Mountain States ACCUTEST LABORATORIES

09/19/12

Technical Report for

XTO Energy

T78X-12G

1007-06

Accutest Job Number: D38644

Sampling Date: 09/10/12

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: **136**

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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Table of Contents

Sample Summary

XTO Energy

Job No: D38644

T78X-12G
Project No: 1007-06

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D38644-1	09/10/12	10:20	DS	09/12/12	SO	Soil	FW SUBLINER COMPOSITE
D38644-1A	09/10/12	10:20	DS	09/12/12	SO	Soil	FW 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**	D38644
Site:	T78X-12G	**Report Date**	9/19/2012 10:23:41 AM

On 09/12/2012, 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 D38644 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.
- 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 GCMS By Method SW846 8270C BY SIM

Matrix SO **Batch ID:** OP6632

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D38706-1MS, D38706-1MSD 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.
- 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 GC By Method SW846-8015B

Matrix SO **Batch ID:** OP6631

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D38645-1MS, D38645-1MSD 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:** MP8410

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D38578-1MS, D38578-1MSD, D38578-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Zinc, Nickel are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- The matrix spike duplicate (MSD) recovery(s) of Chromium, Nickel, Zinc are outside control limits. Probable cause due to matrix interference.
- The serial dilution RPD(s) for Cadmium, Selenium, Barium, Chromium, Lead, Nickel, Zinc are outside control limits for sample MP8410-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP8410-SD1 for Zinc: Serial dilution indicates possible matrix interference.
- MP8410-SD1 for Lead: Serial dilution indicates possible matrix interference.
- MP8410-S1 for Nickel: Spike recovery indicates possible matrix interference.
- MP8410-SD1 for Chromium: Serial dilution indicates possible matrix interference.
- MP8410-SD1 for Barium: Serial dilution indicates possible matrix interference.
- MP8410-SD1 for Nickel: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix SO **Batch ID:** MP8411

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D38578-1MS, D38578-1MSD, D38578-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Arsenic are outside control limits for sample MP8411-SD1. Probable cause due to sample homogeneity.
- MP8411-SD1 for Arsenic: Serial dilution indicates possible matrix interference.

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:** GN16746

- Sample(s) D38661-1DUP 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:** R14438

- The data for SW846 3060/7196A M meets quality control requirements.
- D38644-1 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:** GN16750

- The following samples were run outside of holding time for method SW846 9045D: D38644-1

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO **Batch ID:** MP8399

- D38644-1A 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: D38644
Account: XTO Energy
Project: T78X-12G
Collected: 09/10/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D38644-1	**FW SUBLINER COMPOSITE**					
Chrysene		0.0076 J	0.010	0.0052	mg/kg	SW846 8270C BY SIM
Naphthalene		0.0248	0.014	0.012	mg/kg	SW846 8270C BY SIM
Pyrene		0.0257	0.010	0.0052	mg/kg	SW846 8270C BY SIM
TPH-DRO (C10-C28)		141	16	10	mg/kg	SW846-8015B
Arsenic		4.7	0.12		mg/kg	SW846 6020A
Barium		1780	1.2		mg/kg	SW846 6010C
Chromium		39.8	1.2		mg/kg	SW846 6010C
Copper		15.7	1.2		mg/kg	SW846 6010C
Lead		15.5	6.2		mg/kg	SW846 6010C
Nickel		19.6	3.7		mg/kg	SW846 6010C
Zinc		50.1	3.7		mg/kg	SW846 6010C
Specific Conductivity		8520	1.0		umhos/cm	SM2510B-1997 MOD
Chromium, Trivalent [a]		39.3	2.2		mg/kg	SW846 3060/7196A M
Redox Potential Vs H2		203			mv	ASTM D1498-76M
pH		9.08			su	SW846 9045D
D38644-1A	**FW SUBLINER COMPOSITE**					
Calcium		422	2.0		mg/l	SW846 6010C
Magnesium		155	1.0		mg/l	SW846 6010C
Sodium		1220	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio [b]		12.9			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:	FW SUBLINER COMPOSITE		
Lab Sample ID:	D38644-1	**Date Sampled:**	09/10/12
Matrix:	SO - Soil	**Date Received:**	09/12/12
Method:	SW846 8260B	**Percent Solids:**	82.7
Project:	T78X-12G		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V23718.D	1	09/13/12	BD	n/a	n/a	V5V1445
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.02 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.071	0.035	mg/kg	
108-88-3	Toluene	ND	0.14	0.071	mg/kg	
100-41-4	Ethylbenzene	ND	0.14	0.027	mg/kg	
1330-20-7	Xylene (total)	ND	0.28	0.14	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	96%		64-130%
460-00-4	4-Bromofluorobenzene	102%		62-131%
17060-07-0	1,2-Dichloroethane-D4	99%		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:	FW SUBLINER COMPOSITE		
Lab Sample ID:	D38644-1	**Date Sampled:**	09/10/12
Matrix:	SO - Soil	**Date Received:**	09/12/12
Method:	SW846 8270C BY SIM SW846 3546	**Percent Solids:**	82.7
Project:	T78X-12G		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G11237.D	1	09/14/12	DC	09/14/12	OP6632	E3G523
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	0.010	0.0052	mg/kg	
120-12-7	Anthracene	ND	0.010	0.0052	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.010	0.0052	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.010	0.0052	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.010	0.0052	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.010	0.0052	mg/kg	
218-01-9	Chrysene	0.0076	0.010	0.0052	mg/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	0.010	0.0052	mg/kg	
206-44-0	Fluoranthene	ND	0.010	0.0052	mg/kg	
86-73-7	Fluorene	ND	0.010	0.0052	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.010	0.0052	mg/kg	
91-20-3	Naphthalene	0.0248	0.014	0.012	mg/kg	
129-00-0	Pyrene	0.0257	0.010	0.0052	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	54%		10-145%
321-60-8	2-Fluorobiphenyl	60%		10-130%
1718-51-0	Terphenyl-d14	59%		22-130%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	FW SUBLINER COMPOSITE		
Lab Sample ID:	D38644-1	**Date Sampled:**	09/10/12
Matrix:	SO - Soil	**Date Received:**	09/12/12
Method:	SW846 8015B	**Percent Solids:**	82.7
Project:	T78X-12G		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB17528.D	1	09/13/12	SK	n/a	n/a	GGB961
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	14	7.1	mg/kg	

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID: FW SUBLINER COMPOSITE
Lab Sample ID: D38644-1
Matrix: SO - Soil
Method: SW846-8015B SW846 3546
Project: T78X-12G

Date Sampled: 09/10/12
Date Received: 09/12/12
Percent Solids: 82.7

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD17539.D	1	09/18/12	AW	09/14/12	OP6631	GFD898
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	141	16	10	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	88%		43-136%

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

Report of Analysis

Client Sample ID: FW SUBLINER COMPOSITE
Lab Sample ID: D38644-1
Matrix: SO - Soil
Project: T78X-12G

Date Sampled: 09/10/12
Date Received: 09/12/12
Percent Solids: 82.7

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	4.7	0.12	mg/kg	5	09/17/12	09/19/12	JB	SW846 6020A [3]	SW846 3050B [6]
Barium	1780	1.2	mg/kg	1	09/17/12	09/17/12	JB	SW846 6010C [2]	SW846 3050B [5]
Cadmium	< 1.2	1.2	mg/kg	1	09/17/12	09/17/12	JB	SW846 6010C [2]	SW846 3050B [5]
Chromium	39.8	1.2	mg/kg	1	09/17/12	09/17/12	JB	SW846 6010C [2]	SW846 3050B [5]
Copper	15.7	1.2	mg/kg	1	09/17/12	09/17/12	JB	SW846 6010C [2]	SW846 3050B [5]
Lead	15.5	6.2	mg/kg	1	09/17/12	09/17/12	JB	SW846 6010C [2]	SW846 3050B [5]
Mercury	< 0.12	0.12	mg/kg	1	09/13/12	09/13/12	JM	SW846 7471B [1]	SW846 7471B [4]
Nickel	19.6	3.7	mg/kg	1	09/17/12	09/17/12	JB	SW846 6010C [2]	SW846 3050B [5]
Selenium	< 6.2	6.2	mg/kg	1	09/17/12	09/17/12	JB	SW846 6010C [2]	SW846 3050B [5]
Silver	< 3.7	3.7	mg/kg	1	09/17/12	09/17/12	JB	SW846 6010C [2]	SW846 3050B [5]
Zinc	50.1	3.7	mg/kg	1	09/17/12	09/17/12	JB	SW846 6010C [2]	SW846 3050B [5]

(1) Instrument QC Batch: MA2798
(2) Instrument QC Batch: MA2811
(3) Instrument QC Batch: MA2818
(4) Prep QC Batch: MP8383
(5) Prep QC Batch: MP8410
(6) Prep QC Batch: MP8411

RL = Reporting Limit

Report of Analysis

Client Sample ID: FW SUBLINER COMPOSITE
Lab Sample ID: D38644-1
Matrix: SO - Soil
Project: T78X-12G

Date Sampled: 09/10/12
Date Received: 09/12/12
Percent Solids: 82.7

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	8520	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]	39.3	2.2	mg/kg	1	09/18/12	CJ	SW846 3060/7196A M
Redox Potential Vs H2	203		mv	1	09/13/12	CT	ASTM D1498-76M
Solids, Percent	82.7		%	1	09/13/12	SWT	SM19 2540B M
pH	9.08		su	1	09/13/12 14:15	CT	SW846 9045D

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: FW SUBLINER COMPOSITE
Lab Sample ID: D38644-1A
Matrix: SO - Soil
Project: T78X-12G

Date Sampled: 09/10/12
Date Received: 09/12/12
Percent Solids: 82.7

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	422	2.0	mg/l	1	09/14/12	09/14/12	JM	SW846 6010C [1]	SW846 3010A/M [2]
Magnesium	155	1.0	mg/l	1	09/14/12	09/14/12	JM	SW846 6010C [1]	SW846 3010A/M [2]
Sodium	1220	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:	FW SUBLINER COMPOSITE		
Lab Sample ID:	D38644-1A	**Date Sampled:**	09/10/12
Matrix:	SO - Soil	**Date Received:**	09/12/12
		Percent Solids:	82.7
Project:	T78X-12G		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	12.9		ratio	1	09/14/12 13:18	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

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

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 #: D38644

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 PCU T78X-12G
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	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfate	LAB USE ONLY
	FW SUBLINER COMPOSITE		9-10-12	10:20	DS	SO	5					X					01

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 Labiink

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: 1 LORI ALBINSON	Date Time: 9-10-12 14:20	Received By: 1 Service Center	Relinquished By: 2	Date Time:	Received By: 2 9-12-12 1247
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	[ ] Intact [ ] Not Intact	Preserved where applicable [ ] On Ice [ ] Cooler Temp. 4.6

D38644: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D38644 **Client:** KRW CONSULTING **Immediate Client Services Action Required:** No

Date / Time Received: 9/12/2012 12:45:00 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

D38644: Chain of Custody
Page 2 of 2

Mountain States ACCUTEST LABORATORIES

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D38644
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

D38644-1

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: D38644
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

D38644-1

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: D38644
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

D38644-1

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 : 5V23718.D
Acq On : 13 Sep 2012 12:39 am
Operator : BRETD
Sample : D38644-1
Misc : MS4654,V5V1445,5.020,,100,5,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 13 08:58:50 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

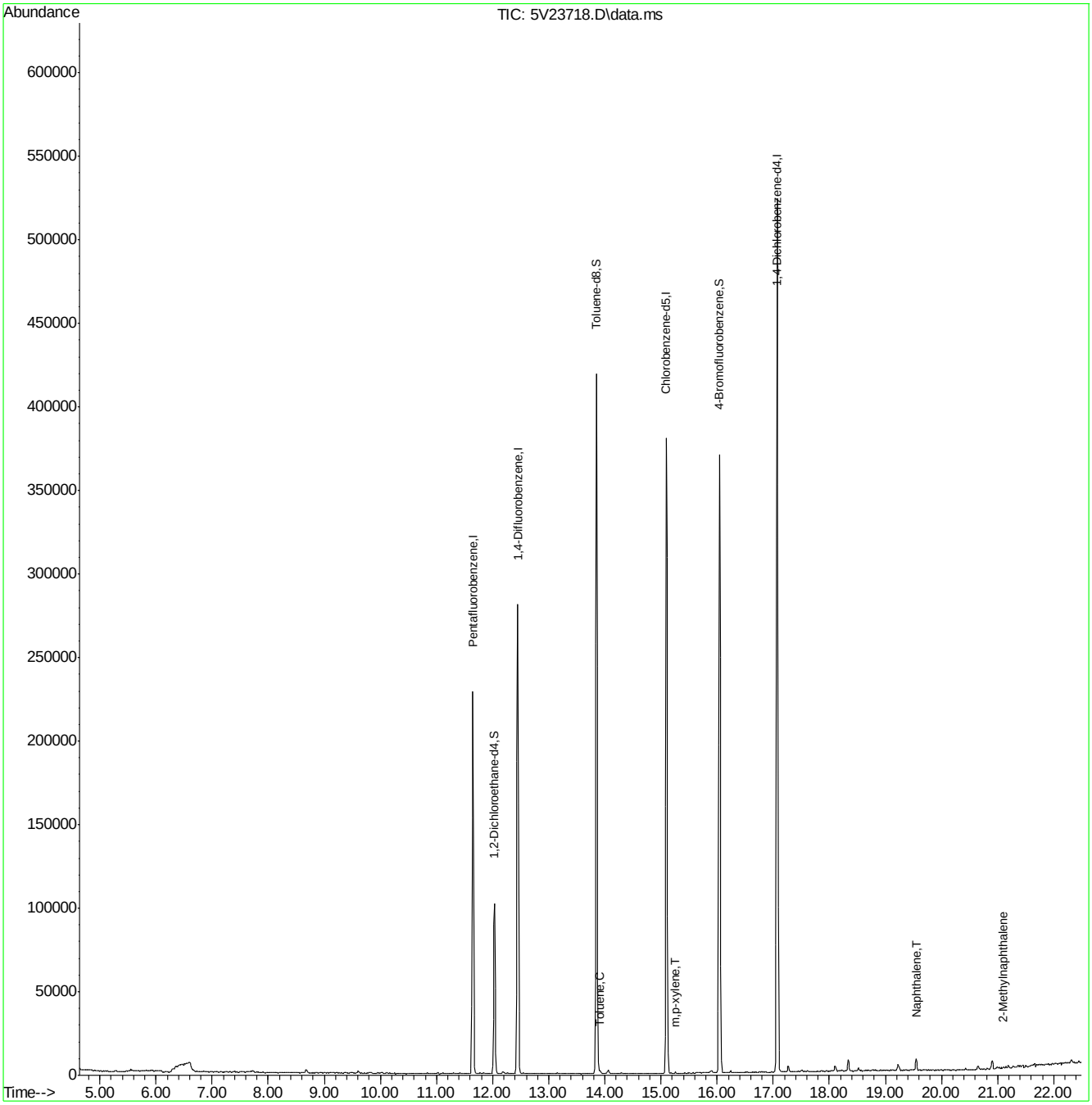
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	166723	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	227341	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	232721	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	169610	50.00	ug/l	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.035	102	15793	49.39	ug/l	0.01
Spiked Amount 50.000	Range 70 - 130		Recovery = 98.78%			
61) Toluene-d8	13.850	98	265210	48.05	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 96.10%			
69) 4-Bromofluorobenzene	16.042	95	127609	50.76	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 101.52%			
Target Compounds						Qvalue
62) Toluene	13.907	92	823	0.17	ug/l #	84
72) m,p-xylene	15.255	106	174	0.04	ug/l #	1
91) Naphthalene	19.559	128	443	0.05	ug/l	100
94) 2-Methylnaphthalene	21.100	142	497	1.00	ug/l #	83

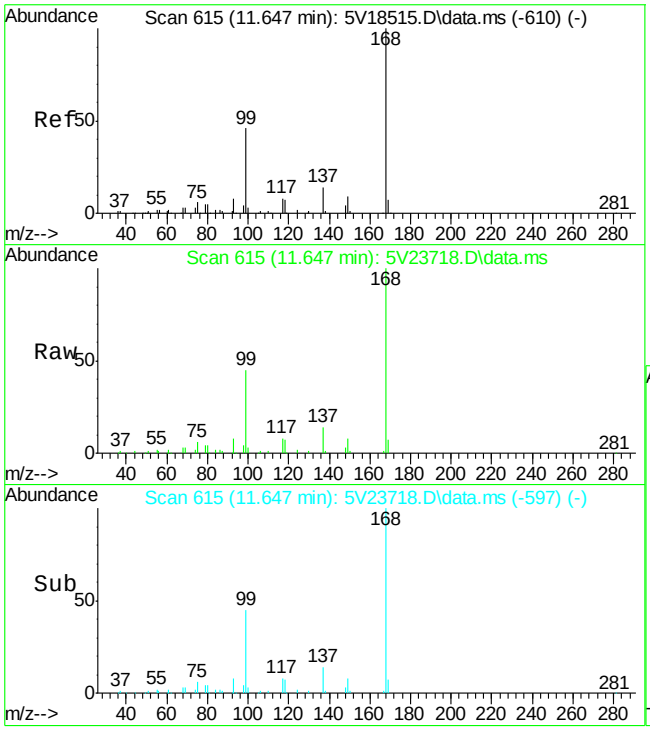
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5091212.S\
Data File : 5V23718.D
Acq On : 13 Sep 2012 12:39 am
Operator : BRETD
Sample : D38644-1
Misc : MS4654,V5V1445,5.020,,100,5,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 13 08:58:50 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

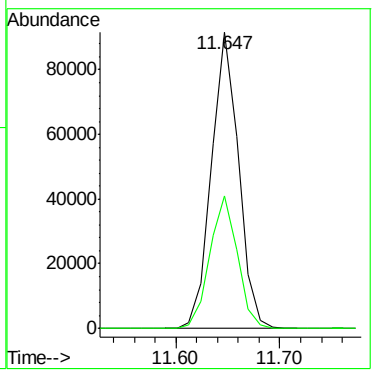


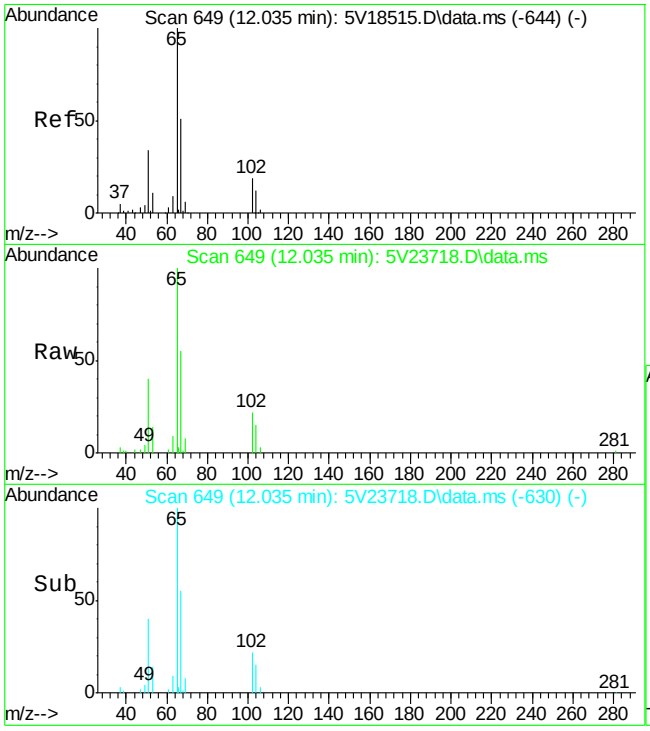


#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.647 min Scan# 615
Delta R.T. 0.000 min
Lab File: 5V23718.D
Acq: 13 Sep 2012 12:39 am

Tgt Ion:168 Resp: 166723

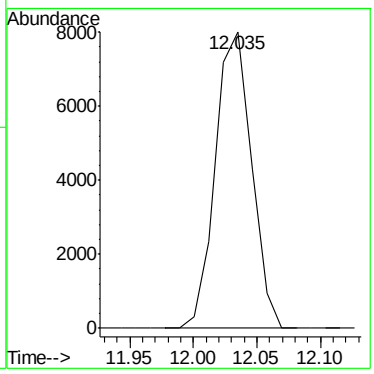
Ion	Ratio	Lower	Upper
168	100		
99	45.3	37.4	56.2

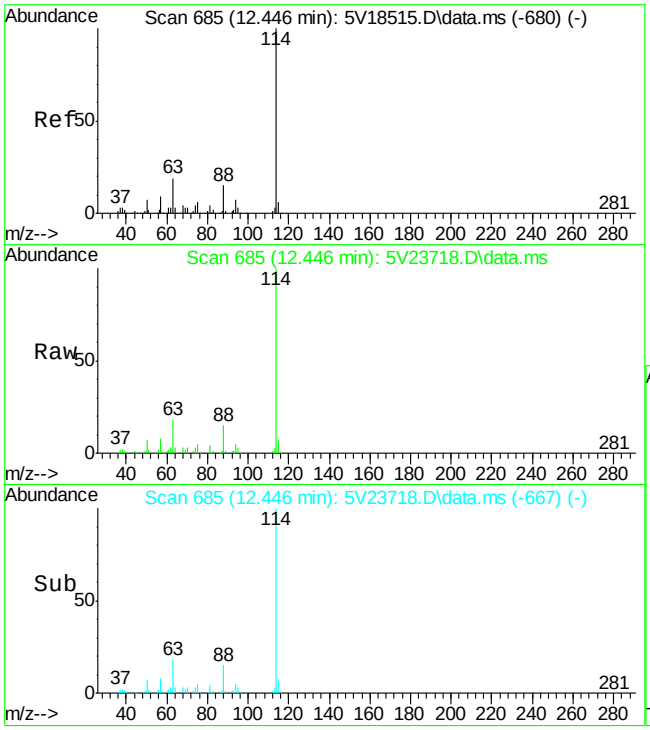




#33
1,2-Dichloroethane-d4
Concen: 49.39 ug/l
RT: 12.035 min Scan# 649
Delta R.T. 0.011 min
Lab File: 5V23718.D
Acq: 13 Sep 2012 12:39 am

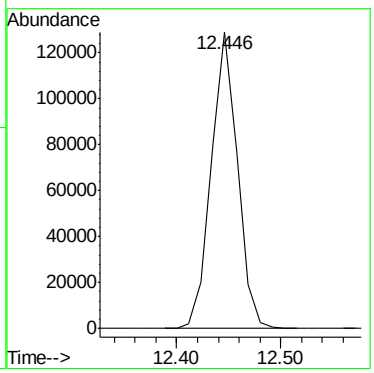
Tgt Ion:102 Resp: 15793

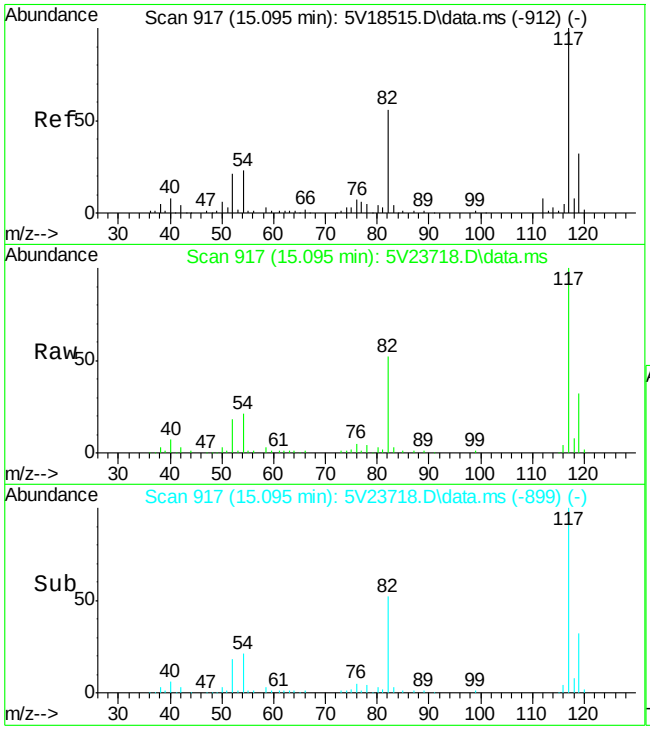




#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.446 min Scan# 685
Delta R.T. 0.000 min
Lab File: 5V23718.D
Acq: 13 Sep 2012 12:39 am

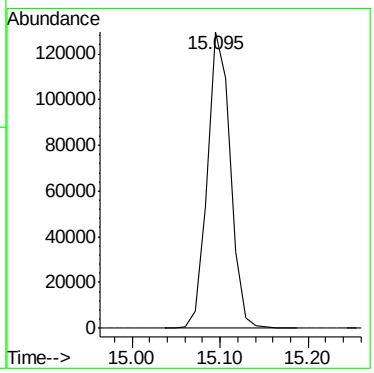
Tgt Ion:114 Resp: 227341

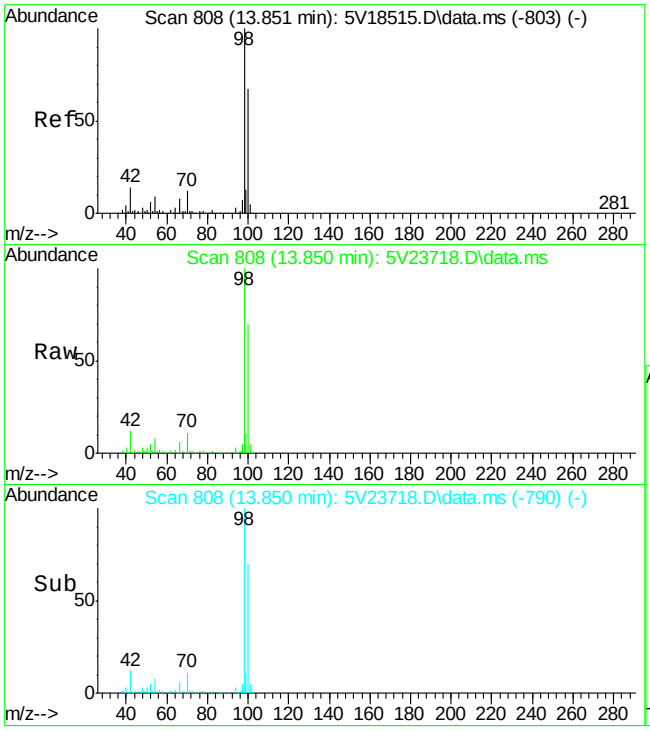




#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.095 min Scan# 917
Delta R.T. 0.000 min
Lab File: 5V23718.D
Acq: 13 Sep 2012 12:39 am

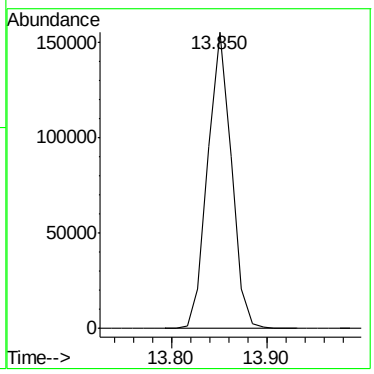
Tgt Ion:117 Resp: 232721

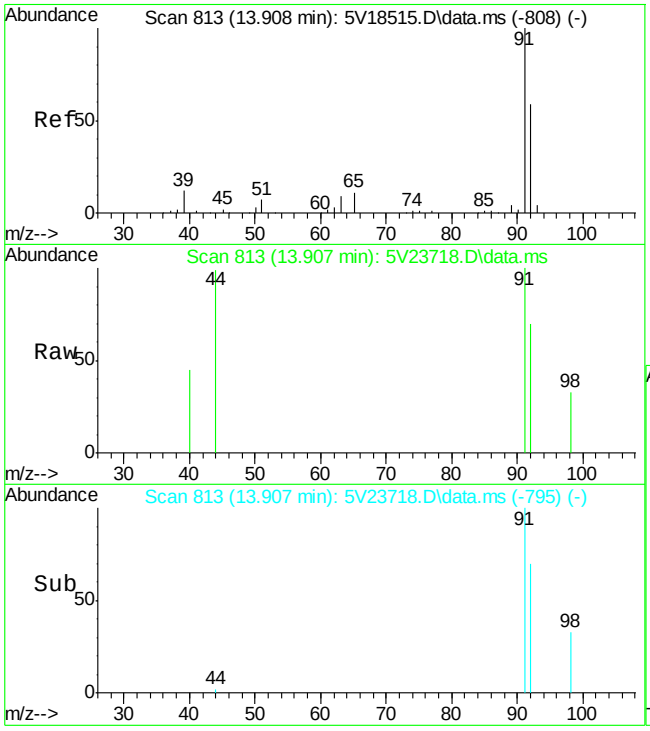




#61
Toluene-d8
Concen: 48.05 ug/l
RT: 13.850 min Scan# 808
Delta R.T. 0.000 min
Lab File: 5V23718.D
Acq: 13 Sep 2012 12:39 am

Tgt Ion: 98 Resp: 265210

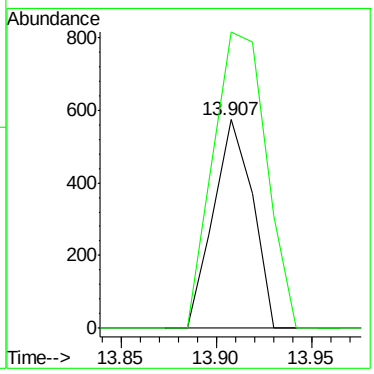


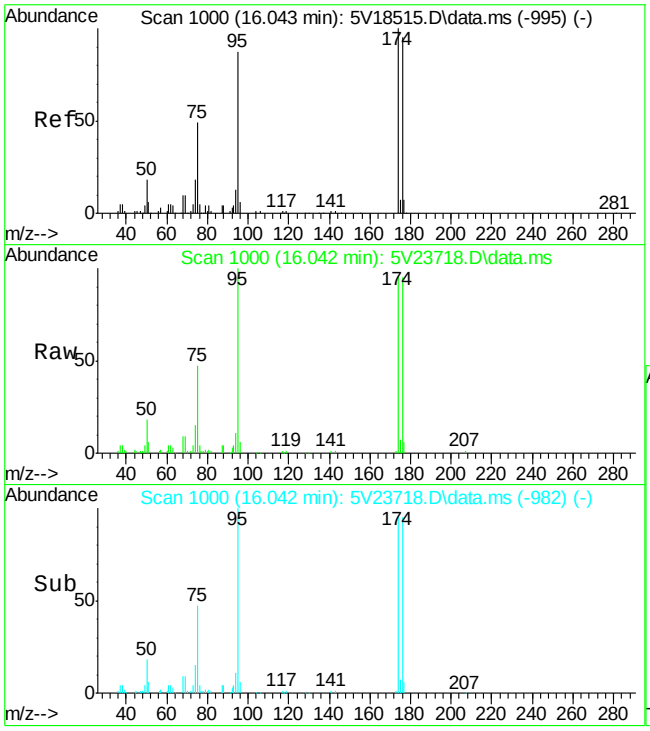


#62
Toluene
Concen: 0.17 ug/l
RT: 13.907 min Scan# 813
Delta R.T. 0.000 min
Lab File: 5V23718.D
Acq: 13 Sep 2012 12:39 am

Tgt Ion: 92 Resp: 823

Ion	Ratio	Lower	Upper
92	100		
91	192.3	149.8	189.8#

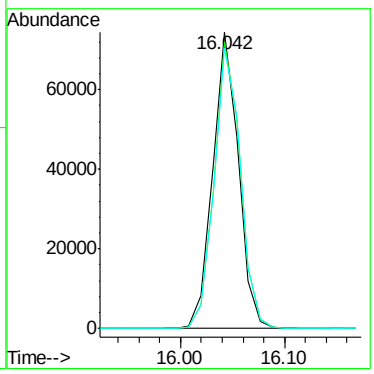


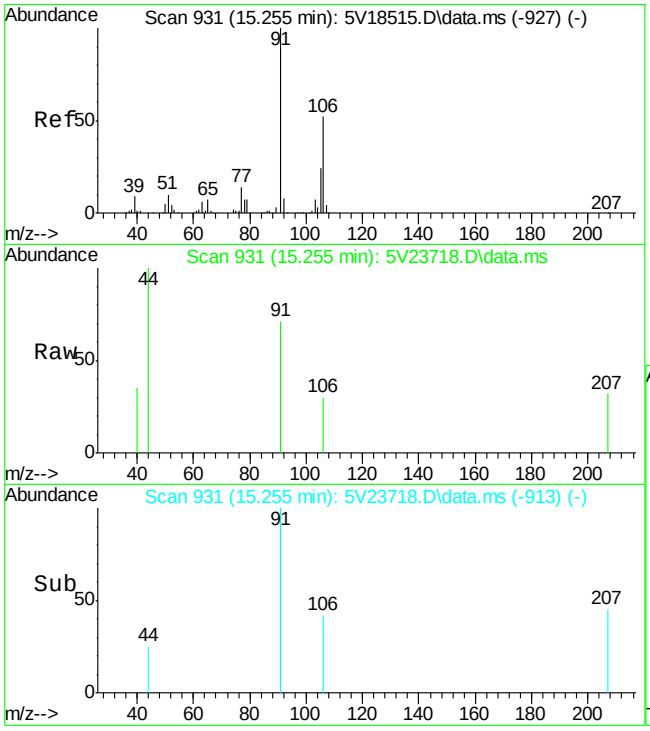


#69
4-Bromofluorobenzene
Concen: 50.76 ug/l
RT: 16.042 min Scan# 1000
Delta R.T. 0.000 min
Lab File: 5V23718.D
Acq: 13 Sep 2012 12:39 am

Tgt Ion: 95 Resp: 127609

Ion	Ratio	Lower	Upper
95	100		
174	98.1	77.1	117.1
176	97.5	73.4	113.4

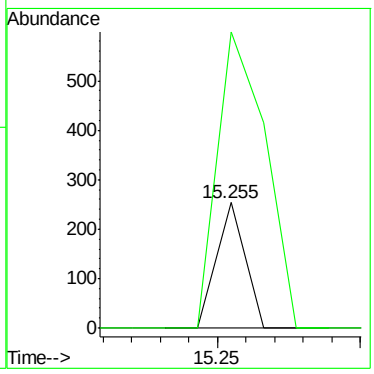


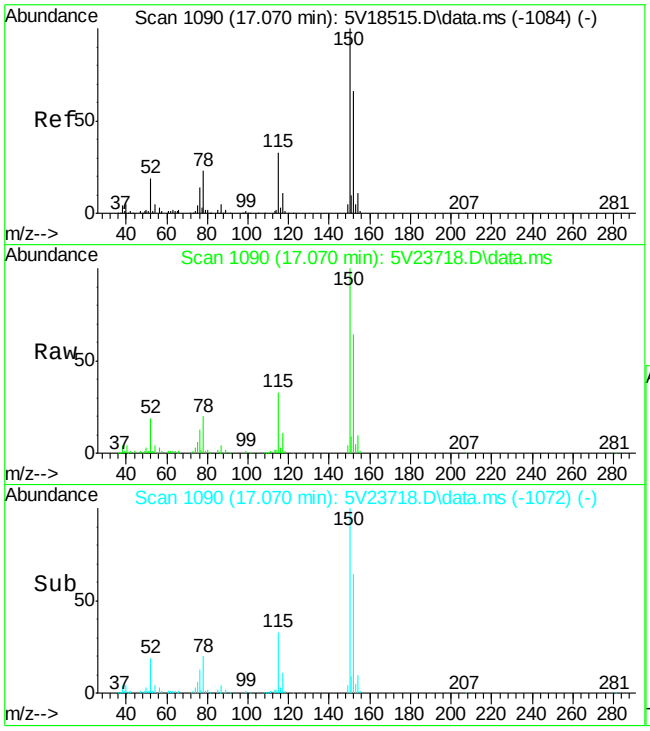


#72
m,p-xylene
Concen: 0.04 ug/l
RT: 15.255 min Scan# 931
Delta R.T. 0.000 min
Lab File: 5V23718.D
Acq: 13 Sep 2012 12:39 am

Tgt Ion:106 Resp: 174

Ion	Ratio	Lower	Upper
106	100		
91	399.4	177.1	217.1#

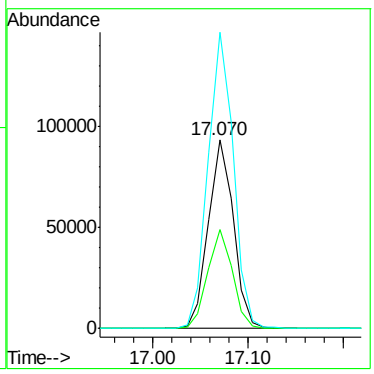


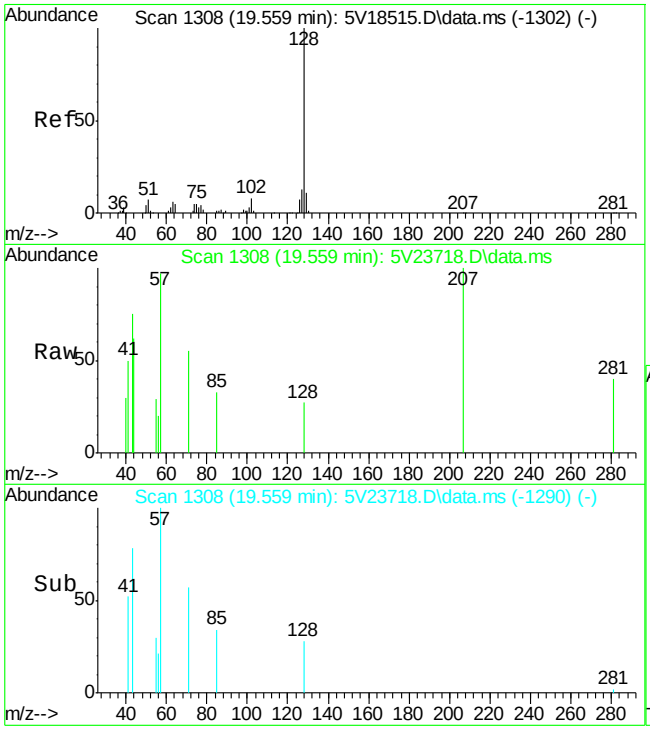


#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.070 min Scan# 1090
Delta R.T. 0.000 min
Lab File: 5V23718.D
Acq: 13 Sep 2012 12:39 am

Tgt Ion:152 Resp: 169610

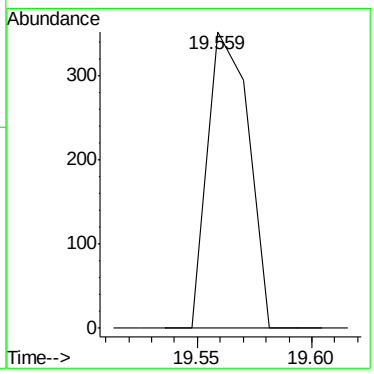
Ion	Ratio	Lower	Upper
152	100		
115	51.8	41.4	62.0
150	158.8	153.9	230.9

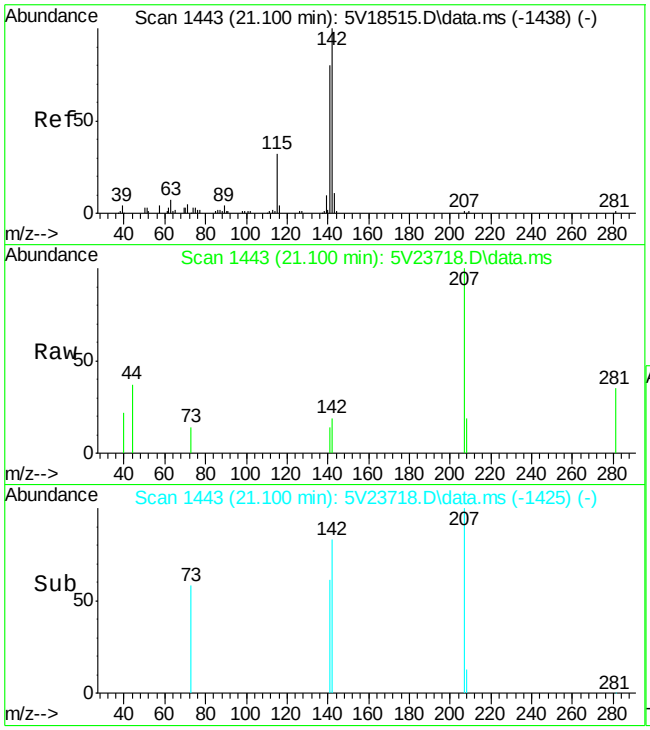




#91
Naphthalene
Concen: 0.05 ug/l
RT: 19.559 min Scan# 1308
Delta R.T. 0.000 min
Lab File: 5V23718.D
Acq: 13 Sep 2012 12:39 am

Tgt Ion:128 Resp: 443

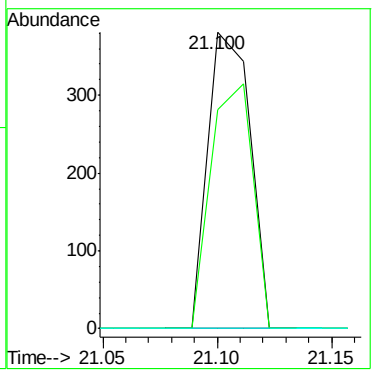




#94
2-Methylnaphthalene
Concen: 1.00 ug/l
RT: 21.100 min Scan# 1443
Delta R.T. 0.000 min
Lab File: 5V23718.D
Acq: 13 Sep 2012 12:39 am

Tgt Ion:142 Resp: 497

Ion	Ratio	Lower	Upper
142	100		
141	82.1	66.2	99.4
115	0.0	25.9	38.9#



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

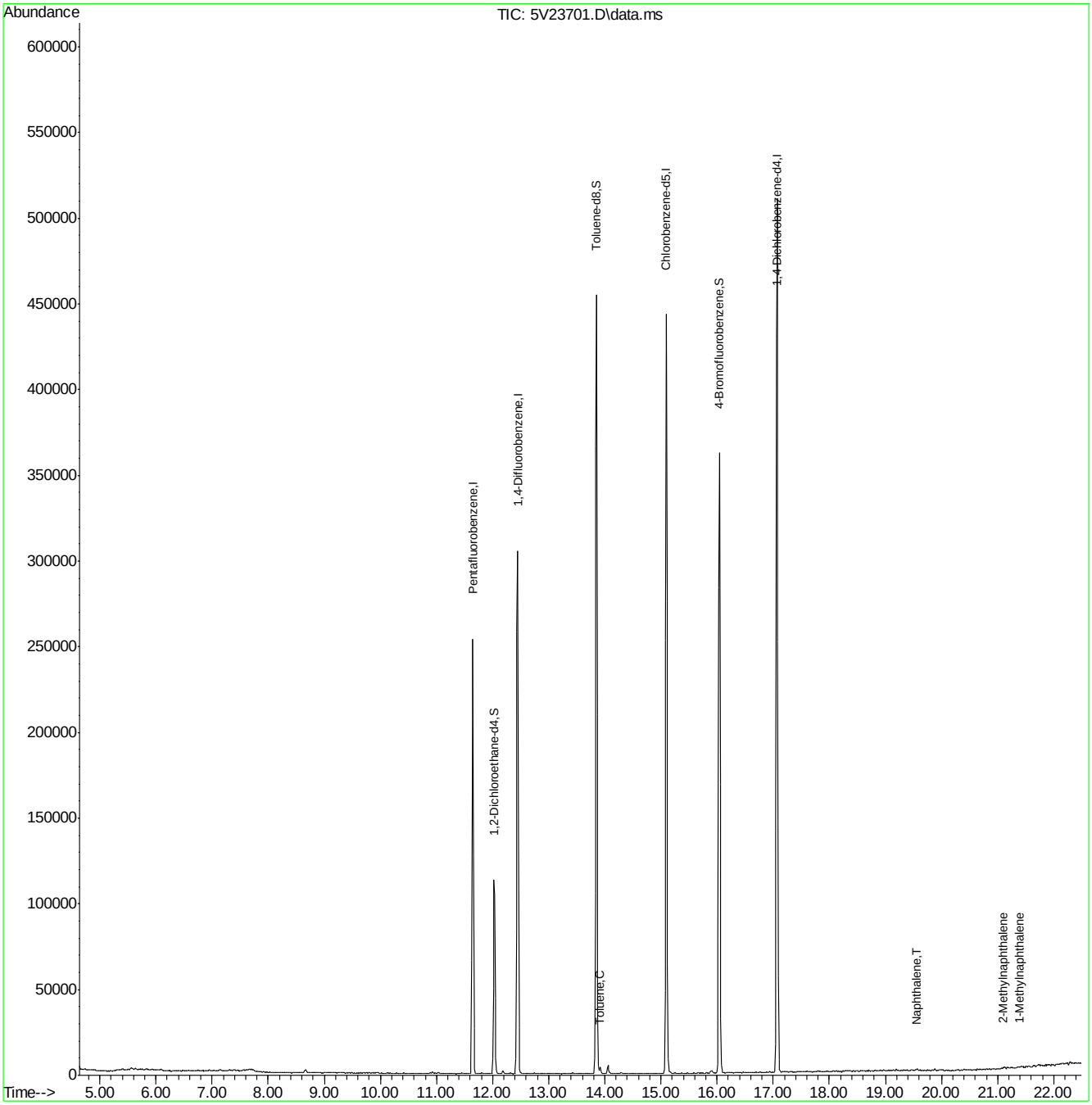
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	190559	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.447	114	257802	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	261061	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	174187	50.00	ug/l	0.00
System Monitoring 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

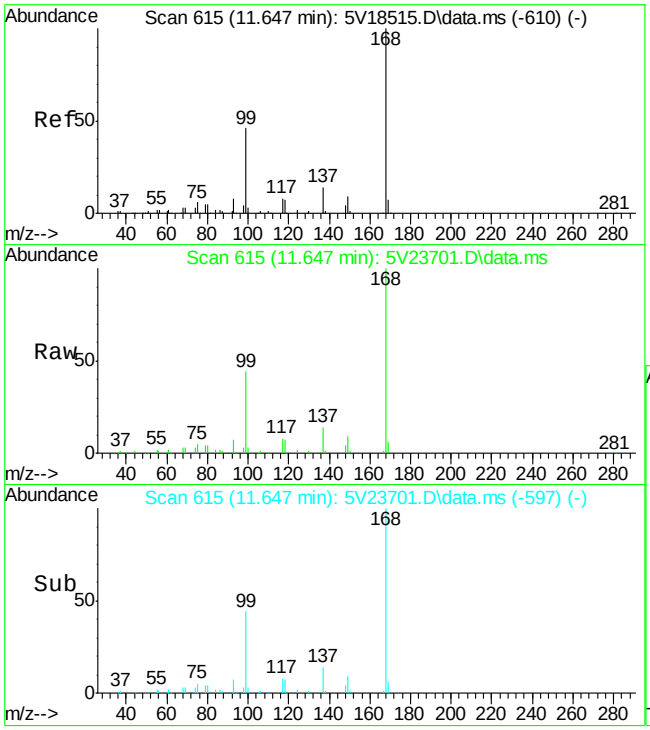
(#) = qualifier out of range (m) = manual integration (+) = signals summed

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

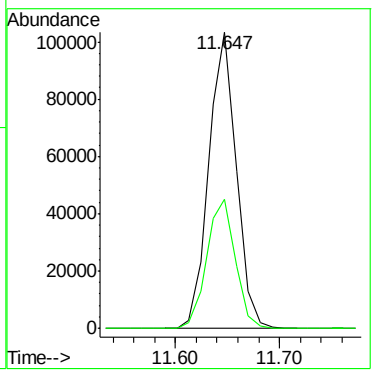


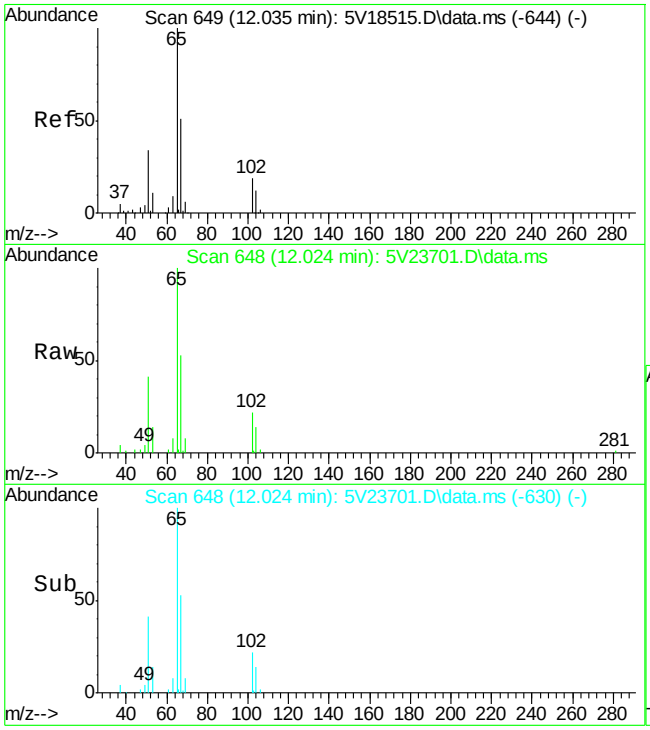


#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.647 min Scan# 615
Delta R.T. 0.000 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

Tgt Ion:168 Resp: 190559

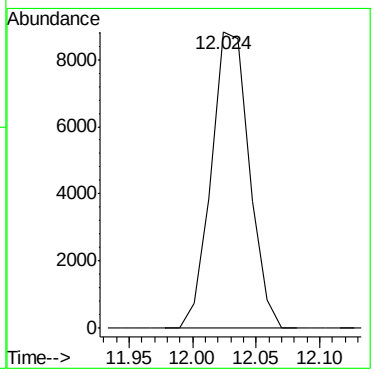
Ion	Ratio	Lower	Upper
168	100		
99	44.9	37.4	56.2

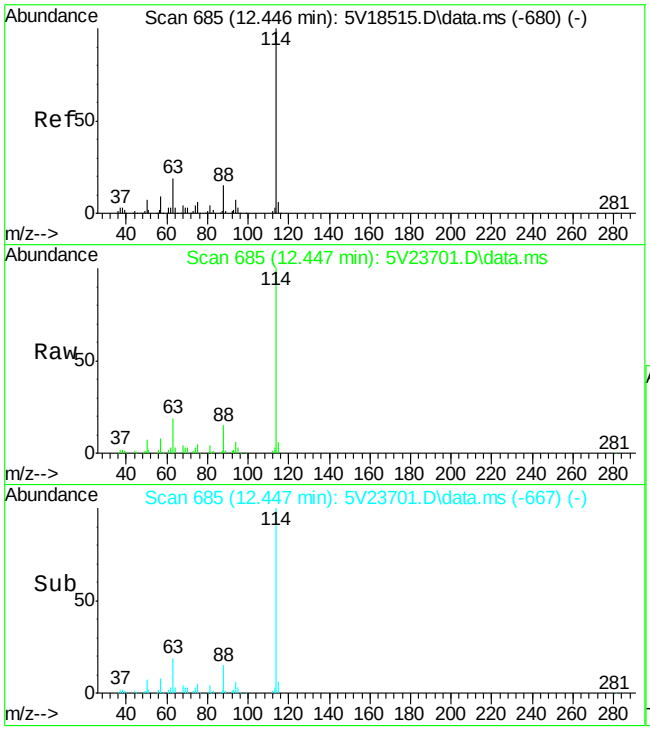




#33
1,2-Dichloroethane-d4
Concen: 49.98 ug/l
RT: 12.024 min Scan# 648
Delta R.T. 0.000 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

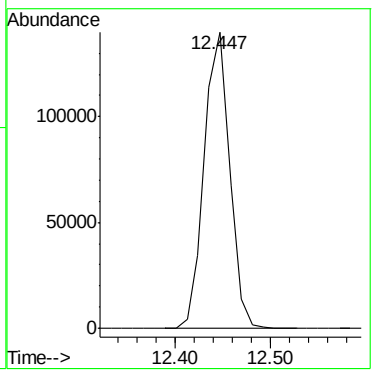
Tgt Ion:102 Resp: 18268

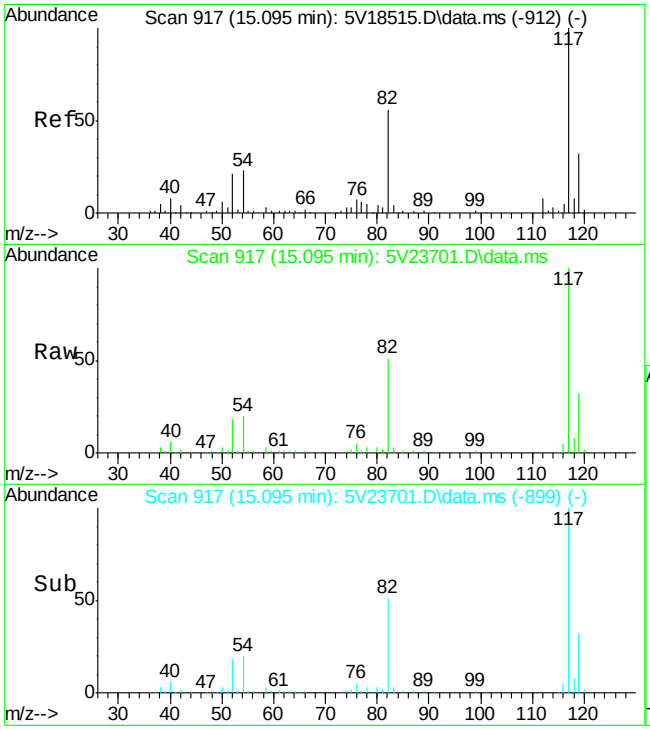




#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.447 min Scan# 685
Delta R.T. 0.000 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

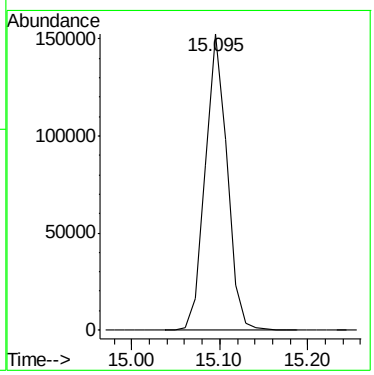
Tgt Ion:114 Resp: 257802

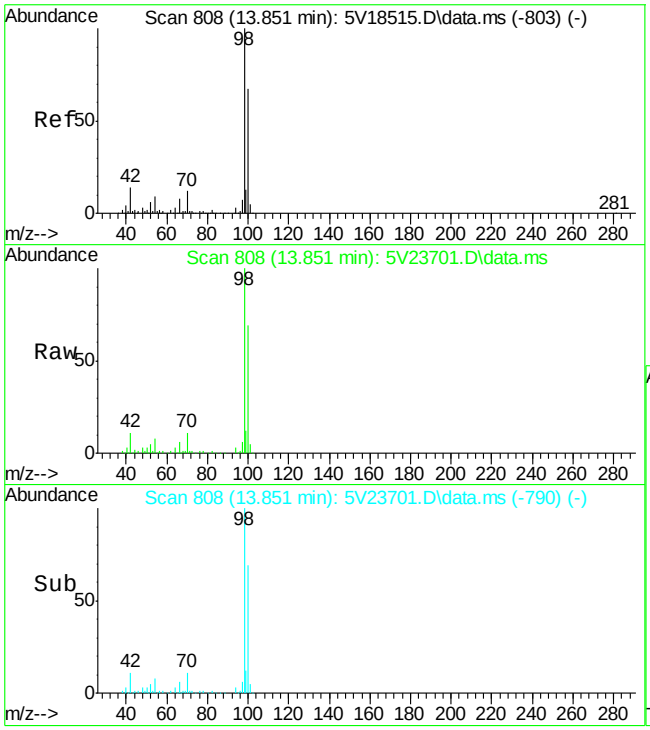




#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.095 min Scan# 917
Delta R.T. 0.000 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

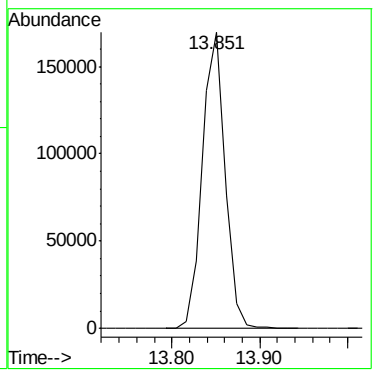
Tgt Ion:117 Resp: 261061

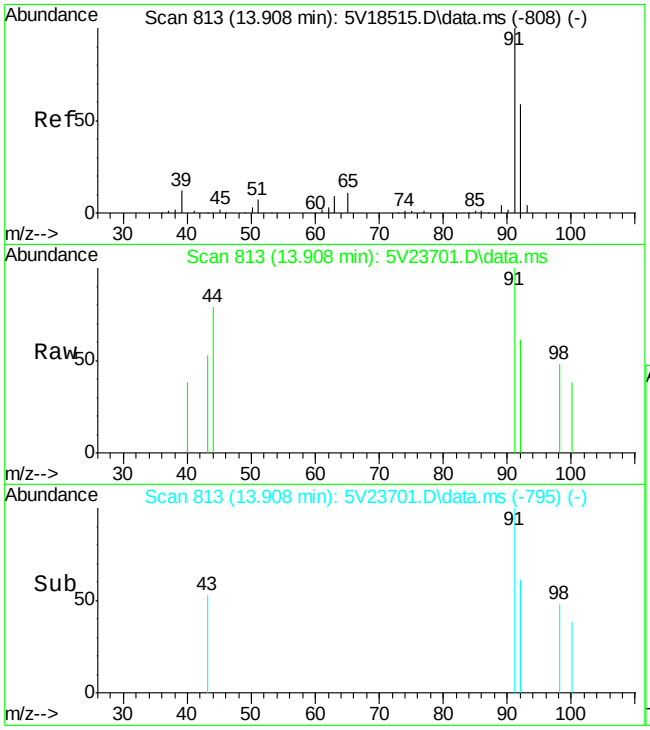




#61
Toluene-d8
Concen: 48.90 ug/l
RT: 13.851 min Scan# 808
Delta R.T. 0.000 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

Tgt Ion: 98 Resp: 302769

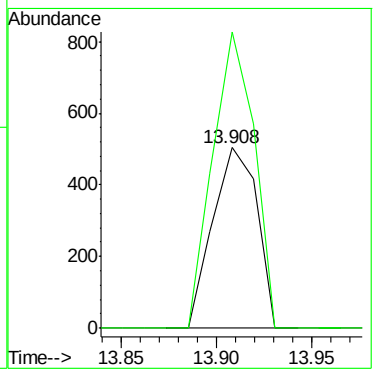


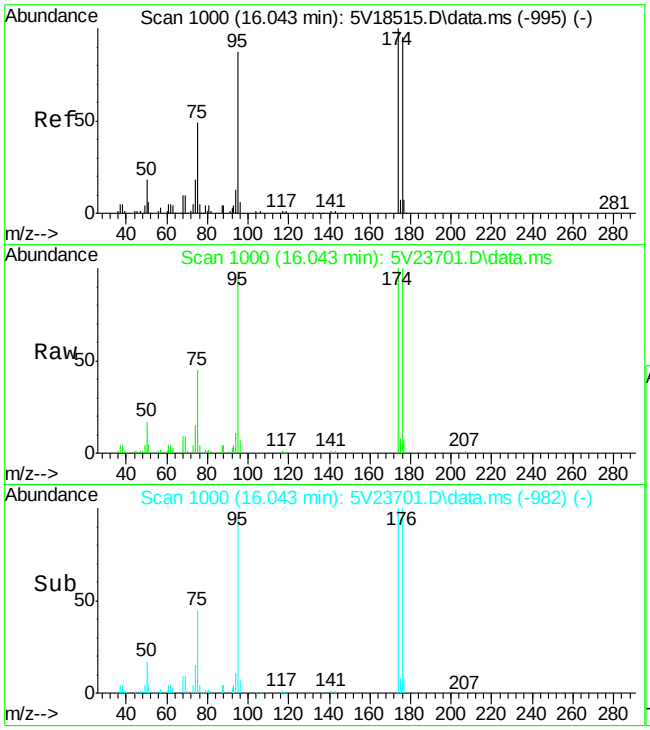


#62
Toluene
Concen: 0.15 ug/l
RT: 13.908 min Scan# 813
Delta R.T. 0.000 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

Tgt Ion: 92 Resp: 816

Ion	Ratio	Lower	Upper
92	100		
91	153.4	149.8	189.8

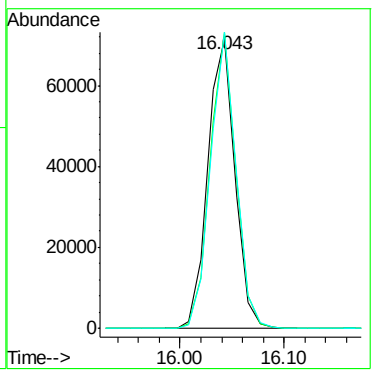


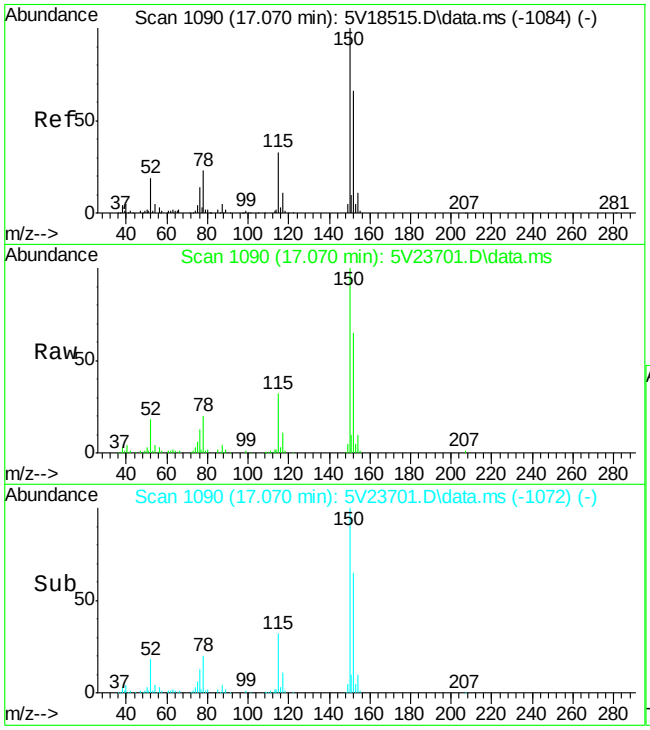


#69
4-Bromofluorobenzene
Concen: 46.08 ug/l
RT: 16.043 min Scan# 1000
Delta R.T. 0.000 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

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

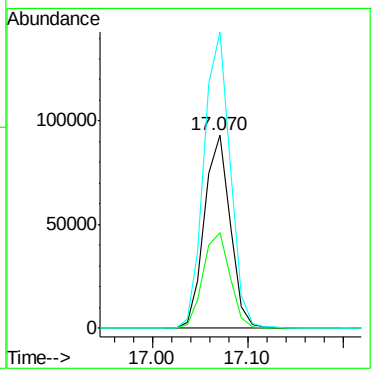


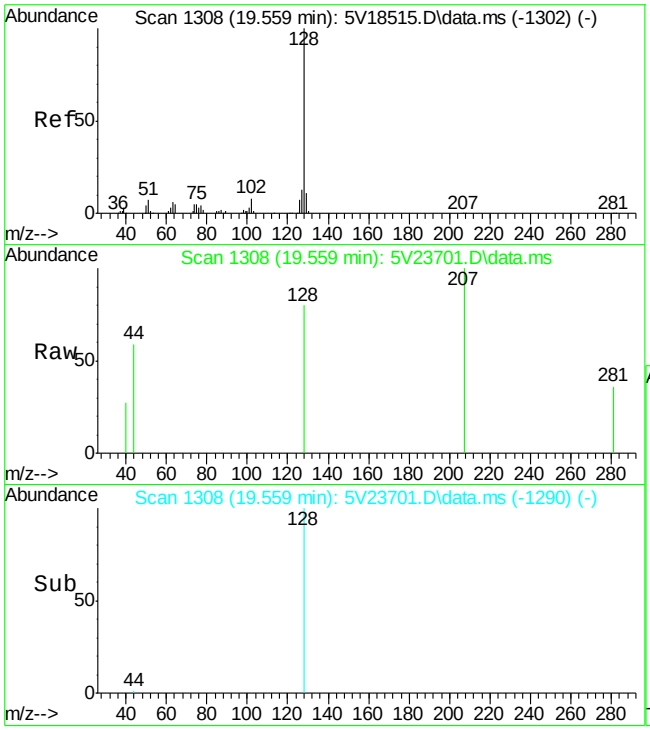


#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.070 min Scan# 1090
Delta R.T. 0.000 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

Tgt Ion:152 Resp: 174187

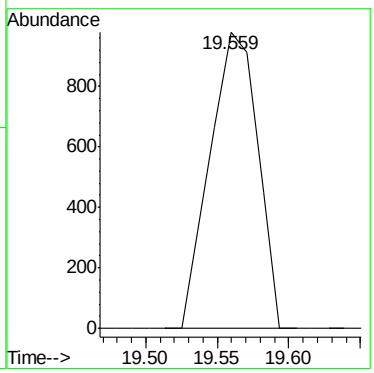
Ion	Ratio	Lower	Upper
152	100		
115	51.1	41.4	62.0
150	155.4	153.9	230.9

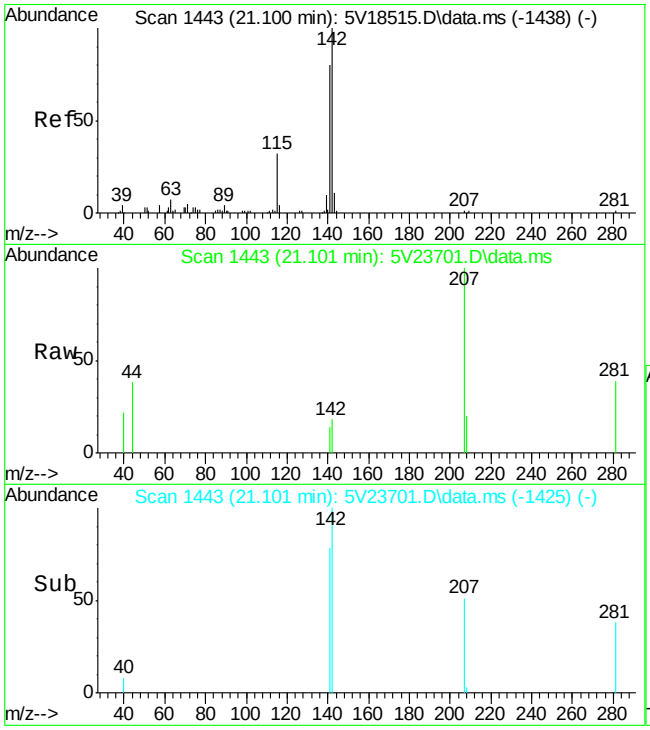




#91
Naphthalene
Concen: 0.23 ug/l
RT: 19.559 min Scan# 1308
Delta R.T. 0.000 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

Tgt Ion:128 Resp: 2278

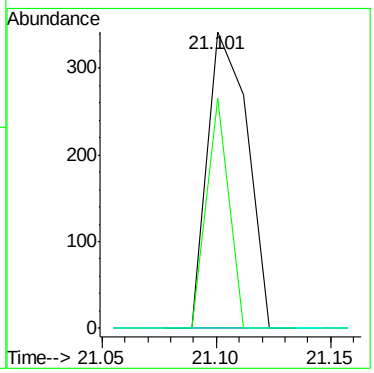


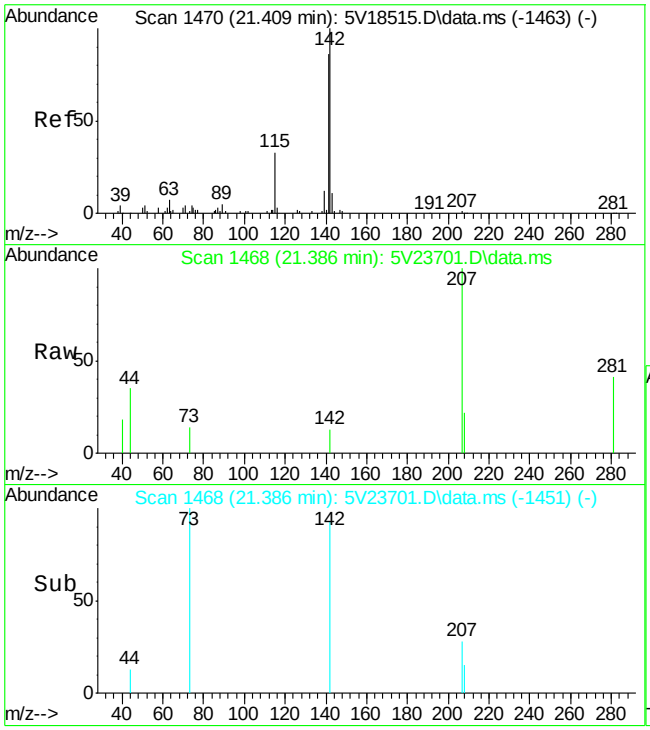


#94
2-Methylnaphthalene
Concen: 0.99 ug/l
RT: 21.101 min Scan# 1443
Delta R.T. 0.001 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

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#

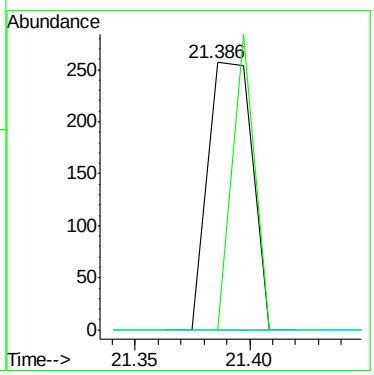




#95
1-Methylnaphthalene
Concen: 0.67 ug/l
RT: 21.386 min Scan# 1468
Delta R.T. -0.010 min
Lab File: 5V23701.D
Acq: 12 Sep 2012 2:26 pm

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: D38644
Account: XTOKRWR XTO Energy
Project: T78X-12G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6632-MB	3G11229.D	1	09/14/12	DC	09/14/12	OP6632	E3G523

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

D38644-1

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	64%	10-145%
321-60-8	2-Fluorobiphenyl	65%	10-130%
1718-51-0	Terphenyl-d14	73%	22-130%

Blank Spike Summary

Job Number: D38644
Account: XTOKRWR XTO Energy
Project: T78X-12G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6632-BS	3G11230.D	1	09/14/12	DC	09/14/12	OP6632	E3G523

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

D38644-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	78.0	94	34-130
120-12-7	Anthracene	83.3	84.5	101	35-130
56-55-3	Benzo(a)anthracene	83.3	77.4	93	36-130
50-32-8	Benzo(a)pyrene	83.3	73.2	88	36-130
205-99-2	Benzo(b)fluoranthene	83.3	67.7	81	35-130
207-08-9	Benzo(k)fluoranthene	83.3	83.6	100	37-130
218-01-9	Chrysene	83.3	78.2	94	40-130
53-70-3	Dibenzo(a,h)anthracene	83.3	79.1	95	32-130
206-44-0	Fluoranthene	83.3	83.3	100	38-130
86-73-7	Fluorene	83.3	79.8	96	35-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	77.5	93	28-130
91-20-3	Naphthalene	83.3	75.6	91	35-130
129-00-0	Pyrene	83.3	76.8	92	37-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	80%	10-145%
321-60-8	2-Fluorobiphenyl	85%	10-130%
1718-51-0	Terphenyl-d14	82%	22-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D38644
Account: XTOKRWR XTO Energy
Project: T78X-12G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6632-MS	3G11232.D	1	09/14/12	DC	09/14/12	OP6632	E3G523
OP6632-MSD	3G11233.D	1	09/14/12	DC	09/14/12	OP6632	E3G523
D38706-1	3G11231.D	1	09/14/12	DC	09/14/12	OP6632	E3G523

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

D38644-1

CAS No.	Compound	D38706-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		88	62.9	71	61.2	69	3	10-155/30
120-12-7	Anthracene	ND		88	77.7	88	73.3	83	6	10-155/30
56-55-3	Benzo(a)anthracene	ND		88	78.6	89	74.2	84	6	10-175/30
50-32-8	Benzo(a)pyrene	ND		88	68.6	78	63.5	72	8	10-164/30
205-99-2	Benzo(b)fluoranthene	ND		88	81.7	93	78.6	89	4	10-165/30
207-08-9	Benzo(k)fluoranthene	ND		88	60.3	69	58.1	66	4	10-178/30
218-01-9	Chrysene	ND		88	74.1	84	69.2	79	7	10-147/30
53-70-3	Dibenzo(a,h)anthracene	ND		88	73.8	84	67.9	77	8	10-144/30
206-44-0	Fluoranthene	ND		88	79.7	91	73.0	83	9	10-207/30
86-73-7	Fluorene	ND		88	72.5	82	70.1	80	3	10-163/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		88	73.3	83	67.6	77	8	10-180/30
91-20-3	Naphthalene	ND		88	69.3	79	64.4	73	7	10-198/30
129-00-0	Pyrene	ND		88	85.2	97	81.4	92	5	10-189/30

CAS No.	Surrogate Recoveries	MS	MSD	D38706-1	Limits
4165-60-0	Nitrobenzene-d5	58%	53%	55%	10-145%
321-60-8	2-Fluorobiphenyl	60%	56%	54%	10-130%
1718-51-0	Terphenyl-d14	70%	66%	57%	22-130%

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson
09/17/12 09:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\091412\
Data File : 3g11237.D
Acq On : 14 Sep 2012 5:32 pm
Operator : DONC
Sample : D38644-1
Misc : OP6632,E3G523,30.03,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Sep 17 08:34:43 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	5.921	136	204364	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.640	164	126445	4.0000	ug/mL	0.00
15) Phenanthrene-d10	9.121	188	194923	4.0000	ug/mL	0.00
19) Chrysene-d12	11.759	240	158105	4.0000	ug/mL	0.00
24) Perylene-d12	13.188	264	84751	4.0000	ug/mL	0.01
System Monitoring Compounds						
2) Nitrobenzene-d5	5.236	82	546597	27.1846	ug/mL	0.01
Spiked Amount 50.000	Range 25 - 135		Recovery = 54.36%			
7) 2-Fluorobiphenyl	6.978	172	1568500	29.8206	ug/mL	0.01
Spiked Amount 50.000	Range 25 - 135		Recovery = 59.64%			
21) Terphenyl-d14	10.712	244	699502	29.3631	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 58.72%			
Target Compounds						Qvalue
3) N-Nitrosodimethylamine	2.639	74	51	N.D.		
4) N-Nitrosodi-propylamine	0.000	70	0	N.D. d		
5) Naphthalene	5.946	128	35008	0.6156	ug/mL	97
8) 2-Methylnaphthalene	6.620	142	48480	1.2969	ug/mL	97
9) 1-Methylnaphthalene	6.719	142	16582	0.4286	ug/mL	95
10) Acenaphthylene	7.498	152	792	N.D.		
11) Acenaphthene	7.675	154	625	N.D.		
12) Dibenzofuran	7.840	168	9853	0.1527	ug/mL	89
13) Fluorene	0.000	166	0	N.D. d		
14) Diphenylamine	8.301	169	19763m	0.4755	ug/mL	
16) Phenanthrene	9.144	178	33962	0.4966	ug/mL#	54
17) Anthracene	0.000	178	0	N.D. d		
18) Fluoranthene	0.000	202	0	N.D. d		
20) Pyrene	10.561	202	48392	0.6394	ug/mL	96
22) Benzo(a)anthracene	0.000	228	0	N.D. d		
23) Chrysene	11.779	228	13486	0.1897	ug/mL	80
25) Benzo(b)fluoranthene	0.000	252	0	N.D. d		
26) Benzo(k)fluoranthene	0.000	252	0	N.D. d		
27) Benzo(a)pyrene	13.125	252	1477	N.D.		
28) Indeno(1,2,3-cd)pyrene	14.513	276	987	N.D.		
29) Dibenz(a,h)anthracene	14.534	278	847	N.D.		
30) Benzo(g,h,i)perylene	14.903	276	1983	N.D.		

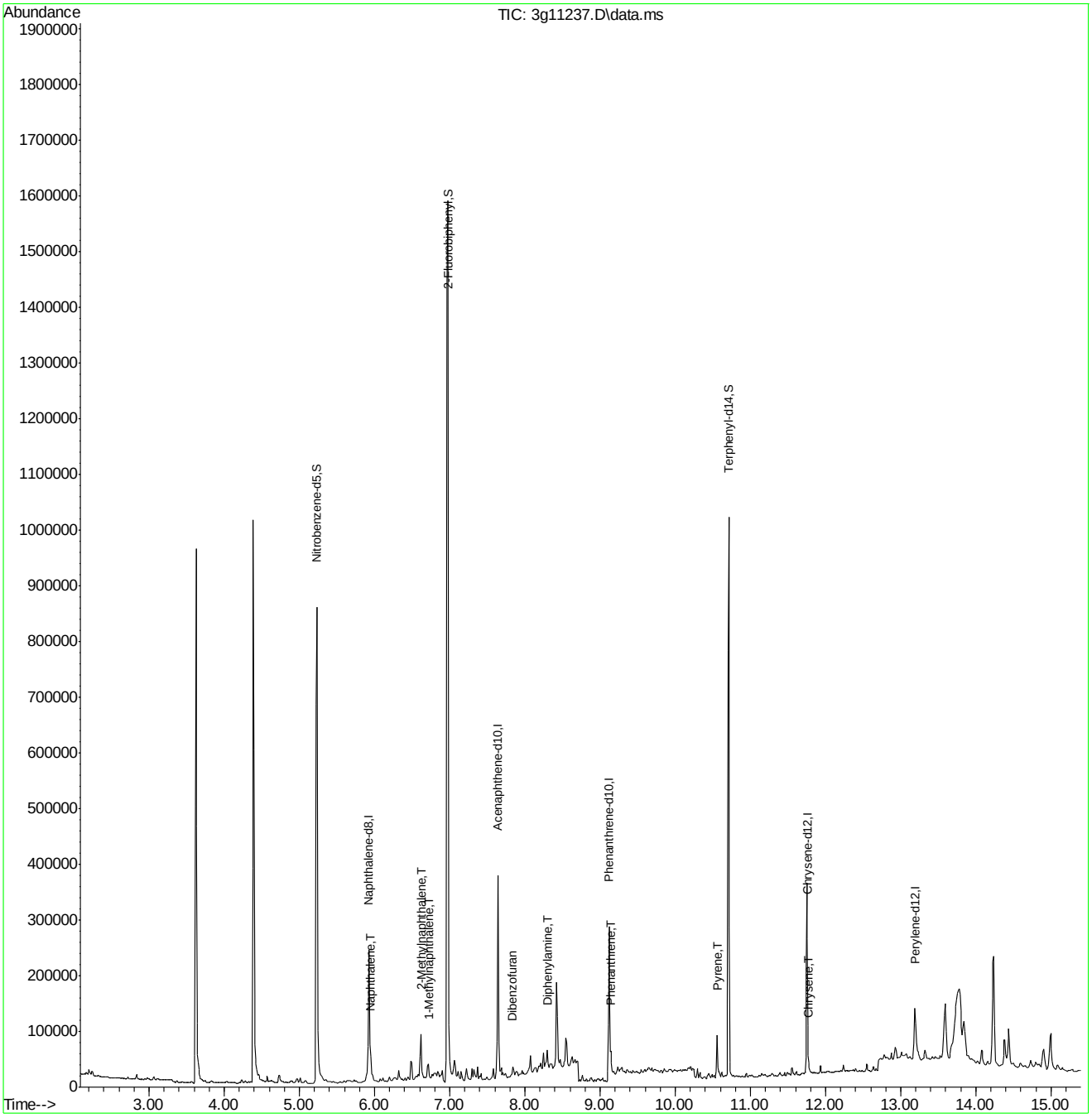
(#) = qualifier out of range (m) = manual integration (+) = signals summed

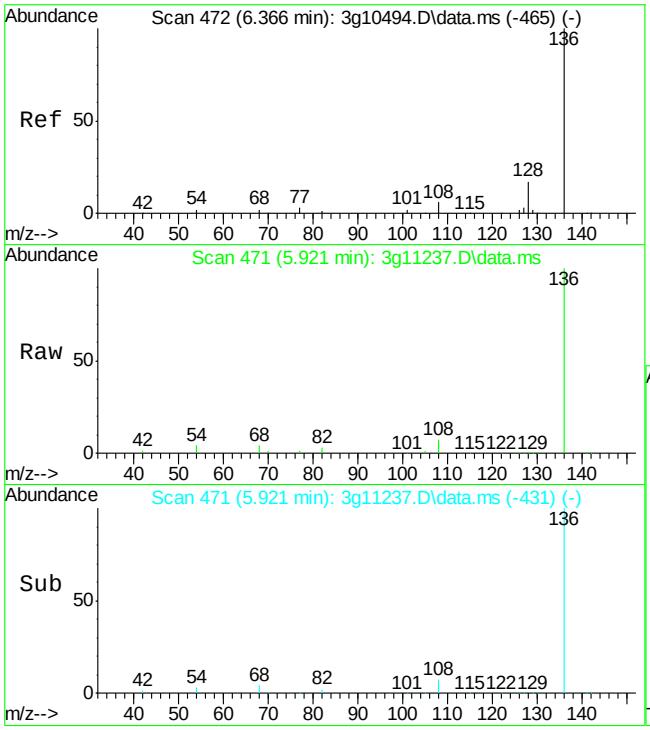
9.1.1
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\091412\
Data File : 3g11237.D
Acq On : 14 Sep 2012 5:32 pm
Operator : DONC
Sample : D38644-1
Misc : OP6632,E3G523,30.03,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Sep 17 08:34:43 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

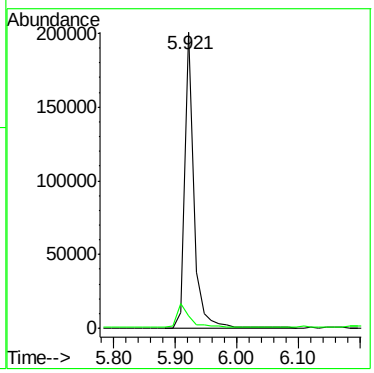


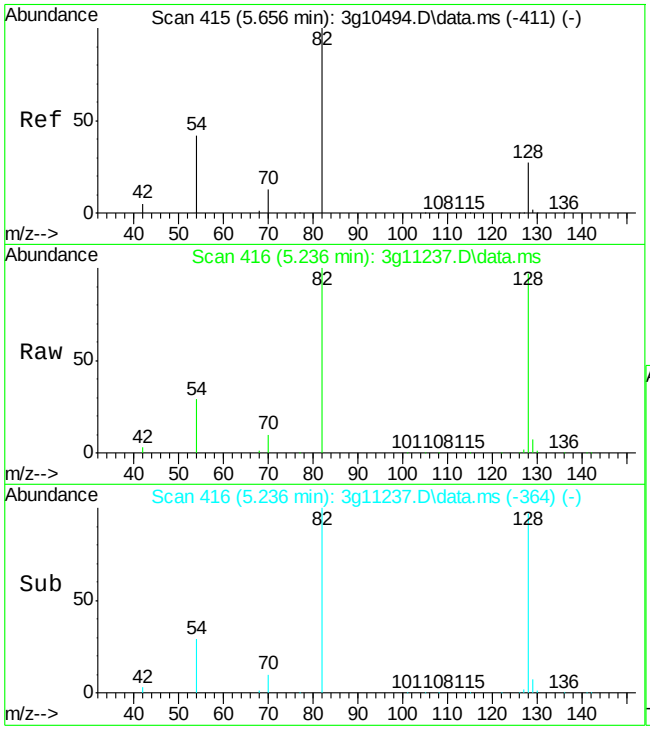


#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.921 min Scan# 471
Delta R.T. -0.000 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:136 Resp: 204364

Ion	Ratio	Lower	Upper
136	100		
68	11.0	0.0	30.4

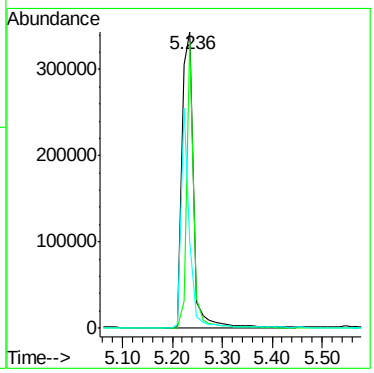


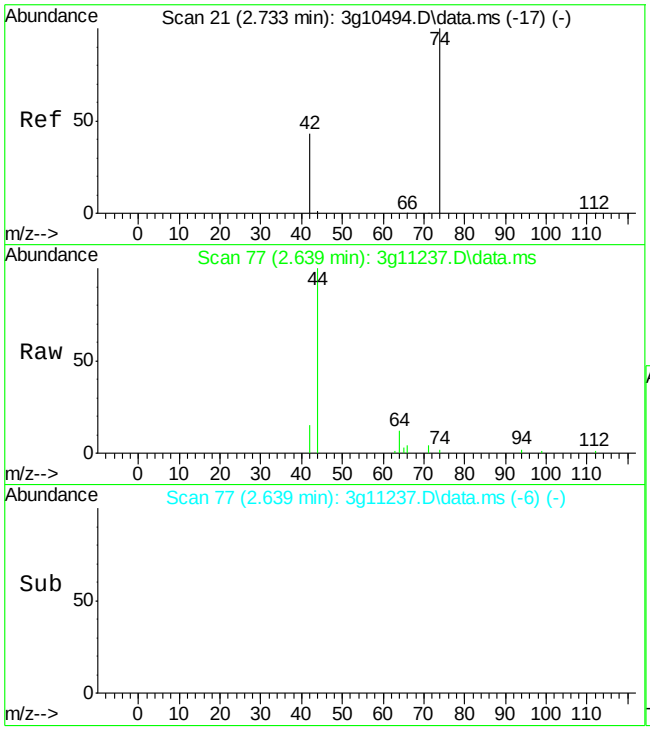


#2
Nitrobenzene-d5
Concen: 27.1846 ug/mL
RT: 5.236 min Scan# 416
Delta R.T. 0.013 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion: 82 Resp: 546597

Ion	Ratio	Lower	Upper
82	100		
128	59.1	19.7	59.7
54	54.1	28.6	68.6

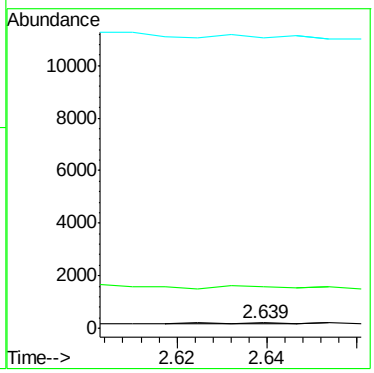


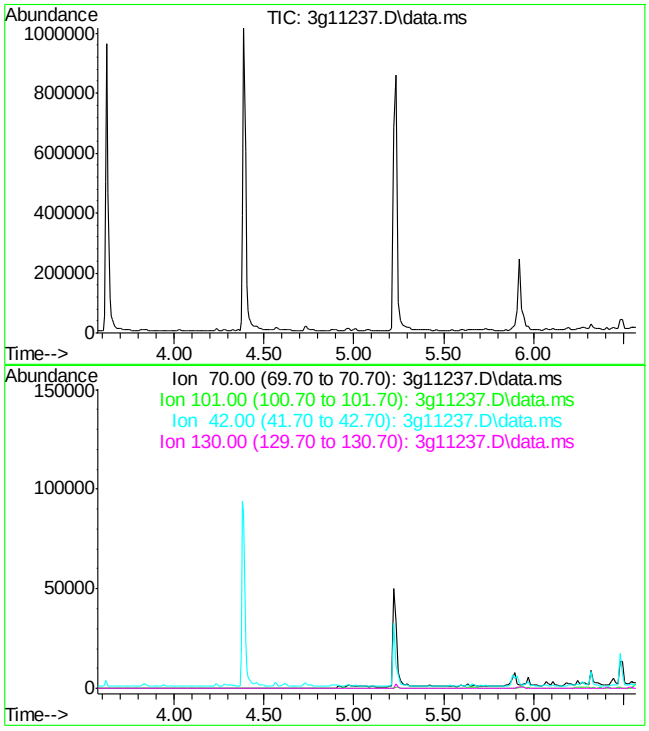


#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.639 min Scan# 77
Delta R.T. 0.014 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion: 74 Resp: 51

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



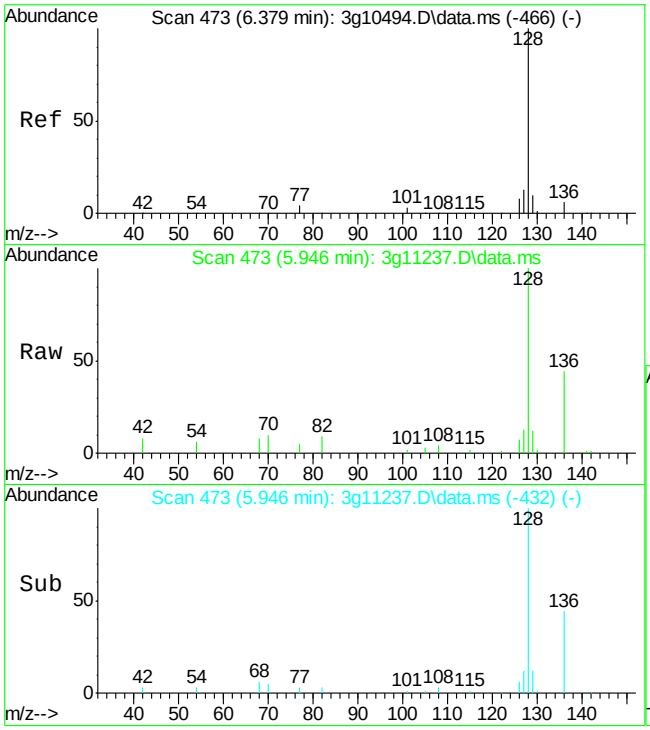


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.07 min

Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion: 70

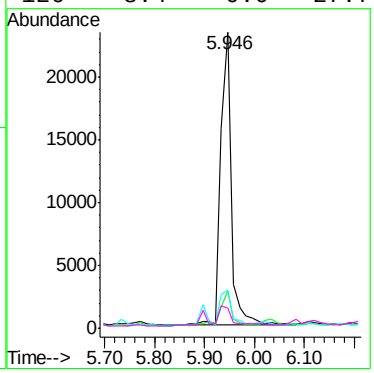
Sig	Exp Ratio
70	100
101	10.3
42	47.6
130	20.0

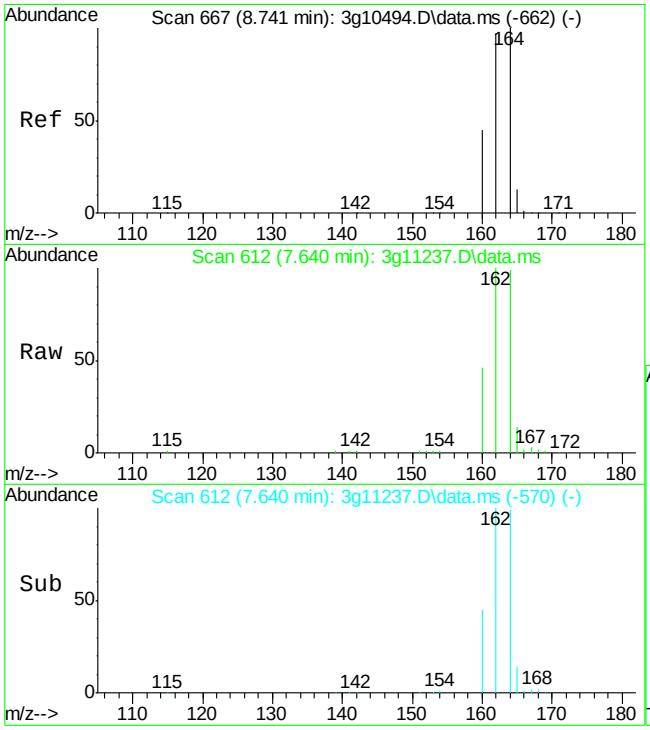


#5
Naphthalene
Concen: 0.6156 ug/mL
RT: 5.946 min Scan# 473
Delta R.T. 0.012 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:128 Resp: 35008

Ion	Ratio	Lower	Upper
128	100		
129	13.5	0.0	30.8
127	12.9	0.0	33.4
126	8.4	0.0	27.7

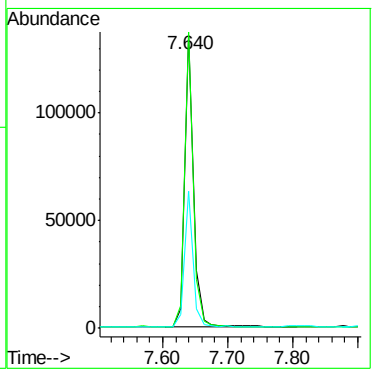


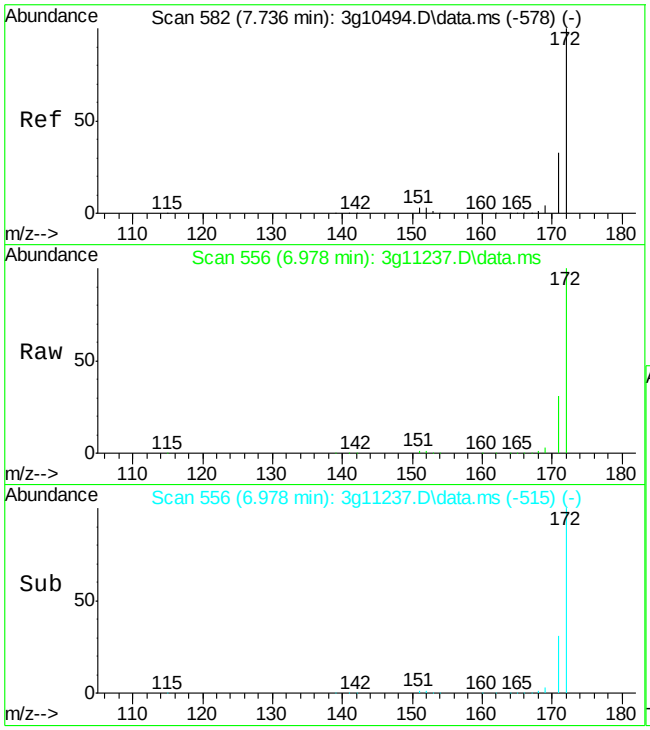


#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.640 min Scan# 612
Delta R.T. -0.000 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:164 Resp: 126445

Ion	Ratio	Lower	Upper
164	100		
162	96.7	73.5	113.5
160	46.4	21.8	61.8

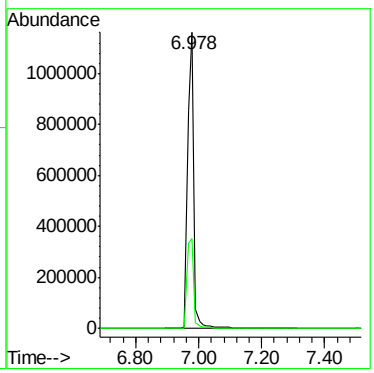


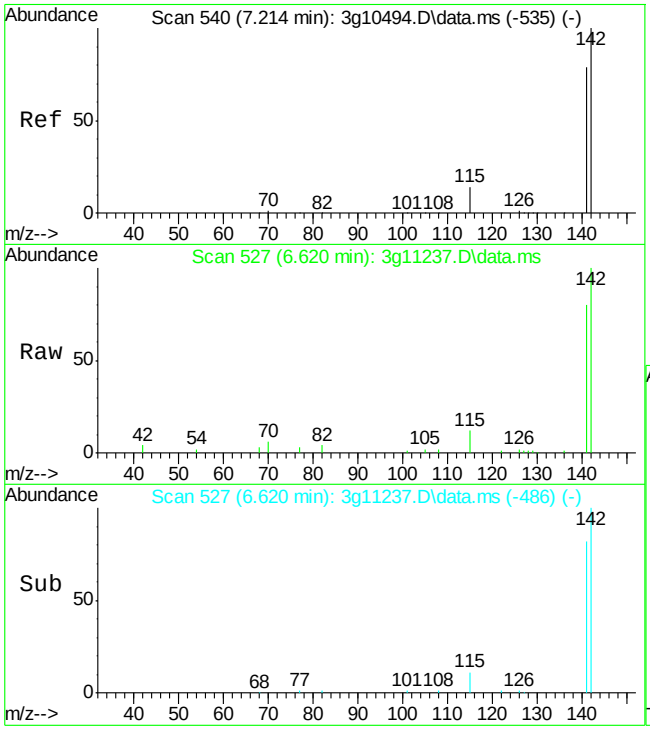


#7
2-Fluorobiphenyl
Concen: 29.8206 ug/mL
RT: 6.978 min Scan# 556
Delta R.T. 0.012 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:172 Resp: 1568500

Ion	Ratio	Lower	Upper
172	100		
171	34.1	13.6	53.6

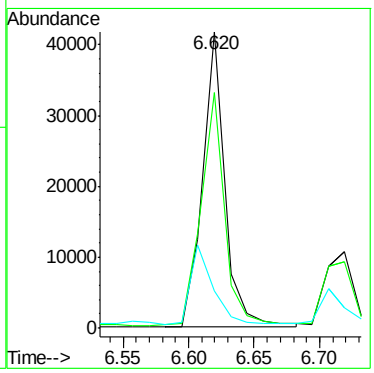


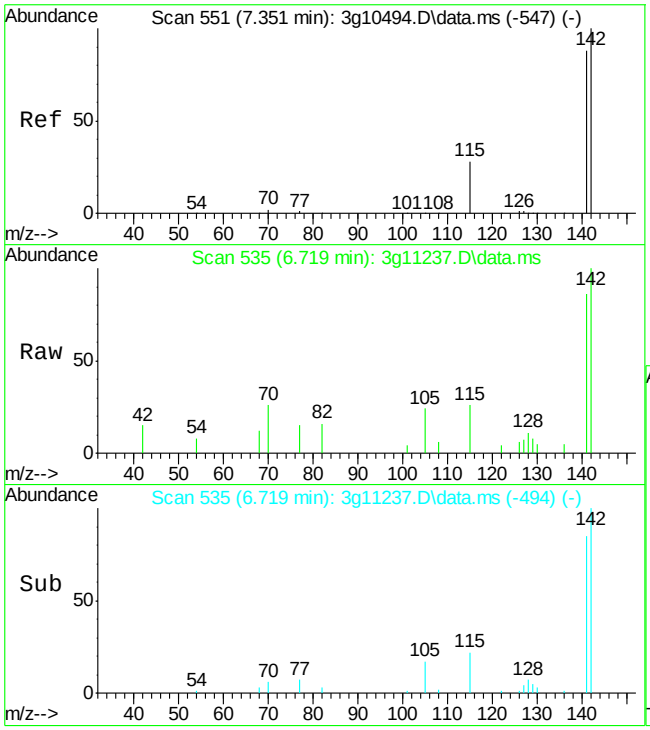


#8
2-Methylnaphthalene
Concen: 1.2969 ug/mL
RT: 6.620 min Scan# 527
Delta R.T. 0.012 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:142 Resp: 48480

Ion	Ratio	Lower	Upper
142	100		
141	84.7	64.5	104.5
115	27.2	13.6	53.6

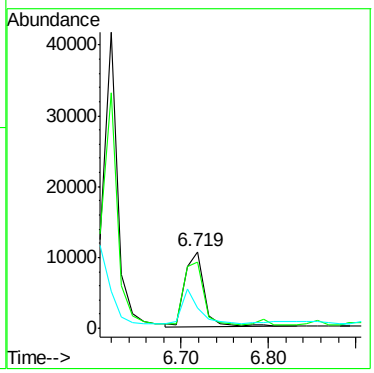


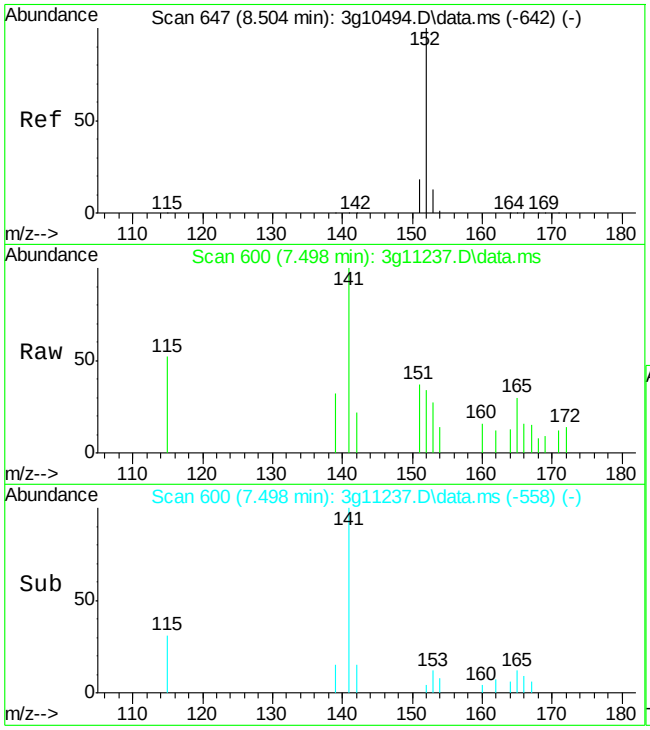


#9
1-Methylnaphthalene
Concen: 0.4286 ug/mL
RT: 6.719 min Scan# 535
Delta R.T. 0.012 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:142 Resp: 16582

Ion	Ratio	Lower	Upper
142	100		
141	86.2	67.8	107.8
115	39.1	11.0	51.0

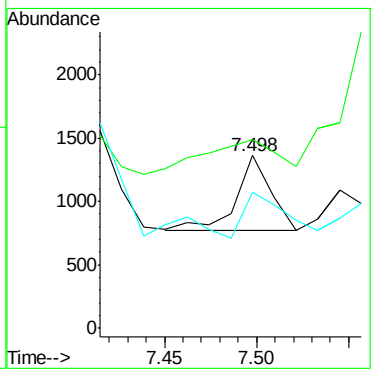


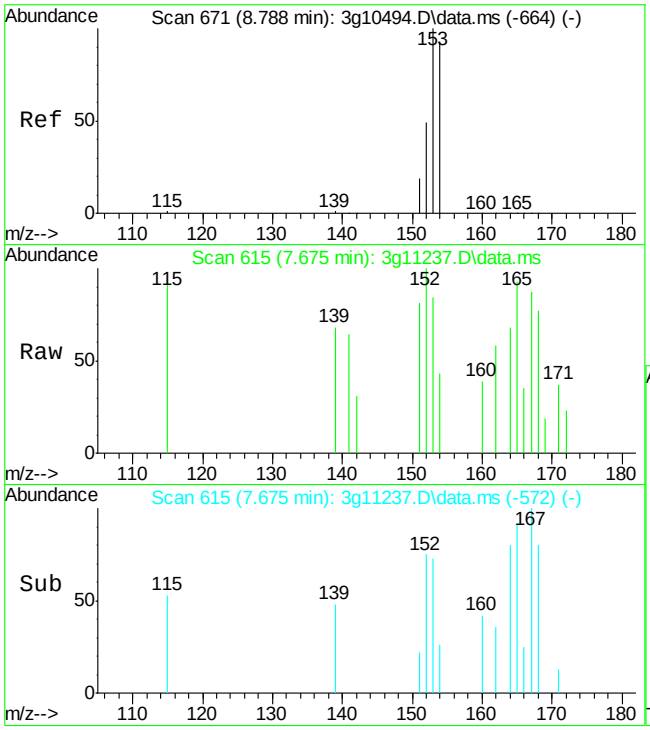


#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.498 min Scan# 600
Delta R.T. -0.000 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:152 Resp: 792

Ion	Ratio	Lower	Upper
152	100		
151	97.9	0.0	39.2#
153	74.0	0.0	33.2#

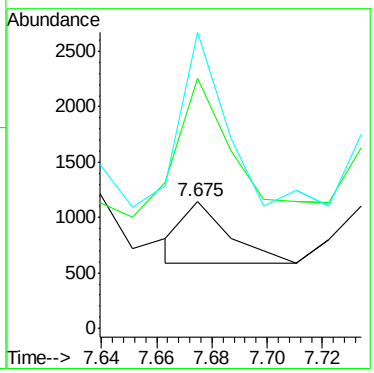


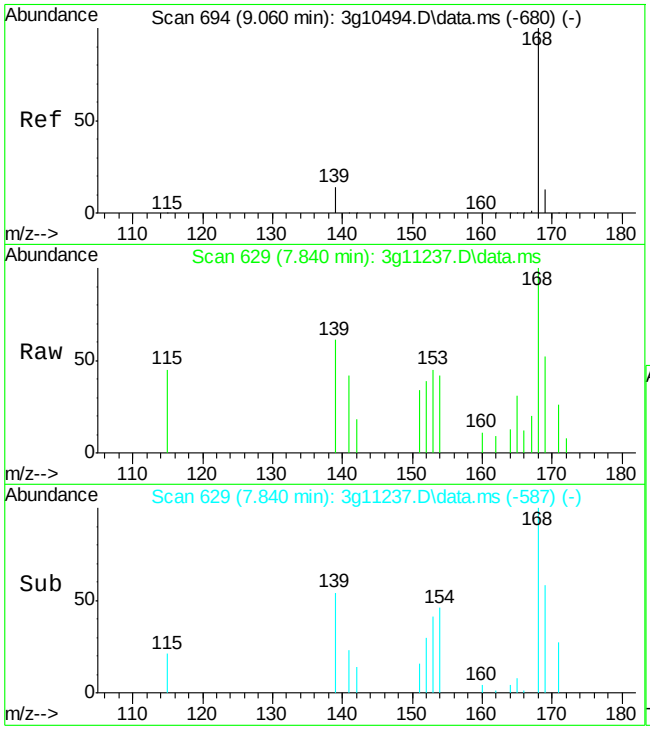


#11
Acenaphthene
Concen: Below ug/mL
RT: 7.675 min Scan# 615
Delta R.T. 0.012 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:154 Resp: 625

Ion	Ratio	Lower	Upper
154	100		
153	309.0	84.8	124.8#
152	290.6	29.9	69.9#

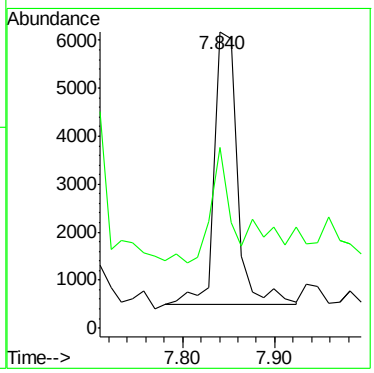


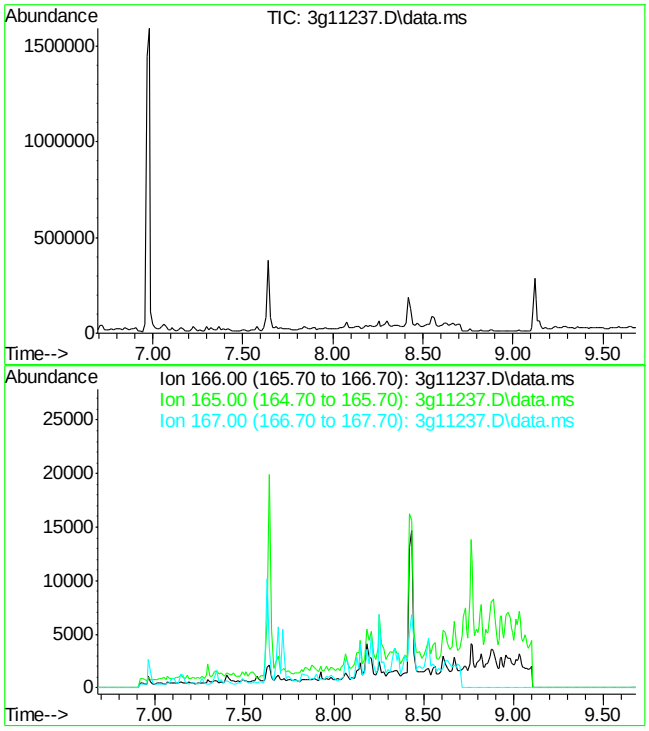


#12
Dibenzofuran
Concen: 0.1527 ug/mL
RT: 7.840 min Scan# 629
Delta R.T. -0.000 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:168 Resp: 9853

Ion	Ratio	Lower	Upper
168	100		
139	33.3	7.6	47.6



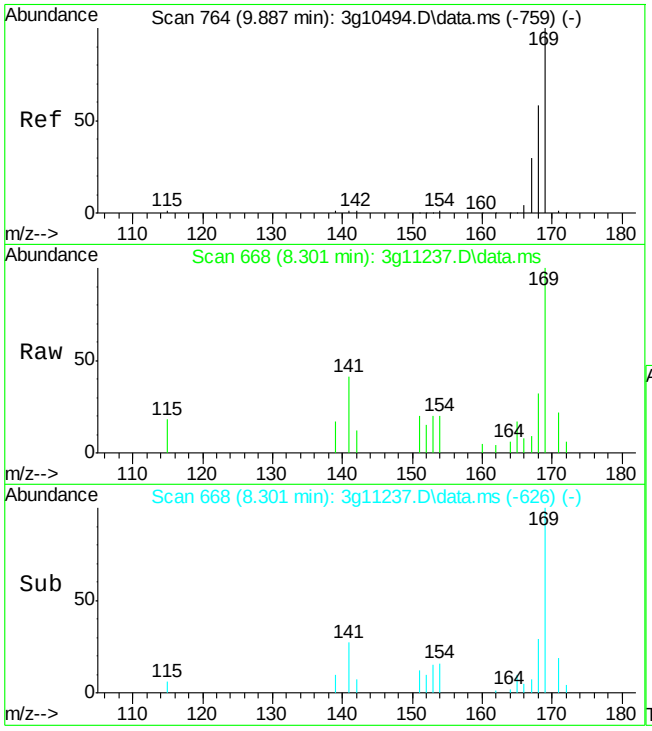


#13
Fluorene
Concen: N.D. ug/mL
Expected RT: 8.18 min

Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion: 166

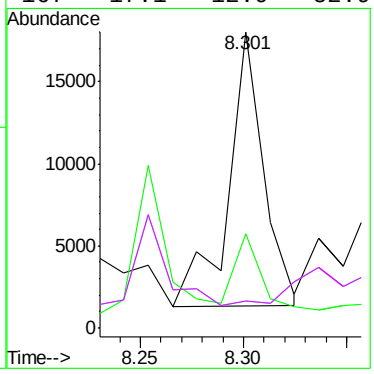
Sig	Exp Ratio
166	100
165	91.1
167	13.3

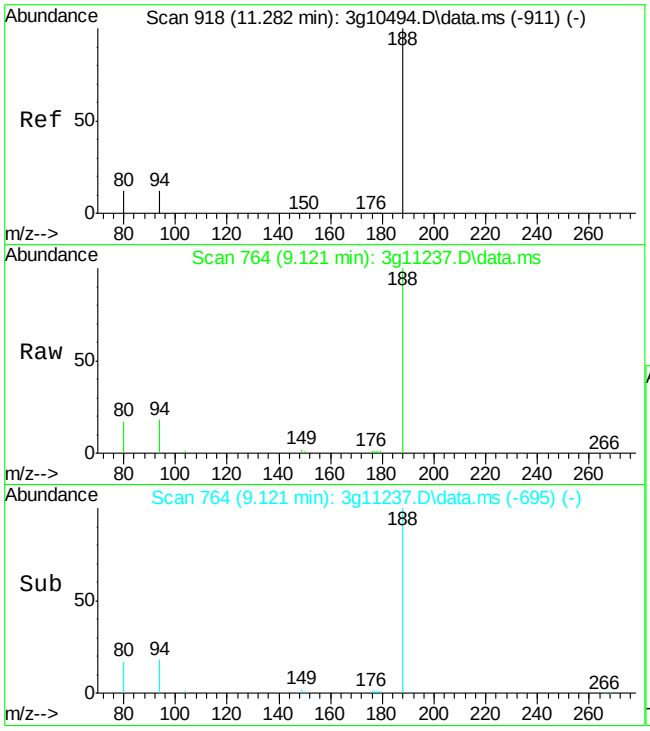


#14
Diphenylamine
Concen: 0.4755 ug/mL m
RT: 8.301 min Scan# 668
Delta R.T. -0.000 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:169 Resp: 19763

Ion	Ratio	Lower	Upper
169	100		
168	23.7	41.0	81.0#
167	17.1	12.9	52.9
167	17.1	12.9	52.9

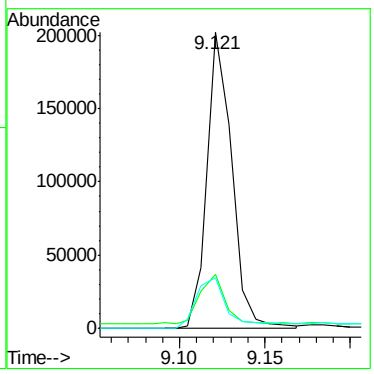


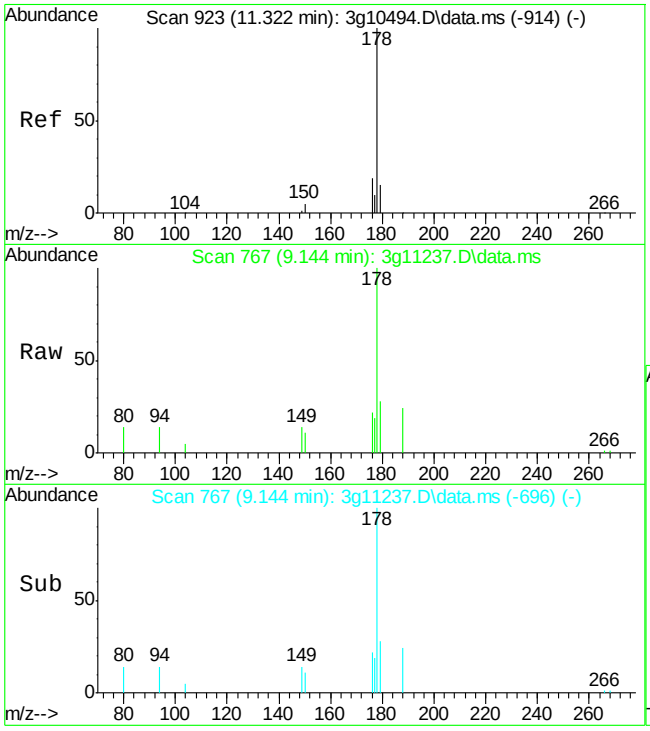


#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 9.121 min Scan# 764
Delta R.T. -0.000 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:188 Resp: 194923

Ion	Ratio	Lower	Upper
188	100		
94	16.2	0.0	33.9
80	23.3	0.0	35.5

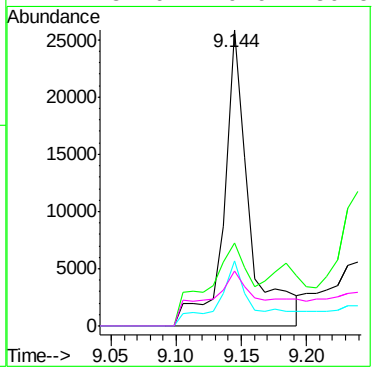


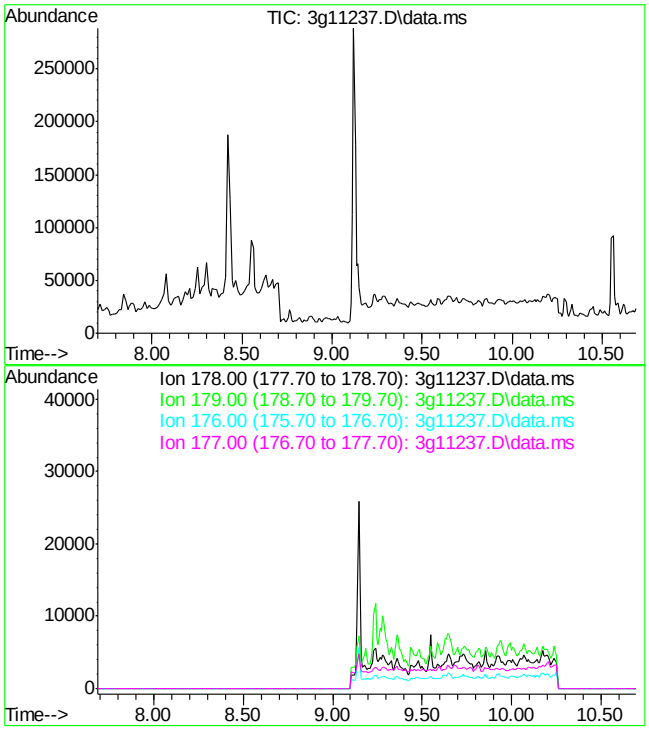


#16
Phenanthrene
Concen: 0.4966 ug/mL
RT: 9.144 min Scan# 767
Delta R.T. 0.008 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:178 Resp: 33962

Ion	Ratio	Lower	Upper
178	100		
179	45.4	0.0	35.3#
176	25.3	0.0	38.5
177	34.0	0.0	30.5#



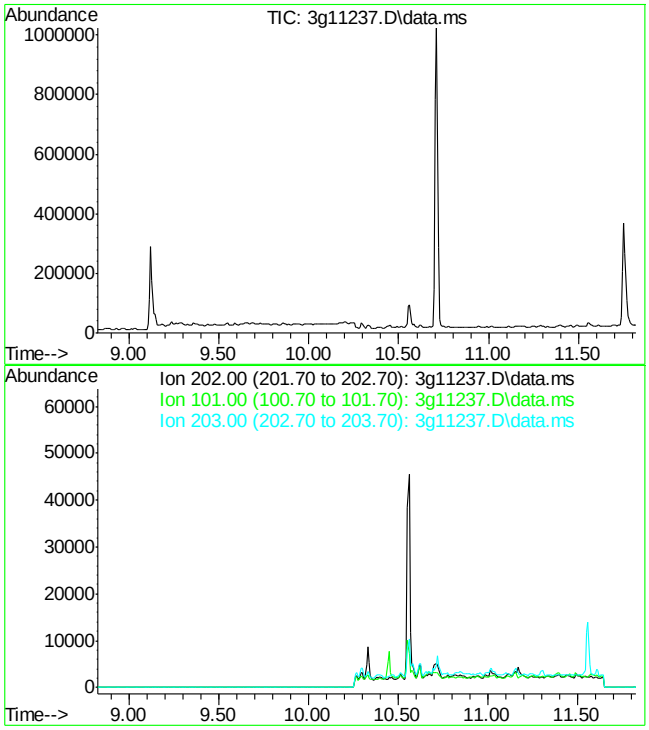


#17
Anthracene
Concen: N.D. ug/mL
Expected RT: 9.19 min

Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion: 178

Sig	Exp Ratio
178	100
179	15.2
176	17.7
177	9.0

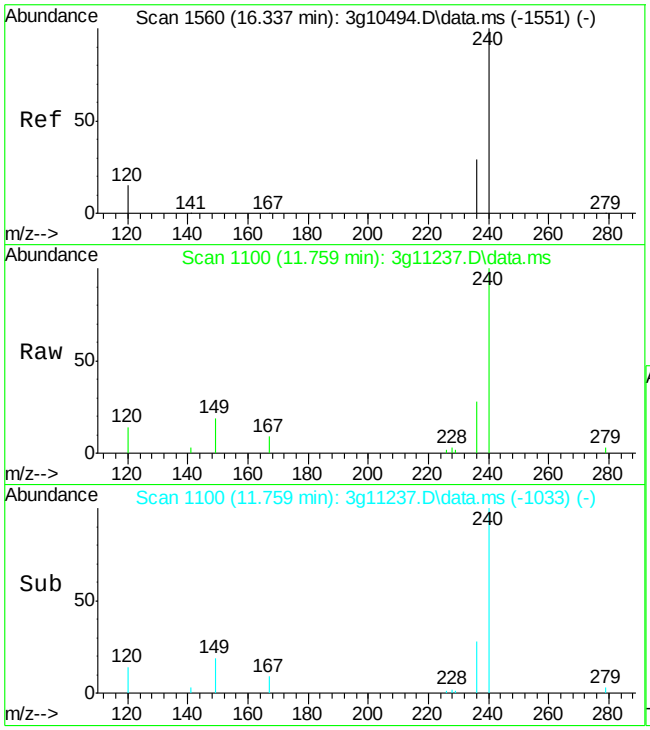


#18
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 10.32 min

Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion: 202

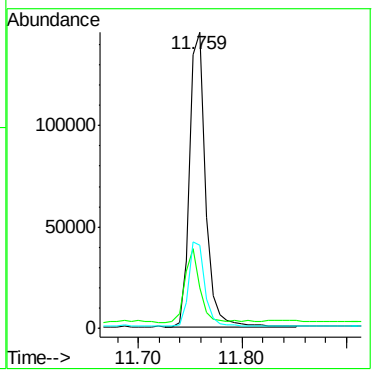
Sig	Exp Ratio
202	100
101	13.0
203	17.4

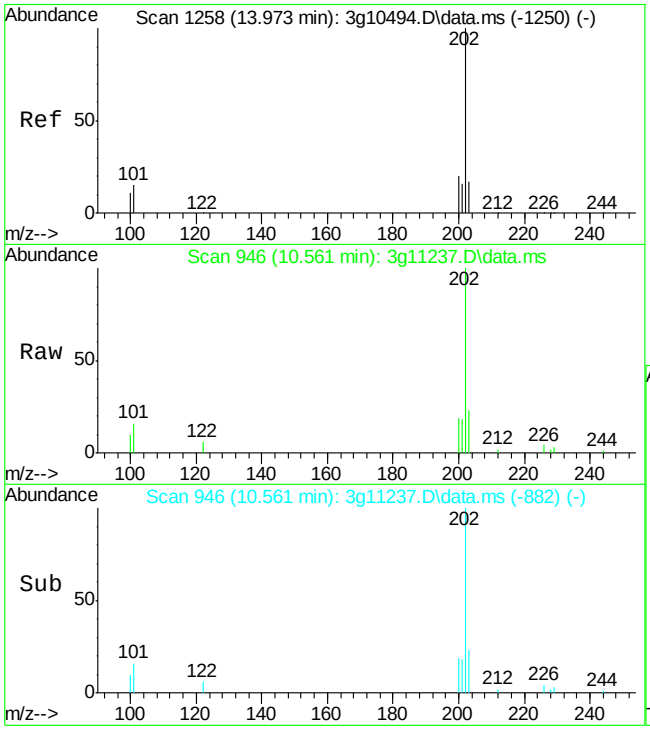


#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.759 min Scan# 1100
Delta R.T. 0.006 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:240 Resp: 158105

Ion	Ratio	Lower	Upper
240	100		
120	26.0	0.0	36.2
236	30.4	8.8	48.8

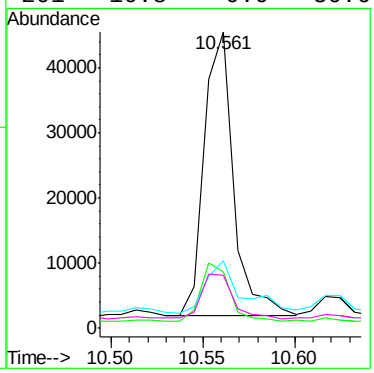


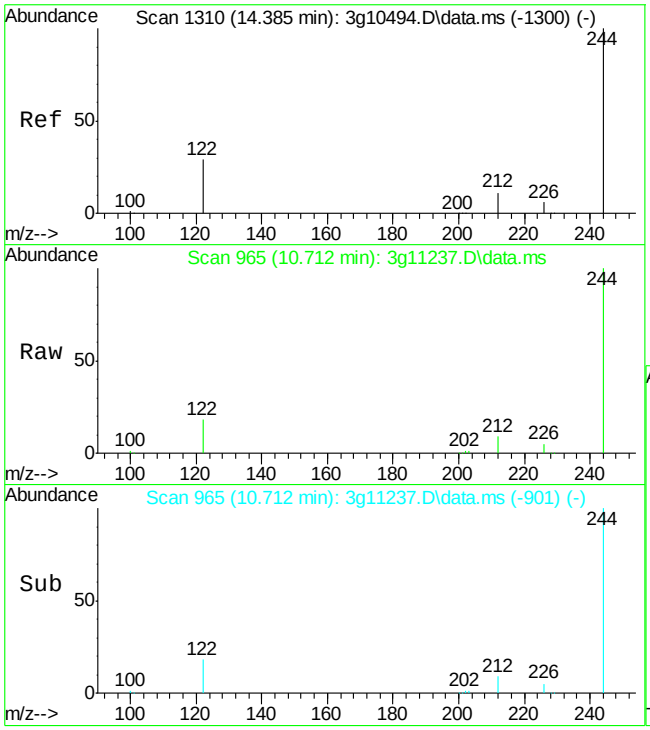


#20
Pyrene
Concen: 0.6394 ug/mL
RT: 10.561 min Scan# 946
Delta R.T. 0.008 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:202 Resp: 48392

Ion	Ratio	Lower	Upper
202	100		
200	20.1	0.1	40.1
203	22.7	0.0	37.8
201	16.8	0.0	36.6

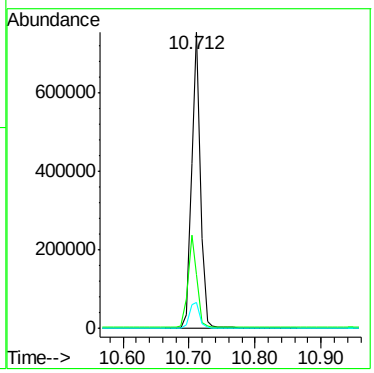


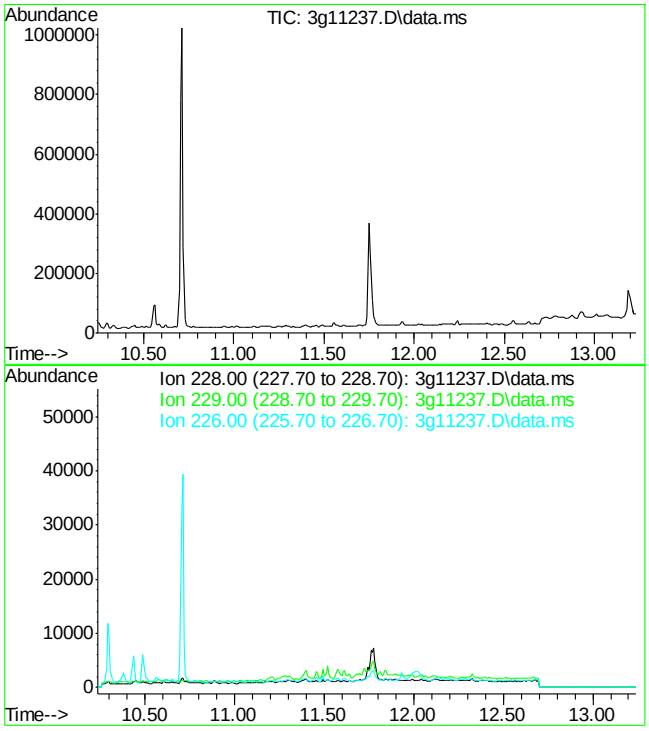


#21
Terphenyl-d14
Concen: 29.3631 ug/mL
RT: 10.712 min Scan# 965
Delta R.T. 0.008 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:244 Resp: 699502

Ion	Ratio	Lower	Upper
244	100		
122	31.8	1.3	41.3
212	10.0	0.0	28.8



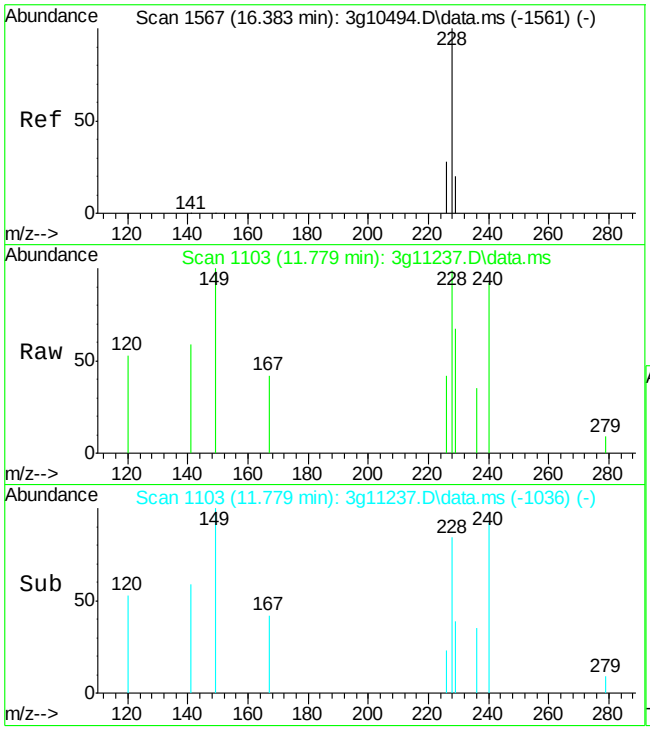


#22
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 11.74 min

Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion: 228

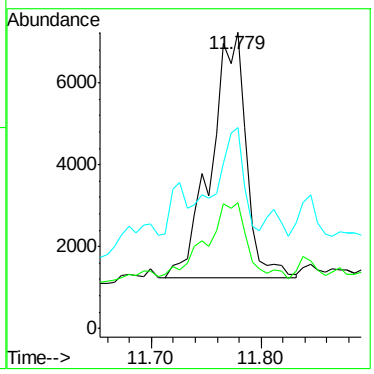
Sig	Exp Ratio
228	100
229	19.6
226	26.6

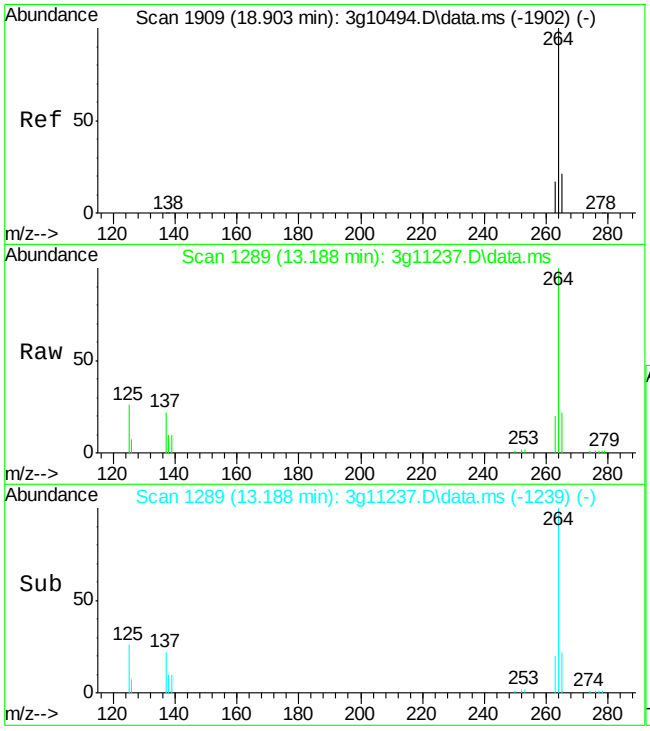


#23
Chrysene
Concen: 0.1897 ug/mL
RT: 11.779 min Scan# 1103
Delta R.T. 0.006 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:228 Resp: 13486

Ion	Ratio	Lower	Upper
228	100		
226	36.7	8.6	48.6
229	31.5	0.0	39.4

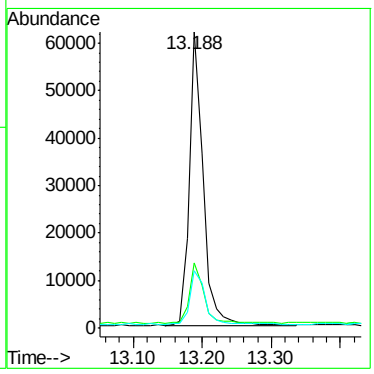


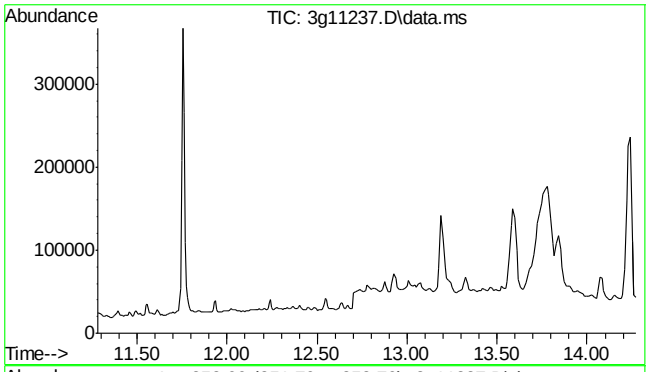


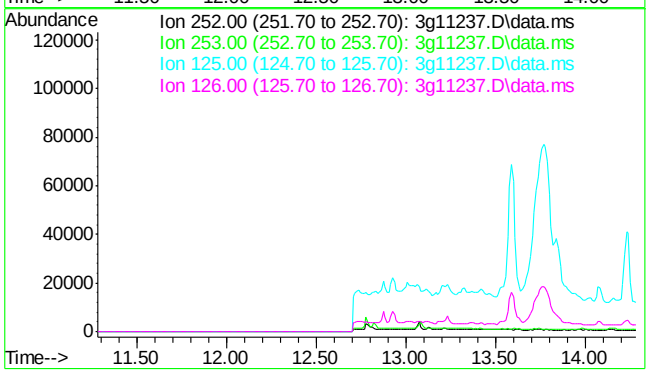
#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 13.188 min Scan# 1289
Delta R.T. 0.010 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:264 Resp: 84751

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





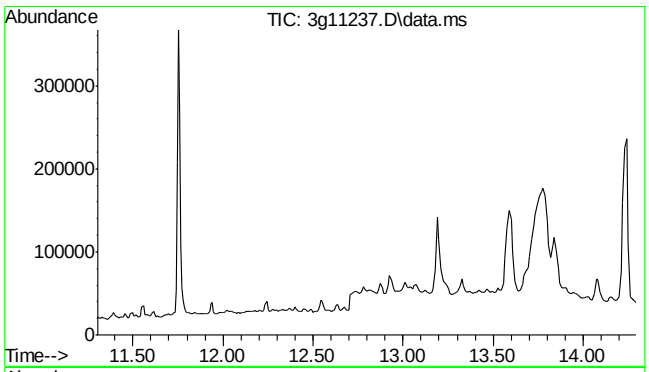


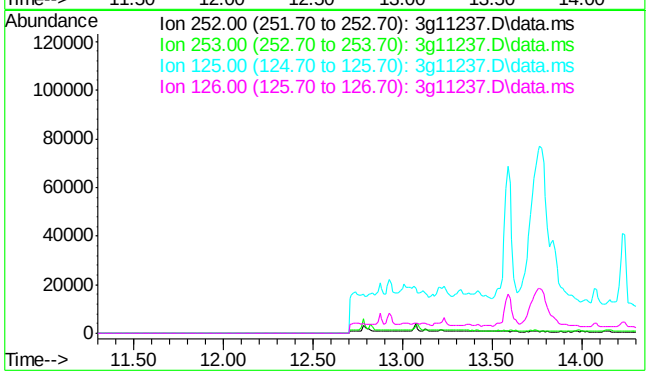
#25
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.78 min

Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	22.9
125	11.5
126	14.7



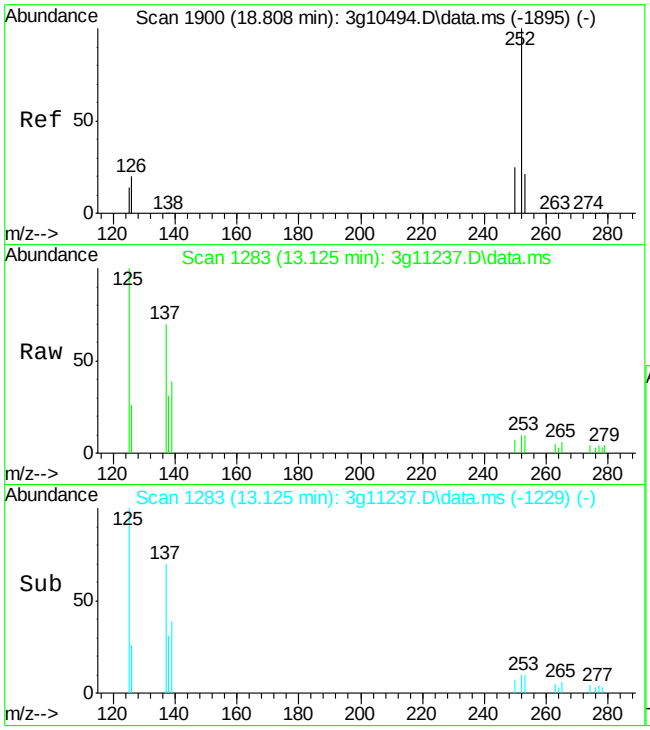


#26
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.80 min

Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion: 252

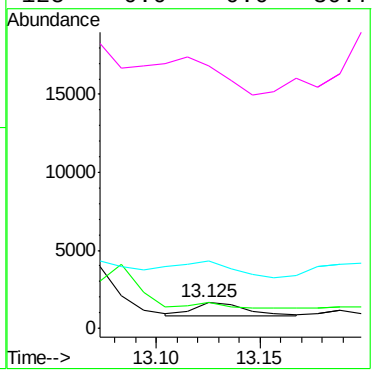
Sig	Exp Ratio
252	100
253	21.8
125	11.0
126	14.0

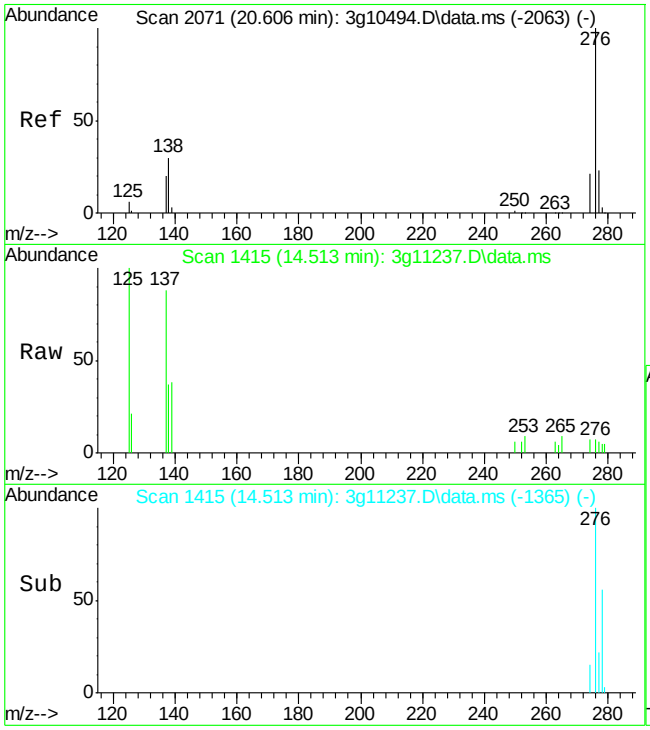


#27
Benzo(a)pyrene
Concen: Below ug/mL
RT: 13.125 min Scan# 1283
Delta R.T. 0.011 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:252 Resp: 1477

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

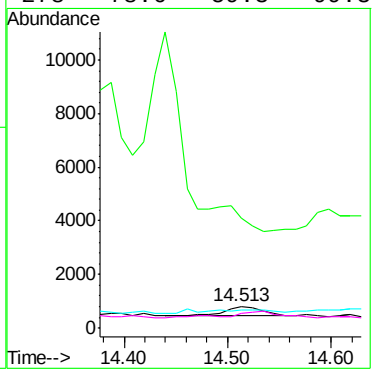


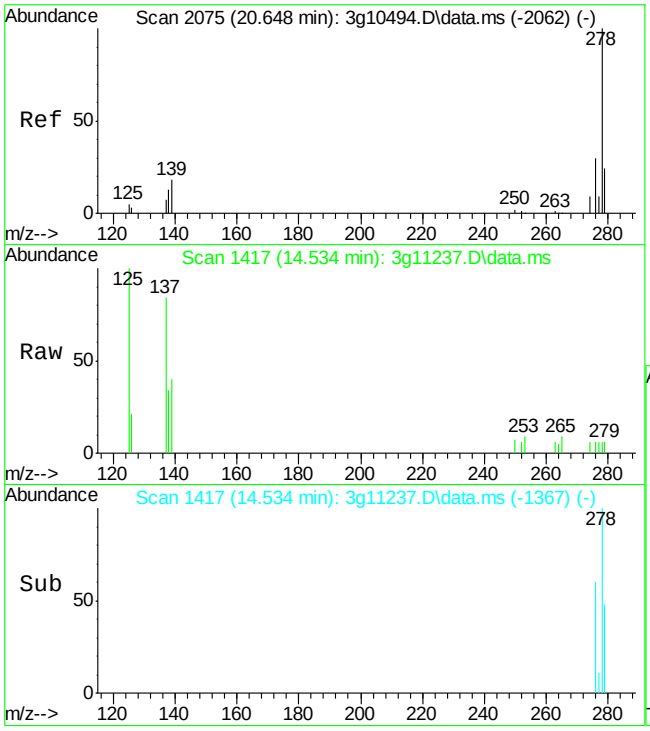


#28
Indeno(1,2,3-cd)pyrene
Concen: Below ug/mL
RT: 14.513 min Scan# 1415
Delta R.T. 0.021 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:276 Resp: 987

Ion	Ratio	Lower	Upper
276	100		
138	0.0	5.3	45.3#
277	48.8	5.0	45.0#
278	78.6	59.3	99.3

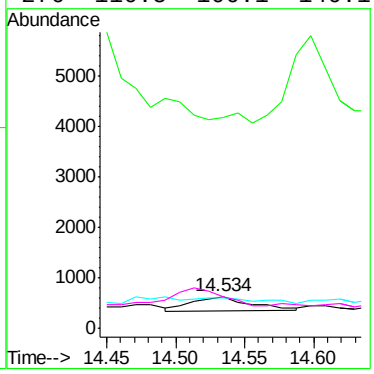


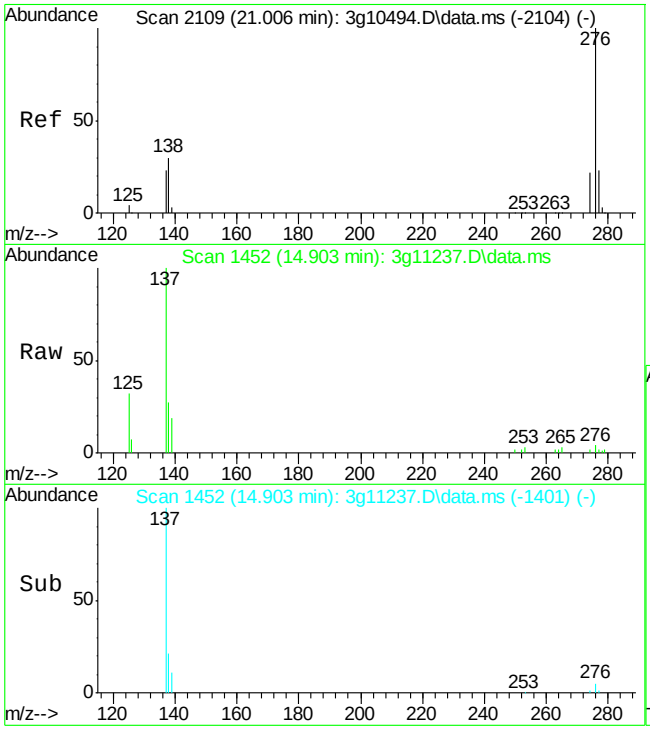


#29
Dibenz(a,h)anthracene
Concen: Below ug/mL
RT: 14.534 min Scan# 1417
Delta R.T. 0.021 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:278 Resp: 847

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	38.4
279	27.7	3.1	43.1
276	116.5	106.1	146.1

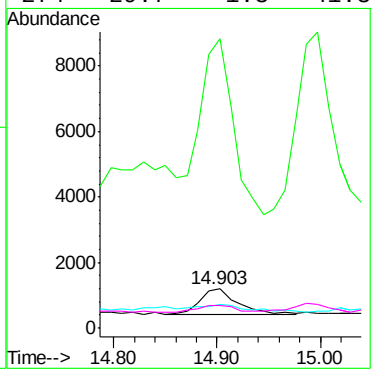




#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.903 min Scan# 1452
Delta R.T. 0.032 min
Lab File: 3g11237.D
Acq: 14 Sep 12 5:32 pm

Tgt Ion:276 Resp: 1983

Ion	Ratio	Lower	Upper
276	100		
138	599.5	1.3	41.3#
277	39.2	3.4	43.4
274	29.7	1.3	41.3



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\091412\
Data File : 3g11229.D
Acq On : 14 Sep 2012 2:17 pm
Operator : DONC
Sample : OP6632-MB
Misc : OP6632,E3G523,30.00,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 14 14:35:20 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

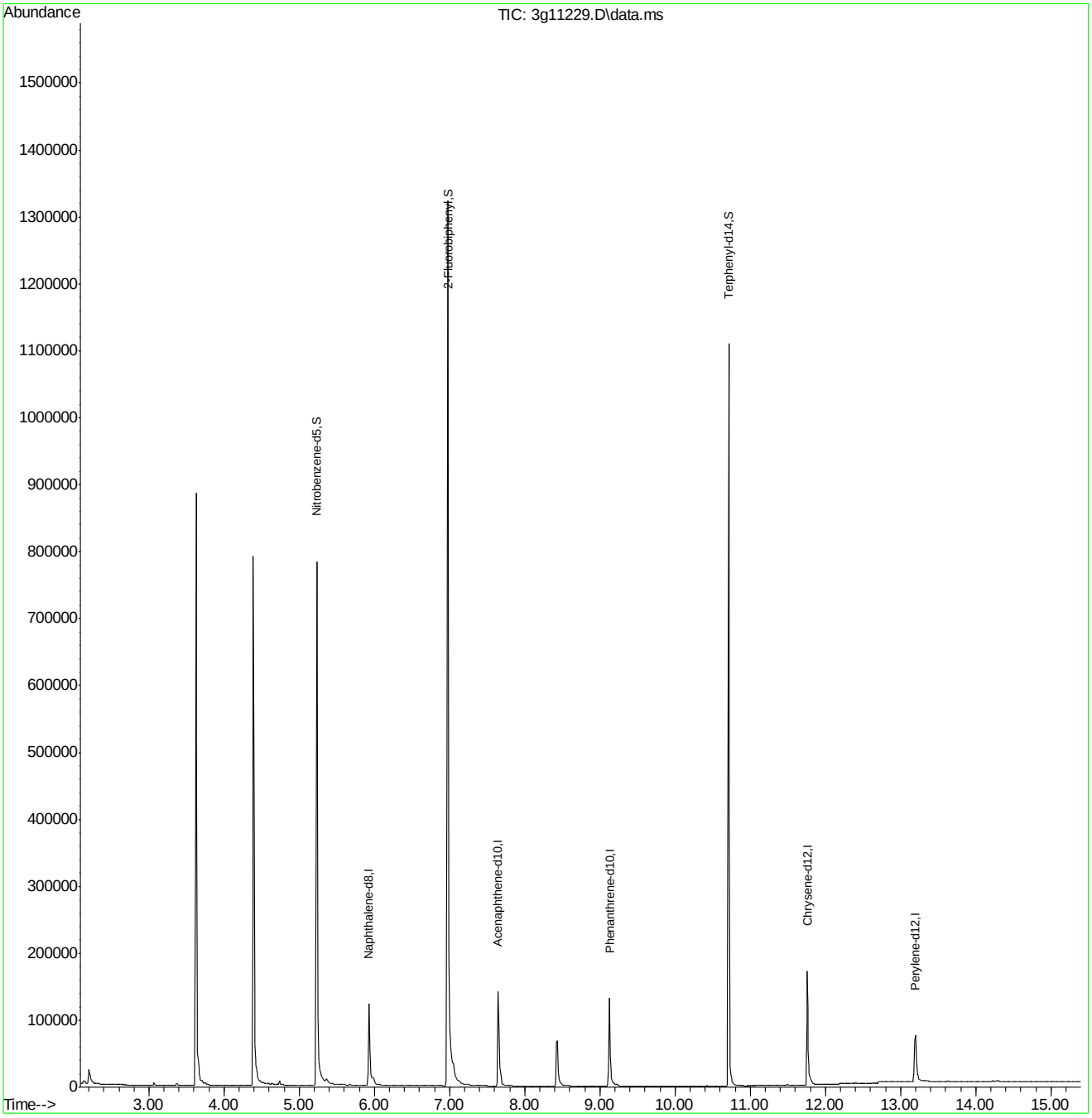
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.922	136	140487	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.640	164	83974	4.0000	ug/mL	0.00
15) Phenanthrene-d10	9.129	188	138511	4.0000	ug/mL	0.00
19) Chrysene-d12	11.759	240	145659	4.0000	ug/mL	0.00
24) Perylene-d12	13.199	264	94192	4.0000	ug/mL	0.02
System Monitoring Compounds						
2) Nitrobenzene-d5	5.236	82	443802	32.1080	ug/mL	0.01
Spiked Amount 50.000	Range 25 - 135		Recovery = 64.22%			
7) 2-Fluorobiphenyl	6.978	172	1142037	32.6940	ug/mL	0.01
Spiked Amount 50.000	Range 25 - 135		Recovery = 65.38%			
21) Terphenyl-d14	10.712	244	798949	36.4033	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 72.80%			
Target Compounds						Qvalue
3) N-Nitrosodimethylamine	0.000	74	0	N.D.		d
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.		d
5) Naphthalene	5.909	128	147	N.D.		
8) 2-Methylnaphthalene	6.632	142	111	N.D.		
9) 1-Methylnaphthalene	6.732	142	107	N.D.		
10) Acenaphthylene	7.510	152	68	N.D.		
11) Acenaphthene	7.640	154	415	N.D.		
12) Dibenzofuran	7.498	168	86	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	659	N.D.		
17) Anthracene	9.145	178	659	N.D.		
18) Fluoranthene	10.340	202	139	N.D.		
20) Pyrene	10.561	202	236	N.D.		
22) Benzo(a)anthracene	11.759	228	772	N.D.		
23) Chrysene	12.242	228	248	N.D.		
25) Benzo(b)fluoranthene	12.726	252	1071	N.D.		
26) Benzo(k)fluoranthene	12.726	252	1071	N.D.		
27) Benzo(a)pyrene	13.189	252	857	N.D.		
28) Indeno(1,2,3-cd)pyrene	14.514	276	23	N.D.		
29) Dibenz(a,h)anthracene	14.545	278	62	N.D.		
30) Benzo(g,h,i)perylene	14.892	276	104	N.D.		

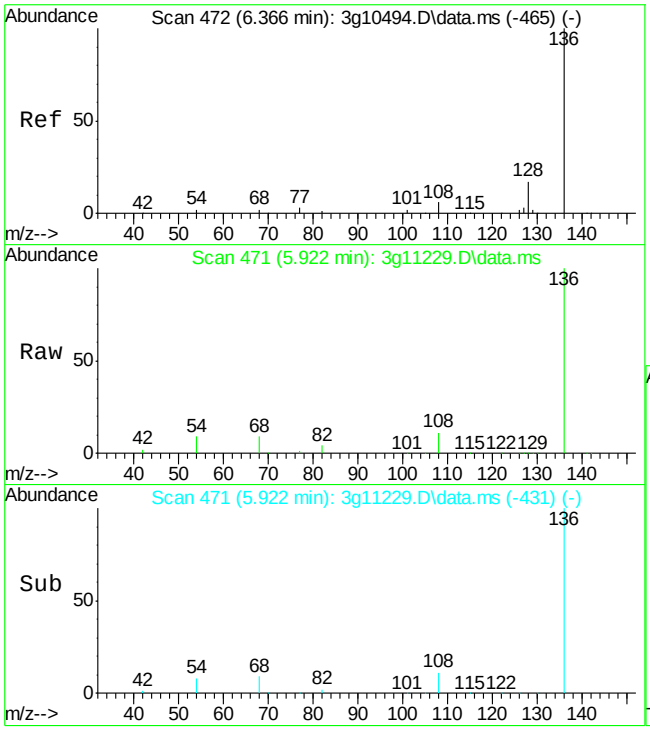
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\091412\
Data File : 3g11229.D
Acq On : 14 Sep 2012 2:17 pm
Operator : DONC
Sample : OP6632-MB
Misc : OP6632,E3G523,30.00,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 14 14:35:20 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

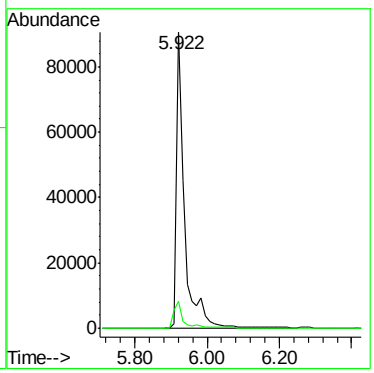


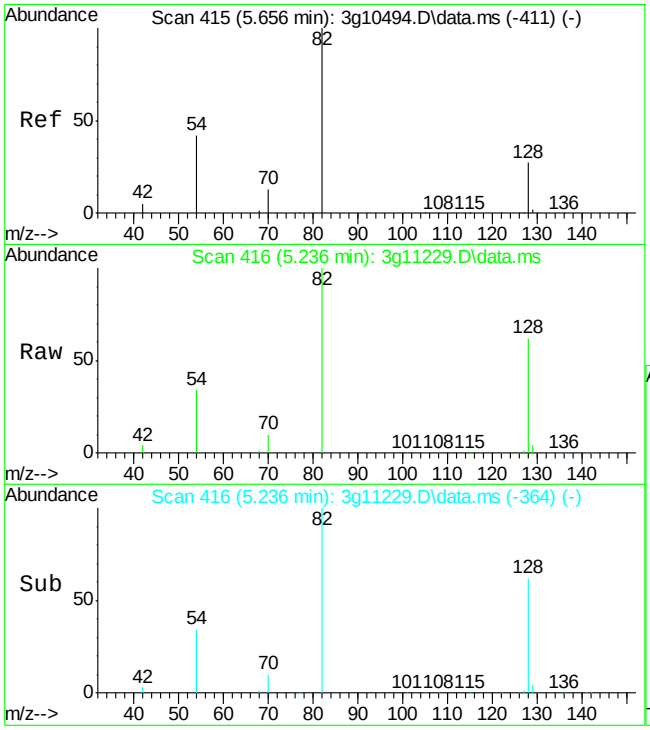


#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.922 min Scan# 471
Delta R.T. -0.000 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:136 Resp: 140487

Ion	Ratio	Lower	Upper
136	100		
68	10.5	0.0	30.4

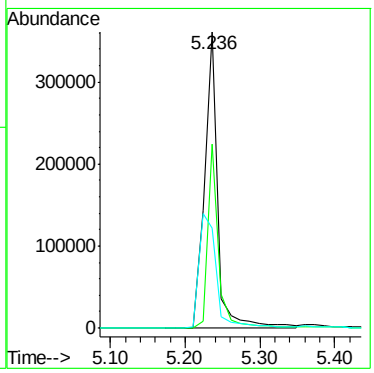


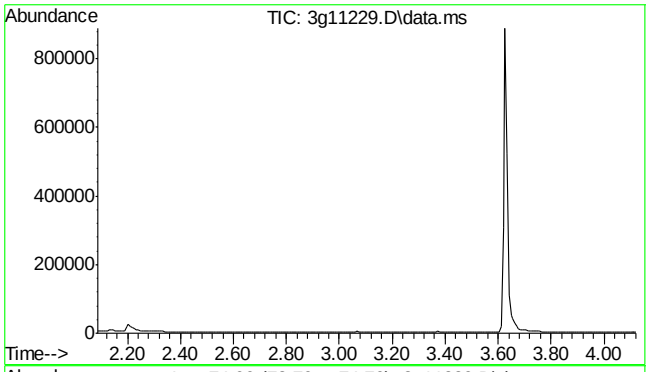


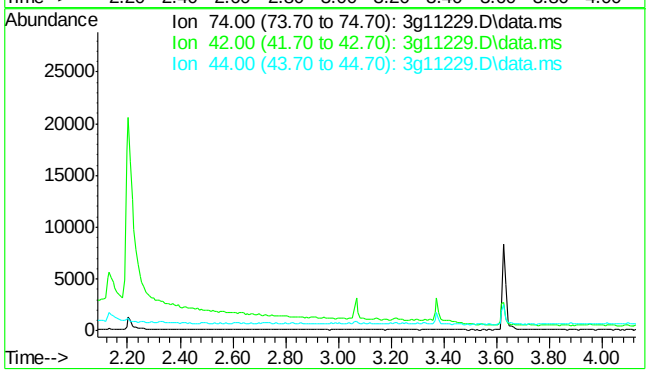
#2
Nitrobenzene-d5
Concen: 32.1080 ug/mL
RT: 5.236 min Scan# 416
Delta R.T. 0.013 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion: 82 Resp: 443802

Ion	Ratio	Lower	Upper
82	100		
128	51.3	19.7	59.7
54	51.1	28.6	68.6





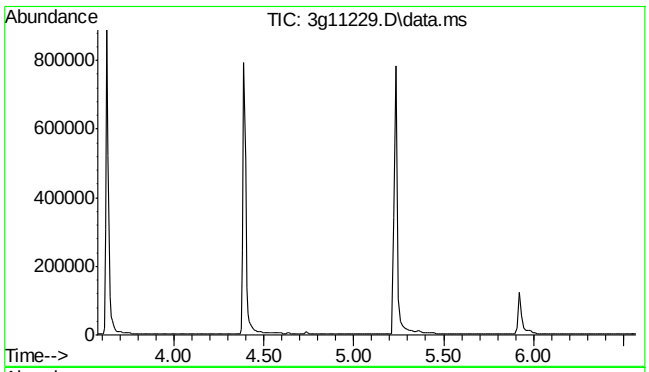


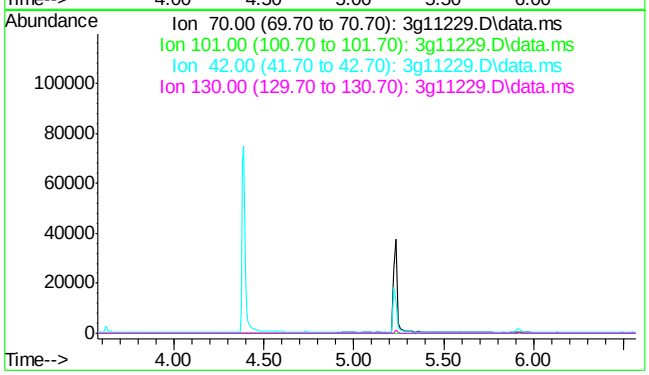
#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.62 min

Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion: 74

Sig	Exp Ratio
74	100
42	53.3
44	3.5



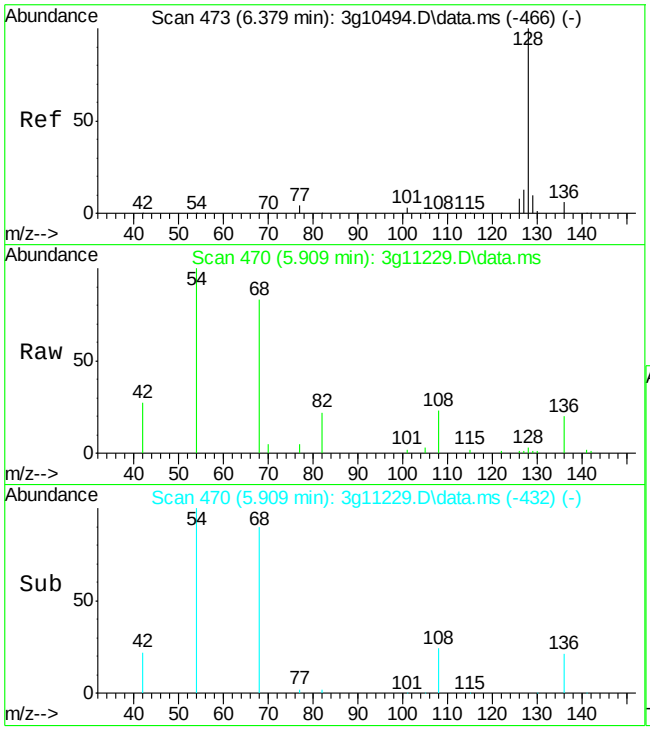


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.07 min

Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion: 70

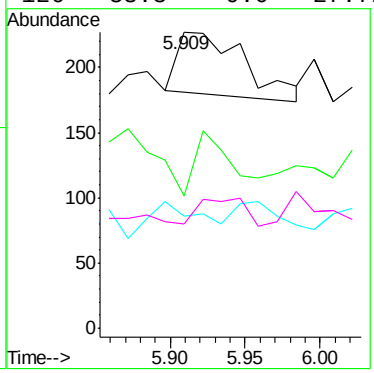
Sig	Exp Ratio
70	100
101	10.3
42	47.6
130	20.0

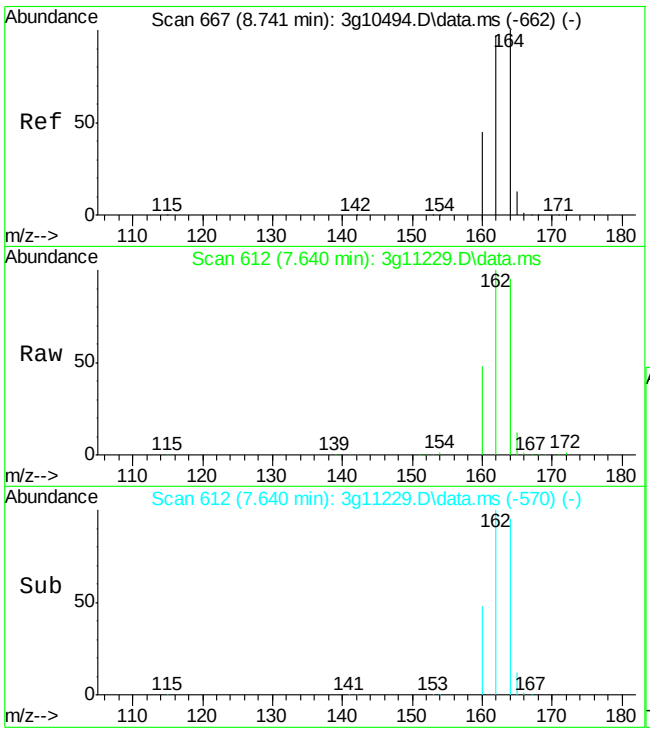


#5
Naphthalene
Concen: Below ug/mL
RT: 5.909 min Scan# 470
Delta R.T. -0.025 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:128 Resp: 147

Ion	Ratio	Lower	Upper
128	100		
129	59.2	0.0	30.8#
127	45.6	0.0	33.4#
126	33.3	0.0	27.7#

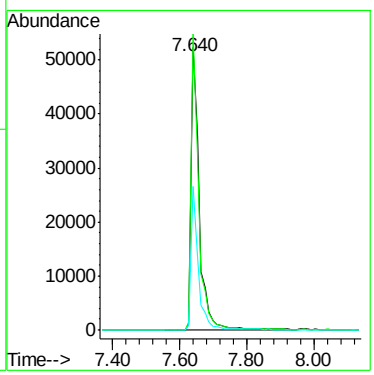


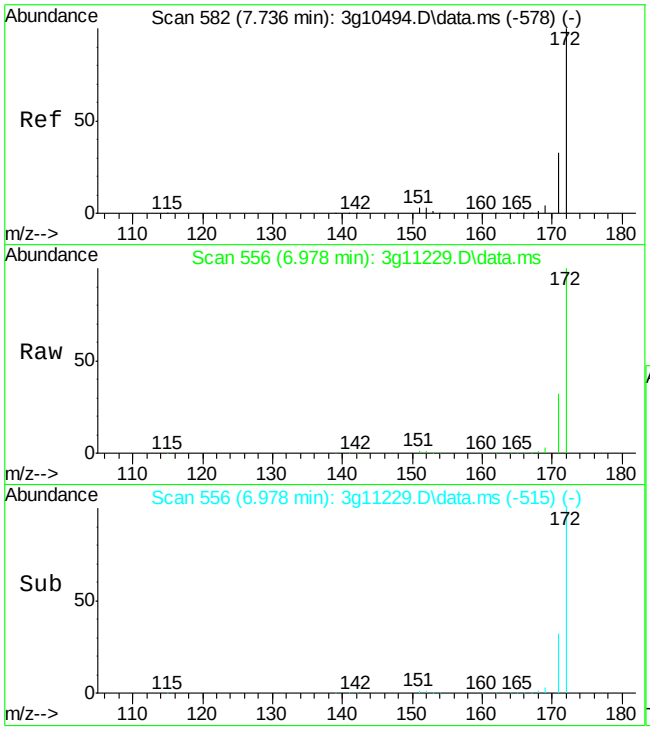


#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.640 min Scan# 612
Delta R.T. -0.000 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:164 Resp: 83974

Ion	Ratio	Lower	Upper
164	100		
162	97.9	73.5	113.5
160	44.3	21.8	61.8

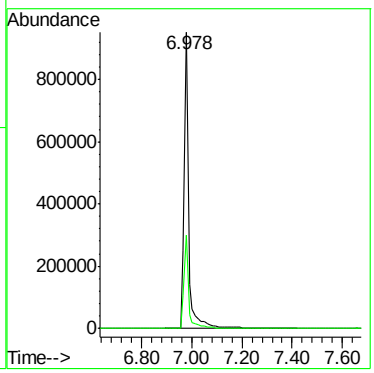


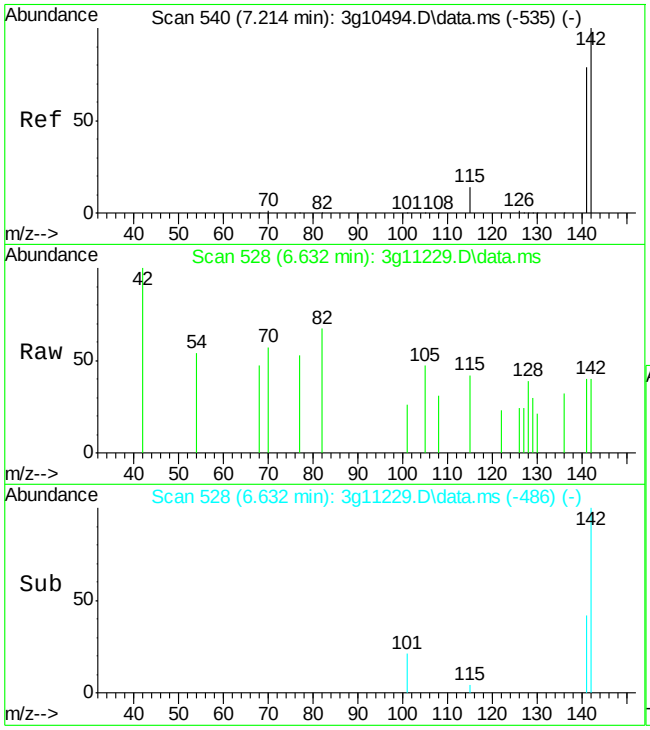


#7
2-Fluorobiphenyl
Concen: 32.6940 ug/mL
RT: 6.978 min Scan# 556
Delta R.T. 0.012 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:172 Resp: 1142037

Ion	Ratio	Lower	Upper
172	100		
171	33.5	13.6	53.6

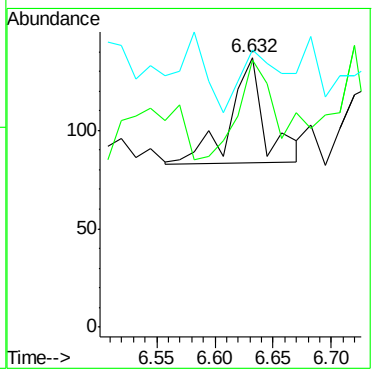


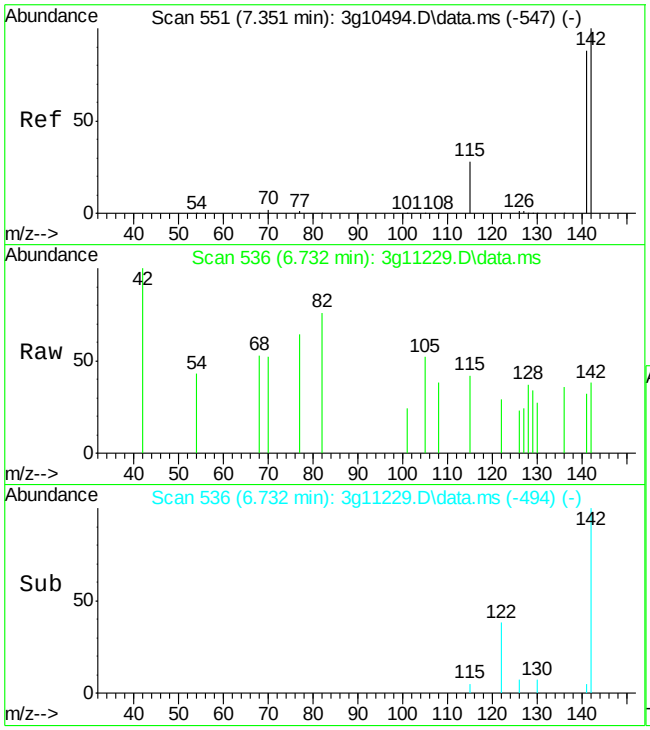


#8
2-Methylnaphthalene
Concen: Below ug/mL
RT: 6.632 min Scan# 528
Delta R.T. 0.025 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:142 Resp: 111

Ion	Ratio	Lower	Upper
142	100		
141	107.2	64.5	104.5#
115	0.0	13.6	53.6#

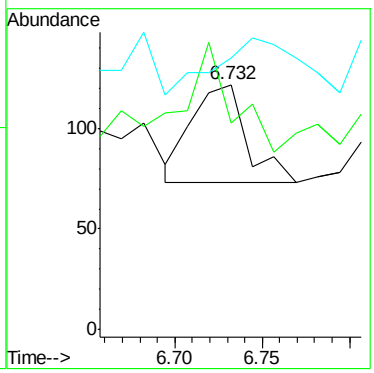


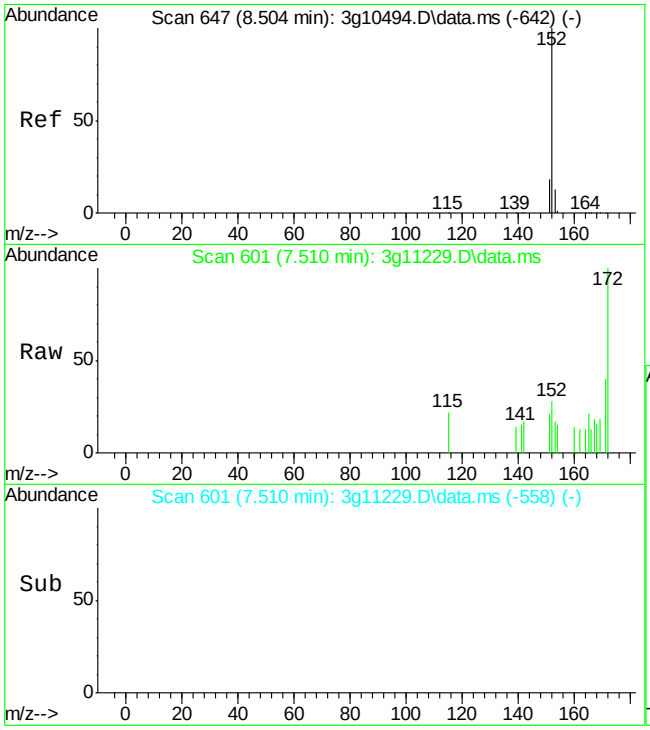


#9
1-Methylnaphthalene
Concen: Below ug/mL
RT: 6.732 min Scan# 536
Delta R.T. 0.025 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:142 Resp: 107

Ion	Ratio	Lower	Upper
142	100		
141	62.6	67.8	107.8#
115	0.0	11.0	51.0#

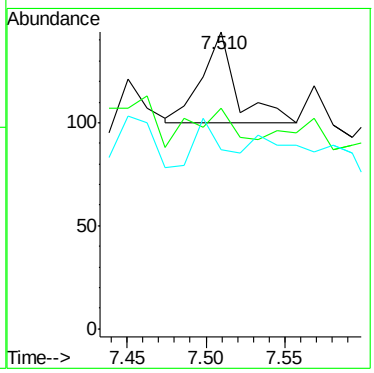


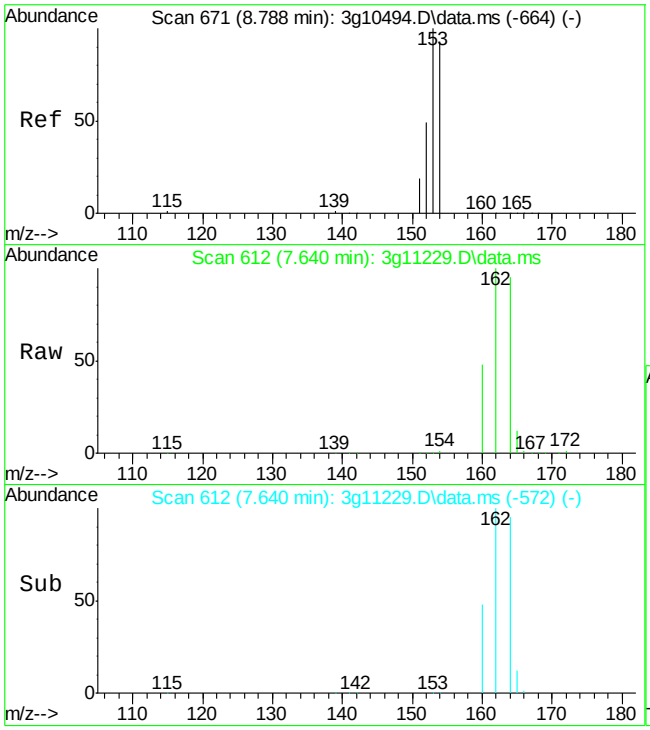


#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.510 min Scan# 601
Delta R.T. 0.012 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:152 Resp: 68

Ion	Ratio	Lower	Upper
152	100		
151	0.0	0.0	39.2
153	42.6	0.0	33.2#

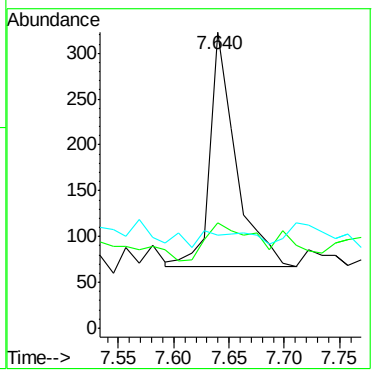


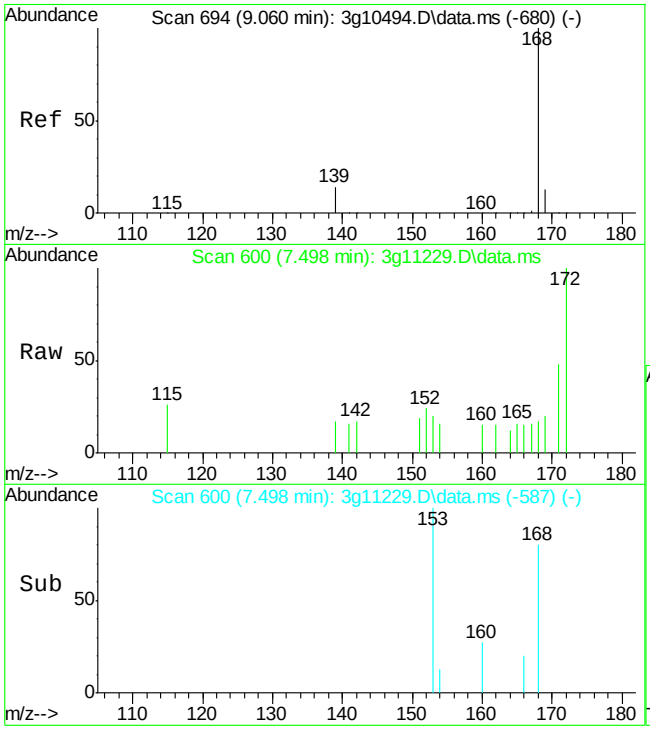


#11
Acenaphthene
Concen: Below ug/mL
RT: 7.640 min Scan# 612
Delta R.T. -0.024 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:154 Resp: 415

Ion	Ratio	Lower	Upper
154	100		
153	29.2	84.8	124.8#
152	13.7	29.9	69.9#

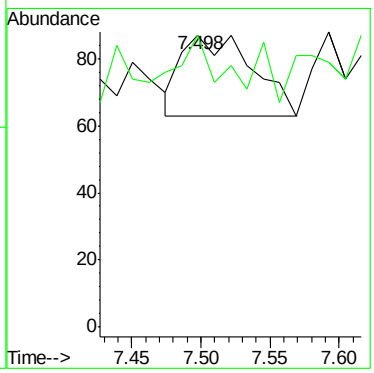


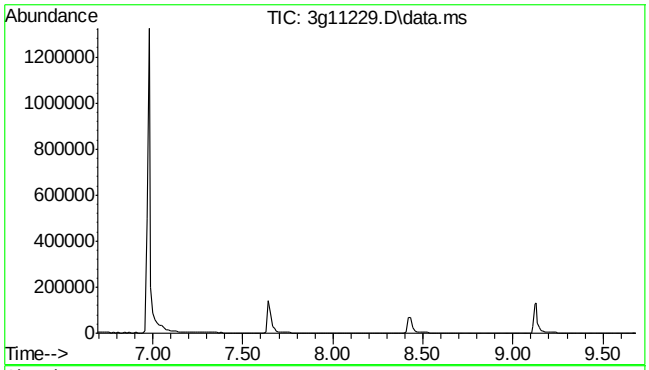


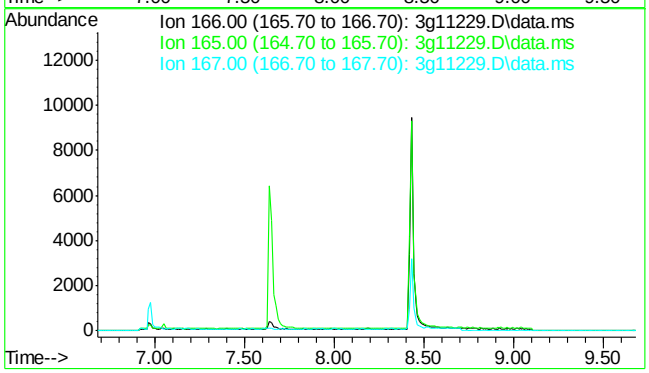
#12
Dibenzofuran
Concen: Below ug/mL
RT: 7.498 min Scan# 600
Delta R.T. -0.343 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:168 Resp: 86

Ion	Ratio	Lower	Upper
168	100		
139	38.4	7.6	47.6





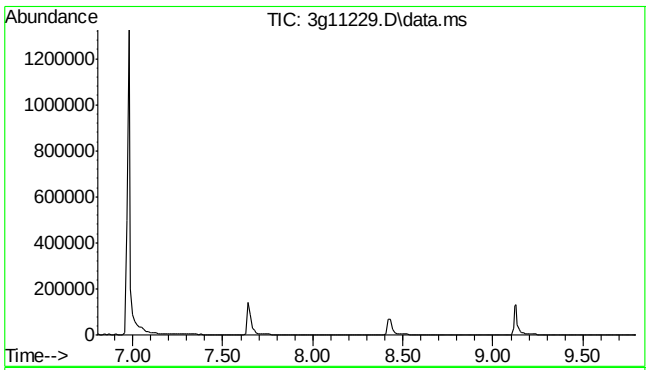


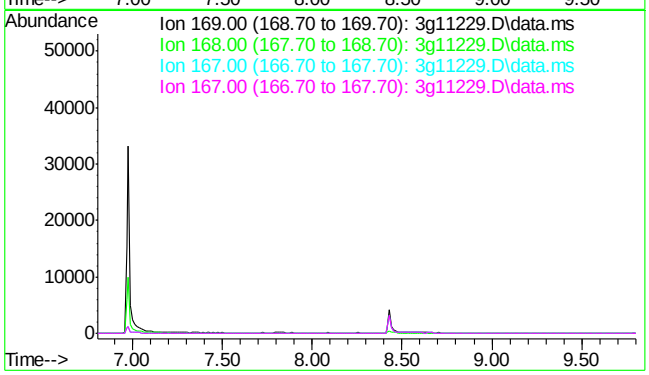
#13
Fluorene
Concen: N.D. ug/mL
Expected RT: 8.18 min

Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion: 166

Sig	Exp Ratio
166	100
165	91.1
167	13.3



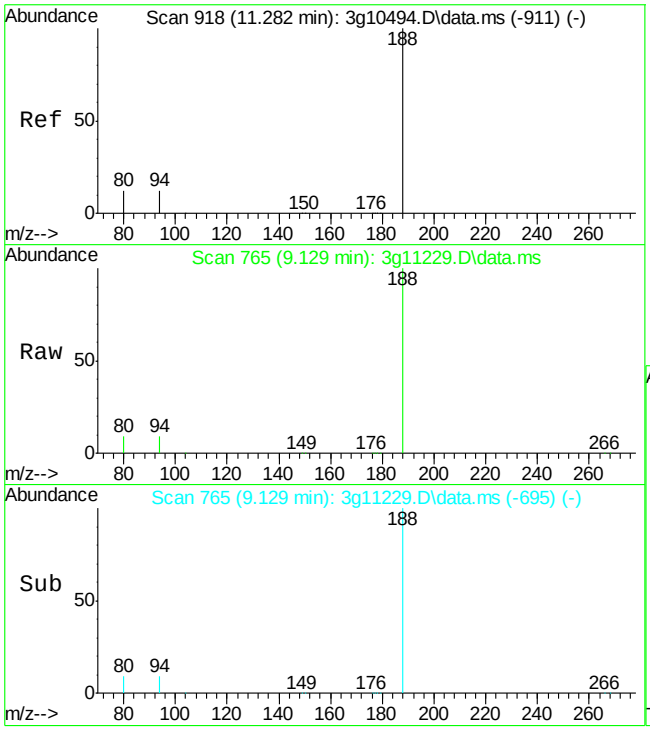


#14
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 8.30 min

Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion: 169

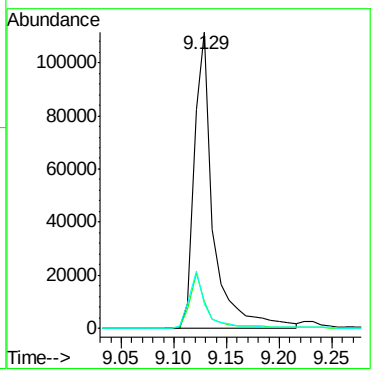
Sig	Exp Ratio
169	100
168	61.0
167	32.9
167	32.9

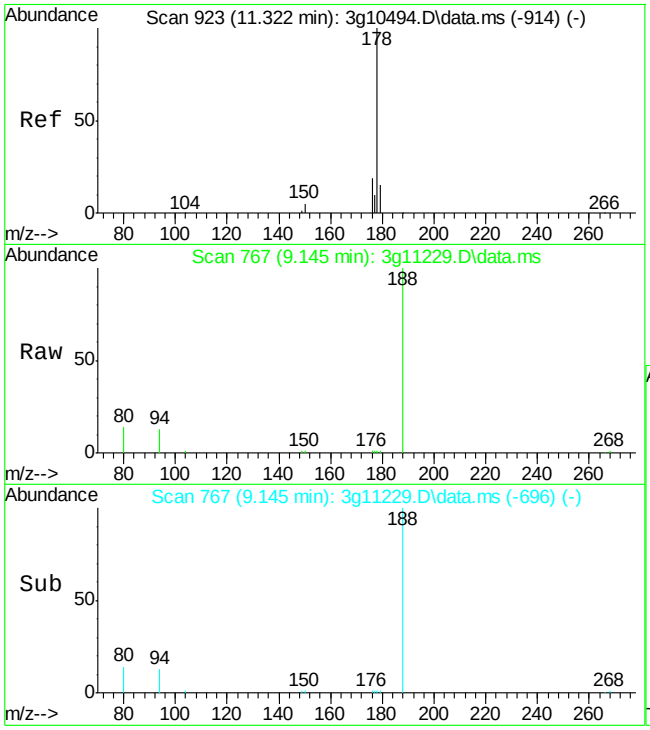


#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 9.129 min Scan# 765
Delta R.T. 0.008 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:188 Resp: 138511

Ion	Ratio	Lower	Upper
188	100		
94	16.4	0.0	33.9
80	18.1	0.0	35.5

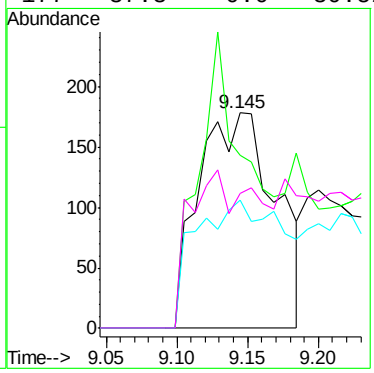


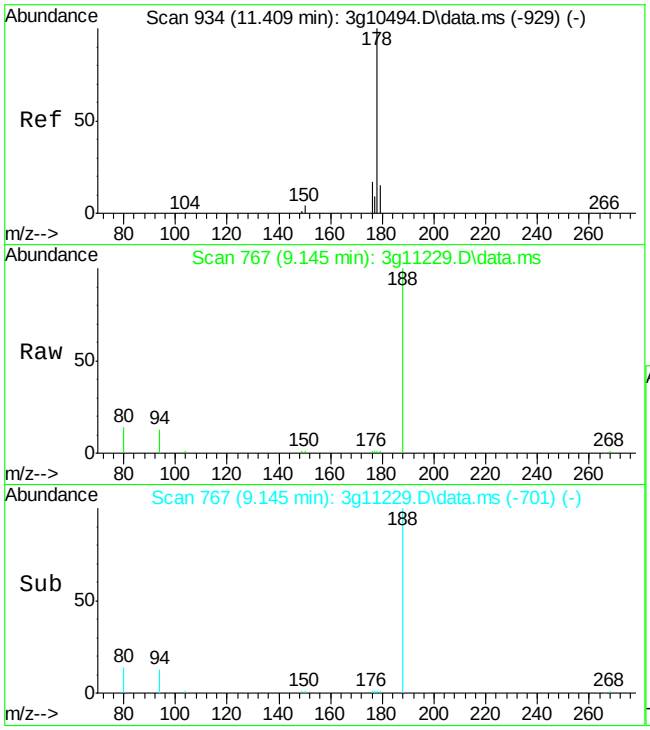


#16
Phenanthrene
Concen: Below ug/mL
RT: 9.145 min Scan# 767
Delta R.T. 0.008 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:178 Resp: 659

Ion	Ratio	Lower	Upper
178	100		
179	89.1	0.0	35.3#
176	67.5	0.0	38.5#
177	37.3	0.0	30.5#

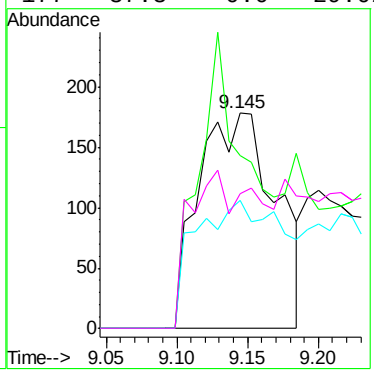


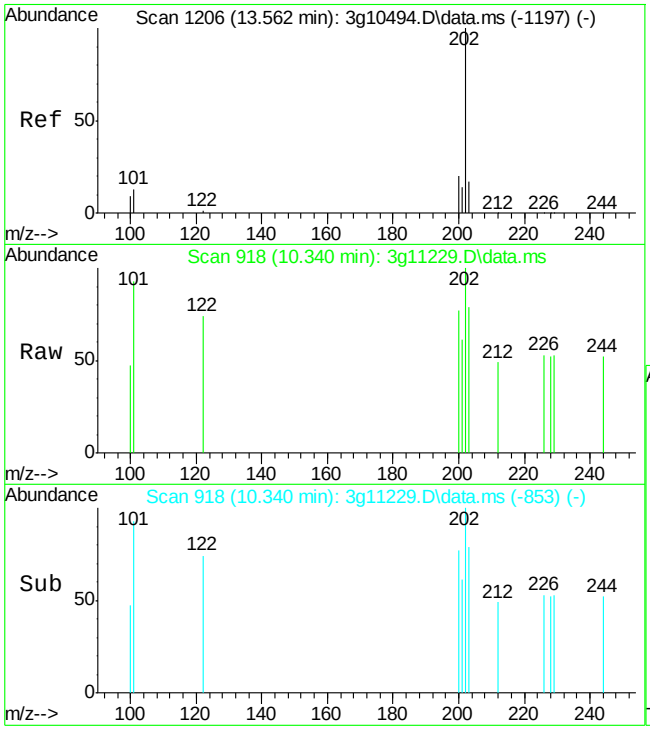


#17
Anthracene
Concen: Below ug/mL
RT: 9.145 min Scan# 767
Delta R.T. -0.048 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:178 Resp: 659

Ion	Ratio	Lower	Upper
178	100		
179	89.1	0.0	35.2#
176	67.5	0.0	37.7#
177	37.3	0.0	29.0#

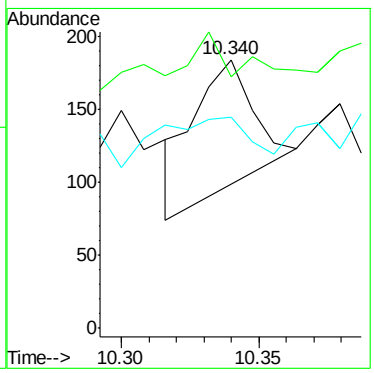


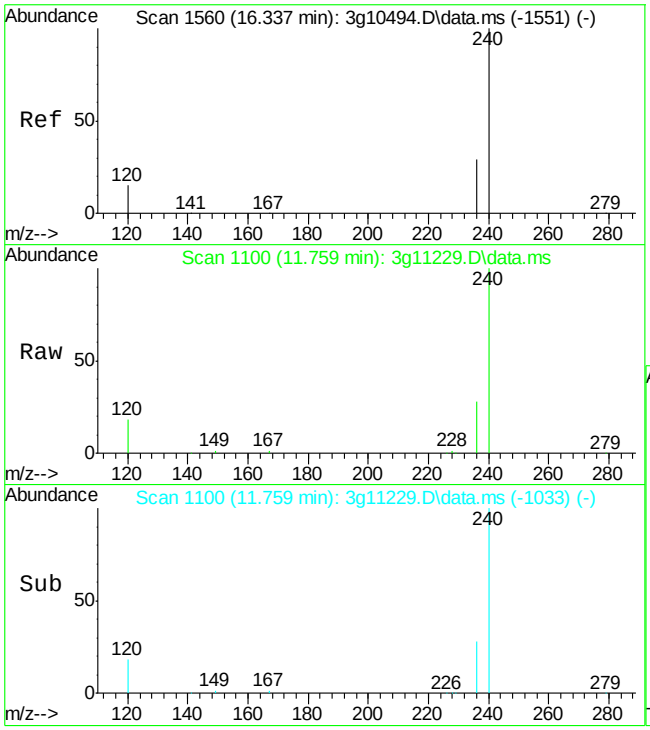


#18
Fluoranthene
Concen: Below ug/mL
RT: 10.340 min Scan# 918
Delta R.T. 0.016 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:202 Resp: 139

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

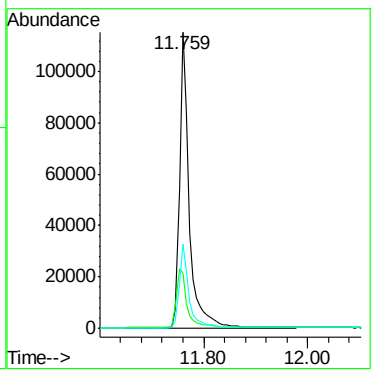


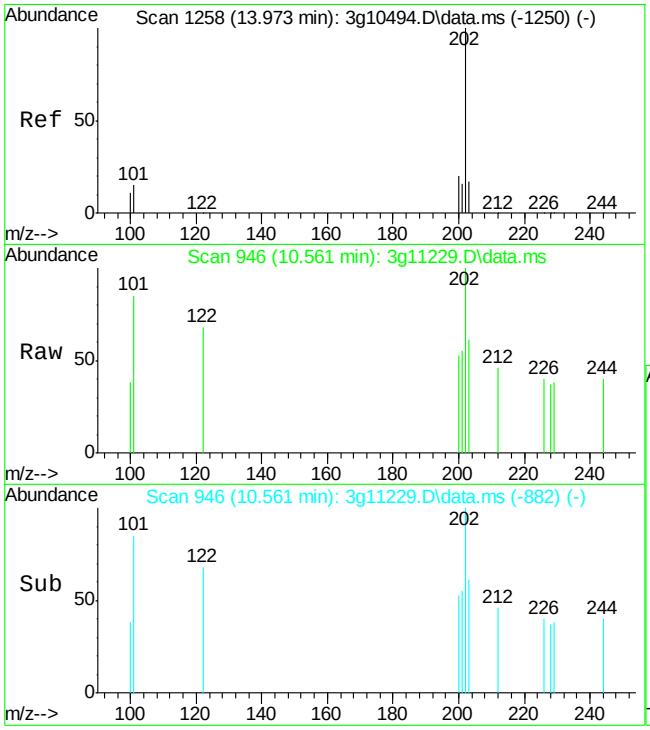


#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.759 min Scan# 1100
Delta R.T. 0.007 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:240 Resp: 145659

Ion	Ratio	Lower	Upper
240	100		
120	21.2	0.0	36.2
236	28.4	8.8	48.8

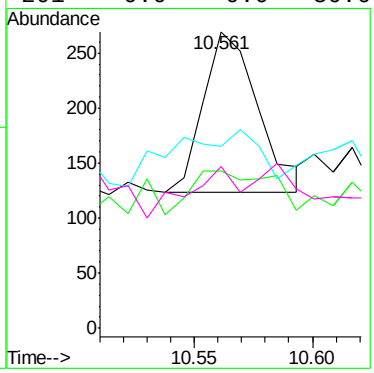


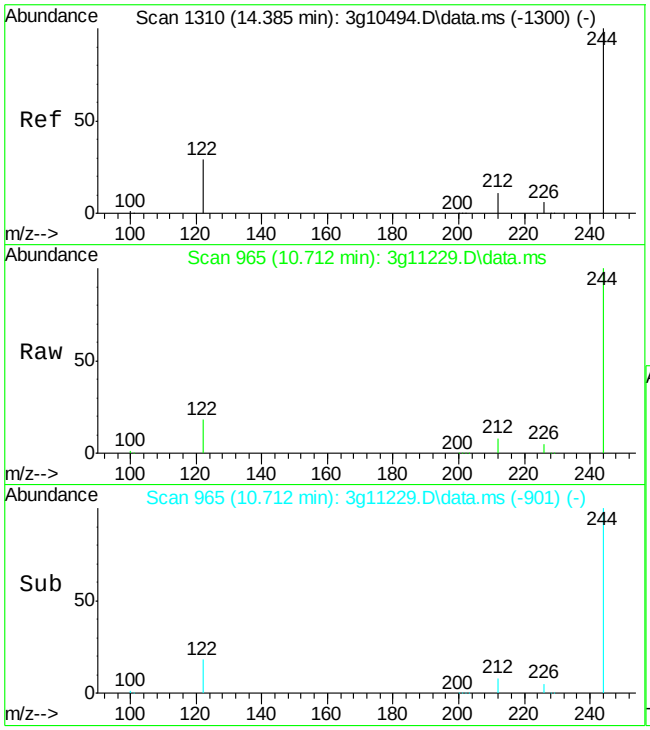


#20
Pyrene
Concen: Below ug/mL
RT: 10.561 min Scan# 946
Delta R.T. 0.008 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:202 Resp: 236

Ion	Ratio	Lower	Upper
202	100		
200	29.2	0.1	40.1
203	54.2	0.0	37.8#
201	0.0	0.0	36.6

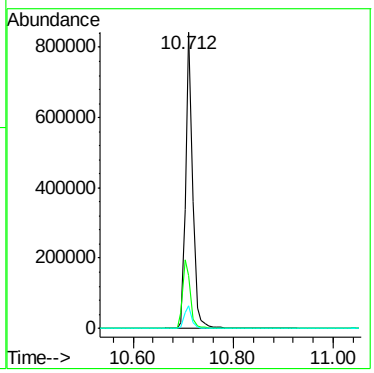


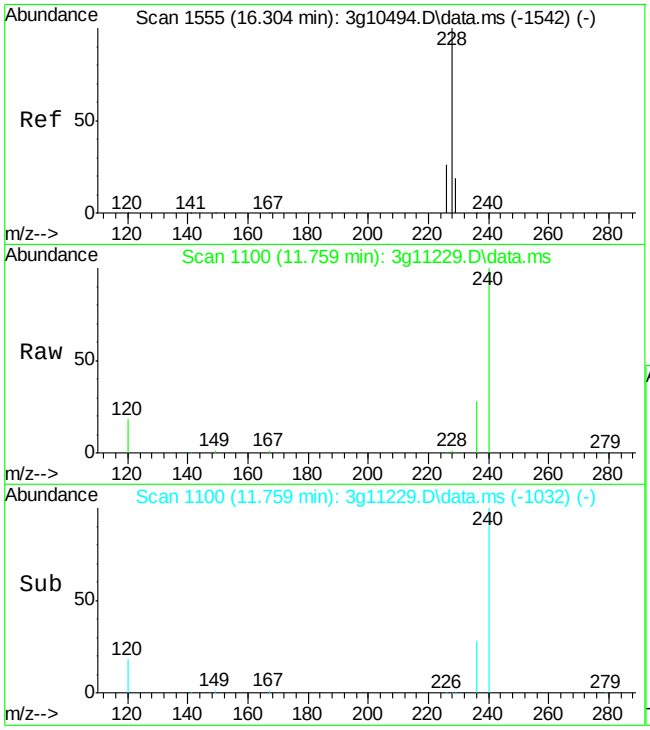


#21
Terphenyl-d14
Concen: 36.4033 ug/mL
RT: 10.712 min Scan# 965
Delta R.T. 0.008 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:244 Resp: 798949

Ion	Ratio	Lower	Upper
244	100		
122	25.9	1.3	41.3
212	8.3	0.0	28.8

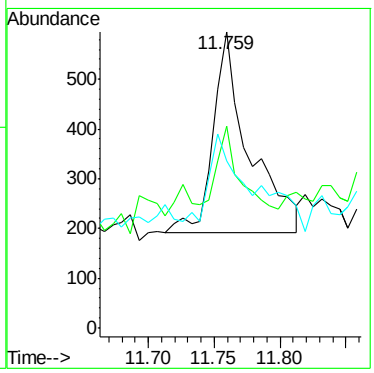


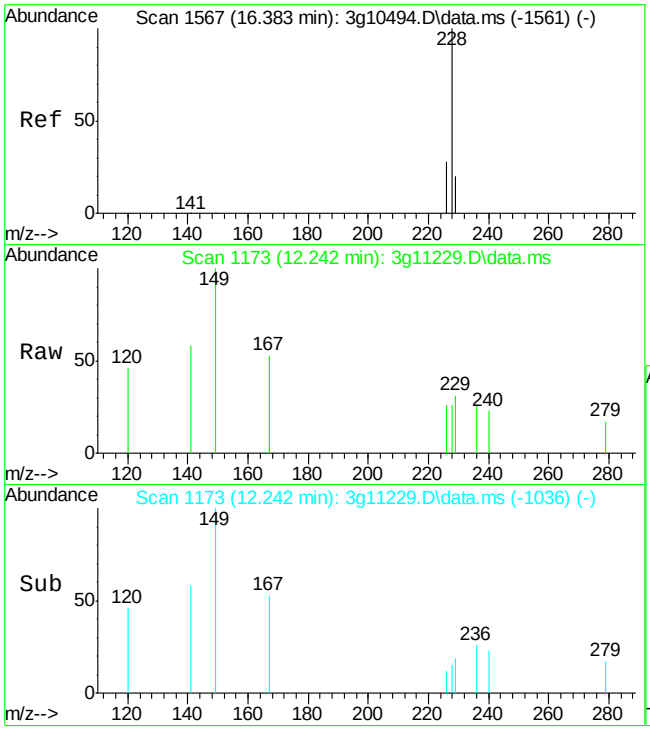


#22
Benzo(a)anthracene
Concen: Below ug/mL
RT: 11.759 min Scan# 1100
Delta R.T. 0.020 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:228 Resp: 772

Ion	Ratio	Lower	Upper
228	100		
229	25.4	0.0	39.6
226	59.2	6.6	46.6#

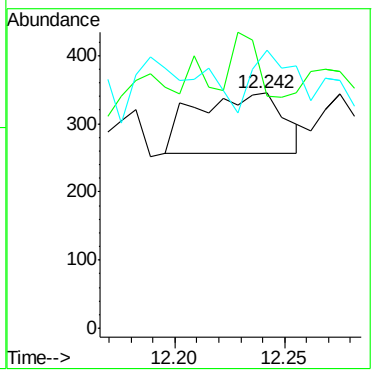


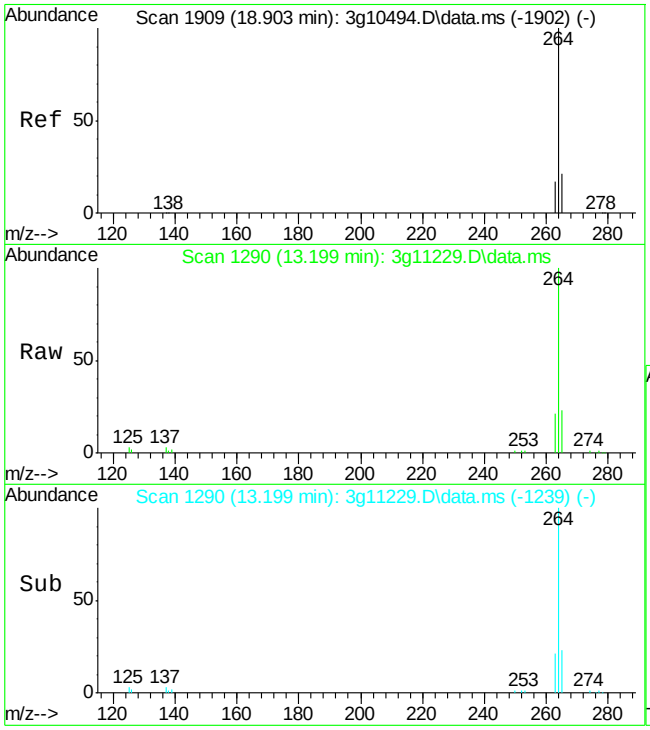


#23
Chrysene
Concen: Below ug/mL
RT: 12.242 min Scan# 1173
Delta R.T. 0.469 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:228 Resp: 248

Ion	Ratio	Lower	Upper
228	100		
226	32.3	8.6	48.6
229	35.1	0.0	39.4

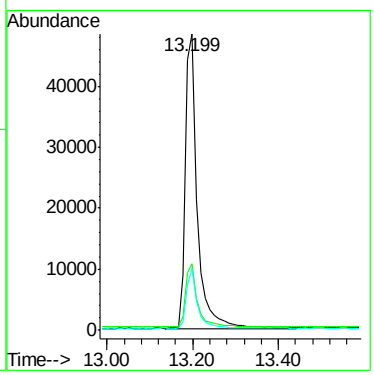


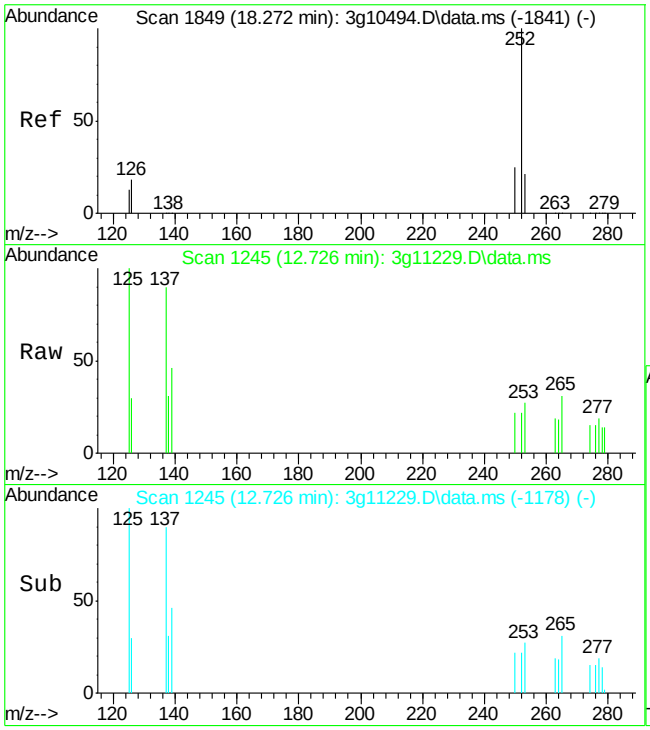


#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 13.199 min Scan# 1290
Delta R.T. 0.021 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:264 Resp: 94192

Ion	Ratio	Lower	Upper
264	100		
265	21.8	1.0	41.0
263	18.6	0.0	39.0

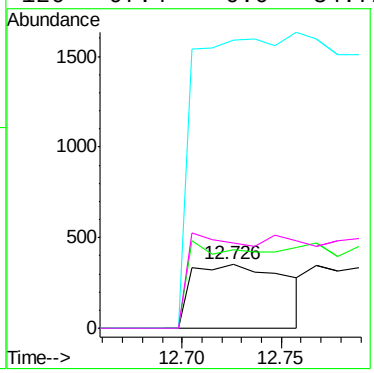


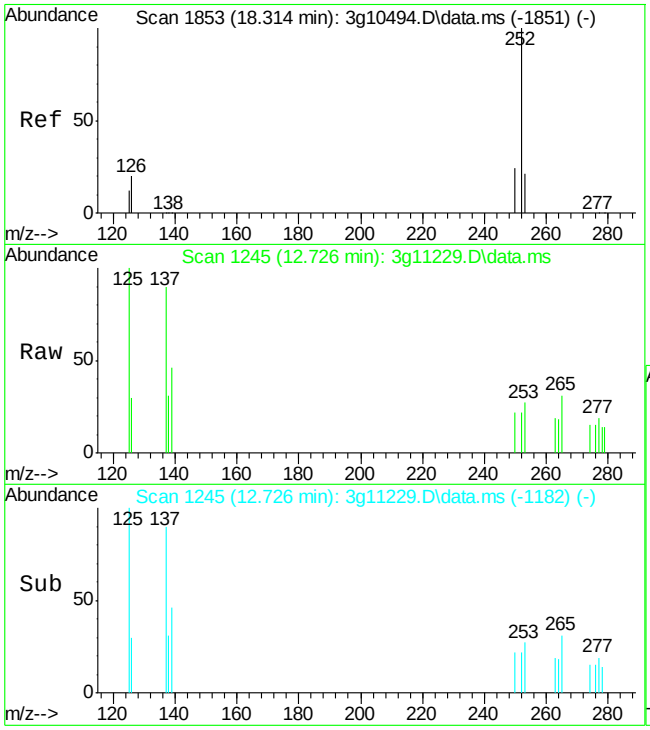


#25
Benzo(b)fluoranthene
Concen: Below ug/mL
RT: 12.726 min Scan# 1245
Delta R.T. -0.052 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:252 Resp: 1071

Ion	Ratio	Lower	Upper
252	100		
253	87.3	2.9	42.9#
125	767.8	0.0	31.5#
126	97.4	0.0	34.7#

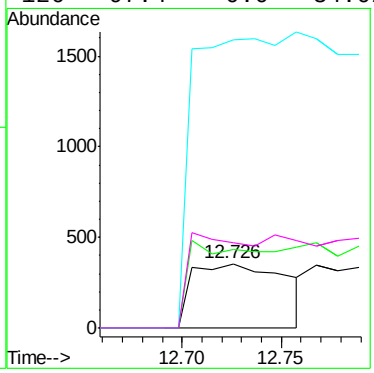


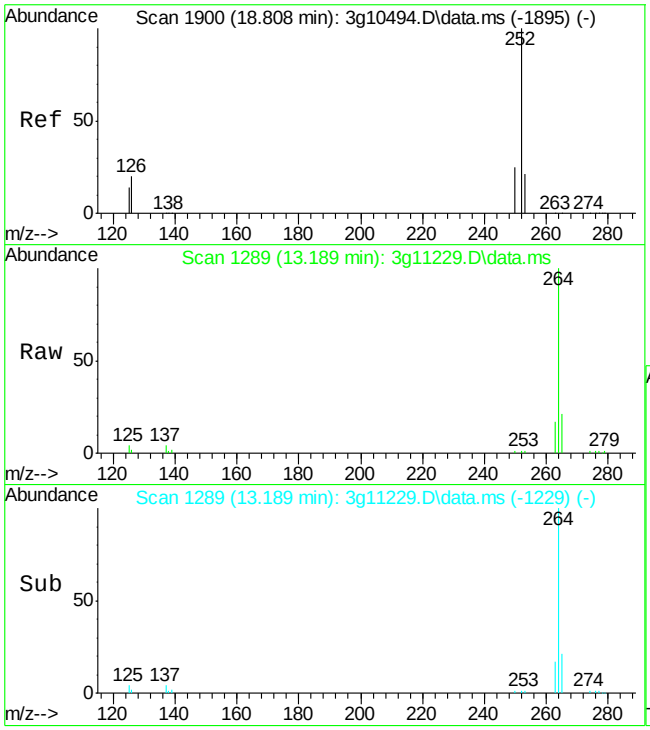


#26
Benzo(k)fluoranthene
Concen: Below ug/mL
RT: 12.726 min Scan# 1245
Delta R.T. -0.073 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:252 Resp: 1071

Ion	Ratio	Lower	Upper
252	100		
253	87.3	1.8	41.8#
125	767.8	0.0	31.0#
126	97.4	0.0	34.0#

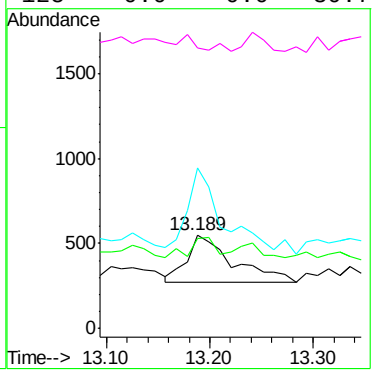


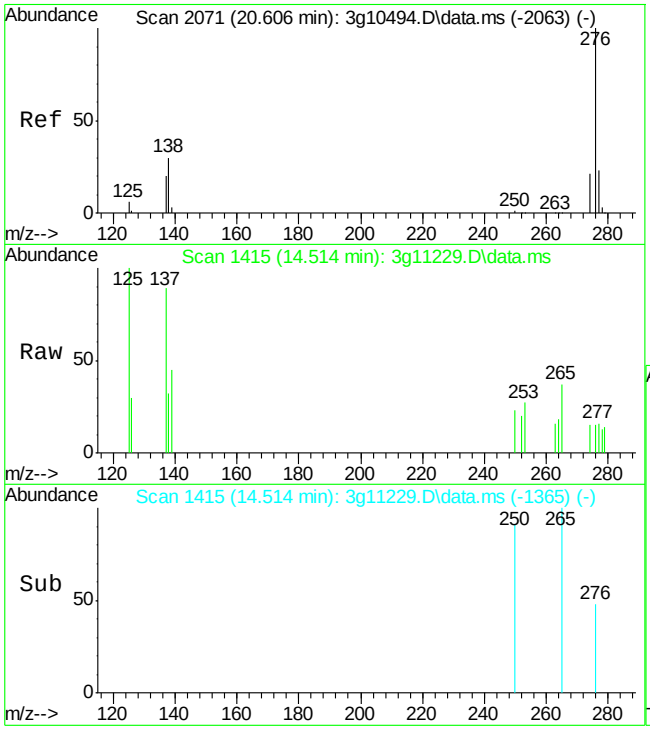


#27
Benzo(a)pyrene
Concen: Below ug/mL
RT: 13.189 min Scan# 1289
Delta R.T. 0.075 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:252 Resp: 857

Ion	Ratio	Lower	Upper
252	100		
253	0.0	1.4	41.4#
126	123.6	0.0	33.6#
125	0.0	0.0	30.7

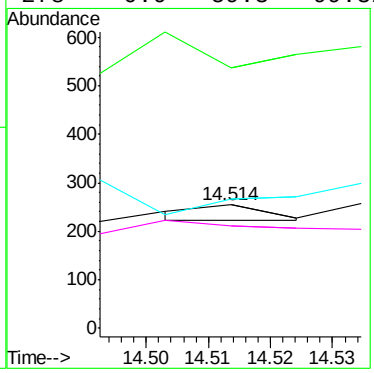


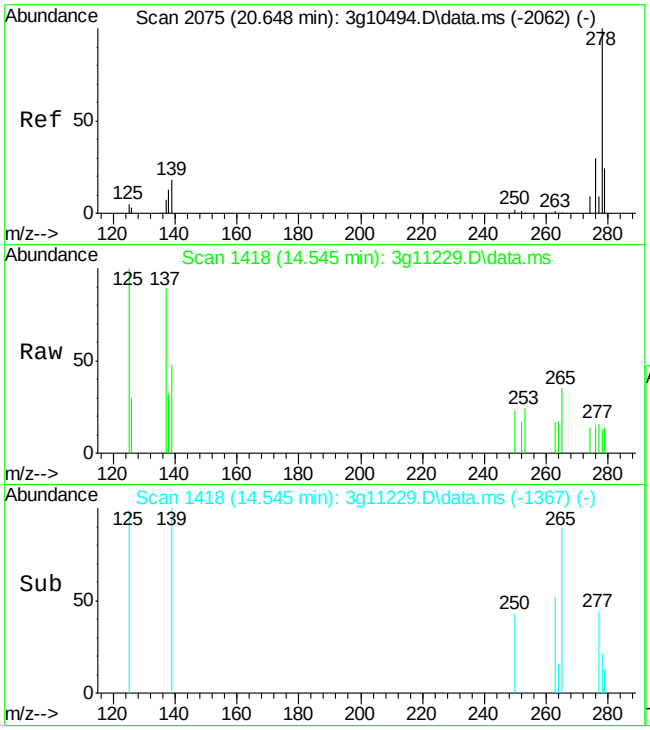


#28
Indeno(1,2,3-cd)pyrene
Concen: Below ug/mL
RT: 14.514 min Scan# 1415
Delta R.T. 0.022 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:276 Resp: 23

Ion	Ratio	Lower	Upper
276	100		
138	269.6	5.3	45.3#
277	0.0	5.0	45.0#
278	0.0	59.3	99.3#

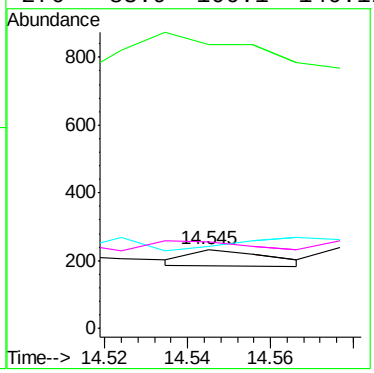


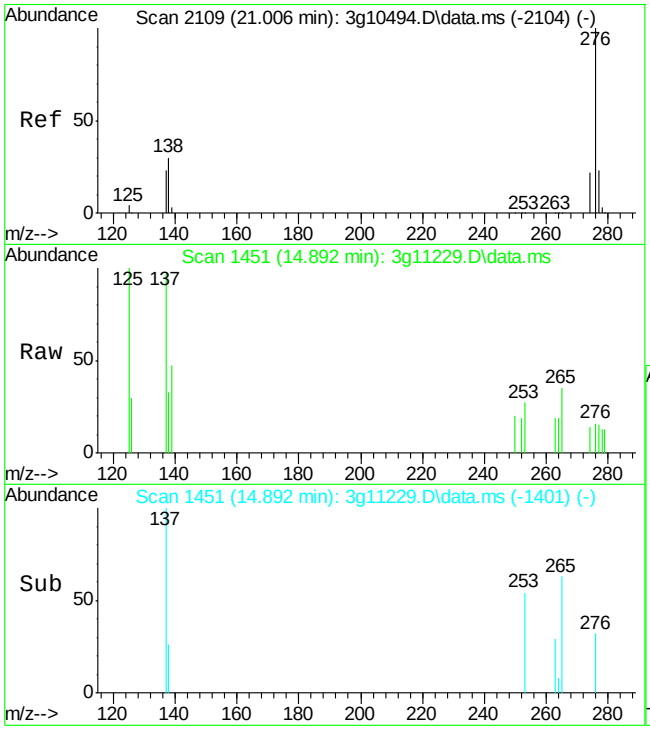


#29
Dibenz(a,h)anthracene
Concen: Below ug/mL
RT: 14.545 min Scan# 1418
Delta R.T. 0.032 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:278 Resp: 62

Ion	Ratio	Lower	Upper
278	100		
139	541.9	0.0	38.4#
279	0.0	3.1	43.1#
276	83.9	106.1	146.1#

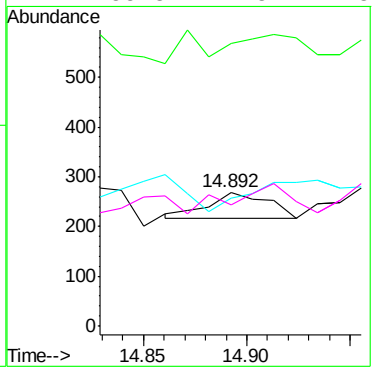




#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.892 min Scan# 1451
Delta R.T. 0.021 min
Lab File: 3g11229.D
Acq: 14 Sep 12 2:17 pm

Tgt Ion:276 Resp: 104

Ion	Ratio	Lower	Upper
276	100		
138	200.0	1.3	41.3#
277	0.0	3.4	43.4#
274	155.8	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: D38644
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

D38644-1

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: D38644
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

D38644-1

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: D38644
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

D38644-1

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\GB17528.D\FID1A.CH Vial: 14
Signal #2 : Y:\1\DATA\091212\GB17528.D\FID2B.CH
Acq On : 13 Sep 2012 12:14 am Operator: StephK
Sample : D38644-1, 50X Inst : GC/MS Ins
Misc : GC3098,GGB961,5.020,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Sep 13 08:36:41 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	2569455	82.002	%
10) S	1,2,4-Trichlorobenzene (P)	14.36	13766726	84.704	%
	Target Compounds				
1) H	TVH-Gasoline	7.23	2852638	<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	7.66	135623	0.342	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	242330	1.228	ug/L

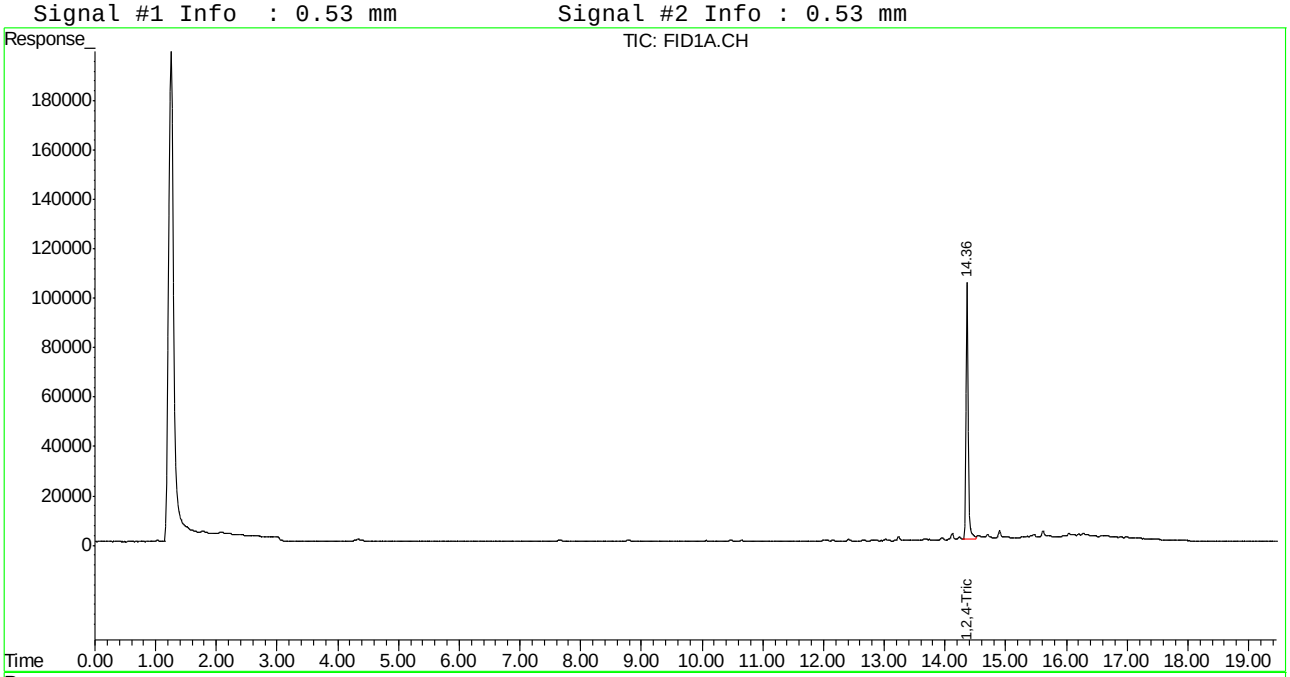
(f)=RT Delta > 1/2 Window (m)=manual int.

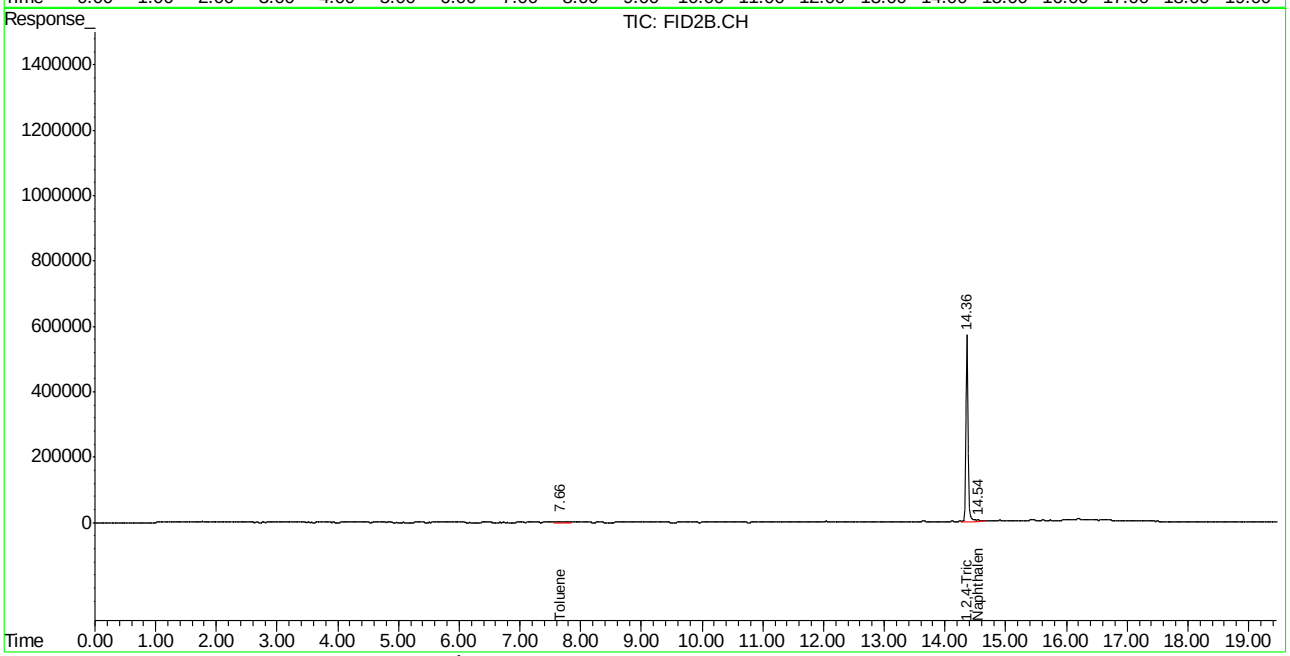
Quantitation Report (QT Reviewed)

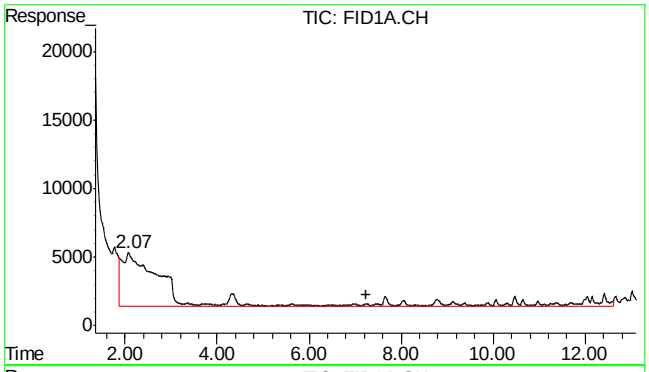
Signal #1 : Y:\1\DATA\091212\GB17528.D\FID1A.CH Vial: 14
Signal #2 : Y:\1\DATA\091212\GB17528.D\FID2B.CH
Acq On : 13 Sep 2012 12:14 am Operator: StephK
Sample : D38644-1, 50X Inst : GC/MS Ins
Misc : GC3098,GGB961,5.020,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: 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

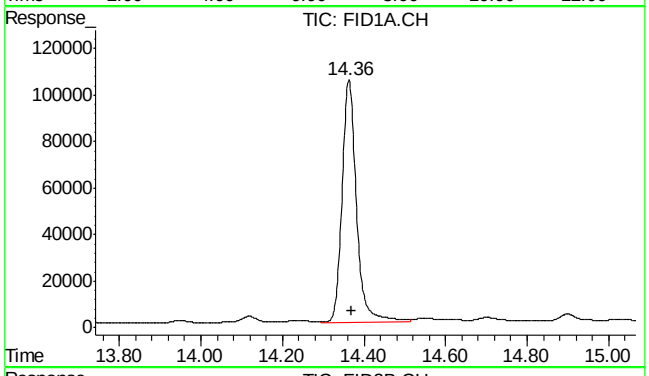






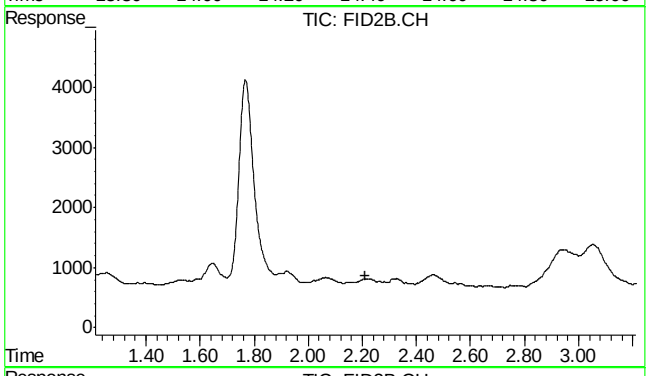
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 2852638
Conc: N.D.



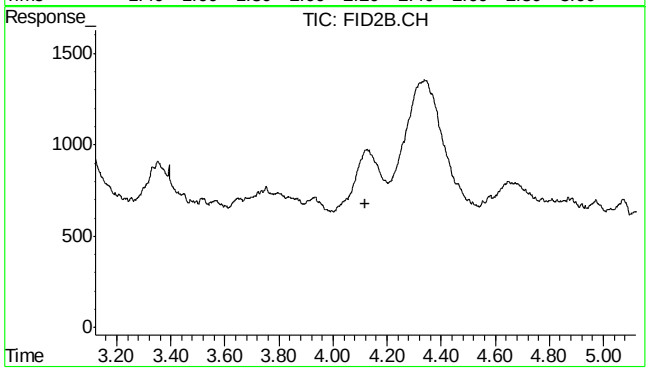
#2 1,2,4-Trichlorobenzene

R.T.: 14.363 min
Delta R.T.: -0.007 min
Response: 2569455
Conc: 82.00 %



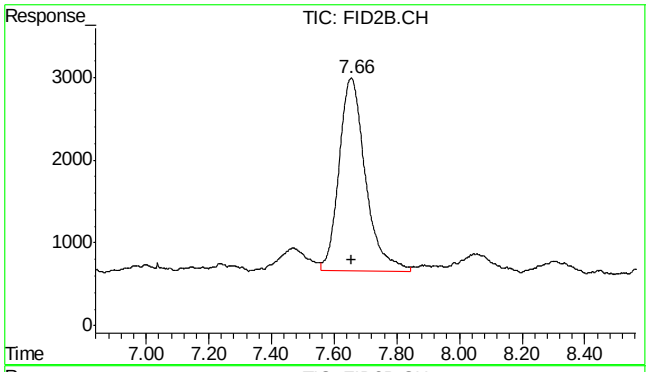
#4 Methyl-t-butyl-ether

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



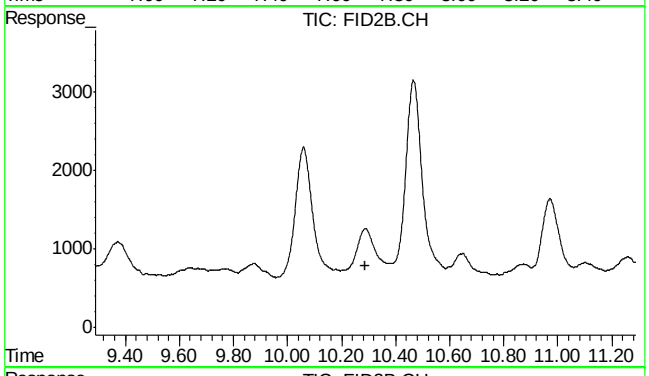
#5 Benzene

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



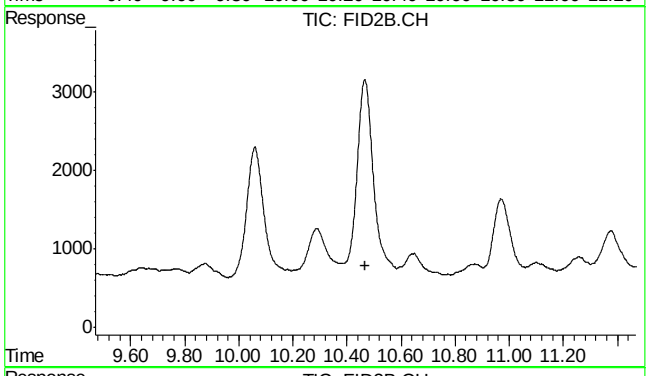
#6 Toluene

R.T.: 7.655 min
Delta R.T.: 0.000 min
Response: 135623
Conc: 0.34 ug/L



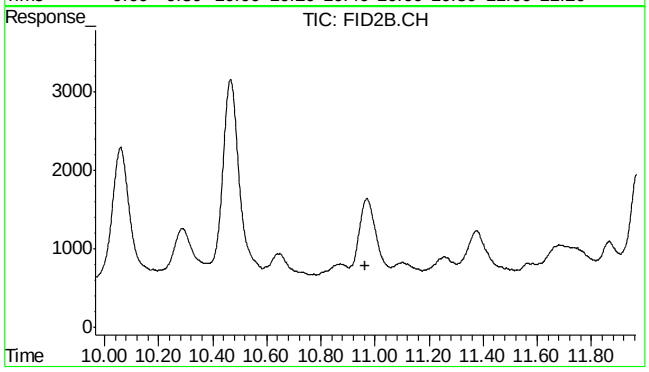
#7 Ethylbenzene

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



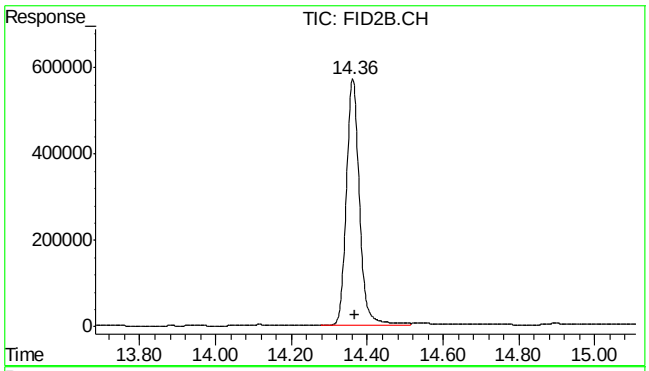
#8 m,p-Xylene

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



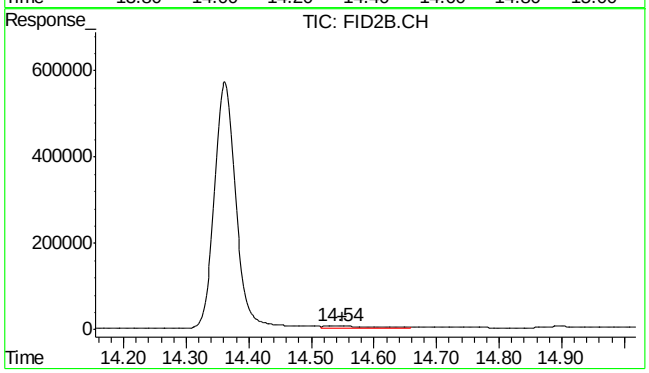
#9 o-Xylene

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



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

R.T.: 14.362 min
Delta R.T.: -0.006 min
Response: 13766726
Conc: 84.70 %



#11 Naphthalene

R.T.: 14.544 min
Delta R.T.: -0.006 min
Response: 242330
Conc: 1.23 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

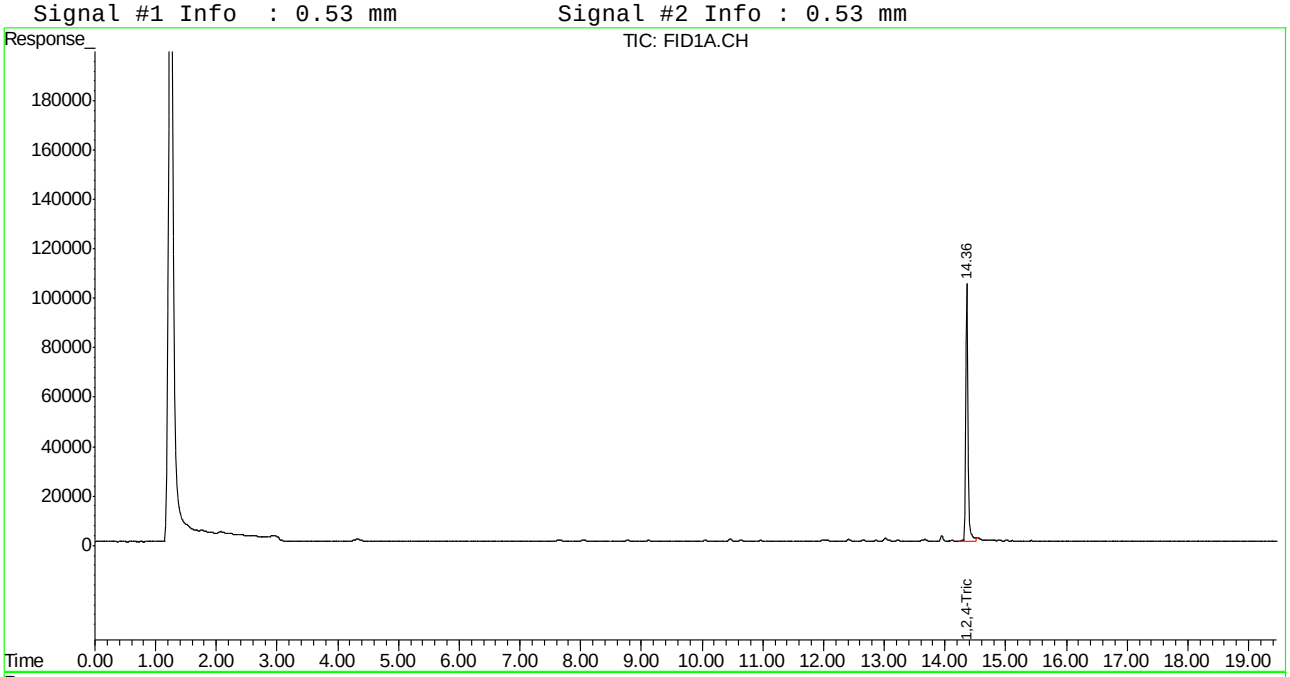
	Compound	R.T.	Response	Conc	Units	
	System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.36	2615532	83.473	%	
10) S	1,2,4-Trichlorobenzene (P)	14.36	13843349	85.175	%	
	Target Compounds					
1) H	TVH-Gasoline	7.23	3035856	<MDL	mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5) T	Benzene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

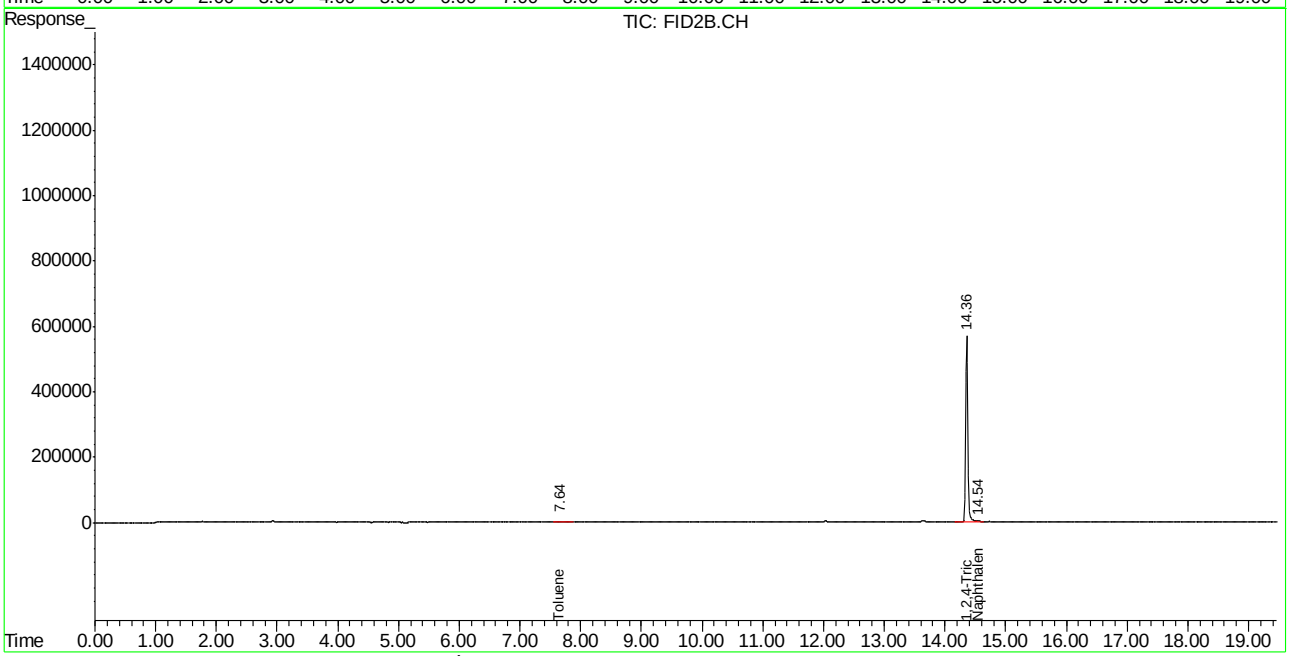
Quantitation Report (QT Reviewed)

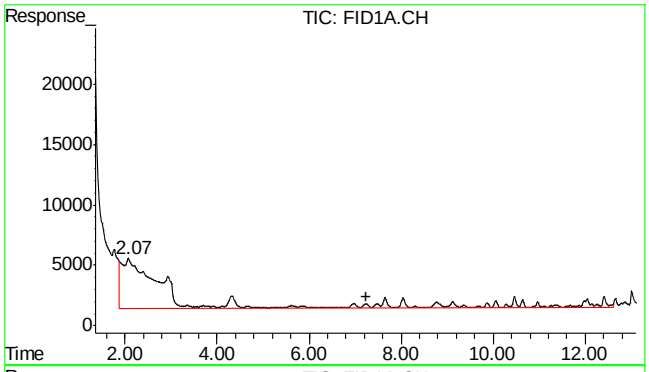
Signal #1 : Y:\1\DATA\091212\GB17517.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\091212\GB17517.D\FID2B.CH
Acq On : 12 Sep 2012 5:41 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3098,GGB961,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Sep 13 7:48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

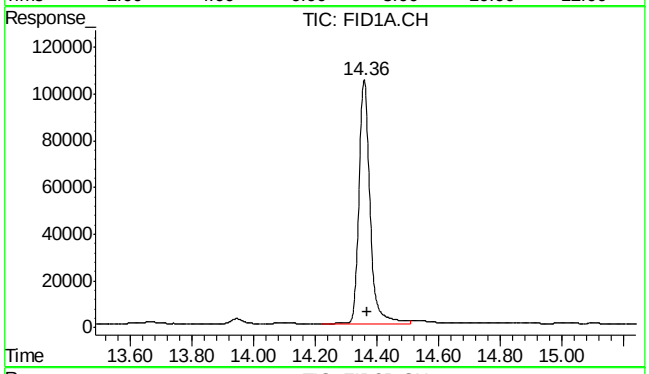






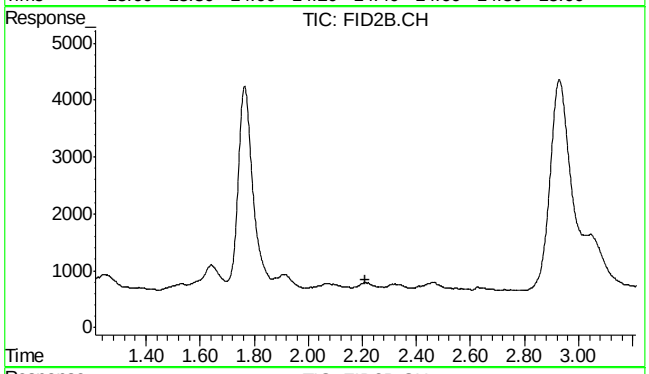
#1 TVH-Gasoline

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



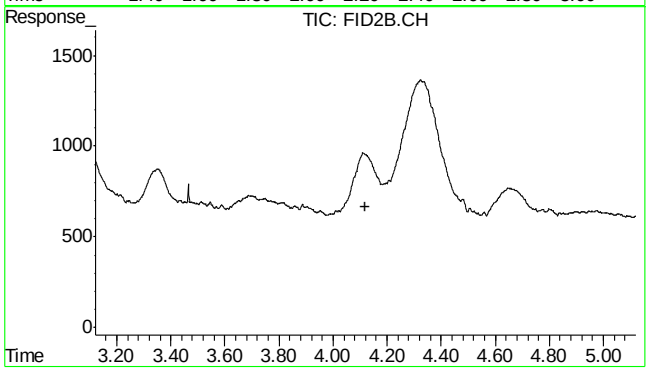
#2 1,2,4-Trichlorobenzene

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



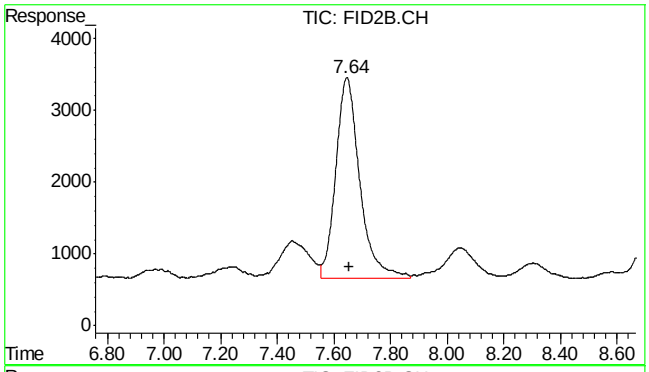
#4 Methyl-t-butyl-ether

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



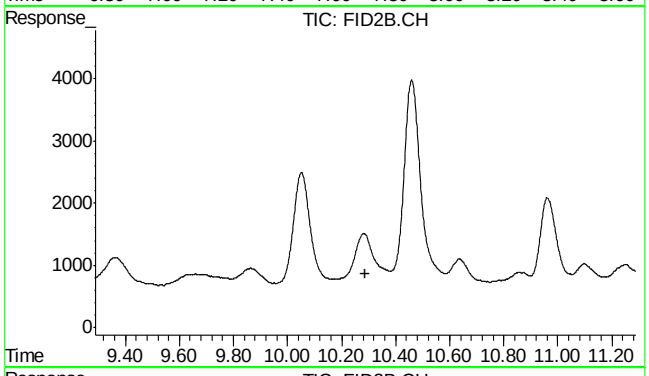
#5 Benzene

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



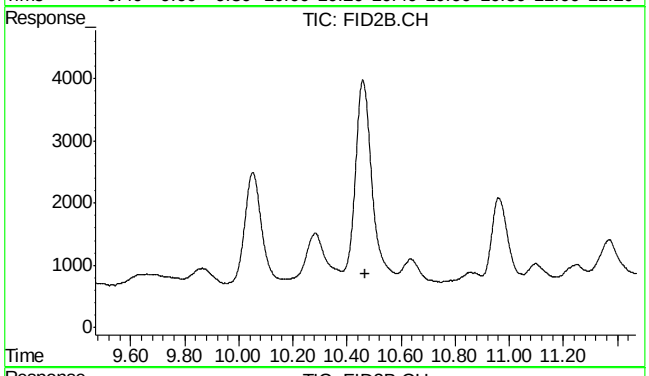
#6 Toluene

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



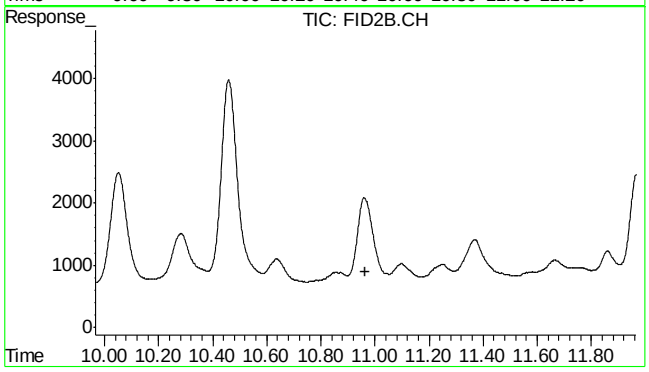
#7 Ethylbenzene

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



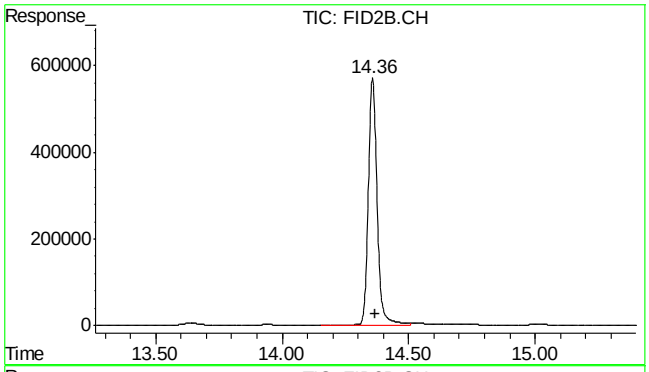
#8 m,p-Xylene

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



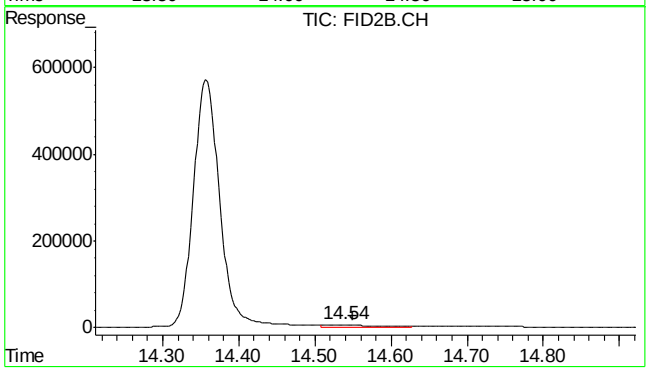
#9 o-Xylene

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: D38644
Account: XTOKRWR XTO Energy
Project: T78X-12G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6631-MB	FD17445.D	1	09/14/12	AW	09/14/12	OP6631	GFD894

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

D38644-1

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	89%	43-136%

Blank Spike Summary

Job Number: D38644
Account: XTOKRWR XTO Energy
Project: T78X-12G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6631-BS	FD17447.D	1	09/14/12	AW	09/14/12	OP6631	GFD894

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

D38644-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	565	85	58-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	99%	43-136%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D38644
Account: XTOKRWR XTO Energy
Project: T78X-12G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6631-MS	FD17449.D	1	09/14/12	AW	09/14/12	OP6631	GFD894
OP6631-MSD	FD17451.D	1	09/14/12	AW	09/14/12	OP6631	GFD894
D38645-1	FD17453.D	1	09/14/12	AW	09/14/12	OP6631	GFD894

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

D38644-1

CAS No.	Compound	D38645-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	2000		705	2580	82	2420	60	6	20-183/43

CAS No.	Surrogate Recoveries	MS	MSD	D38645-1	Limits
84-15-1	o-Terphenyl	72%	69%	83%	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\FD091812\FD17539.D Vial: 4
Acq On : 18 Sep 2012 12:28 pm Operator: alexw1
Sample : D38644-1 Inst : FID5
Misc : OP6631,GFD898,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Sep 19 08:26:04 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	9.09	41512108	878.776	mg/L
	Target Compounds				
2) H	TPH-DRO (c10-c28)	7.08	67295989	1747.708	mg/L

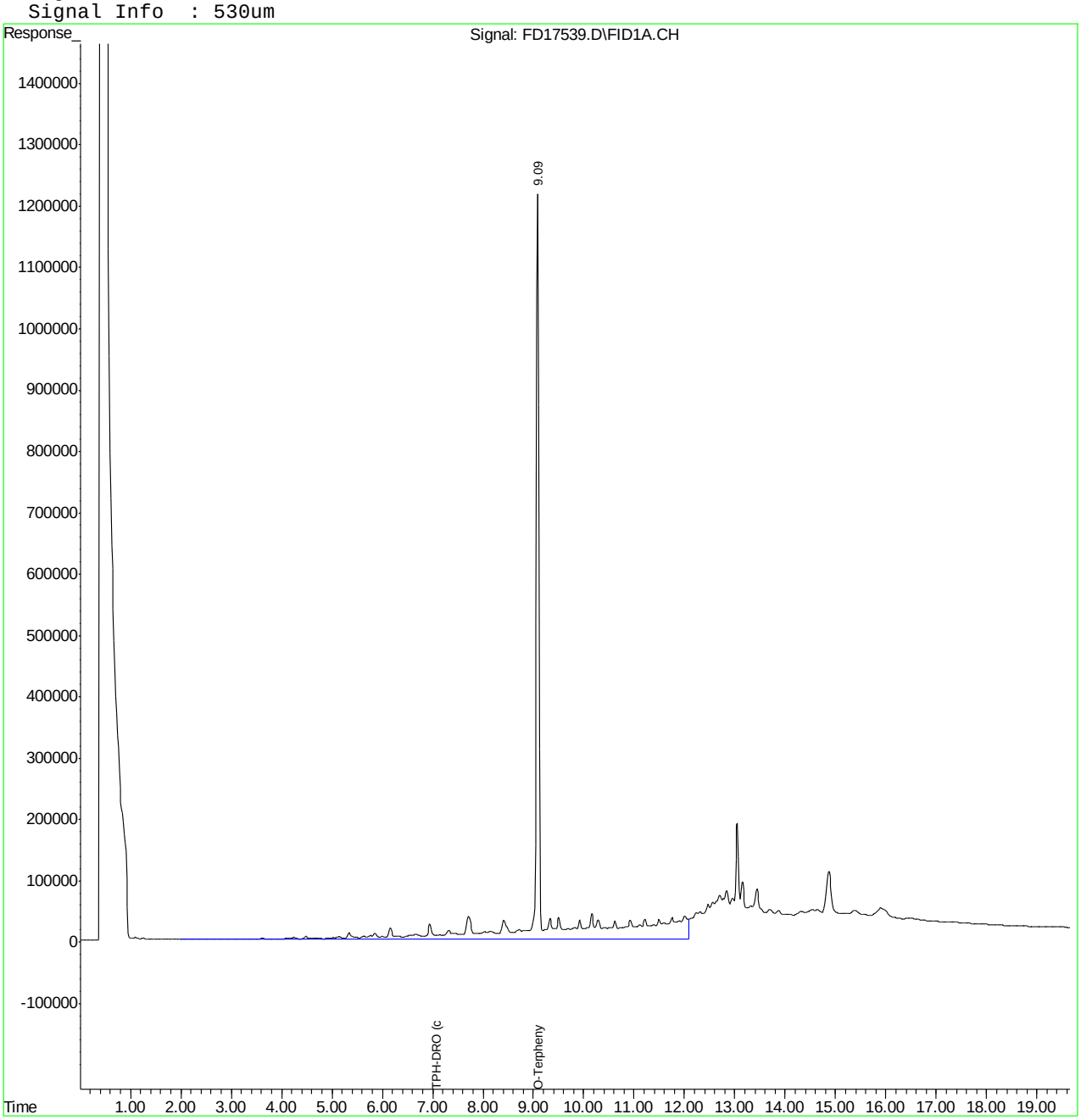
(f)=RT Delta > 1/2 Window (m)=manual int.
FD17539.D DRO-GFD823F.M Wed Sep 19 08:56:39 2012 GC Page 1

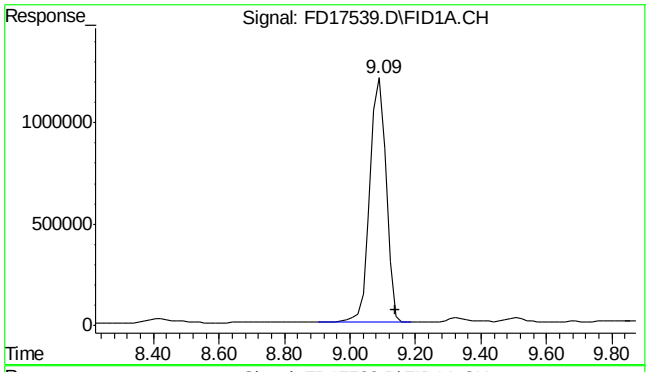
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\SEPTEMBER\FD091812\FD17539.D Vial: 4
Acq On : 18 Sep 2012 12:28 pm Operator: alexw1
Sample : D38644-1 Inst : FID5
Misc : OP6631,GFD898,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Sep 19 8:26 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

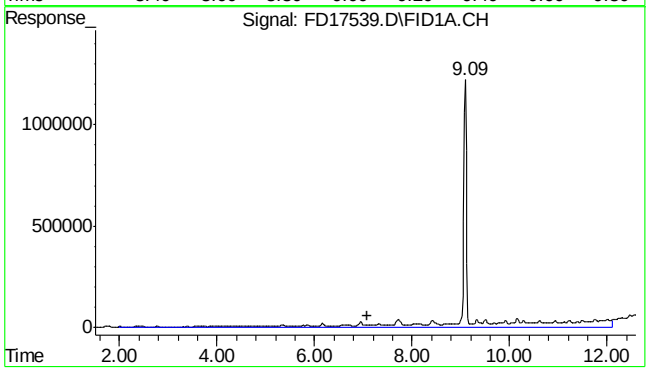
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.094 min
Delta R.T.: -0.046 min
Response: 41512108
Conc: 878.78 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 7.075 min
Delta R.T.: 0.000 min
Response: 67295989
Conc: 1747.71 mg/L m

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\SEPTEMBER\FD091412\FD17445.D Vial: 3
Acq On : 9-14-2012 04:56:11 PM Operator: alexw1
Sample : OP6631-MB Inst : FID5
Misc : OP6631,GFD894,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Sep 17 08:37:56 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	9.12	42000753	889.121	mg/L
	Target Compounds				
2) H	TPH-DRO (c10-c28)	7.08	914056	23.738	mg/L

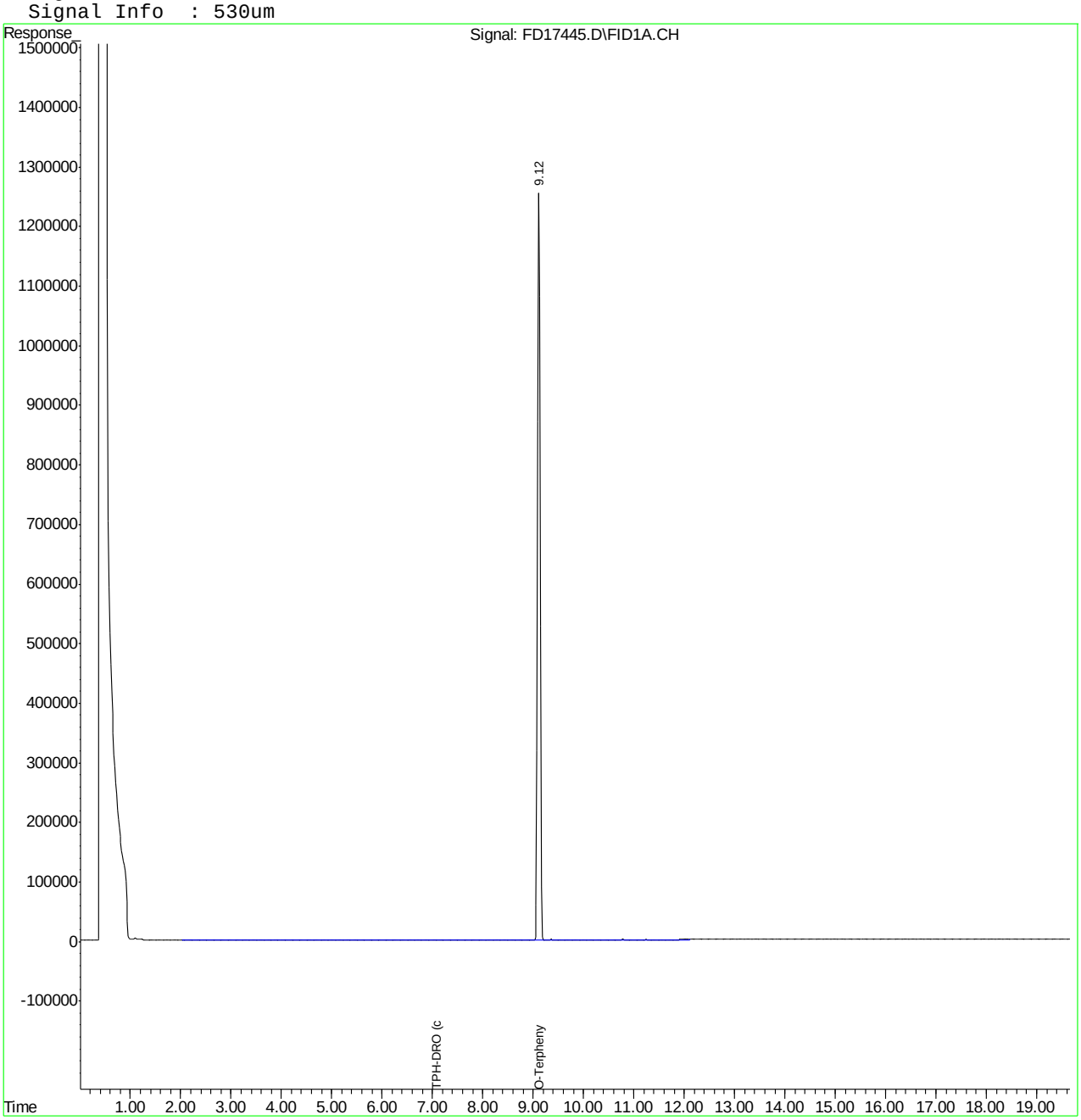
(f)=RT Delta > 1/2 Window (m)=manual int.

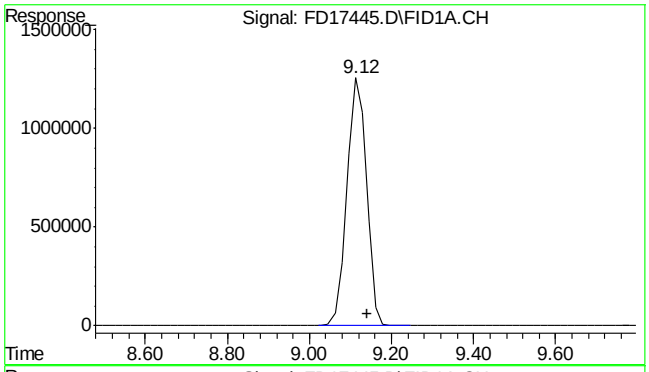
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\SEPTEMBER\FD091412\FD17445.D Vial: 3
Acq On : 9-14-2012 04:56:11 PM Operator: alexw1
Sample : OP6631-MB Inst : FID5
Misc : OP6631,GFD894,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Sep 17 8:37 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

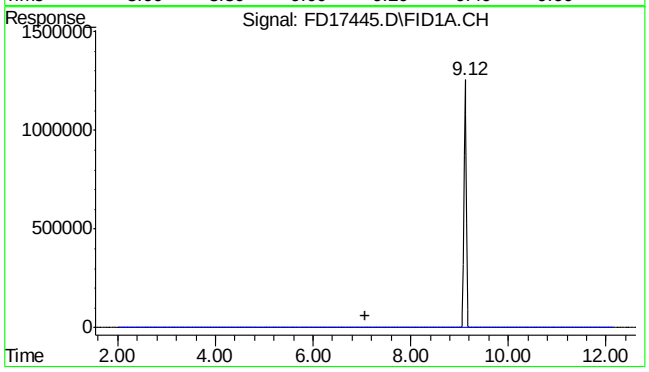
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.122 min
Delta R.T.: -0.018 min
Response: 42000753
Conc: 889.12 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 7.075 min
Delta R.T.: 0.000 min
Response: 914056
Conc: 23.74 mg/L m

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: D38644
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: D38644-1

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: D38644
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: D38644-1

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: D38644
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: D38644-1

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: D38644
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: D38644-1

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: D38644
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: D38644-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D38644
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: D38644
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: D38644-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D38644
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: D38644
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: D38644-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D38644
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: D38644
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: D38644-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D38644
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: D38644
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: D38644-1A

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D38644
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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D38644
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8410
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 09/17/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	2.1	.57		
Antimony	3.0	.36	.12		
Arsenic	2.5	.54	.56		
Barium	1.0	.08	.11	0.25	<1.0
Beryllium	1.0	.13	.15		
Boron	5.0	.43	.06		
Cadmium	1.0	.06	.036	0.0	<1.0
Calcium	40	.84	9		
Chromium	1.0	.03	.03	0.020	<1.0
Cobalt	0.50	.04	.07		
Copper	1.0	.12	.15	0.060	<1.0
Iron	7.0	.19	.87		
Lead	5.0	.24	.24	-0.25	<5.0
Lithium	0.20	.28	.054		
Magnesium	20	2.2	.98		
Manganese	0.50	.12	.022		
Molybdenum	1.0	.21	.08		
Nickel	3.0	.05	.026	0.0	<3.0
Potassium	200	15	7		
Selenium	5.0	.61	.36	-0.060	<5.0
Silicon	5.0	.65	.37		
Silver	3.0	.05	.06	0.0	<3.0
Sodium	40	2.1	1.9		
Strontium	5.0	.02	.017		
Thallium	1.0	.29	.53		
Tin	5.0	1.2	2		
Titanium	1.0	.01	.038		
Uranium	5.0	.46	.26		
Vanadium	1.0	.03	.036		
Zinc	3.0	.08	.37	0.33	<3.0

Associated samples MP8410: D38644-1

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: D38644
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8410
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 09/17/12

Metal	D38578-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr				
Antimony	anr				
Barium	3630	3940	285	108.9	75-125
Beryllium	anr				
Boron					
Cadmium	0.39	57.1	71.2	79.7	75-125
Calcium					
Chromium	45.4	99.8	71.2	76.4	75-125
Copper	110	176	71.2	92.7	75-125
Iron	anr				
Lead	26.8	141	142	80.2	75-125
Lithium					
Magnesium	anr				
Manganese	anr				
Molybdenum	anr				
Nickel	31.9	83.7	71.2	72.8N(a)	75-125
Potassium					
Selenium	4.9	124	142	83.6	75-125
Silicon					
Silver	0.0	26.1	28.5	91.6	75-125
Sodium					
Strontium					
Tin					
Titanium					
Zinc	63.1	114	71.2	71.5N(b)	75-125

Associated samples MP8410: D38644-1

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.
(b) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D38644
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8410 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date: 09/17/12

Metal	D38578-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Barium	3630	3980	268	130.5(a)	1.0	20
Beryllium	anr					
Boron						
Cadmium	0.39	52.8	67	78.2	7.8	20
Calcium						
Chromium	45.4	95.1	67	74.1N(b)	4.8	20
Copper	110	170	67	89.5	3.5	20
Iron	anr					
Lead	26.8	133	134	79.2	5.8	20
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum	anr					
Nickel	31.9	79.3	67	70.7N(c)	5.4	20
Potassium						
Selenium	4.9	116	134	82.8	6.7	20
Silicon						
Silver	0.0	24.2	26.8	90.2	7.6	20
Sodium						
Strontium						
Tin						
Titanium						
Zinc	63.1	110	67	69.9N(b)	3.6	20

Associated samples MP8410: D38644-1

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 amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
(b) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
(c) Spike recovery indicates possible matrix interference.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D38644
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8410
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 09/17/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	185	200	92.5	80-120
Beryllium	anr			
Boron				
Cadmium	44.2	50	88.4	80-120
Calcium				
Chromium	47.9	50	95.8	80-120
Cobalt	anr			
Copper	47.4	50	94.8	80-120
Iron	anr			
Lead	96.7	100	96.7	80-120
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	46.1	50	92.2	80-120
Potassium				
Selenium	95.1	100	95.1	80-120
Silicon				
Silver	19.6	20	98.0	80-120
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium	anr			
Vanadium	anr			
Zinc	47.2	50	94.4	80-120

Associated samples MP8410: D38644-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D38644
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8410
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 09/17/12

Metal	D38578-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Barium	25800	33400	29.5*(a)	0-10
Beryllium	anr			
Boron				
Cadmium	2.80	7.00	150.0(b)	0-10
Calcium				
Chromium	322	388	20.5*(a)	0-10
Copper	783	810	3.4	0-10
Iron	anr			
Lead	190	239	25.3*(a)	0-10
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	226	279	23.2*(a)	0-10
Potassium				
Selenium	34.6	0.00	100.0(b)	0-10
Silicon				
Silver	0.00	0.00	NC	0-10
Sodium				
Strontium				
Tin				
Titanium				
Zinc	448	568	26.7*(a)	0-10

Associated samples MP8410: D38644-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D38644
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8411
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 09/17/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.006	.06	0.011	<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 MP8411: D38644-1

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: D38644
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8411
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 09/17/12

Metal	D38578-1 Original	MS	Spikelot ICPALL3	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	11.8	144	142	92.8	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 MP8411: D38644-1

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: D38644
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8411 Methods: SW846 6020A
Matrix Type: SOLID Units: mg/kg

Prep Date: 09/17/12

Metal	D38578-1 Original	MSD	Spikelot ICPALL3	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	11.8	126	134	85.2	13.3	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 MP8411: D38644-1

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: D38644
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8411
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 09/17/12

Metal	BSP Result	Spikelot ICPALL3	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	107	100	107.0	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 MP8411: D38644-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D38644
Account: XTOKRWR - XTO Energy
Project: T78X-12G

QC Batch ID: MP8411 Methods: SW846 6020A
Matrix Type: SOLID Units: ug/l

Prep Date: 09/17/12

Metal	D38578-1 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	83.5	97.5	16.8*(a)	0-10
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8411: D38644-1

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

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: D38644
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	GN16750			su	8.00	7.97	99.6	99.3-100.7%

Associated Samples:
Batch GP8183: D38644-1
Batch GP8197: D38644-1
Batch GN16750: D38644-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D38644
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	GN16746	D38661-1	mv	68.1	61.6	10.0	0-20%

Associated Samples:
Batch GP8197: D38644-1
Batch GN16746: D38644-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D38644
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: D38644-1
(*) 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: D38644
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: D38644-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits