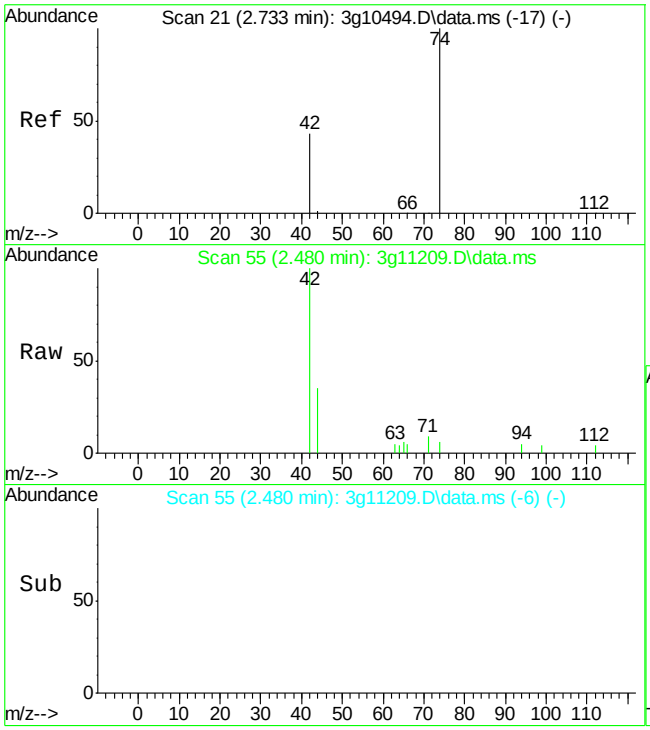


#2
Nitrobenzene-d5
Concen: 40.2736 ug/mL
RT: 5.223 min Scan# 415
Delta R.T. 0.000 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion: 82 Resp: 537046

Ion	Ratio	Lower	Upper
82	100		
128	49.0	19.7	59.7
54	54.1	28.6	68.6

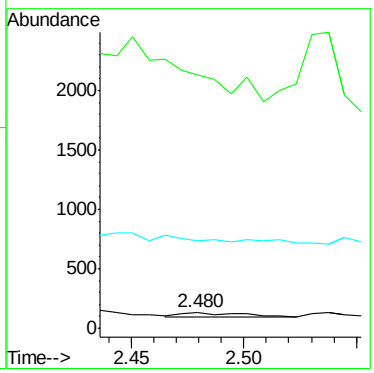


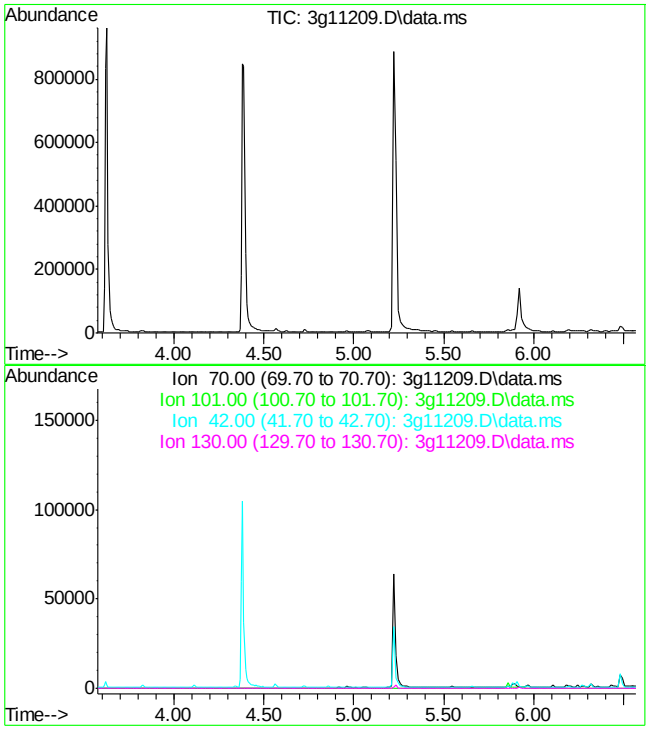


#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.480 min Scan# 55
Delta R.T. -0.145 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion: 74 Resp: 60

Ion	Ratio	Lower	Upper
74	100		
42	0.0	33.3	73.3#
44	145.0	0.0	23.5#



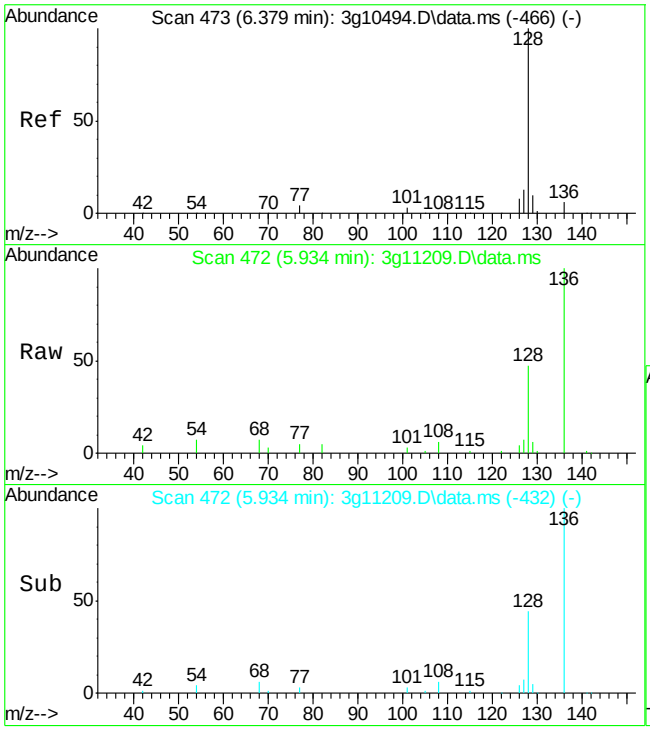


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.07 min

Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion: 70

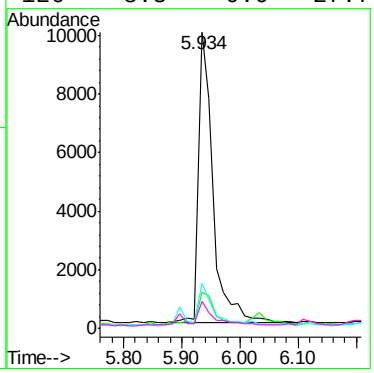
Sig	Exp Ratio
70	100
101	10.3
42	47.6
130	20.0

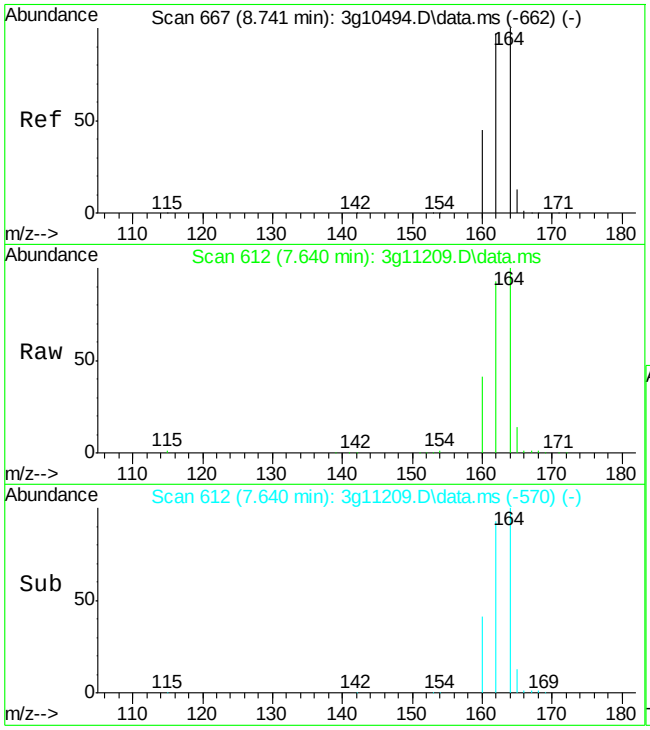


#5
Naphthalene
Concen: 0.4565 ug/mL
RT: 5.934 min Scan# 472
Delta R.T. -0.000 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:128 Resp: 17217

Ion	Ratio	Lower	Upper
128	100		
129	13.6	0.0	30.8
127	19.5	0.0	33.4
126	8.3	0.0	27.7

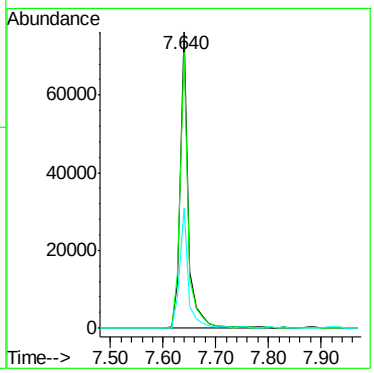


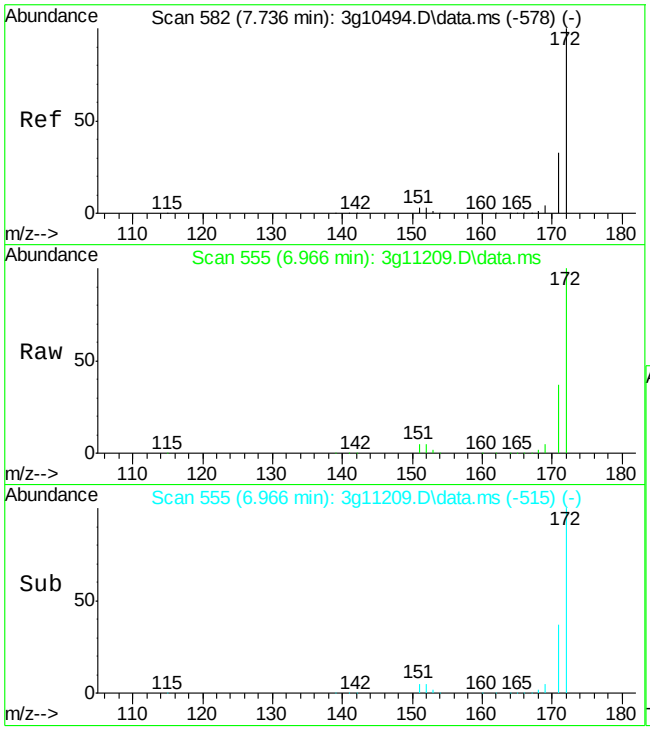


#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.640 min Scan# 612
Delta R.T. -0.000 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:164 Resp: 80265

Ion	Ratio	Lower	Upper
164	100		
162	95.7	73.5	113.5
160	42.9	21.8	61.8

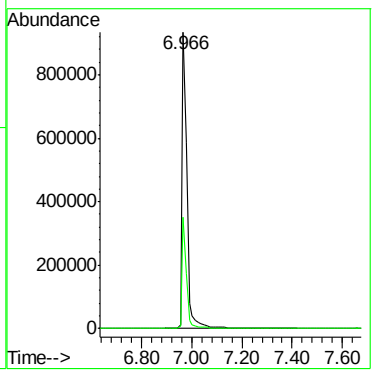


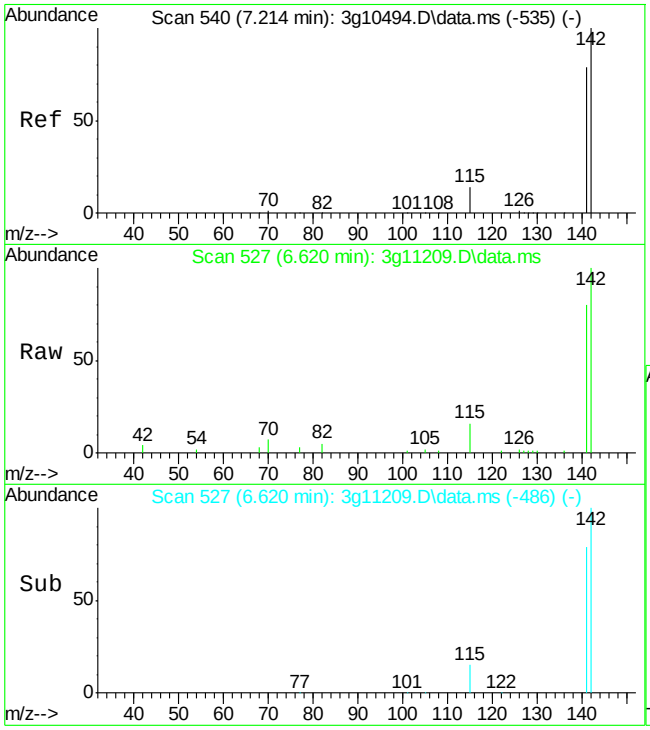


#7
2-Fluorobiphenyl
Concen: 37.6214 ug/mL
RT: 6.966 min Scan# 555
Delta R.T. -0.000 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:172 Resp: 1256111

Ion	Ratio	Lower	Upper
172	100		
171	34.3	13.6	53.6

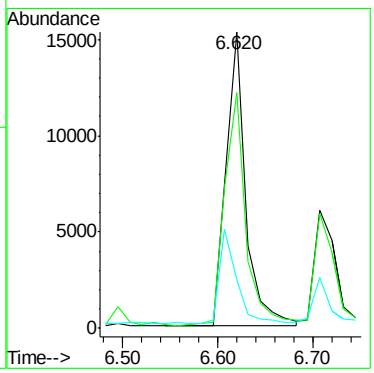


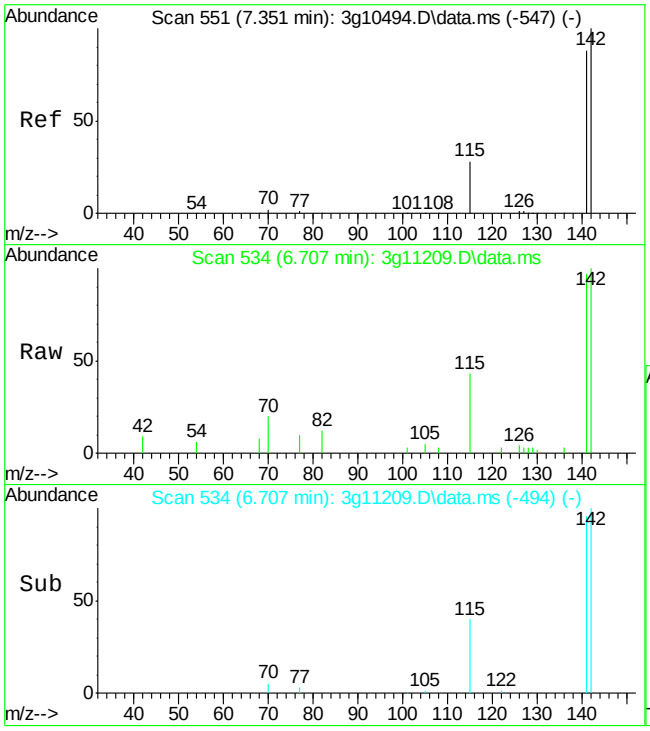


#8
2-Methylnaphthalene
Concen: 0.9354 ug/mL
RT: 6.620 min Scan# 527
Delta R.T. 0.012 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:142 Resp: 22196

Ion	Ratio	Lower	Upper
142	100		
141	84.4	64.5	104.5
115	28.4	13.6	53.6

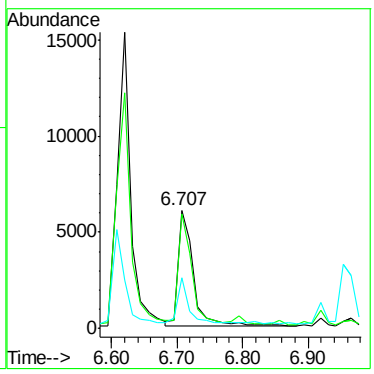


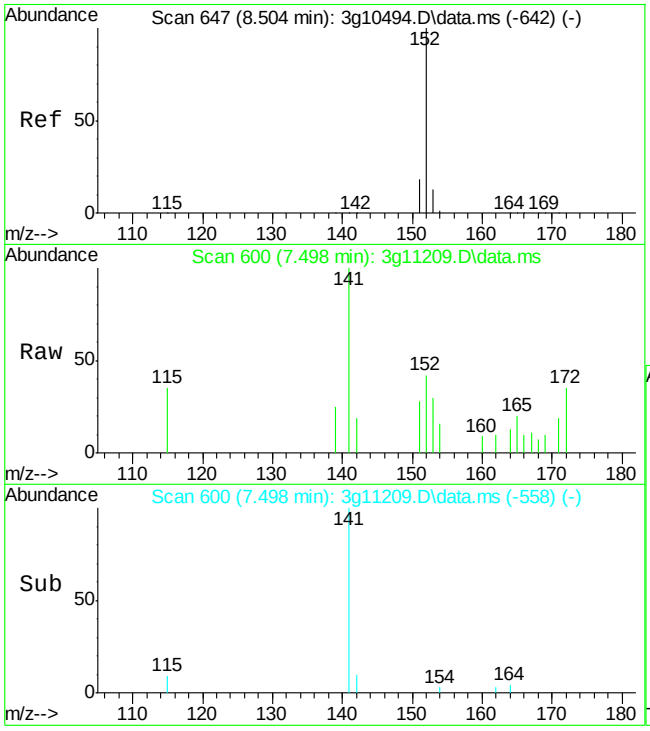


#9
1-Methylnaphthalene
Concen: 0.4041 ug/mL
RT: 6.707 min Scan# 534
Delta R.T. -0.000 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:142 Resp: 9923

Ion	Ratio	Lower	Upper
142	100		
141	84.9	67.8	107.8
115	27.4	11.0	51.0

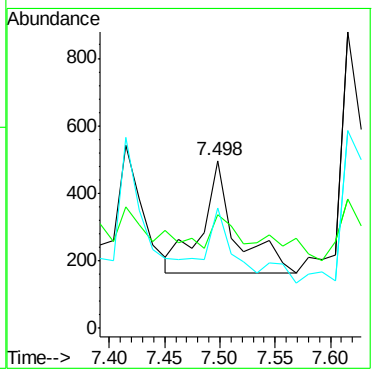


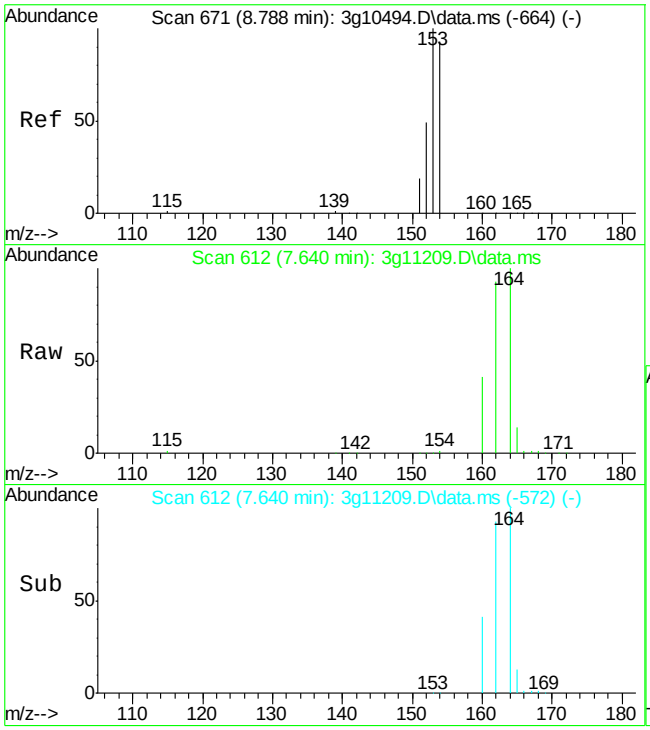


#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.498 min Scan# 600
Delta R.T. -0.000 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:152 Resp: 701

Ion	Ratio	Lower	Upper
152	100		
151	19.1	0.0	39.2
153	43.9	0.0	33.2#

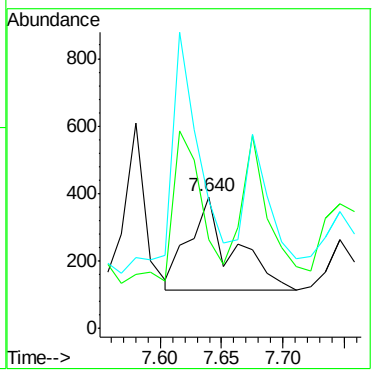


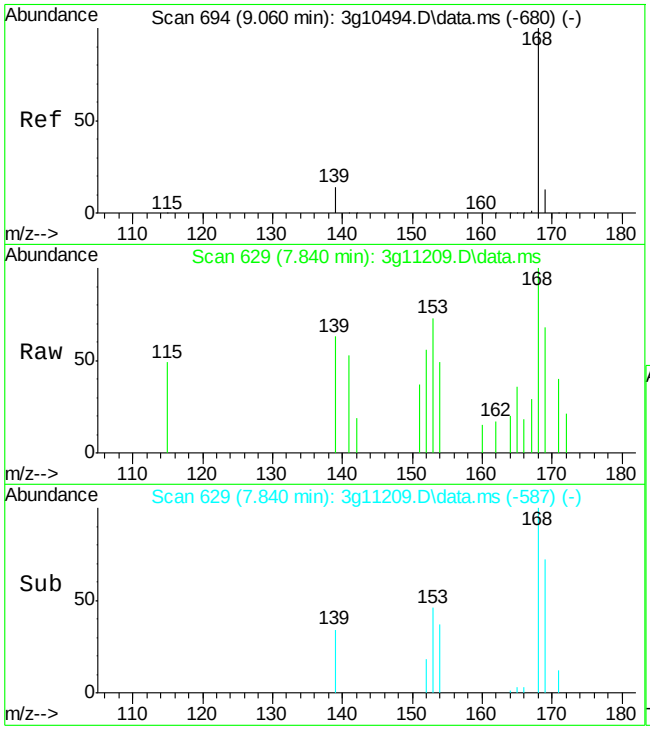


#11
Acenaphthene
Concen: Below ug/mL
RT: 7.640 min Scan# 612
Delta R.T. -0.024 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:154 Resp: 690

Ion	Ratio	Lower	Upper
154	100		
153	91.4	84.8	124.8
152	162.3	29.9	69.9#

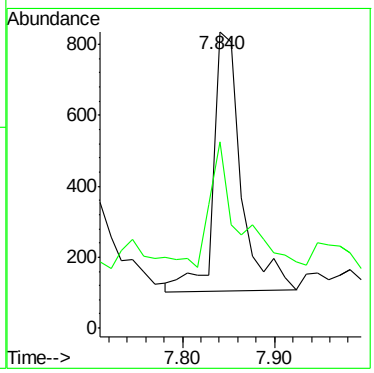


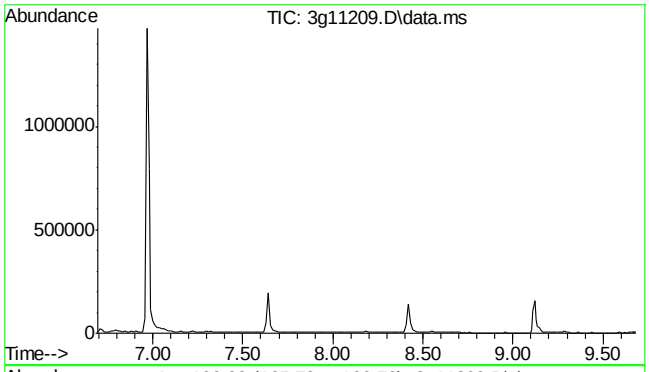


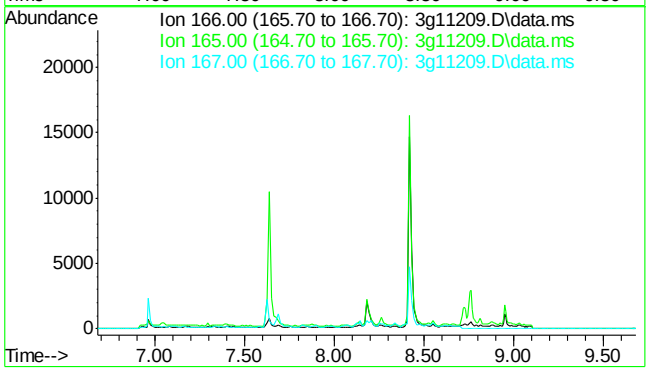
#12
Dibenzofuran
Concen: Below ug/mL
RT: 7.840 min Scan# 629
Delta R.T. -0.000 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:168 Resp: 1525

Ion	Ratio	Lower	Upper
168	100		
139	46.0	7.6	47.6





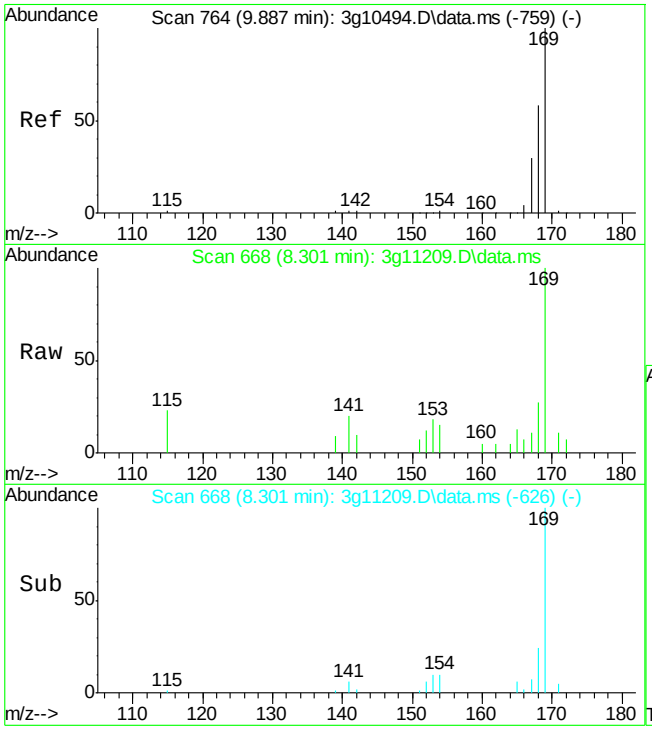


#13
Fluorene
Concen: N.D. ug/mL
Expected RT: 8.18 min

Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion: 166

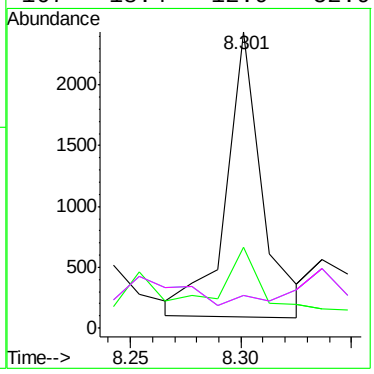
Sig	Exp Ratio
166	100
165	91.1
167	13.3

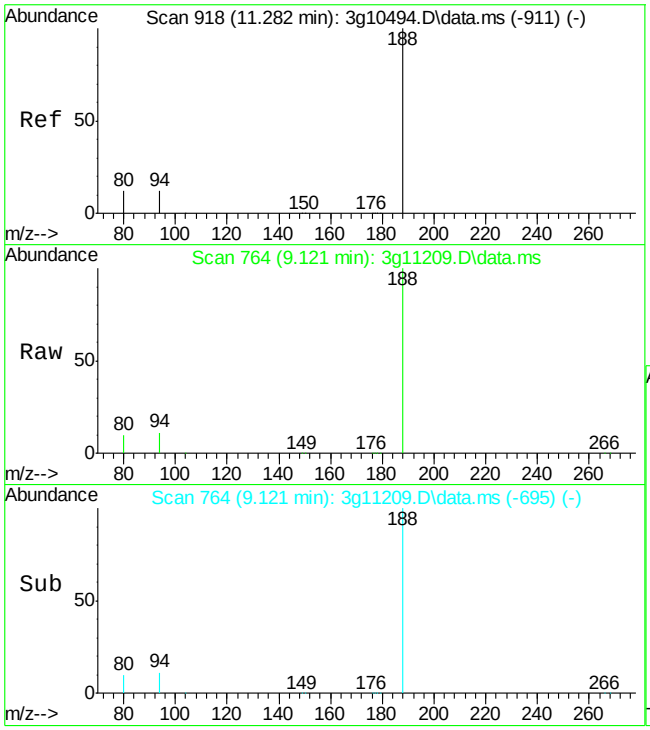


#14
Diphenylamine
Concen: 0.1024 ug/mL
RT: 8.301 min Scan# 668
Delta R.T. -0.000 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:169 Resp: 2702

Ion	Ratio	Lower	Upper
169	100		
168	23.0	41.0	81.0#
167	18.4	12.9	52.9
167	18.4	12.9	52.9

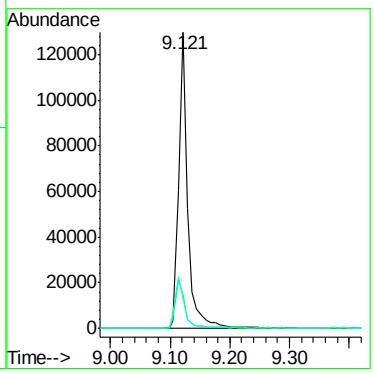


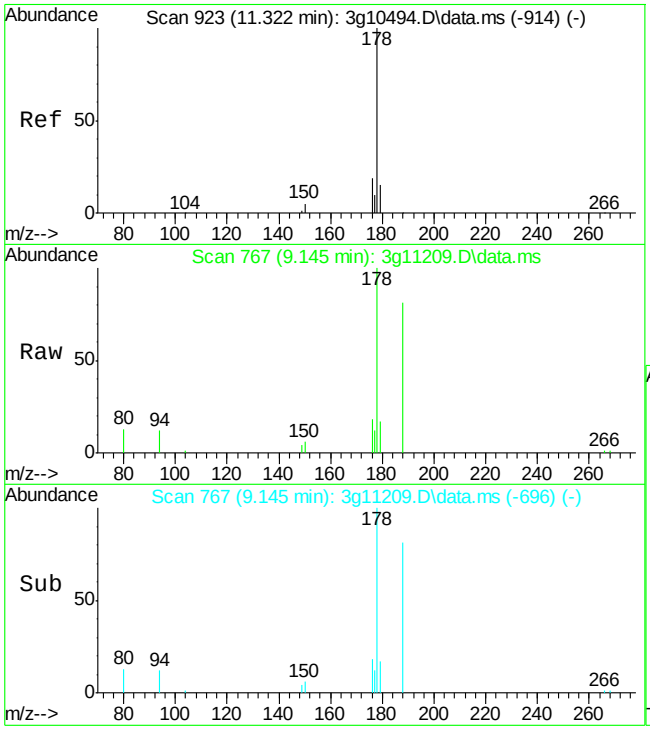


#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 9.121 min Scan# 764
Delta R.T. -0.000 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:188 Resp: 137117

Ion	Ratio	Lower	Upper
188	100		
94	16.6	0.0	33.9
80	18.7	0.0	35.5

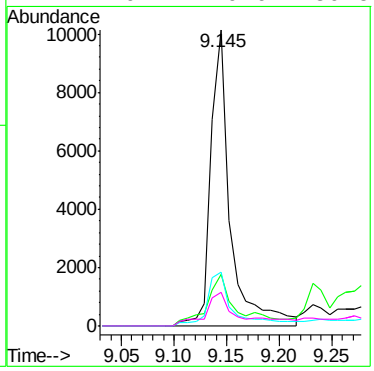


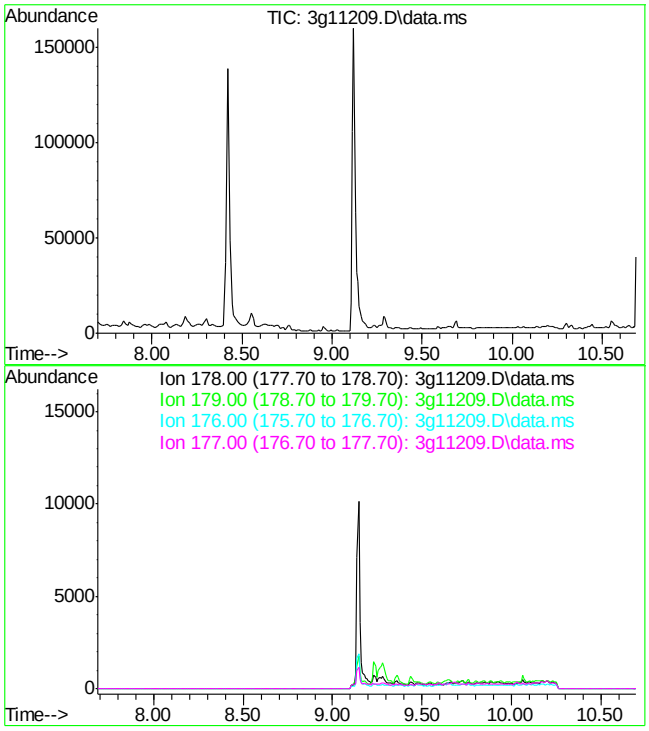


#16
Phenanthrene
Concen: 0.2651 ug/mL
RT: 9.145 min Scan# 767
Delta R.T. 0.008 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:178 Resp: 12750

Ion	Ratio	Lower	Upper
178	100		
179	27.7	0.0	35.3
176	23.6	0.0	38.5
177	20.1	0.0	30.5



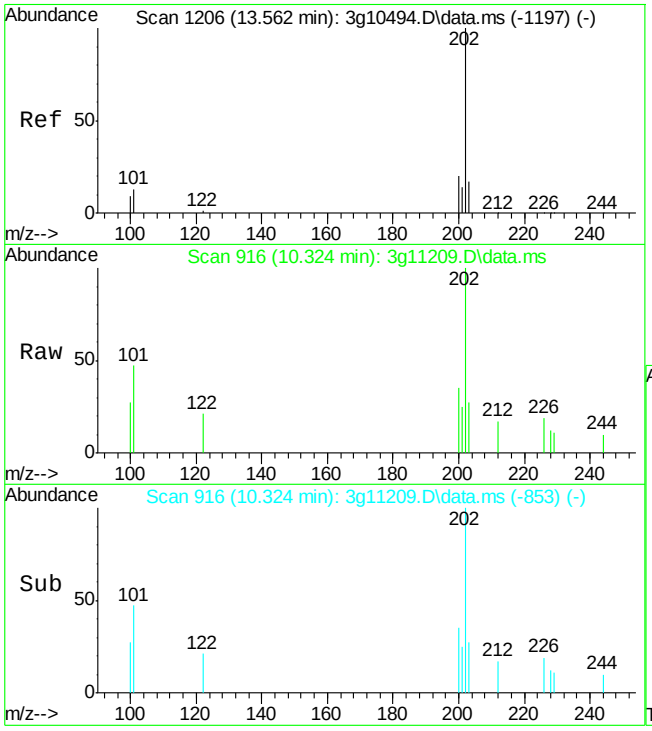


#17
Anthracene
Concen: N.D. ug/mL
Expected RT: 9.19 min

Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion: 178

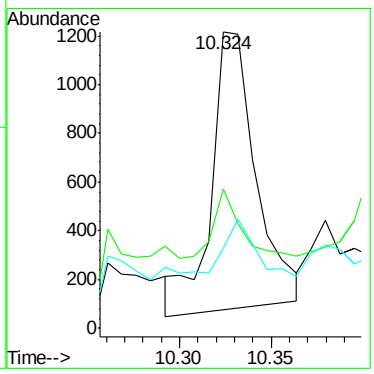
Sig	Exp Ratio
178	100
179	15.2
176	17.7
177	9.0

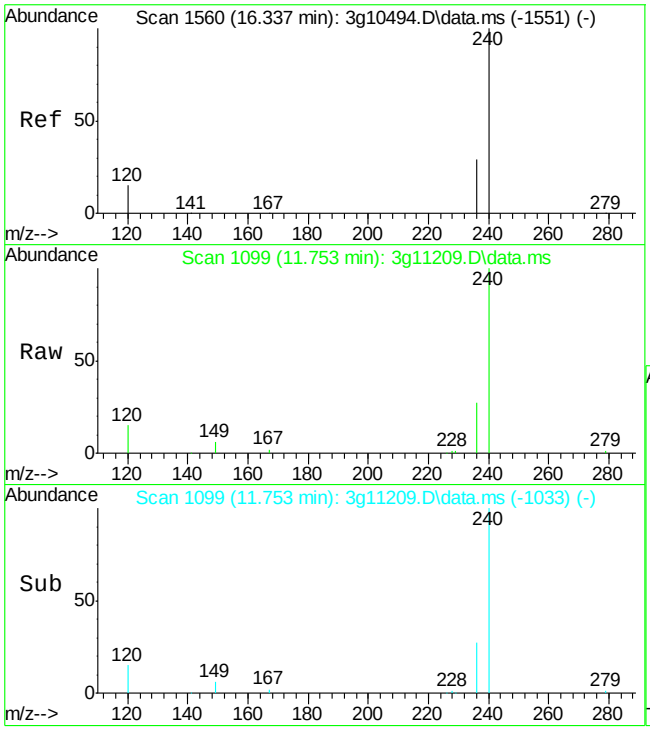


#18
Fluoranthene
Concen: Below ug/mL
RT: 10.324 min Scan# 916
Delta R.T. -0.000 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:202 Resp: 1933

Ion	Ratio	Lower	Upper
202	100		
101	37.5	0.0	33.0#
203	24.4	0.0	37.4

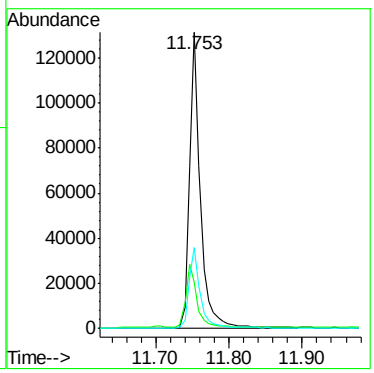


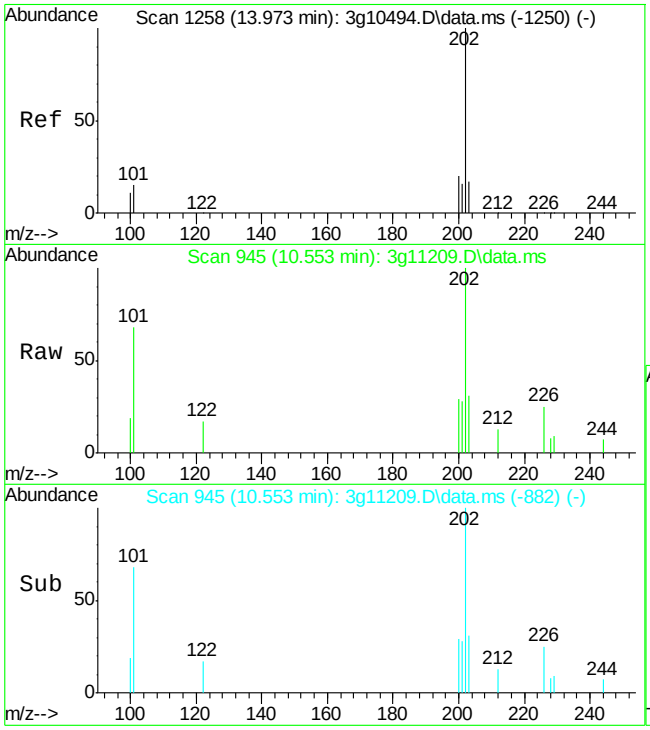


#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.753 min Scan# 1099
Delta R.T. -0.000 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:240 Resp: 136819

Ion	Ratio	Lower	Upper
240	100		
120	21.9	0.0	36.2
236	28.3	8.8	48.8

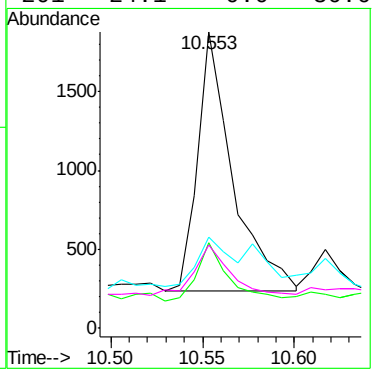


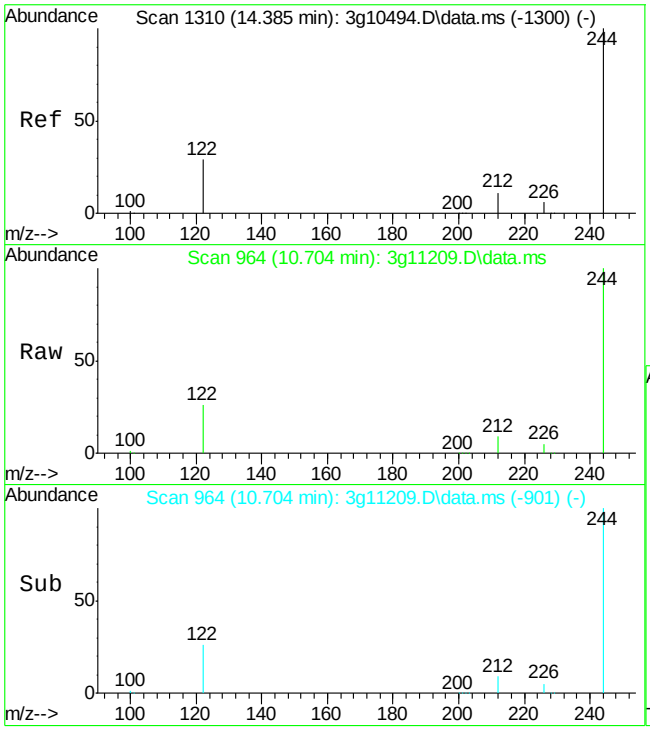


#20
Pyrene
Concen: Below ug/mL
RT: 10.553 min Scan# 945
Delta R.T. 0.000 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:202 Resp: 2178

Ion	Ratio	Lower	Upper
202	100		
200	19.8	0.1	40.1
203	27.8	0.0	37.8
201	24.1	0.0	36.6

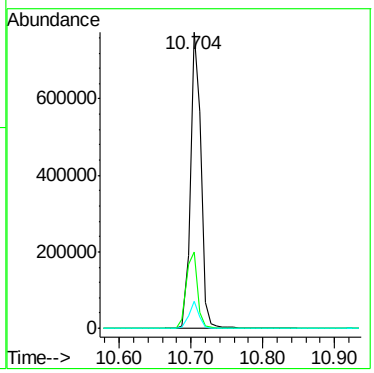


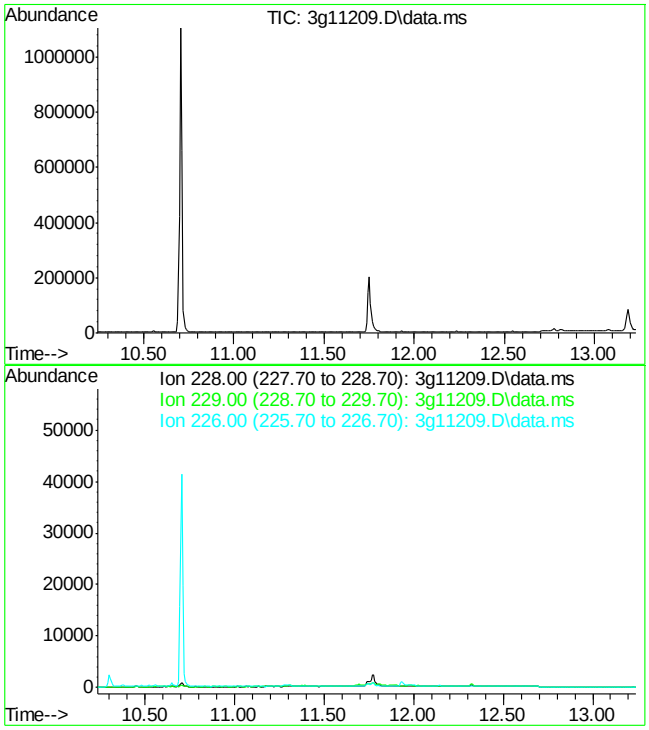


#21
Terphenyl-d14
Concen: 37.7452 ug/mL
RT: 10.704 min Scan# 964
Delta R.T. -0.000 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:244 Resp: 778125

Ion	Ratio	Lower	Upper
244	100		
122	27.1	1.3	41.3
212	8.5	0.0	28.8



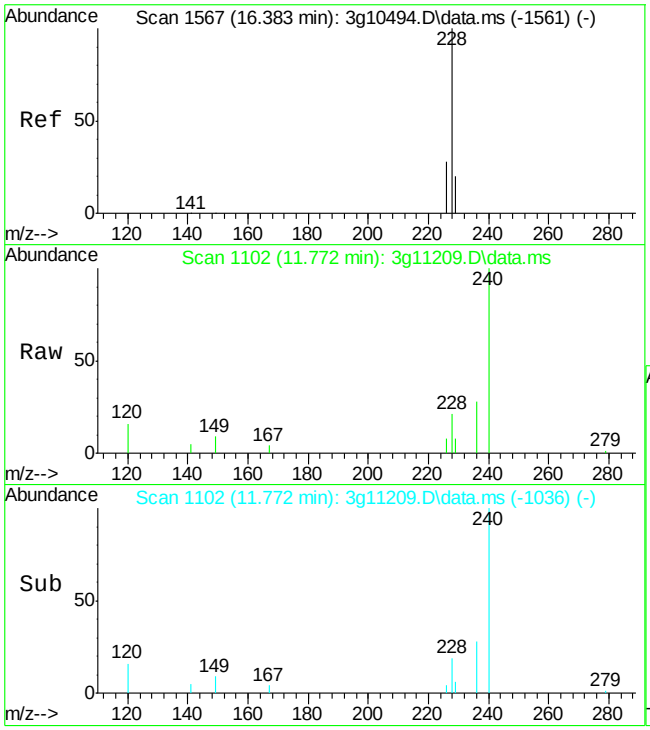


#22
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 11.74 min

Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion: 228

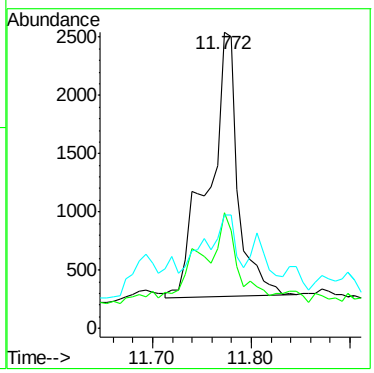
Sig	Exp Ratio
228	100
229	19.6
226	26.6

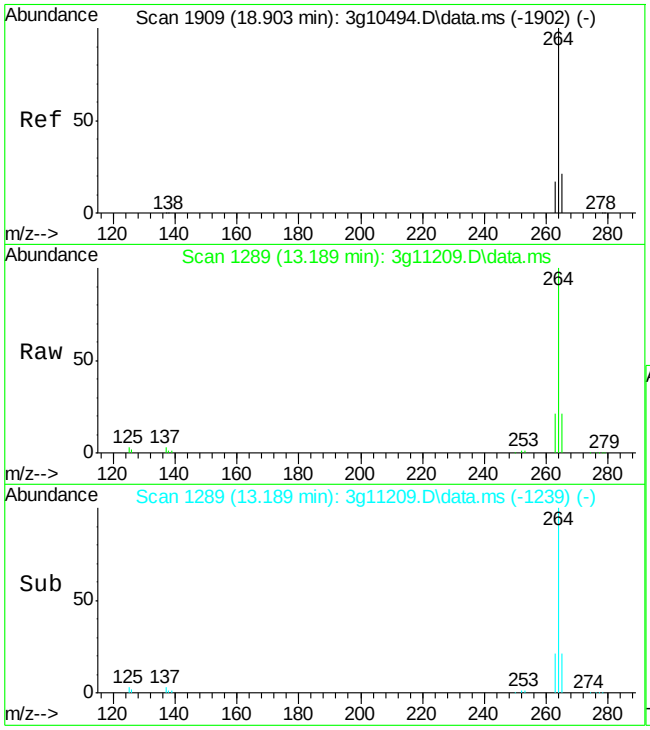


#23
Chrysene
Concen: 0.0761 ug/mL
RT: 11.772 min Scan# 1102
Delta R.T. -0.000 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:228 Resp: 4679

Ion	Ratio	Lower	Upper
228	100		
226	19.0	8.6	48.6
229	29.7	0.0	39.4

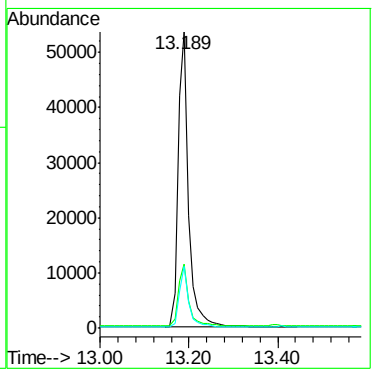


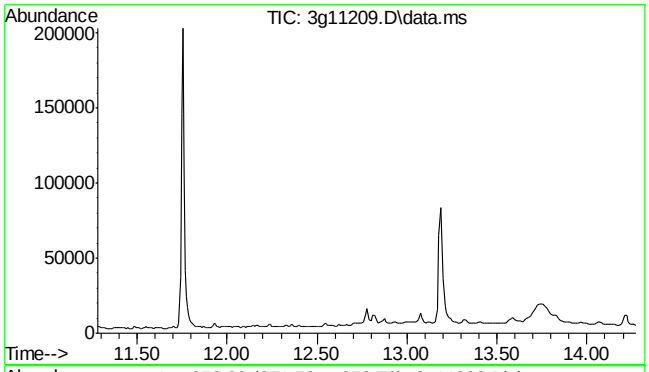


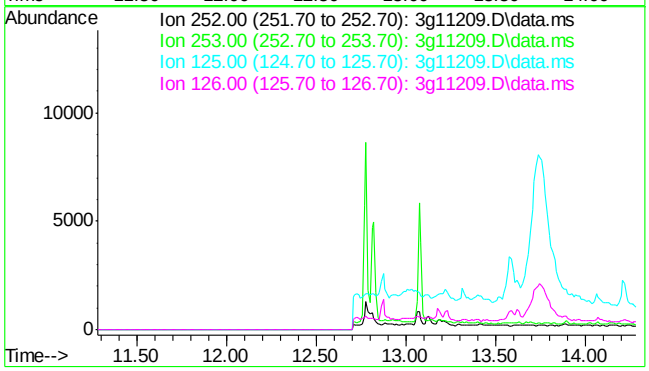
#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 13.189 min Scan# 1289
Delta R.T. 0.010 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:264 Resp: 89151

Ion	Ratio	Lower	Upper
264	100		
265	20.6	1.0	41.0
263	19.0	0.0	39.0





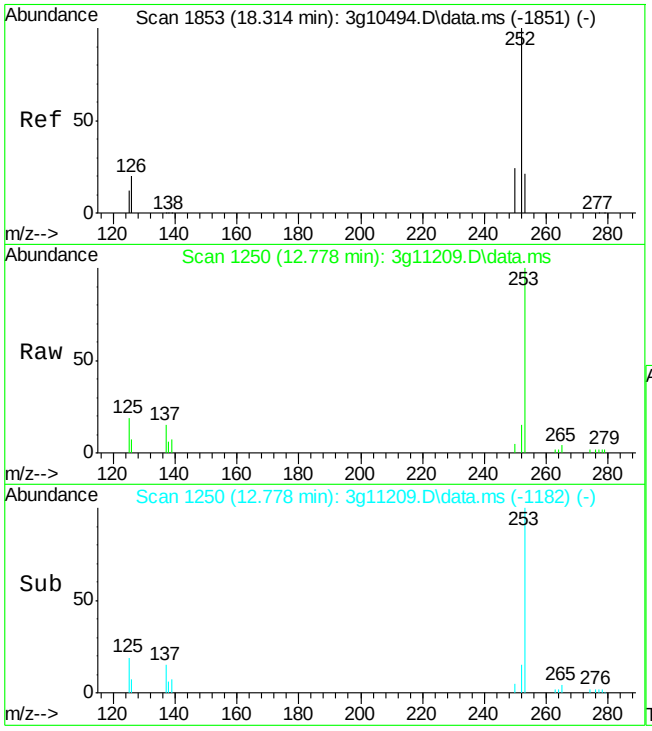


#25
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.78 min

Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion: 252

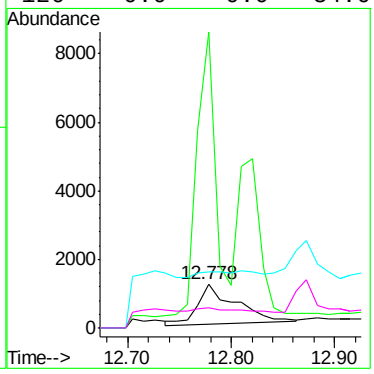
Sig	Exp Ratio
252	100
253	22.9
125	11.5
126	14.7

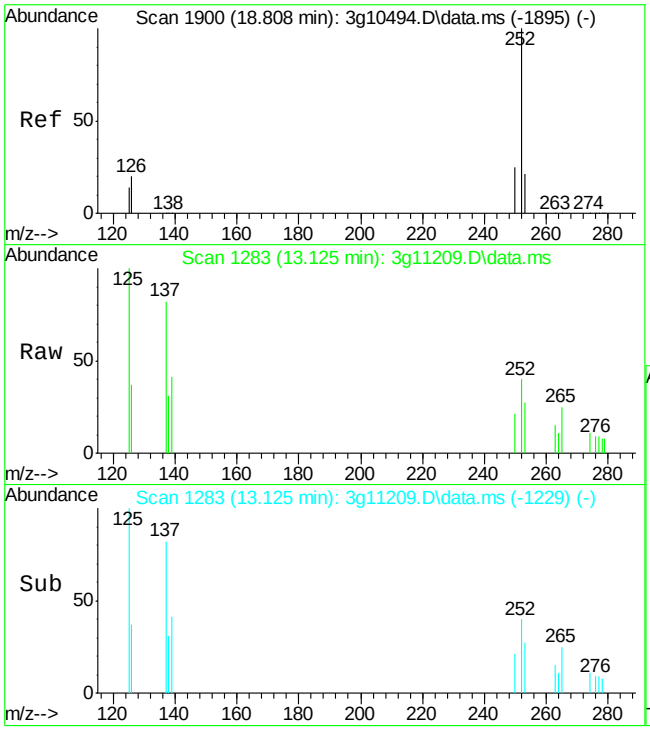


#26
Benzo(k)fluoranthene
Concen: Below ug/mL
RT: 12.778 min Scan# 1250
Delta R.T. -0.021 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:252 Resp: 3043

Ion	Ratio	Lower	Upper
252	100		
253	386.0	1.8	41.8#
125	0.0	0.0	31.0
126	0.0	0.0	34.0

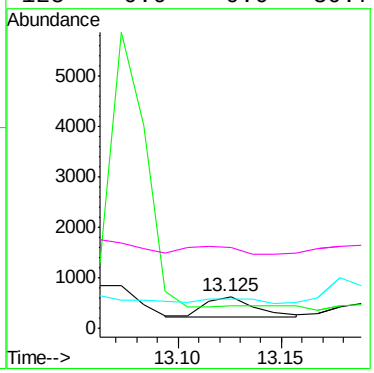


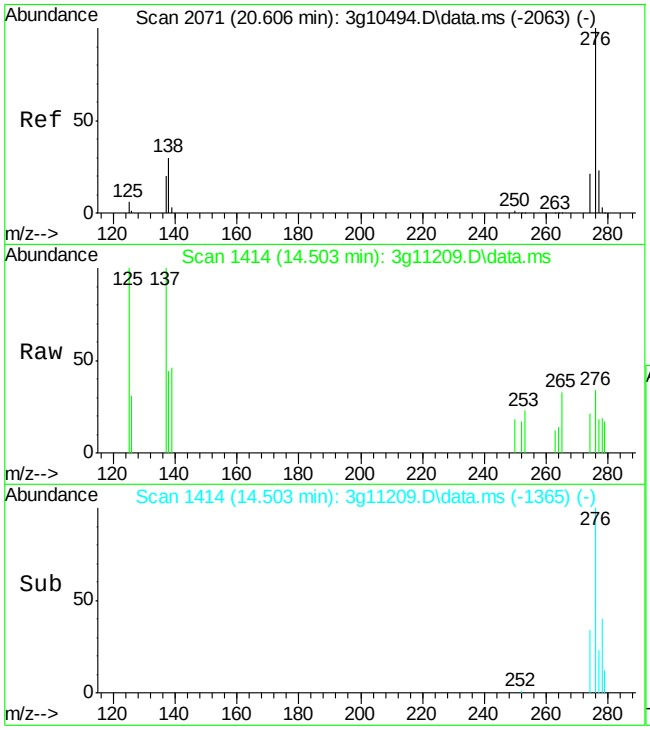


#27
Benzo(a)pyrene
Concen: Below ug/mL
RT: 13.125 min Scan# 1283
Delta R.T. 0.011 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:252 Resp: 709

Ion	Ratio	Lower	Upper
252	100		
253	0.0	1.4	41.4#
126	0.0	0.0	33.6
125	0.0	0.0	30.7

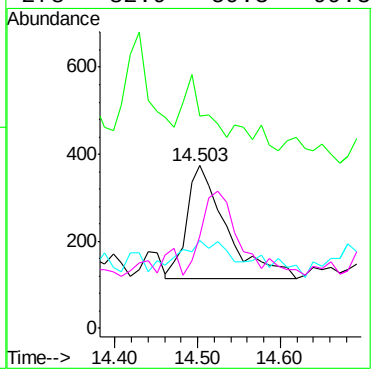


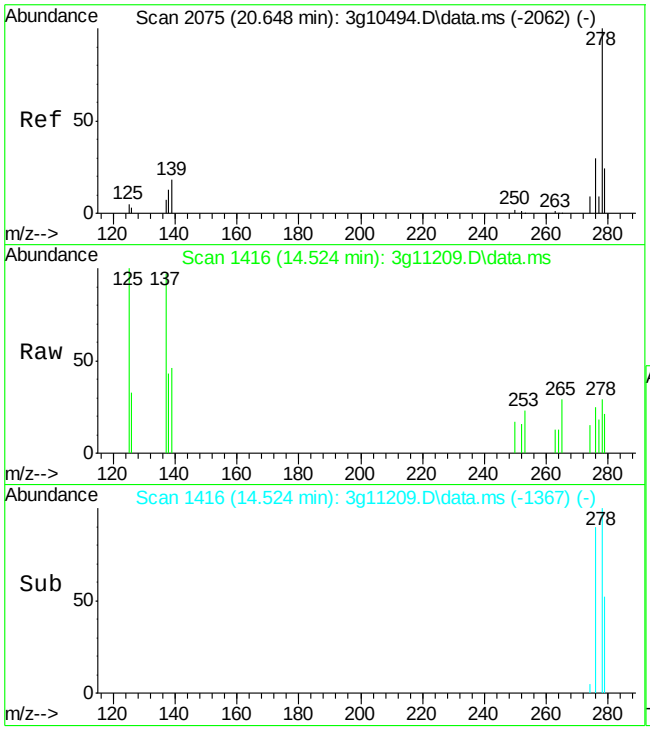


#28
Indeno(1,2,3-cd)pyrene
Concen: Below ug/mL
RT: 14.503 min Scan# 1414
Delta R.T. 0.011 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:276 Resp: 867

Ion	Ratio	Lower	Upper
276	100		
138	29.2	5.3	45.3
277	21.5	5.0	45.0
278	82.9	59.3	99.3

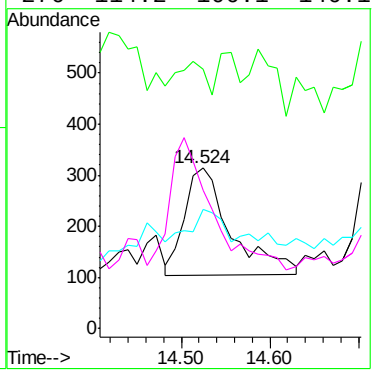


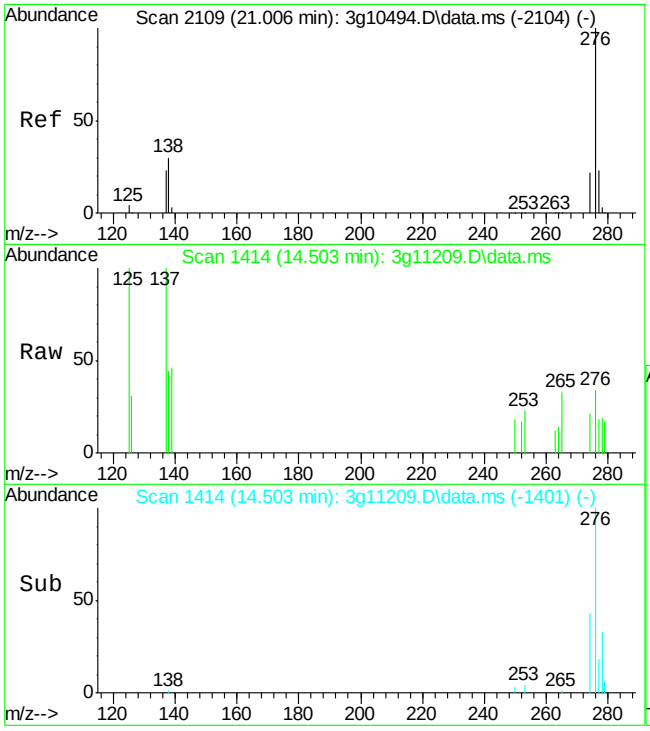


#29
Dibenz(a,h)anthracene
Concen: Below ug/mL
RT: 14.524 min Scan# 1416
Delta R.T. 0.011 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:278 Resp: 759

Ion	Ratio	Lower	Upper
278	100		
139	20.0	0.0	38.4
279	16.2	3.1	43.1
276	114.2	106.1	146.1

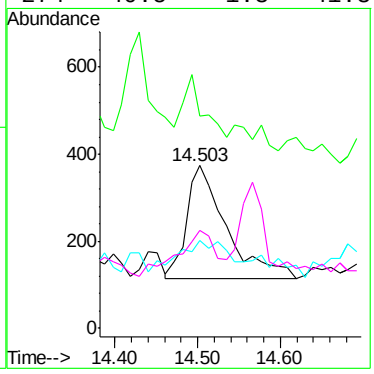




#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.503 min Scan# 1414
Delta R.T. -0.368 min
Lab File: 3g11209.D
Acq: 13 Sep 12 1:36 am

Tgt Ion:276 Resp: 867

Ion	Ratio	Lower	Upper
276	100		
138	26.3	1.3	41.3
277	23.4	3.4	43.4
274	40.5	1.3	41.3



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\091212\
Data File : 3g11193.D
Acq On : 12 Sep 2012 7:14 pm
Operator : DONC
Sample : OP6608-MB
Misc : OP6608,E3G522,30.00,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 13 09:01:48 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G511.M
Quant Title : PAHSIM BASE
QLast Update : Thu Sep 06 09:42:23 2012
Response via : Initial Calibration

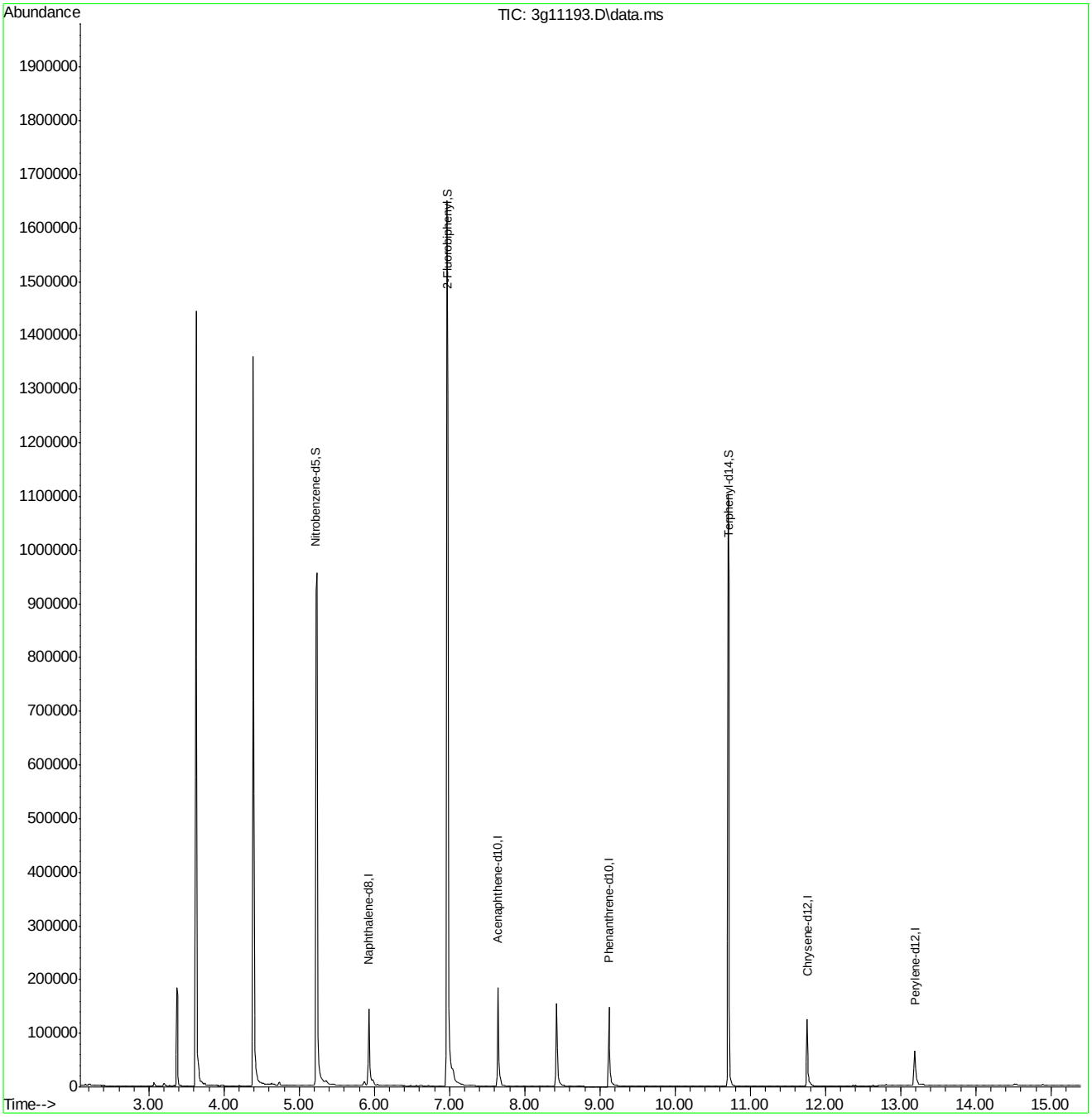
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.922	136	143705	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.640	164	80206	4.0000	ug/mL	0.00
15) Phenanthrene-d10	9.121	188	124113	4.0000	ug/mL	0.00
19) Chrysene-d12	11.759	240	111154	4.0000	ug/mL	0.00
24) Perylene-d12	13.189	264	70864	4.0000	ug/mL	0.01
System Monitoring Compounds						
2) Nitrobenzene-d5	5.224	82	682377	48.2629	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 96.52%			
7) 2-Fluorobiphenyl	6.966	172	1619230	48.5327	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 97.06%			
21) Terphenyl-d14	10.712	244	849535	50.7242	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 101.44%			
Target Compounds						Qvalue
3) N-Nitrosodimethylamine	2.632	74	17	N.D.		
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.		d
5) Naphthalene	5.934	128	387	N.D.		
8) 2-Methylnaphthalene	6.620	142	246	N.D.		
9) 1-Methylnaphthalene	6.720	142	164	N.D.		
10) Acenaphthylene	7.498	152	189	N.D.		
11) Acenaphthene	7.640	154	470	N.D.		
12) Dibenzofuran	7.616	168	108	N.D.		
13) Fluorene	0.000	166	0	N.D.		d
14) Diphenylamine	0.000	169	0	N.D.		d
16) Phenanthrene	9.145	178	750	N.D.		
17) Anthracene	9.192	178	331	N.D.		
18) Fluoranthene	10.332	202	830	N.D.		
20) Pyrene	10.561	202	603	N.D.		
22) Benzo(a)anthracene	11.746	228	960	N.D.		
23) Chrysene	11.779	228	745	N.D.		
25) Benzo(b)fluoranthene	12.778	252	648	N.D.		
26) Benzo(k)fluoranthene	12.778	252	648	N.D.		
27) Benzo(a)pyrene	13.126	252	449	N.D.		
28) Indeno(1,2,3-cd)pyrene	14.514	276	751	N.D.		
29) Dibenz(a,h)anthracene	14.535	278	345	N.D.		
30) Benzo(g,h,i)perylene	14.892	276	544	N.D.		

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

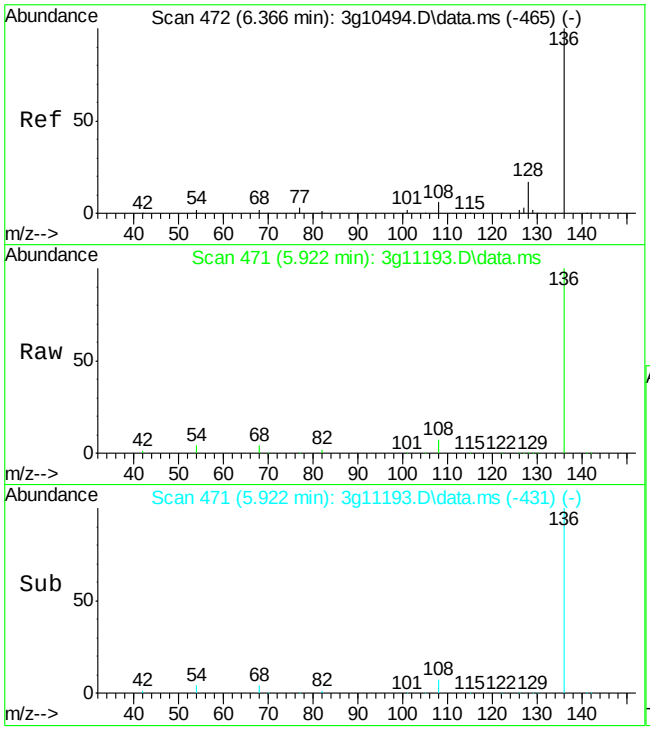
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\091212\
Data File : 3g11193.D
Acq On : 12 Sep 2012 7:14 pm
Operator : DONC
Sample : OP6608-MB
Misc : OP6608,E3G522,30.00,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 13 09:01:48 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G511.M
Quant Title : PAHSIM BASE
QLast Update : Thu Sep 06 09:42:23 2012
Response via : Initial Calibration



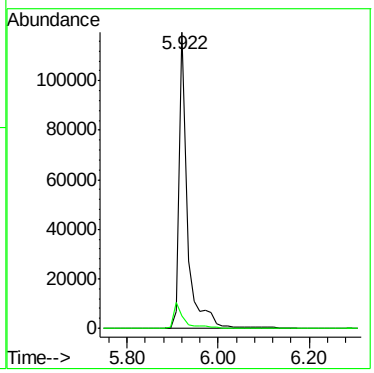
SIMPE3G511.M Thu Sep 13 09:01:56 2012 3G

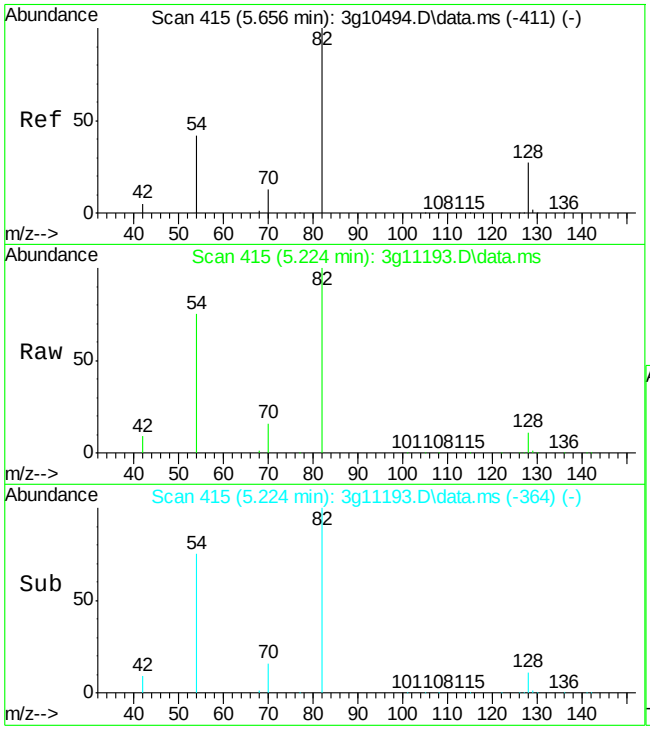


#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.922 min Scan# 471
Delta R.T. 0.000 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:136 Resp: 143705

Ion	Ratio	Lower	Upper
136	100		
68	10.4	0.0	30.4

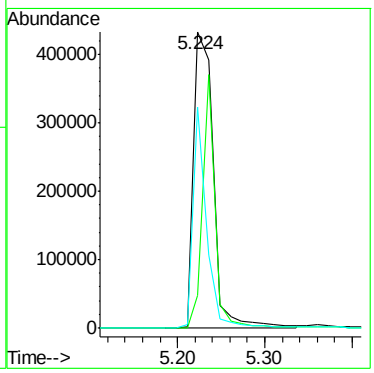


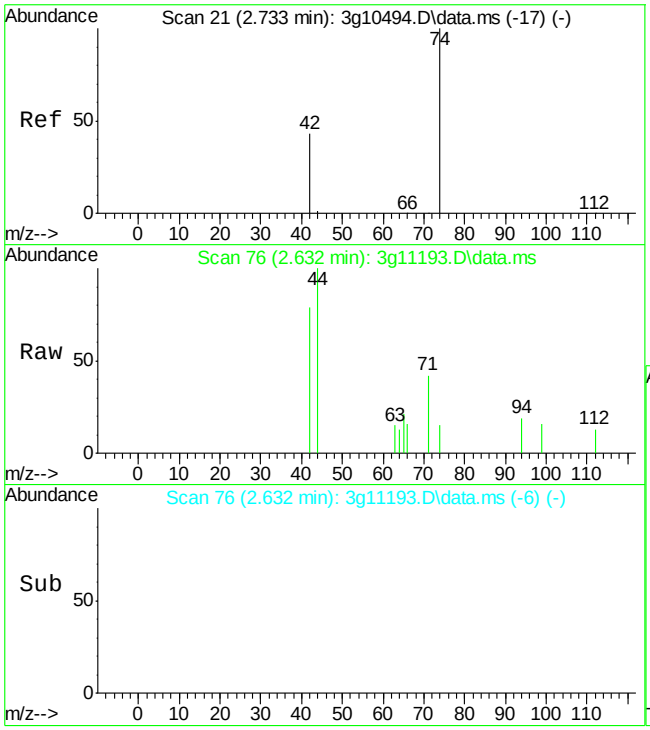


#2
Nitrobenzene-d5
Concen: 48.2629 ug/mL
RT: 5.224 min Scan# 415
Delta R.T. 0.001 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion: 82 Resp: 682377

Ion	Ratio	Lower	Upper
82	100		
128	52.8	19.7	59.7
54	51.8	28.6	68.6

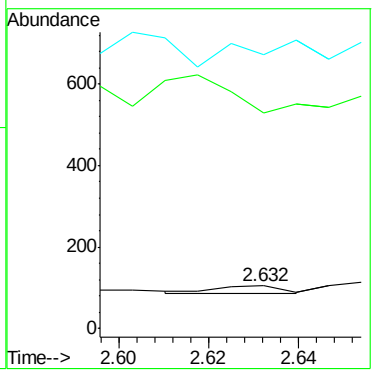


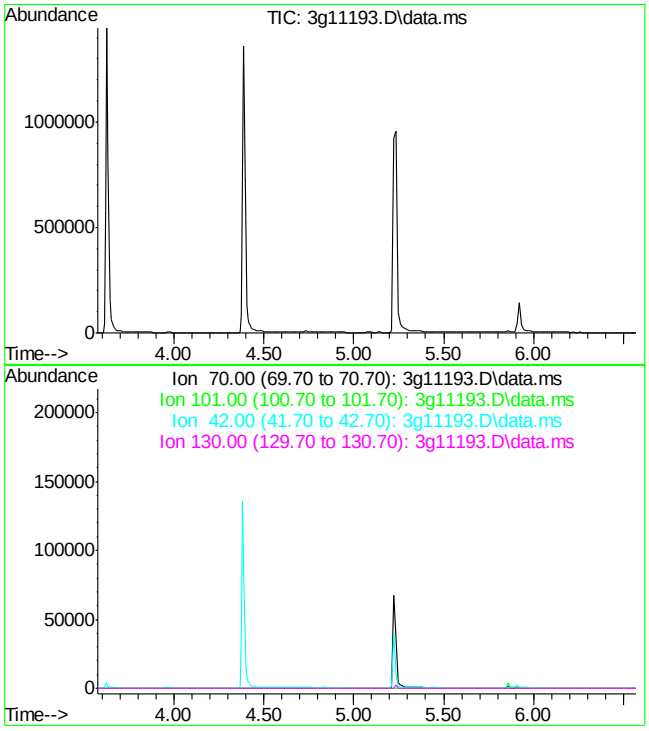


#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.632 min Scan# 76
Delta R.T. 0.007 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion: 74 Resp: 17

Ion	Ratio	Lower	Upper
74	100		
42	0.0	33.3	73.3#
44	435.3	0.0	23.5#



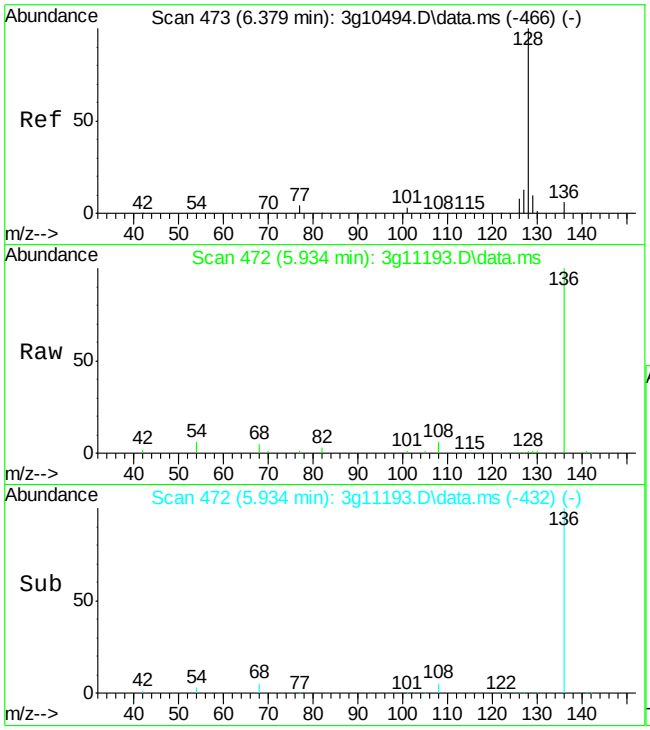


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.07 min

Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion: 70

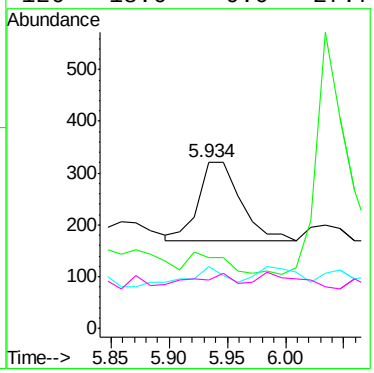
Sig	Exp Ratio
70	100
101	10.3
42	47.6
130	20.0

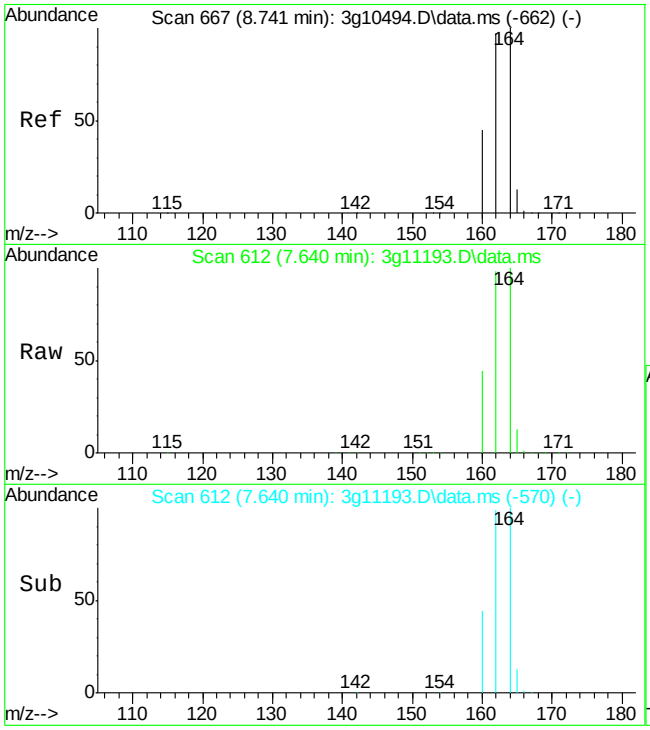


#5
Naphthalene
Concen: Below ug/mL
RT: 5.934 min Scan# 472
Delta R.T. 0.000 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:128 Resp: 387

Ion	Ratio	Lower	Upper
128	100		
129	20.7	0.0	30.8
127	22.7	0.0	33.4
126	18.6	0.0	27.7

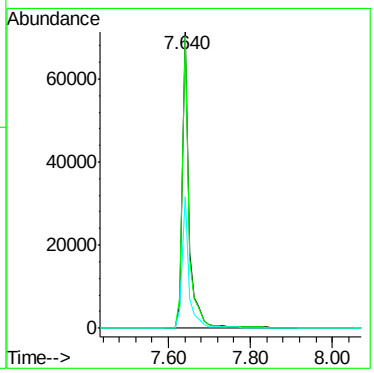


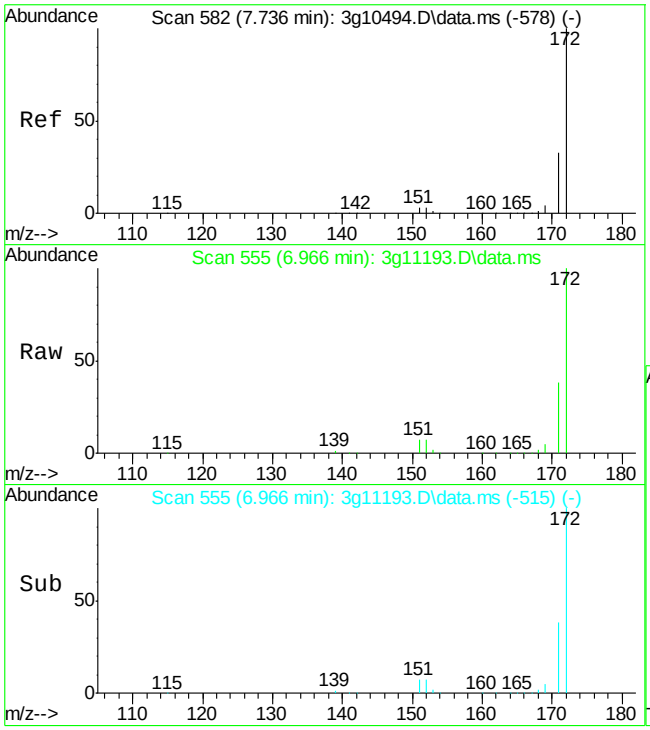


#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.640 min Scan# 612
Delta R.T. 0.000 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:164 Resp: 80206

Ion	Ratio	Lower	Upper
164	100		
162	97.9	73.5	113.5
160	44.7	21.8	61.8

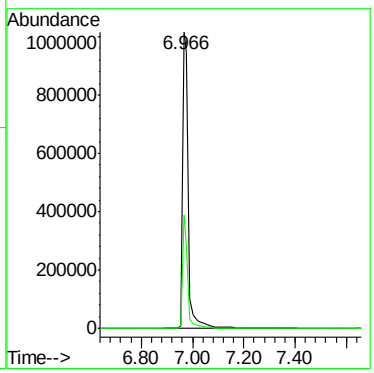


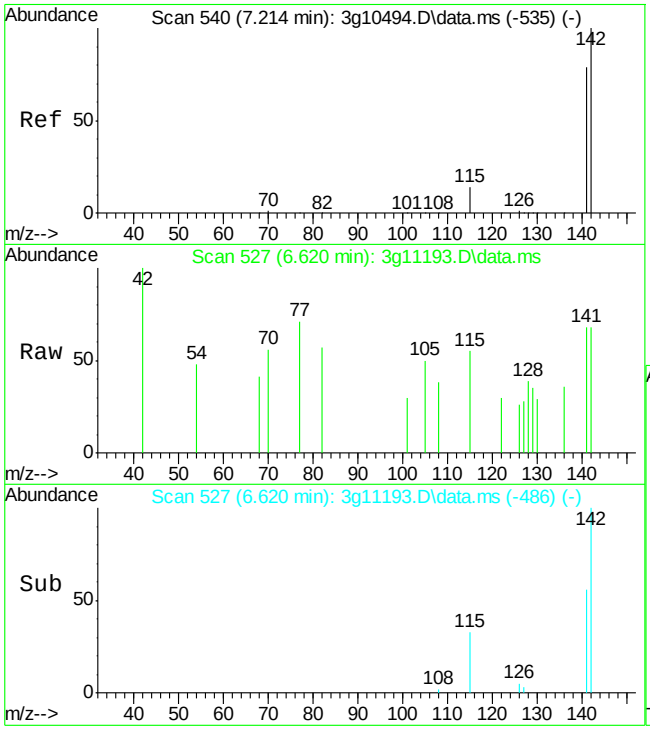


#7
2-Fluorobiphenyl
Concen: 48.5327 ug/mL
RT: 6.966 min Scan# 555
Delta R.T. 0.000 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:172 Resp: 1619230

Ion	Ratio	Lower	Upper
172	100		
171	34.2	13.6	53.6

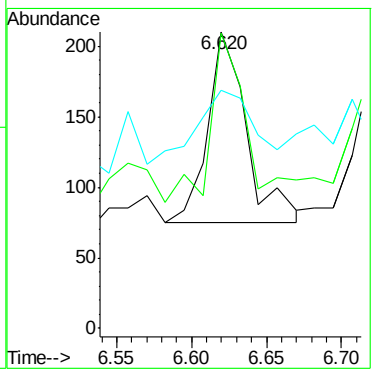


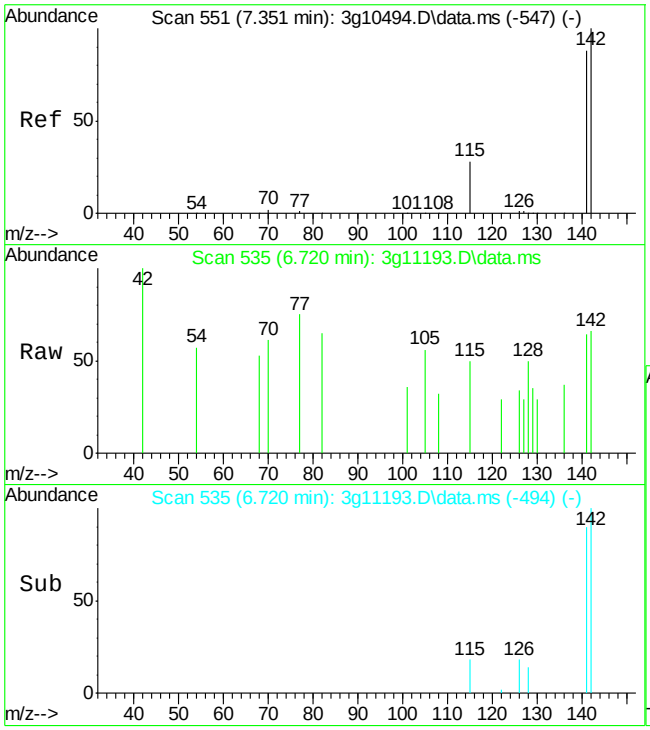


#8
2-Methylnaphthalene
Concen: Below ug/mL
RT: 6.620 min Scan# 527
Delta R.T. 0.012 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:142 Resp: 246

Ion	Ratio	Lower	Upper
142	100		
141	82.5	64.5	104.5
115	0.0	13.6	53.6#

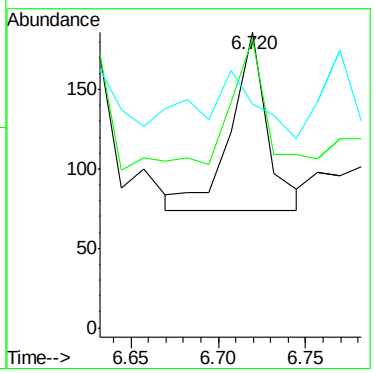


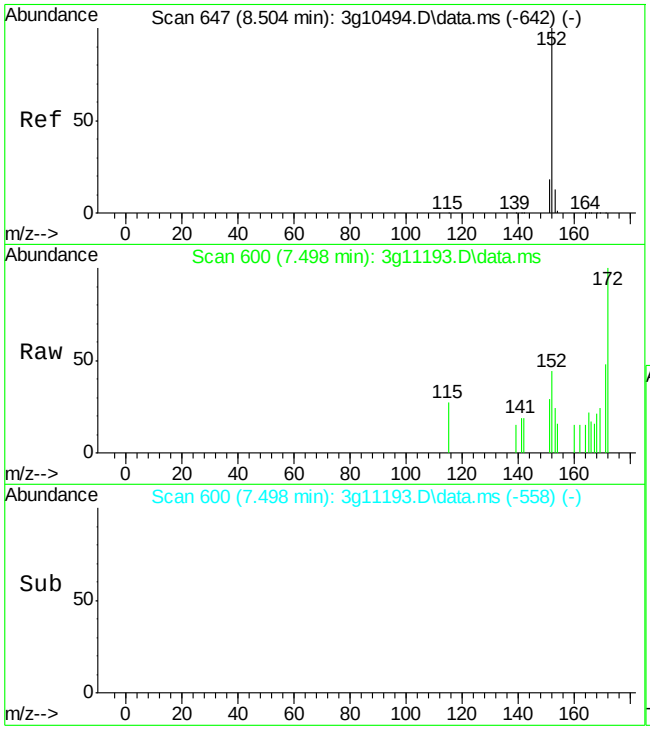


#9
1-Methylnaphthalene
Concen: Below ug/mL
RT: 6.720 min Scan# 535
Delta R.T. 0.012 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:142 Resp: 164

Ion	Ratio	Lower	Upper
142	100		
141	75.0	67.8	107.8
115	0.0	11.0	51.0#

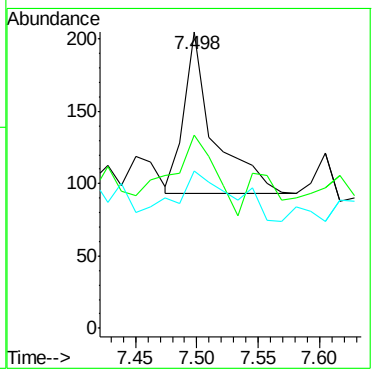


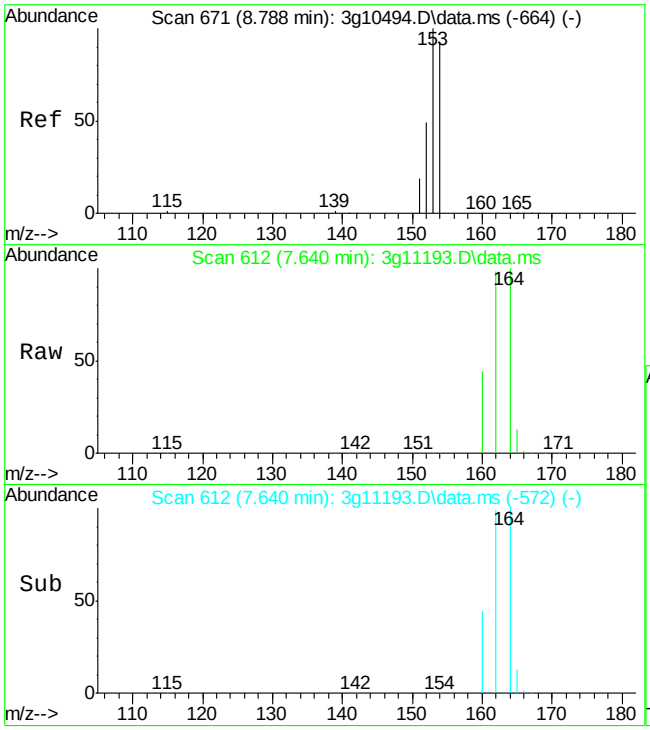


#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.498 min Scan# 600
Delta R.T. 0.000 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:152 Resp: 189

Ion	Ratio	Lower	Upper
152	100		
151	75.1	0.0	39.2#
153	56.1	0.0	33.2#

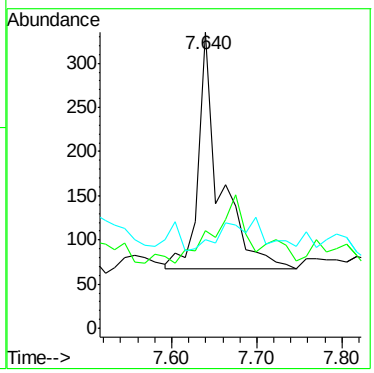


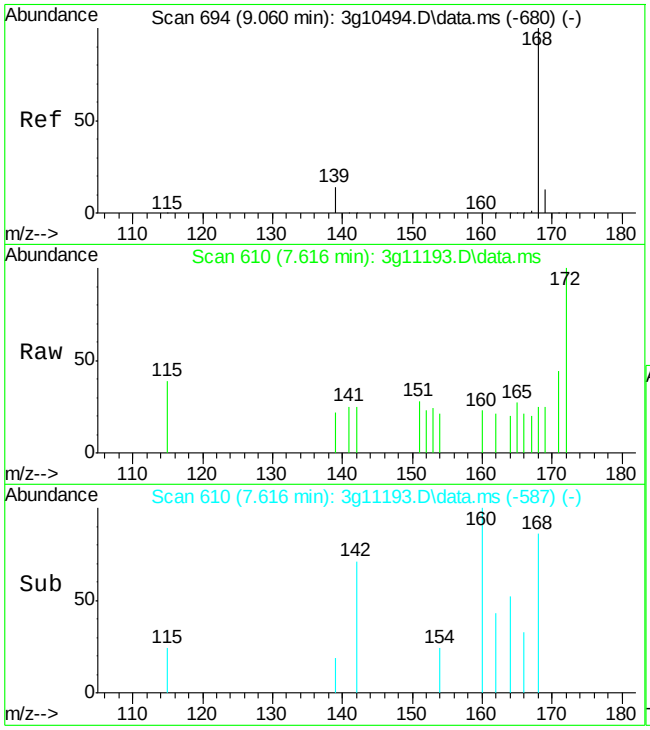


#11
Acenaphthene
Concen: Below ug/mL
RT: 7.640 min Scan# 612
Delta R.T. -0.024 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:154 Resp: 470

Ion	Ratio	Lower	Upper
154	100		
153	43.6	84.8	124.8#
152	21.3	29.9	69.9#

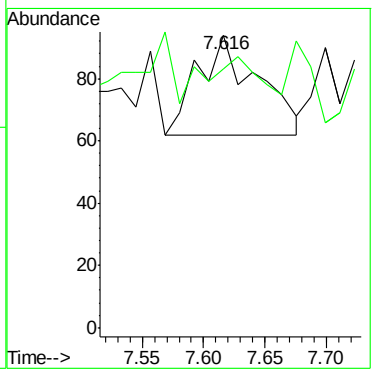


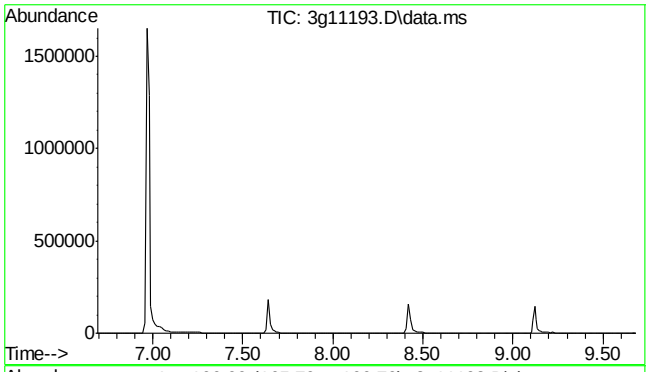


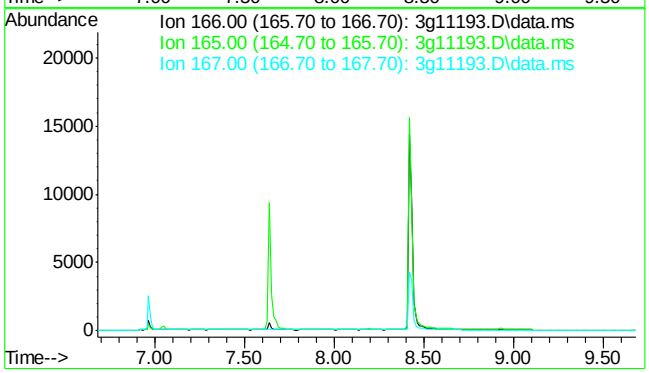
#12
Dibenzofuran
Concen: Below ug/mL
RT: 7.616 min Scan# 610
Delta R.T. -0.224 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:168 Resp: 108

Ion	Ratio	Lower	Upper
168	100		
139	27.8	7.6	47.6





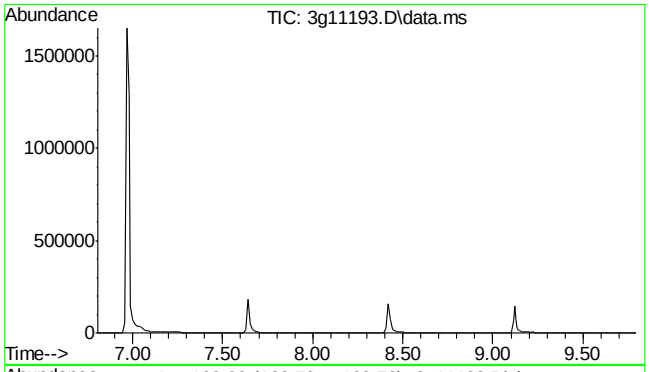


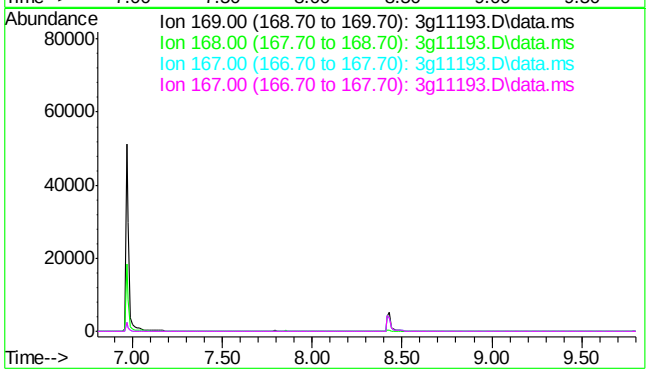
#13
Fluorene
Concen: N.D. ug/mL
Expected RT: 8.18 min

Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion: 166

Sig	Exp Ratio
166	100
165	91.1
167	13.3



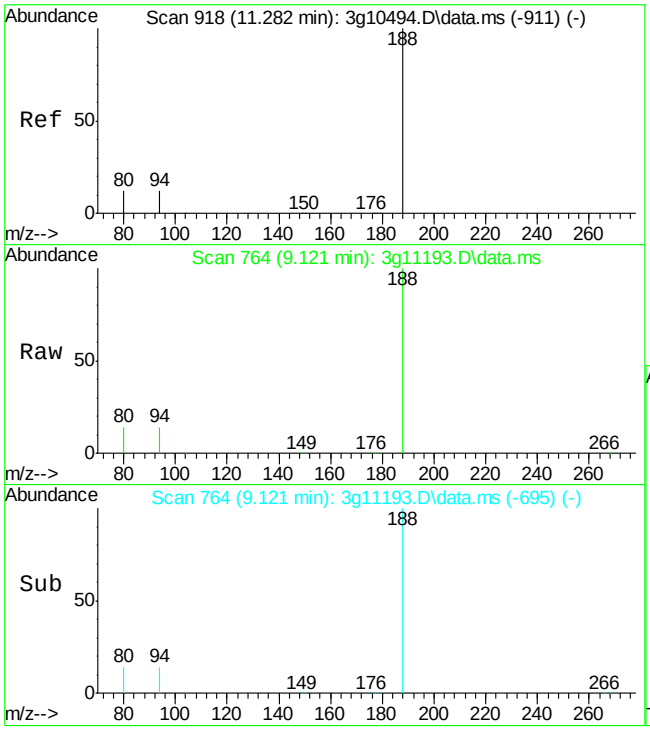


#14
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 8.30 min

Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion: 169

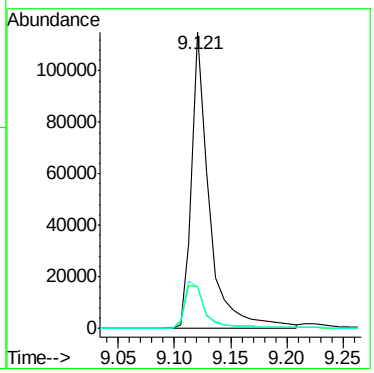
Sig	Exp Ratio
169	100
168	61.0
167	32.9
167	32.9

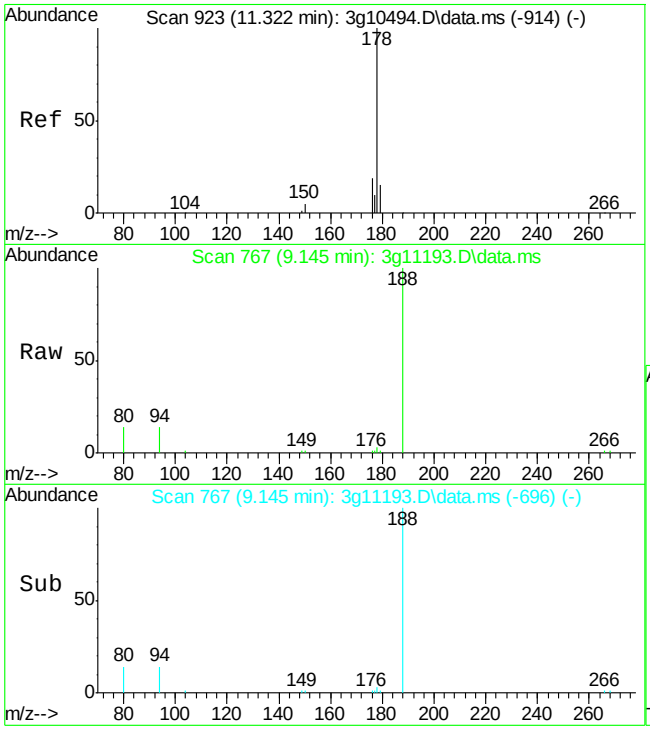


#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 9.121 min Scan# 764
Delta R.T. 0.000 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:188 Resp: 124113

Ion	Ratio	Lower	Upper
188	100		
94	18.3	0.0	33.9
80	19.4	0.0	35.5

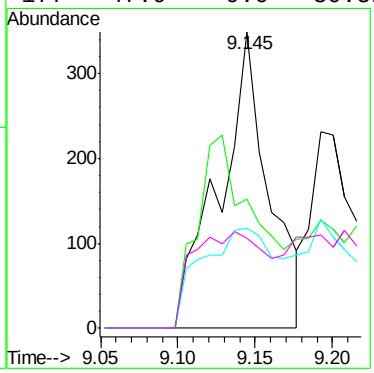


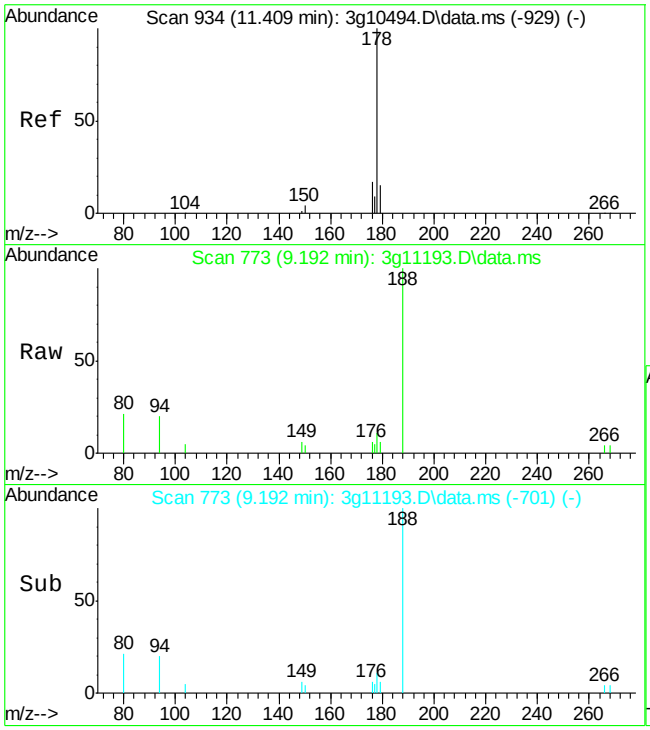


#16
Phenanthrene
Concen: Below ug/mL
RT: 9.145 min Scan# 767
Delta R.T. 0.008 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:178 Resp: 750

Ion	Ratio	Lower	Upper
178	100		
179	77.9	0.0	35.3#
176	50.9	0.0	38.5#
177	47.9	0.0	30.5#

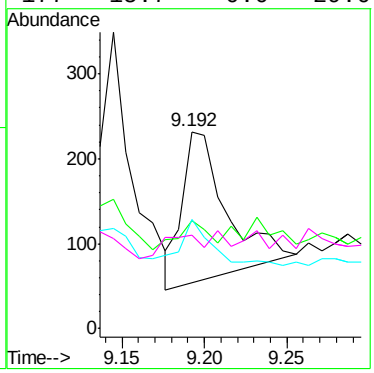


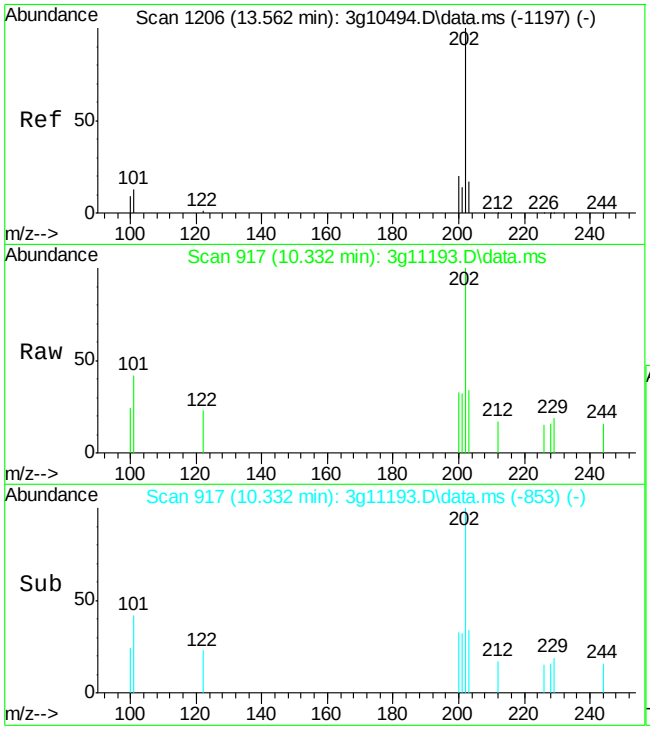


#17
Anthracene
Concen: Below ug/mL
RT: 9.192 min Scan# 773
Delta R.T. 0.000 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:178 Resp: 331

Ion	Ratio	Lower	Upper
178	100		
179	0.0	0.0	35.2
176	32.6	0.0	37.7
177	15.7	0.0	29.0

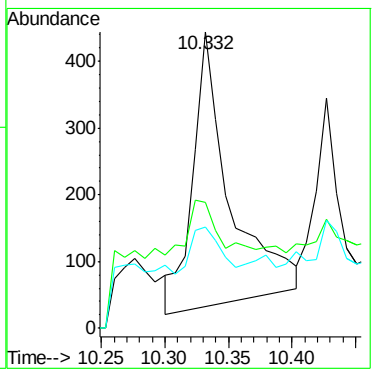


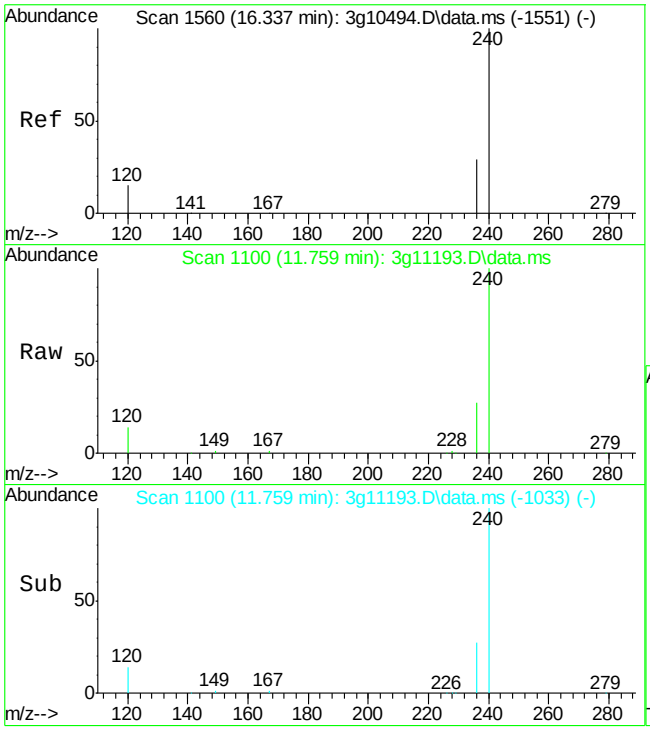


#18
Fluoranthene
Concen: Below ug/mL
RT: 10.332 min Scan# 917
Delta R.T. 0.008 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:202 Resp: 830

Ion	Ratio	Lower	Upper
202	100		
101	30.5	0.0	33.0
203	18.2	0.0	37.4

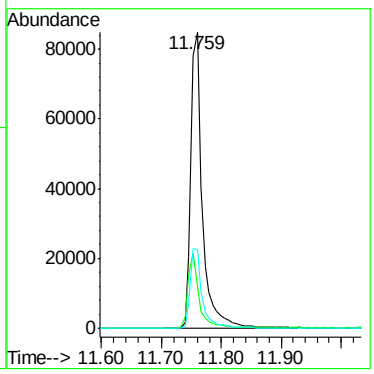


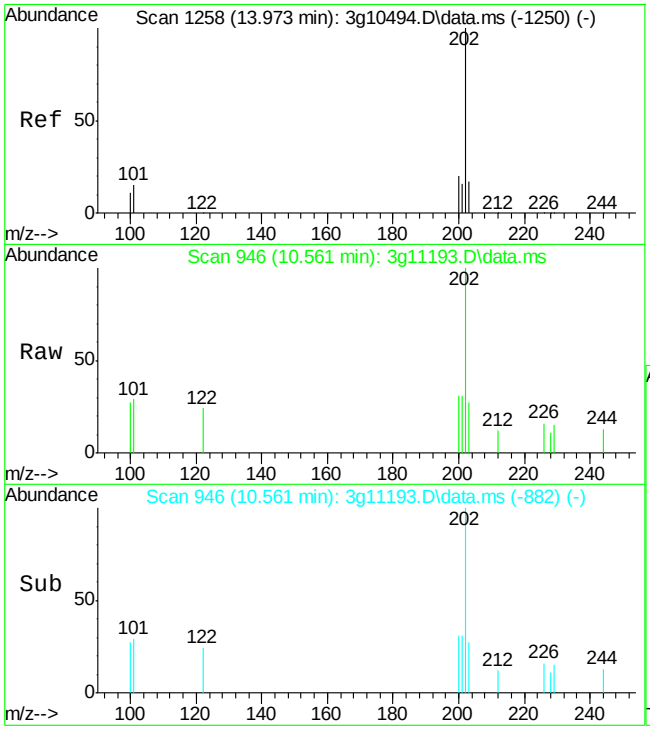


#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.759 min Scan# 1100
Delta R.T. 0.007 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:240 Resp: 111154

Ion	Ratio	Lower	Upper
240	100		
120	23.2	0.0	36.2
236	27.9	8.8	48.8

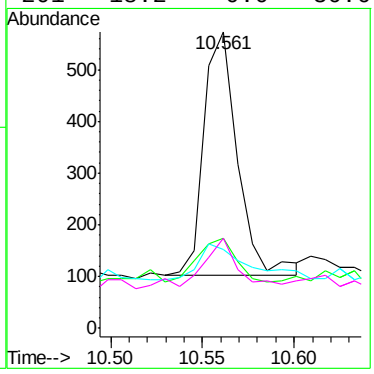


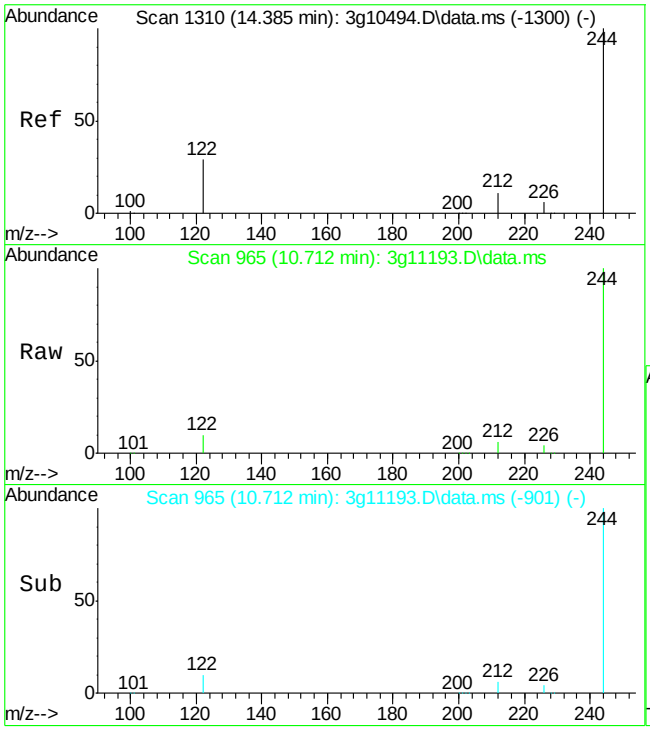


#20
Pyrene
Concen: Below ug/mL
RT: 10.561 min Scan# 946
Delta R.T. 0.008 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:202 Resp: 603

Ion	Ratio	Lower	Upper
202	100		
200	24.0	0.1	40.1
203	21.1	0.0	37.8
201	18.2	0.0	36.6

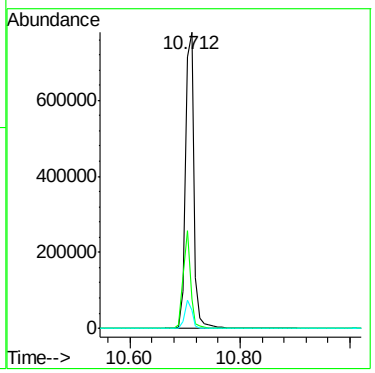


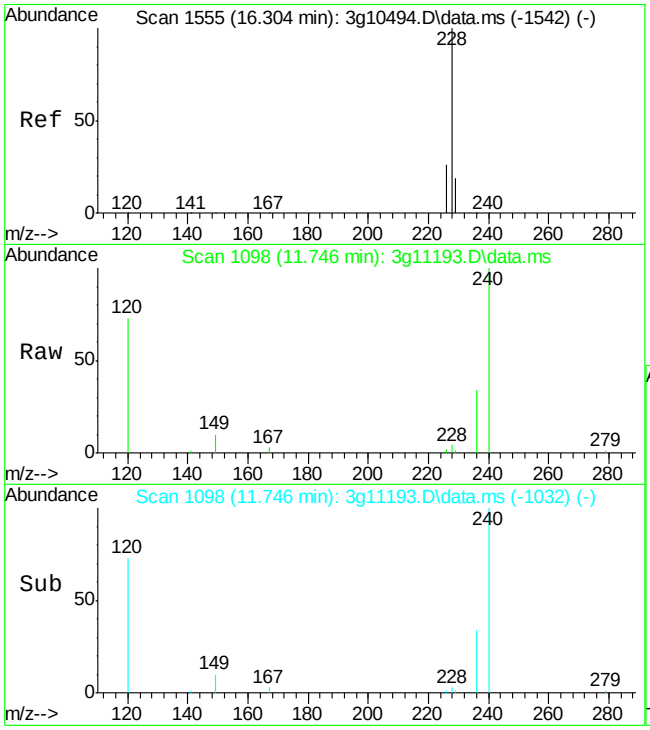


#21
Terphenyl-d14
Concen: 50.7242 ug/mL
RT: 10.712 min Scan# 965
Delta R.T. 0.008 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:244 Resp: 849535

Ion	Ratio	Lower	Upper
244	100		
122	28.1	1.3	41.3
212	8.4	0.0	28.8

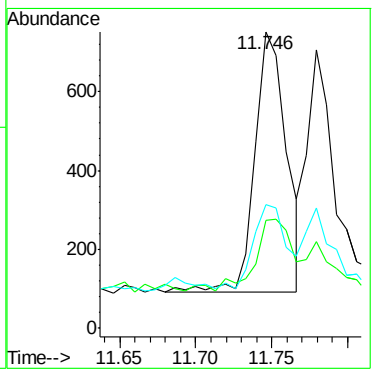


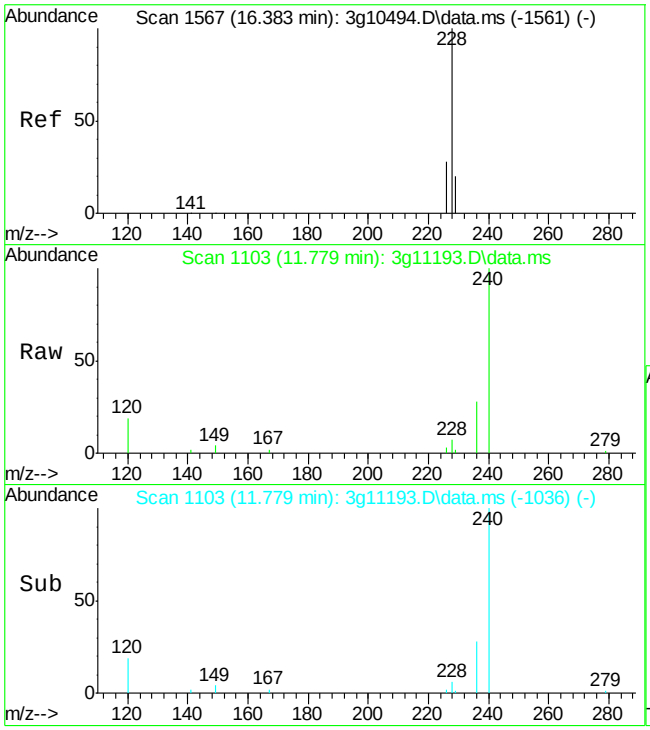


#22
Benzo(a)anthracene
Concen: Below ug/mL
RT: 11.746 min Scan# 1098
Delta R.T. 0.007 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:228 Resp: 960

Ion	Ratio	Lower	Upper
228	100		
229	35.6	0.0	39.6
226	33.6	6.6	46.6

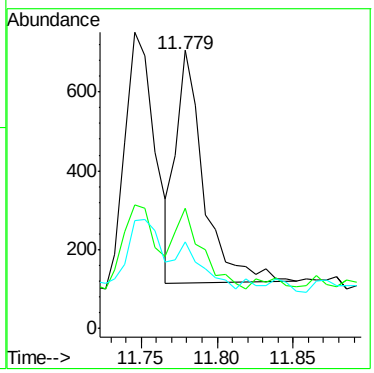


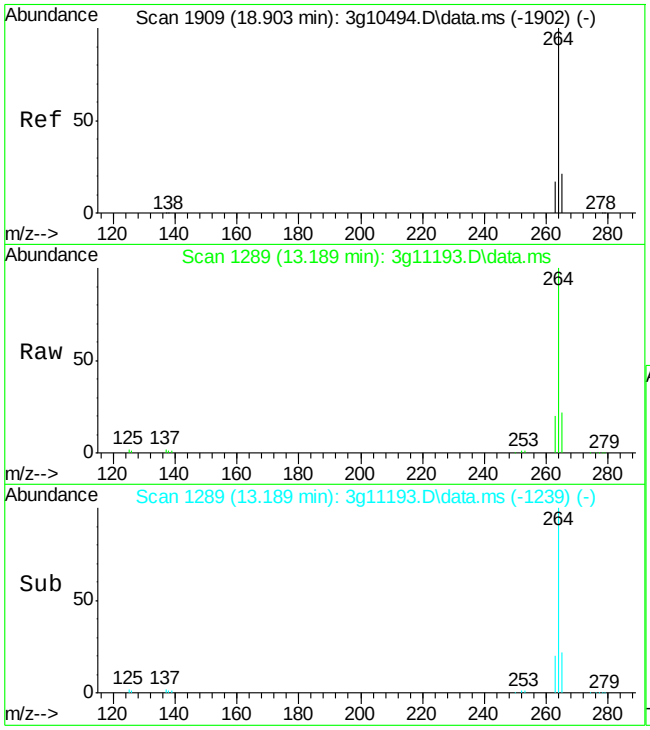


#23
Chrysene
Concen: Below ug/mL
RT: 11.779 min Scan# 1103
Delta R.T. 0.007 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:228 Resp: 745

Ion	Ratio	Lower	Upper
228	100		
226	34.2	8.6	48.6
229	5.0	0.0	39.4

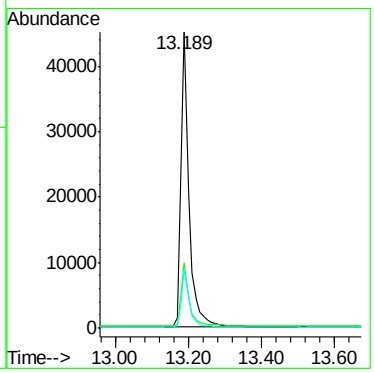


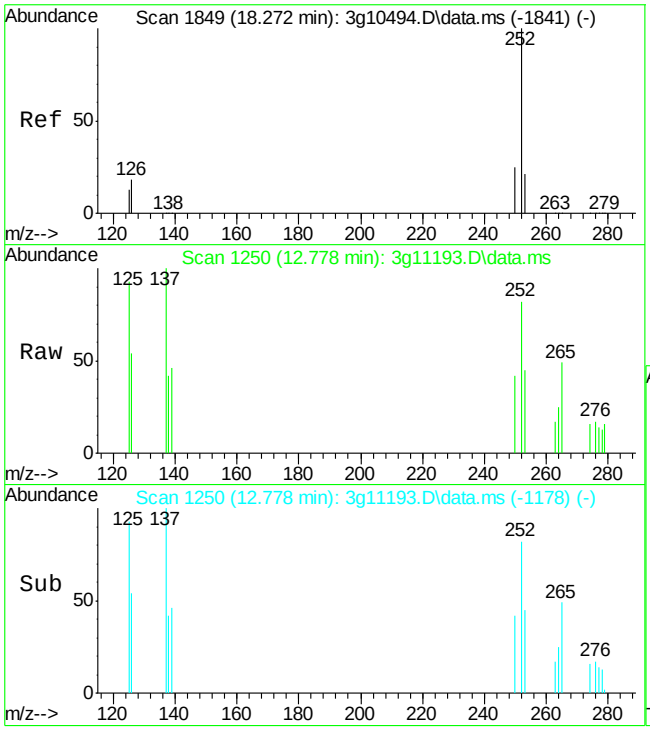


#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 13.189 min Scan# 1289
Delta R.T. 0.011 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:264 Resp: 70864

Ion	Ratio	Lower	Upper
264	100		
265	20.9	1.0	41.0
263	18.7	0.0	39.0

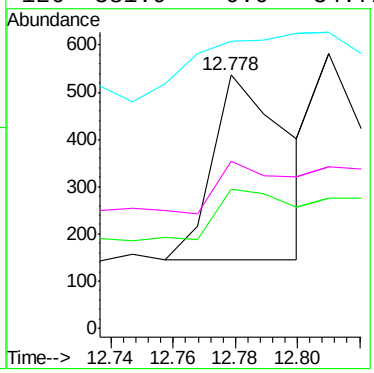


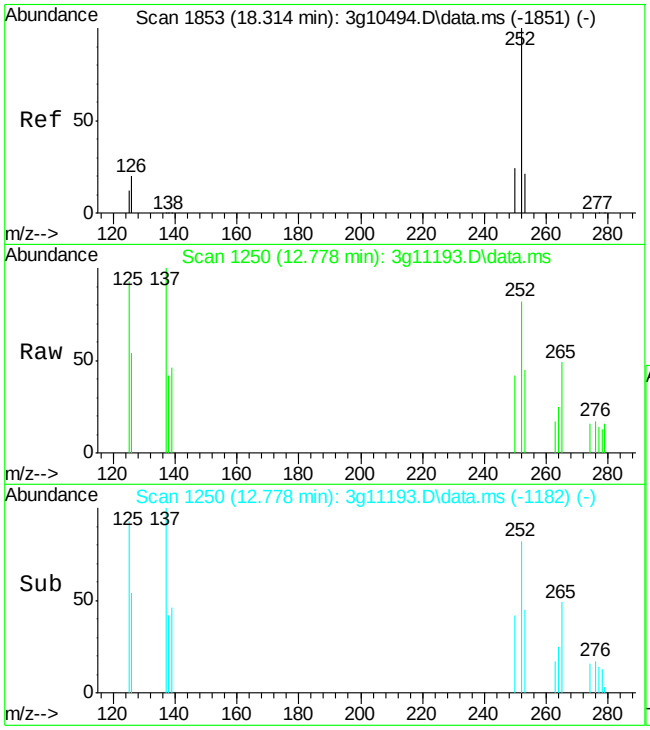


#25
Benzo(b)fluoranthene
Concen: Below ug/mL
RT: 12.778 min Scan# 1250
Delta R.T. 0.000 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:252 Resp: 648

Ion	Ratio	Lower	Upper
252	100		
253	95.7	2.9	42.9#
125	658.0	0.0	31.5#
126	381.9	0.0	34.7#

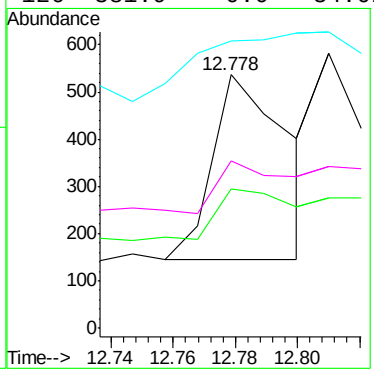


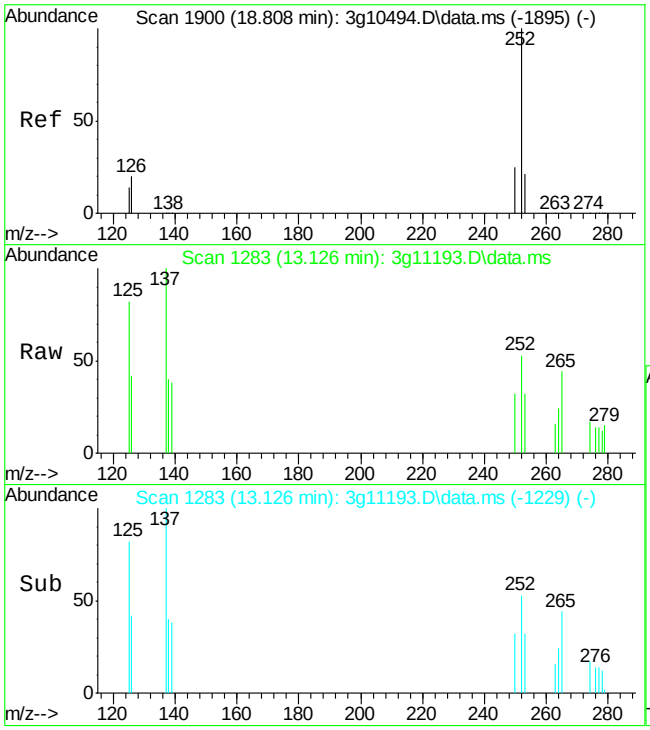


#26
Benzo(k)fluoranthene
Concen: Below ug/mL
RT: 12.778 min Scan# 1250
Delta R.T. -0.021 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:252 Resp: 648

Ion	Ratio	Lower	Upper
252	100		
253	95.7	1.8	41.8#
125	658.0	0.0	31.0#
126	381.9	0.0	34.0#

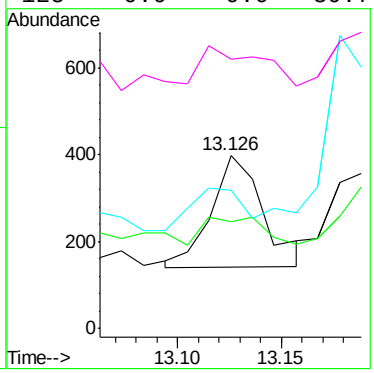


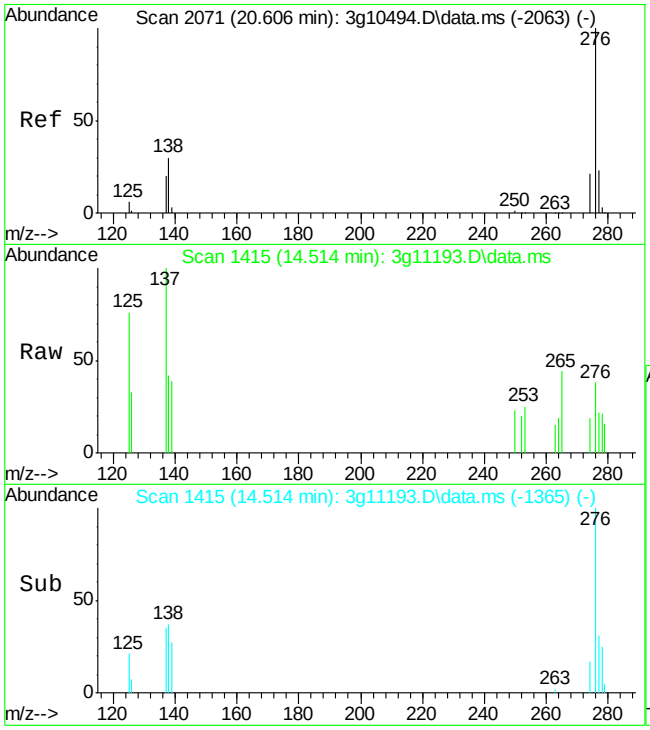


#27
Benzo(a)pyrene
Concen: Below ug/mL
RT: 13.126 min Scan# 1283
Delta R.T. 0.012 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:252 Resp: 449

Ion	Ratio	Lower	Upper
252	100		
253	28.5	1.4	41.4
126	38.8	0.0	33.6#
125	0.0	0.0	30.7

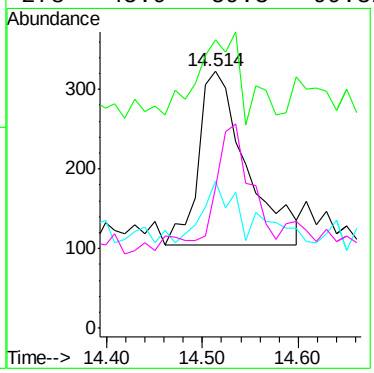


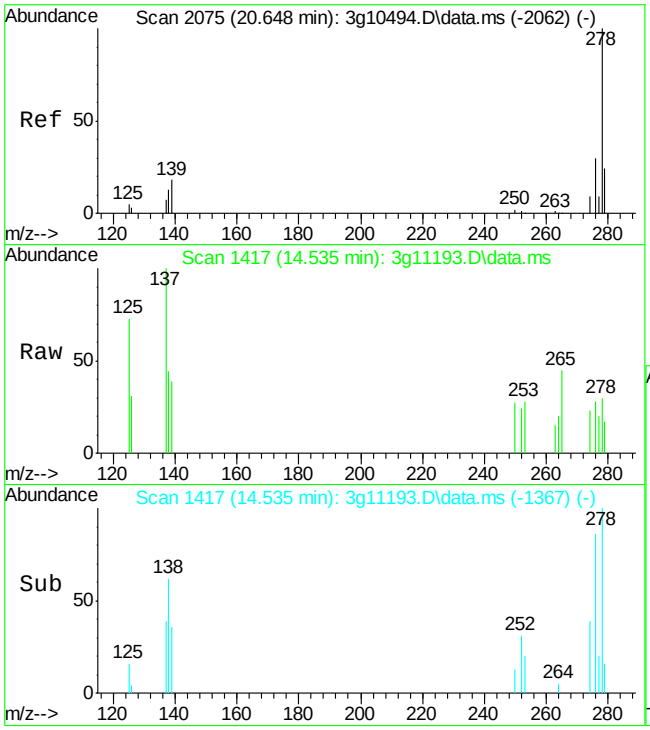


#28
Indeno(1,2,3-cd)pyrene
Concen: Below ug/mL
RT: 14.514 min Scan# 1415
Delta R.T. 0.022 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:276 Resp: 751

Ion	Ratio	Lower	Upper
276	100		
138	58.2	5.3	45.3#
277	22.1	5.0	45.0
278	45.9	59.3	99.3#

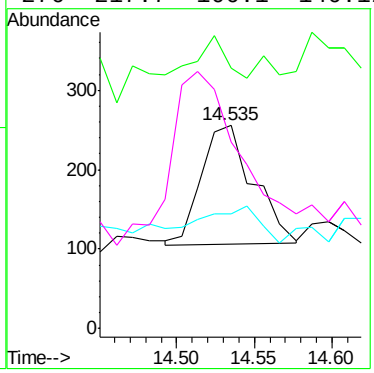


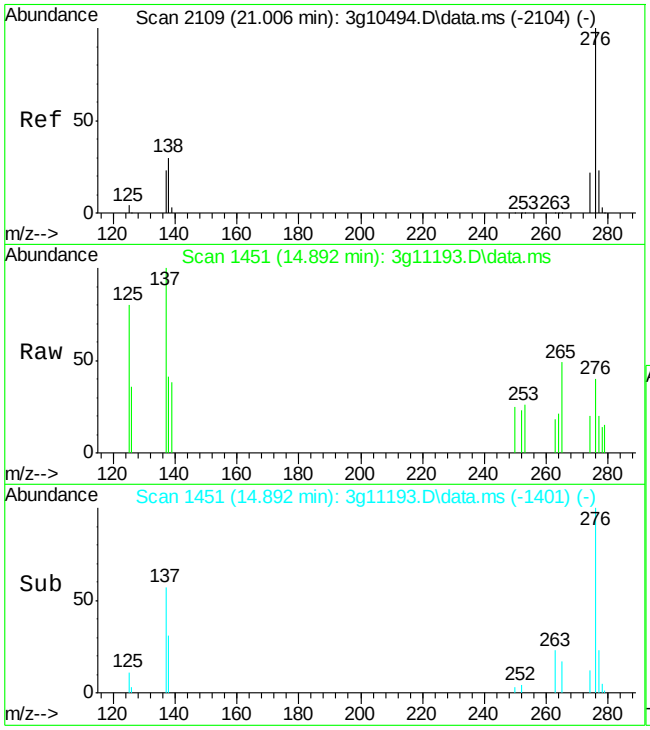


#29
Dibenz(a,h)anthracene
Concen: Below ug/mL
RT: 14.535 min Scan# 1417
Delta R.T. 0.022 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:278 Resp: 345

Ion	Ratio	Lower	Upper
278	100		
139	69.0	0.0	38.4#
279	44.6	3.1	43.1#
276	217.7	106.1	146.1#

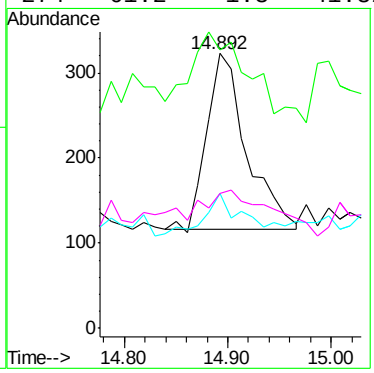




#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.892 min Scan# 1451
Delta R.T. 0.021 min
Lab File: 3g11193.D
Acq: 12 Sep 12 7:14 pm

Tgt Ion:276 Resp: 544

Ion	Ratio	Lower	Upper
276	100		
138	55.3	1.3	41.3#
277	22.2	3.4	43.4
274	61.2	1.3	41.3#



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: D38605
Account: XTOKRWR XTO Energy
Project: T78X-12G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB961-MB	GB17517.D	1	09/12/12	SK	n/a	n/a	GGB961

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

D38605-1

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	83%	60-140%

Blank Spike Summary

Job Number: D38605
Account: XTOKRWR XTO Energy
Project: T78X-12G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB961-BS	GB17518.D	1	09/12/12	SK	n/a	n/a	GGB961

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

D38605-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	126	115	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	100%	60-140%

10.2.1

10

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D38605
Account: XTOKRWR XTO Energy
Project: T78X-12G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D38601-1MS	GB17520.D	1	09/12/12	SK	n/a	n/a	GGB961
D38601-1MSD	GB17521.D	1	09/12/12	SK	n/a	n/a	GGB961
D38601-1	GB17519.D	1	09/12/12	SK	n/a	n/a	GGB961

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

D38605-1

CAS No.	Compound	D38601-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		152	176	116	173	114	2	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D38601-1	Limits
120-82-1	1,2,4-Trichlorobenzene	98%	94%	83%	60-140%

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

GC Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\091212\GB17527.D\FID1A.CH Vial: 13
Signal #2 : Y:\1\DATA\091212\GB17527.D\FID2B.CH
Acq On : 12 Sep 2012 11:39 pm Operator: StephK
Sample : D38605-1, 50X Inst : GC/MS Ins
Misc : GC3098,GGB961,5.060,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Sep 13 08:36:37 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Sep 13 08:35:36 2012
Response via : Initial Calibration
DataAcq Meth : TVB4.M

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

	Compound	R.T.	Response	Conc	Units
	System Monitoring Compounds				
2) S	1,2,4-Trichlorobenzene	14.38	2702398	86.245	%
10) S	1,2,4-Trichlorobenzene (P)	14.38	14283047	87.881	%
	Target Compounds				
1) H	TVH-Gasoline	7.23	2871379	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	7.68	275850	0.696	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	10.48	201855	0.179	ug/L
9) T	o-Xylene	0.00	0	N.D.	ug/L d
11) T	Naphthalene	14.56	318451	1.614	ug/L

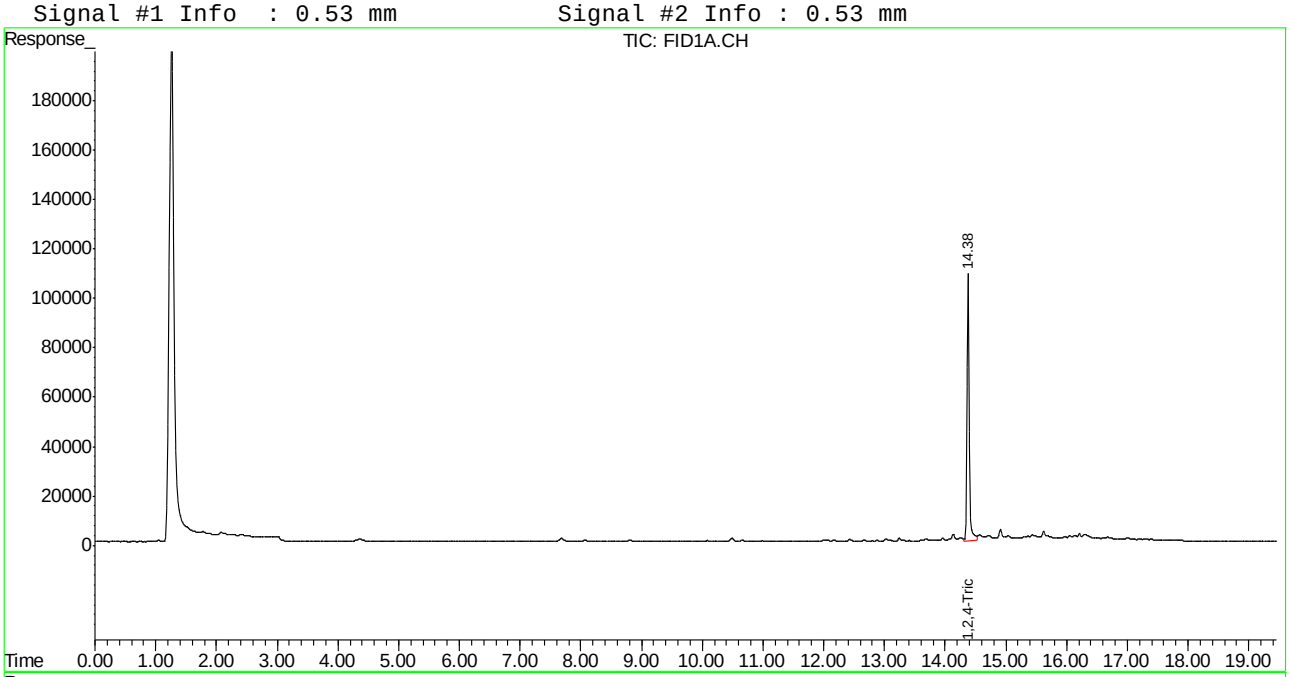
(f)=RT Delta > 1/2 Window (m)=manual int.
GB17527.D TB868GB868SOIL.M Thu Sep 13 08:46:51 2012 GC Page 1

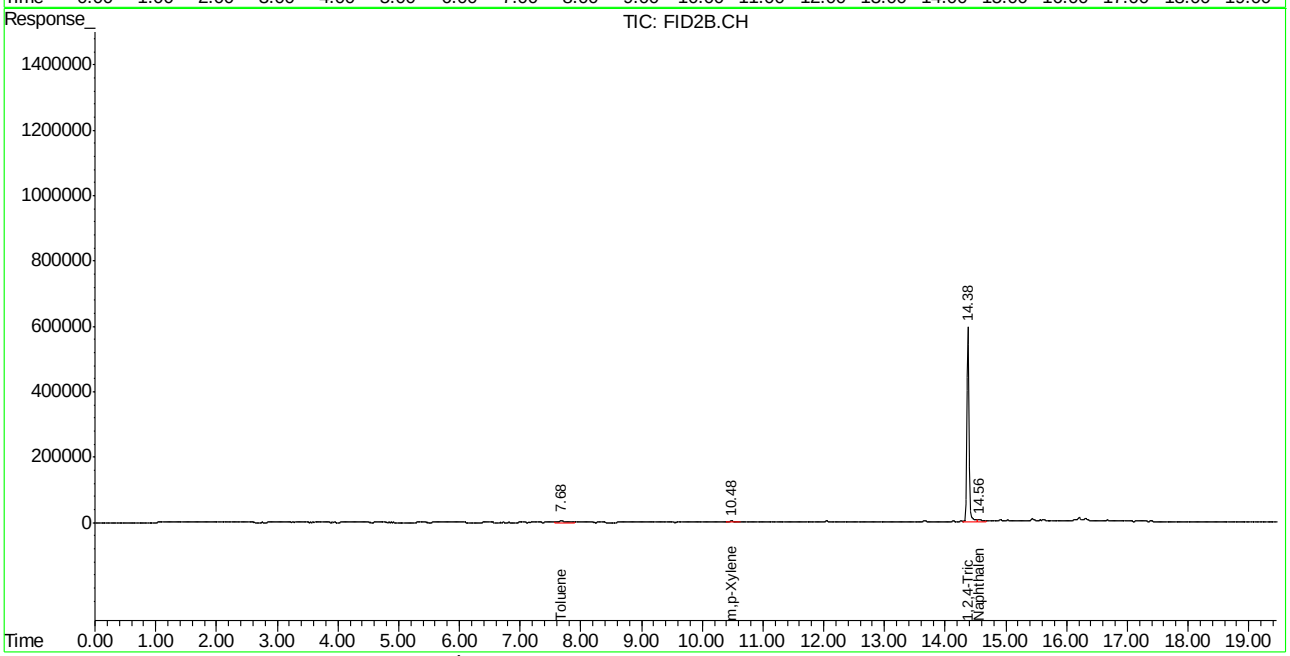
Quantitation Report (QT Reviewed)

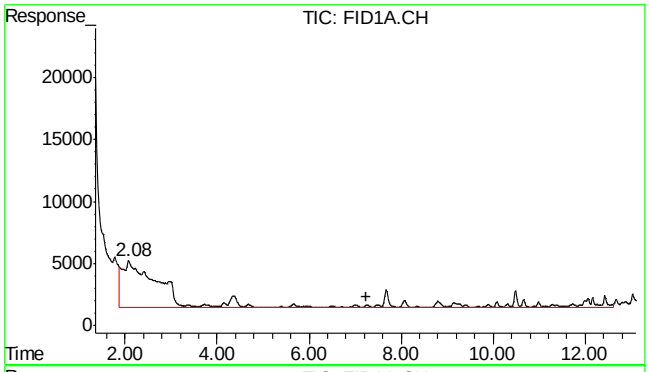
Signal #1 : Y:\1\DATA\091212\GB17527.D\FID1A.CH Vial: 13
Signal #2 : Y:\1\DATA\091212\GB17527.D\FID2B.CH
Acq On : 12 Sep 2012 11:39 pm Operator: StephK
Sample : D38605-1, 50X Inst : GC/MS Ins
Misc : GC3098,GGB961,5.060,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Sep 13 7:52 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Sep 13 08:35:36 2012
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

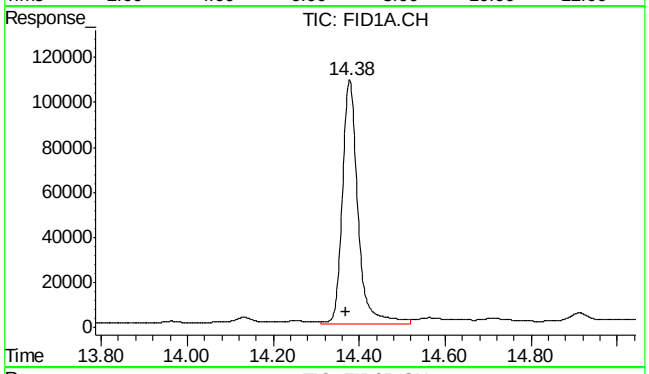






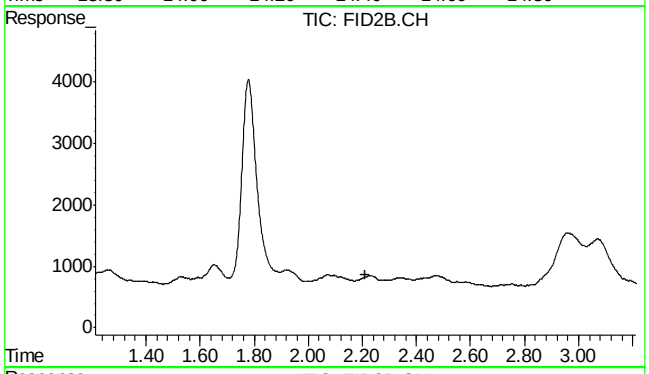
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 2871379
Conc: N.D.



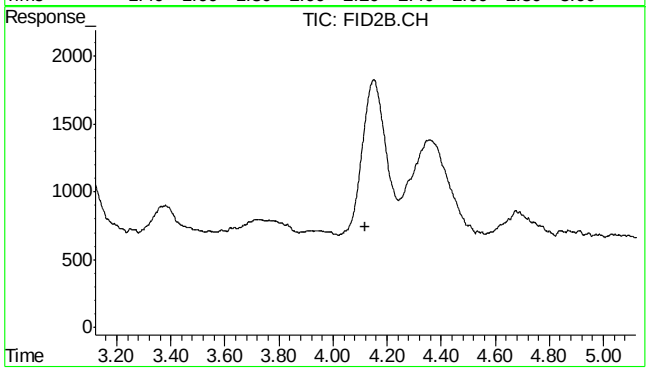
#2 1,2,4-Trichlorobenzene

R.T.: 14.378 min
Delta R.T.: 0.008 min
Response: 2702398
Conc: 86.24 %



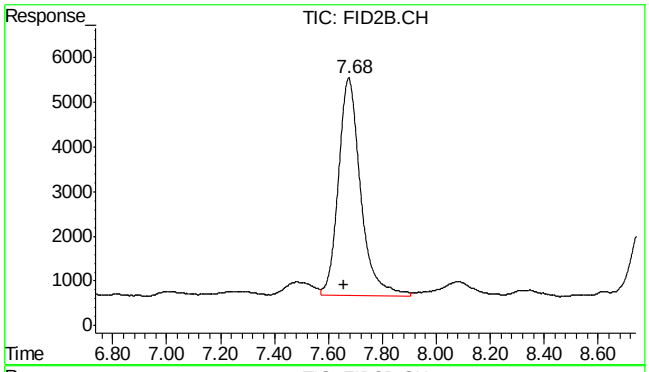
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.212 min
Response: 0
Conc: N.D.



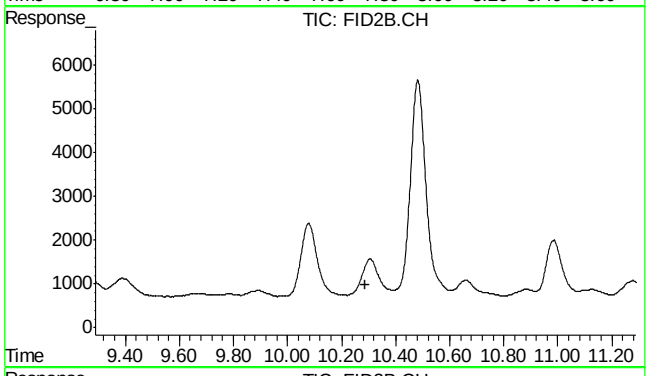
#5 Benzene

R.T.: 0.000 min
Exp R.T. : 4.120 min
Response: 0
Conc: N.D.



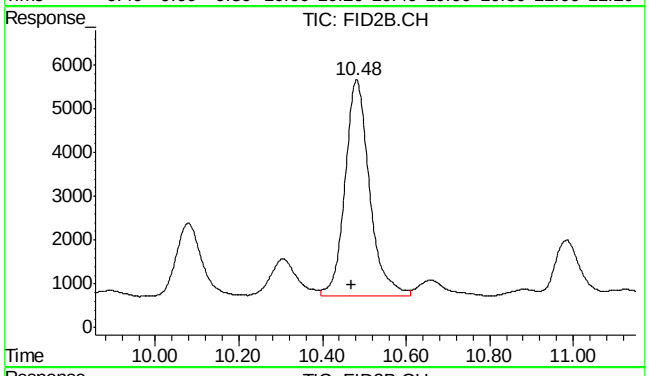
#6 Toluene

R.T.: 7.676 min
Delta R.T.: 0.020 min
Response: 275850
Conc: 0.70 ug/L



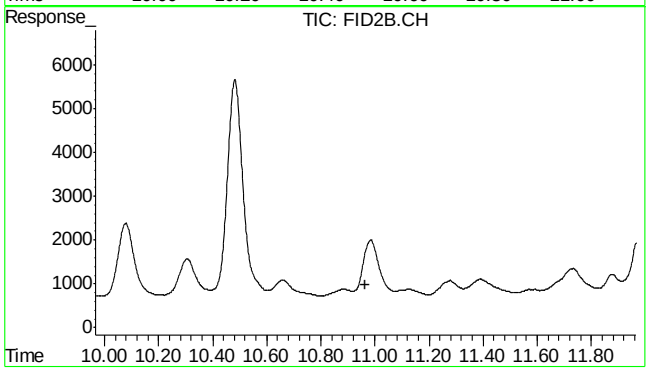
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.289 min
Response: 0
Conc: N.D.



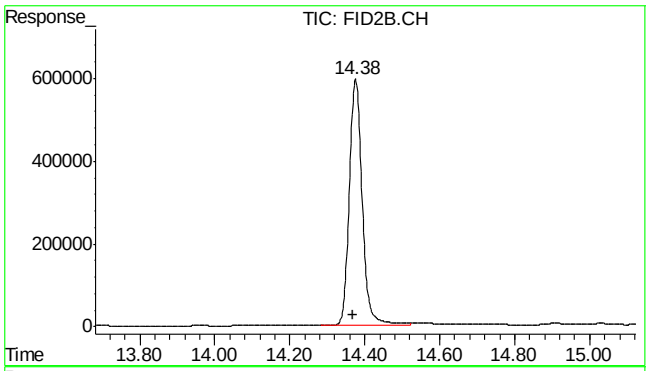
#8 m,p-Xylene

R.T.: 10.482 min
Delta R.T.: 0.013 min
Response: 201855
Conc: 0.18 ug/L



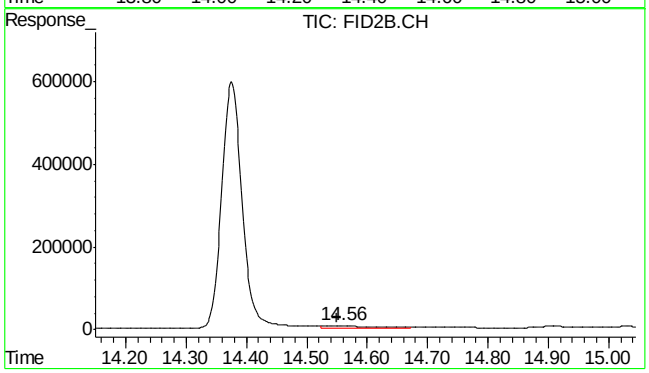
#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 10.966 min
Response: 0
Conc: N.D.



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

R.T.: 14.376 min
Delta R.T.: 0.008 min
Response: 14283047
Conc: 87.88 %



#11 Naphthalene

R.T.: 14.559 min
Delta R.T.: 0.009 min
Response: 318451
Conc: 1.61 ug/L

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\091212\GB17517.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\091212\GB17517.D\FID2B.CH
Acq On : 12 Sep 2012 5:41 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3098,GGB961,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Sep 13 08:35:57 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Sep 13 08:35:36 2012
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

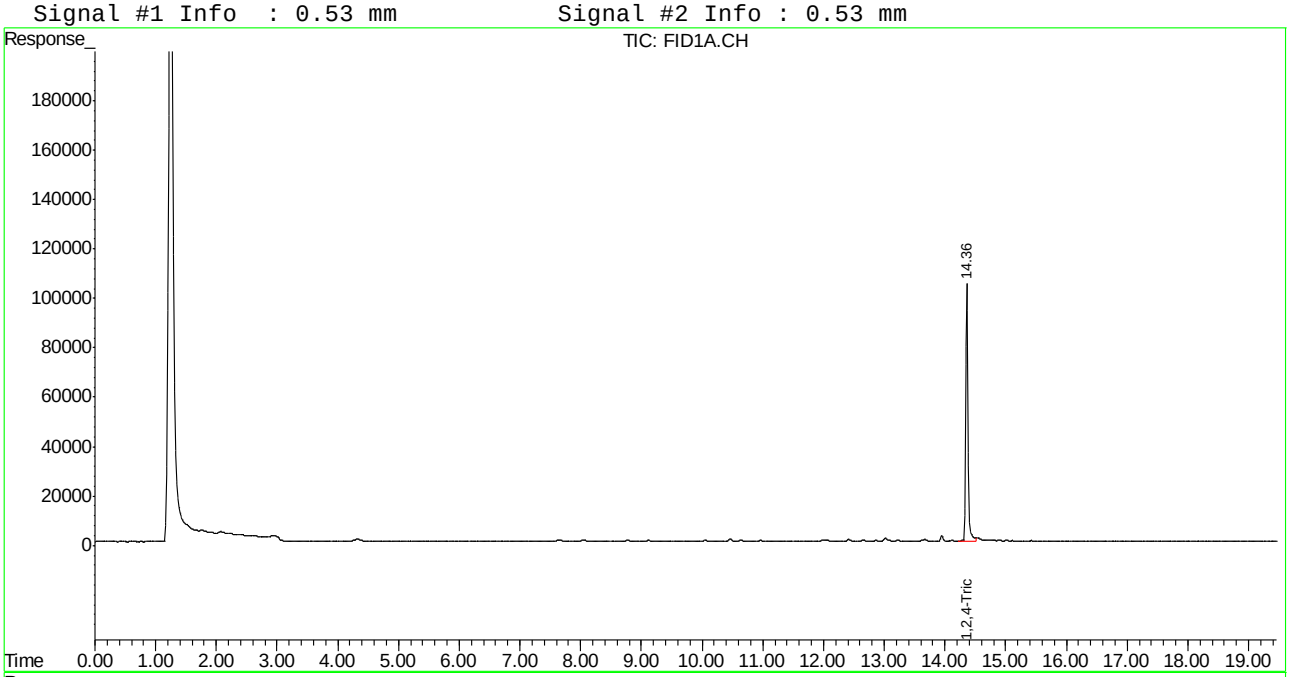
	Compound	R.T.	Response	Conc	Units	
	System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.36	2615532	83.473	%	
10) S	1,2,4-Trichlorobenzene (P)	14.36	13843349	85.175	%	
	Target Compounds					
1) H	TVH-Gasoline	7.23	3035856	<MDL	mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5) T	Benzene	0.00	0	N.D.	ug/L	d
6) T	Toluene	7.65	164589	0.415	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	14.54	216684	1.098	ug/L	

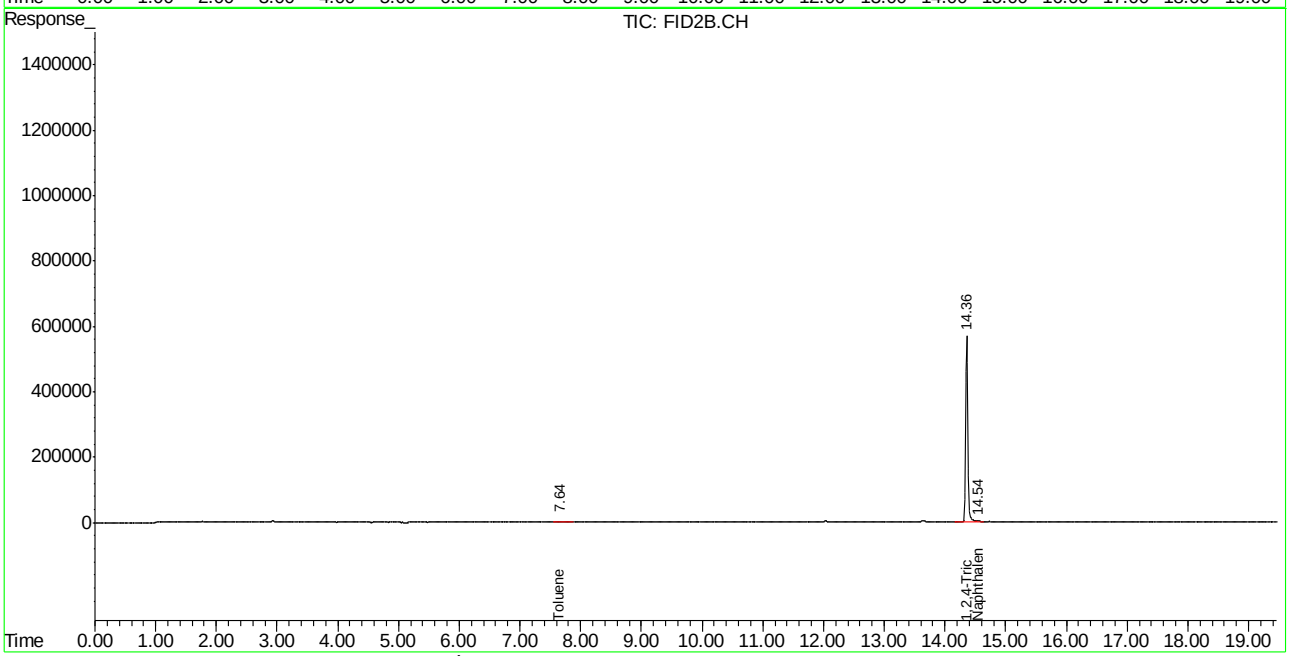
Quantitation Report (QT Reviewed)

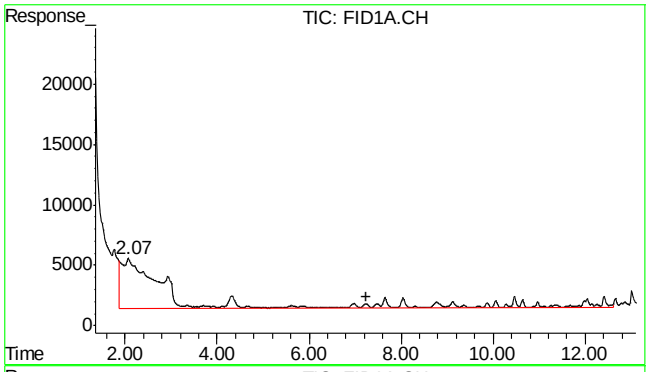
Signal #1 : Y:\1\DATA\091212\GB17517.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\091212\GB17517.D\FID2B.CH
Acq On : 12 Sep 2012 5:41 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3098,GGB961,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Sep 13 7:48 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Sep 13 08:35:36 2012
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

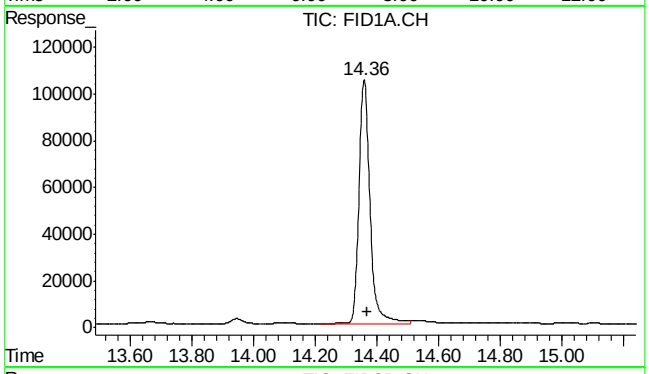






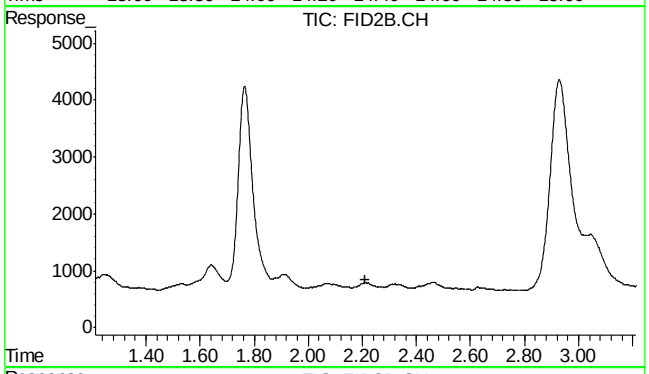
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 3035856
Conc: N.D.



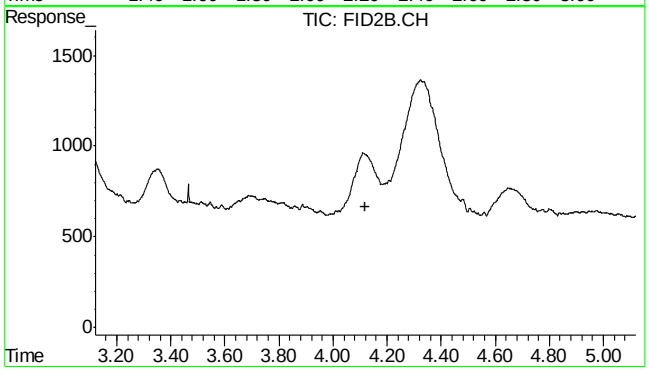
#2 1,2,4-Trichlorobenzene

R.T.: 14.359 min
Delta R.T.: -0.012 min
Response: 2615532
Conc: 83.47 %



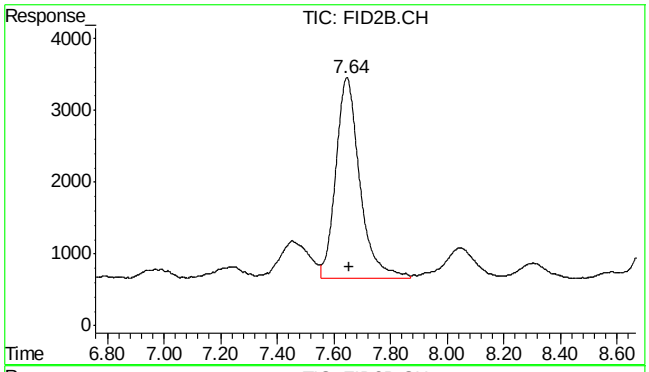
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.212 min
Response: 0
Conc: N.D.



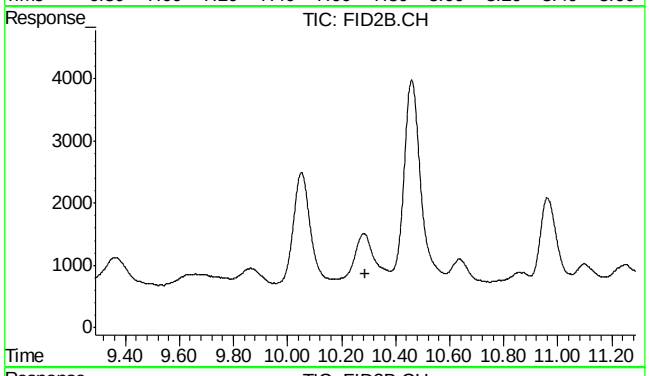
#5 Benzene

R.T.: 0.000 min
Exp R.T. : 4.120 min
Response: 0
Conc: N.D.



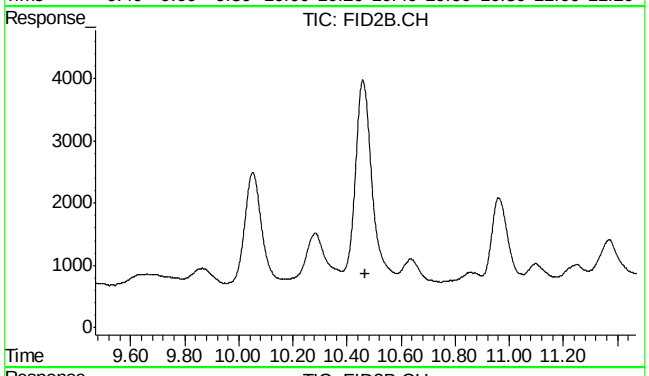
#6 Toluene

R.T.: 7.646 min
Delta R.T.: -0.010 min
Response: 164589
Conc: 0.42 ug/L



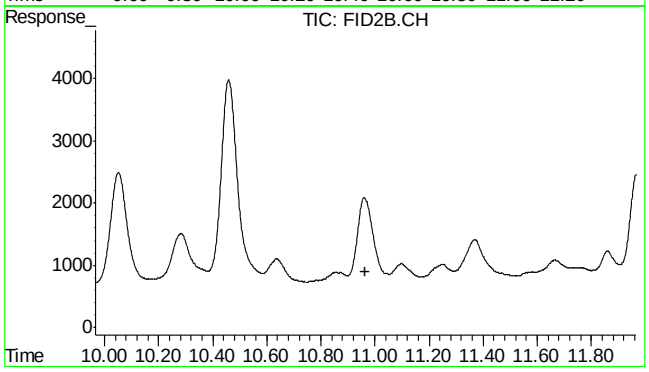
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.289 min
Response: 0
Conc: N.D.



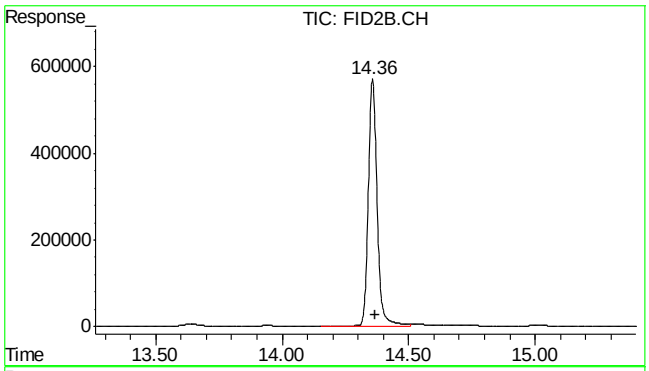
#8 m,p-Xylene

R.T.: 0.000 min
Exp R.T. : 10.469 min
Response: 0
Conc: N.D.



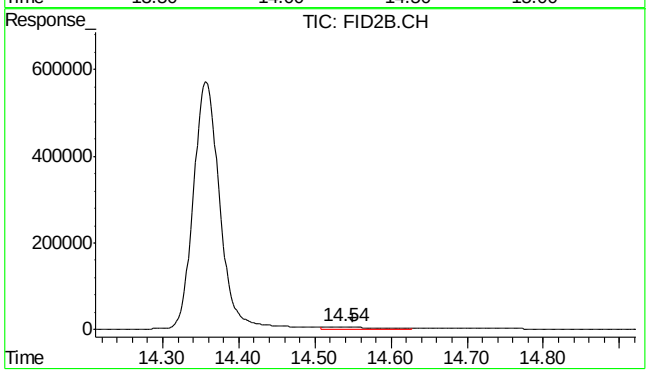
#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 10.966 min
Response: 0
Conc: N.D.



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

R.T.:	14.357 min
Delta R.T.:	-0.011 min
Response:	13843349
Conc:	85.18 %



#11 Naphthalene

R.T.:	14.537 min
Delta R.T.:	-0.013 min
Response:	216684
Conc:	1.10 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: D38605
Account: XTOKRWR XTO Energy
Project: T78X-12G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6610-MB	FD17337.D	1	09/12/12	AW	09/12/12	OP6610	GFD890

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

D38605-1

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	81%	43-136%

Blank Spike Summary

Job Number: D38605
Account: XTOKRWR XTO Energy
Project: T78X-12G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6610-BS	FD17339.D	1	09/12/12	AW	09/12/12	OP6610	GFD890

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

D38605-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	537	81	58-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	96%	43-136%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D38605
Account: XTOKRWR XTO Energy
Project: T78X-12G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6610-MS	FD17341.D	1	09/12/12	AW	09/12/12	OP6610	GFD890
OP6610-MSD	FD17343.D	1	09/12/12	AW	09/12/12	OP6610	GFD890
D38290-2	FD17345.D	1	09/12/12	AW	09/12/12	OP6610	GFD890

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

D38605-1

CAS No.	Compound	D38290-2 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND		773	594	77	578	75	3	20-183/43

CAS No.	Surrogate Recoveries	MS	MSD	D38290-2	Limits
84-15-1	o-Terphenyl	85%	91%	74%	43-136%

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\SEPTEMBER\FD091212\FD17369.D Vial: 19
Acq On : 9-12-2012 08:54:28 PM Operator: alexw1
Sample : D38605-1 Inst : FID5
Misc : OP6610,GFD890,30.13,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Sep 13 08:30:09 2012 Quant Results File: DRO-GFD823F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD823F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Sep 11 10:47:33 2012
Response via : Initial Calibration
DataAcq Meth : DRODUAL.M

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

	Compound	R.T.	Response	Conc Units
	System Monitoring Compounds			
1) S	O-Terphenyl	9.11	39030504	826.243 mg/L
	Target Compounds			
2) H	TPH-DRO (c10-c28)	7.08	9150294	237.637 mg/L

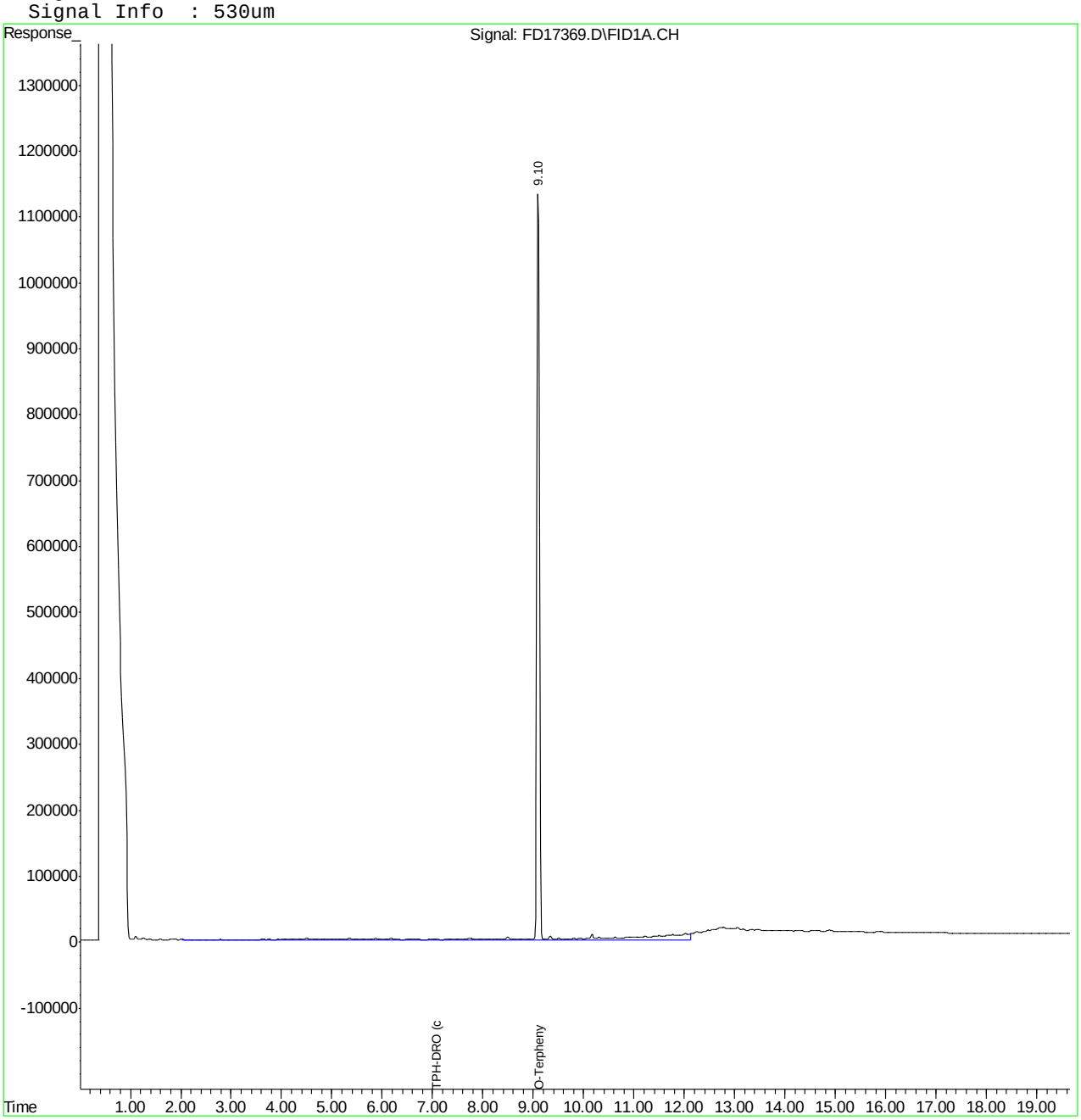
(f)=RT Delta > 1/2 Window (m)=manual int.
FD17369.D DRO-GFD823F.M Fri Sep 14 09:11:37 2012 GC Page 1

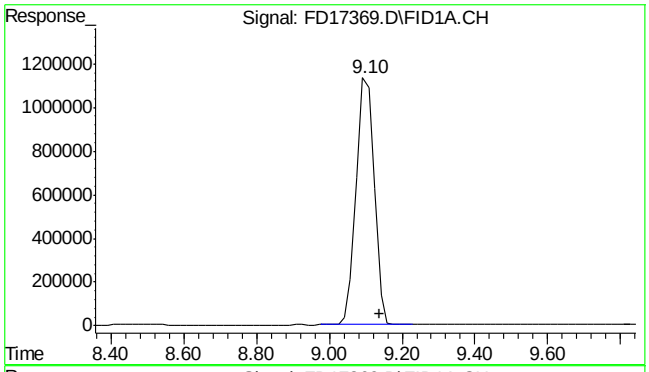
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\SEPTEMBER\FD091212\FD17369.D Vial: 19
Acq On : 9-12-2012 08:54:28 PM Operator: alexw1
Sample : D38605-1 Inst : FID5
Misc : OP6610,GFD890,30.13,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Sep 13 8:30 2012 Quant Results File: DRO-GFD823F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD823F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Sep 11 10:47:33 2012
Response via : Multiple Level Calibration
DataAcq Meth : DRODUAL.M

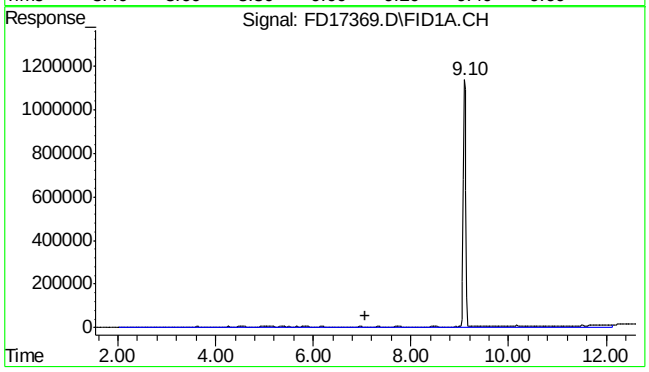
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.106 min
Delta R.T.: -0.034 min
Response: 39030504
Conc: 826.24 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 7.075 min
Delta R.T.: 0.000 min
Response: 9150294
Conc: 237.64 mg/L m

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\SEPTEMBER\FD091212\FD17337.D Vial: 3
Acq On : 9-12-2012 01:58:44 PM Operator: alexw1
Sample : OP6610-MB Inst : FID5
Misc : OP6610,GFD890,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Sep 13 08:19:06 2012 Quant Results File: DRO-GFD823F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD823F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Sep 11 10:47:33 2012
Response via : Initial Calibration
DataAcq Meth : DRODUAL.M

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

	Compound	R.T.	Response	Conc Units
	System Monitoring Compounds			
1) S	O-Terphenyl	9.13	38226478	809.222 mg/L
	Target Compounds			
2) H	TPH-DRO (c10-c28)	7.08	999310	25.953 mg/L

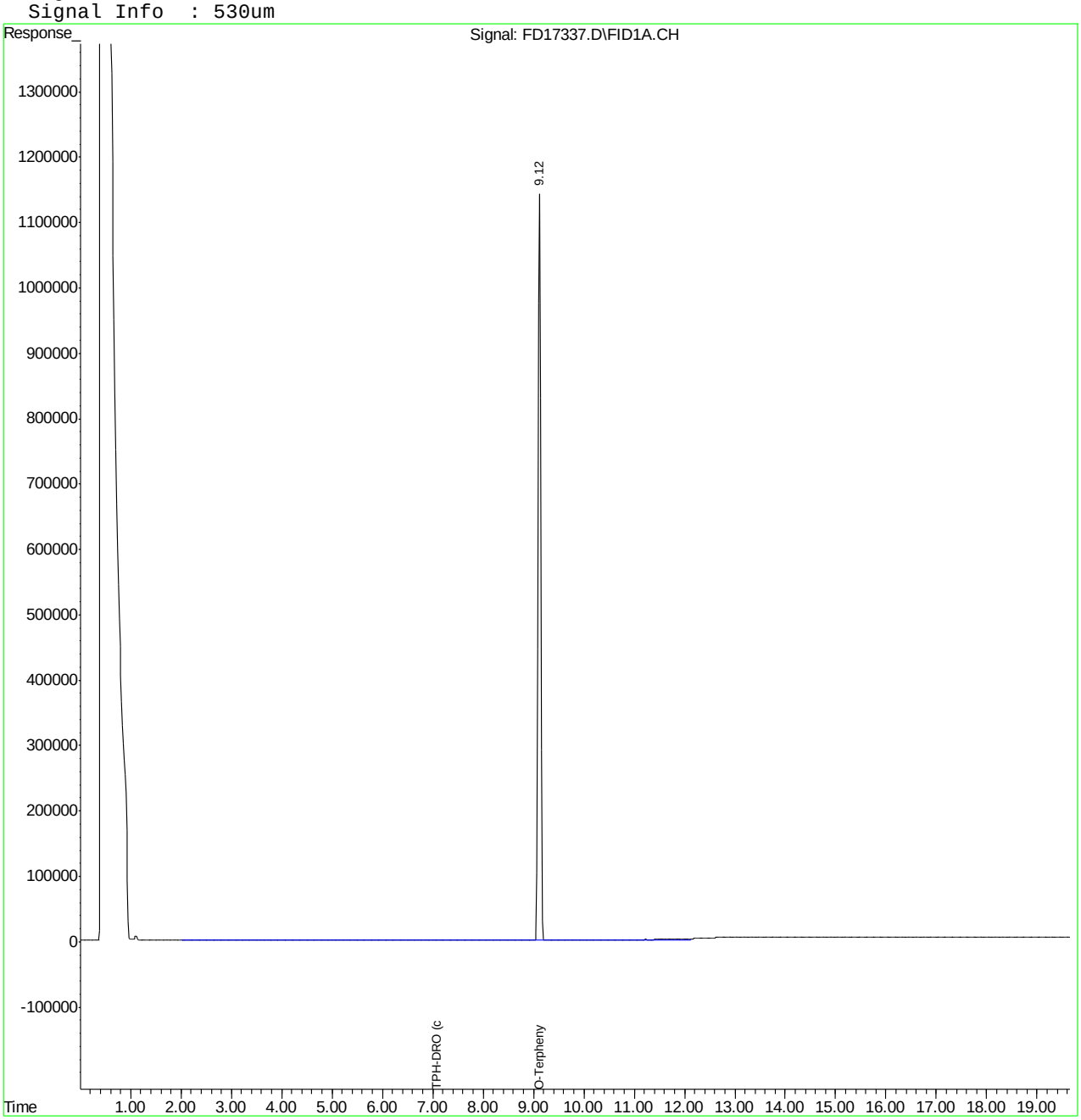
(f)=RT Delta > 1/2 Window (m)=manual int.

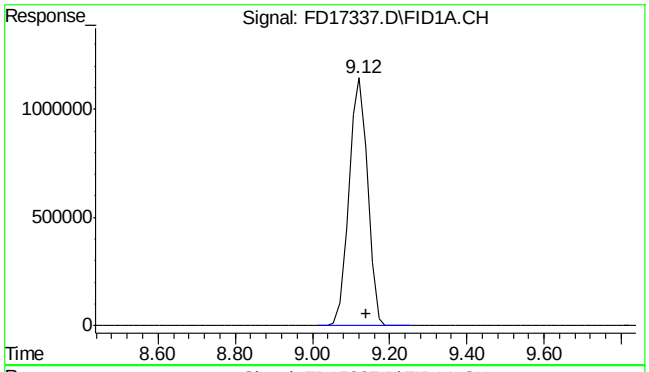
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\SEPTEMBER\FD091212\FD17337.D Vial: 3
Acq On : 9-12-2012 01:58:44 PM Operator: alexw1
Sample : OP6610-MB Inst : FID5
Misc : OP6610,GFD890,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Sep 13 8:19 2012 Quant Results File: DRO-GFD823F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD823F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Sep 11 10:47:33 2012
Response via : Multiple Level Calibration
DataAcq Meth : DRODUAL.M

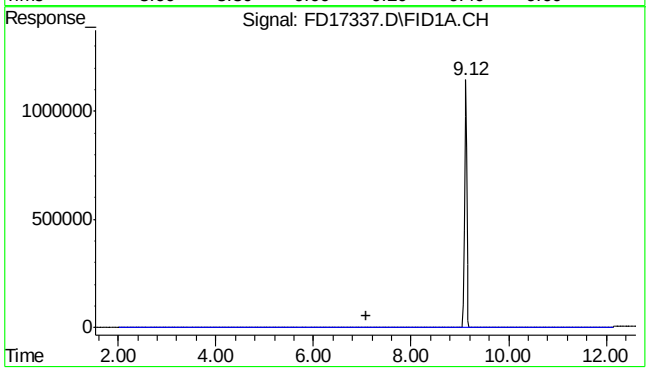
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.125 min
Delta R.T.: -0.015 min
Response: 38226478
Conc: 809.22 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 7.075 min
Delta R.T.: 0.000 min
Response: 999310
Conc: 25.95 mg/L m

13.2.1
13

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: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8374
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 09/12/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.96	.57		
Antimony	3.0	.17	.12		
Arsenic	2.5	.44	.56		
Barium	1.0	.01	.11	0.060	<1.0
Beryllium	1.0	.13	.15		
Boron	5.0	.1	.06		
Cadmium	1.0	.06	.036	0.020	<1.0
Calcium	40	.54	9		
Chromium	1.0	.03	.03	0.060	<1.0
Cobalt	0.50	.04	.07		
Copper	1.0	.12	.15	-0.010	<1.0
Iron	7.0	.12	.87		
Lead	5.0	.19	.24	-0.17	<5.0
Lithium	0.20	.05	.054		
Magnesium	20	.65	.98		
Manganese	0.50	.12	.022		
Molybdenum	1.0	.21	.08		
Nickel	3.0	.05	.026	0.020	<3.0
Phosphorus	10	1.4	1.9		
Potassium	200	6.1	7		
Selenium	5.0	.48	.36	0.76	<5.0
Silicon	5.0	.29	.37		
Silver	3.0	.04	.06	0.13	<3.0
Sodium	40	.59	1.9		
Strontium	5.0	.004	.017		
Thallium	1.0	.29	.53		
Tin	5.0	1.2	2		
Titanium	1.0	.01	.038		
Uranium	5.0	.22	.26		
Vanadium	1.0	.02	.036		
Zinc	3.0	.05	.37	-0.15	<3.0

Associated samples MP8374: D38605-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8374
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8374
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 09/12/12

Metal	D38290-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium	631	1080	229	179.6N(a	75-125
Beryllium					
Boron					
Cadmium	0.0	53.9	57.2	94.0	75-125
Calcium					
Chromium	34.7	89.9	57.2	92.8	75-125
Cobalt					
Copper	8.7	65.9	57.2	100.0	75-125
Iron					
Lead	13.3	120	114	93.3	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	16.3	64.6	57.2	87.7	75-125
Phosphorus					
Potassium					
Selenium	0.0	104	114	90.9	75-125
Silicon					
Silver	0.30	22.0	22.9	94.8	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	44.4	94.3	57.2	87.2	75-125

Associated samples MP8374: D38605-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8374
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8374
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 09/12/12

Metal	D38290-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium	631	1050	231	164.8N(a	2.8	20
Beryllium						
Boron						
Cadmium	0.0	54.8	57.8	94.6	1.7	20
Calcium						
Chromium	34.7	90.8	57.8	93.4	1.0	20
Cobalt						
Copper	8.7	66.5	57.8	100.0	0.9	20
Iron						
Lead	13.3	121	116	93.2	0.8	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	16.3	65.4	57.8	88.3	1.2	20
Phosphorus						
Potassium						
Selenium	0.0	106	116	91.7	1.9	20
Silicon						
Silver	0.30	22.4	23.1	95.6	1.8	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	44.4	94.7	57.8	87.0	0.4	20

Associated samples MP8374: D38605-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8374
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8374
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 09/12/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	213	200	106.5	80-120
Beryllium				
Boron				
Cadmium	46.3	50	92.6	80-120
Calcium				
Chromium	49.5	50	99.0	80-120
Cobalt				
Copper	47.6	50	95.2	80-120
Iron				
Lead	96.4	100	96.4	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	46.6	50	93.2	80-120
Phosphorus				
Potassium				
Selenium	90.6	100	90.6	80-120
Silicon				
Silver	19.4	20	97.0	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	46.4	50	92.8	80-120

Associated samples MP8374: D38605-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8374
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8374
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 09/12/12

Metal	D38290-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	5680	6300	4.7	0-10
Beryllium				
Boron				
Cadmium	0.00	0.00	NC (a)	0-10
Calcium				
Chromium	312	343	3.6	0-10
Cobalt				
Copper	91.1	77.0	2.0	0-10
Iron				
Lead	107	111	7.4	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	129	140	8.0	0-10
Phosphorus				
Potassium				
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver	2.70	7.00	159.3(a)	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	409	427	6.7	0-10

Associated samples MP8374: D38605-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8374
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

(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: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8375
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 09/12/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.006	.06	0.0073	<0.10
Barium	1.0	.0065	.037		
Beryllium	0.10	.016	.09		
Boron	20	1.2	1.2		
Cadmium	0.050	.014	.021		
Calcium	200	7.9	8		
Chromium	1.0	.033	.19		
Cobalt	0.10	.0012	.015		
Copper	1.0	.017	.065		
Iron	20	.8	5		
Lead	0.25	.0011	.024		
Magnesium	50	.44	.85		
Manganese	0.50	.0043	.02		
Molybdenum	0.50	.018	.018		
Nickel	1.0	.0049	.011		
Phosphorus	30	1.4	3.6		
Potassium	100	9.8	10		
Selenium	0.20	.029	.14		
Silver	0.050	.0009	.0065		
Sodium	250	1.5	2.3		
Strontium	10	.036	.036		
Thallium	0.10	.00095	.0095		
Tin	5.0	.023	.34		
Titanium	1.0	.044	.1		
Uranium	0.25	.00085	.001		
Vanadium	2.0	.12	.21		
Zinc	5.0	.033	.35		

Associated samples MP8375: D38605-1

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: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8375
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 09/12/12

Metal	D38290-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	3.1	131	114	111.8	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 MP8375: D38605-1

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: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8375 Methods: SW846 6020A
Matrix Type: SOLID Units: mg/kg

Prep Date: 09/12/12

Metal	D38290-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	3.1	136	116	115.0	3.7	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 MP8375: D38605-1

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: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8375
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 09/12/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	112	100	112.0	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 MP8375: D38605-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8375
Matrix Type: SOLID

Methods: SW846 6020A
Units: ug/l

Prep Date: 09/12/12

Metal	D38290-1 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	27.6	27.6	0.0	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 MP8375: D38605-1

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: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8383 Methods: SW846 7471B
Matrix Type: SOLID Units: mg/kg

Prep Date: 09/13/12

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.10	.0011	.0009	0.0034	<0.10

Associated samples MP8383: D38605-1

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: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8383
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 09/13/12

Metal	D38290-1 Original	MS	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.017	0.41	0.458	85.9	75-125

Associated samples MP8383: D38605-1

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: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8383 Methods: SW846 7471B
Matrix Type: SOLID Units: mg/kg

Prep Date: 09/13/12

Metal	D38290-1 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.017	0.35	0.467	71.3N(a)	15.8	

Associated samples MP8383: D38605-1

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.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8383
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 09/13/12

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.41	0.4	102.5	80-120

Associated samples MP8383: D38605-1

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: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8399
Matrix Type: AQUEOUS

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

Prep Date: 09/14/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	48	130		
Antimony	150	8.5	18		
Arsenic	130	22	42		
Barium	50	.5	9		
Beryllium	50	6.5	16		
Boron	250	5	22		
Cadmium	50	3	3		
Calcium	2000	27	80	45.0	<2000
Chromium	50	1.5	2.8		
Cobalt	25	2	2.1		
Copper	50	6	15		
Iron	350	6	100		
Lead	250	9.5	15		
Lithium	10	2.5			
Magnesium	1000	33	110	-6.0	<1000
Manganese	25	6	6		
Molybdenum	50	11	11		
Nickel	150	2.5	2.9		
Phosphorus	500	70	300		
Potassium	5000	310	750		
Selenium	250	24	55		
Silicon	250	15			
Silver	150	2	4.9		
Sodium	2000	30	490	-11	<2000
Strontium	25	.2	7.5		
Thallium	50	15	43		
Tin	250	60			
Titanium	50	.5			
Uranium	250	11	23		
Vanadium	50	1	2.4		
Zinc	150	2.5	12		

Associated samples MP8399: D38605-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8399
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8399
Matrix Type: AQUEOUS

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

Prep Date: 09/14/12

Metal	D38644-1A Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	422000	576000	125000	123.2	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	155000	287000	125000	105.6	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	1220000	1400000	125000	144.0(a)	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP8399: D38605-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8399
Matrix Type: AQUEOUS

Methods: SW846 6010C, 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: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8399
Matrix Type: AQUEOUS

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

Prep Date: 09/14/12

Metal	D38644-1A Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	422000	572000	125000	120.0	0.7	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	155000	285000	125000	104.0	0.7	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	1220000	1400000	125000	144.0(a)	0.0	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP8399: D38605-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8399
Matrix Type: AQUEOUS

Methods: SW846 6010C, 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.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8399
Matrix Type: AQUEOUS

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

Prep Date: 09/14/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	138000	125000	110.4	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	124000	125000	99.2	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	126000	125000	100.8	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8399: D38605-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8399
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8399
Matrix Type: AQUEOUS

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

Prep Date: 09/14/12

Metal	D38644-1A Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	84400	86900	2.9	0-10
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	30900	33100	7.0	0-10
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	244000	262000	7.4	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8399: D38605-1A

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8399
Matrix Type: AQUEOUS

Methods: SW846 6010C, 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: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP8197/GN16803	1.0	0.0	mg/kg	60.7	65.1	107.0	80-120%
Specific Conductivity	GP8183/GN16757	1.0	<1.0	umhos/cm	9989	9910	99.2	90-110%
pH	GN16727			su	8.00	7.99	99.9	99.3-100.7%

Associated Samples:
Batch GP8183: D38605-1
Batch GP8197: D38605-1
Batch GN16727: D38605-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP8197/GN16803	D38706-1	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN16725	D38599-1	mv	233	244	4.6	0-20%

Associated Samples:
Batch GP8197: D38605-1
Batch GN16725: D38605-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP8197/GN16803	D38706-1	mg/kg	0.0	40	28.7	71.8*(a)	75-125%

Associated Samples:
Batch GP8197: D38605-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Spike recovery indicates possible matrix interference.

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D38605
Account: XTOKRWR - XTO Energy
Project: T78X-12G

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chromium, Hexavalent	GP8197/GN16803	D38706-1	mg/kg	0.0	40	27.9	3.0	

Associated Samples:
Batch GP8197: D38605-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits