Mountain States ACCUTEST LABORATORIES

11/27/12

Technical Report for

XTO Energy

NPU 197-19B

1202-08

Accutest Job Number: D41013

Sampling Date: 11/14/12

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: **146**

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: D41013

NPU 197-19B
Project No: 1202-08

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
D41013-1	11/14/12	12:00	DS	11/16/12	SO	Soil	CUTTINGS SUBLINER (COMP)
D41013-1A	11/14/12	12:00	DS	11/16/12	SO	Soil	CUTTINGS SUBLINER (COMP)

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	XTO Energy	**Job No**	D41013
Site:	NPU 197-19B	**Report Date**	11/27/2012 2:15:05 PM

On 11/16/2012, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2.7 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D41013 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:** V5V1506

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41036-1MS, D41036-1MSD were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO **Batch ID:** OP6988

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) D41014-1MS, D41014-1MSD 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:** GGB1010

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41015-1MS, D41015-1MSD were used as the QC samples indicated.

Extractables by GC By Method SW846-8015B

Matrix SO **Batch ID:** OP6979

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41044-9MS, D41044-9MSD were used as the QC samples indicated.

Metals By Method SW846 6010C

Matrix	AQ	Batch ID:	MP8915

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41042-1AMS, D41042-1AMSD, D41042-1ASDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Magnesium, Sodium are outside control limits for sample MP8915-SD1. Probable cause due to sample homogeneity.
- MP8915-SD1 for Magnesium: Serial dilution indicates possible matrix interference.
- MP8915-SD1 for Sodium: Serial dilution indicates possible matrix interference.

Matrix	SO	Batch ID:	MP8913

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41013-1MS, D41013-1MSD, D41013-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Nickel, Silver are outside control limits. Spike recovery indicates possible matrix interference.
- The matrix spike duplicate (MSD) recovery(s) of Chromium, Nickel, Silver are outside control limits. Probable cause due to matrix interference.
- The matrix spike (MS) recovery(s) of Barium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The serial dilution RPD(s) for Selenium, Silver, Barium, Chromium, Nickel, Zinc are outside control limits for sample MP8913-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP8913-SD1 for Nickel: Serial dilution indicates possible matrix interference.
- MP8913-SD1 for Chromium: Serial dilution indicates possible matrix interference.
- MP8913-SD1 for Barium: Serial dilution indicates possible matrix interference.
- MP8913-SD1 for Zinc: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix	SO	Batch ID:	MP8914

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41013-1MS, D41013-1MSD, D41013-1SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471B

Matrix	SO	Batch ID:	MP8936

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D40988-1MS, D40988-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix	SO	Batch ID:	GN17722

- Sample(s) D41014-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix	SO	Batch ID:	GN17724

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix	SO	Batch ID:	R15198

- The data for SW846 3060/7196A M meets quality control requirements.
- D41013-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix	SO	Batch ID:	GP8709

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D40985-1DUP, D40985-1MS, D40985-1MSD were used as the QC samples for the Chromium, Hexavalent analysis.

Wet Chemistry By Method SW846 9045D

Matrix	SO	Batch ID:	GN17719

- The following samples were run outside of holding time for method SW846 9045D: D41013-1

Wet Chemistry By Method USDA HANDBOOK 60

Matrix	SO	Batch ID:	MP8915

- D41013-1A 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: D41013
Account: XTO Energy
Project: NPU 197-19B
Collected: 11/14/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D41013-1	**CUTTINGS SUBLINER (COMP)**					
Benzo(b)fluoranthene		0.0073 J	0.010	0.0052	mg/kg	SW846 8270C BY SIM
Fluorene		0.0083 J	0.010	0.0052	mg/kg	SW846 8270C BY SIM
Naphthalene		0.0313	0.014	0.012	mg/kg	SW846 8270C BY SIM
TPH-DRO (C10-C28)		10.9 J	16	10	mg/kg	SW846-8015B
Arsenic		8.1	0.12		mg/kg	SW846 6020A
Barium		1000	1.2		mg/kg	SW846 6010C
Chromium		34.1	1.2		mg/kg	SW846 6010C
Copper		12.6	1.2		mg/kg	SW846 6010C
Lead		11.5	6.1		mg/kg	SW846 6010C
Nickel		17.5	3.7		mg/kg	SW846 6010C
Zinc		46.7	3.7		mg/kg	SW846 6010C
Specific Conductivity		538	1.0		umhos/cm	SM2510B-1997 MOD
Chromium, Trivalent [a]		34.1	2.2		mg/kg	SW846 3060/7196A M
Redox Potential Vs H2		88.7			mv	ASTM D1498-76M
pH		9.83			su	SW846 9045D
D41013-1A	**CUTTINGS SUBLINER (COMP)**					
Calcium		16.1	2.0		mg/l	SW846 6010C
Magnesium		8.08	1.0		mg/l	SW846 6010C
Sodium		92.4	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio [b]		4.69			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: CUTTINGS SUBLINER (COMP)
Lab Sample ID: D41013-1
Matrix: SO - Soil
Method: SW846 8260B
Project: NPU 197-19B

Date Sampled: 11/14/12
Date Received: 11/16/12
Percent Solids: 82.9

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V24679.D	1	11/19/12	BD	n/a	n/a	V5V1506
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.01 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	102%		64-130%
460-00-4	4-Bromofluorobenzene	98%		62-131%
17060-07-0	1,2-Dichloroethane-D4	95%		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:	CUTTINGS SUBLINER (COMP)		
Lab Sample ID:	D41013-1	**Date Sampled:**	11/14/12
Matrix:	SO - Soil	**Date Received:**	11/16/12
Method:	SW846 8270C BY SIM SW846 3546	**Percent Solids:**	82.9
Project:	NPU 197-19B		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G12234.D	1	11/26/12	SM	11/20/12	OP6988	E3G577
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 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	
205-99-2	Benzo(b)fluoranthene	0.0073	0.010	0.0052	mg/kg	J
207-08-9	Benzo(k)fluoranthene	ND	0.010	0.0052	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.010	0.0052	mg/kg	
218-01-9	Chrysene	ND	0.010	0.0052	mg/kg	
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	0.0083	0.010	0.0052	mg/kg	J
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.010	0.0052	mg/kg	
91-20-3	Naphthalene	0.0313	0.014	0.012	mg/kg	
129-00-0	Pyrene	ND	0.010	0.0052	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	79%		10-159%
321-60-8	2-Fluorobiphenyl	81%		19-131%
1718-51-0	Terphenyl-d14	78%		18-150%

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: CUTTINGS SUBLINER (COMP)
Lab Sample ID: D41013-1
Matrix: SO - Soil
Method: SW846 8015B
Project: NPU 197-19B

Date Sampled: 11/14/12
Date Received: 11/16/12
Percent Solids: 82.9

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB18506.D	1	11/16/12	SK	n/a	n/a	GGB1010
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	96%		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: CUTTINGS SUBLINER (COMP)
Lab Sample ID: D41013-1
Matrix: SO - Soil
Method: SW846-8015B SW846 3546
Project: NPU 197-19B

Date Sampled: 11/14/12
Date Received: 11/16/12
Percent Solids: 82.9

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD19689.D	1	11/19/12	AV	11/19/12	OP6979	GFD990
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	10.9	16	10	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	79%		35-130%

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

Report of Analysis

Client Sample ID: CUTTINGS SUBLINER (COMP)
Lab Sample ID: D41013-1
Matrix: SO - Soil
Project: NPU 197-19B

Date Sampled: 11/14/12
Date Received: 11/16/12
Percent Solids: 82.9

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	8.1	0.12	mg/kg	5	11/19/12	11/26/12	JB	SW846 6020A [2]	SW846 3050B [5]
Barium	1000	1.2	mg/kg	1	11/19/12	11/19/12	JM	SW846 6010C [1]	SW846 3050B [4]
Cadmium	< 1.2	1.2	mg/kg	1	11/19/12	11/19/12	JM	SW846 6010C [1]	SW846 3050B [4]
Chromium	34.1	1.2	mg/kg	1	11/19/12	11/19/12	JM	SW846 6010C [1]	SW846 3050B [4]
Copper	12.6	1.2	mg/kg	1	11/19/12	11/19/12	JM	SW846 6010C [1]	SW846 3050B [4]
Lead	11.5	6.1	mg/kg	1	11/19/12	11/19/12	JM	SW846 6010C [1]	SW846 3050B [4]
Mercury	< 0.10	0.10	mg/kg	1	11/27/12	11/27/12	JM	SW846 7471B [3]	SW846 7471B [6]
Nickel	17.5	3.7	mg/kg	1	11/19/12	11/19/12	JM	SW846 6010C [1]	SW846 3050B [4]
Selenium	< 6.1	6.1	mg/kg	1	11/19/12	11/19/12	JM	SW846 6010C [1]	SW846 3050B [4]
Silver	< 3.7	3.7	mg/kg	1	11/19/12	11/19/12	JM	SW846 6010C [1]	SW846 3050B [4]
Zinc	46.7	3.7	mg/kg	1	11/19/12	11/19/12	JM	SW846 6010C [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA3012
(2) Instrument QC Batch: MA3019
(3) Instrument QC Batch: MA3023
(4) Prep QC Batch: MP8913
(5) Prep QC Batch: MP8914
(6) Prep QC Batch: MP8936

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUTTINGS SUBLINER (COMP)
Lab Sample ID: D41013-1
Matrix: SO - Soil
Project: NPU 197-19B

Date Sampled: 11/14/12
Date Received: 11/16/12
Percent Solids: 82.9

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	538	1.0	umhos/cm	1	11/19/12	JD	SM2510B-1997 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	11/19/12	KB	SW846 3060A/7196A
Chromium, Trivalent [a]	34.1	2.2	mg/kg	1	11/19/12 16:23	JM	SW846 3060/7196A M
Redox Potential Vs H2	88.7		mv	1	11/16/12	CT	ASTM D1498-76M
Solids, Percent	82.9		%	1	11/19/12	SWT	SM19 2540B M
pH	9.83		su	1	11/16/12 15:45	JD	SW846 9045D

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUTTINGS SUBLINER (COMP)
Lab Sample ID: D41013-1A
Matrix: SO - Soil
Project: NPU 197-19B

Date Sampled: 11/14/12
Date Received: 11/16/12
Percent Solids: 82.9

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	16.1	2.0	mg/l	1	11/19/12	11/19/12	JM	SW846 6010C [1]	SW846 3010A/M [2]
Magnesium	8.08	1.0	mg/l	1	11/19/12	11/19/12	JM	SW846 6010C [1]	SW846 3010A/M [2]
Sodium	92.4	2.0	mg/l	1	11/19/12	11/19/12	JM	SW846 6010C [1]	SW846 3010A/M [2]

(1) Instrument QC Batch: MA3012
(2) Prep QC Batch: MP8915

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUTTINGS SUBLINER (COMP)		
Lab Sample ID:	D41013-1A	**Date Sampled:**	11/14/12
Matrix:	SO - Soil	**Date Received:**	11/16/12
		Percent Solids:	82.9
Project:	NPU 197-19B		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	4.69		ratio	1	11/19/12 15:26	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

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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 #: D41013

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 NPU 197-19B
Street:
City: State:
Project #: 1202-08
Client Purchase Order #:
Project Manager: Joe Hess

Billing Information (If different from Report to)

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

Requested Analysis (see TEST CODE sheet): T-910

Matrix Codes: DW - Drinking Water, GW - Ground Water, WW - Water, SW - Surface Water, SO - Soil, SL- Sludge, SED-Sediment, OI - Oil, LIQ - Other Liquid, AIR - Air, SOL - Other Solid, WP - Wipe, FB-Field Blank, EB-Equipment Blank, RB- Rinse Blank, TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfate	T-910	LAB USE ONLY
	CUTTINGS SUBLINER (COMP)		11-14-12	12:00	DS	SO	5					X					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 Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

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

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

Comments / Special Instructions

Please email to: KRW Piceance Team

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

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 Lori Albinson	11/15/12 12:00	1 Rifle Service Center	2		2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	11/16/12 13:00	Received By: 4 [signature]
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # HDCO	☐ Intact ☐ Not intact	Preserved where applicable ☒ On Ice ☒ Cooler Temp. 2.7°C

D41013: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D41013 **Client:** KRW CONSULTING **Immediate Client Services Action Required:** No

Date / Time Received: 11/16/2012 1:00:00 PM **No. Coolers:** 1 **Client Service Action Required at Login:** No

Project: XTO NPU 197-19B **Airbill #'s:** HDCO

Cooler Security

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

Cooler Temperature

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

Quality Control Preservation

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

Sample Integrity - Documentation

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

Sample Integrity - Condition

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

Sample Integrity - Instructions

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

Comments

Accutest Laboratories
V:(303) 425-6021
4036 Youngfield Street
F: (303) 425-6854
Wheat Ridge, CO
www/accutest.com

5.1

5

D41013: 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: D41013
Account: XTOKRWR XTO Energy
Project: NPU 197-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1506-MB	5V24673.D	1	11/19/12	BD	n/a	n/a	V5V1506

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

D41013-1

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	101%	64-130%
460-00-4	4-Bromofluorobenzene	93%	62-131%
17060-07-0	1,2-Dichloroethane-D4	95%	70-130%

Blank Spike Summary

Job Number: D41013
Account: XTOKRWR XTO Energy
Project: NPU 197-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1506-BS	5V24674.D	1	11/19/12	BD	n/a	n/a	V5V1506

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

D41013-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	54.0	108	70-130
100-41-4	Ethylbenzene	50	54.2	108	70-130
108-88-3	Toluene	50	53.2	106	70-130
1330-20-7	Xylene (total)	150	168	112	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	100%	64-130%
460-00-4	4-Bromofluorobenzene	98%	62-131%
17060-07-0	1,2-Dichloroethane-D4	96%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D41013
Account: XTOKRWR XTO Energy
Project: NPU 197-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D41036-1MS	5V24676.D	1	11/19/12	BD	n/a	n/a	V5V1506
D41036-1MSD	5V24677.D	1	11/19/12	BD	n/a	n/a	V5V1506
D41036-1	5V24675.D	1	11/19/12	BD	n/a	n/a	V5V1506

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

D41013-1

CAS No.	Compound	D41036-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	702		5720	6570	103	6760	106	3	64-139/30
100-41-4	Ethylbenzene	2750		5720	8410	99	8720	104	4	68-136/30
108-88-3	Toluene	2340		5720	7850	96	7970	98	2	60-130/30
1330-20-7	Xylene (total)	21000		17200	35900	87	37500	96	4	58-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D41036-1	Limits
2037-26-5	Toluene-D8	99%	98%	100%	64-130%
460-00-4	4-Bromofluorobenzene	105%	108%	103%	62-131%
17060-07-0	1,2-Dichloroethane-D4	97%	98%	95%	70-130%

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 11/20/12 12:37

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5111912.S\
Data File : 5V24679.D
Acq On : 19 Nov 2012 4:01 pm
Operator : BRETD
Sample : D41013-1
Misc : MS4990,V5V1506,5.007,,100,5,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 20 08:54:52 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1497TVH1497.M
Quant Title : 8260
QLast Update : Wed Nov 14 09:54:38 2012
Response via : Initial Calibration

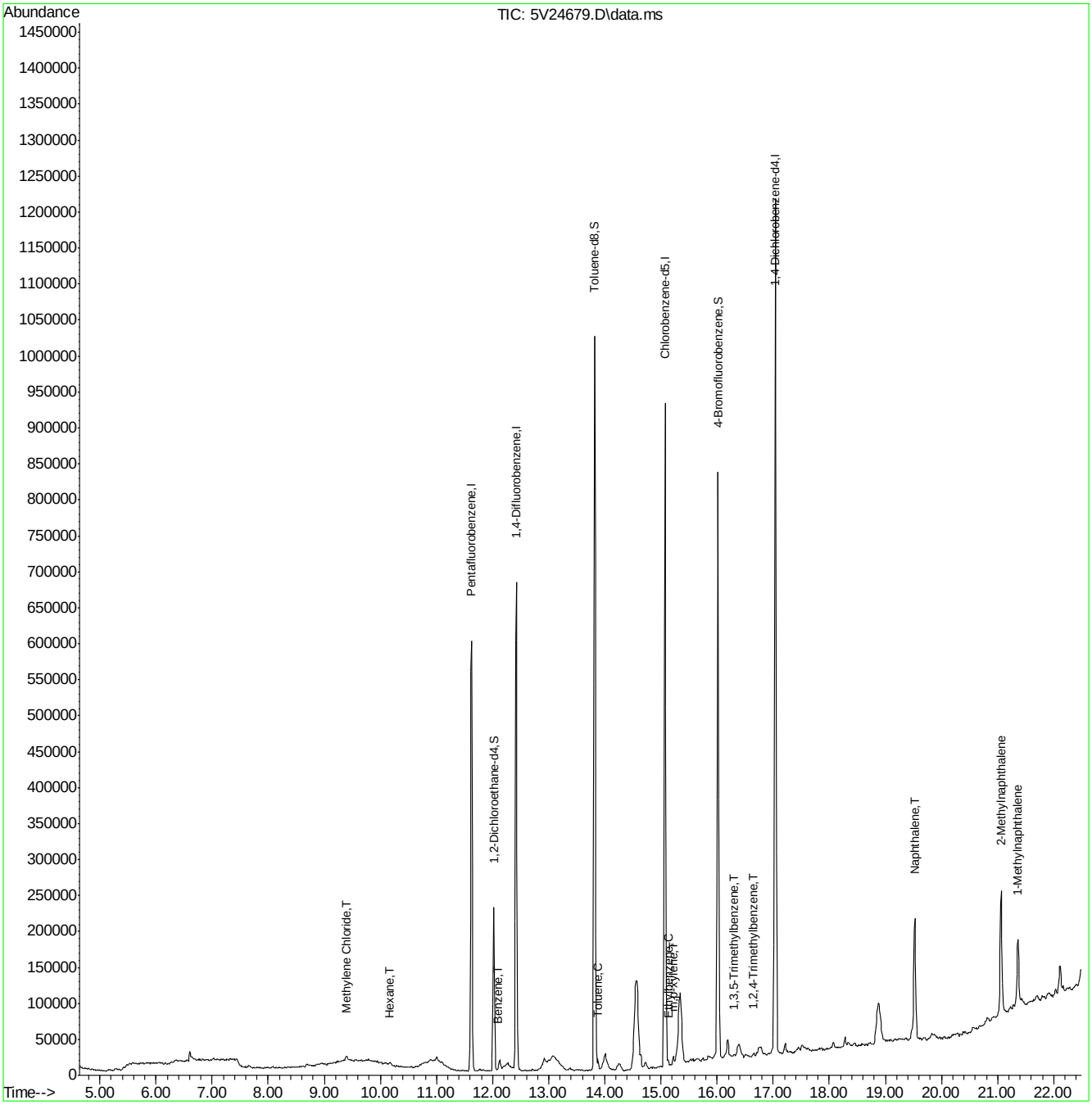
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.624	168	484309	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.423	114	599521	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.072	117	552244	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.036	152	406319	50.00	ug/l	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.024	102	39315	47.69	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 95.38%			
61) Toluene-d8	13.816	98	667035	50.99	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 101.98%			
69) 4-Bromofluorobenzene	16.020	95	276568	49.05	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 98.10%			
Target Compounds						Qvalue
17) Methylene Chloride	9.386	84	2060	0.47	ug/l	89
41) Hexane	10.163	57	1063	0.20	ug/l	100
50) Benzene	12.092	78	3228	0.20	ug/l	100
62) Toluene	13.885	92	4931	0.48	ug/l	100
66) Ethylbenzene	15.141	91	2887m	0.15	ug/l	
72) m,p-xylene	15.220	106	3161	0.40	ug/l #	73
80) 1,3,5-Trimethylbenzene	16.305	105	1317m	0.07	ug/l	
82) 1,2,4-Trimethylbenzene	16.648	105	3781	0.20	ug/l	89
91) Naphthalene	19.525	128	216086	10.73	ug/l	100
94) 2-Methylnaphthalene	21.066	142	135196	15.92	ug/l	97
95) 1-Methylnaphthalene	21.363	142	73587	7.95	ug/l	96

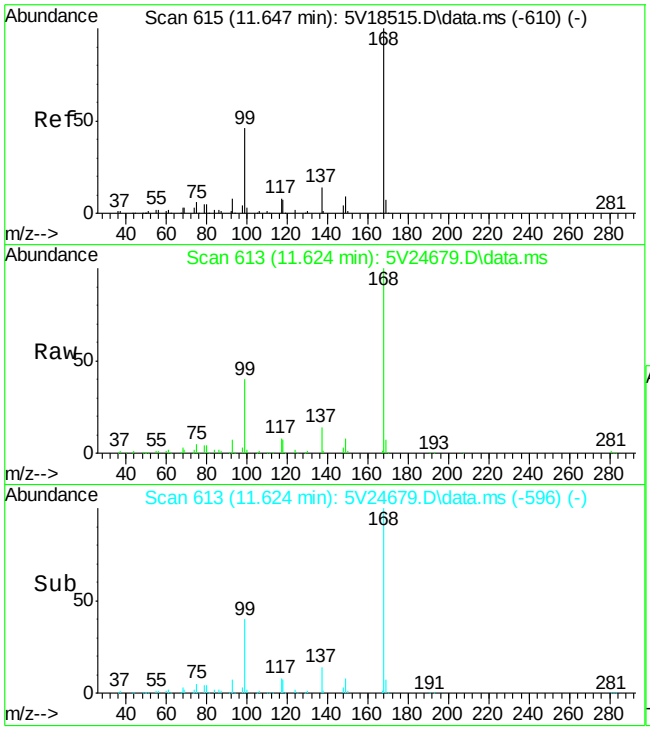
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5111912.S\
Data File : 5V24679.D
Acq On : 19 Nov 2012 4:01 pm
Operator : BRETD
Sample : D41013-1
Misc : MS4990,V5V1506,5.007,,100,5,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 20 08:54:52 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1497TVH1497.M
Quant Title : 8260
QLast Update : Wed Nov 14 09:54:38 2012
Response via : Initial Calibration

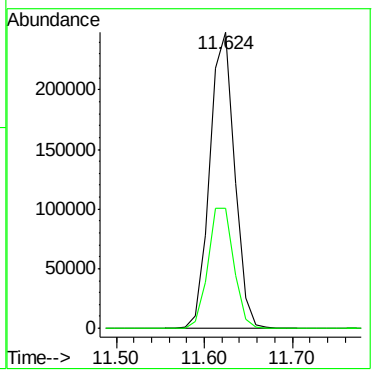


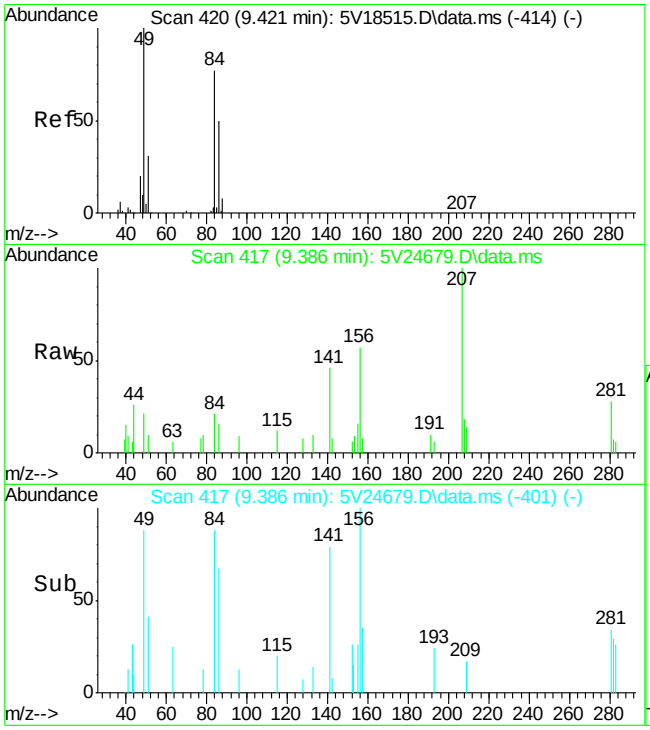


#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.624 min Scan# 613
Delta R.T. -0.000 min
Lab File: 5V24679.D
Acq: 19 Nov 2012 4:01 pm

Tgt Ion:168 Resp: 484309

Ion	Ratio	Lower	Upper
168	100		
99	42.4	37.4	56.2

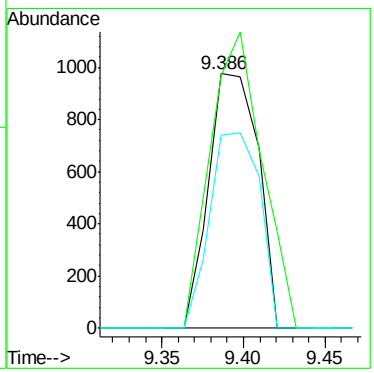


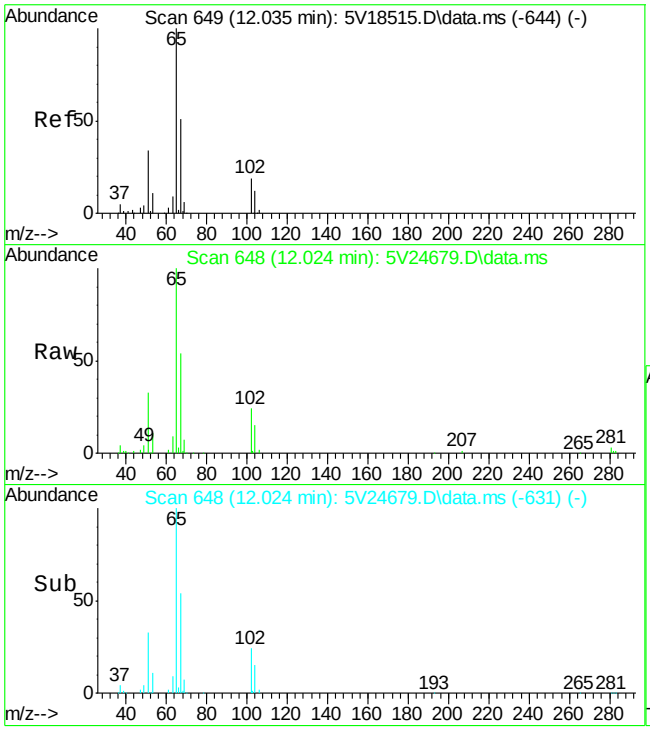


#17
Methylene Chloride
Concen: 0.47 ug/l
RT: 9.386 min Scan# 417
Delta R.T. -0.012 min
Lab File: 5V24679.D
Acq: 19 Nov 2012 4:01 pm

Tgt Ion: 84 Resp: 2060

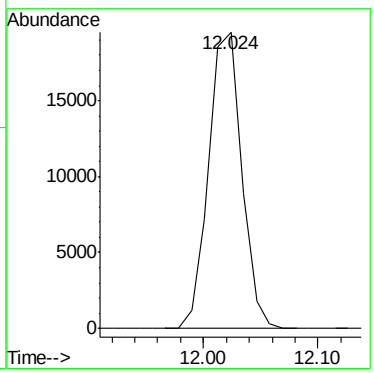
Ion	Ratio	Lower	Upper
84	100		
49	121.6	110.4	150.4
86	77.5	44.0	84.0

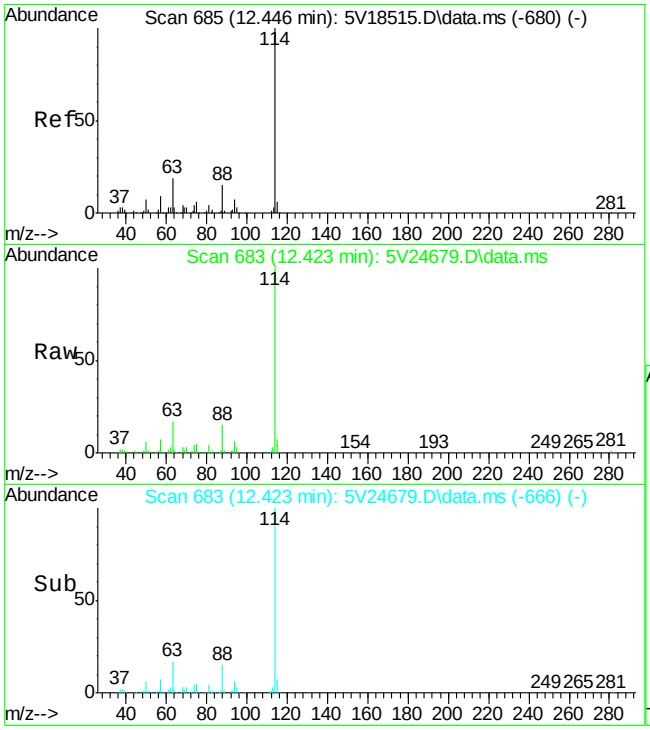




#33
1,2-Dichloroethane-d4
Concen: 47.69 ug/l
RT: 12.024 min Scan# 648
Delta R.T. -0.000 min
Lab File: 5V24679.D
Acq: 19 Nov 2012 4:01 pm

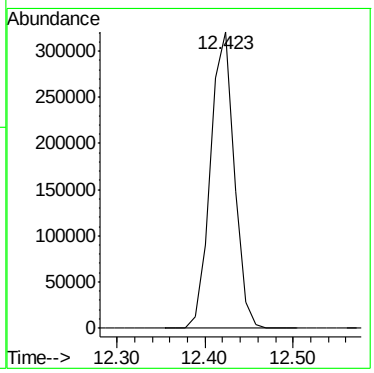
Tgt Ion:102 Resp: 39315

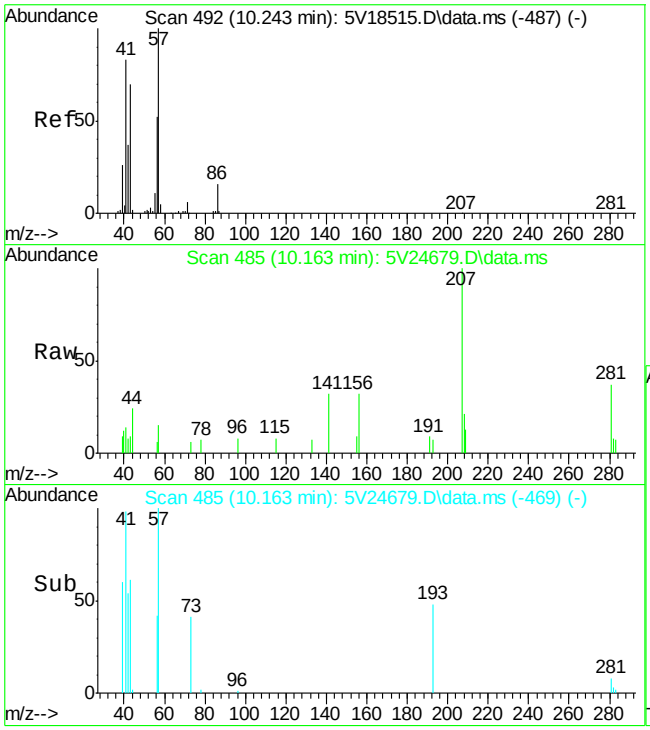




#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.423 min Scan# 683
Delta R.T. -0.000 min
Lab File: 5V24679.D
Acq: 19 Nov 2012 4:01 pm

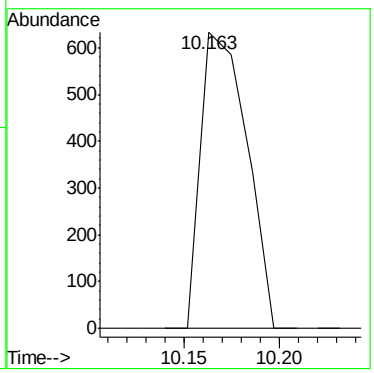
Tgt Ion:114 Resp: 599521

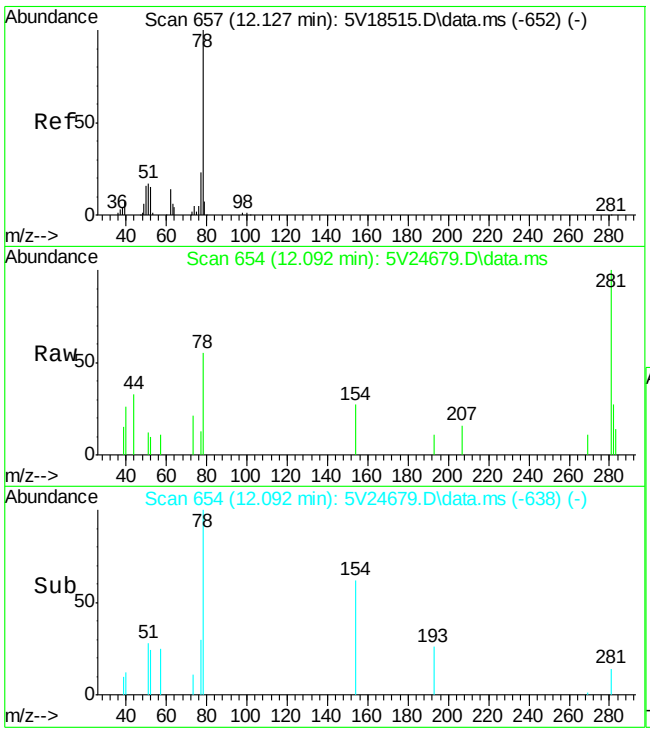




#41
Hexane
Concen: 0.20 ug/l
RT: 10.163 min Scan# 485
Delta R.T. -0.012 min
Lab File: 5V24679.D
Acq: 19 Nov 2012 4:01 pm

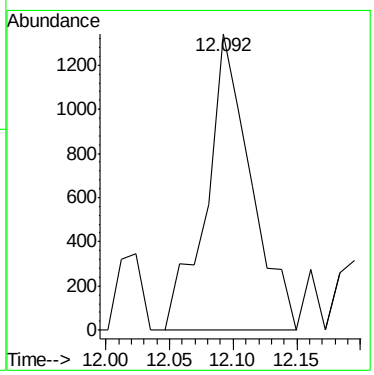
Tgt Ion: 57 Resp: 1063

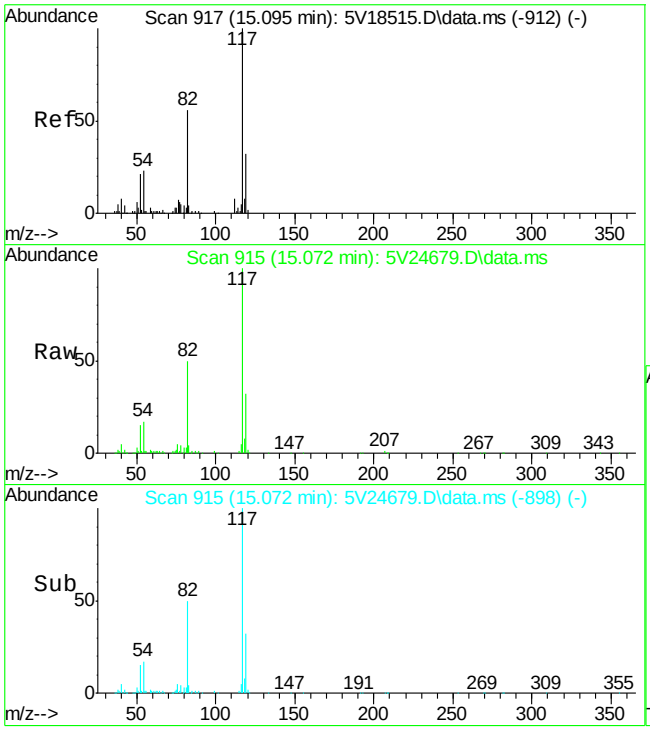




#50
Benzene
Concen: 0.20 ug/l
RT: 12.092 min Scan# 654
Delta R.T. -0.012 min
Lab File: 5V24679.D
Acq: 19 Nov 2012 4:01 pm

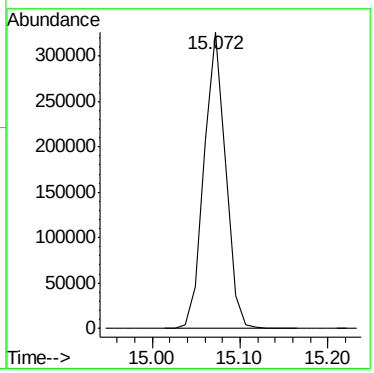
Tgt Ion: 78 Resp: 3228

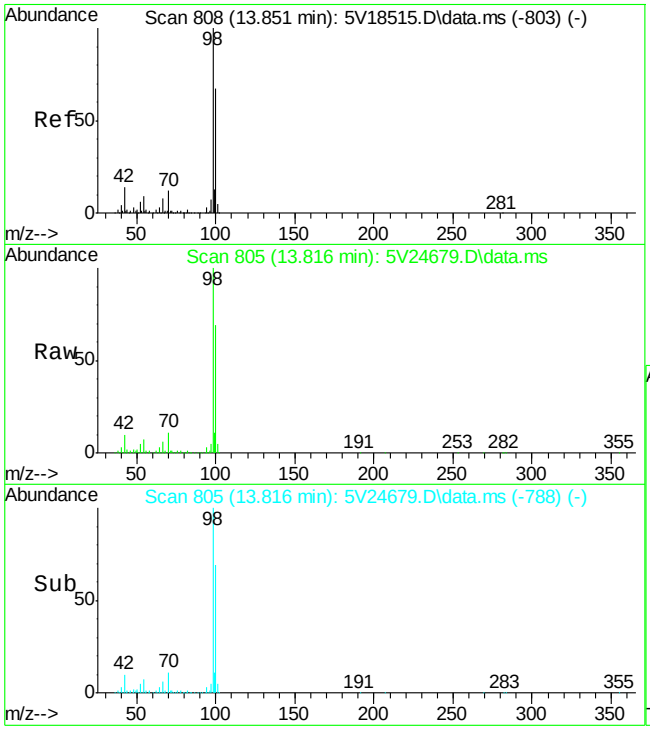




#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.072 min Scan# 915
Delta R.T. -0.000 min
Lab File: 5V24679.D
Acq: 19 Nov 2012 4:01 pm

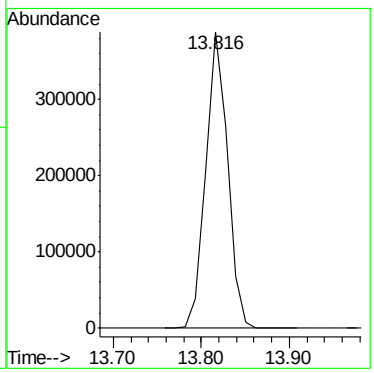
Tgt Ion:117 Resp: 552244

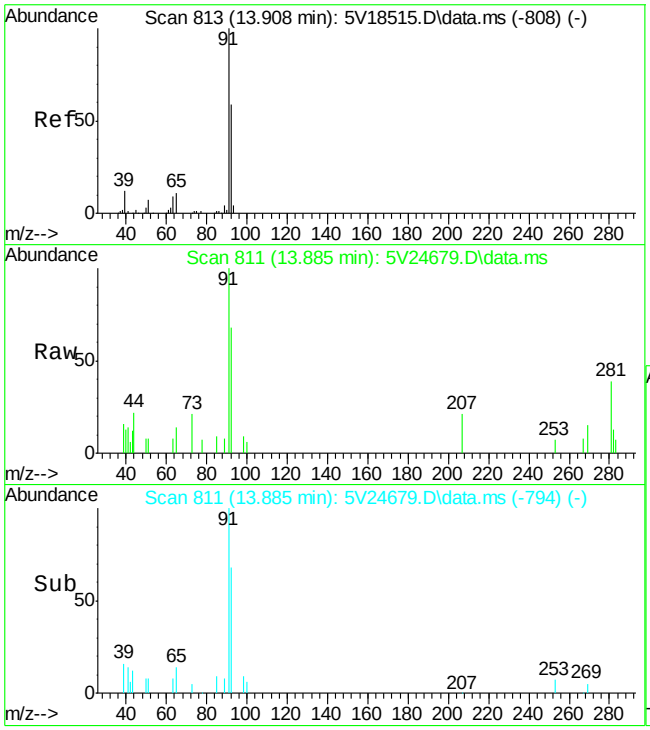




#61
Toluene-d8
Concen: 50.99 ug/l
RT: 13.816 min Scan# 805
Delta R.T. -0.000 min
Lab File: 5V24679.D
Acq: 19 Nov 2012 4:01 pm

Tgt Ion: 98 Resp: 667035

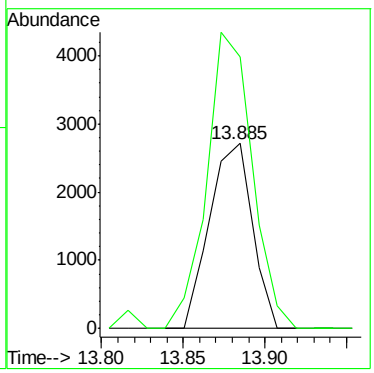


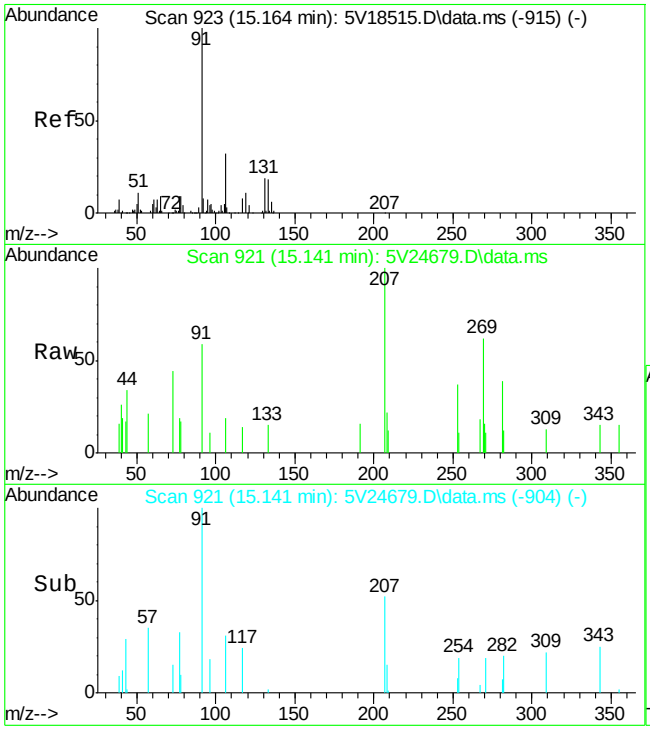


#62
Toluene
Concen: 0.48 ug/l
RT: 13.885 min Scan# 811
Delta R.T. -0.000 min
Lab File: 5V24679.D
Acq: 19 Nov 2012 4:01 pm

Tgt Ion: 92 Resp: 4931

Ion	Ratio	Lower	Upper
92	100		
91	170.1	149.8	189.8

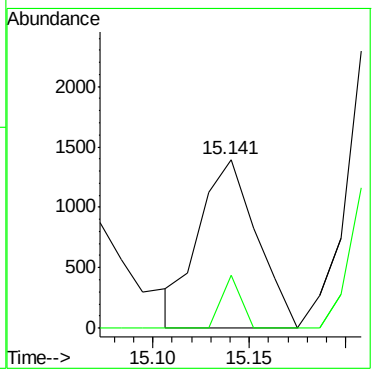


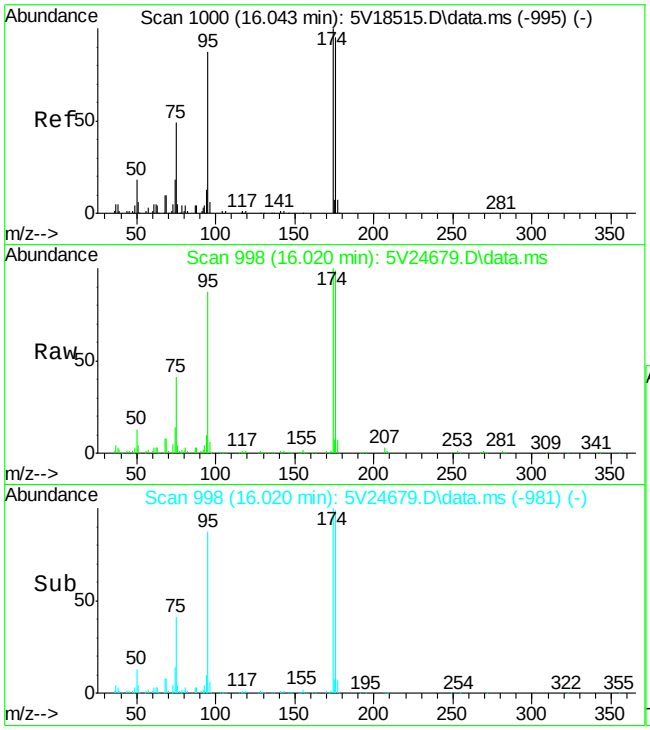


#66
Ethylbenzene
Concen: 0.15 ug/l m
RT: 15.141 min Scan# 921
Delta R.T. -0.000 min
Lab File: 5V24679.D
Acq: 19 Nov 2012 4:01 pm

Tgt Ion: 91 Resp: 2887

Ion	Ratio	Lower	Upper
91	100		
106	109.5	11.7	51.7#

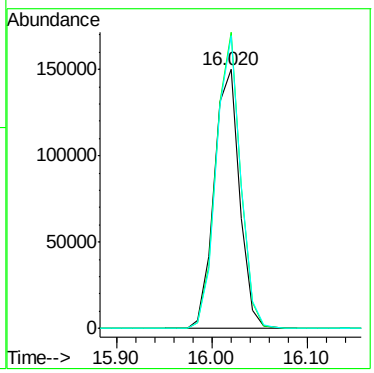


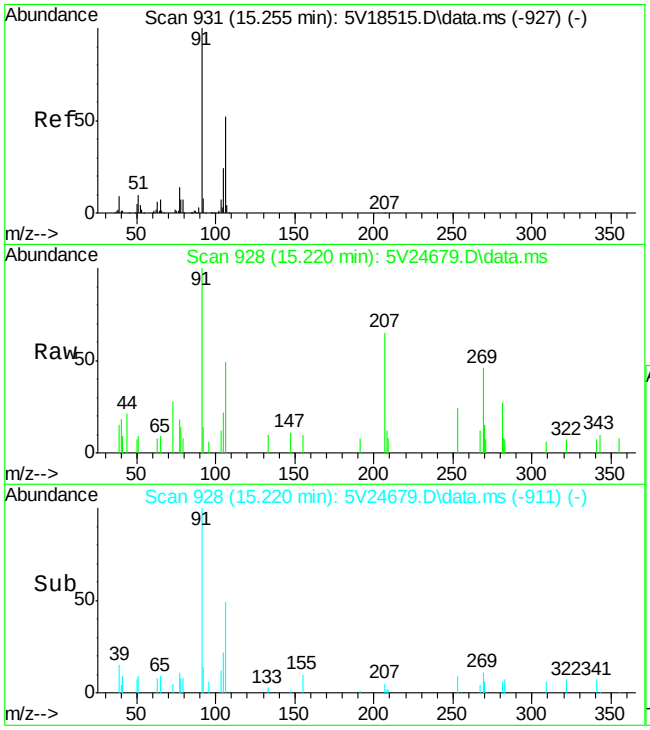


#69
4-Bromofluorobenzene
Concen: 49.05 ug/l
RT: 16.020 min Scan# 998
Delta R.T. -0.000 min
Lab File: 5V24679.D
Acq: 19 Nov 2012 4:01 pm

Tgt Ion: 95 Resp: 276568

Ion	Ratio	Lower	Upper
95	100		
174	109.0	77.1	117.1
176	108.2	73.4	113.4

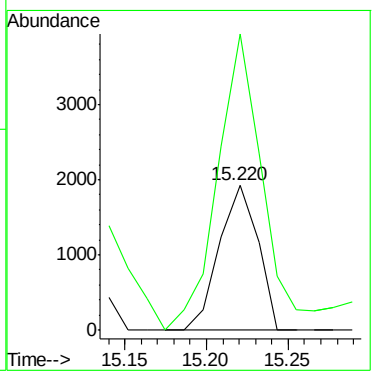


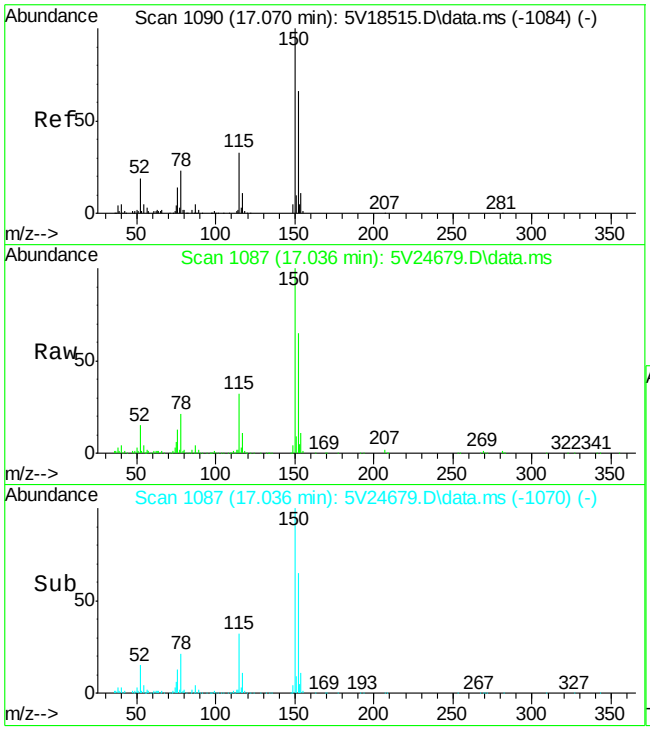


#72
m,p-xylene
Concen: 0.40 ug/l
RT: 15.220 min Scan# 928
Delta R.T. -0.000 min
Lab File: 5V24679.D
Acq: 19 Nov 2012 4:01 pm

Tgt Ion:106 Resp: 3161

Ion	Ratio	Lower	Upper
106	100		
91	238.1	177.1	217.1#

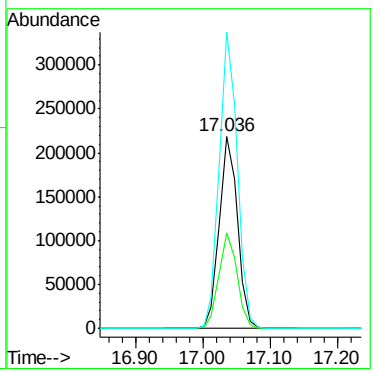


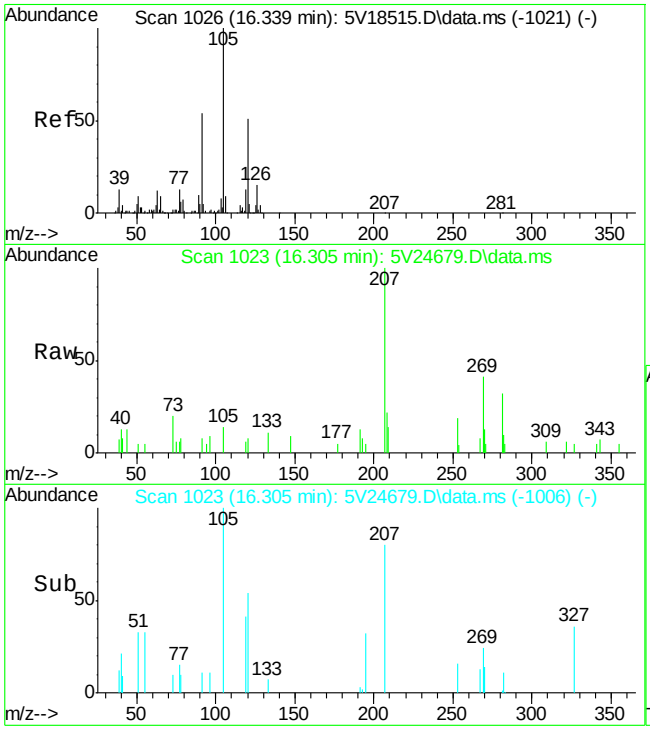


#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.036 min Scan# 1087
Delta R.T. -0.000 min
Lab File: 5V24679.D
Acq: 19 Nov 2012 4:01 pm

Tgt Ion:152 Resp: 406319

Ion	Ratio	Lower	Upper
152	100		
115	49.9	41.4	62.0
150	152.9	153.9	230.9#

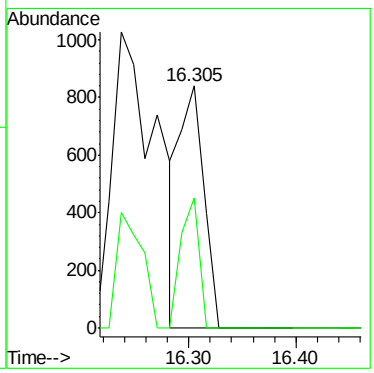


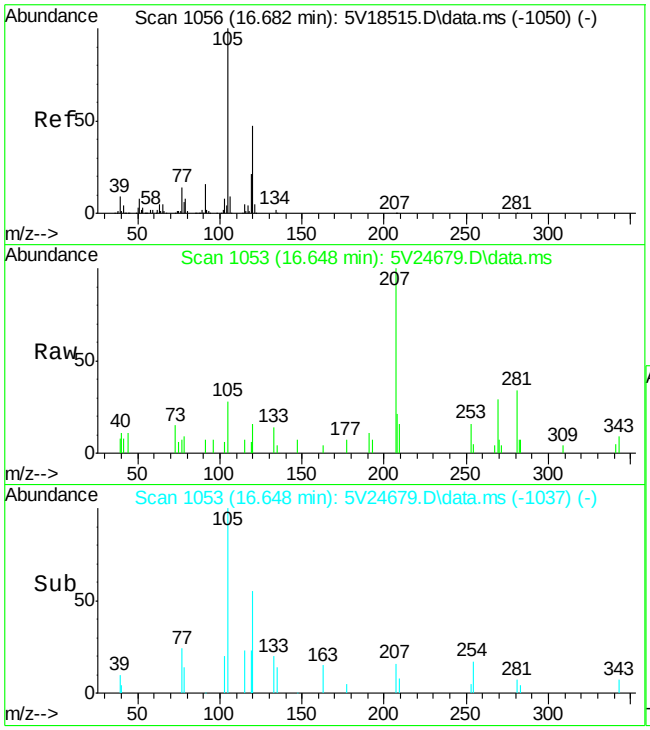


#80
1,3,5-Trimethylbenzene
Concen: 0.07 ug/l m
RT: 16.305 min Scan# 1023
Delta R.T. -0.000 min
Lab File: 5V24679.D
Acq: 19 Nov 2012 4:01 pm

Tgt Ion:105 Resp: 1317

Ion	Ratio	Lower	Upper
105	100		
120	51.3	40.1	60.1

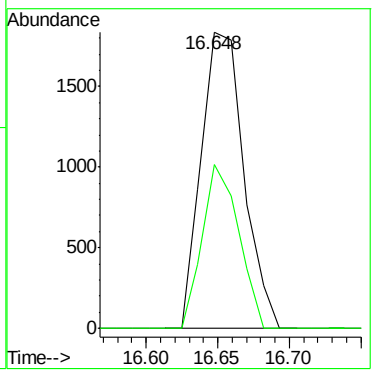


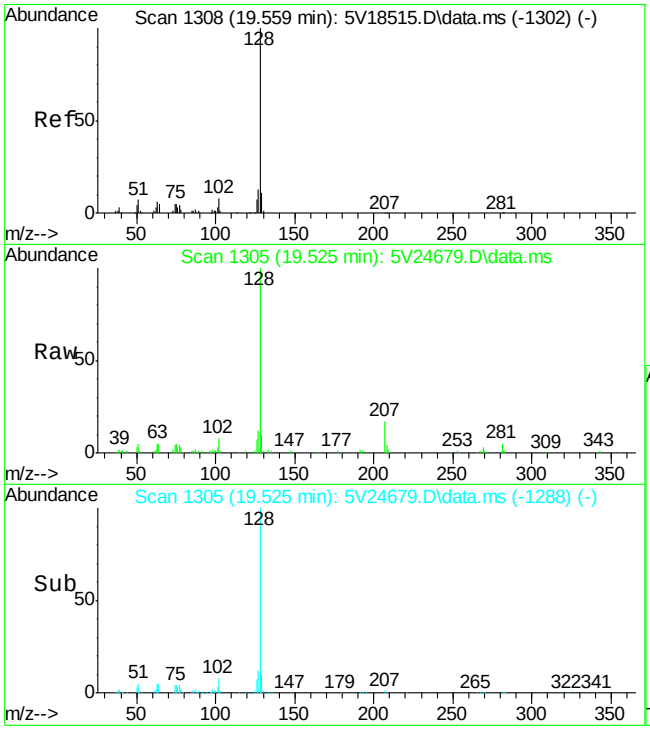


#82
1,2,4-Trimethylbenzene
Concen: 0.20 ug/l
RT: 16.648 min Scan# 1053
Delta R.T. -0.012 min
Lab File: 5V24679.D
Acq: 19 Nov 2012 4:01 pm

Tgt Ion:105 Resp: 3781

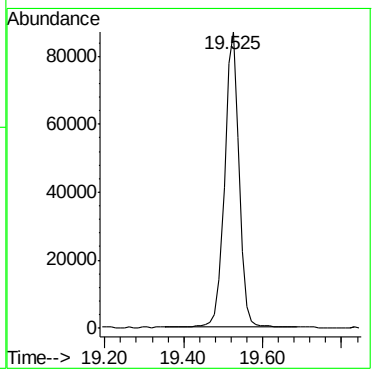
Ion	Ratio	Lower	Upper
105	100		
120	47.2	43.8	65.8

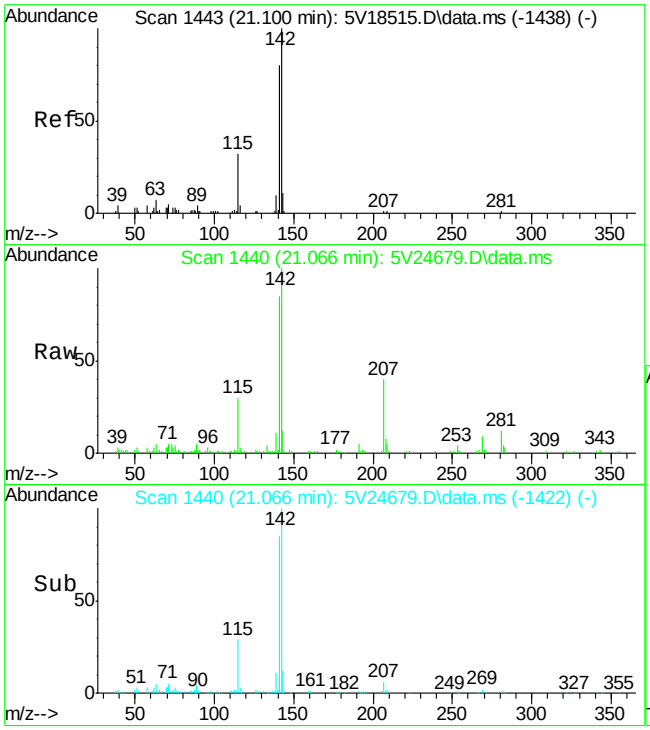




#91
Naphthalene
Concen: 10.73 ug/l
RT: 19.525 min Scan# 1305
Delta R.T. -0.000 min
Lab File: 5V24679.D
Acq: 19 Nov 2012 4:01 pm

Tgt Ion:128 Resp: 216086

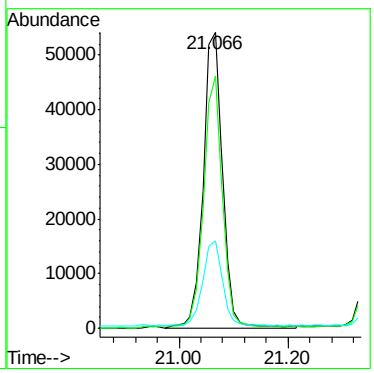


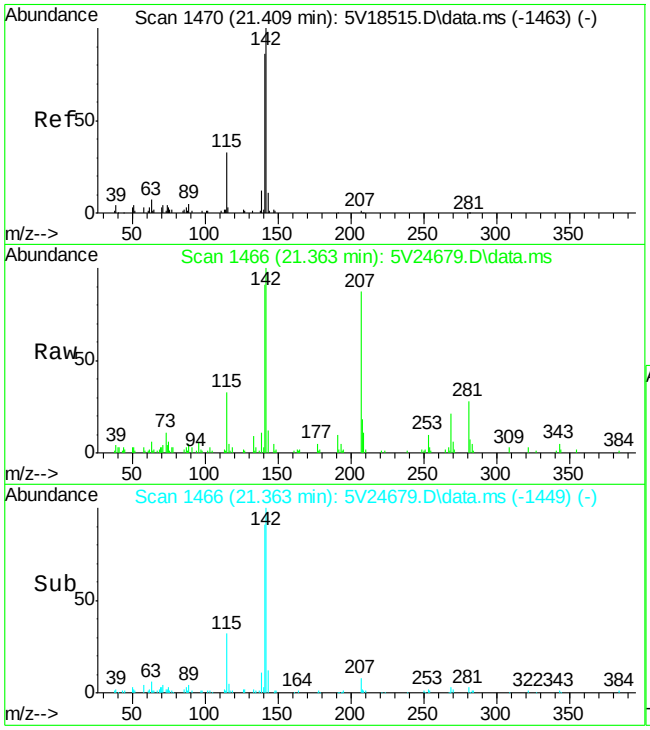


#94
2-Methylnaphthalene
Concen: 15.92 ug/l
RT: 21.066 min Scan# 1440
Delta R.T. -0.000 min
Lab File: 5V24679.D
Acq: 19 Nov 2012 4:01 pm

Tgt Ion:142 Resp: 135196

Ion	Ratio	Lower	Upper
142	100		
141	84.7	66.2	99.4
115	29.2	25.9	38.9

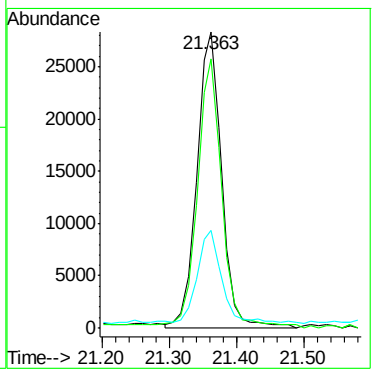




#95
1-Methylnaphthalene
Concen: 7.95 ug/l
RT: 21.363 min Scan# 1466
Delta R.T. -0.000 min
Lab File: 5V24679.D
Acq: 19 Nov 2012 4:01 pm

Tgt Ion:142 Resp: 73587

Ion	Ratio	Lower	Upper
142	100		
141	90.2	68.9	103.3
115	31.7	27.3	40.9



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5111912.S\
Data File : 5V24673.D
Acq On : 19 Nov 2012 12:44 pm
Operator : BRETD
Sample : MB
Misc : MS4990,V5V1506,5.00,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 20 08:43:29 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1497TVH1497.M
Quant Title : 8260
QLast Update : Wed Nov 14 09:54:38 2012
Response via : Initial Calibration

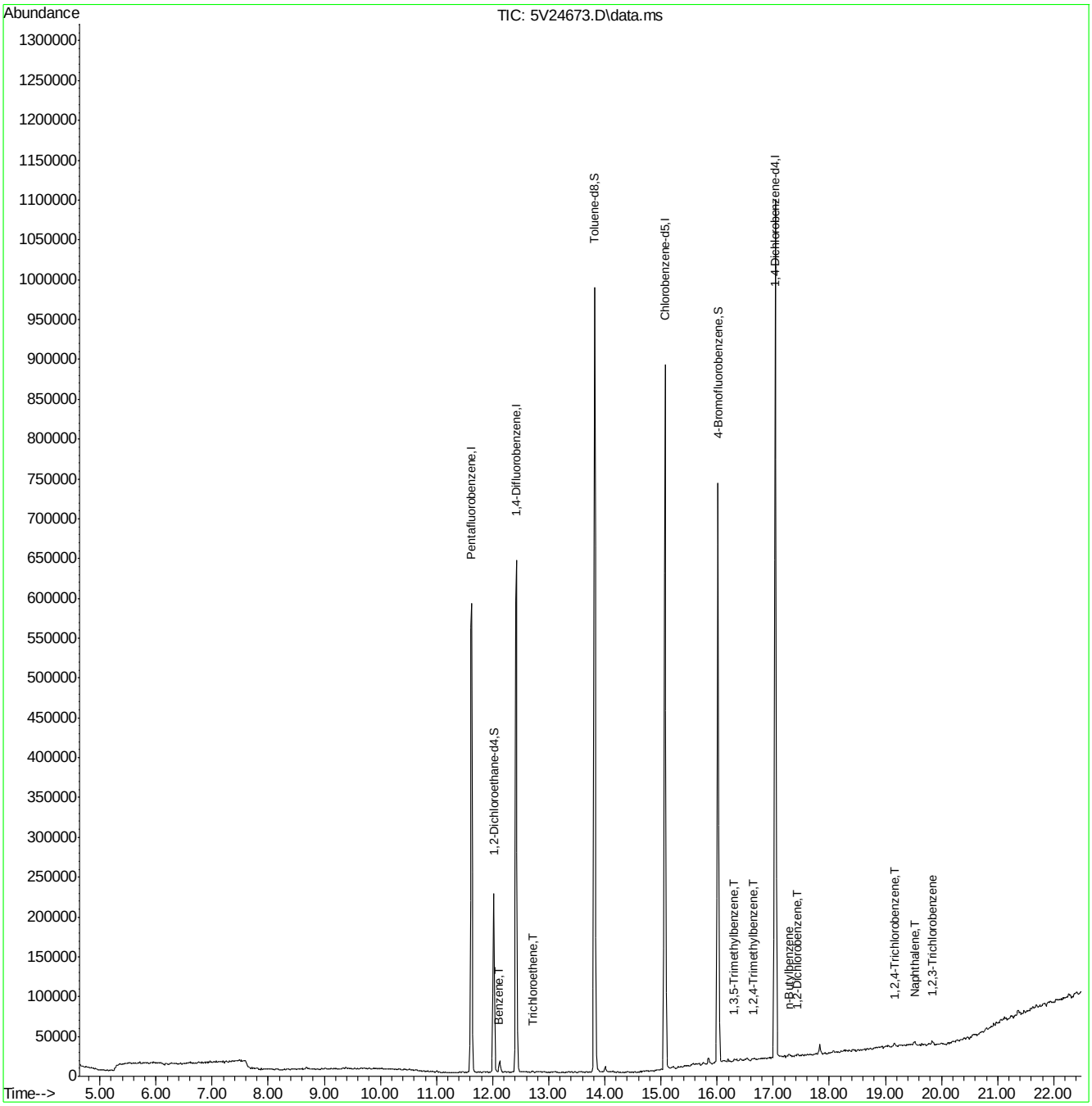
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.624	168	473270	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.423	114	576356	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.072	117	535944	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.036	152	360659	50.00	ug/l	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.024	102	38220	47.45	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 94.90%			
61) Toluene-d8	13.816	98	640357	50.44	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 100.88%			
69) 4-Bromofluorobenzene	16.020	95	254413	46.49	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.98%			
Target Compounds						Qvalue
48) Trichloroethene	12.709	95	778	0.19	ug/l	93
50) Benzene	12.104	78	1232	0.08	ug/l	100
80) 1,3,5-Trimethylbenzene	16.305	105	800	0.05	ug/l #	66
82) 1,2,4-Trimethylbenzene	16.648	105	1132	0.07	ug/l #	83
87) 1,2-Dichlorobenzene	17.436	146	1204	0.11	ug/l #	82
88) n-Butylbenzene	17.287	91	2178	0.12	ug/l #	71
90) 1,2,4-Trichlorobenzene	19.159	180	2308	0.23	ug/l #	72
91) Naphthalene	19.525	128	6488	0.36	ug/l	100
93) 1,2,3-Trichlorobenzene	19.833	180	2556	0.27	ug/l	94

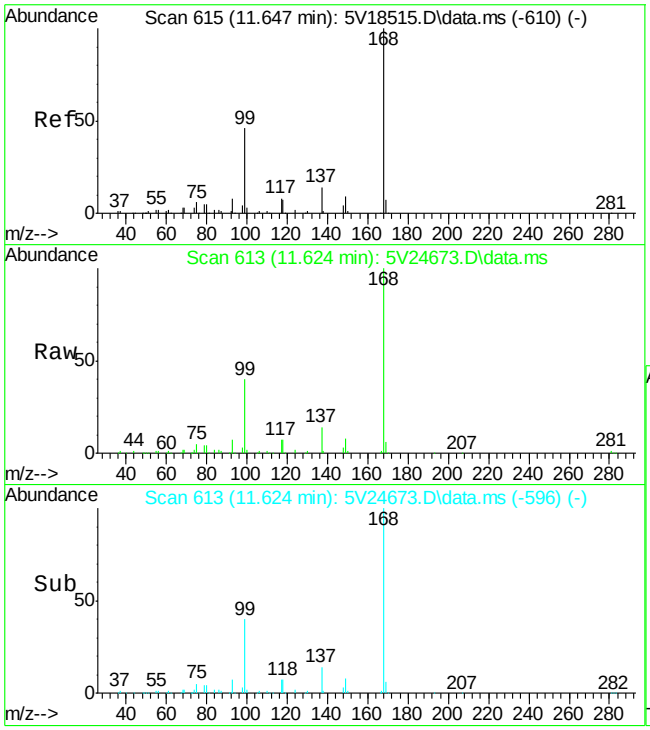
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5111912.S\
Data File : 5V24673.D
Acq On : 19 Nov 2012 12:44 pm
Operator : BRETD
Sample : MB
Misc : MS4990,V5V1506,5.00,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 20 08:43:29 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1497TVH1497.M
Quant Title : 8260
QLast Update : Wed Nov 14 09:54:38 2012
Response via : Initial Calibration

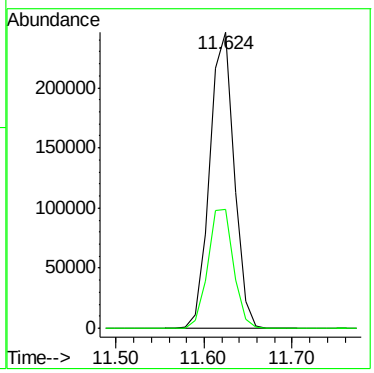


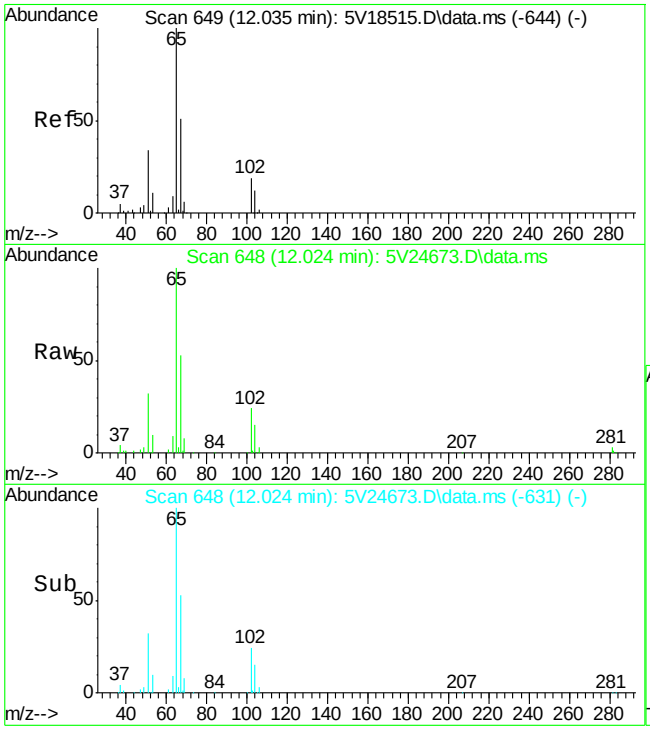


#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.624 min Scan# 613
Delta R.T. -0.000 min
Lab File: 5V24673.D
Acq: 19 Nov 2012 12:44 pm

Tgt Ion:168 Resp: 473270

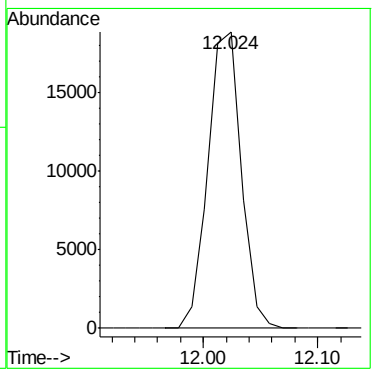
Ion	Ratio	Lower	Upper
168	100		
99	42.3	37.4	56.2

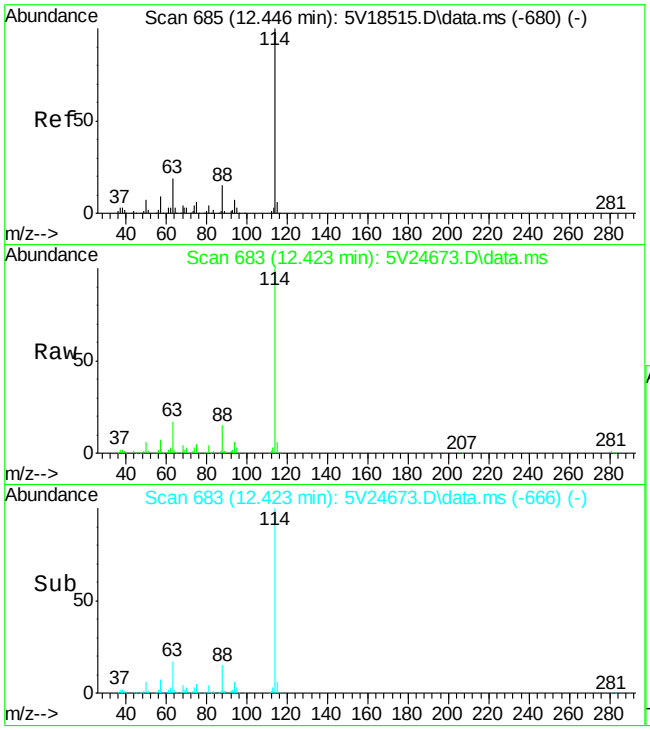




#33
1,2-Dichloroethane-d4
Concen: 47.45 ug/l
RT: 12.024 min Scan# 648
Delta R.T. -0.000 min
Lab File: 5V24673.D
Acq: 19 Nov 2012 12:44 pm

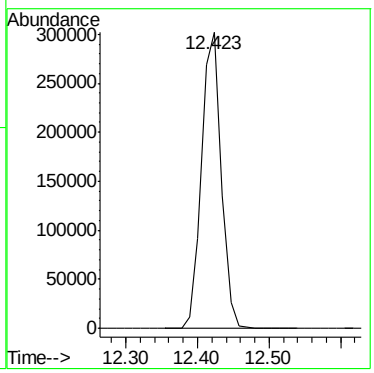
Tgt Ion:102 Resp: 38220

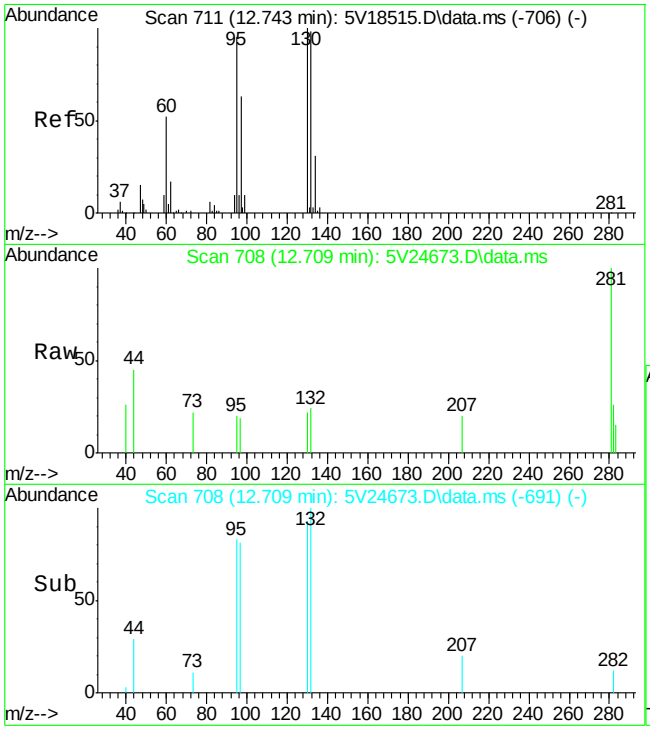




#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.423 min Scan# 683
Delta R.T. -0.000 min
Lab File: 5V24673.D
Acq: 19 Nov 2012 12:44 pm

Tgt Ion:114 Resp: 576356

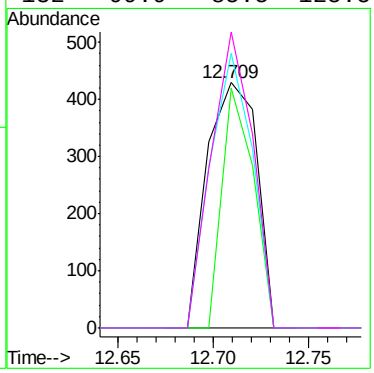


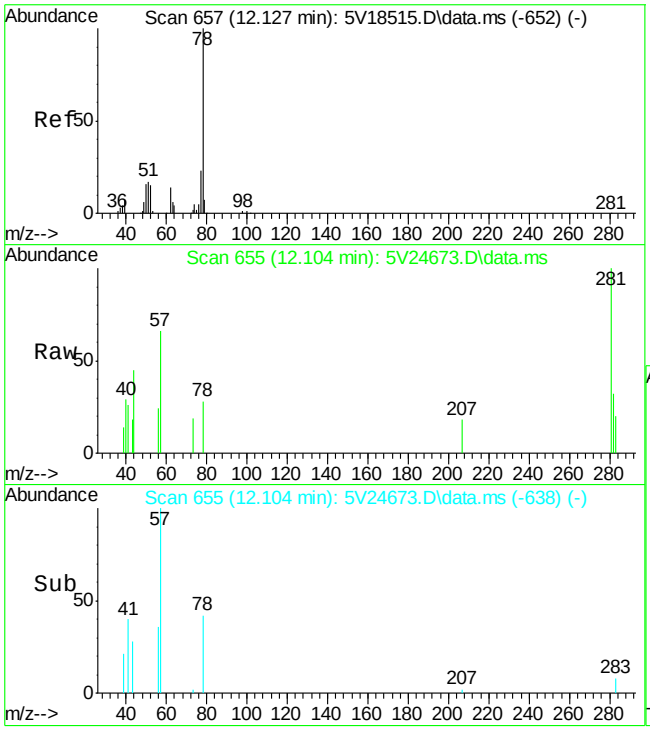


#48
Trichloroethene
Concen: 0.19 ug/l
RT: 12.709 min Scan# 708
Delta R.T. -0.000 min
Lab File: 5V24673.D
Acq: 19 Nov 2012 12:44 pm

Tgt Ion: 95 Resp: 778

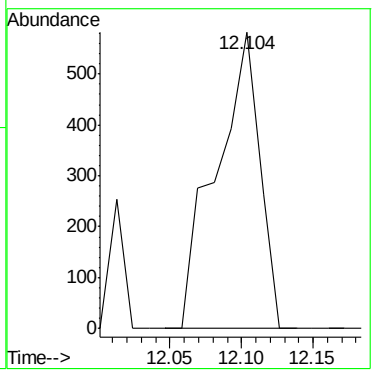
Ion	Ratio	Lower	Upper
95	100		
97	62.0	47.1	87.1
130	94.7	85.2	125.2
132	99.9	85.5	125.5

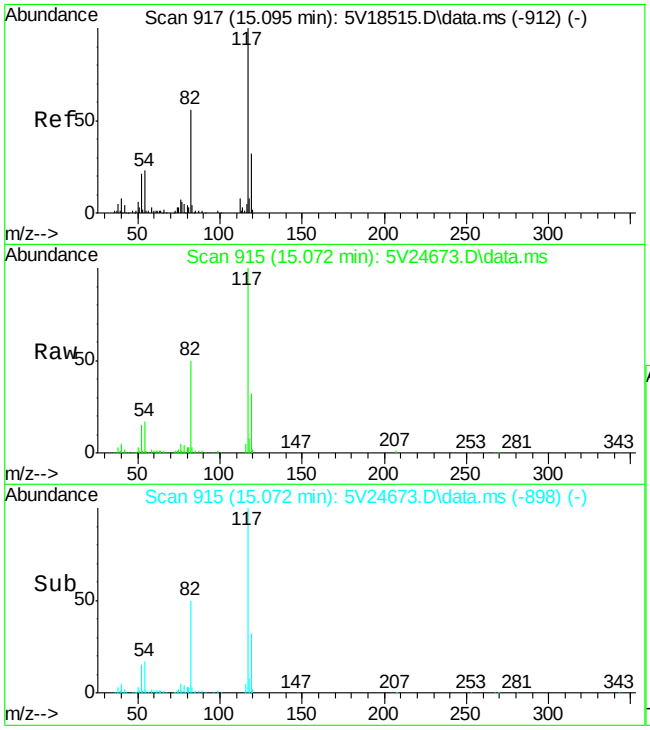




#50
Benzene
Concen: 0.08 ug/l
RT: 12.104 min Scan# 655
Delta R.T. -0.000 min
Lab File: 5V24673.D
Acq: 19 Nov 2012 12:44 pm

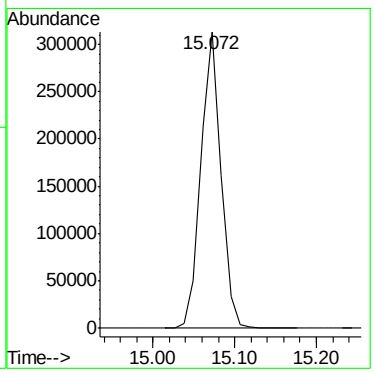
Tgt Ion: 78 Resp: 1232

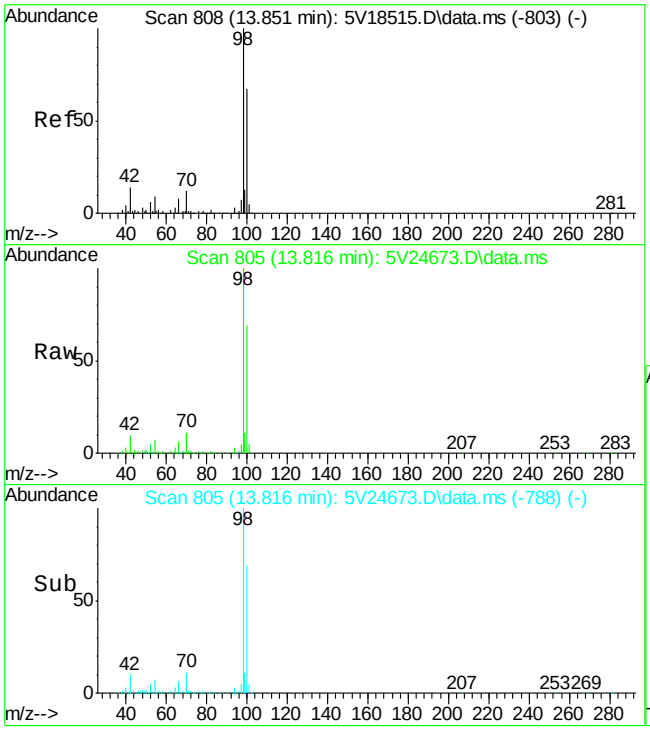




#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.072 min Scan# 915
Delta R.T. -0.000 min
Lab File: 5V24673.D
Acq: 19 Nov 2012 12:44 pm

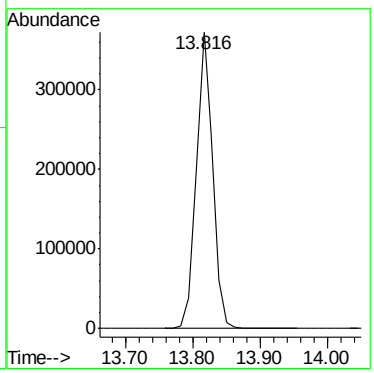
Tgt Ion:117 Resp: 535944

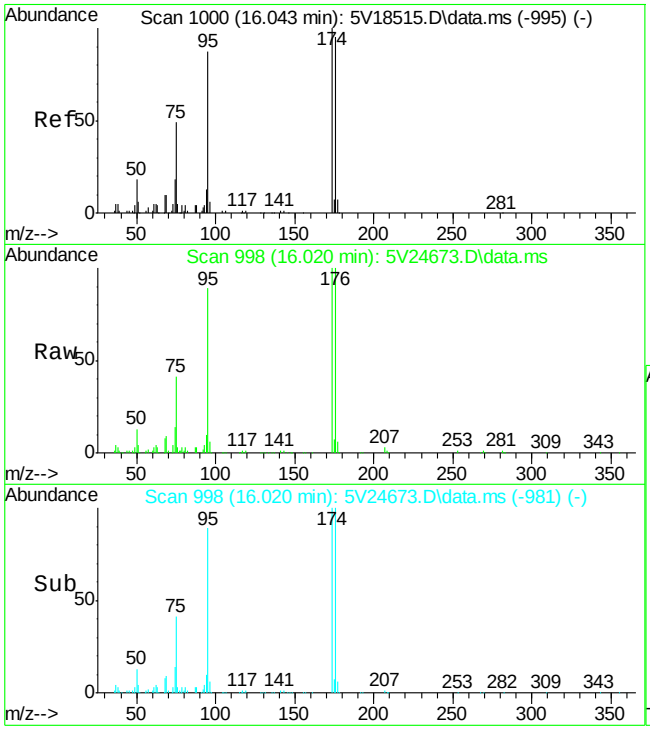




#61
Toluene-d8
Concen: 50.44 ug/l
RT: 13.816 min Scan# 805
Delta R.T. -0.000 min
Lab File: 5V24673.D
Acq: 19 Nov 2012 12:44 pm

Tgt Ion: 98 Resp: 640357

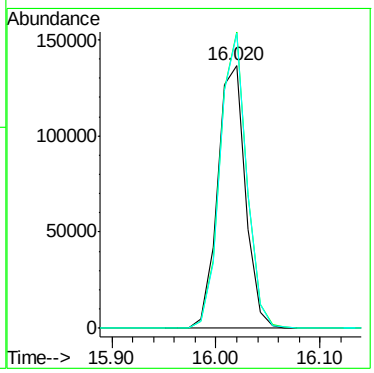


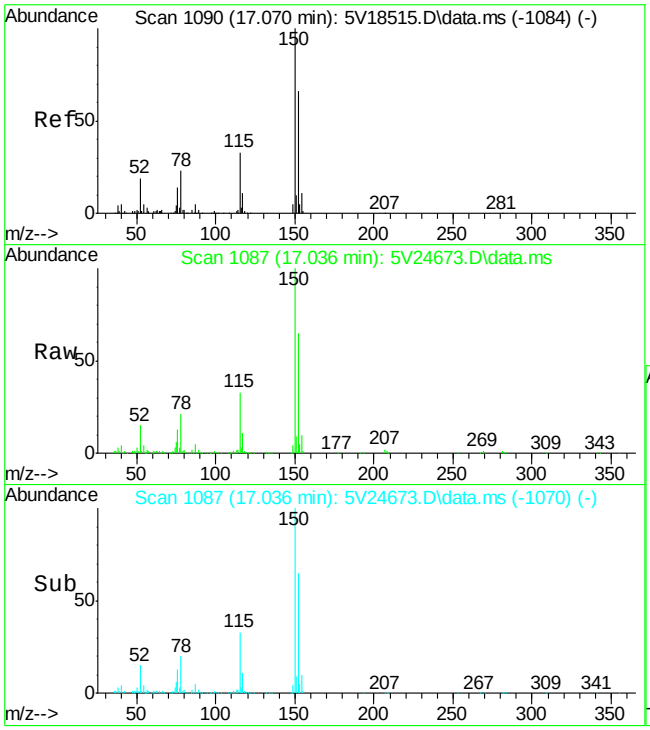


#69
4-Bromofluorobenzene
Concen: 46.49 ug/l
RT: 16.020 min Scan# 998
Delta R.T. -0.000 min
Lab File: 5V24673.D
Acq: 19 Nov 2012 12:44 pm

Tgt Ion: 95 Resp: 254413

Ion	Ratio	Lower	Upper
95	100		
174	107.9	77.1	117.1
176	107.3	73.4	113.4

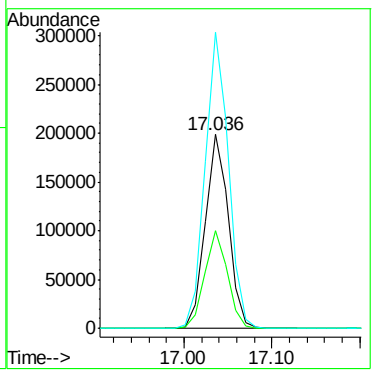


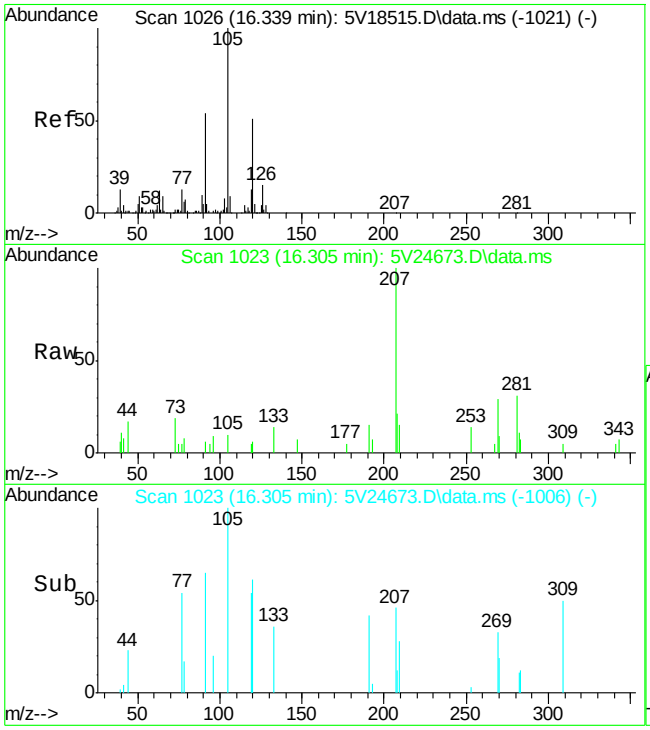


#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.036 min Scan# 1087
Delta R.T. -0.000 min
Lab File: 5V24673.D
Acq: 19 Nov 2012 12:44 pm

Tgt Ion:152 Resp: 360659

Ion	Ratio	Lower	Upper
152	100		
115	49.8	41.4	62.0
150	153.6	153.9	230.9#

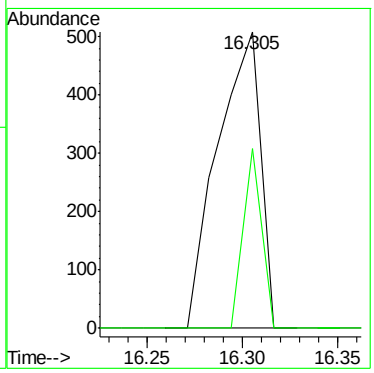


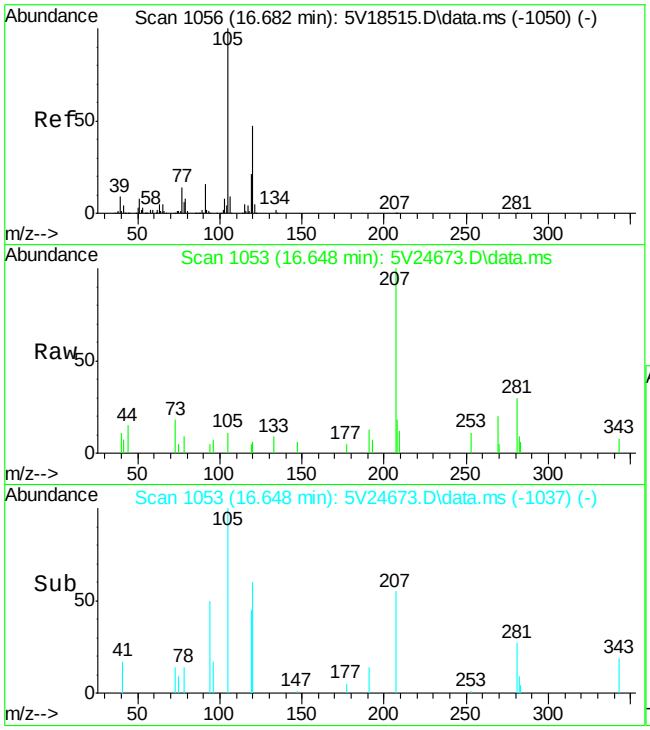


#80
1,3,5-Trimethylbenzene
Concen: 0.05 ug/l
RT: 16.305 min Scan# 1023
Delta R.T. -0.000 min
Lab File: 5V24673.D
Acq: 19 Nov 2012 12:44 pm

Tgt Ion:105 Resp: 800

Ion	Ratio	Lower	Upper
105	100		
120	26.5	40.1	60.1#

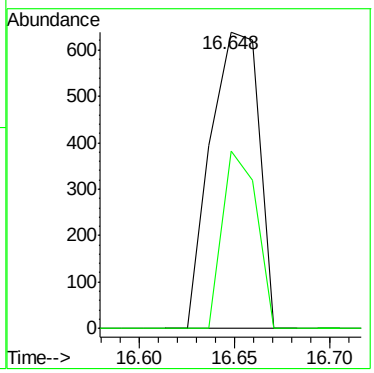


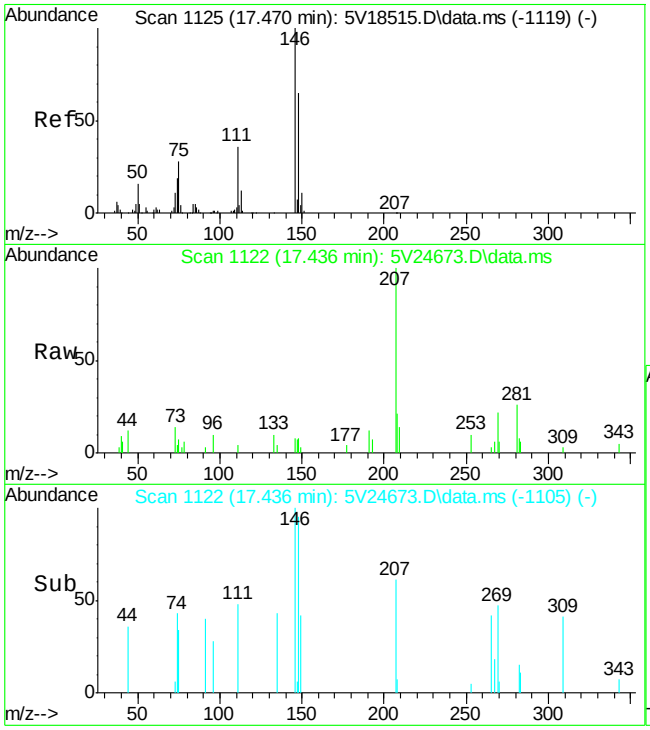


#82
1,2,4-Trimethylbenzene
Concen: 0.07 ug/l
RT: 16.648 min Scan# 1053
Delta R.T. -0.012 min
Lab File: 5V24673.D
Acq: 19 Nov 2012 12:44 pm

Tgt Ion:105 Resp: 1132

Ion	Ratio	Lower	Upper
105	100		
120	42.3	43.8	65.8#

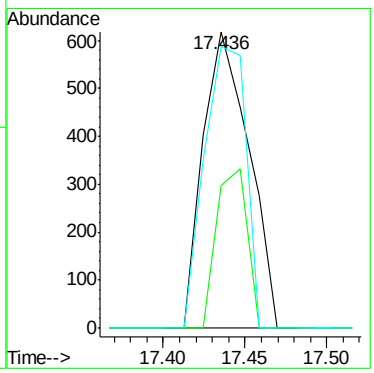


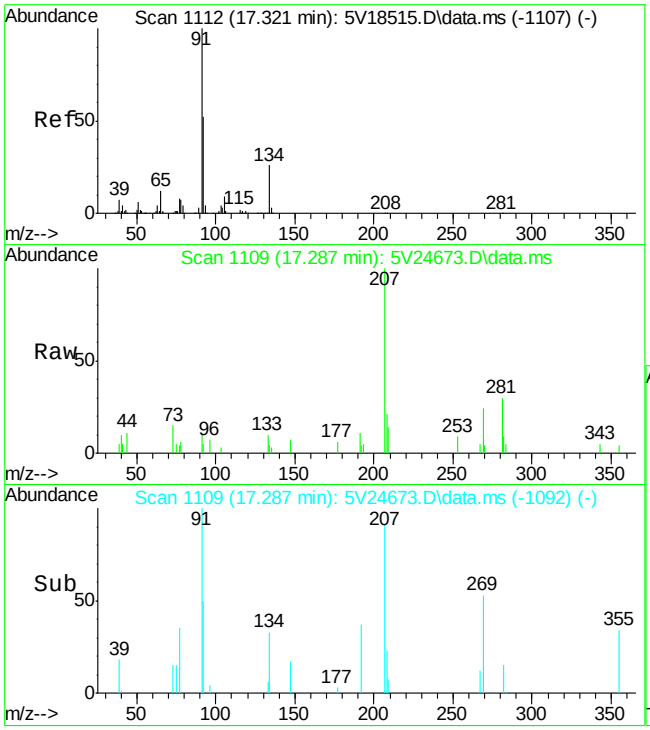


#87
1,2-Dichlorobenzene
Concen: 0.11 ug/l
RT: 17.436 min Scan# 1122
Delta R.T. -0.000 min
Lab File: 5V24673.D
Acq: 19 Nov 2012 12:44 pm

Tgt Ion:146 Resp: 1204

Ion	Ratio	Lower	Upper
146	100		
111	35.9	29.9	44.9
148	85.8	51.9	77.9#

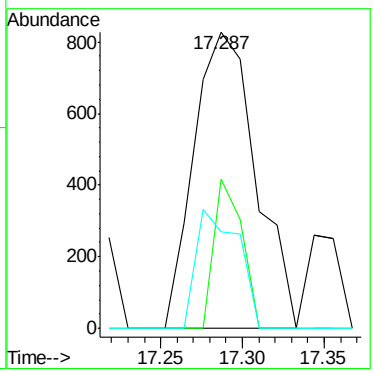


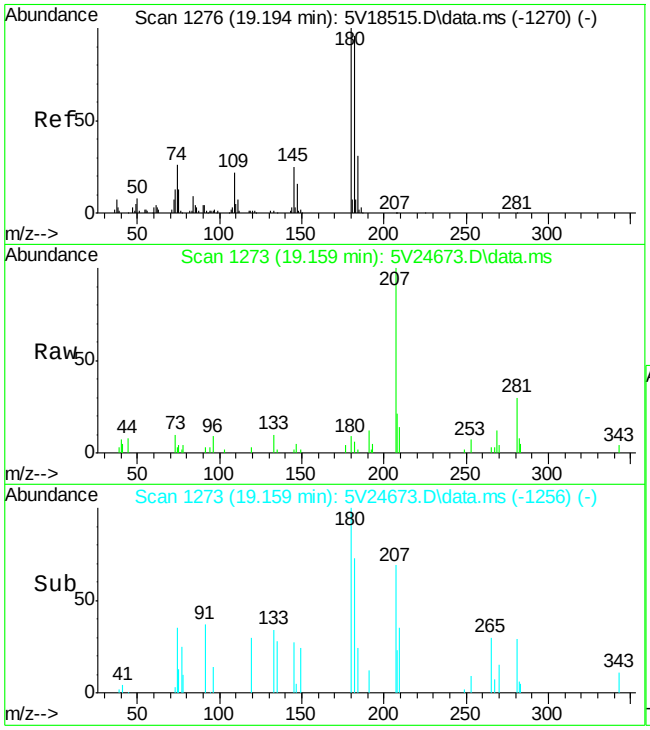


#88
n-Butylbenzene
Concen: 0.12 ug/l
RT: 17.287 min Scan# 1109
Delta R.T. -0.000 min
Lab File: 5V24673.D
Acq: 19 Nov 2012 12:44 pm

Tgt Ion: 91 Resp: 2178

Ion	Ratio	Lower	Upper
91	100		
92	22.6	42.2	63.4#
134	27.3	21.4	32.2

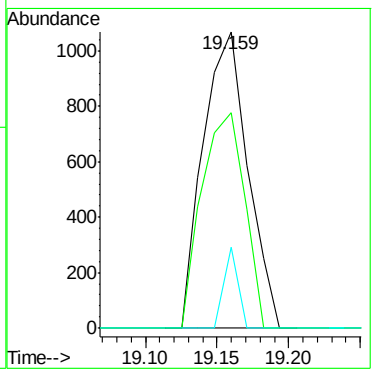


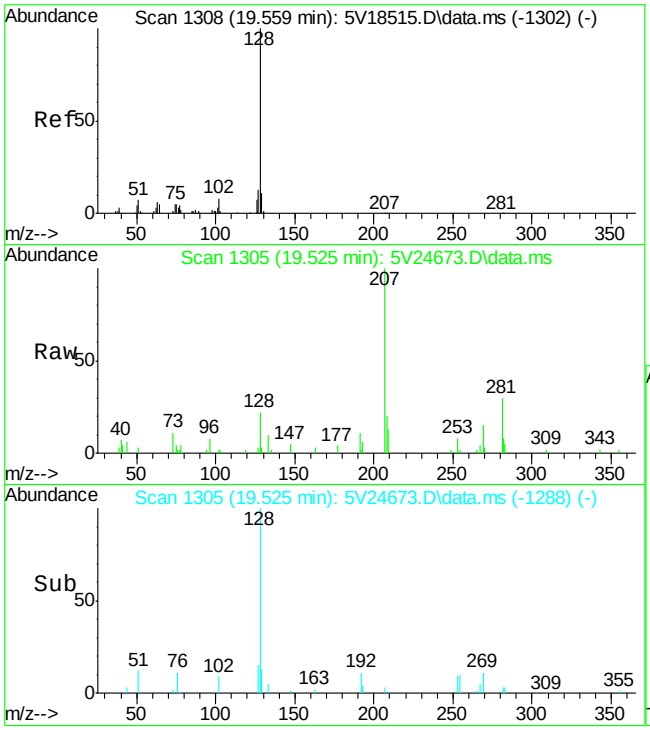


#90
1,2,4-Trichlorobenzene
Concen: 0.23 ug/l
RT: 19.159 min Scan# 1273
Delta R.T. -0.000 min
Lab File: 5V24673.D
Acq: 19 Nov 2012 12:44 pm

Tgt Ion:180 Resp: 2308

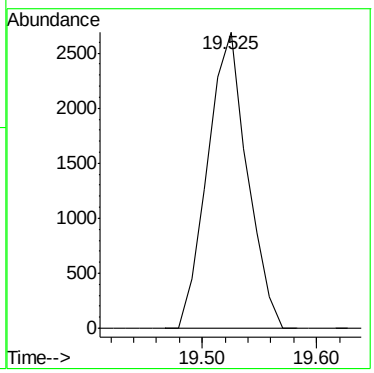
Ion	Ratio	Lower	Upper
180	100		
182	69.7	76.2	114.4#
145	8.7	20.1	30.1#

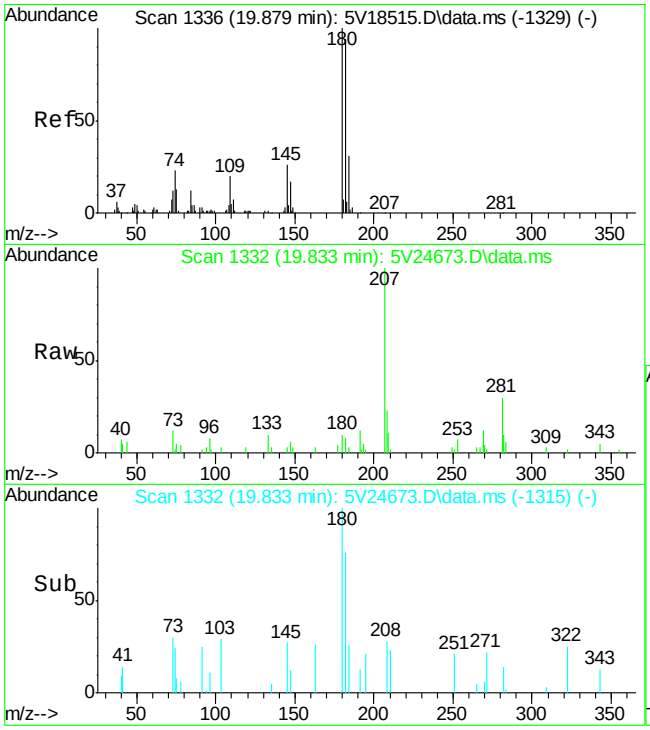




#91
Naphthalene
Concen: 0.36 ug/l
RT: 19.525 min Scan# 1305
Delta R.T. -0.000 min
Lab File: 5V24673.D
Acq: 19 Nov 2012 12:44 pm

Tgt Ion:128 Resp: 6488

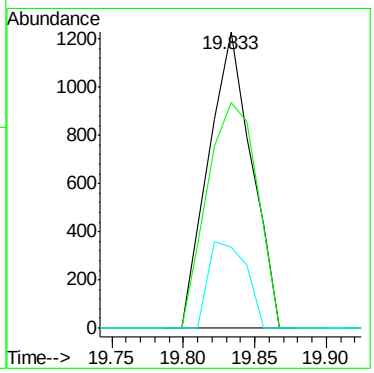




#93
1,2,3-Trichlorobenzene
Concen: 0.27 ug/l
RT: 19.833 min Scan# 1332
Delta R.T. -0.000 min
Lab File: 5V24673.D
Acq: 19 Nov 2012 12:44 pm

Tgt Ion:180 Resp: 2556

Ion	Ratio	Lower	Upper
180	100		
182	88.7	76.0	114.0
145	25.5	21.4	32.0



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: D41013
Account: XTOKRWR XTO Energy
Project: NPU 197-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6988-MB	3G12229.D	1	11/26/12	SM	11/20/12	OP6988	E3G577

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

D41013-1

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	
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	
50-32-8	Benzo(a)pyrene	ND	8.3	4.3	ug/kg	
218-01-9	Chrysene	ND	8.3	4.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	8.3	4.3	ug/kg	
206-44-0	Fluoranthene	ND	8.3	4.3	ug/kg	
86-73-7	Fluorene	ND	8.3	4.3	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	8.3	4.3	ug/kg	
91-20-3	Naphthalene	ND	12	10	ug/kg	
129-00-0	Pyrene	ND	8.3	4.3	ug/kg	

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	97%	10-159%
321-60-8	2-Fluorobiphenyl	99%	19-131%
1718-51-0	Terphenyl-d14	91%	18-150%

Blank Spike Summary

Job Number: D41013
Account: XTOKRWR XTO Energy
Project: NPU 197-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6988-BS	3G12230.D	1	11/26/12	SM	11/20/12	OP6988	E3G577

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

D41013-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	93.9	113	68-130
120-12-7	Anthracene	83.3	80.2	96	67-130
56-55-3	Benzo(a)anthracene	83.3	82.1	99	65-130
205-99-2	Benzo(b)fluoranthene	83.3	71.9	86	44-130
207-08-9	Benzo(k)fluoranthene	83.3	74.2	89	56-131
50-32-8	Benzo(a)pyrene	83.3	77.6	93	62-130
218-01-9	Chrysene	83.3	73.8	89	70-130
53-70-3	Dibenzo(a,h)anthracene	83.3	75.6	91	55-130
206-44-0	Fluoranthene	83.3	78.6	94	70-130
86-73-7	Fluorene	83.3	79.4	95	70-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	75.5	91	56-130
91-20-3	Naphthalene	83.3	102	122	70-130
129-00-0	Pyrene	83.3	75.6	91	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	90%	10-159%
321-60-8	2-Fluorobiphenyl	93%	19-131%
1718-51-0	Terphenyl-d14	86%	18-150%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D41013
Account: XTOKRWR XTO Energy
Project: NPU 197-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6988-MS	3G12232.D	1	11/26/12	SM	11/20/12	OP6988	E3G577
OP6988-MSD	3G12233.D	1	11/26/12	SM	11/20/12	OP6988	E3G577
D41014-1	3G12231.D	1	11/26/12	SM	11/20/12	OP6988	E3G577

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

D41013-1

CAS No.	Compound	D41014-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		96.2	110	114	103	107	7	25-151/30
120-12-7	Anthracene	ND		96.2	96.8	101	93.9	98	3	39-159/30
56-55-3	Benzo(a)anthracene	ND		96.2	98.2	102	95.3	99	3	39-168/30
205-99-2	Benzo(b)fluoranthene	ND		96.2	83.8	87	83.2	86	1	24-163/30
207-08-9	Benzo(k)fluoranthene	ND		96.2	88.6	92	85.5	89	4	10-188/30
50-32-8	Benzo(a)pyrene	ND		96.2	92.1	96	88.2	92	4	32-144/30
218-01-9	Chrysene	ND		96.2	88.5	92	84.3	88	5	43-150/30
53-70-3	Dibenzo(a,h)anthracene	ND		96.2	84.5	88	85.3	89	1	21-152/30
206-44-0	Fluoranthene	ND		96.2	99.2	103	95.6	99	4	36-157/30
86-73-7	Fluorene	ND		96.2	98.0	102	94.0	98	4	10-182/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		96.2	87.0	90	84.6	88	3	20-154/30
91-20-3	Naphthalene	34.8		96.2	134	103	111	79	19	10-163/30
129-00-0	Pyrene	ND		96.2	95.0	99	91.8	95	3	25-180/30

CAS No.	Surrogate Recoveries	MS	MSD	D41014-1	Limits
4165-60-0	Nitrobenzene-d5	86%	74%	80%	10-159%
321-60-8	2-Fluorobiphenyl	84%	80%	85%	19-131%
1718-51-0	Terphenyl-d14	80%	78%	85%	18-150%

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 11/27/12 11:55

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\112612\
Data File : 3g12234.D
Acq On : 26 Nov 2012 8:05 pm
Operator : SARAHM1
Sample : D41013-1
Misc : OP6988,E3G577,30.09,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 27 09:27:49 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G574.M
Quant Title : PAHSIM BASE
QLast Update : Mon Nov 26 15:39:31 2012
Response via : Initial Calibration

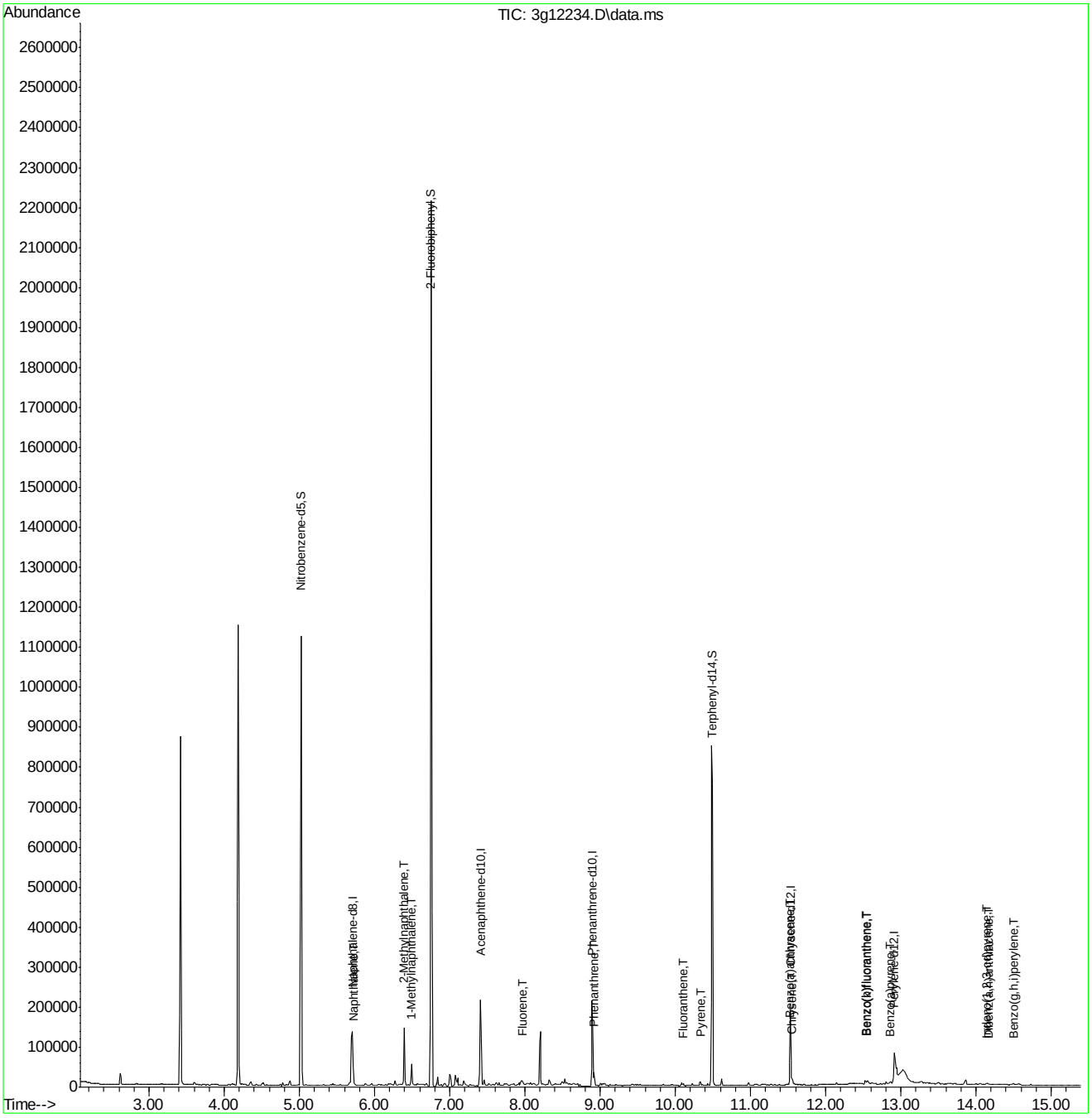
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.707	136	139768	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.412	164	89752	4.0000	ug/mL	0.00
15) Phenanthrene-d10	8.894	188	153894	4.0000	ug/mL	-0.06
19) Chrysene-d12	11.535	240	122324	4.0000	ug/mL	0.00
24) Perylene-d12	12.913	264	70727	4.0000	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.021	82	530850	39.5046	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 79.00%			
7) 2-Fluorobiphenyl	6.751	172	1321094	40.3603	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 80.72%			
21) Terphenyl-d14	10.493	244	619219	38.8397	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 77.68%			
Target Compounds						Qvalue
3) N-Nitrosodimethylamine	2.458	74	43	N.D.		
4) N-Nitrosodi-propylamine	0.000	70	0	N.D. d		
5) Naphthalene	5.719	128	28571	0.7815	ug/mL	94
8) 2-Methylnaphthalene	6.392	142	56579	2.0192	ug/mL	99
9) 1-Methylnaphthalene	6.492	142	20126	0.7704	ug/mL	95
10) Acenaphthylene	7.270	152	594	N.D.		
11) Acenaphthene	7.448	154	539	Below Cal # 1		
12) Dibenzofuran	7.625	168	1566	N.D.		
13) Fluorene	7.968	166	7569	0.2064	ug/mL#	91
14) Diphenylamine	0.000	169	0	N.D. d		
16) Phenanthrene	8.918	178	20832	0.3542	ug/mL	84
17) Anthracene	0.000	178	0	N.D. d		
18) Fluoranthene	10.105	202	4420	0.0734	ug/mL	65
20) Pyrene	10.335	202	5367	0.0799	ug/mL	87
22) Benzo(a)anthracene	11.522	228	4373	0.0801	ug/mL	93
23) Chrysene	11.555	228	7085	0.1191	ug/mL	93
25) Benzo(b)fluoranthene	12.534	252	4159m	0.1817	ug/mL	
26) Benzo(k)fluoranthene	12.555	252	3954m	0.0754	ug/mL	
27) Benzo(a)pyrene	12.860	252	3005	0.0617	ug/mL#	84
28) Indeno(1,2,3-cd)pyrene	14.143	276	3468	0.0653	ug/mL	93
29) Dibenz(a,h)anthracene	14.164	278	2519	0.0619	ug/mL	92
30) Benzo(g,h,i)perylene	14.501	276	3969	0.0816	ug/mL	89

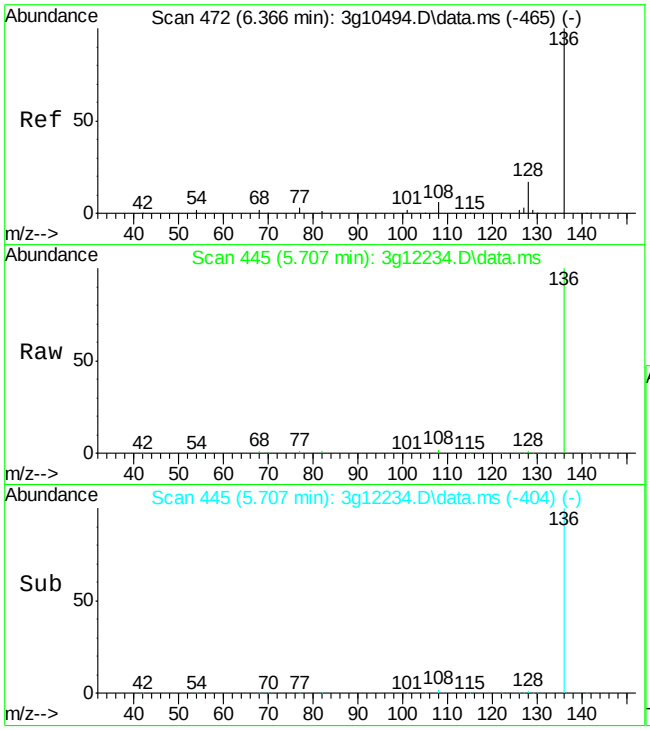
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\112612\
Data File : 3g12234.D
Acq On : 26 Nov 2012 8:05 pm
Operator : SARAHM1
Sample : D41013-1
Misc : OP6988,E3G577,30.09,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 27 09:27:49 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G574.M
Quant Title : PAHSIM BASE
QLast Update : Mon Nov 26 15:39:31 2012
Response via : Initial Calibration

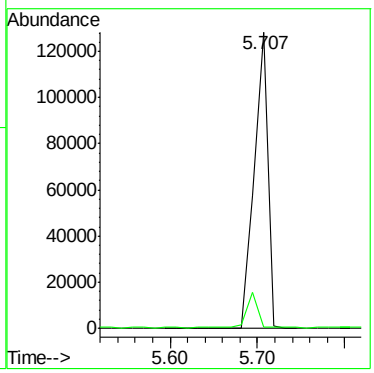


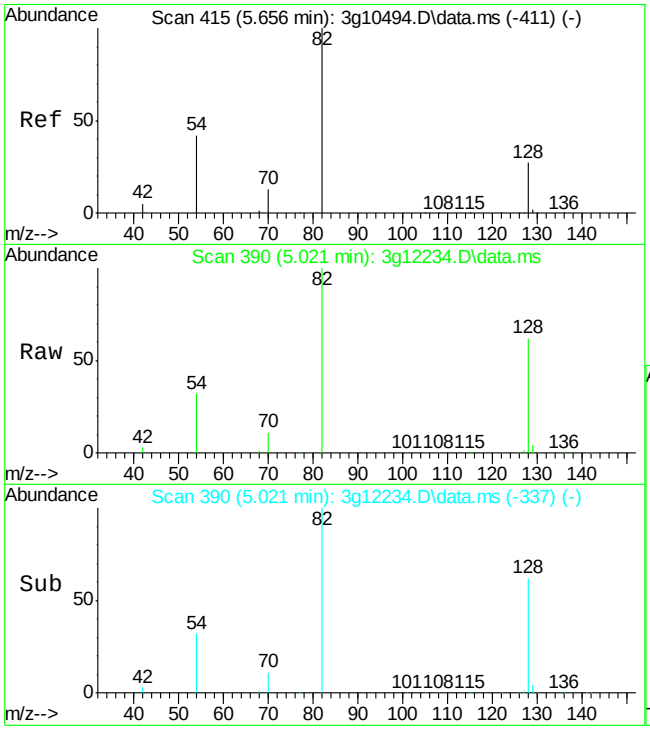


#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.707 min Scan# 445
Delta R.T. 0.005 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:136 Resp: 139768

Ion	Ratio	Lower	Upper
136	100		
68	9.7	0.0	21.7

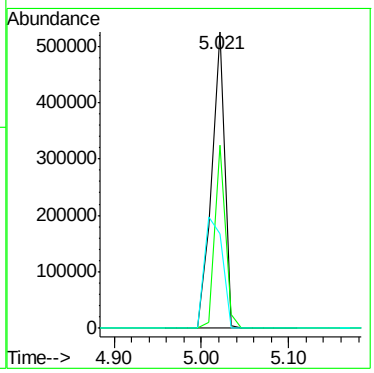


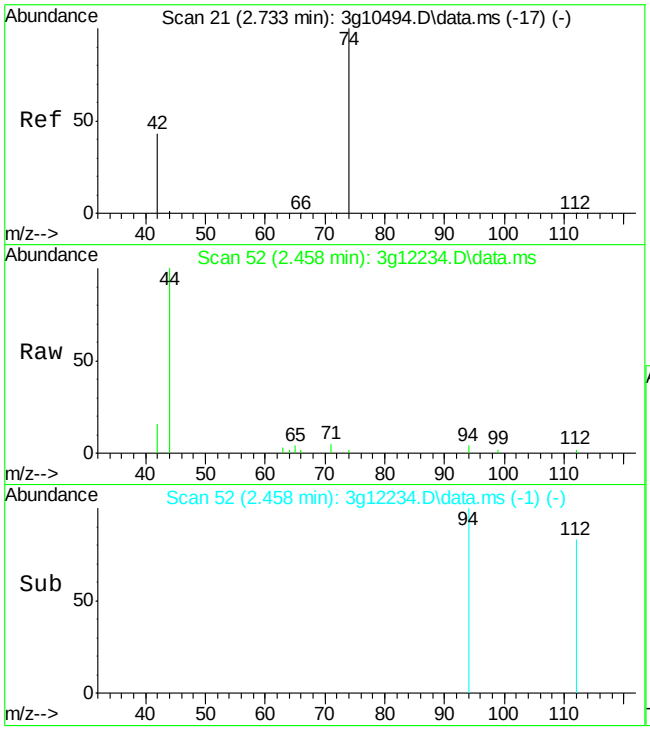


#2
Nitrobenzene-d5
Concen: 39.5046 ug/mL
RT: 5.021 min Scan# 390
Delta R.T. -0.005 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion: 82 Resp: 530850

Ion	Ratio	Lower	Upper
82	100		
128	50.6	30.7	70.7
54	51.4	36.8	76.8

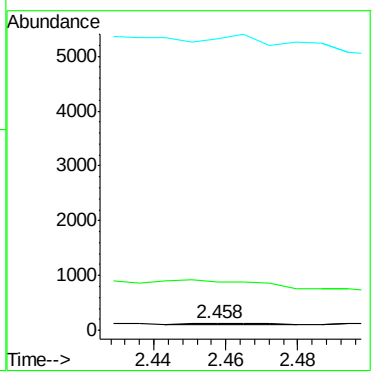


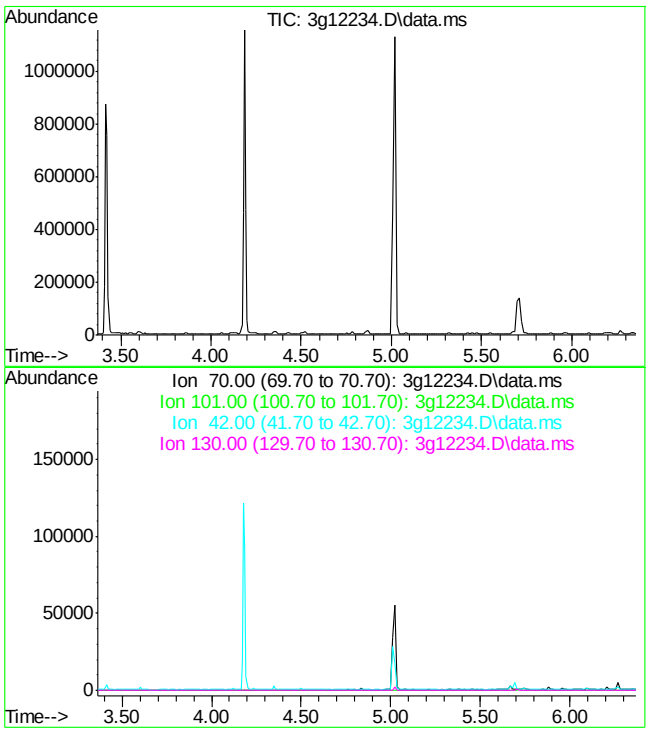


#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.458 min Scan# 52
Delta R.T. 0.008 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion: 74 Resp: 43

Ion	Ratio	Lower	Upper
74	100		
42	586.0	53.9	93.9#
44	0.0	0.0	24.2



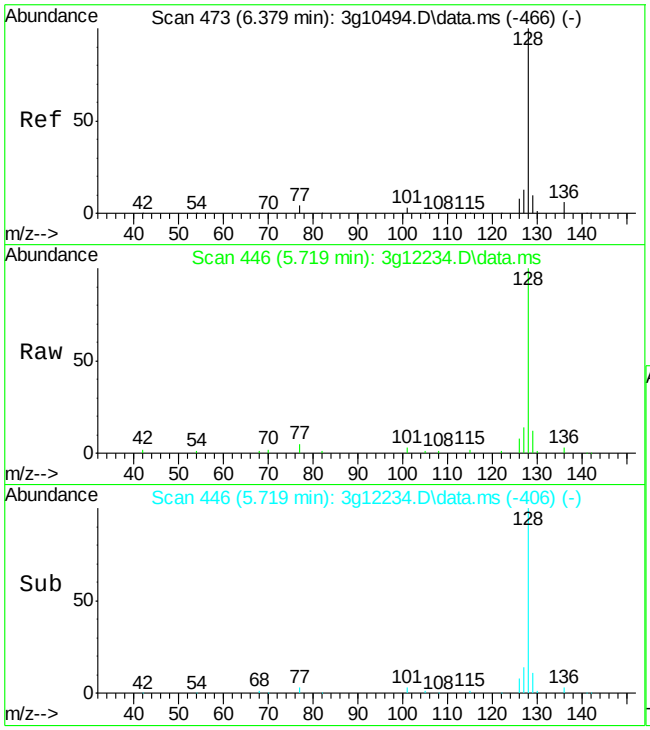


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 4.87 min

Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion: 70

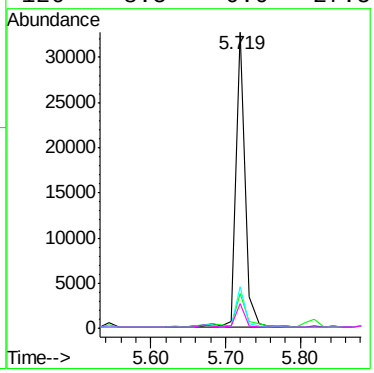
Sig	Exp Ratio
70	100
101	13.9
42	52.4
130	27.1

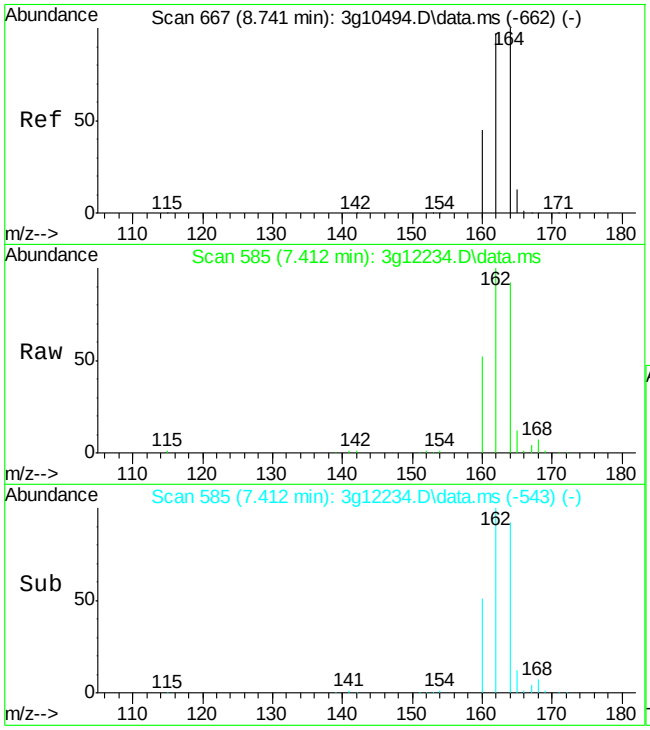


#5
Naphthalene
Concen: 0.7815 ug/mL
RT: 5.719 min Scan# 446
Delta R.T. -0.007 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:128 Resp: 28571

Ion	Ratio	Lower	Upper
128	100		
129	15.6	0.0	31.0
127	13.8	0.0	32.8
126	8.5	0.0	27.5

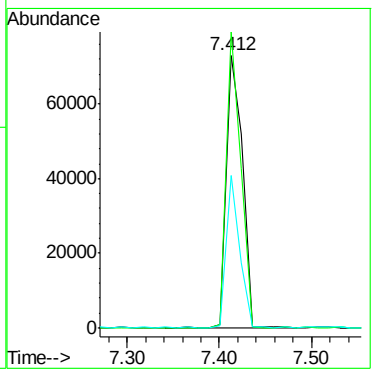


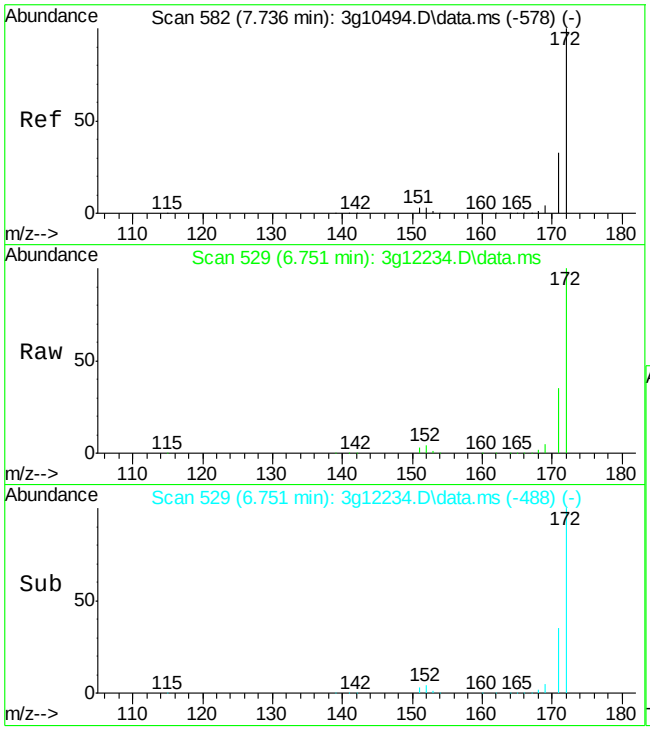


#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.412 min Scan# 585
Delta R.T. -0.001 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:164 Resp: 89752

Ion	Ratio	Lower	Upper
164	100		
162	97.0	84.8	124.8
160	46.2	33.9	73.9

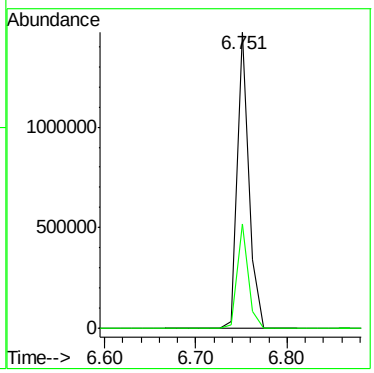


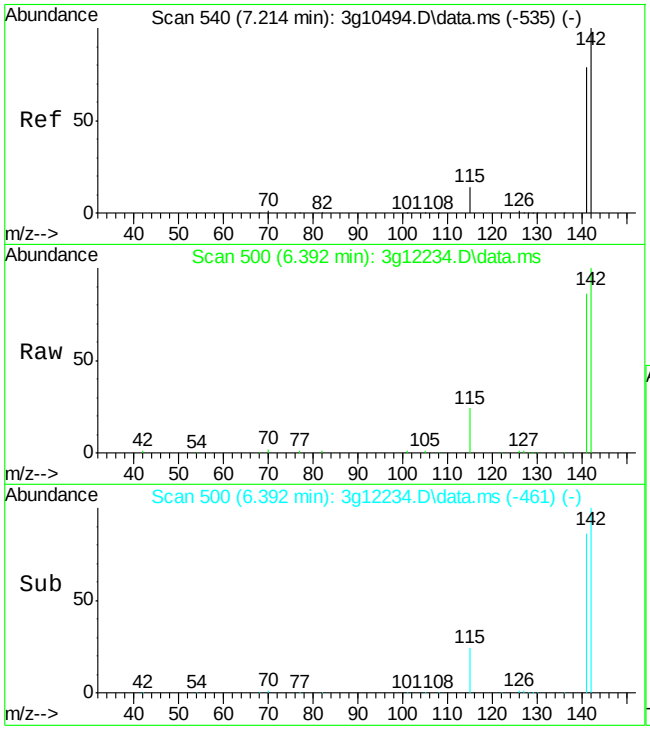


#7
2-Fluorobiphenyl
Concen: 40.3603 ug/mL
RT: 6.751 min Scan# 529
Delta R.T. 0.004 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:172 Resp: 1321094

Ion	Ratio	Lower	Upper
172	100		
171	33.7	12.6	52.6

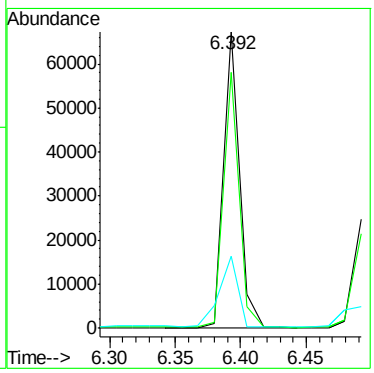


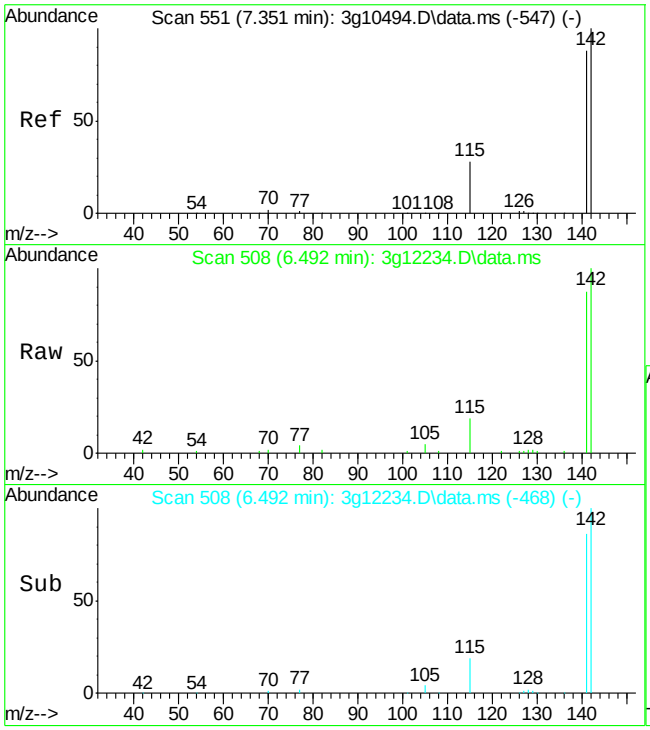


#8
2-Methylnaphthalene
Concen: 2.0192 ug/mL
RT: 6.392 min Scan# 500
Delta R.T. -0.013 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:142 Resp: 56579

Ion	Ratio	Lower	Upper
142	100		
141	84.9	64.0	104.0
115	28.0	7.1	47.1

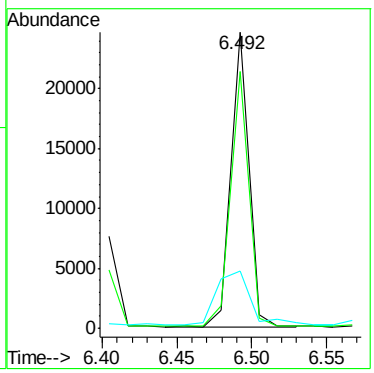


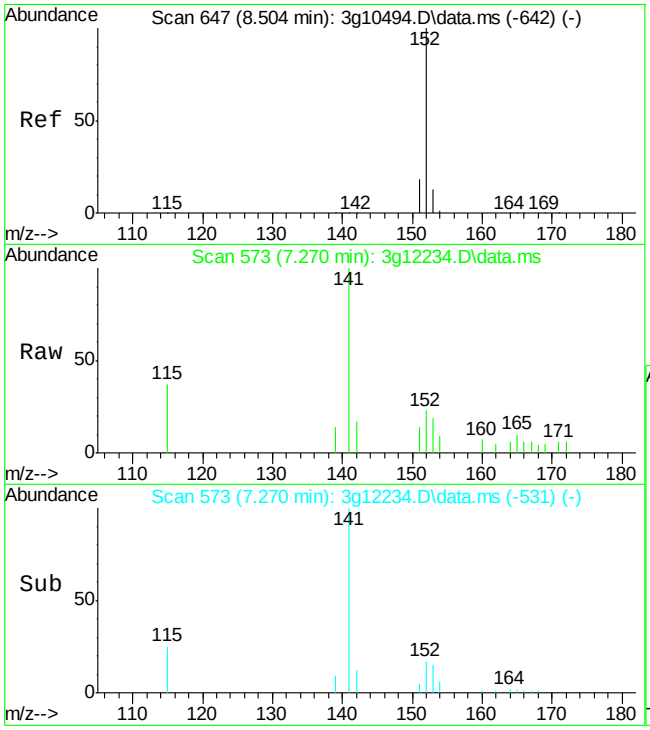


#9
1-Methylnaphthalene
Concen: 0.7704 ug/mL
RT: 6.492 min Scan# 508
Delta R.T. 0.001 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:142 Resp: 20126

Ion	Ratio	Lower	Upper
142	100		
141	88.6	65.4	105.4
115	35.5	9.7	49.7

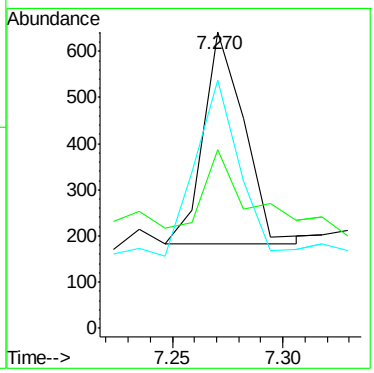


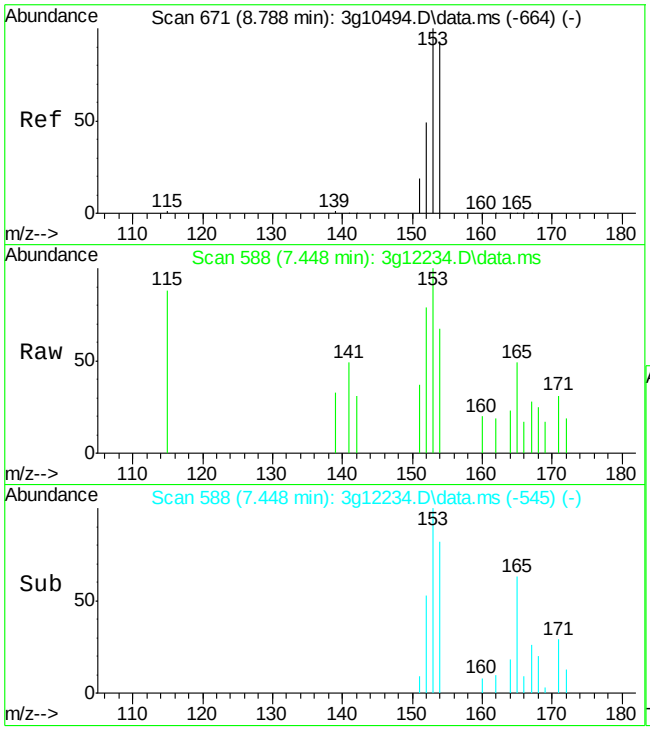


#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.270 min Scan# 573
Delta R.T. -0.003 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:152 Resp: 594

Ion	Ratio	Lower	Upper
152	100		
151	49.5	0.0	39.3#
153	114.3	0.0	32.8#

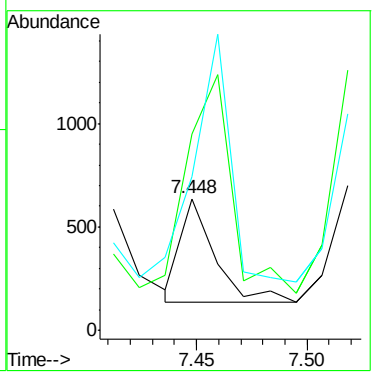


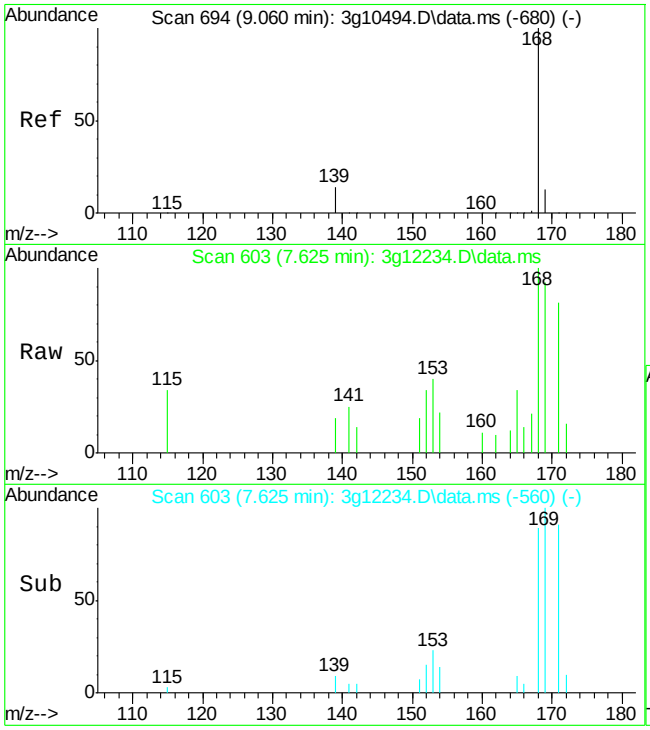


#11
Acenaphthene
Concen: Below ug/mL
RT: 7.448 min Scan# 588
Delta R.T. 0.011 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:154 Resp: 539

Ion	Ratio	Lower	Upper
154	100		
153	276.6	84.1	124.1#
152	281.6	30.2	70.2#

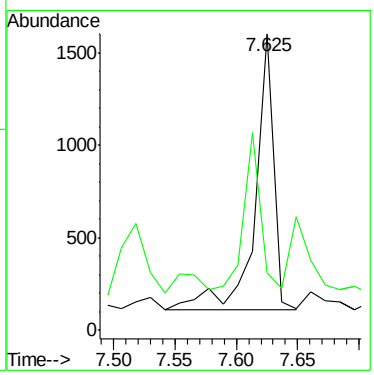


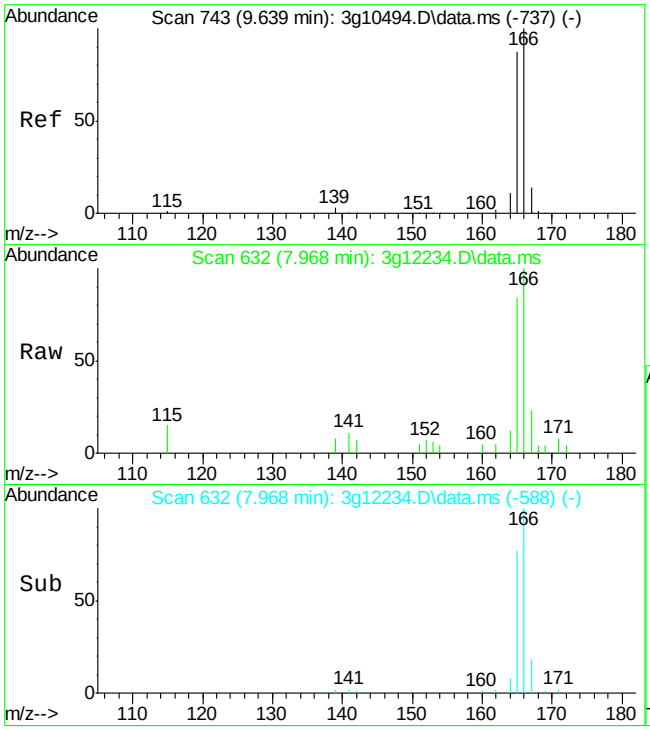


#12
Dibenzofuran
Concen: Below ug/mL
RT: 7.625 min Scan# 603
Delta R.T. 0.014 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:168 Resp: 1566

Ion	Ratio	Lower	Upper
168	100		
139	50.1	10.9	50.9

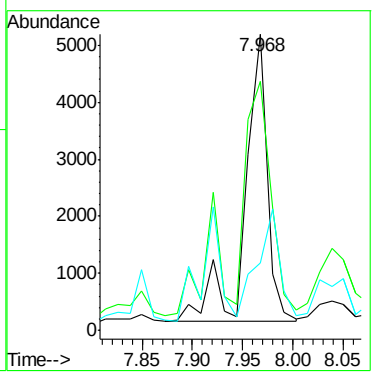


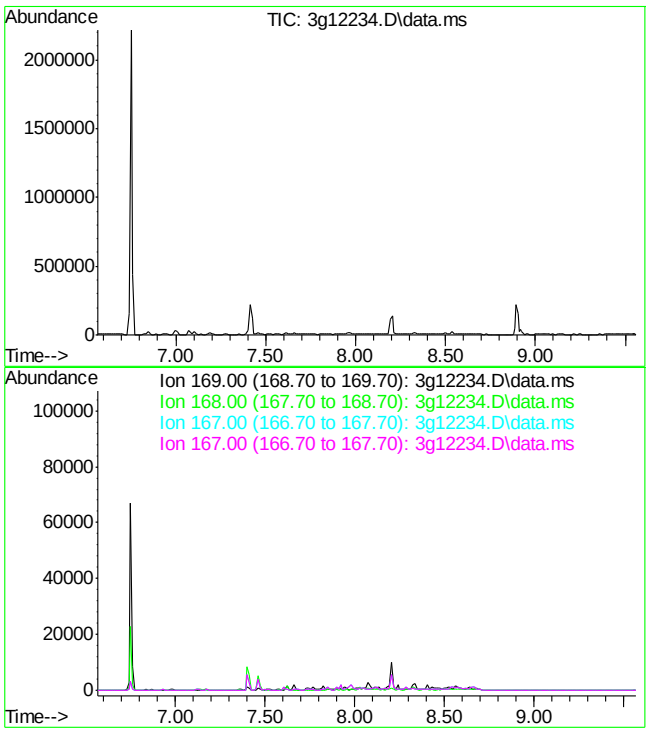


#13
Fluorene
Concen: 0.2064 ug/mL
RT: 7.968 min Scan# 632
Delta R.T. 0.018 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:166 Resp: 7569

Ion	Ratio	Lower	Upper
166	100		
165	87.9	69.6	109.6
167	37.5	0.0	33.5#



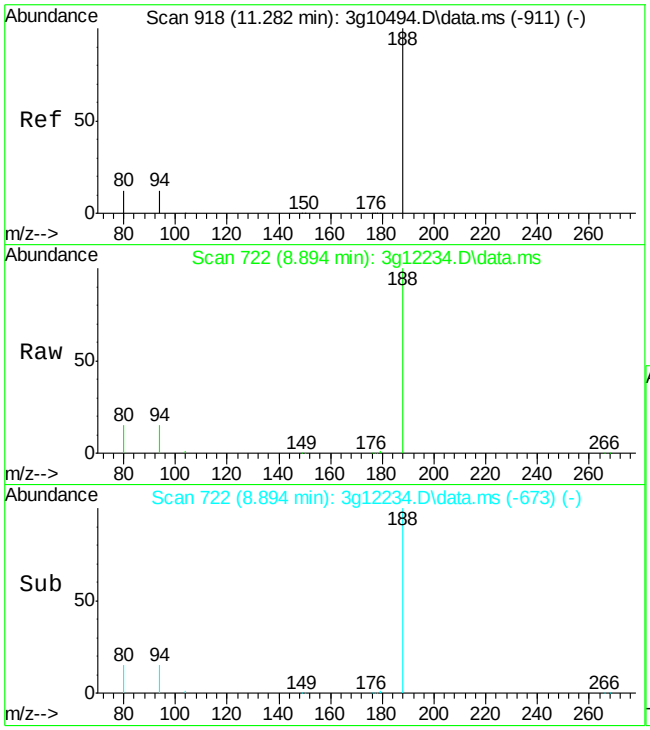


#14
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 8.07 min

Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion: 169

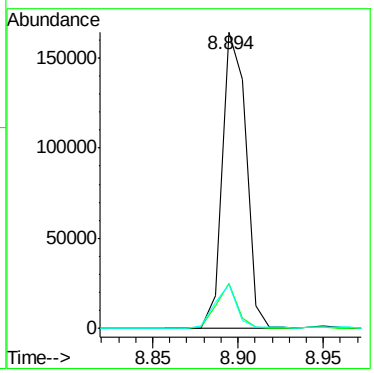
Sig	Exp Ratio
169	100
168	60.9
167	33.6
167	33.6

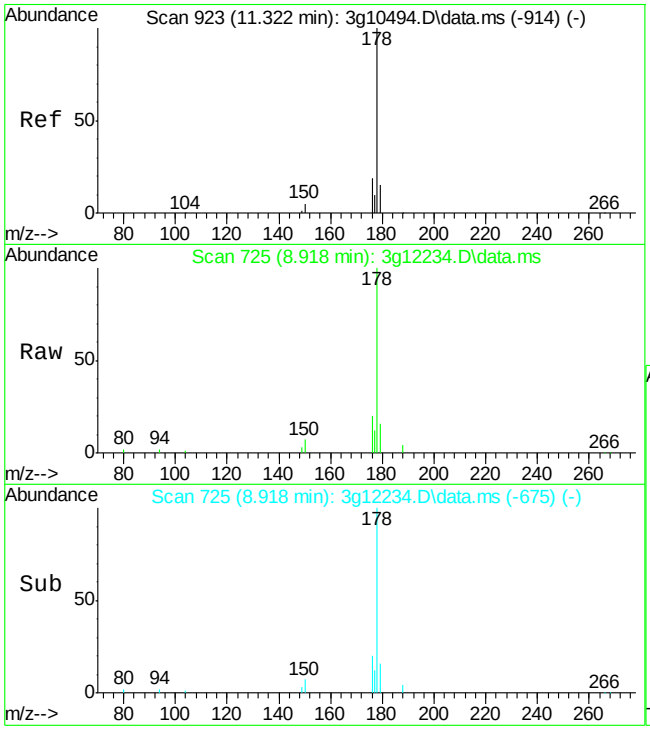


#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.894 min Scan# 722
Delta R.T. -0.062 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:188 Resp: 153894

Ion	Ratio	Lower	Upper
188	100		
94	12.8	0.0	32.1
80	13.8	0.0	32.0

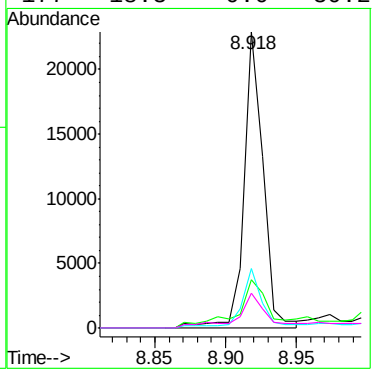


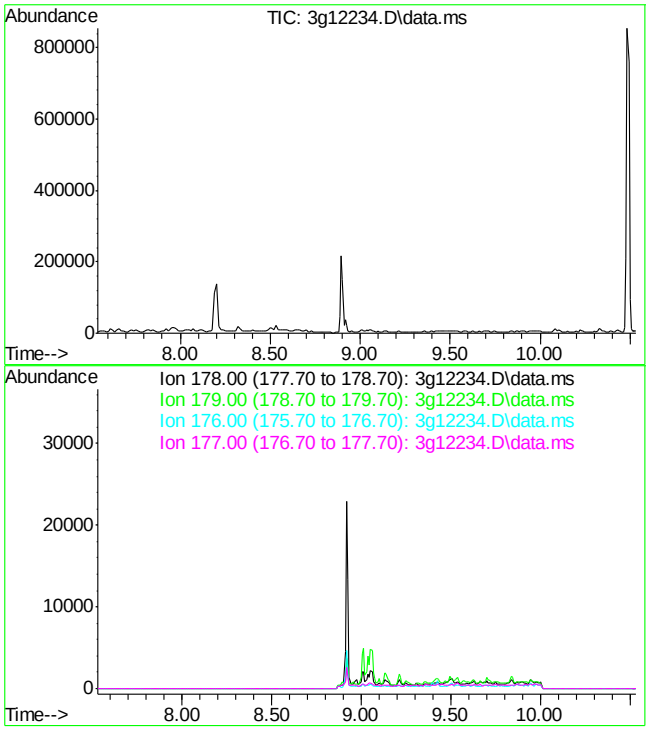


#16
Phenanthrene
Concen: 0.3542 ug/mL
RT: 8.918 min Scan# 725
Delta R.T. -0.061 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:178 Resp: 20832

Ion	Ratio	Lower	Upper
178	100		
179	25.8	0.0	35.2
176	20.8	0.0	38.7
177	18.3	0.0	30.2



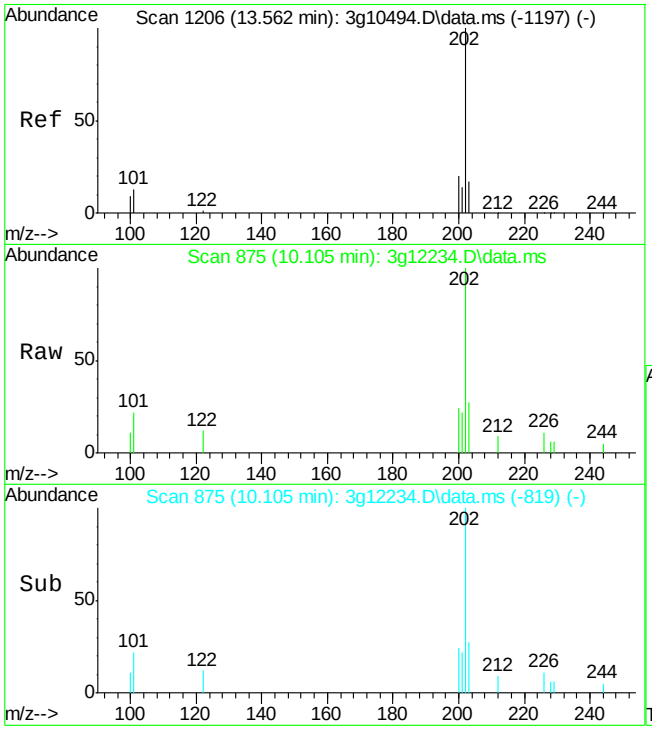


#17
Anthracene
Concen: N.D. ug/mL
Expected RT: 9.03 min

Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion: 178

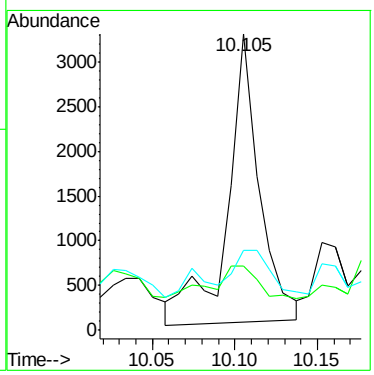
Sig	Exp Ratio
178	100
179	15.3
176	18.0
177	8.7

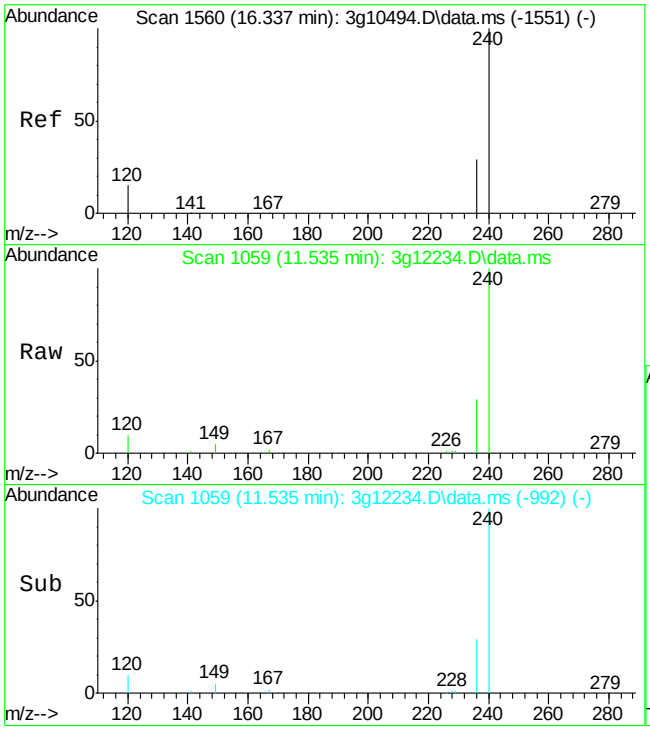


#18
Fluoranthene
Concen: 0.0734 ug/mL
RT: 10.105 min Scan# 875
Delta R.T. -0.057 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:202 Resp: 4420

Ion	Ratio	Lower	Upper
202	100		
101	26.4	0.0	31.8
203	31.5	0.0	37.3

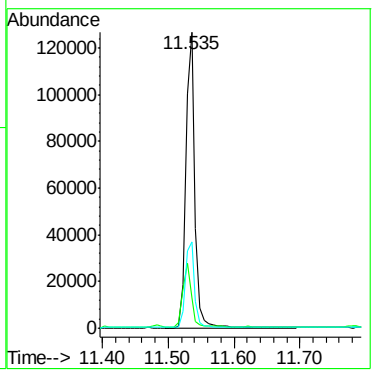


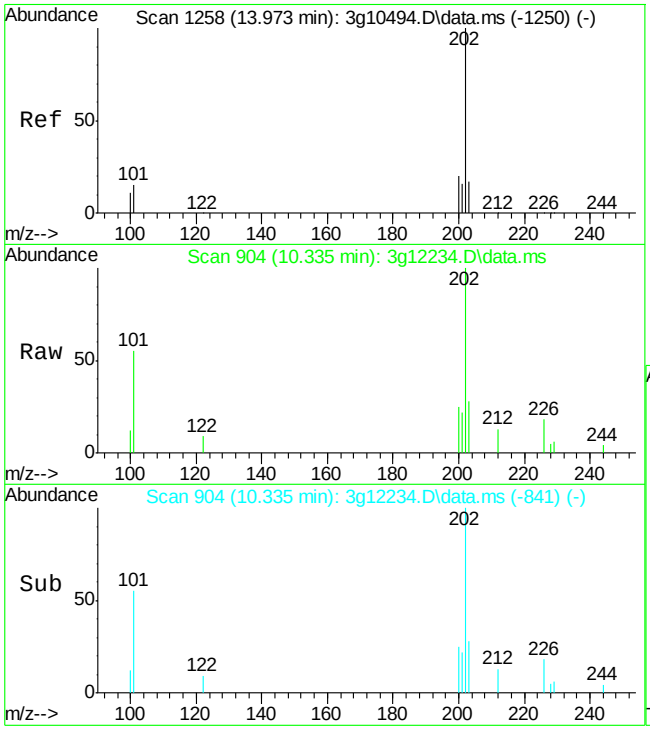


#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.535 min Scan# 1059
Delta R.T. 0.005 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:240 Resp: 122324

Ion	Ratio	Lower	Upper
240	100		
120	20.6	0.0	35.5
236	30.1	8.6	48.6

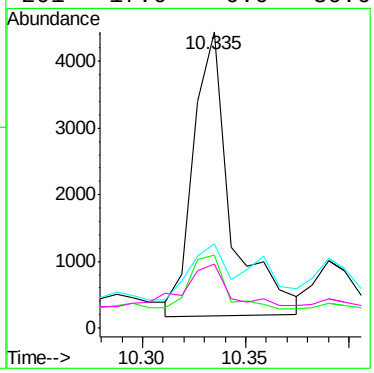


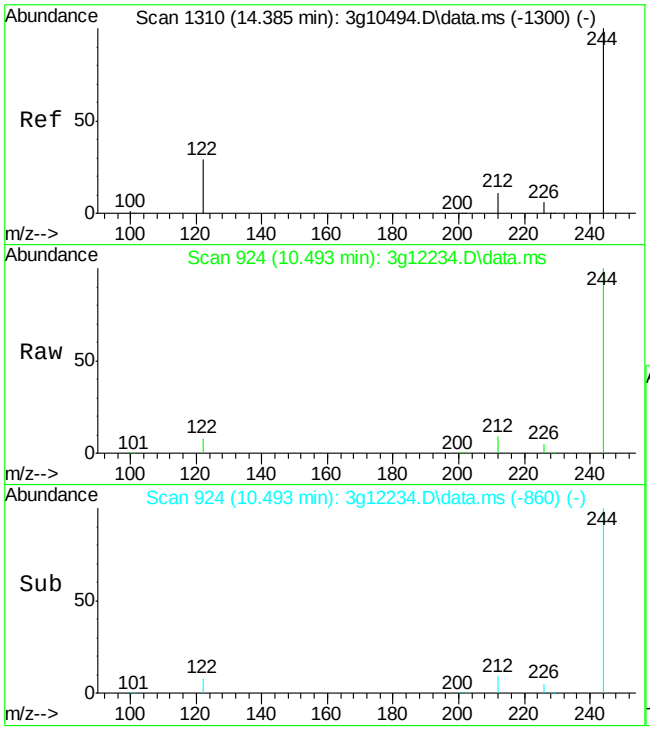


#20
Pyrene
Concen: 0.0799 ug/mL
RT: 10.335 min Scan# 904
Delta R.T. -0.004 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:202 Resp: 5367

Ion	Ratio	Lower	Upper
202	100		
200	17.9	0.3	40.3
203	31.4	0.0	37.8
201	17.6	0.0	36.6

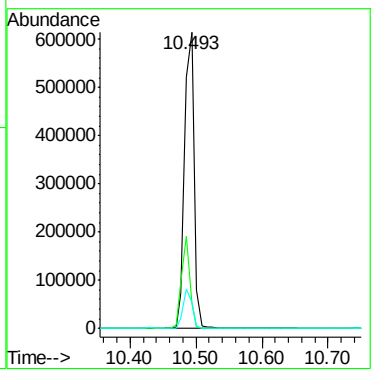


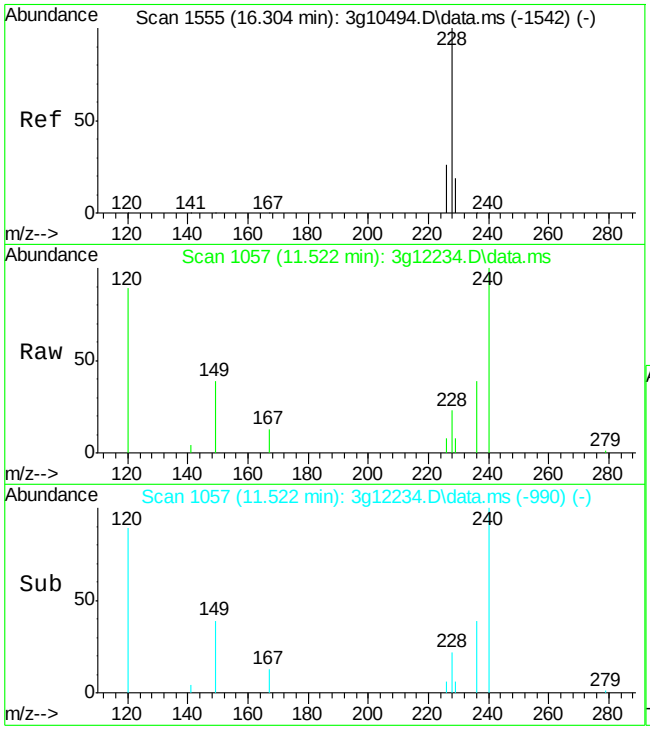


#21
Terphenyl-d14
Concen: 38.8397 ug/mL
RT: 10.493 min Scan# 924
Delta R.T. 0.005 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:244 Resp: 619219

Ion	Ratio	Lower	Upper
244	100		
122	26.9	4.9	44.9
212	12.4	0.0	32.5

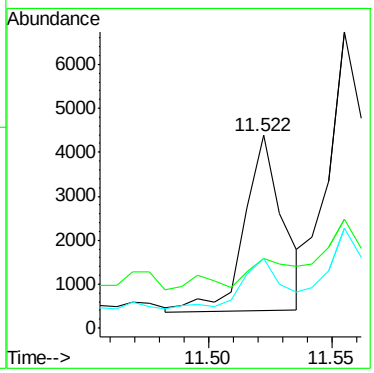


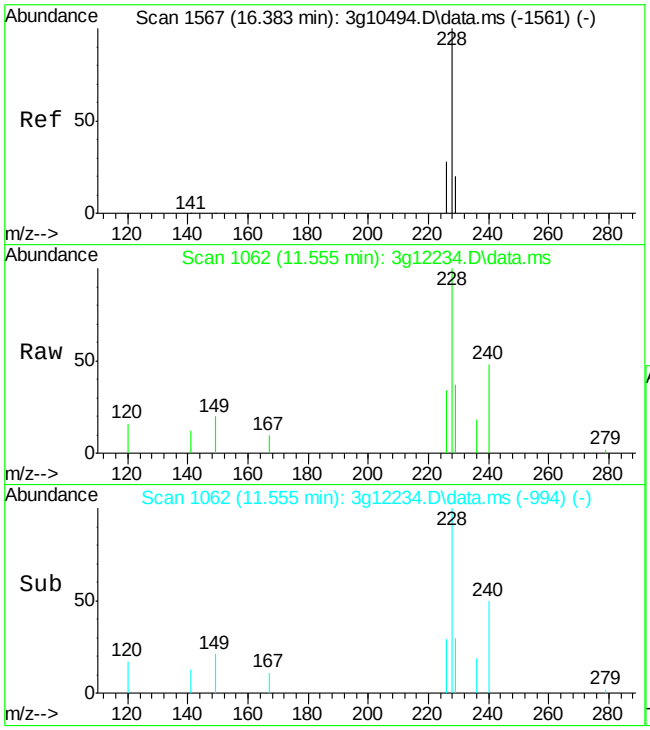


#22
Benzo(a)anthracene
Concen: 0.0801 ug/mL
RT: 11.522 min Scan# 1057
Delta R.T. 0.005 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:228 Resp: 4373

Ion	Ratio	Lower	Upper
228	100		
229	23.3	0.0	39.5
226	29.9	6.8	46.8

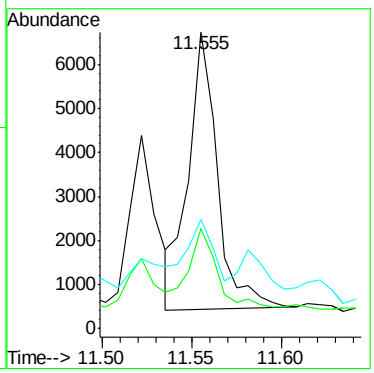


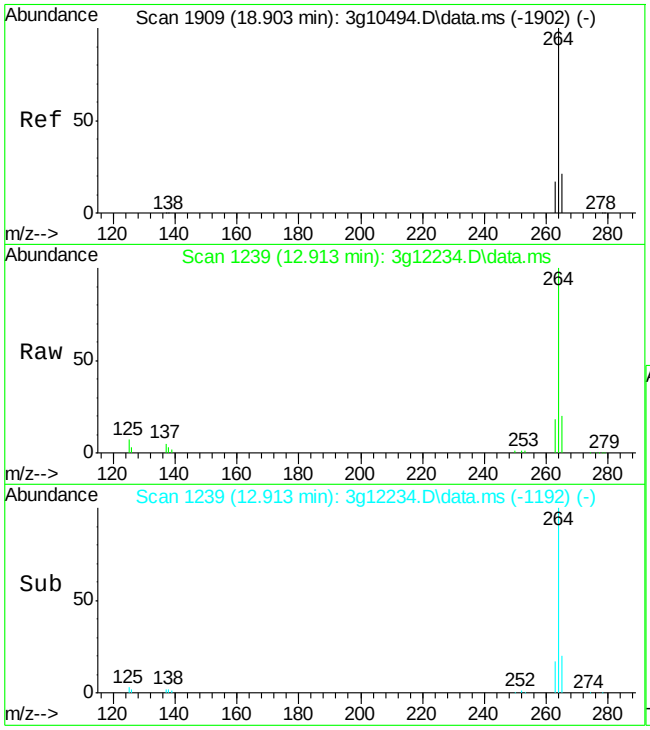


#23
Chrysene
Concen: 0.1191 ug/mL
RT: 11.555 min Scan# 1062
Delta R.T. 0.005 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:228 Resp: 7085

Ion	Ratio	Lower	Upper
228	100		
226	27.5	8.9	48.9
229	25.2	0.0	39.4

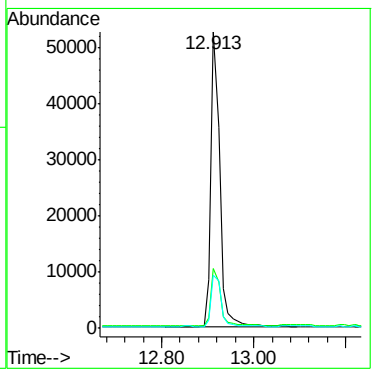


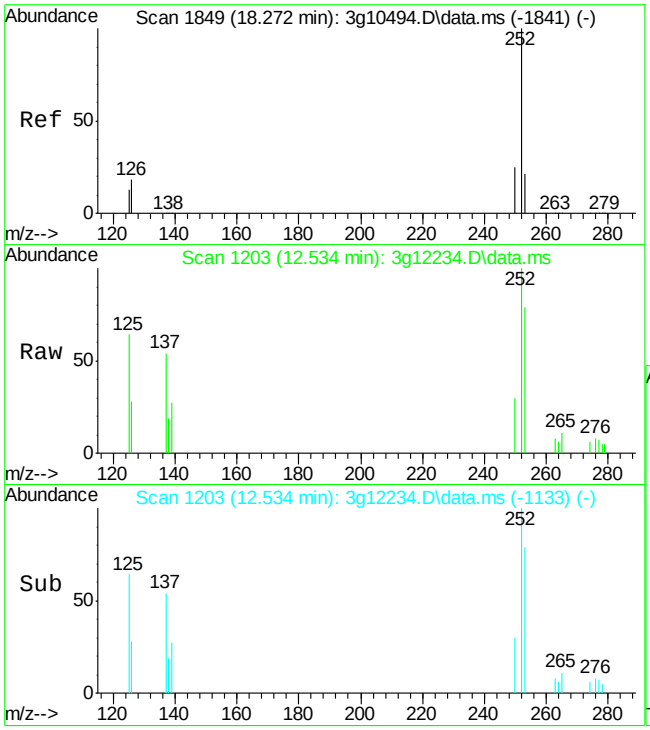


#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 12.913 min Scan# 1239
Delta R.T. -0.006 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:264 Resp: 70727

Ion	Ratio	Lower	Upper
264	100		
265	21.4	0.9	40.9
263	19.9	0.0	36.8

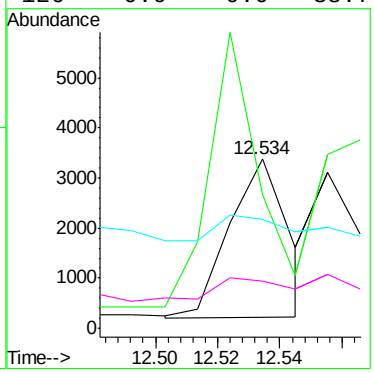


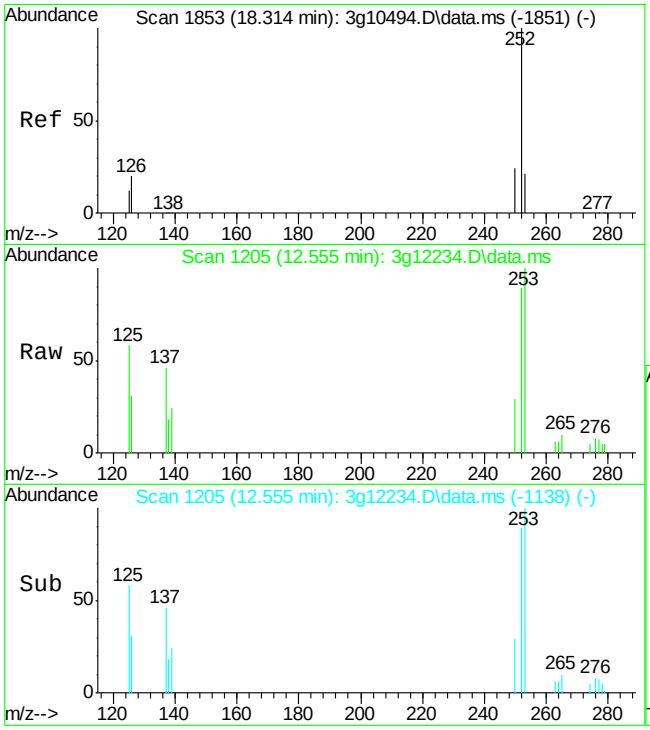


#25
Benzo(b)fluoranthene
Concen: 0.1817 ug/mL m
RT: 12.534 min Scan# 1203
Delta R.T. 0.011 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:252 Resp: 4159

Ion	Ratio	Lower	Upper
252	100		
253	163.4	26.7	66.7#
125	23.1	0.0	33.5
126	0.0	0.0	38.7

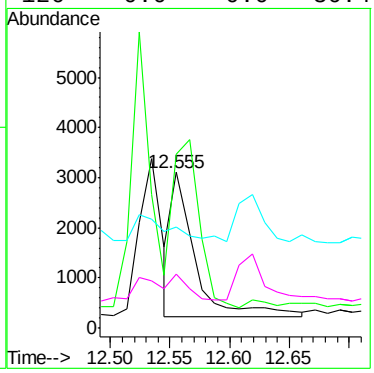


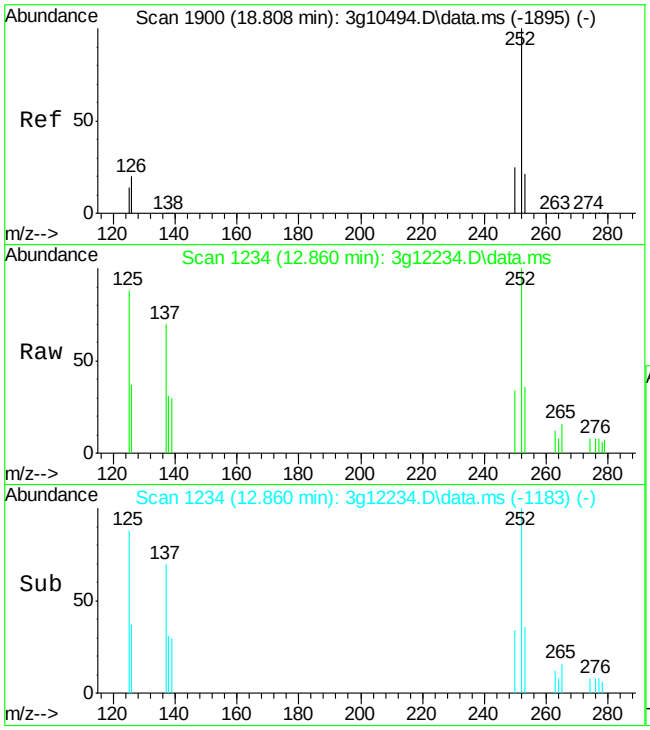


#26
Benzo(k)fluoranthene
Concen: 0.0754 ug/mL m
RT: 12.555 min Scan# 1205
Delta R.T. 0.001 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:252 Resp: 3954

Ion	Ratio	Lower	Upper
252	100		
253	171.9	20.8	60.8#
125	24.3	0.0	31.8
126	0.0	0.0	36.4

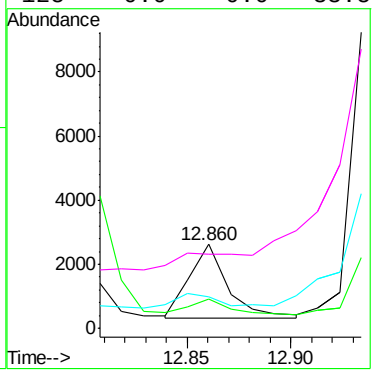


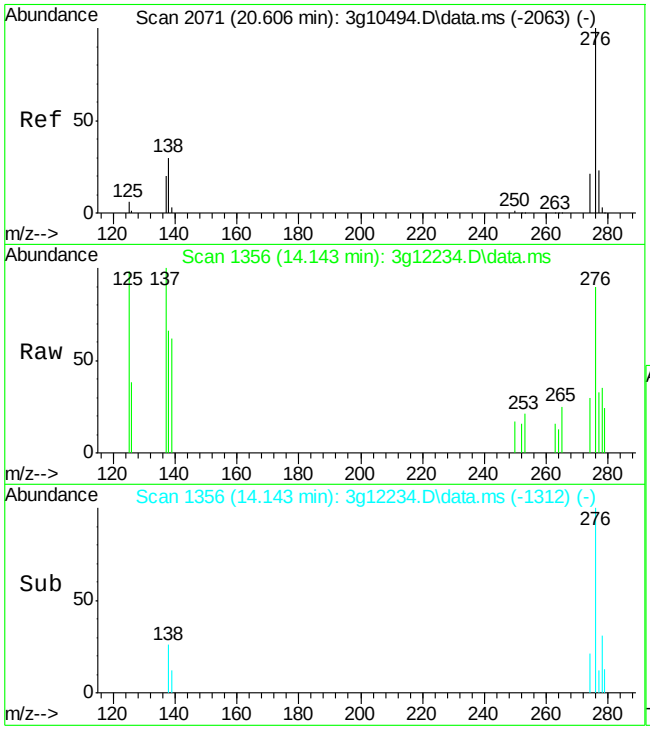


#27
Benzo(a)pyrene
Concen: 0.0617 ug/mL
RT: 12.860 min Scan# 1234
Delta R.T. 0.003 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:252 Resp: 3005

Ion	Ratio	Lower	Upper
252	100		
253	24.7	1.8	41.8
126	24.9	0.0	38.6
125	0.0	0.0	33.5

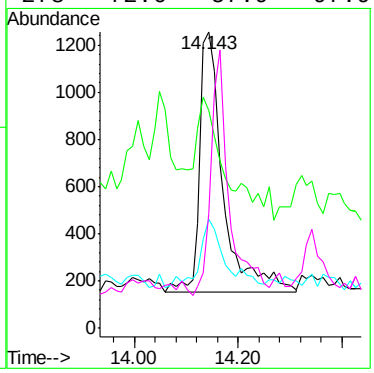


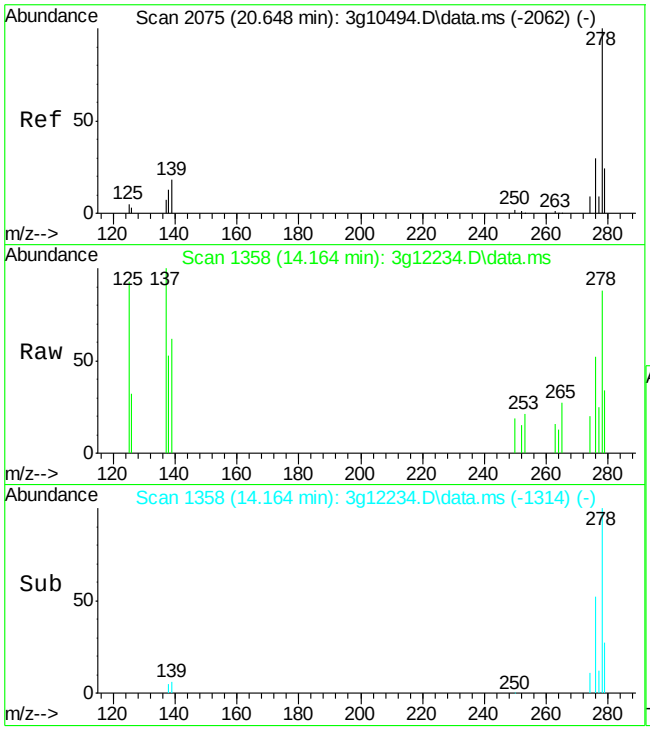


#28
Indeno(1,2,3-cd)pyrene
Concen: 0.0653 ug/mL
RT: 14.143 min Scan# 1356
Delta R.T. -0.037 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:276 Resp: 3468

Ion	Ratio	Lower	Upper
276	100		
138	27.7	16.6	56.6
277	24.5	4.7	44.7
278	72.6	57.9	97.9

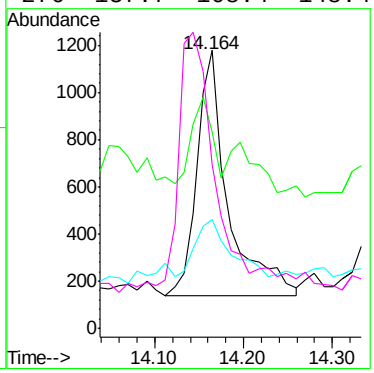


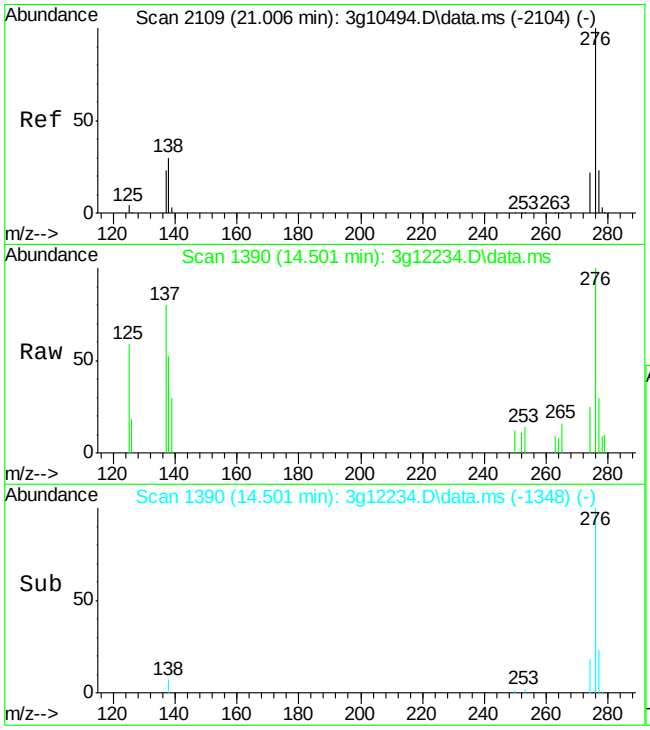


#29
Dibenz(a,h)anthracene
Concen: 0.0619 ug/mL
RT: 14.164 min Scan# 1358
Delta R.T. -0.037 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:278 Resp: 2519

Ion	Ratio	Lower	Upper
278	100		
139	22.6	7.8	47.8
279	26.6	2.3	42.3
276	137.7	108.4	148.4

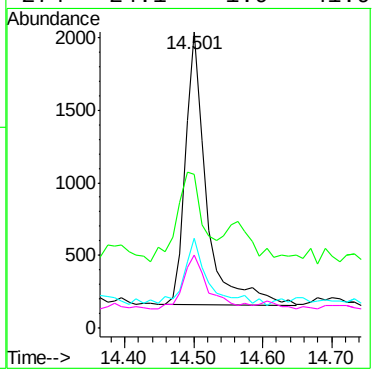




#30
Benzo(g,h,i)perylene
Concen: 0.0816 ug/mL
RT: 14.501 min Scan# 1390
Delta R.T. -0.055 min
Lab File: 3g12234.D
Acq: 26 Nov 12 8:05 pm

Tgt Ion:276 Resp: 3969

Ion	Ratio	Lower	Upper
276	100		
138	40.3	11.5	51.5
277	27.4	2.9	42.9
274	24.1	1.9	41.9



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\112612\
Data File : 3g12229.D
Acq On : 26 Nov 2012 6:07 pm
Operator : SARAHM1
Sample : OP6988-MB
Misc : OP6988,E3G577,30.00,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 27 09:22:34 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G574.M
Quant Title : PAHSIM BASE
QLast Update : Mon Nov 26 15:39:31 2012
Response via : Initial Calibration

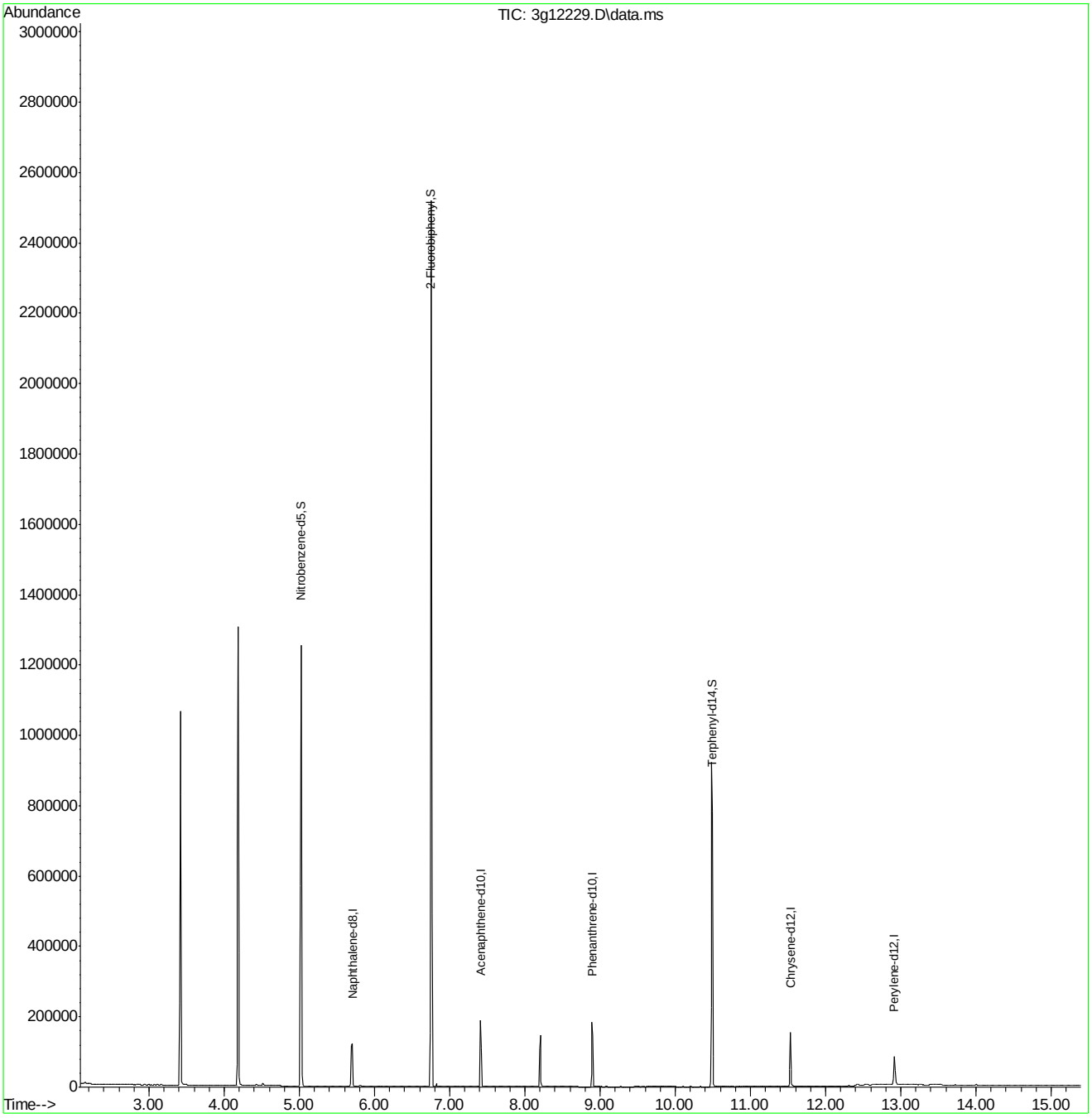
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.707	136	129576	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.412	164	82091	4.0000	ug/mL	0.00
15) Phenanthrene-d10	8.894	188	139846	4.0000	ug/mL	-0.06
19) Chrysene-d12	11.535	240	111025	4.0000	ug/mL	0.00
24) Perylene-d12	12.913	264	69568	4.0000	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.021	82	606301	48.6684	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 97.34%			
7) 2-Fluorobiphenyl	6.751	172	1487976	49.7336	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 99.46%			
21) Terphenyl-d14	10.493	244	659134	45.5508	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 91.10%			
Target Compounds						Qvalue
3) N-Nitrosodimethylamine	2.458	74	56	N.D.		
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d	
5) Naphthalene	5.719	128	385	N.D.		
8) 2-Methylnaphthalene	6.392	142	217	N.D.		
9) 1-Methylnaphthalene	6.492	142	148	N.D.		
10) Acenaphthylene	7.270	152	73	N.D.		
11) Acenaphthene	7.412	154	462	Below Cal # 70		
12) Dibenzofuran	7.790	168	83	N.D.		
13) Fluorene	0.000	166	0	N.D.	d	
14) Diphenylamine	0.000	169	0	N.D.	d	
16) Phenanthrene	8.918	178	1004	Below Cal # 1		
17) Anthracene	8.973	178	261	N.D.		
18) Fluoranthene	10.105	202	559	N.D.		
20) Pyrene	10.335	202	450	N.D.		
22) Benzo(a)anthracene	11.522	228	857	N.D.		
23) Chrysene	11.555	228	464	N.D.		
25) Benzo(b)fluoranthene	0.000	252	0	N.D.	d	
26) Benzo(k)fluoranthene	12.534	252	410	N.D.		
27) Benzo(a)pyrene	12.860	252	352	N.D.		
28) Indeno(1,2,3-cd)pyrene	14.133	276	302	N.D.		
29) Dibenz(a,h)anthracene	14.154	278	241	N.D.		
30) Benzo(g,h,i)perylene	14.490	276	348	N.D.		

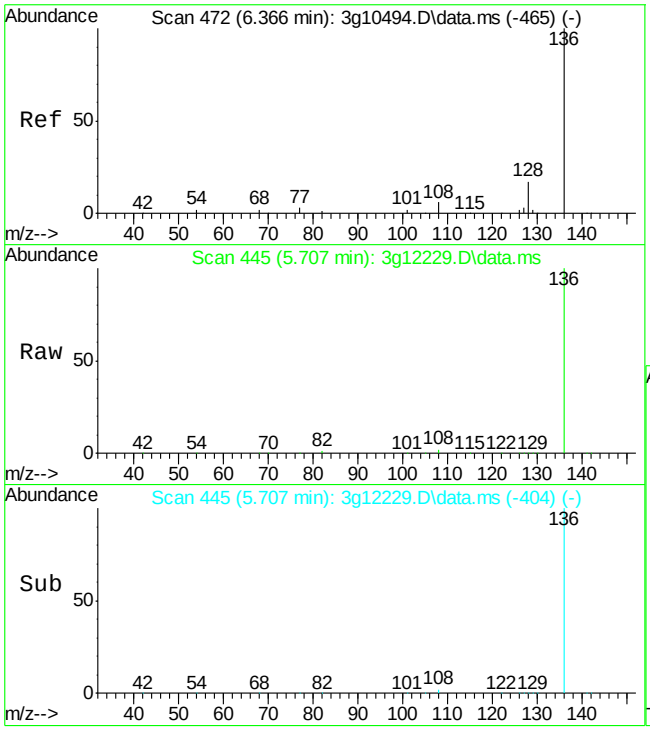
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\112612\
Data File : 3g12229.D
Acq On : 26 Nov 2012 6:07 pm
Operator : SARAHM1
Sample : OP6988-MB
Misc : OP6988,E3G577,30.00,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 27 09:22:34 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G574.M
Quant Title : PAHSIM BASE
QLast Update : Mon Nov 26 15:39:31 2012
Response via : Initial Calibration

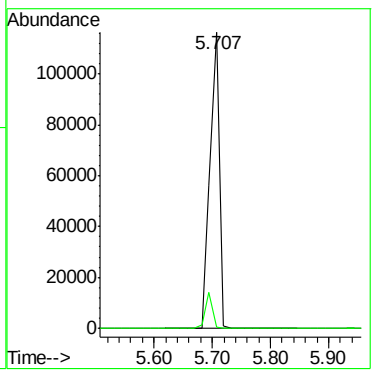


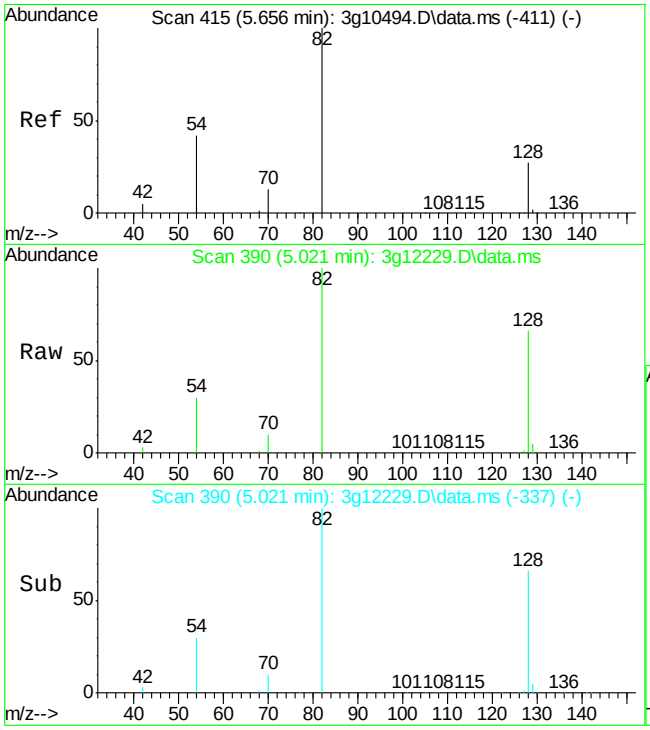


#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.707 min Scan# 445
Delta R.T. 0.005 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:136 Resp: 129576

Ion	Ratio	Lower	Upper
136	100		
68	9.2	0.0	21.7

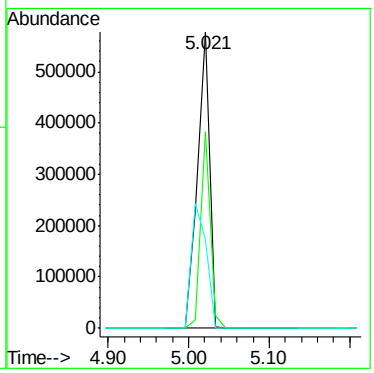


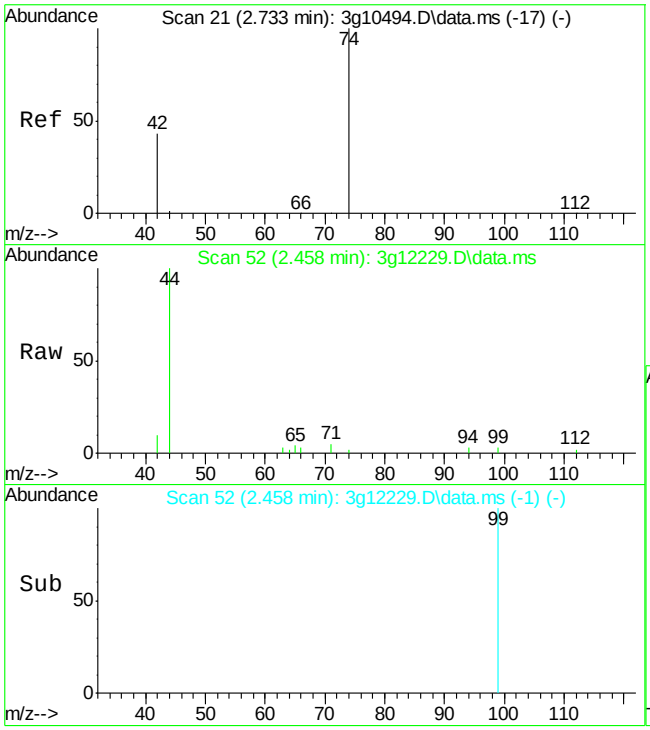


#2
Nitrobenzene-d5
Concen: 48.6684 ug/mL
RT: 5.021 min Scan# 390
Delta R.T. -0.005 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion: 82 Resp: 606301

Ion	Ratio	Lower	Upper
82	100		
128	52.1	30.7	70.7
54	51.6	36.8	76.8

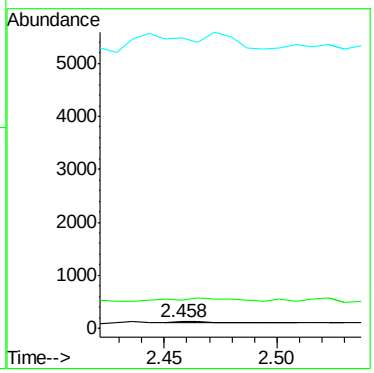


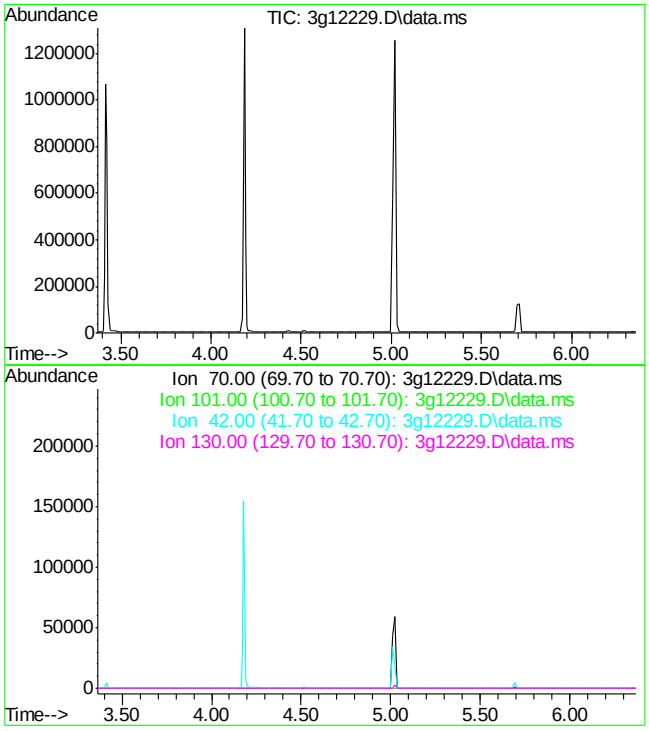


#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.458 min Scan# 52
Delta R.T. 0.008 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion: 74 Resp: 56

Ion	Ratio	Lower	Upper
74	100		
42	291.1	53.9	93.9#
44	0.0	0.0	24.2



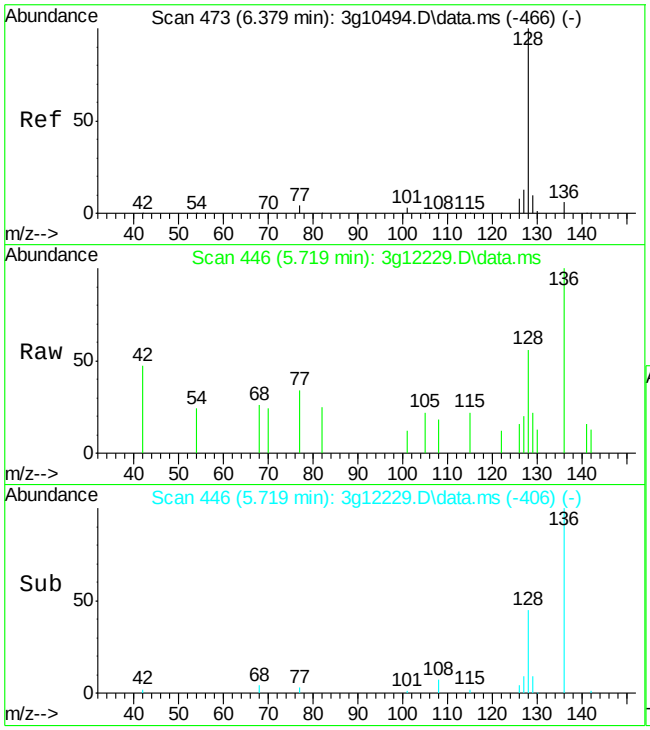


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 4.87 min

Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion: 70

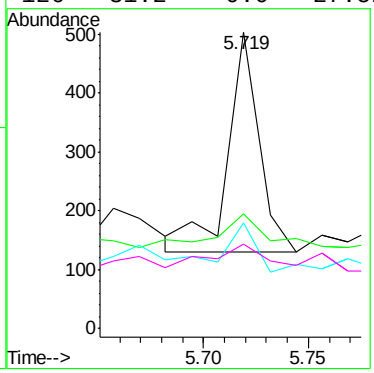
Sig	Exp Ratio
70	100
101	13.9
42	52.4
130	27.1

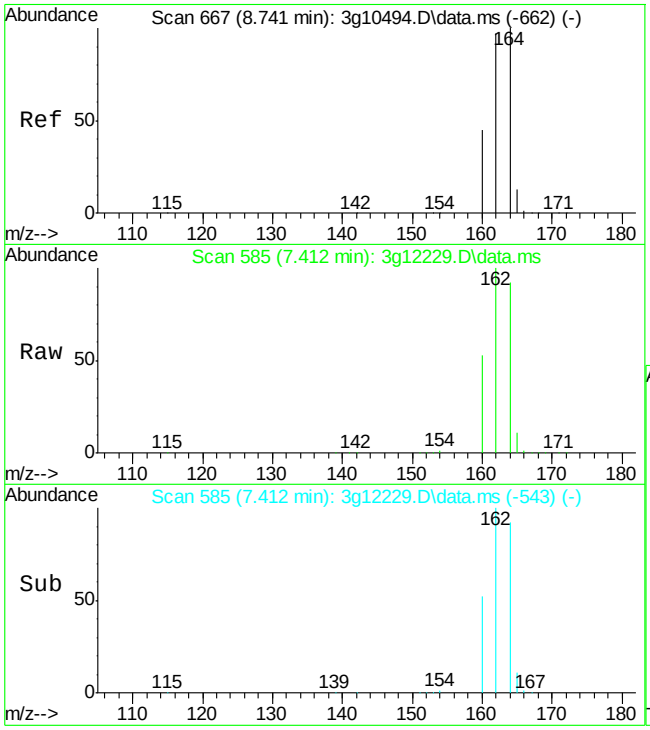


#5
Naphthalene
Concen: Below ug/mL
RT: 5.719 min Scan# 446
Delta R.T. -0.007 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:128 Resp: 385

Ion	Ratio	Lower	Upper
128	100		
129	24.9	0.0	31.0
127	15.1	0.0	32.8
126	31.2	0.0	27.5#

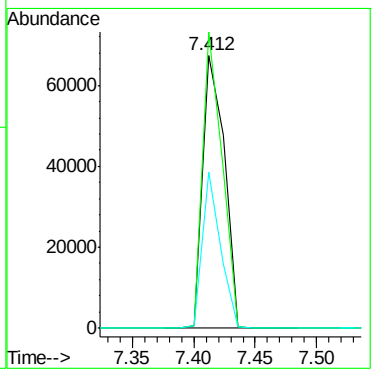


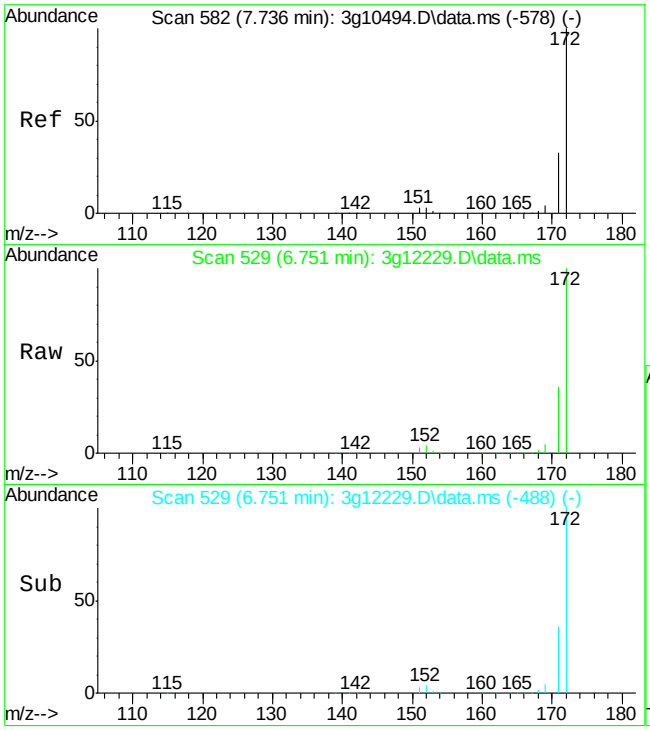


#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.412 min Scan# 585
Delta R.T. -0.001 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:164 Resp: 82091

Ion	Ratio	Lower	Upper
164	100		
162	97.7	84.8	124.8
160	47.3	33.9	73.9

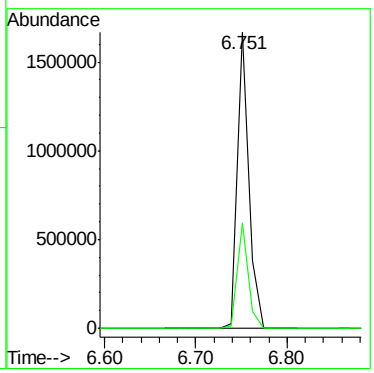


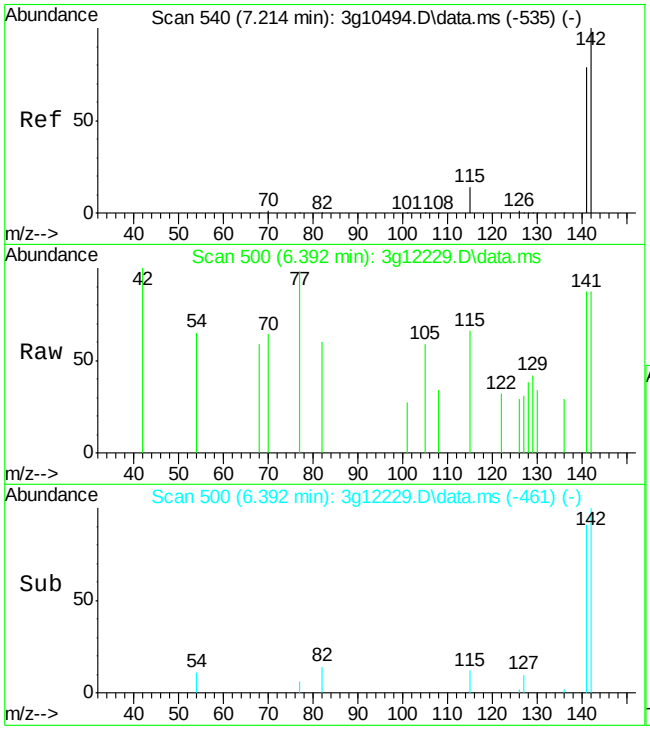


#7
2-Fluorobiphenyl
Concen: 49.7336 ug/mL
RT: 6.751 min Scan# 529
Delta R.T. 0.004 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:172 Resp: 1487976

Ion	Ratio	Lower	Upper
172	100		
171	34.1	12.6	52.6

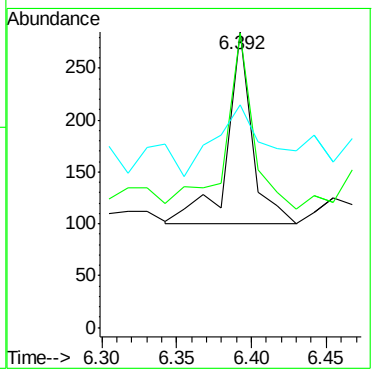


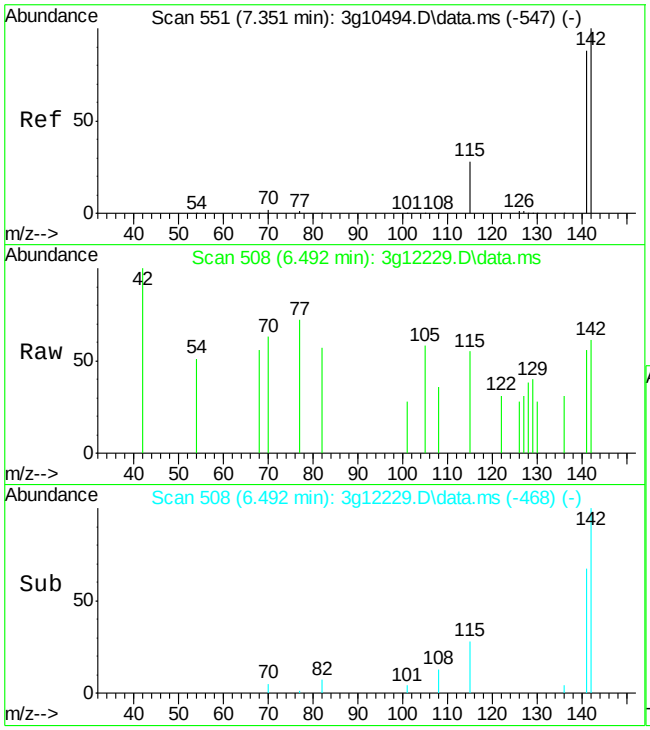


#8
2-Methylnaphthalene
Concen: Below ug/mL
RT: 6.392 min Scan# 500
Delta R.T. -0.013 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:142 Resp: 217

Ion	Ratio	Lower	Upper
142	100		
141	100.5	64.0	104.0
115	0.0	7.1	47.1#

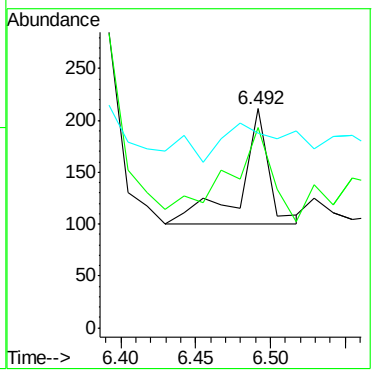


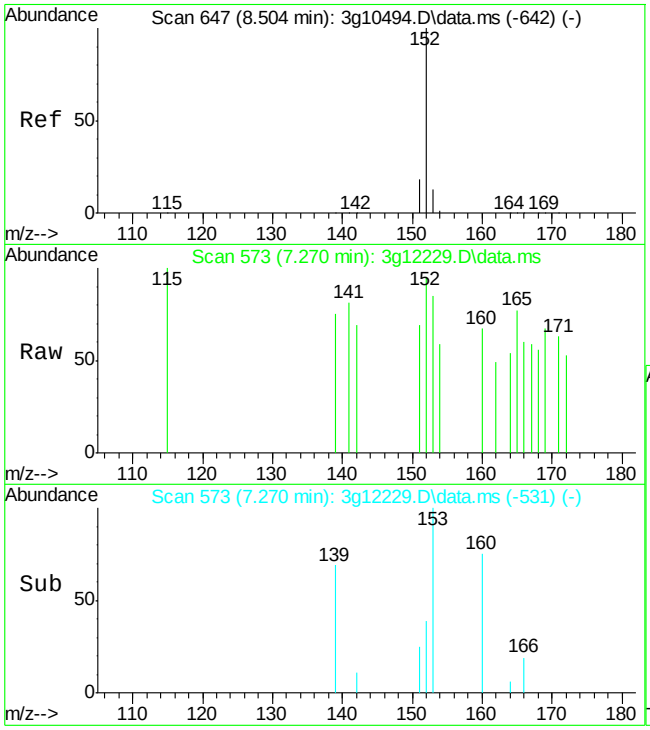


#9
1-Methylnaphthalene
Concen: Below ug/mL
RT: 6.492 min Scan# 508
Delta R.T. 0.001 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:142 Resp: 148

Ion	Ratio	Lower	Upper
142	100		
141	130.4	65.4	105.4#
115	0.0	9.7	49.7#

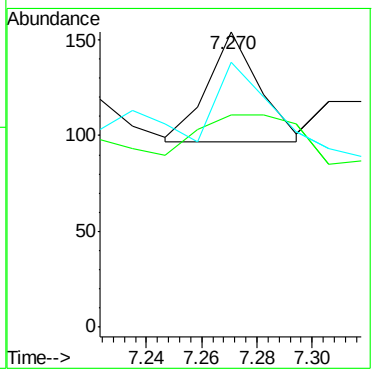


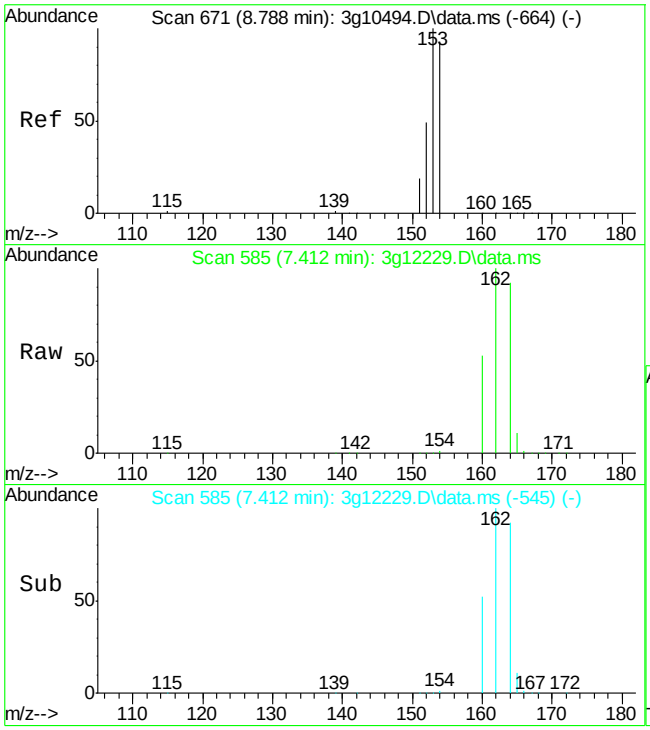


#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.270 min Scan# 573
Delta R.T. -0.003 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:152 Resp: 73

Ion	Ratio	Lower	Upper
152	100		
151	89.0	0.0	39.3#
153	94.5	0.0	32.8#

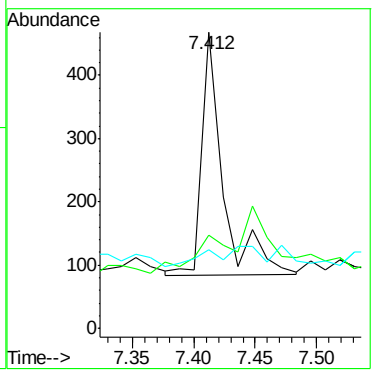


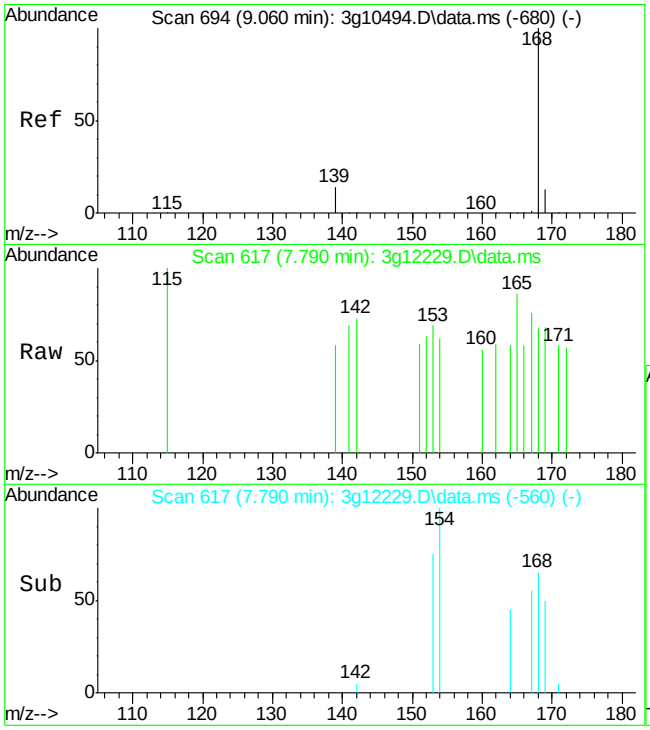


#11
Acenaphthene
Concen: Below ug/mL
RT: 7.412 min Scan# 585
Delta R.T. -0.024 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:154 Resp: 462

Ion	Ratio	Lower	Upper
154	100		
153	75.1	84.1	124.1#
152	27.3	30.2	70.2#

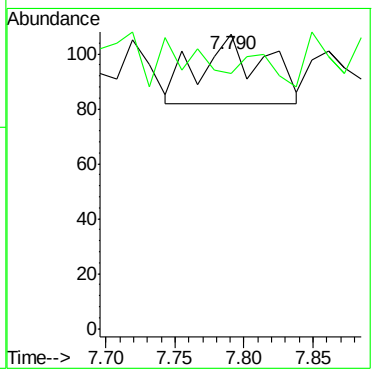


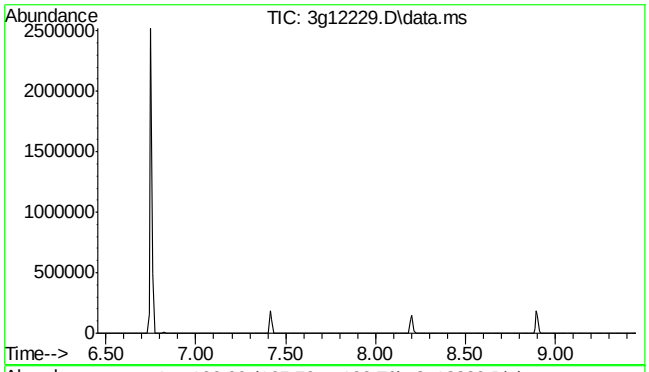


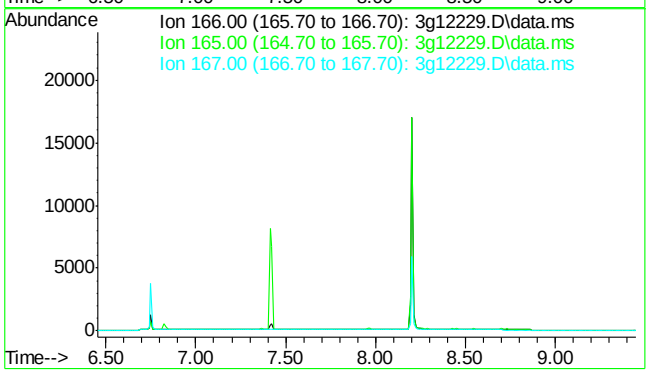
#12
Dibenzofuran
Concen: Below ug/mL
RT: 7.790 min Scan# 617
Delta R.T. 0.179 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:168 Resp: 83

Ion	Ratio	Lower	Upper
168	100		
139	22.9	10.9	50.9





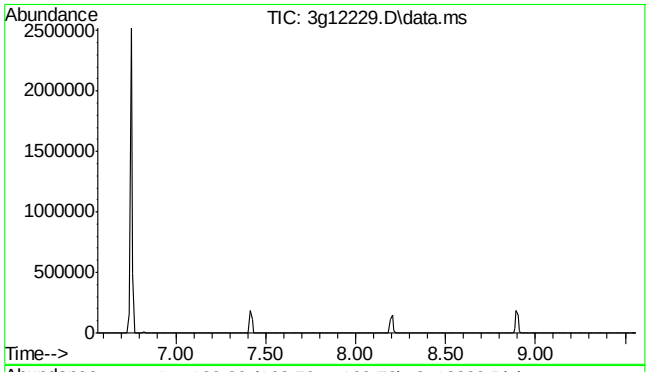


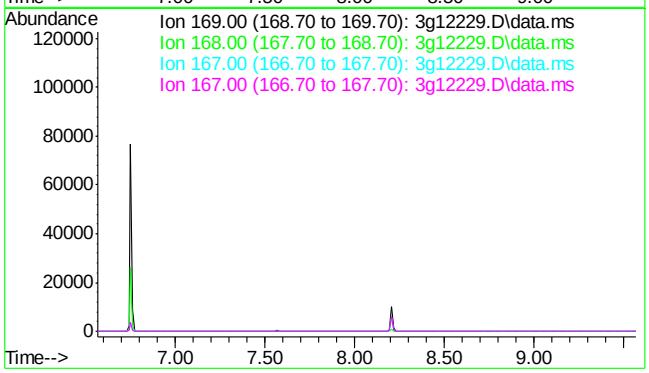
#13
Fluorene
Concen: N.D. ug/mL
Expected RT: 7.95 min

Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion: 166

Sig	Exp Ratio
166	100
165	89.6
167	13.5



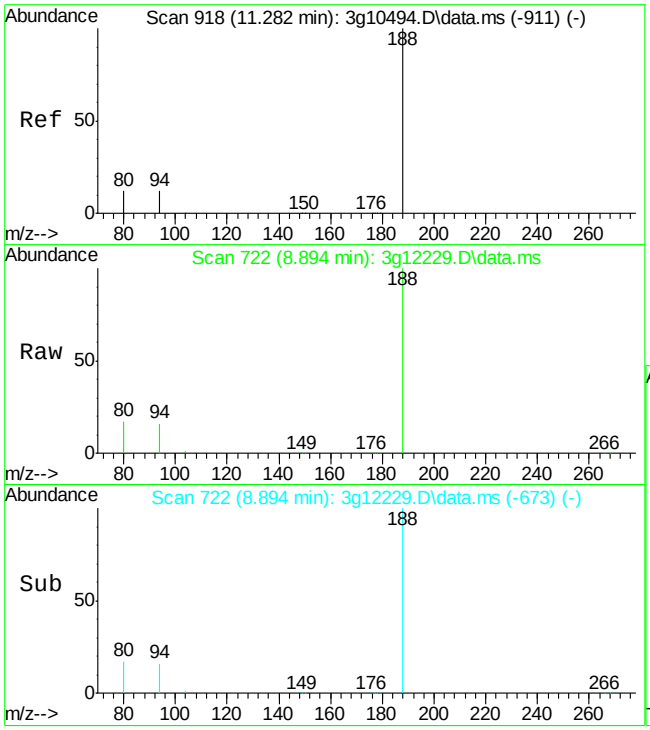


#14
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 8.07 min

Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion: 169

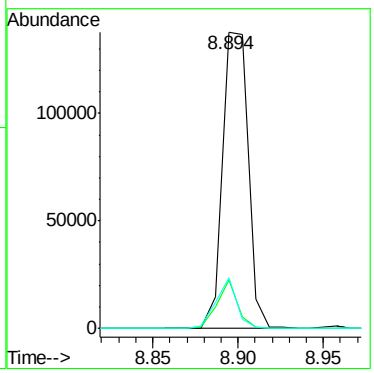
Sig	Exp Ratio
169	100
168	60.9
167	33.6
167	33.6

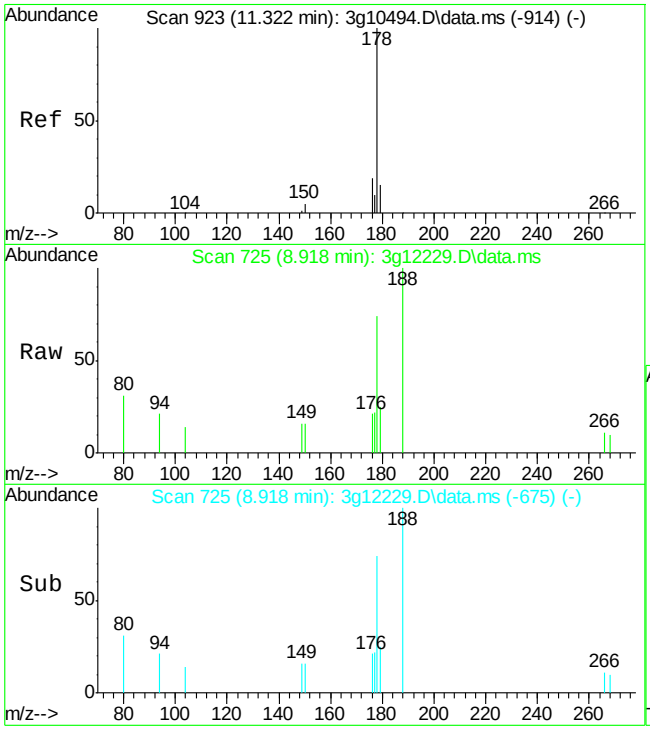


#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.894 min Scan# 722
Delta R.T. -0.062 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:188 Resp: 139846

Ion	Ratio	Lower	Upper
188	100		
94	12.7	0.0	32.1
80	13.9	0.0	32.0

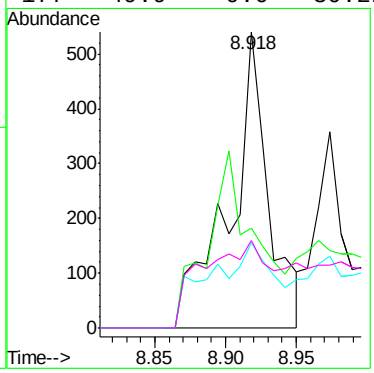


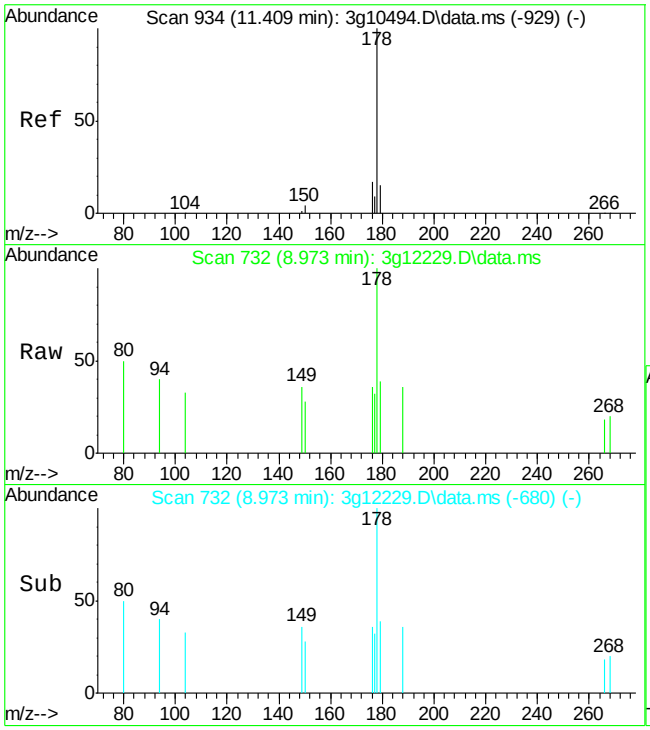


#16
Phenanthrene
Concen: Below ug/mL
RT: 8.918 min Scan# 725
Delta R.T. -0.061 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:178 Resp: 1004

Ion	Ratio	Lower	Upper
178	100		
179	73.7	0.0	35.2#
176	47.6	0.0	38.7#
177	49.9	0.0	30.2#

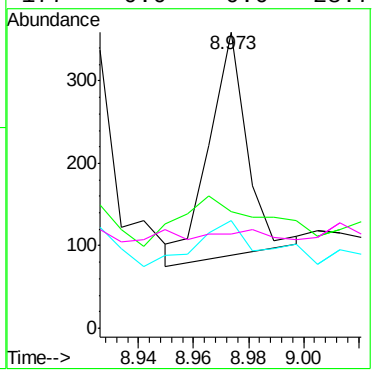


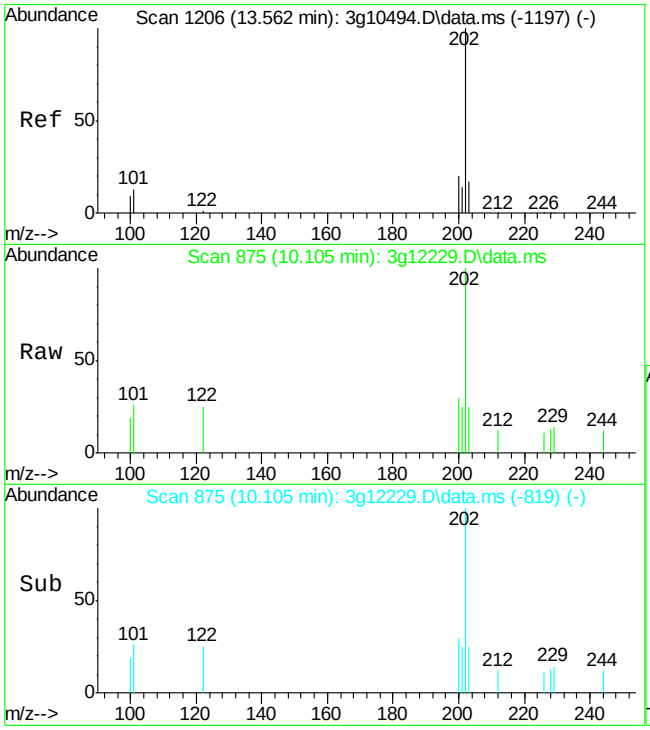


#17
Anthracene
Concen: Below ug/mL
RT: 8.973 min Scan# 732
Delta R.T. -0.061 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:178 Resp: 261

Ion	Ratio	Lower	Upper
178	100		
179	77.0	0.0	35.3#
176	47.9	0.0	38.0#
177	0.0	0.0	28.7

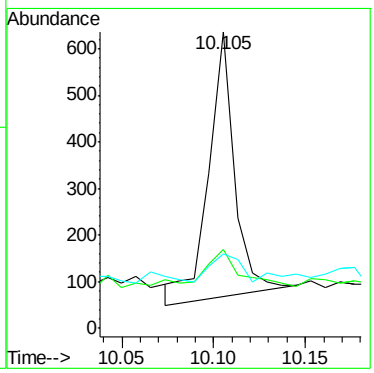


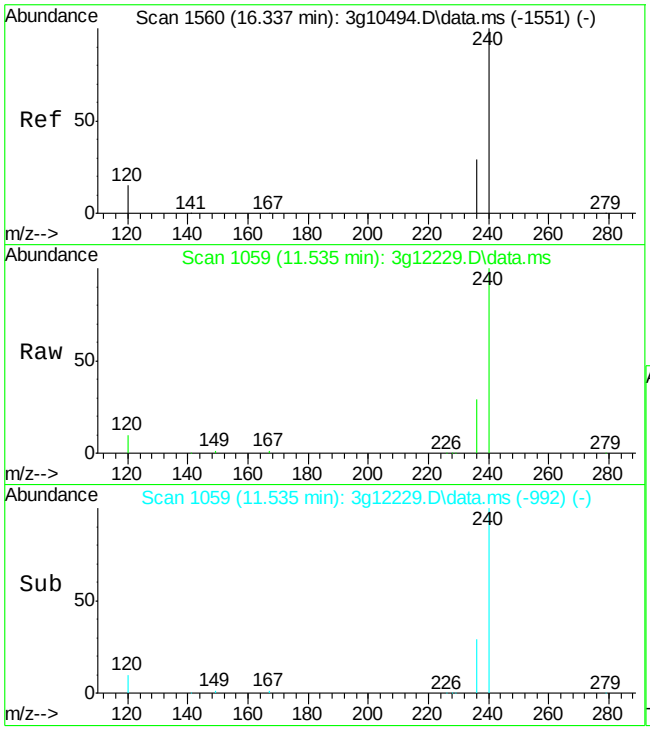


#18
Fluoranthene
Concen: Below ug/mL
RT: 10.105 min Scan# 875
Delta R.T. -0.057 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:202 Resp: 559

Ion	Ratio	Lower	Upper
202	100		
101	16.8	0.0	31.8
203	21.5	0.0	37.3

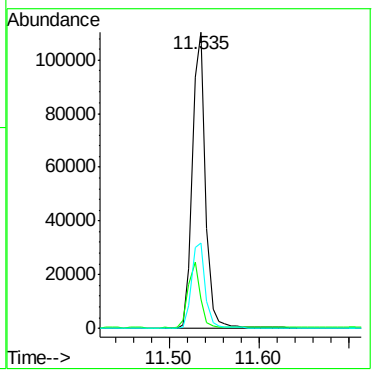


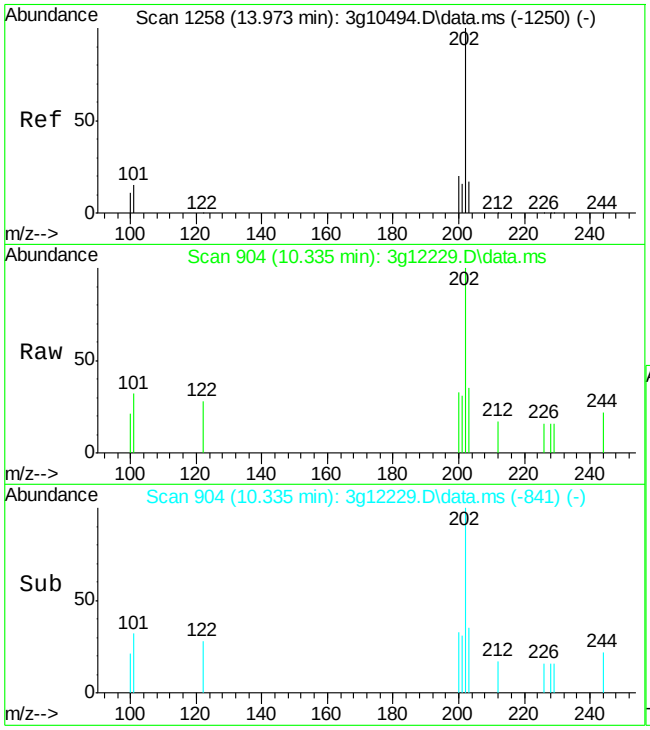


#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.535 min Scan# 1059
Delta R.T. 0.005 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:240 Resp: 111025

Ion	Ratio	Lower	Upper
240	100		
120	20.7	0.0	35.5
236	30.5	8.6	48.6

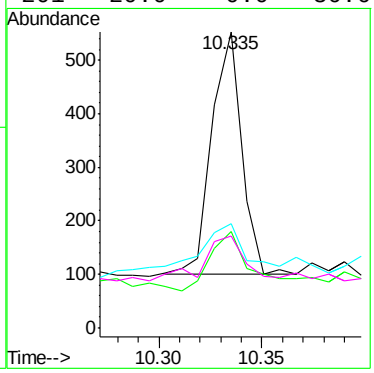


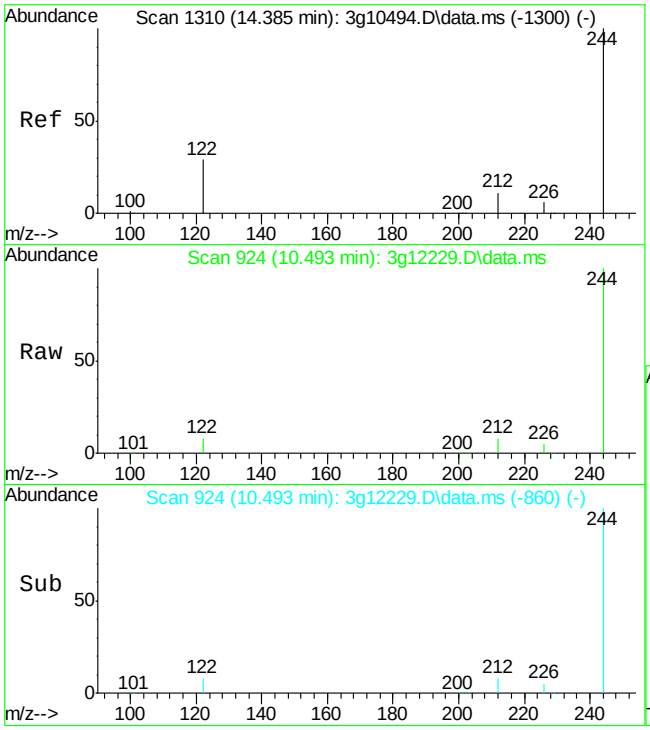


#20
Pyrene
Concen: Below ug/mL
RT: 10.335 min Scan# 904
Delta R.T. -0.004 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:202 Resp: 450

Ion	Ratio	Lower	Upper
202	100		
200	35.3	0.3	40.3
203	19.3	0.0	37.8
201	20.0	0.0	36.6

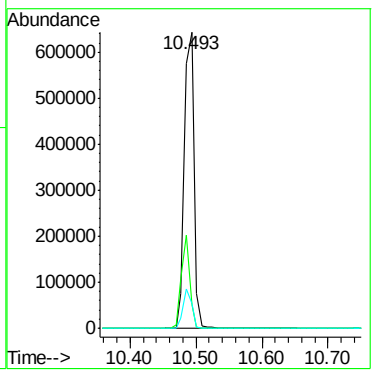


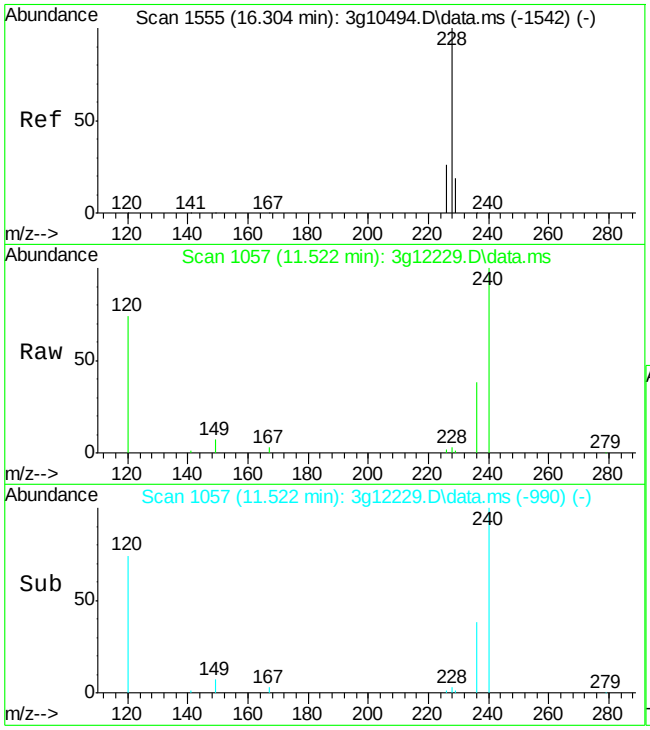


#21
Terphenyl-d14
Concen: 45.5508 ug/mL
RT: 10.493 min Scan# 924
Delta R.T. 0.005 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:244 Resp: 659134

Ion	Ratio	Lower	Upper
244	100		
122	26.9	4.9	44.9
212	12.0	0.0	32.5

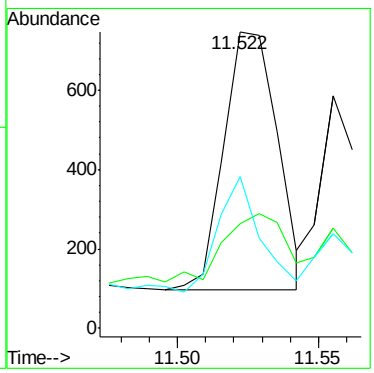


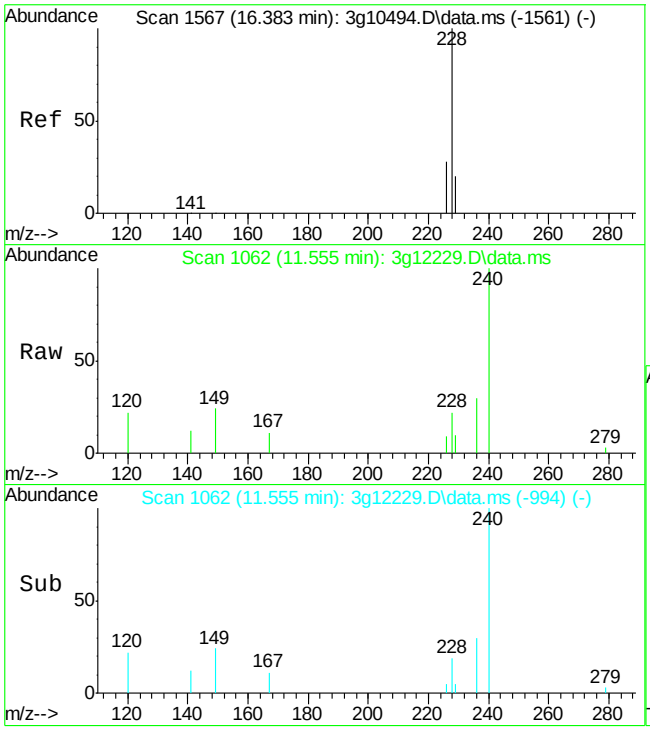


#22
Benzo(a)anthracene
Concen: Below ug/mL
RT: 11.522 min Scan# 1057
Delta R.T. 0.005 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:228 Resp: 857

Ion	Ratio	Lower	Upper
228	100		
229	30.0	0.0	39.5
226	35.5	6.8	46.8

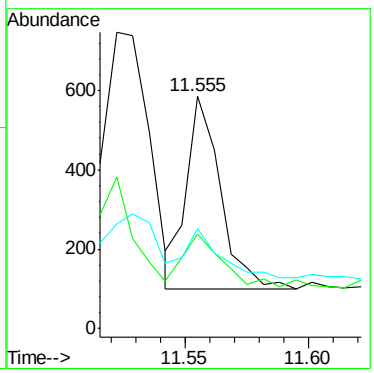


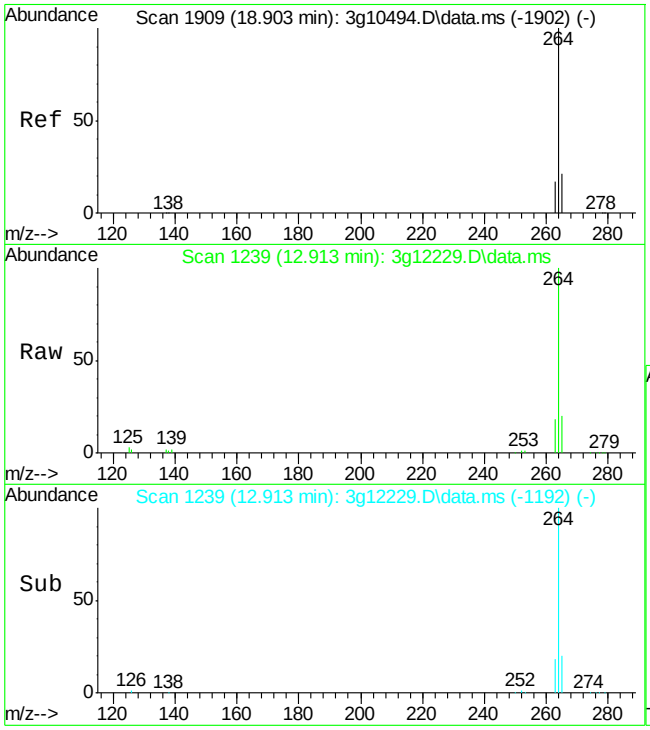


#23
Chrysene
Concen: Below ug/mL
RT: 11.555 min Scan# 1062
Delta R.T. 0.005 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:228 Resp: 464

Ion	Ratio	Lower	Upper
228	100		
226	40.3	8.9	48.9
229	24.1	0.0	39.4

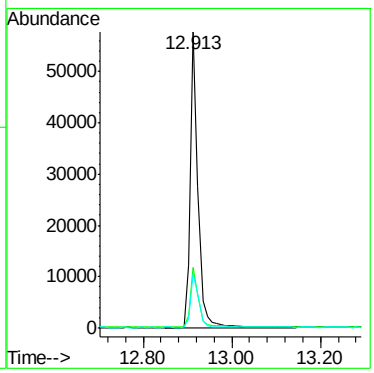


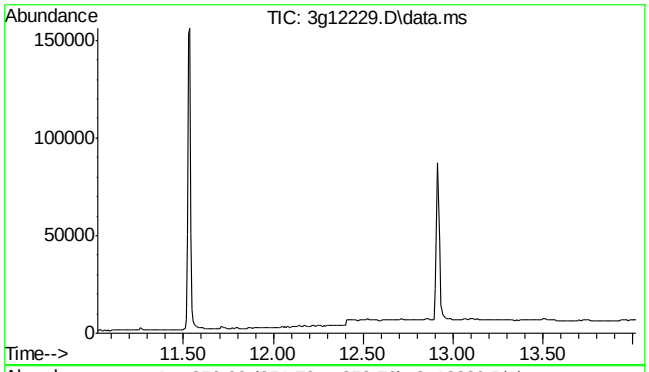


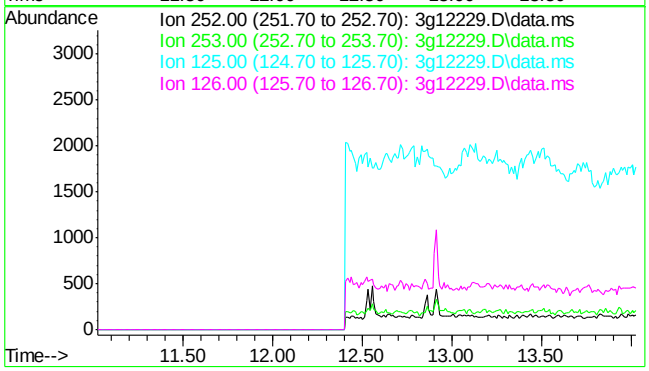
#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 12.913 min Scan# 1239
Delta R.T. -0.006 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:264 Resp: 69568

Ion	Ratio	Lower	Upper
264	100		
265	20.3	0.9	40.9
263	19.6	0.0	36.8





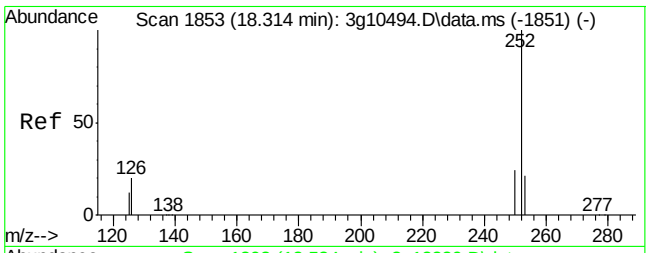


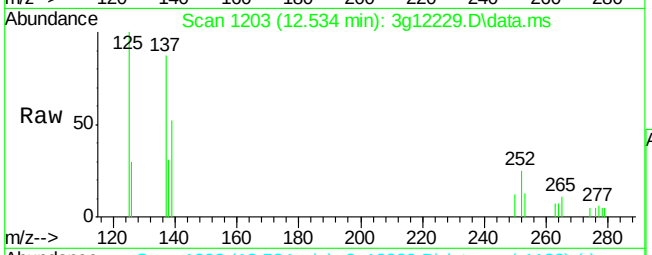
#25
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.52 min

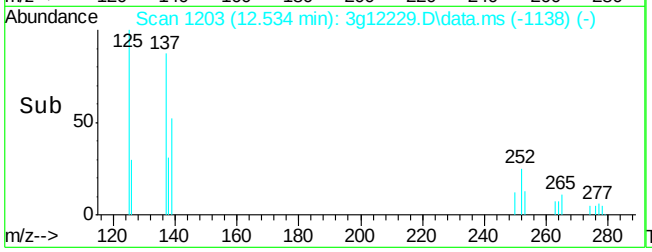
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	46.7
125	13.5
126	18.7



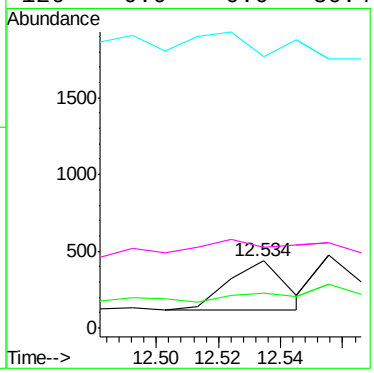


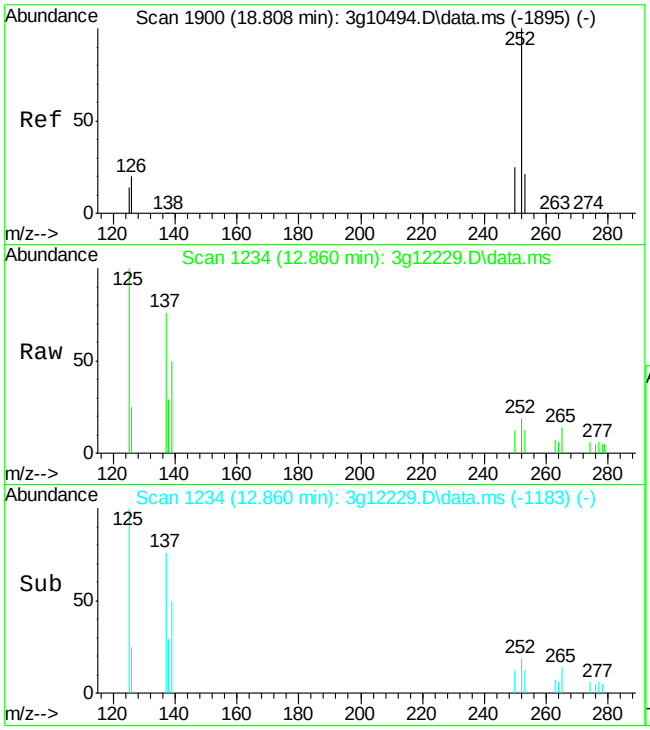


#26
Benzo(k)fluoranthene
Concen: Below ug/mL
RT: 12.534 min Scan# 1203
Delta R.T. -0.020 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:252 Resp: 410

Ion	Ratio	Lower	Upper
252	100		
253	55.6	20.8	60.8
125	0.0	0.0	31.8
126	0.0	0.0	36.4

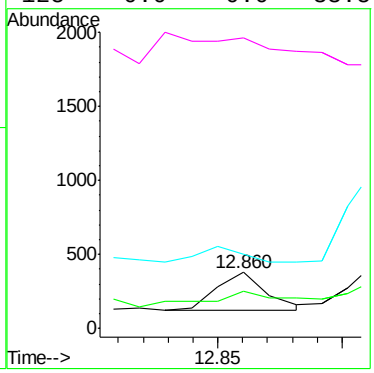


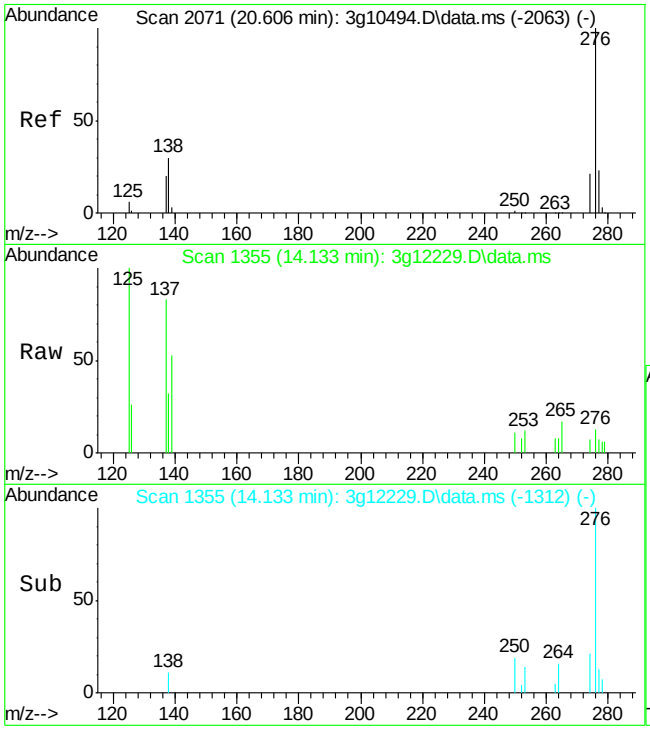


#27
Benzo(a)pyrene
Concen: Below ug/mL
RT: 12.860 min Scan# 1234
Delta R.T. 0.003 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:252 Resp: 352

Ion	Ratio	Lower	Upper
252	100		
253	24.4	1.8	41.8
126	0.0	0.0	38.6
125	0.0	0.0	33.5

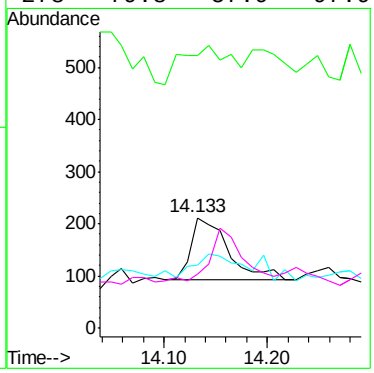


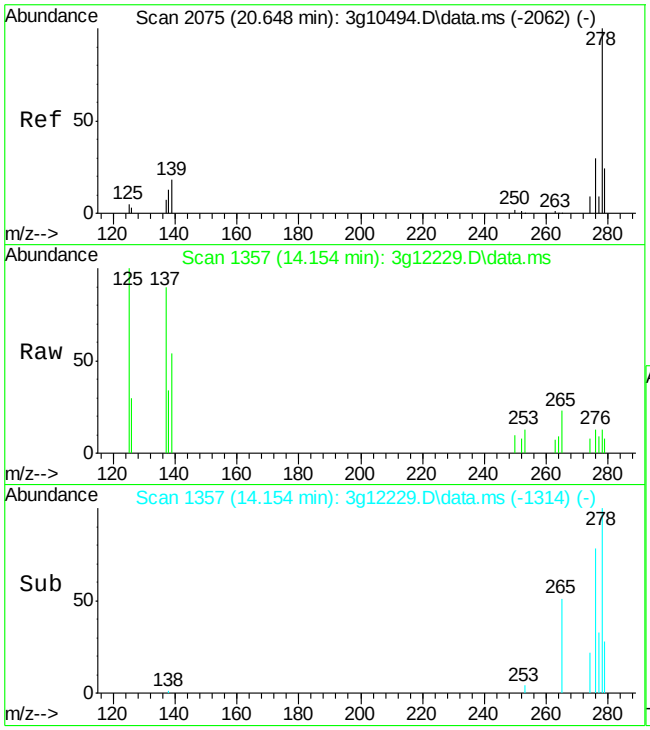


#28
Indeno(1,2,3-cd)pyrene
Concen: Below ug/mL
RT: 14.133 min Scan# 1355
Delta R.T. -0.048 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:276 Resp: 302

Ion	Ratio	Lower	Upper
276	100		
138	80.1	16.6	56.6#
277	55.6	4.7	44.7#
278	79.8	57.9	97.9

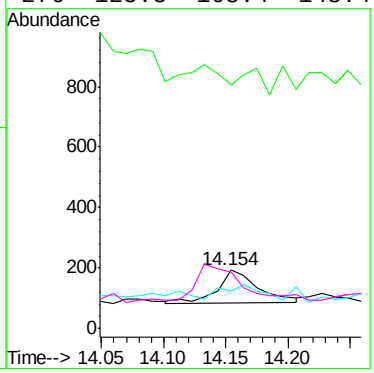


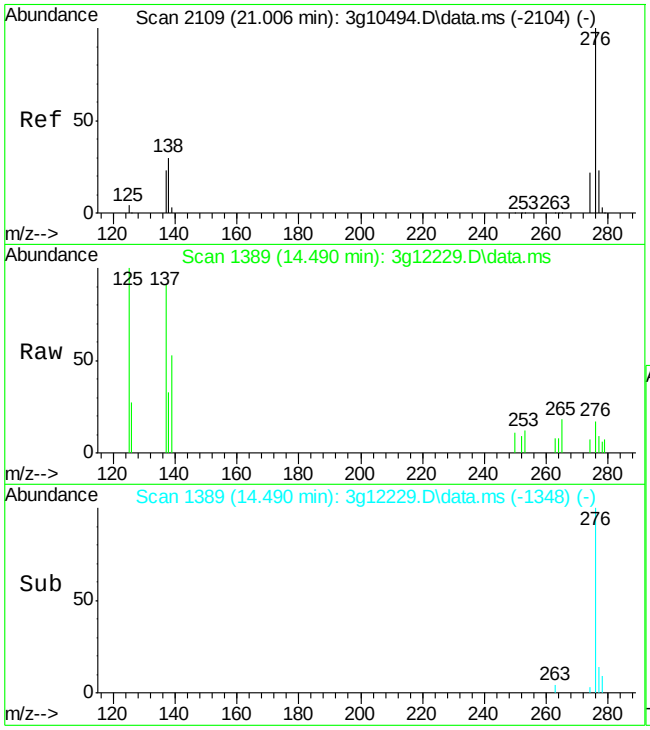


#29
Dibenz(a,h)anthracene
Concen: Below ug/mL
RT: 14.154 min Scan# 1357
Delta R.T. -0.048 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:278 Resp: 241

Ion	Ratio	Lower	Upper
278	100		
139	41.1	7.8	47.8
279	43.2	2.3	42.3#
276	125.3	108.4	148.4

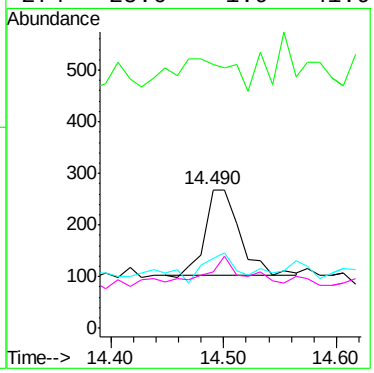




#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.490 min Scan# 1389
Delta R.T. -0.065 min
Lab File: 3g12229.D
Acq: 26 Nov 12 6:07 pm

Tgt Ion:276 Resp: 348

Ion	Ratio	Lower	Upper
276	100		
138	72.1	11.5	51.5#
277	32.2	2.9	42.9
274	25.6	1.9	41.9



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: D41013
Account: XTOKRWR XTO Energy
Project: NPU 197-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1010-MB	GB18499.D	1	11/16/12	SK	n/a	n/a	GGB1010

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

D41013-1

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	92%	60-140%

Blank Spike Summary

Job Number: D41013
Account: XTOKRWR XTO Energy
Project: NPU 197-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1010-BS	GB18500.D	1	11/16/12	SK	n/a	n/a	GGB1010

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

D41013-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	124	113	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	105%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D41013
Account: XTOKRWR XTO Energy
Project: NPU 197-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D41015-1MS	GB18502.D	1	11/16/12	SK	n/a	n/a	GGB1010
D41015-1MSD	GB18503.D	1	11/16/12	SK	n/a	n/a	GGB1010
D41015-1	GB18501.D	1	11/16/12	SK	n/a	n/a	GGB1010

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

D41013-1

CAS No.	Compound	D41015-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		128	146	114	146	114	0	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D41015-1	Limits
120-82-1	1,2,4-Trichlorobenzene	109%	111%	93%	60-140%

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

GC Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\111612\GB18506.D\FID1A.CH Vial: 10
Signal #2 : Y:\1\DATA\111612\GB18506.D\FID2B.CH
Acq On : 16 Nov 2012 9:59 pm Operator: StephK
Sample : D41013-1, 50X Inst : GC/MS Ins
Misc : GC3242,GGB1010,5.007,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 17 09:39:22 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Fri Nov 16 18:14:55 2012
Response via : Initial Calibration
DataAcq Meth : TVB4.M

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

	Compound	R.T.	Response	Conc	Units	
	System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.38	2994062	95.553	%	
10) S	1,2,4-Trichlorobenzene (P)	14.38	16020272	98.570	%	
	Target Compounds					
1) H	TVH-Gasoline	7.23	4073720	<MDL	mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5) T	Benzene	0.00	0	N.D.	ug/L	d
6) T	Toluene	7.68	118435	0.299	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	14.55	255189	1.293	ug/L	

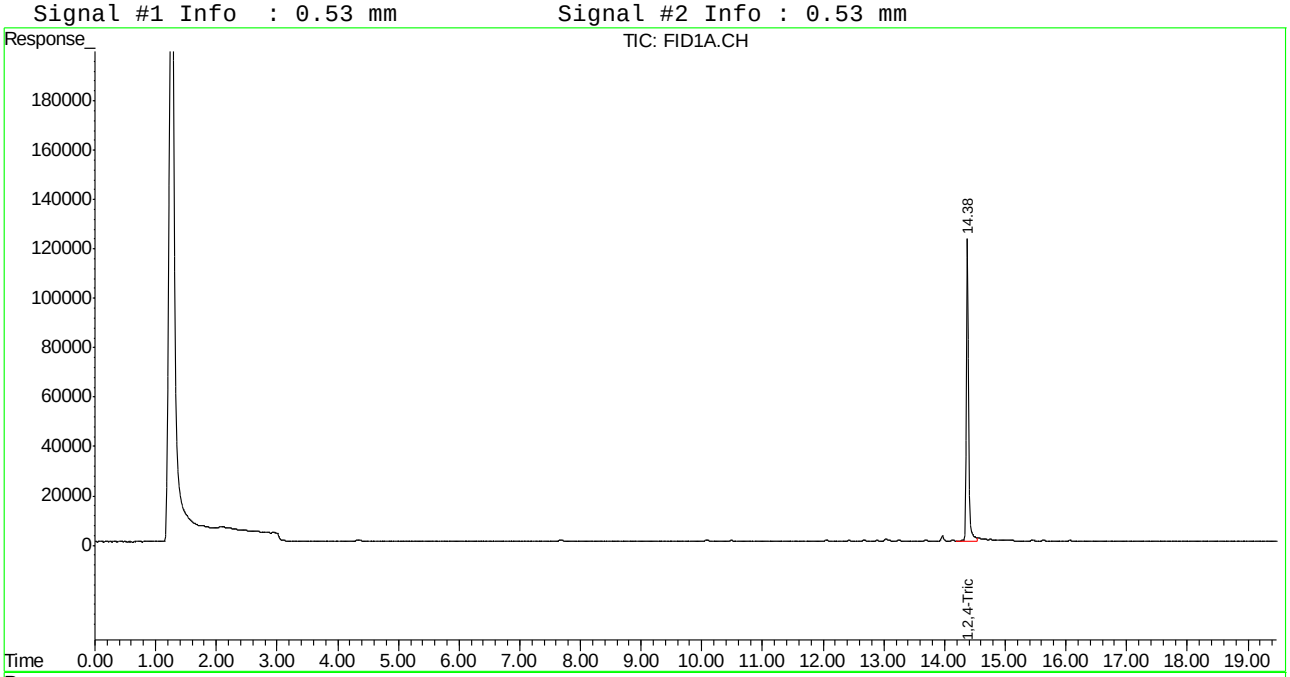
(f)=RT Delta > 1/2 Window (m)=manual int.

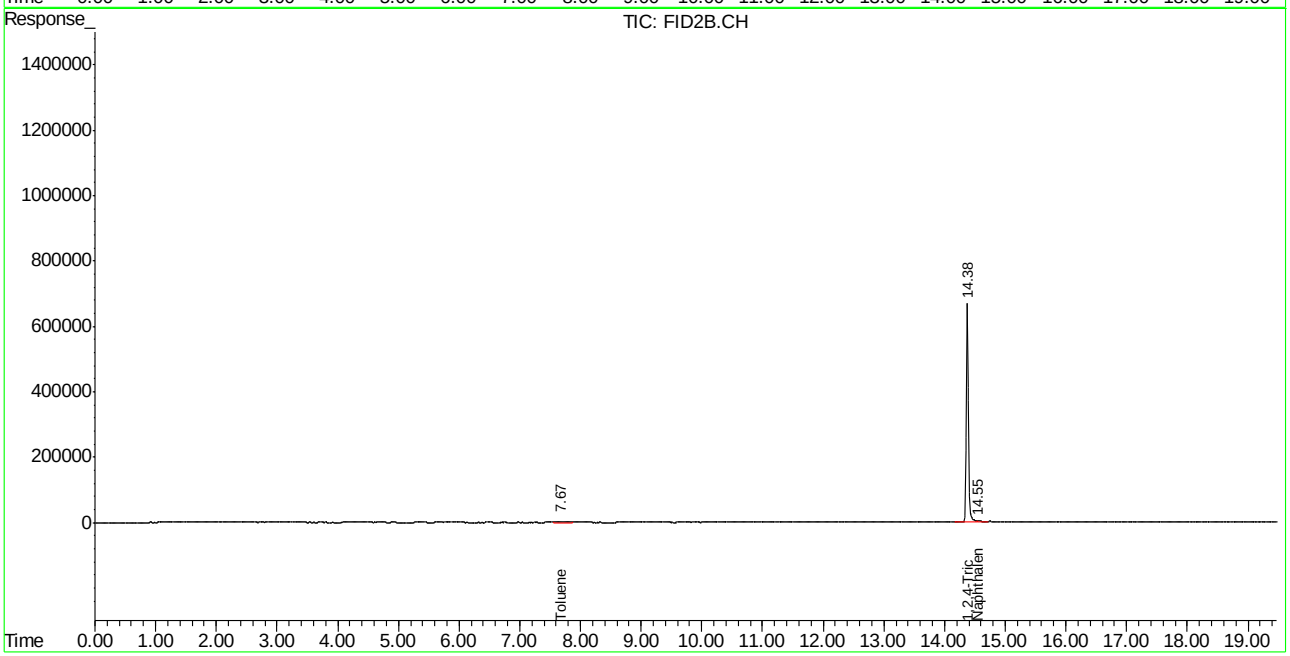
Quantitation Report (QT Reviewed)

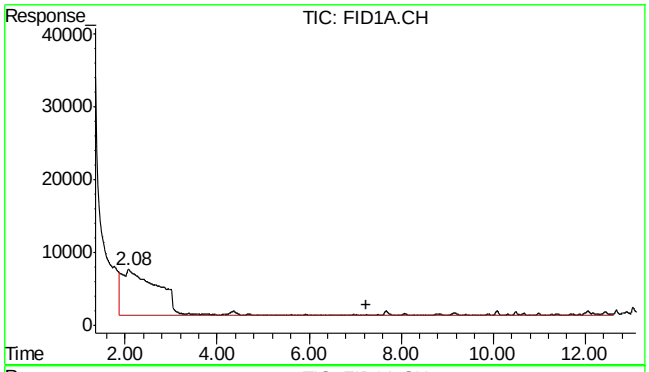
Signal #1 : Y:\1\DATA\111612\GB18506.D\FID1A.CH Vial: 10
Signal #2 : Y:\1\DATA\111612\GB18506.D\FID2B.CH
Acq On : 16 Nov 2012 9:59 pm Operator: StephK
Sample : D41013-1, 50X Inst : GC/MS Ins
Misc : GC3242,GGB1010,5.007,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 17 9:43 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Fri Nov 16 18:14:55 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

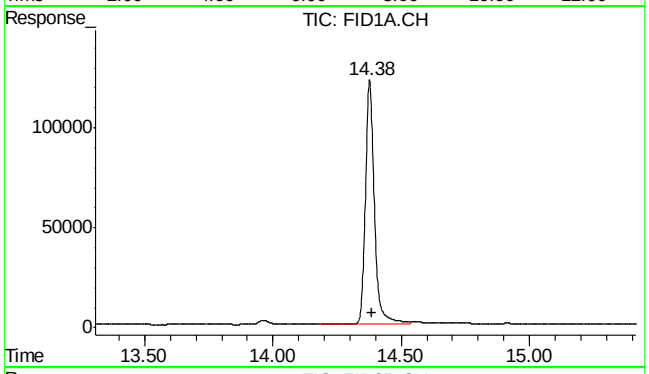






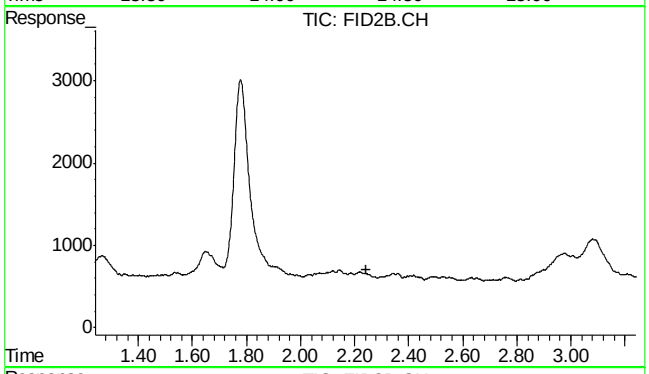
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 4073720
Conc: N.D.



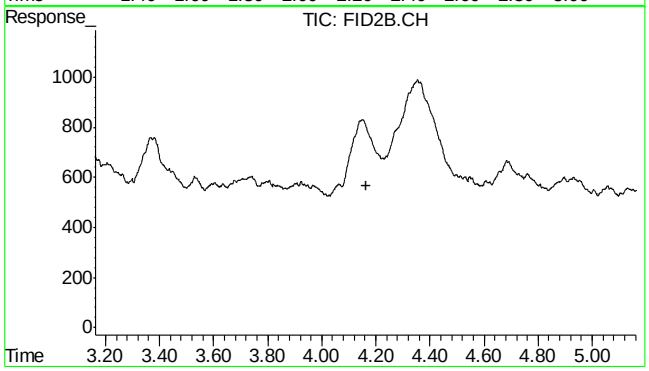
#2 1,2,4-Trichlorobenzene

R.T.: 14.377 min
Delta R.T.: -0.011 min
Response: 2994062
Conc: 95.55 %



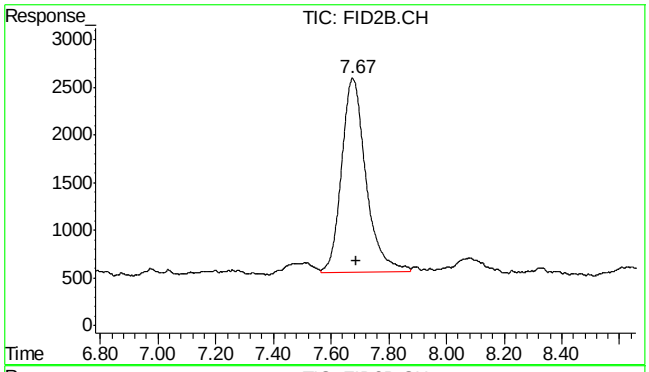
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.242 min
Response: 0
Conc: N.D.



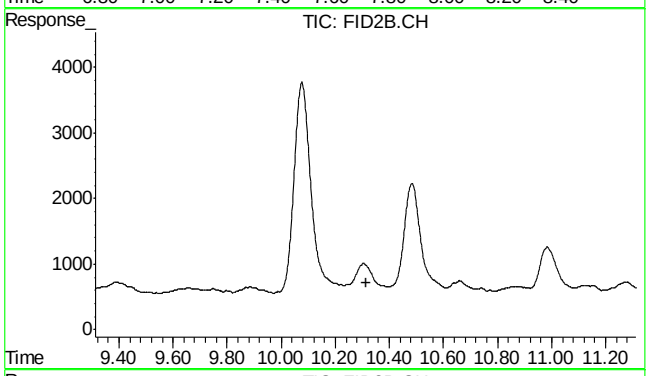
#5 Benzene

R.T.: 0.000 min
Exp R.T. : 4.163 min
Response: 0
Conc: N.D.



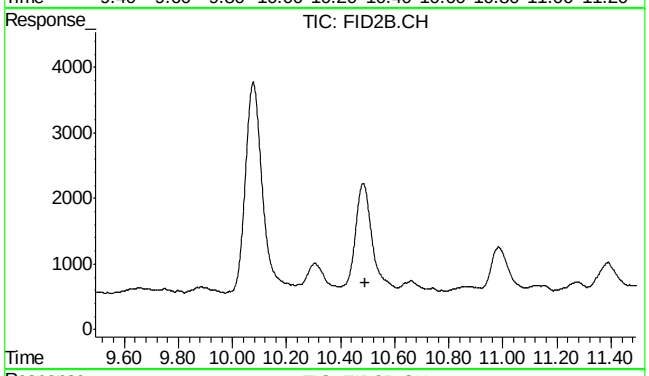
#6 Toluene

R.T.: 7.675 min
Delta R.T.: -0.013 min
Response: 118435
Conc: 0.30 ug/L



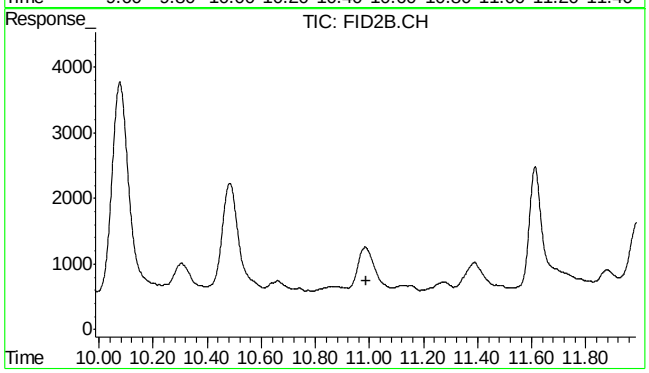
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.313 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

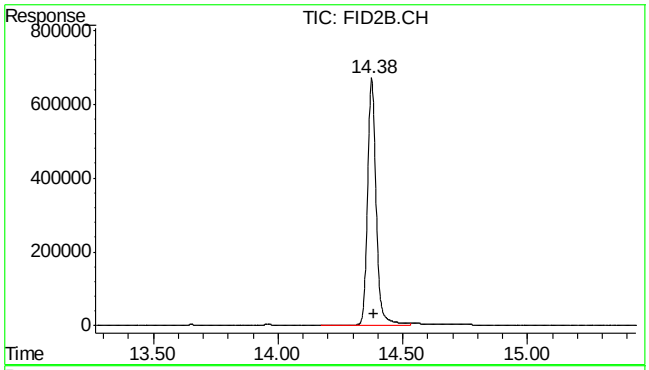
R.T.: 0.000 min
Exp R.T. : 10.492 min
Response: 0
Conc: N.D.



#9 o-Xylene

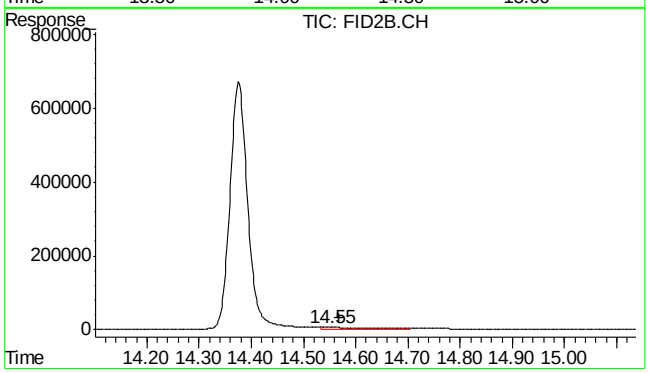
R.T.: 0.000 min
Exp R.T. : 10.986 min
Response: 0
Conc: N.D.

11.1.1 11



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

R.T.: 14.376 min
Delta R.T.: -0.010 min
Response: 16020272
Conc: 98.57 %



#11 Naphthalene

R.T.: 14.554 min
Delta R.T.: -0.015 min
Response: 255189
Conc: 1.29 ug/L

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\111612\GB18499.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\111612\GB18499.D\FID2B.CH
Acq On : 16 Nov 2012 5:51 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3242,GGB1010,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 16 18:15:12 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Fri Nov 16 18:14:55 2012
Response via : Initial Calibration
DataAcq Meth : TVB4.M

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

	Compound	R.T.	Response	Conc	Units	
	System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.38	2895056	92.393	%	
10) S	1,2,4-Trichlorobenzene (P)	14.38	15453853	95.085	%	
	Target Compounds					
1) H	TVH-Gasoline	7.23	4428413	<MDL	mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5) T	Benzene	0.00	0	N.D.	ug/L	d
6) T	Toluene	7.68	166985	0.421	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	14.56	187354	0.950	ug/L	

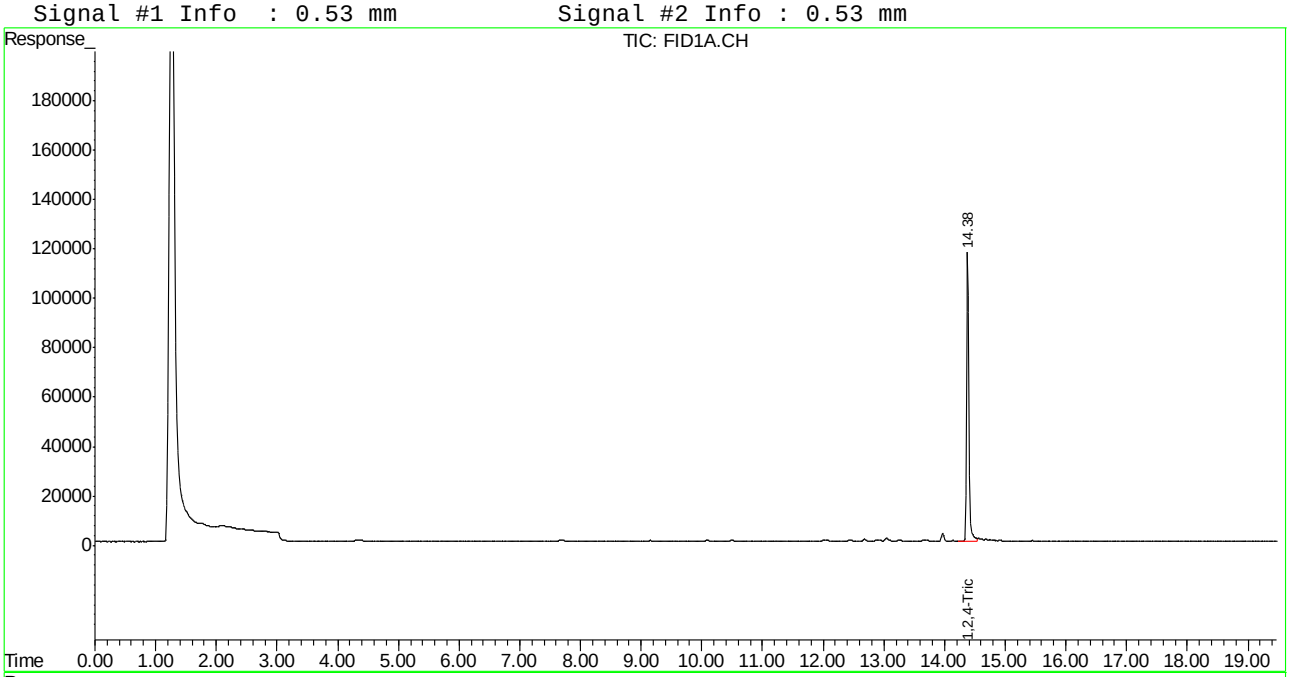
(f)=RT Delta > 1/2 Window (m)=manual int.

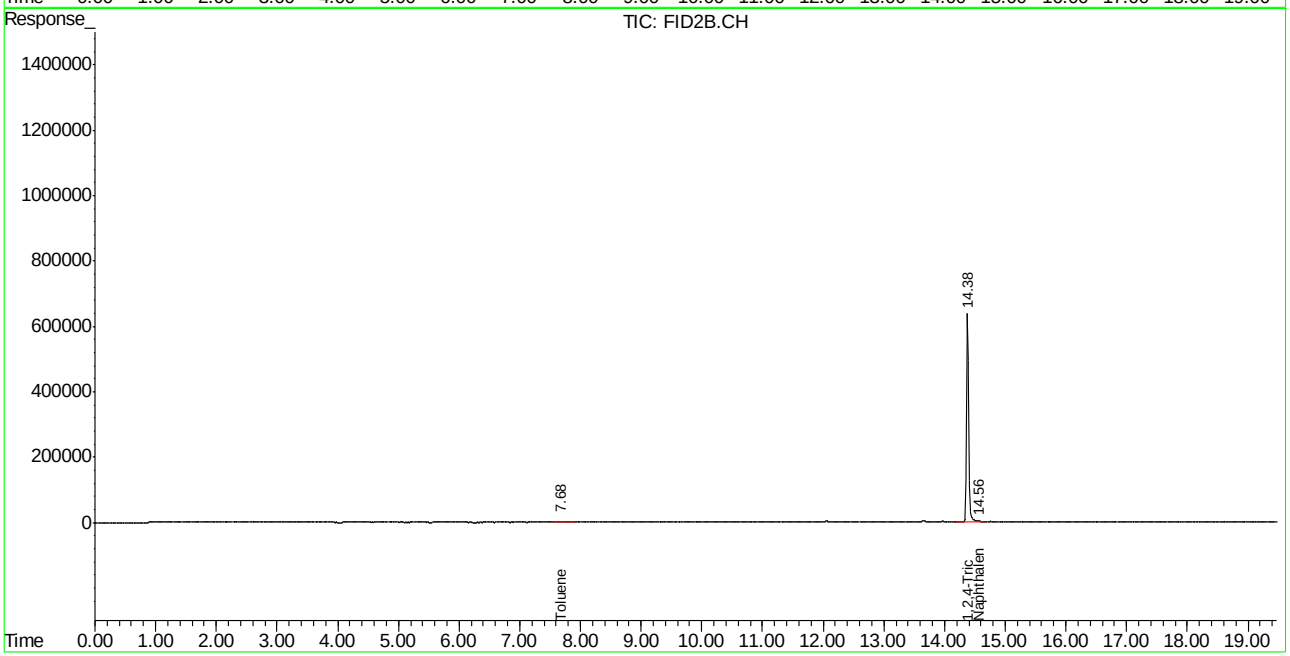
Quantitation Report (QT Reviewed)

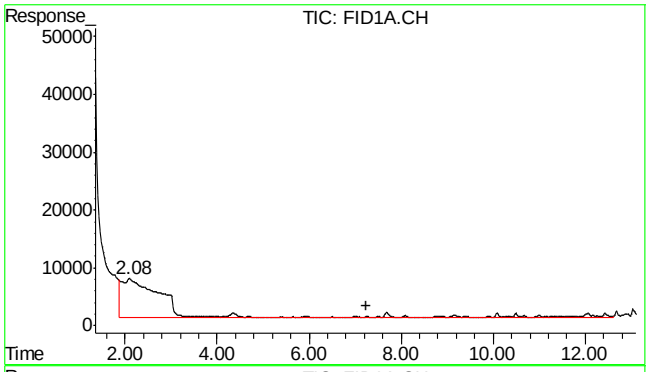
Signal #1 : Y:\1\DATA\111612\GB18499.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\111612\GB18499.D\FID2B.CH
Acq On : 16 Nov 2012 5:51 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3242,GGB1010,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 16 18:14 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Fri Nov 16 18:14:55 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

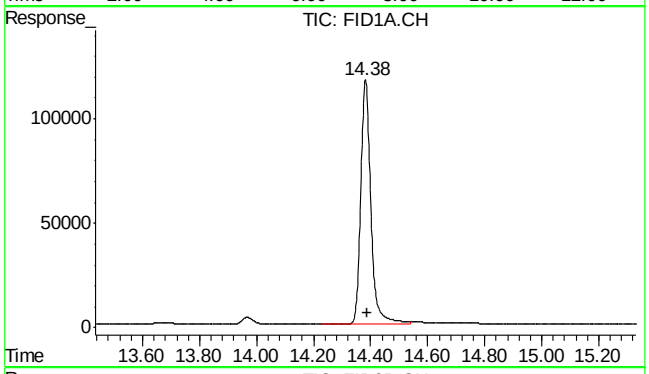






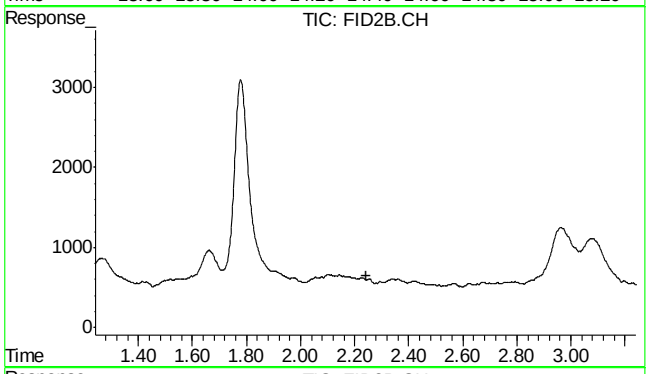
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 4428413
Conc: N.D.



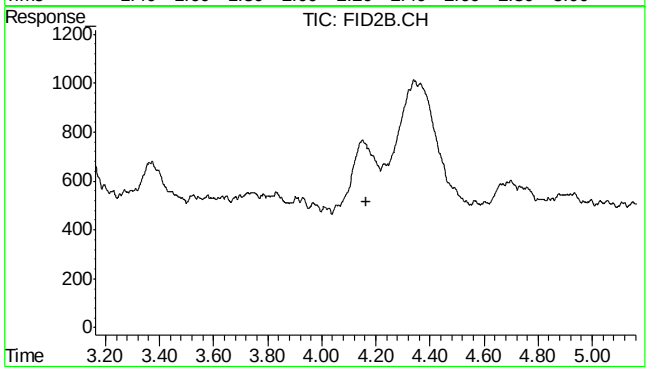
#2 1,2,4-Trichlorobenzene

R.T.: 14.382 min
Delta R.T.: -0.006 min
Response: 2895056
Conc: 92.39 %



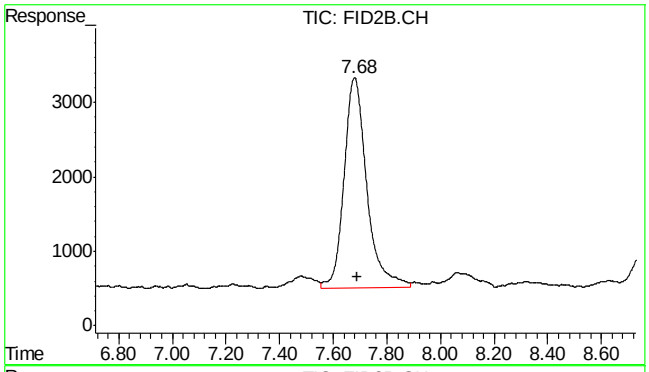
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.242 min
Response: 0
Conc: N.D.



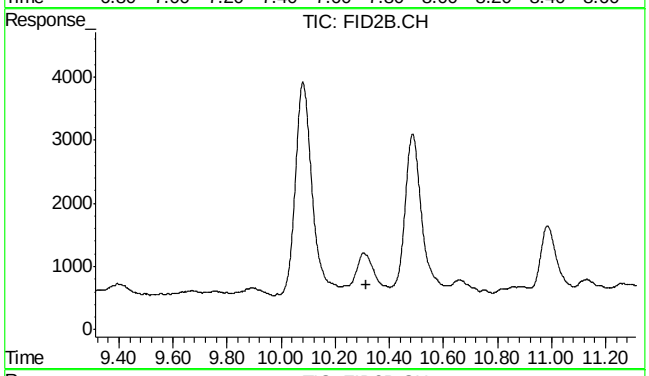
#5 Benzene

R.T.: 0.000 min
Exp R.T. : 4.163 min
Response: 0
Conc: N.D.



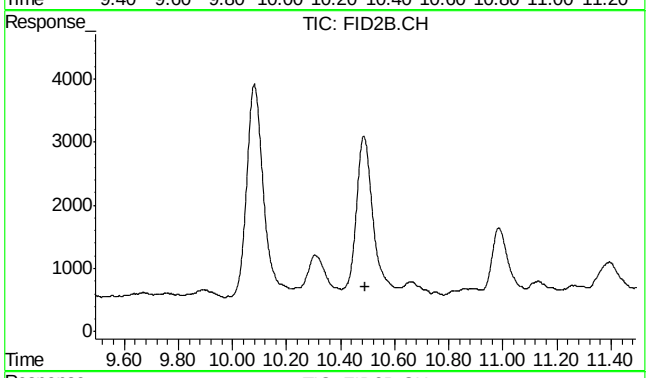
#6 Toluene

R.T.: 7.680 min
Delta R.T.: -0.009 min
Response: 166985
Conc: 0.42 ug/L



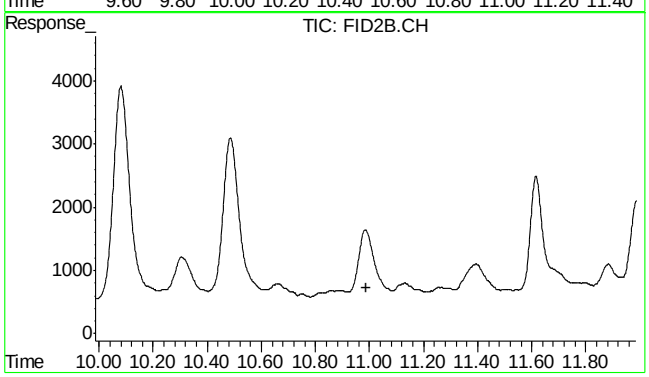
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.313 min
Response: 0
Conc: N.D.



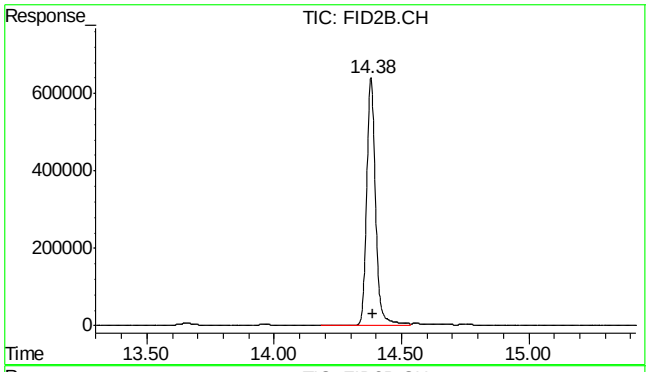
#8 m,p-Xylene

R.T.: 0.000 min
Exp R.T. : 10.492 min
Response: 0
Conc: N.D.



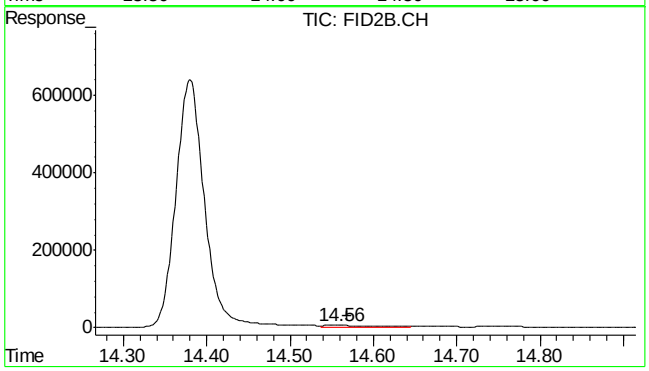
#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 10.986 min
Response: 0
Conc: N.D.



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

R.T.:	14.380 min
Delta R.T.:	-0.006 min
Response:	15453853
Conc:	95.08 %



#11 Naphthalene

R.T.:	14.558 min
Delta R.T.:	-0.010 min
Response:	187354
Conc:	0.95 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: D41013
Account: XTOKRWR XTO Energy
Project: NPU 197-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6979-MB	FD19679.D	1	11/19/12	AV	11/19/12	OP6979	GFD990

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

D41013-1

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	88%	35-130%

Blank Spike Summary

Job Number: D41013
Account: XTOKRWR XTO Energy
Project: NPU 197-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6979-BS	FD19681.D	1	11/19/12	AV	11/19/12	OP6979	GFD990

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

D41013-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	689	103	48-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	95%	35-130%

12.2.1
12

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D41013
Account: XTOKRWR XTO Energy
Project: NPU 197-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6979-MS	FD19683.D	1	11/19/12	AV	11/19/12	OP6979	GFD990
OP6979-MSD	FD19685.D	1	11/19/12	AV	11/19/12	OP6979	GFD990
D41044-9	FD19687.D	1	11/19/12	AV	11/19/12	OP6979	GFD990

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

D41013-1

CAS No.	Compound	D41044-9 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	80.3		738	764	93	734	89	4	20-168/30

CAS No.	Surrogate Recoveries	MS	MSD	D41044-9	Limits
84-15-1	o-Terphenyl	80%	80%	65%	35-130%

12.3.1
12

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\NOV\FD111912\FD19689.D Vial: 8
Acq On : 11-19-2012 05:10:13 PM Operator: ashleyv
Sample : D41013-1 Inst : FID5
Misc : OP6979,GFD990,30.07,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Nov 20 15:05:40 2012 Quant Results File: DRO-GFD982F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD982F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Nov 16 10:24:56 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	8.95	43440294	785.107 mg/L
	Target Compounds			
2) H	TPH-DRO (c10-c28)	6.89	5152228	135.672 mg/L

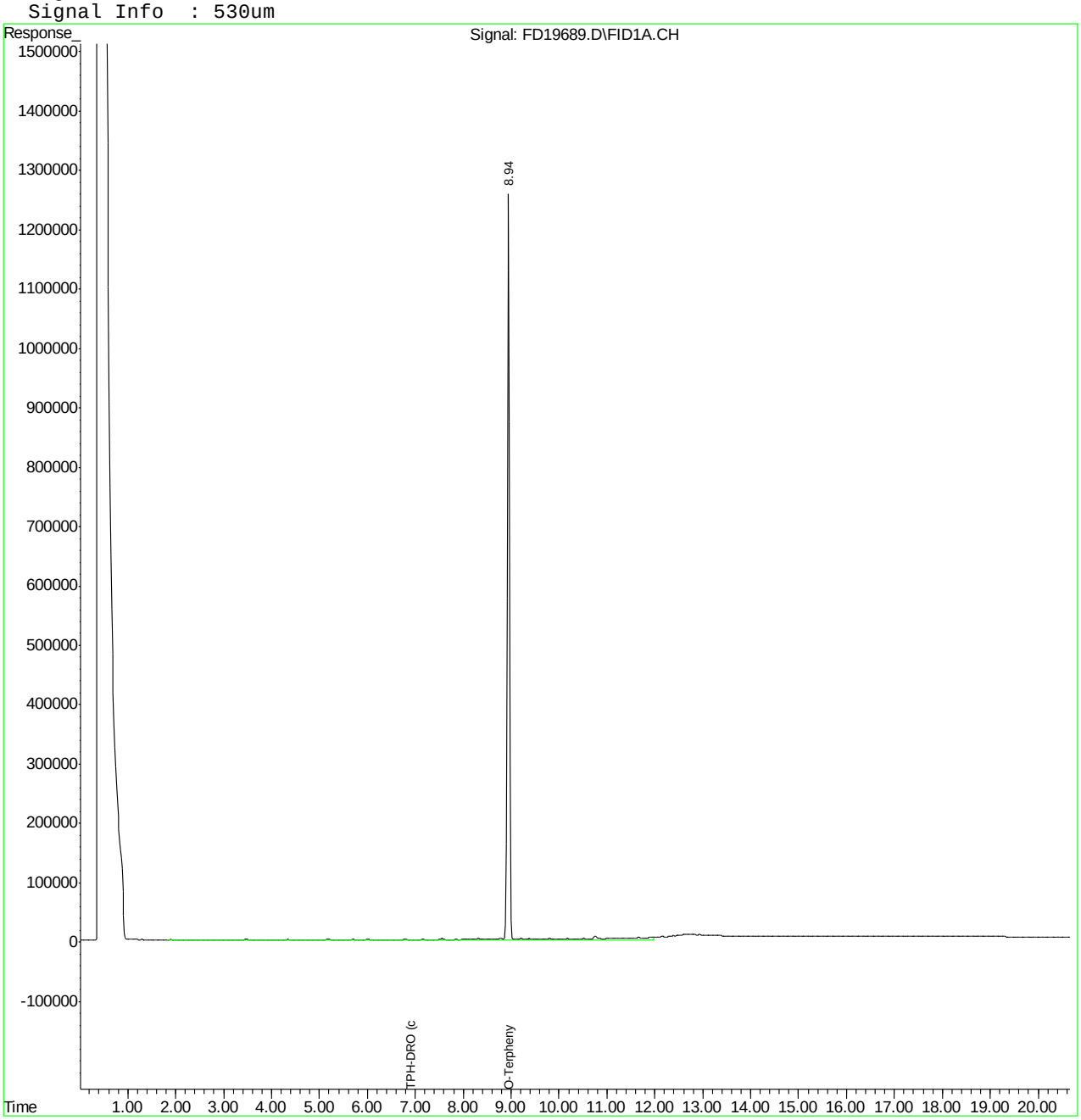
(f)=RT Delta > 1/2 Window (m)=manual int.
FD19689.D DRO-GFD982F.M Wed Nov 21 09:05:44 2012 GC Page 1

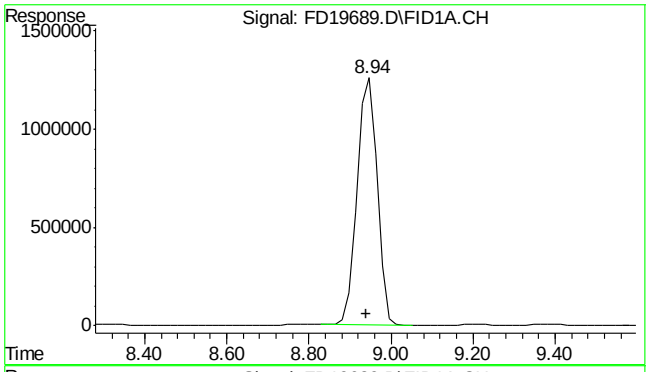
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\NOV\FD111912\FD19689.D Vial: 8
Acq On : 11-19-2012 05:10:13 PM Operator: ashleyv
Sample : D41013-1 Inst : FID5
Misc : OP6979,GFD990,30.07,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Nov 20 15:05 2012 Quant Results File: DRO-GFD982F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD982F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Nov 16 10:24:56 2012
Response via : Multiple Level Calibration
DataAcq Meth : DRODUAL.M

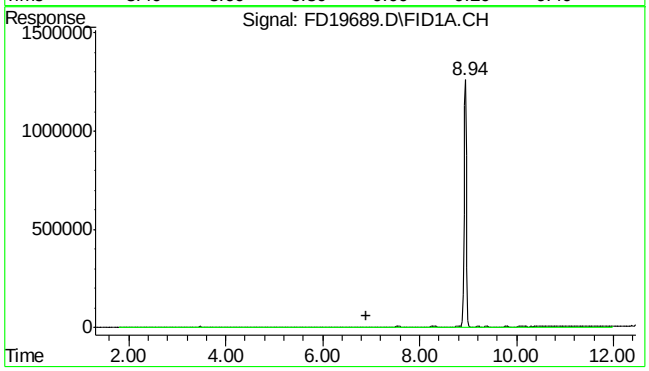
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 8.950 min
Delta R.T.: 0.010 min
Response: 43440294
Conc: 785.11 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 6.895 min
Delta R.T.: 0.000 min
Response: 5152228
Conc: 135.67 mg/L m

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\NOV\FD111912\FD19679.D Vial: 3
Acq On : 11-19-2012 02:55:37 PM Operator: ashleyv
Sample : OP6979-MB Inst : FID5
Misc : OP6979,GFD990,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Nov 20 15:02:12 2012 Quant Results File: DRO-GFD982F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD982F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Nov 16 10:24:56 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	8.97	48861805	883.092	mg/L
	Target Compounds				
2) H	TPH-DRO (c10-c28)	6.89	2183565	57.499	mg/L

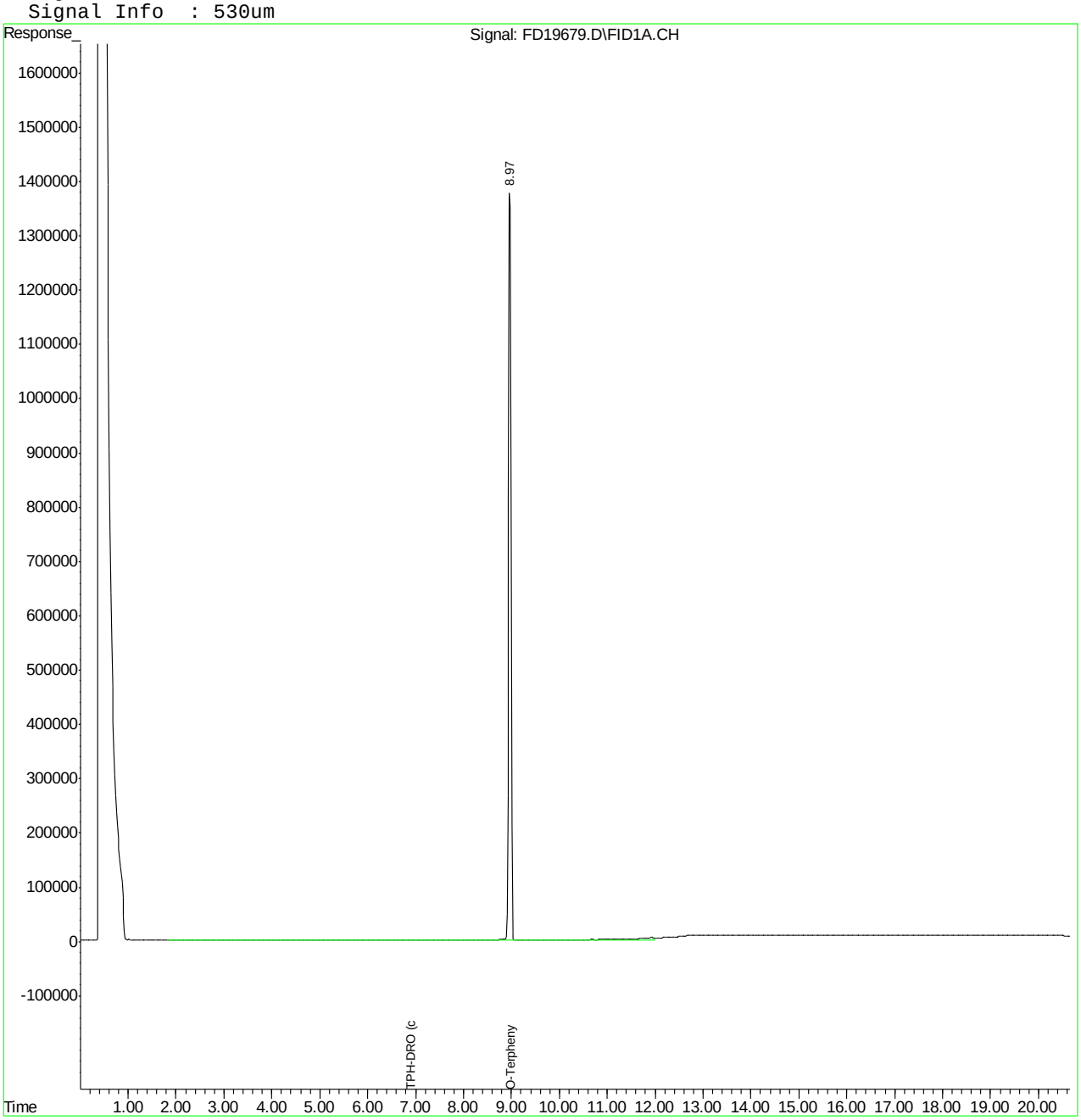
(f)=RT Delta > 1/2 Window (m)=manual int.
FD19679.D DRO-GFD982F.M Wed Nov 21 09:05:39 2012 GC Page 1

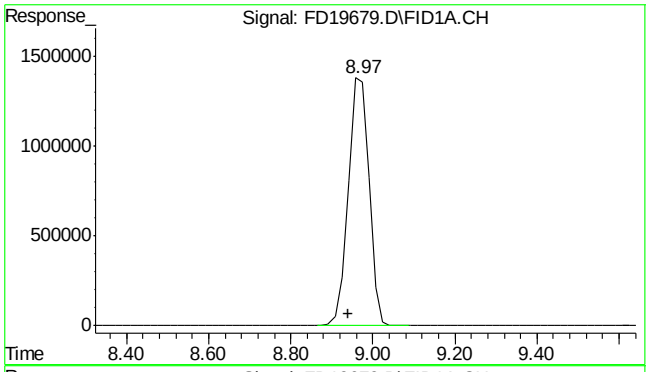
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\NOV\FD111912\FD19679.D Vial: 3
Acq On : 11-19-2012 02:55:37 PM Operator: ashleyv
Sample : OP6979-MB Inst : FID5
Misc : OP6979,GFD990,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Nov 20 15:02 2012 Quant Results File: DRO-GFD982F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD982F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Nov 16 10:24:56 2012
Response via : Multiple Level Calibration
DataAcq Meth : DRODUAL.M

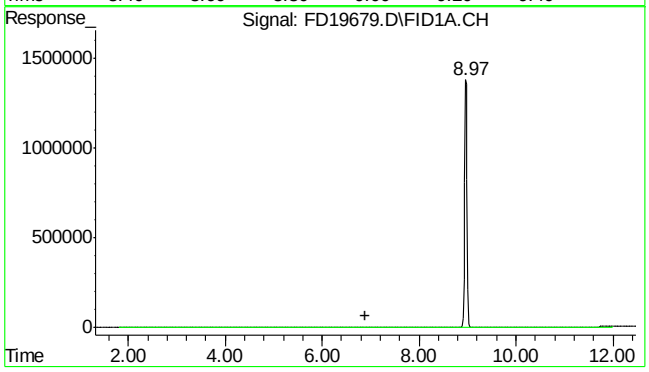
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 8.972 min
Delta R.T.: 0.032 min
Response: 48861805
Conc: 883.09 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 6.895 min
Delta R.T.: 0.000 min
Response: 2183565
Conc: 57.50 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: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8913
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 11/19/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.96	.57		
Antimony	3.0	.17	.12		
Arsenic	2.5	.44	.56		
Barium	1.0	.01	.11	0.020	<1.0
Beryllium	1.0	.13	.15		
Boron	5.0	.1	.06		
Cadmium	1.0	.06	.036	-0.020	<1.0
Calcium	40	.54	9		
Chromium	1.0	.03	.03	0.010	<1.0
Cobalt	0.50	.04	.07		
Copper	1.0	.12	.15	-0.070	<1.0
Iron	7.0	.12	.87		
Lead	5.0	.19	.24	-0.33	<5.0
Lithium	0.20	.05	.054		
Magnesium	20	.65	.98		
Manganese	0.50	.12	.022		
Molybdenum	1.0	.21	.08		
Nickel	3.0	.05	.026	0.0	<3.0
Phosphorus	10	1.4	1.9		
Potassium	200	6.1	7		
Selenium	5.0	.48	.36	-0.21	<5.0
Silicon	5.0	.29	.37		
Silver	3.0	.04	.06	-0.040	<3.0
Sodium	40	.59	1.9		
Strontium	5.0	.004	.017		
Thallium	1.0	.29	.53		
Tin	5.0	1.2	2		
Titanium	1.0	.01	.038		
Uranium	5.0	.22	.26		
Vanadium	1.0	.02	.036		
Zinc	3.0	.05	.37	-0.18	<3.0

Associated samples MP8913: D41013-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8913
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8913
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 11/19/12

Metal	D41013-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	1000	1310	244	127.2(a)	75-125
Beryllium	anr				
Boron					
Cadmium	0.0	49.1	60.9	80.6	75-125
Calcium					
Chromium	34.1	80.8	60.9	76.7	75-125
Cobalt	anr				
Copper	12.6	63.5	60.9	83.5	75-125
Iron	anr				
Lead	11.5	112	122	82.5	75-125
Lithium					
Magnesium					
Manganese	anr				
Molybdenum					
Nickel	17.5	61.9	60.9	72.9N(b)	75-125
Phosphorus	anr				
Potassium					
Selenium	0.77	99.9	122	81.4	75-125
Silicon					
Silver	0.18	18.1	24.4	73.5N(b)	75-125
Sodium					
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium					
Vanadium	anr				
Zinc	46.7	96.6	60.9	81.9	75-125

Associated samples MP8913: D41013-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8913
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8913
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 11/19/12

Metal	D41013-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	1000	1220	251	87.5	7.1	20
Beryllium	anr					
Boron						
Cadmium	0.0	50.0	62.8	79.6	1.8	20
Calcium						
Chromium	34.1	77.5	62.8	69.1N(a)	4.2	20
Cobalt	anr					
Copper	12.6	64.7	62.8	82.9	1.9	20
Iron	anr					
Lead	11.5	113	126	80.8	0.9	20
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	17.5	62.3	62.8	71.3N(a)	0.6	20
Phosphorus	anr					
Potassium						
Selenium	0.77	101	126	79.8	1.1	20
Silicon						
Silver	0.18	18.5	25.1	72.9N(a)	2.2	20
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium						
Vanadium	anr					
Zinc	46.7	96.1	62.8	78.6	0.5	20

Associated samples MP8913: D41013-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8913
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8913
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 11/19/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	190	200	95.0	80-120
Beryllium	anr			
Boron				
Cadmium	45.1	50	90.2	80-120
Calcium				
Chromium	47.7	50	95.4	80-120
Cobalt	anr			
Copper	43.0	50	86.0	80-120
Iron	anr			
Lead	96.2	100	96.2	80-120
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	45.7	50	91.4	80-120
Phosphorus	anr			
Potassium				
Selenium	91.1	100	91.1	80-120
Silicon				
Silver	16.8	20	84.0	80-120
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	48.3	50	96.6	80-120

Associated samples MP8913: D41013-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8913
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8913
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 11/19/12

Metal	D41013-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	8220	9560	16.3*(a)	0-10
Beryllium	anr			
Boron				
Cadmium	0.00	0.00	NC	0-10
Calcium				
Chromium	280	326	16.4*(a)	0-10
Cobalt	anr			
Copper	103	106	2.3	0-10
Iron	anr			
Lead	94.0	92.0	2.1	0-10
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	144	173	19.8*(a)	0-10
Phosphorus	anr			
Potassium				
Selenium	6.30	0.00	100.0(b)	0-10
Silicon				
Silver	1.50	0.00	100.0(b)	0-10
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	383	458	19.5*(a)	0-10

Associated samples MP8913: D41013-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8913
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8914
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 11/19/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.006	.06	0.0076	<0.10
Barium	1.0	.0065	.037		
Beryllium	0.10	.016	.09		
Boron	20	1.2	1.2		
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		
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 MP8914: D41013-1

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: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8914
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 11/19/12

Metal	D41013-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	8.1	128	122	98.4	75-125
Barium					
Beryllium					
Boron					
Calcium					
Cobalt					
Iron					
Lead	anr				
Magnesium					
Manganese					
Molybdenum	anr				
Potassium	anr				
Selenium	anr				
Silver					
Sodium	anr				
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					

Associated samples MP8914: D41013-1

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: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8914
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 11/19/12

Metal	D41013-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	8.1	130	126	97.0	1.6	20
Barium						
Beryllium						
Boron						
Calcium						
Cobalt						
Iron						
Lead	anr					
Magnesium						
Manganese						
Molybdenum	anr					
Potassium	anr					
Selenium	anr					
Silver						
Sodium	anr					
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						

Associated samples MP8914: D41013-1

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: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8914
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 11/19/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	100	100	100.0	80-120
Barium				
Beryllium				
Boron				
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron				
Lead	anr			
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	anr			
Potassium	anr			
Selenium	anr			
Silver				
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP8914: D41013-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8914
Matrix Type: SOLID

Methods: SW846 6020A
Units: ug/l

Prep Date: 11/19/12

Metal	D41013-1 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	66.8	73.5	9.9	0-10
Barium				
Beryllium				
Boron				
Calcium				
Cobalt				
Iron				
Lead	anr			
Magnesium				
Manganese				
Molybdenum	anr			
Potassium	anr			
Selenium	anr			
Silver				
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				

Associated samples MP8914: D41013-1

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: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8915
Matrix Type: AQUEOUS

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

Prep Date: 11/19/12

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	22.5	<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	38.0	<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	-290	<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 MP8915: D41013-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8915
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: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8915
Matrix Type: AQUEOUS

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

Prep Date: 11/19/12

Metal	D41042-1A Original MS		Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	194000	332000	125000	110.4	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	99900	226000	125000	100.9	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	660000	765000	125000	84.0	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP8915: D41013-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8915
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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8915
Matrix Type: AQUEOUS

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

Prep Date: 11/19/12

Metal	D41042-1A Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	194000	337000	125000	114.4	1.5	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	99900	221000	125000	96.9	2.2	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	660000	746000	125000	68.8 (a)	2.5	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP8915: D41013-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8915
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: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8915
Matrix Type: AQUEOUS

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

Prep Date: 11/19/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	141000	125000	112.8	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	126000	125000	100.8	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	122000	125000	97.6	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8915: D41013-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8915
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: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8915
Matrix Type: AQUEOUS

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

Prep Date: 11/19/12

Metal	D41042-1A Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	38800	40600	4.9	0-10
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	20000	22200	11.3*(a)	0-10
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	132000	147000	11.4*(a)	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8915: D41013-1A

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8915
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8936 Methods: SW846 7471B
Matrix Type: SOLID Units: mg/kg

Prep Date: 11/27/12

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.083	.00088	.00075	0.0013	<0.083

Associated samples MP8936: D41013-1

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: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8936
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 11/27/12

Metal	D40988-1 Original	MS	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.029	0.39	0.369	97.8	75-125

Associated samples MP8936: D41013-1

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: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8936 Methods: SW846 7471B
Matrix Type: SOLID Units: mg/kg

Prep Date: 11/27/12

Metal	D40988-1 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.029	0.39	0.382	94.6	0.0	20

Associated samples MP8936: D41013-1

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: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

QC Batch ID: MP8936
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 11/27/12

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.33	0.333	99.0	80-120

Associated samples MP8936: D41013-1

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

Mountain States ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP8709/GN17735	1.0	0.0	mg/kg	176.0	166	94.0	80-120%
Specific Conductivity	GP8712/GN17742			umhos/cm	9991	9990	100.0	90-110%
pH	GN17719			su	8.00	8.00	100.0	99.3-100.7%

Associated Samples:
Batch GP8709: D41013-1
Batch GP8712: D41013-1
Batch GN17719: D41013-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP8709/GN17735	D40985-1	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN17722	D41014-1	mv	94.2	93.7	0.5	0-20%

Associated Samples:
Batch GP8709: D41013-1
Batch GN17722: D41013-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP8709/GN17735	D40985-1	mg/kg	0.0	40.0	39.8	99.5	75-125%

Associated Samples:
Batch GP8709: D41013-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D41013
Account: XTOKRWR - XTO Energy
Project: NPU 197-19B

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chromium, Hexavalent	GP8709/GN17735	D40985-1	mg/kg	0.0	40.0	40.9	2.7	20%

Associated Samples:
Batch GP8709: D41013-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits