Mountain States ACCUTEST LABORATORIES

12/06/12

Technical Report for

XTO Energy

PCU 296-5A

1210-04

Accutest Job Number: D41305

Sampling Date: 11/27/12

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: **149**

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Brad Madadian
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

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

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

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Sections:

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Sample Summary

XTO Energy

Job No: D41305

PCU 296-5A
Project No: 1210-04

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
D41305-1	11/27/12	13:00	DS	11/29/12	SO	Soil	CUT 2 POST SOLIDIFICATION
D41305-1A	11/27/12	13:00	DS	11/29/12	SO	Soil	CUT 2 POST SOLIDIFICATION

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	XTO Energy	**Job No**	D41305
Site:	PCU 296-5A	**Report Date**	12/6/2012 5:32:57 PM

On 11/29/2012, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 5.2 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D41305 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:** V5V1515

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41291-1MS, D41291-1MSD were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix: SO **Batch ID:** OP7031

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41248-1MS, D41248-1MSD were used as the QC samples indicated.
- D41305-1: Dilution required due to matrix interference; extract was black and viscous.
- OP7031-BS for Benzo(k)fluoranthene: Compound ND in associated samples.

Volatiles by GC By Method SW846 8015B

Matrix: SO **Batch ID:** GGB1016

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41047-1MS, D41047-1MSD were used as the QC samples indicated.

Extractables by GC By Method SW846-8015B

Matrix: SO **Batch ID:** OP7032

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D41047-2MS, D41047-2MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Metals By Method SW846 6010C

Matrix: AQ **Batch ID:** MP8975

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41248-1AMS, D41248-1AMSD, D41248-1ASDL were used as the QC samples for the metals analysis.
- MP8975-SD1 for Sodium: Serial dilution indicates possible matrix interference.

Matrix: SO **Batch ID:** MP8983

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41305-1MS, D41305-1MSD, D41305-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Barium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The serial dilution RPD(s) for Selenium are outside control limits for sample MP8983-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP8983-SD1 for Nickel, Zinc: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix: SO **Batch ID:** MP8984

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41305-1MS, D41305-1MSD, D41305-1SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471B

Matrix: SO **Batch ID:** MP8965

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41219-3MS, D41219-3MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix: SO **Batch ID:** GN17892

- Sample(s) D41266-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.
- The duplicate RPD(s) for Redox Potential Vs H2 are outside control limits for sample GN17892-D1. High RPD due to possible nonhomogeniety.

Wet Chemistry By Method SM19 2540B M

Matrix: SO **Batch ID:** GN17871

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

Wet Chemistry By Method SW846 3060A/7196A

Matrix: SO **Batch ID:** GP8811

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41305-1DUP, D41305-1MS, D41305-1MSD were used as the QC samples for the Chromium, Hexavalent analysis.

Wet Chemistry By Method SW846 3060A/7196A M

Matrix: SO **Batch ID:** R15344

- The data for SW846 3060A/7196A M meets quality control requirements.
- D41305-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 9045D

Matrix: SO **Batch ID:** GN17890

- The following samples were run outside of holding time for method SW846 9045D: D41305-1

Wet Chemistry By Method USDA HANDBOOK 60

Matrix: SO **Batch ID:** MP8975

- D41305-1A 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: D41305
Account: XTO Energy
Project: PCU 296-5A
Collected: 11/27/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D41305-1	**CUT 2 POST SOLIDIFICATION**					
Benzene		0.811	0.071	0.036	mg/kg	SW846 8260B
Toluene		1.91	0.14	0.071	mg/kg	SW846 8260B
Ethylbenzene		0.221	0.14	0.027	mg/kg	SW846 8260B
Xylene (total)		1.79	0.29	0.14	mg/kg	SW846 8260B
Benzo(a)anthracene [a]		0.0234 J	0.041	0.021	mg/kg	SW846 8270C BY SIM
Benzo(a)pyrene [a]		0.0338 J	0.041	0.021	mg/kg	SW846 8270C BY SIM
Chrysene [a]		0.0819	0.041	0.021	mg/kg	SW846 8270C BY SIM
Fluoranthene [a]		0.0304 J	0.041	0.021	mg/kg	SW846 8270C BY SIM
Fluorene [a]		0.131	0.041	0.021	mg/kg	SW846 8270C BY SIM
Naphthalene [a]		0.662	0.057	0.050	mg/kg	SW846 8270C BY SIM
Pyrene [a]		0.0512	0.041	0.021	mg/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)		7.36 J	14	7.1	mg/kg	SW846 8015B
TPH-DRO (C10-C28)		240	81	49	mg/kg	SW846-8015B
Arsenic		8.3	0.12		mg/kg	SW846 6020A
Barium		8740	5.9		mg/kg	SW846 6010C
Chromium		13.5	1.2		mg/kg	SW846 6010C
Copper		28.9	1.2		mg/kg	SW846 6010C
Lead		29.4	5.9		mg/kg	SW846 6010C
Nickel		12.7	3.6		mg/kg	SW846 6010C
Zinc		35.3	3.6		mg/kg	SW846 6010C
Specific Conductivity		5380	1.0		umhos/cm	SM2510B-1997 MOD
Chromium, Trivalent [b]		13.5	2.2		mg/kg	SW846 3060A/7196A M
Redox Potential Vs H2		56.3			mv	ASTM D1498-76M
pH		12.18			su	SW846 9045D
D41305-1A	**CUT 2 POST SOLIDIFICATION**					
Calcium		63.0	2.0		mg/l	SW846 6010C
Sodium		883	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio [c]		30.5			ratio	USDA HANDBOOK 60

(a) Dilution required due to matrix interference; extract was black and viscous.
(b) Calculated as: (Chromium) - (Chromium, Hexavalent)
(c) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID: CUT 2 POST SOLIDIFICATION
Lab Sample ID: D41305-1
Matrix: SO - Soil
Method: SW846 8260B
Project: PCU 296-5A

Date Sampled: 11/27/12
Date Received: 11/29/12
Percent Solids: 81.9

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V24815.D	1	11/30/12	BD	n/a	n/a	V5V1515
Run #2							

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.811	0.071	0.036	mg/kg	
108-88-3	Toluene	1.91	0.14	0.071	mg/kg	
100-41-4	Ethylbenzene	0.221	0.14	0.027	mg/kg	
1330-20-7	Xylene (total)	1.79	0.29	0.14	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	103%		64-130%
460-00-4	4-Bromofluorobenzene	99%		62-131%
17060-07-0	1,2-Dichloroethane-D4	102%		70-130%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	CUT 2 POST SOLIDIFICATION		
Lab Sample ID:	D41305-1	**Date Sampled:**	11/27/12
Matrix:	SO - Soil	**Date Received:**	11/29/12
Method:	SW846 8270C BY SIM SW846 3546	**Percent Solids:**	81.9
Project:	PCU 296-5A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3G12385.D	4	12/03/12	DC	11/30/12	OP7031	E3G586
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	0.041	0.021	mg/kg	
120-12-7	Anthracene	ND	0.041	0.021	mg/kg	
56-55-3	Benzo(a)anthracene	0.0234	0.041	0.021	mg/kg	J
205-99-2	Benzo(b)fluoranthene	ND	0.041	0.021	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.041	0.021	mg/kg	
50-32-8	Benzo(a)pyrene	0.0338	0.041	0.021	mg/kg	J
218-01-9	Chrysene	0.0819	0.041	0.021	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.041	0.021	mg/kg	
206-44-0	Fluoranthene	0.0304	0.041	0.021	mg/kg	J
86-73-7	Fluorene	0.131	0.041	0.021	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.041	0.021	mg/kg	
91-20-3	Naphthalene	0.662	0.057	0.050	mg/kg	
129-00-0	Pyrene	0.0512	0.041	0.021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	98%		10-159%
321-60-8	2-Fluorobiphenyl	103%		19-131%
1718-51-0	Terphenyl-d14	111%		18-150%

(a) Dilution required due to matrix interference; extract was black and viscous.

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	CUT 2 POST SOLIDIFICATION		
Lab Sample ID:	D41305-1	**Date Sampled:**	11/27/12
Matrix:	SO - Soil	**Date Received:**	11/29/12
Method:	SW846 8015B	**Percent Solids:**	81.9
Project:	PCU 296-5A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB18649.D	1	11/29/12	SK	n/a	n/a	GGB1016
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	7.36	14	7.1	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	91%		60-140%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	CUT 2 POST SOLIDIFICATION		
Lab Sample ID:	D41305-1	**Date Sampled:**	11/27/12
Matrix:	SO - Soil	**Date Received:**	11/29/12
Method:	SW846-8015B SW846 3546	**Percent Solids:**	81.9
Project:	PCU 296-5A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD20152.D	10	12/03/12	TR	11/30/12	OP7032	GFD1010
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	240	81	49	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	57%		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: CUT 2 POST SOLIDIFICATION
Lab Sample ID: D41305-1
Matrix: SO - Soil
Project: PCU 296-5A

Date Sampled: 11/27/12
Date Received: 11/29/12
Percent Solids: 81.9

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	8.3	0.12	mg/kg	5	12/03/12	12/06/12	JM	SW846 6020A [4]	SW846 3050B [7]
Barium	8740	5.9	mg/kg	5	12/03/12	12/05/12	JB	SW846 6010C [3]	SW846 3050B [6]
Cadmium	< 1.2	1.2	mg/kg	1	12/03/12	12/05/12	JB	SW846 6010C [2]	SW846 3050B [6]
Chromium	13.5	1.2	mg/kg	1	12/03/12	12/05/12	JB	SW846 6010C [2]	SW846 3050B [6]
Copper	28.9	1.2	mg/kg	1	12/03/12	12/05/12	JB	SW846 6010C [2]	SW846 3050B [6]
Lead	29.4	5.9	mg/kg	1	12/03/12	12/05/12	JB	SW846 6010C [2]	SW846 3050B [6]
Mercury	< 0.10	0.10	mg/kg	1	11/30/12	11/30/12	JM	SW846 7471B [1]	SW846 7471B [5]
Nickel	12.7	3.6	mg/kg	1	12/03/12	12/05/12	JB	SW846 6010C [2]	SW846 3050B [6]
Selenium	< 5.9	5.9	mg/kg	1	12/03/12	12/05/12	JB	SW846 6010C [2]	SW846 3050B [6]
Silver	< 3.6	3.6	mg/kg	1	12/03/12	12/05/12	JB	SW846 6010C [2]	SW846 3050B [6]
Zinc	35.3	3.6	mg/kg	1	12/03/12	12/05/12	JB	SW846 6010C [2]	SW846 3050B [6]

(1) Instrument QC Batch: MA3037
(2) Instrument QC Batch: MA3052
(3) Instrument QC Batch: MA3055
(4) Instrument QC Batch: MA3059
(5) Prep QC Batch: MP8965
(6) Prep QC Batch: MP8983
(7) Prep QC Batch: MP8984

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUT 2 POST SOLIDIFICATION
Lab Sample ID: D41305-1
Matrix: SO - Soil
Project: PCU 296-5A

Date Sampled: 11/27/12
Date Received: 11/29/12
Percent Solids: 81.9

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	5380	1.0	umhos/cm	1	12/04/12	JD	SM2510B-1997 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	12/04/12	KB	SW846 3060A/7196A
Chromium, Trivalent [a]	13.5	2.2	mg/kg	1	12/05/12 12:26	JB	SW846 3060A/7196A M
Redox Potential Vs H2	56.3		mv	1	11/30/12	CT	ASTM D1498-76M
Solids, Percent	81.9		%	1	11/30/12	SWT	SM19 2540B M
pH	12.18		su	1	11/30/12 14:10	JD	SW846 9045D

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUT 2 POST SOLIDIFICATION
Lab Sample ID: D41305-1A
Matrix: SO - Soil
Project: PCU 296-5A

Date Sampled: 11/27/12
Date Received: 11/29/12
Percent Solids: 81.9

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	63.0	2.0	mg/l	1	11/30/12	11/30/12	JM	SW846 6010C [1]	SW846 3010A/M [2]
Magnesium	< 1.0	1.0	mg/l	1	11/30/12	11/30/12	JM	SW846 6010C [1]	SW846 3010A/M [2]
Sodium	883	2.0	mg/l	1	11/30/12	11/30/12	JM	SW846 6010C [1]	SW846 3010A/M [2]

(1) Instrument QC Batch: MA3038
(2) Prep QC Batch: MP8975

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUT 2 POST SOLIDIFICATION
Lab Sample ID: D41305-1A
Matrix: SO - Soil
Project: PCU 296-5A

Date Sampled: 11/27/12
Date Received: 11/29/12
Percent Solids: 81.9

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	30.5		ratio	1	11/30/12 14:36	JM	USDA HANDBOOK 60

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

RL = Reporting Limit

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

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

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FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: D41305

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

Project Information
- Project Name: XTO PCU 296-5A
- Street:
- City / State:
- Project #: 1210-04
- 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 #	Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfate	T-910	LAB USE ONLY
	CUT 2 POST SOLIDIFICATION		11-27-12	13:00	DS	SO	5					X					X	01

DR 11/29

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 Albin	11/28/12 16:30	1 Rifle Service Center	2		2
3		3	4	11/29/12 11:20	4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #: HOCO	☑ Intact ☐ Not Intact; Preserved where applicable ☑	On Ice ☑; Cooler Temp. 5.2°

D41305: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D41305 **Client:** KRW **Immediate Client Services Action Required:** No

Date / Time Received: 11/29/2012 12:30:00 P **No. Coolers:** 1 **Client Service Action Required at Login:** No

Project: XTO PCU 296-5A **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

D41305: 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: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1515-MB	5V24804.D	1	11/30/12	BD	n/a	n/a	V5V1515

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

D41305-1

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	99%	64-130%
460-00-4	4-Bromofluorobenzene	91%	62-131%
17060-07-0	1,2-Dichloroethane-D4	105%	70-130%

Blank Spike Summary

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1515-BS	5V24805.D	1	11/30/12	BD	n/a	n/a	V5V1515

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

D41305-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	46.8	94	70-130
100-41-4	Ethylbenzene	50	47.0	94	70-130
108-88-3	Toluene	50	46.8	94	70-130
1330-20-7	Xylene (total)	150	146	97	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	101%	64-130%
460-00-4	4-Bromofluorobenzene	96%	62-131%
17060-07-0	1,2-Dichloroethane-D4	101%	70-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1515-BS	5V24806.D	1	11/30/12	BD	n/a	n/a	V5V1515

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

D41305-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	103%	64-130%
460-00-4	4-Bromofluorobenzene	94%	62-131%
17060-07-0	1,2-Dichloroethane-D4	100%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D41291-1MS	5V24808.D	1	11/30/12	BD	n/a	n/a	V5V1515
D41291-1MSD	5V24809.D	1	11/30/12	BD	n/a	n/a	V5V1515
D41291-1	5V24807.D	1	11/30/12	BD	n/a	n/a	V5V1515

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

D41305-1

CAS No.	Compound	D41291-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3590	3870	108	3510	98	10	64-139/30
100-41-4	Ethylbenzene	ND		3590	3840	107	3550	99	8	68-136/30
108-88-3	Toluene	ND		3590	3830	107	3510	98	9	60-130/30
1330-20-7	Xylene (total)	ND		10800	11900	111	10900	101	9	58-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D41291-1	Limits
2037-26-5	Toluene-D8	99%	101%	99%	64-130%
460-00-4	4-Bromofluorobenzene	103%	103%	98%	62-131%
17060-07-0	1,2-Dichloroethane-D4	102%	101%	101%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D41291-1MS	5V24810.D	1	11/30/12	BD	n/a	n/a	V5V1515
D41291-1MSD	5V24811.D	1	11/30/12	BD	n/a	n/a	V5V1515
D41291-1	5V24807.D	1	11/30/12	BD	n/a	n/a	V5V1515

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

D41305-1

CAS No.	Compound	D41291-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD

CAS No.	Surrogate Recoveries	MS	MSD	D41291-1	Limits
2037-26-5	Toluene-D8	102%	102%	99%	64-130%
460-00-4	4-Bromofluorobenzene	100%	100%	98%	62-131%
17060-07-0	1,2-Dichloroethane-D4	99%	100%	101%	70-130%

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5113012.S\
Data File : 5V24815.D
Acq On : 30 Nov 2012 6:44 pm
Operator : BRETD
Sample : D41305-1
Misc : MS5037,V5V1515,5.065,,100,5,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Dec 03 15:58:38 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

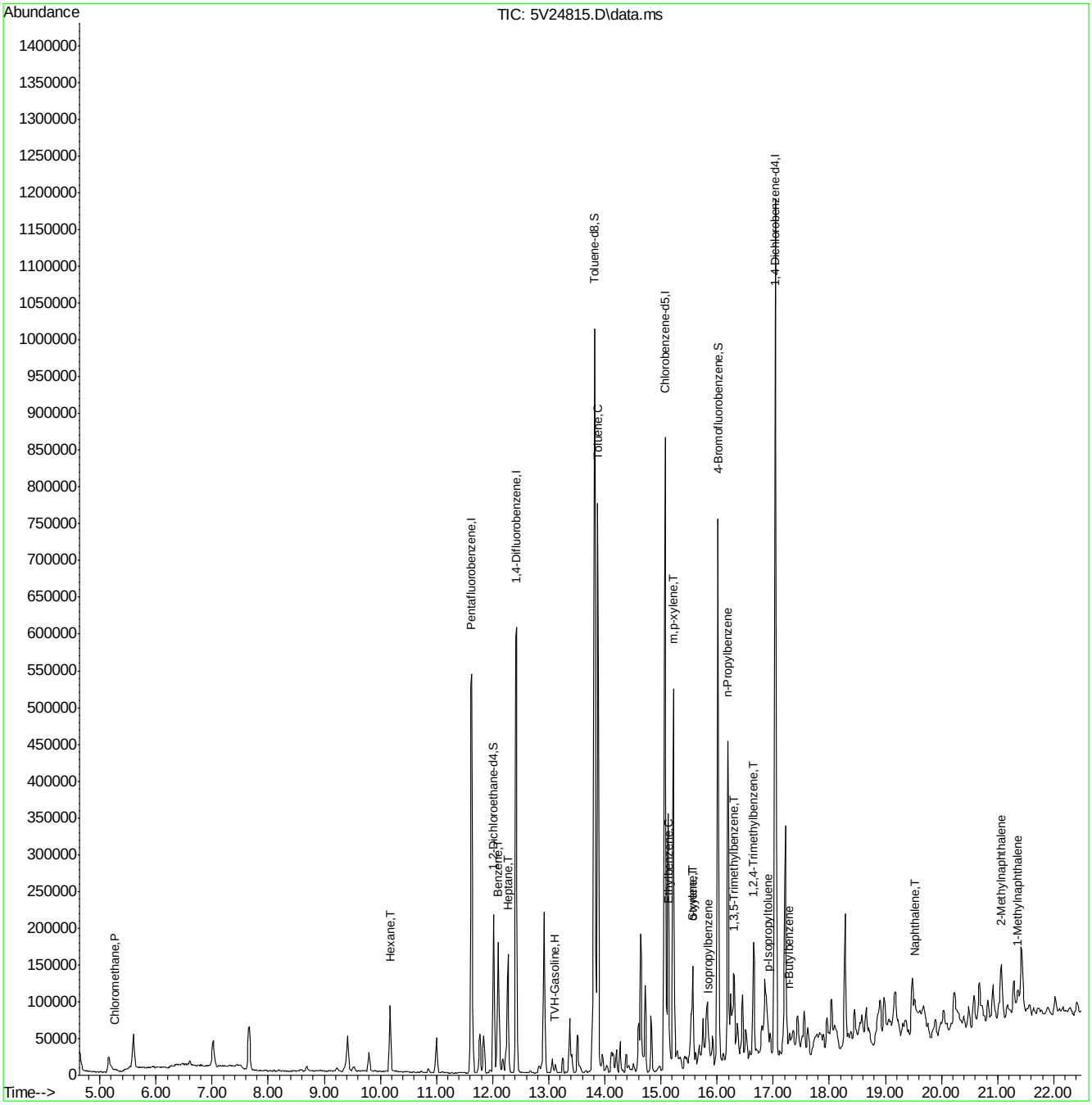
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
2) Pentafluorobenzene	11.624	168	440030	50.00	ug/l		0.00
35) 1,4-Difluorobenzene	12.423	114	567437	50.00	ug/l		0.00
53) Chlorobenzene-d5	15.072	117	532607	50.00	ug/l		0.00
74) 1,4-Dichlorobenzene-d4	17.036	152	390478	50.00	ug/l		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4	12.012	102	38124	50.90	ug/l		-0.01
Spiked Amount 50.000	Range 70 - 130		Recovery = 101.80%				
61) Toluene-d8	13.816	98	649359	51.47	ug/l		0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 102.94%				
69) 4-Bromofluorobenzene	16.020	95	267890	49.26	ug/l		0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 98.52%				
Target Compounds							Qvalue
1) TVH-Gasoline	13.102	TIC	9347111m	7.64	ug/l		
4) Chloromethane	5.265	50	849	0.17	ug/l		67
41) Hexane	10.174	57	44679	8.69	ug/l		100
43) Heptane	12.275	43	59518	10.06	ug/l		86
50) Benzene	12.092	78	171333	11.37	ug/l		100
62) Toluene	13.873	92	263476	26.78	ug/l		95
66) Ethylbenzene	15.140	91	58189	3.10	ug/l		98
68) Isopropylbenzene	15.848	105	8915	0.46	ug/l		93
71) Styrene	15.563	104	30828	2.55	ug/l		87
72) m,p-xylene	15.220	106	164009	21.75	ug/l		94
73) o-xylene	15.563	106	25222	3.37	ug/l		99
77) n-Propylbenzene	16.191	91	26631	1.14	ug/l		97
80) 1,3,5-Trimethylbenzene	16.305	105	47542	2.67	ug/l		95
82) 1,2,4-Trimethylbenzene	16.648	105	89584	4.81	ug/l		92
86) p-Isopropyltoluene	16.899	119	22384	1.04	ug/l	#	75
88) n-Butylbenzene	17.287	91	9113	0.46	ug/l	#	81
91) Naphthalene	19.525	128	41564	2.15	ug/l		100
94) 2-Methylnaphthalene	21.054	142	39467	8.33	ug/l	#	93
95) 1-Methylnaphthalene	21.351	142	21738	3.11	ug/l		94

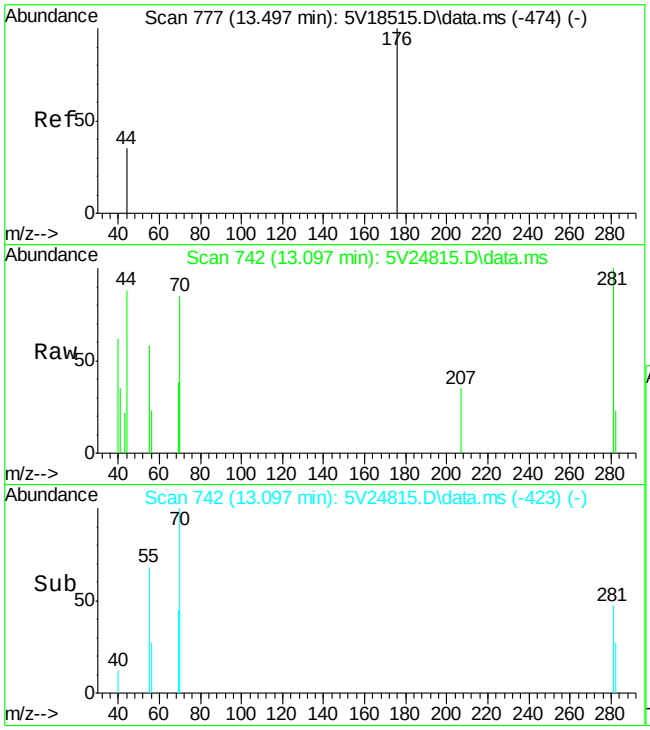
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5113012.S\
Data File : 5V24815.D
Acq On : 30 Nov 2012 6:44 pm
Operator : BRETD
Sample : D41305-1
Misc : MS5037,V5V1515,5.065,,100,5,1
ALS Vial : 19 Sample Multiplier: 1

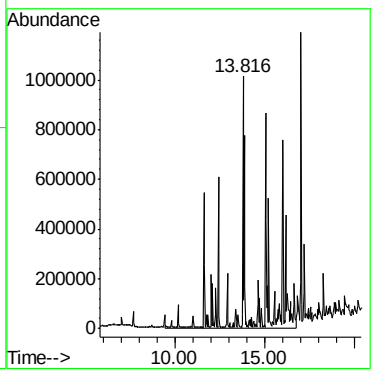
Quant Time: Dec 03 15:58:38 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1497TVH1497.M
Quant Title : 8260
QLast Update : Wed Nov 14 09:54:38 2012
Response via : Initial Calibration

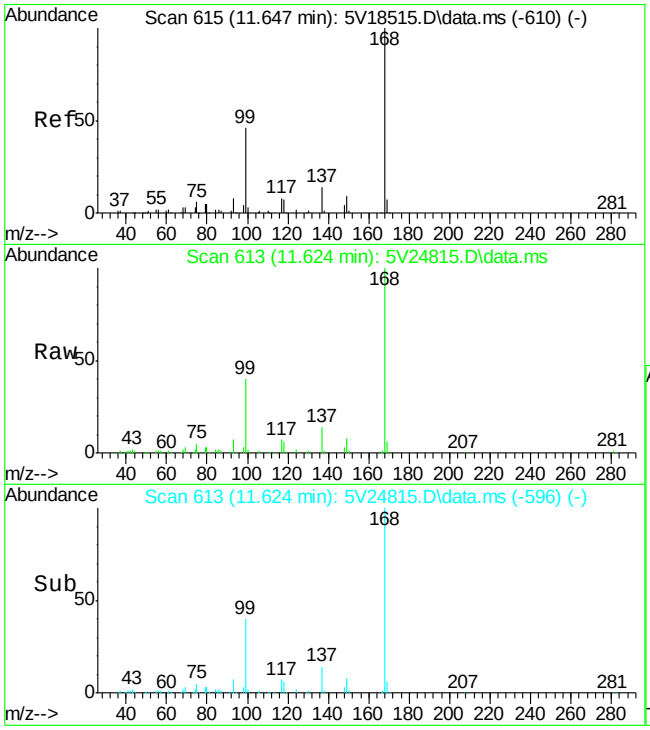




#1
TVH-Gasoline
Concen: 7.64 ug/l m
RT: 13.102 min Scan# 742
Delta R.T. 0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion:TIC Resp: 9347111

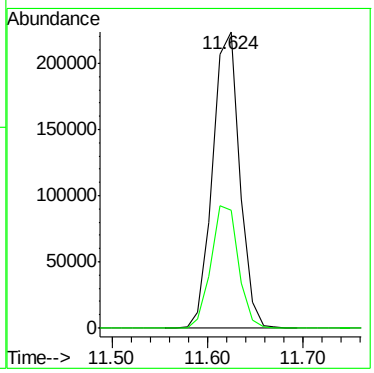


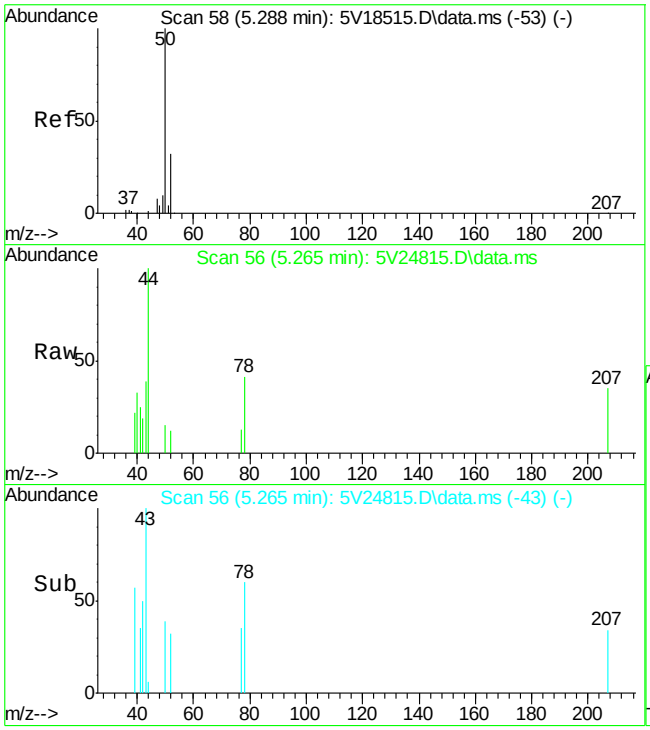


#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.624 min Scan# 613
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion:168 Resp: 440030

Ion	Ratio	Lower	Upper
168	100		
99	41.9	37.4	56.2

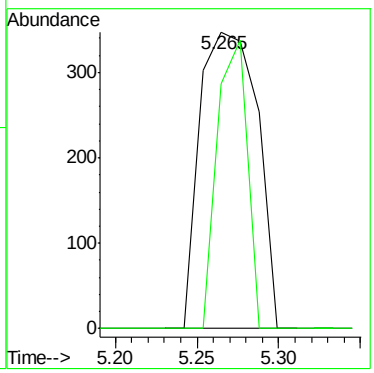


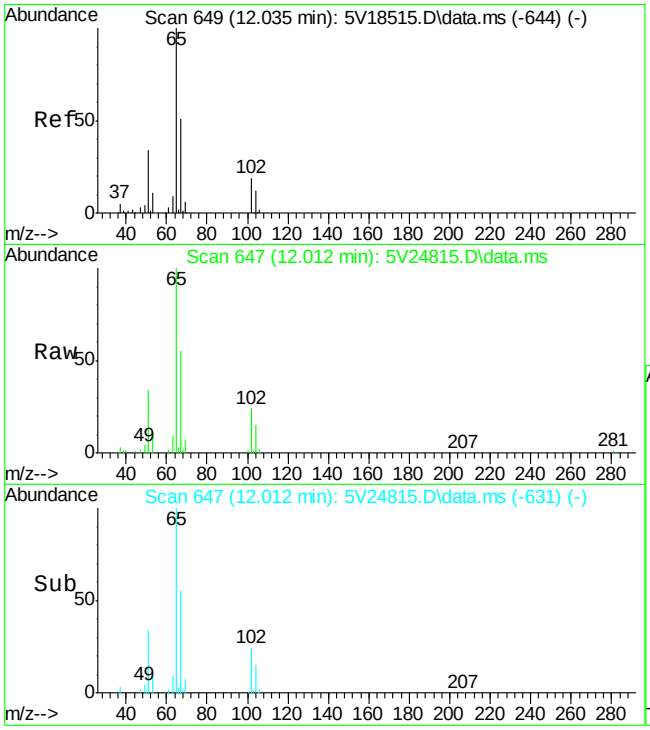


#4
Chloromethane
Concen: 0.17 ug/l
RT: 5.265 min Scan# 56
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion: 50 Resp: 849

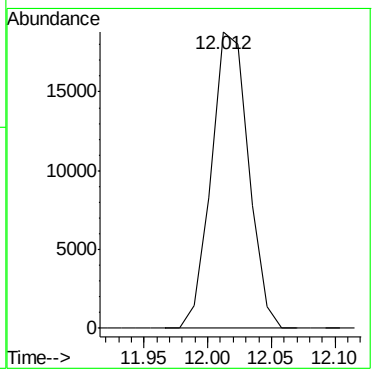
Ion	Ratio	Lower	Upper
50	100		
52	50.4	12.1	52.1

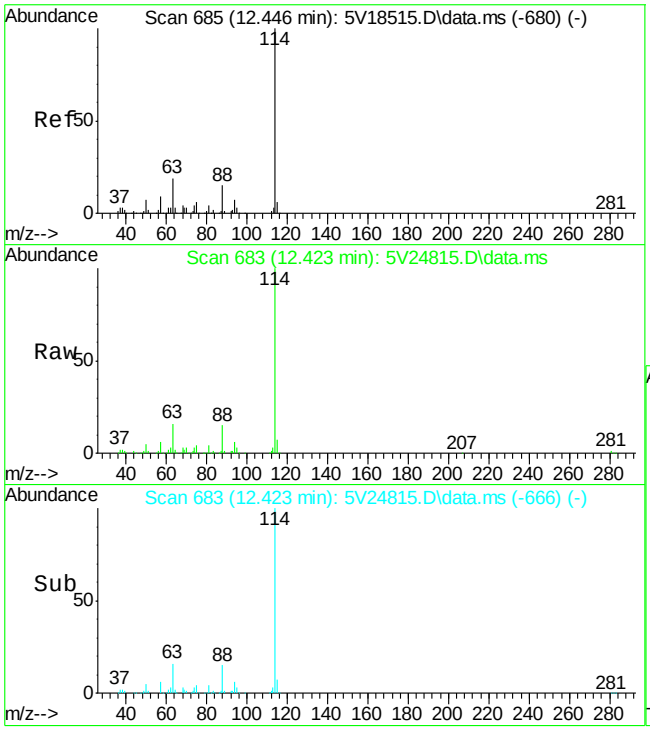




#33
1,2-Dichloroethane-d4
Concen: 50.90 ug/l
RT: 12.012 min Scan# 647
Delta R.T. -0.012 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

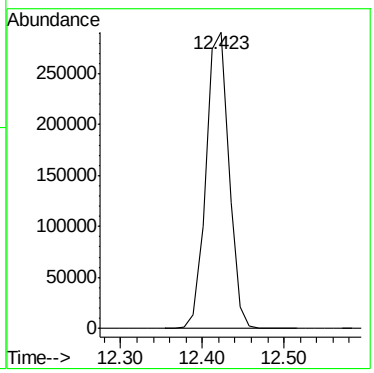
Tgt Ion:102 Resp: 38124

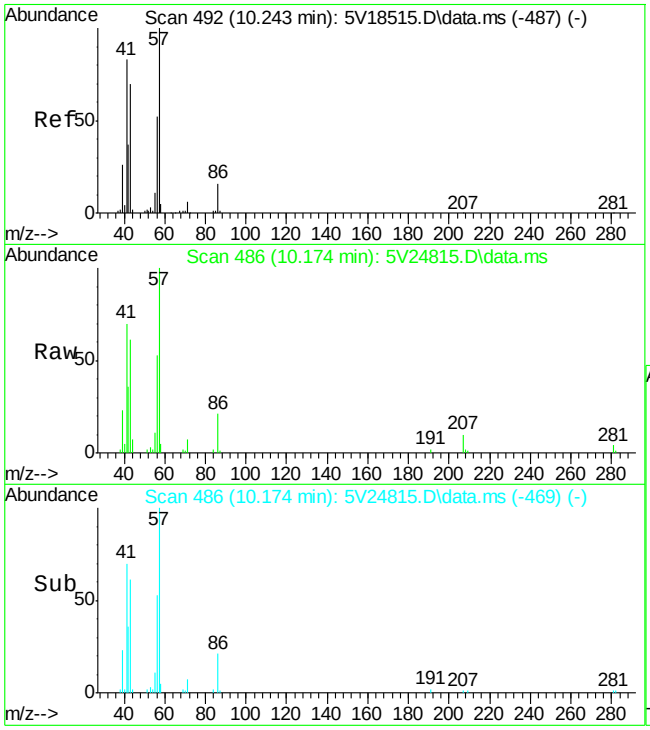




#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.423 min Scan# 683
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

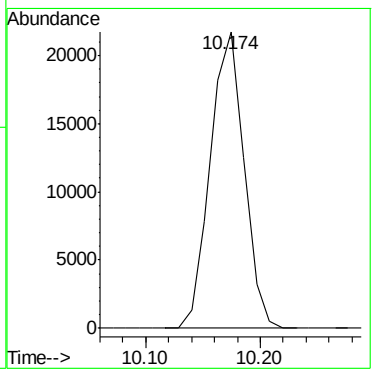
Tgt Ion:114 Resp: 567437

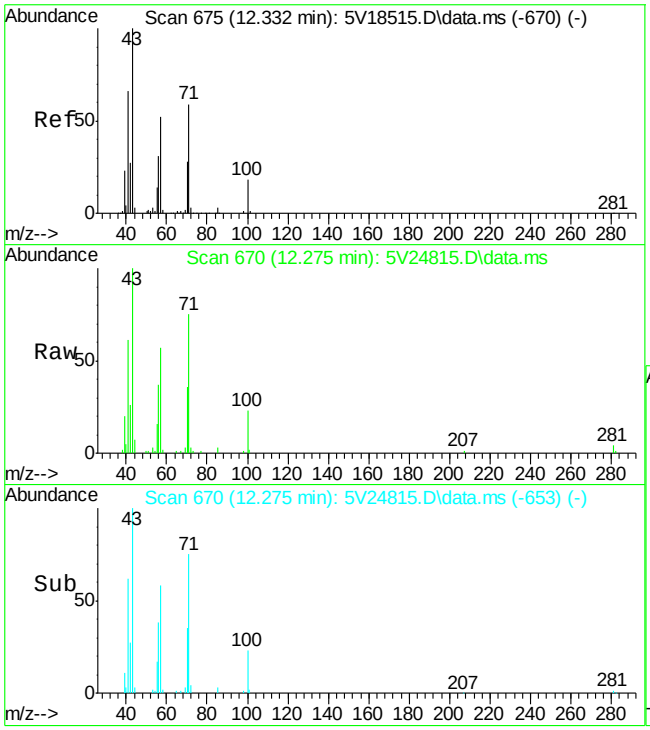




#41
Hexane
Concen: 8.69 ug/l
RT: 10.174 min Scan# 486
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion: 57 Resp: 44679

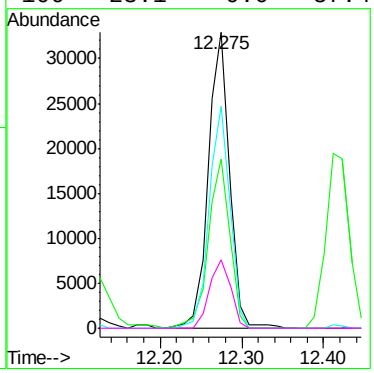


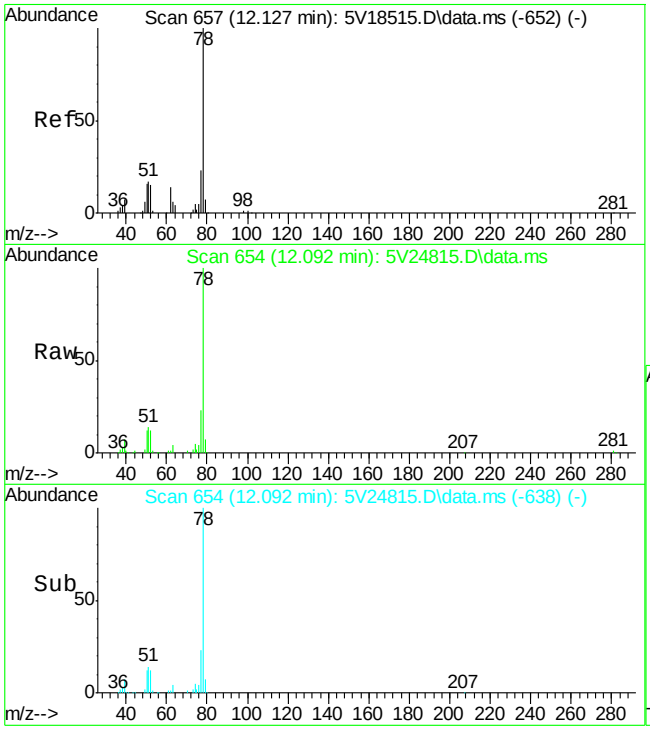


#43
Heptane
Concen: 10.06 ug/l
RT: 12.275 min Scan# 670
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion: 43 Resp: 59518

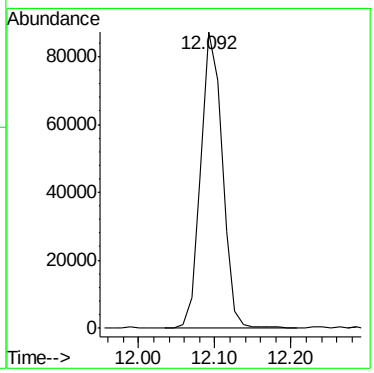
Ion	Ratio	Lower	Upper
43	100		
57	57.5	30.6	70.6
71	72.8	38.9	78.9
100	23.1	0.0	37.4

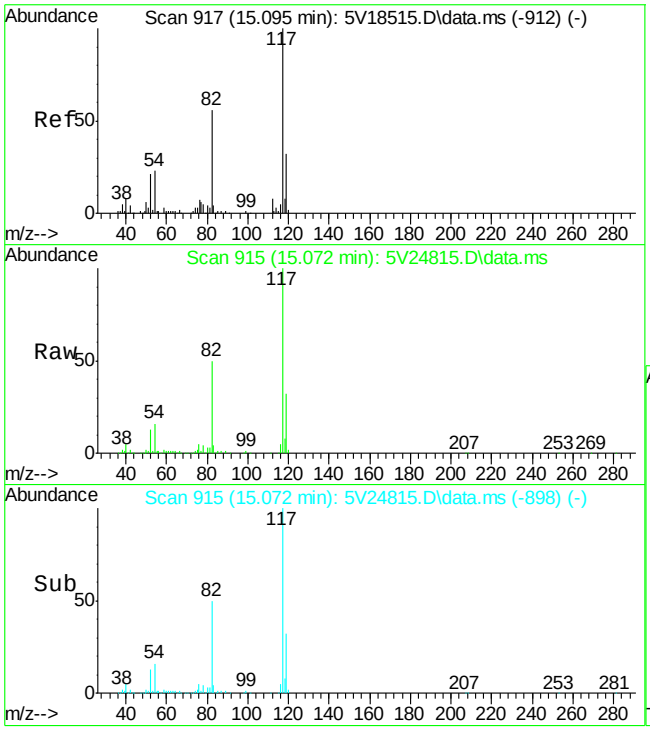




#50
Benzene
Concen: 11.37 ug/l
RT: 12.092 min Scan# 654
Delta R.T. -0.012 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

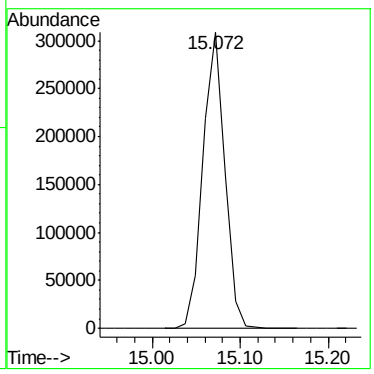
Tgt Ion: 78 Resp: 171333

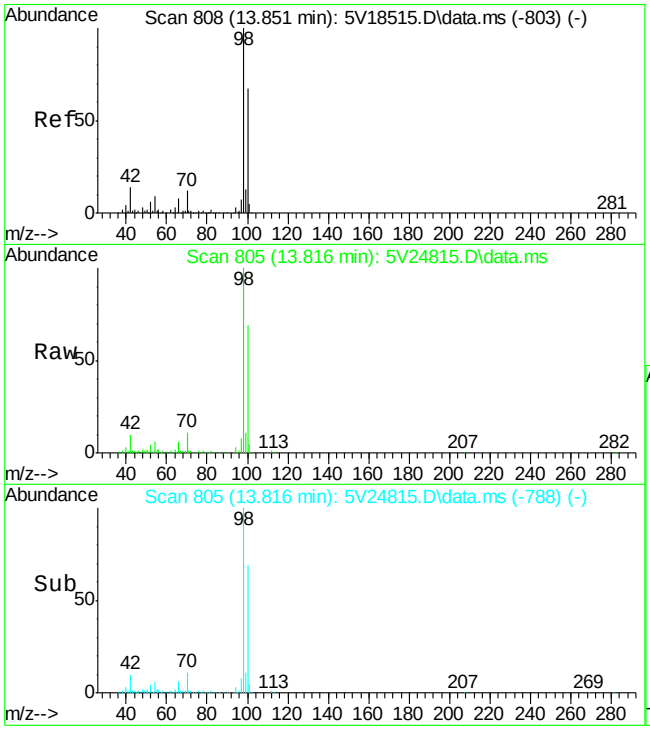




#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.072 min Scan# 915
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

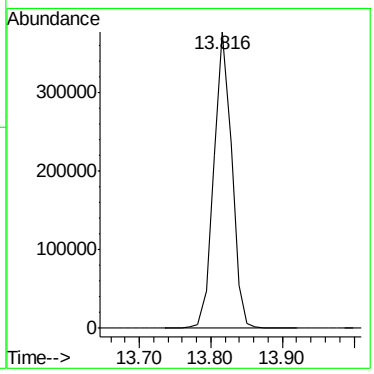
Tgt Ion:117 Resp: 532607

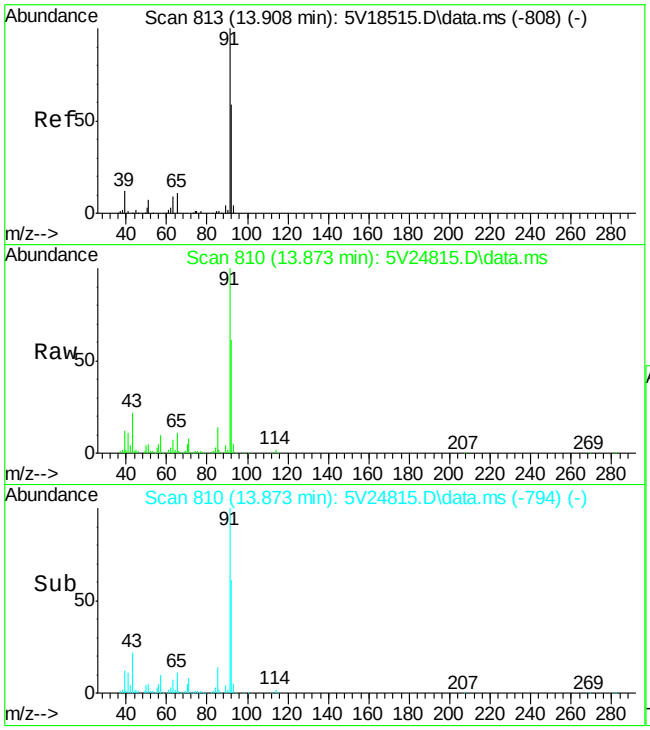




#61
Toluene-d8
Concen: 51.47 ug/l
RT: 13.816 min Scan# 805
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion: 98 Resp: 649359

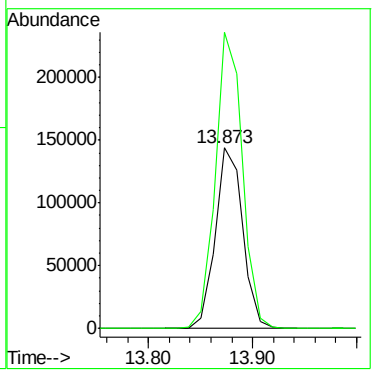


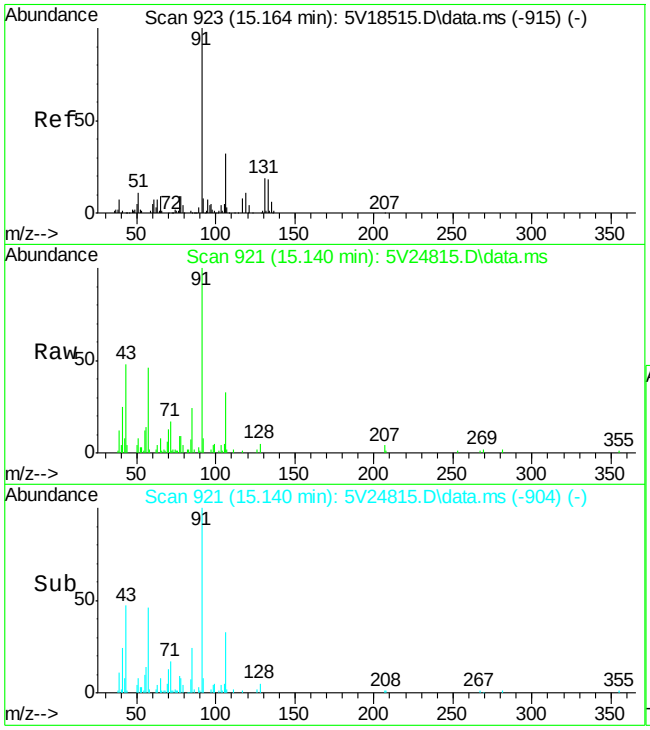


#62
Toluene
Concen: 26.78 ug/l
RT: 13.873 min Scan# 810
Delta R.T. -0.012 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion: 92 Resp: 263476

Ion	Ratio	Lower	Upper
92	100		
91	162.8	149.8	189.8

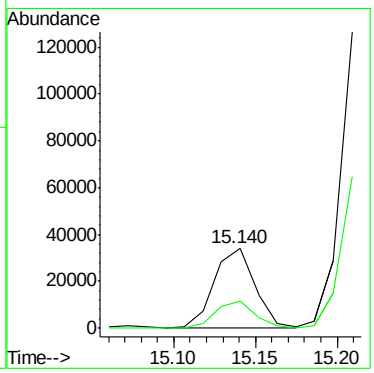


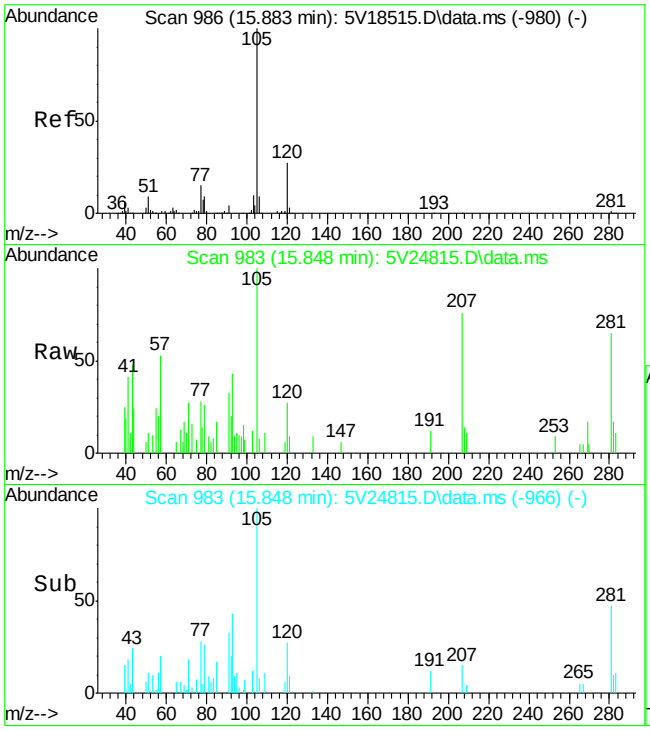


#66
Ethylbenzene
Concen: 3.10 ug/l
RT: 15.140 min Scan# 921
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion: 91 Resp: 58189

Ion	Ratio	Lower	Upper
91	100		
106	33.0	11.7	51.7

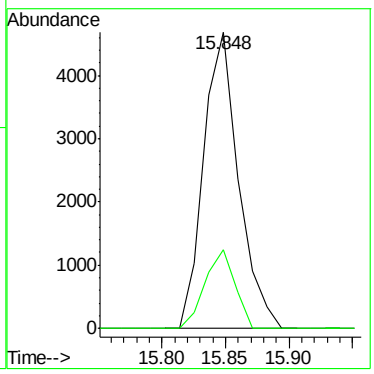


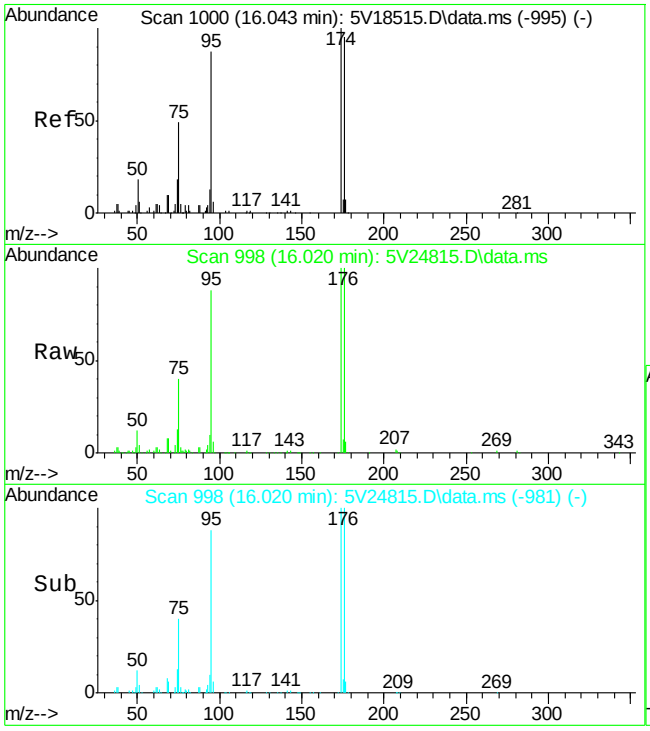


#68
Isopropylbenzene
Concen: 0.46 ug/l
RT: 15.848 min Scan# 983
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion:105 Resp: 8915

Ion	Ratio	Lower	Upper
105	100		
120	22.7	21.0	31.4

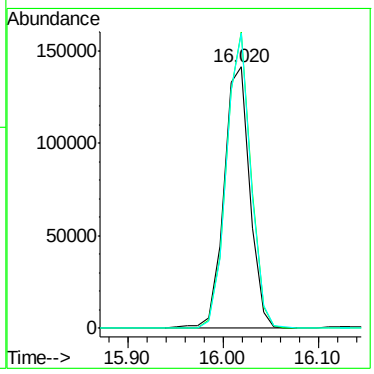


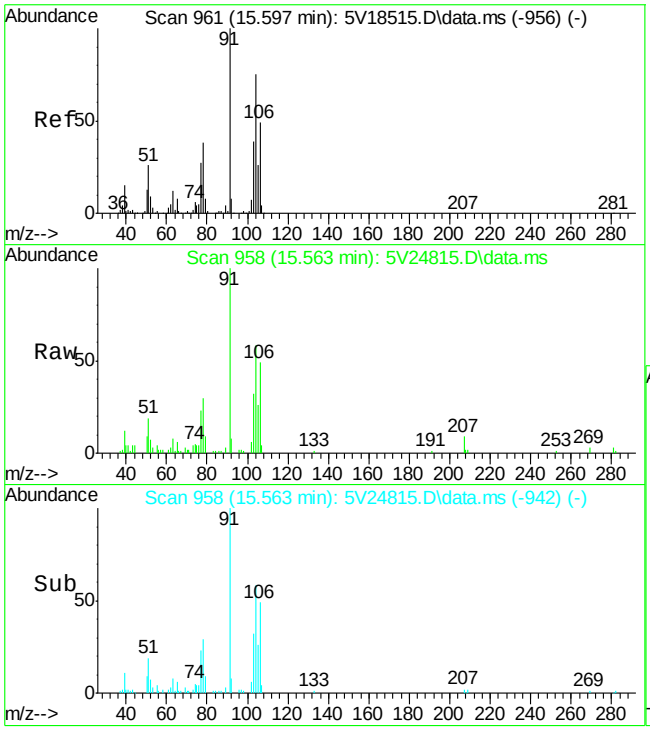


#69
4-Bromofluorobenzene
Concen: 49.26 ug/l
RT: 16.020 min Scan# 998
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion: 95 Resp: 267890

Ion	Ratio	Lower	Upper
95	100		
174	106.5	77.1	117.1
176	106.0	73.4	113.4

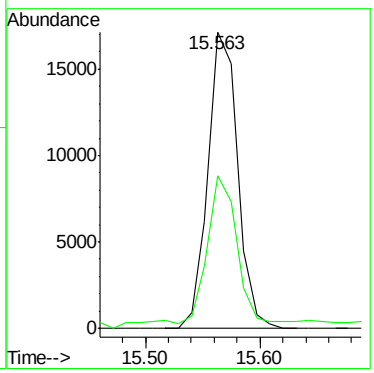


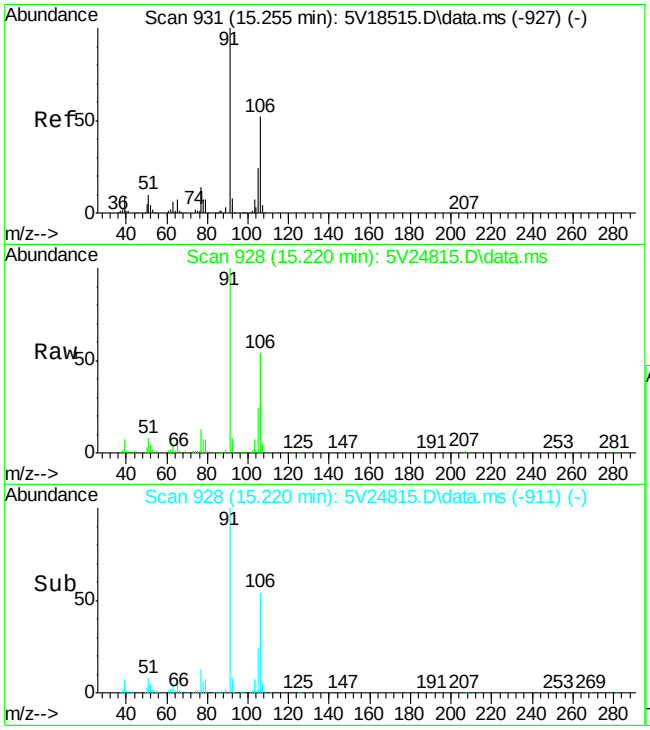


#71
Styrene
Concen: 2.55 ug/l
RT: 15.563 min Scan# 958
Delta R.T. -0.012 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion:104 Resp: 30828

Ion	Ratio	Lower	Upper
104	100		
78	61.9	32.6	72.6

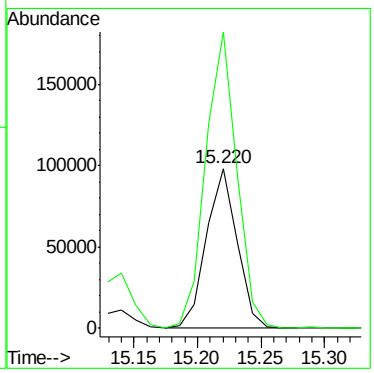


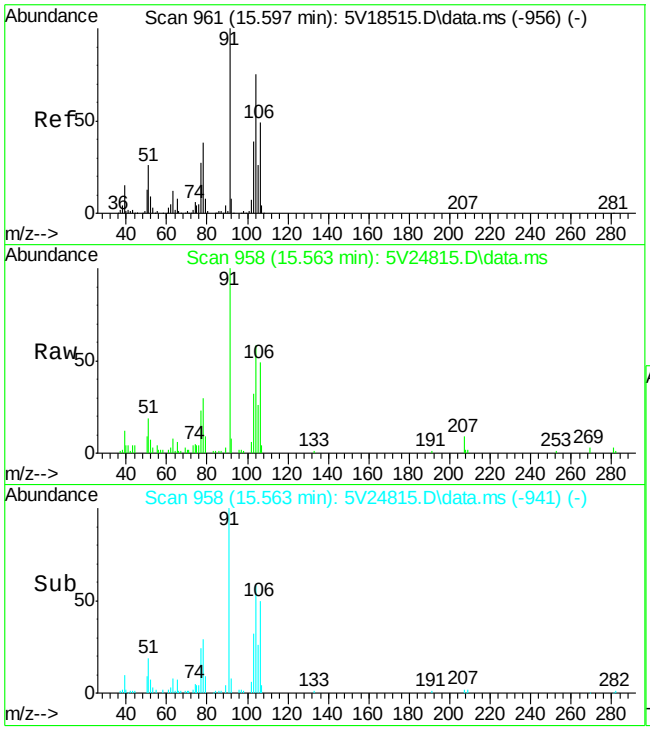


#72
m,p-xylene
Concen: 21.75 ug/l
RT: 15.220 min Scan# 928
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion:106 Resp: 164009

Ion	Ratio	Lower	Upper
106	100		
91	188.5	177.1	217.1

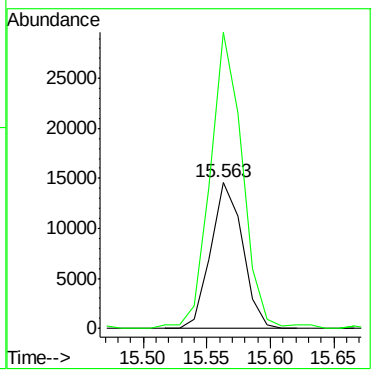


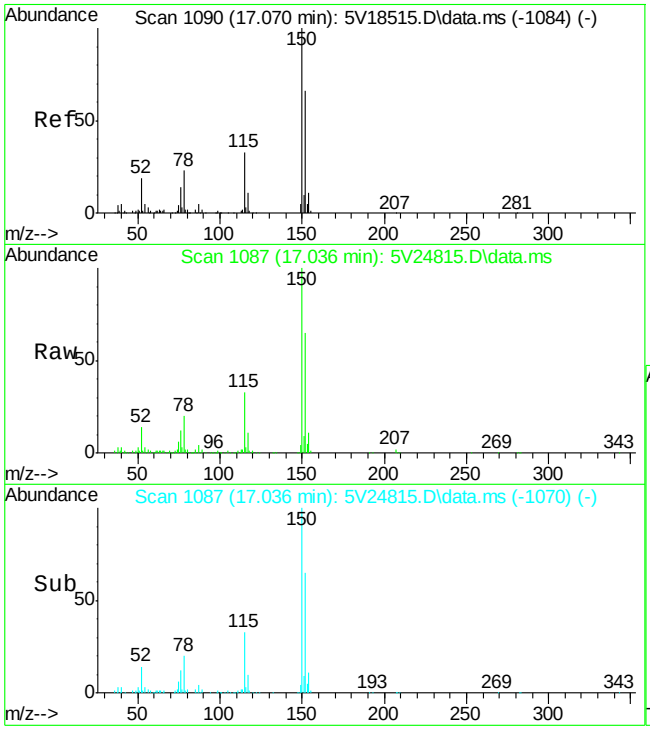


#73
o-xylene
Concen: 3.37 ug/l
RT: 15.563 min Scan# 958
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion:106 Resp: 25222

Ion	Ratio	Lower	Upper
106	100		
91	206.0	166.6	249.8

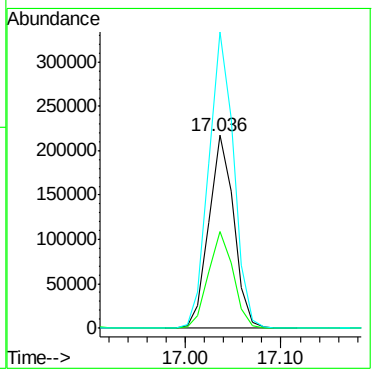


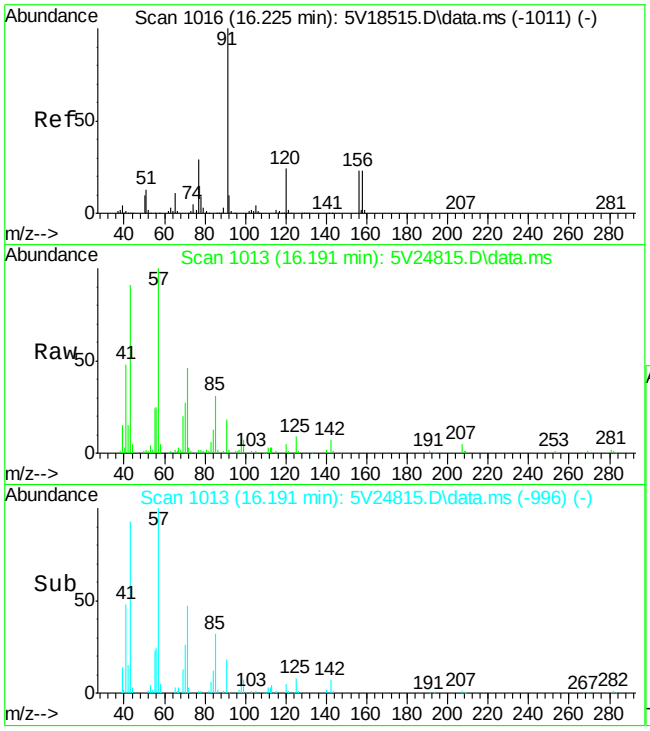


#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.036 min Scan# 1087
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion:152 Resp: 390478

Ion	Ratio	Lower	Upper
152	100		
115	50.5	41.4	62.0
150	155.0	153.9	230.9

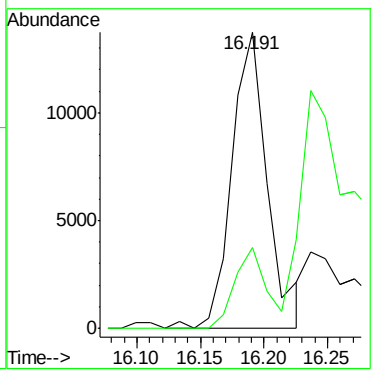


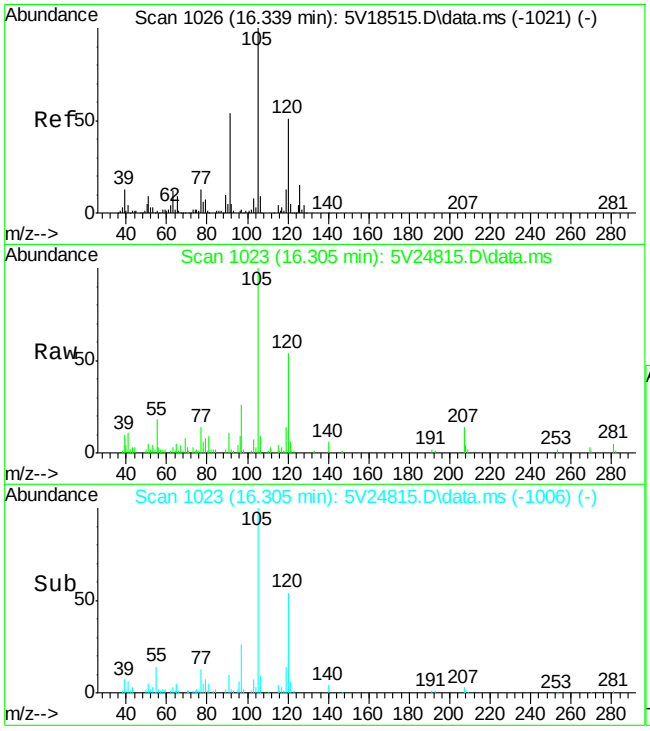


#77
n-Propylbenzene
Concen: 1.14 ug/l
RT: 16.191 min Scan# 1013
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion: 91 Resp: 26631

Ion	Ratio	Lower	Upper
91	100		
120	24.4	18.6	27.8

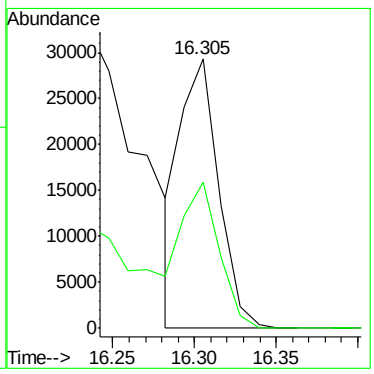


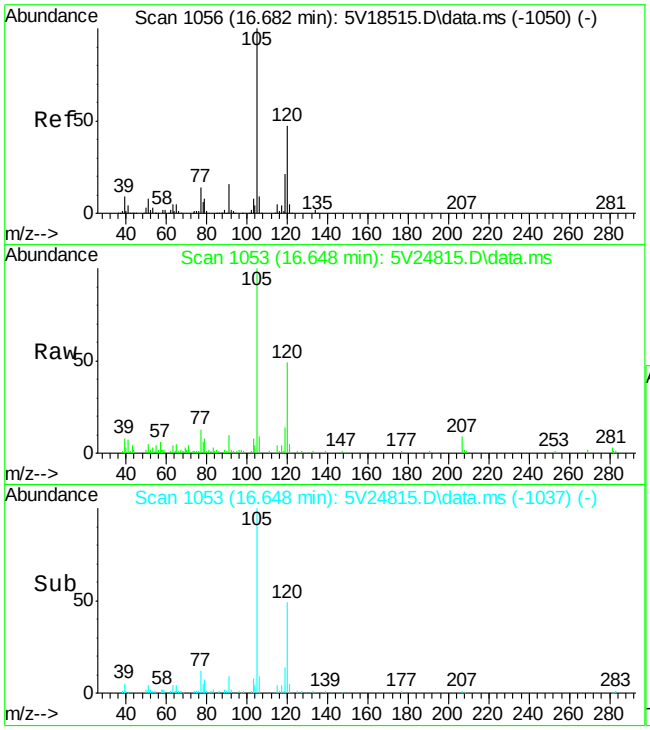


#80
1,3,5-Trimethylbenzene
Concen: 2.67 ug/l
RT: 16.305 min Scan# 1023
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion:105 Resp: 47542

Ion	Ratio	Lower	Upper
105	100		
120	53.6	40.1	60.1

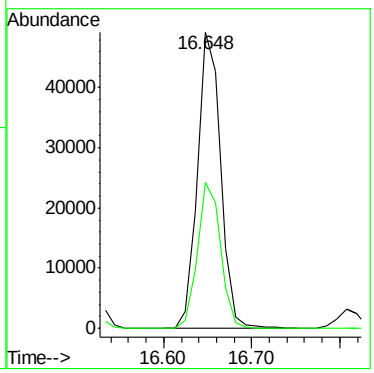


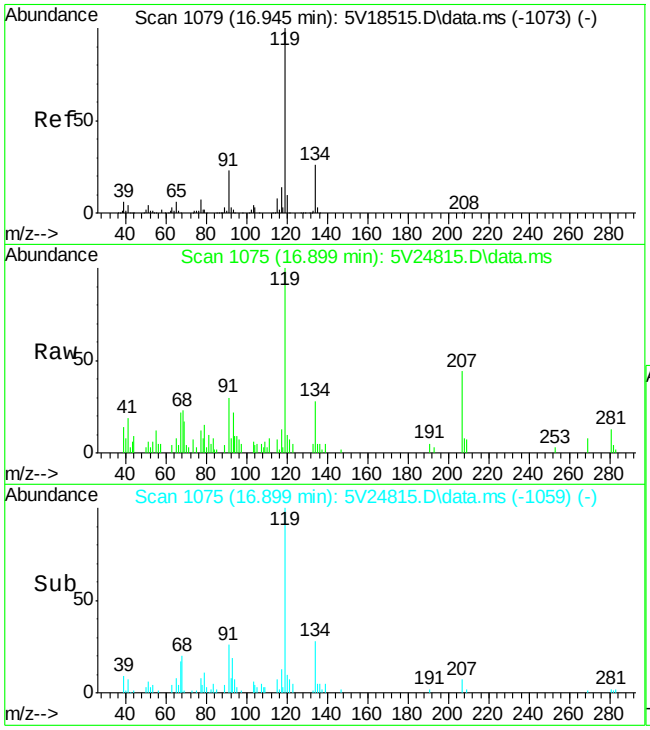


#82
1,2,4-Trimethylbenzene
Concen: 4.81 ug/l
RT: 16.648 min Scan# 1053
Delta R.T. -0.012 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion:105 Resp: 89584

Ion	Ratio	Lower	Upper
105	100		
120	49.1	43.8	65.8

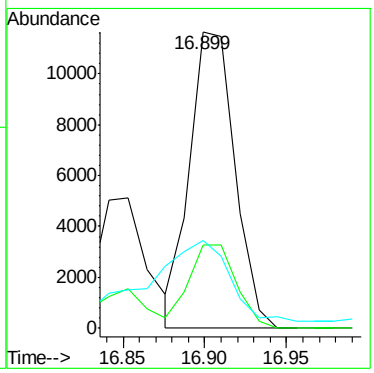


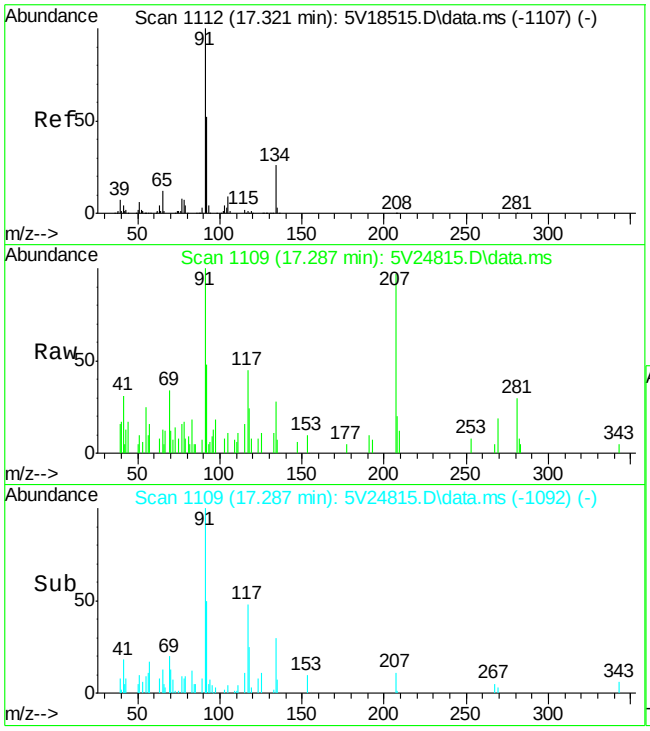


#86
p-Isopropyltoluene
Concen: 1.04 ug/l
RT: 16.899 min Scan# 1075
Delta R.T. -0.012 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion:119 Resp: 22384

Ion	Ratio	Lower	Upper
119	100		
134	29.4	21.3	31.9
91	47.4	19.0	28.6#

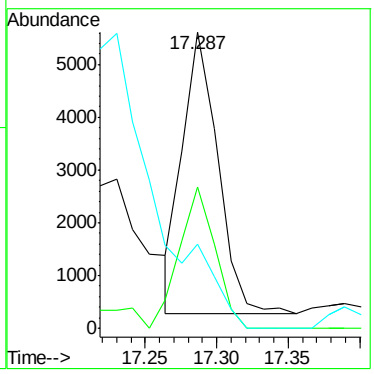


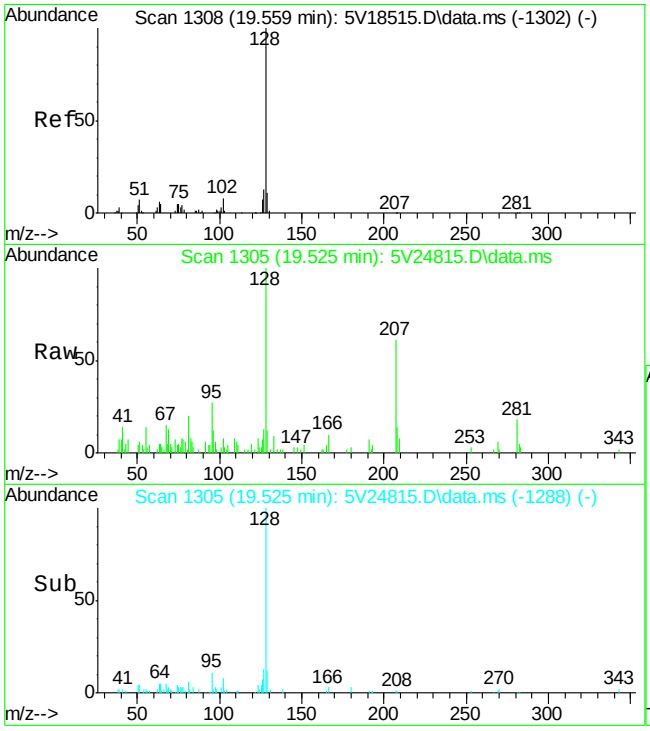


#88
n-Butylbenzene
Concen: 0.46 ug/l
RT: 17.287 min Scan# 1109
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion: 91 Resp: 9113

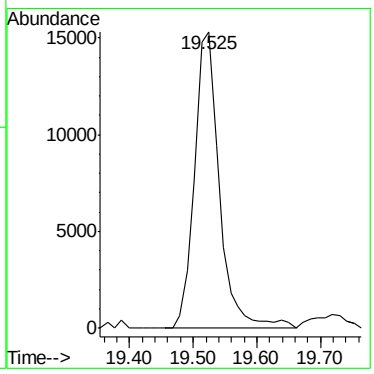
Ion	Ratio	Lower	Upper
91	100		
92	51.3	42.2	63.4
134	0.0	21.4	32.2#

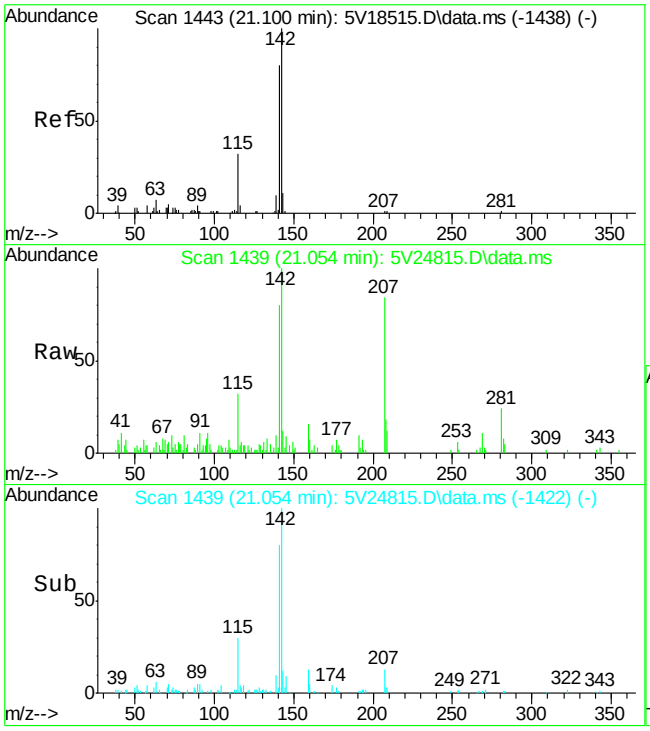




#91
Naphthalene
Concen: 2.15 ug/l
RT: 19.525 min Scan# 1305
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion:128 Resp: 41564

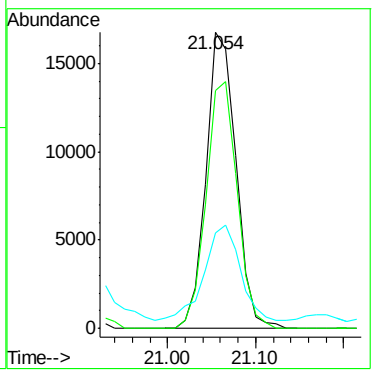


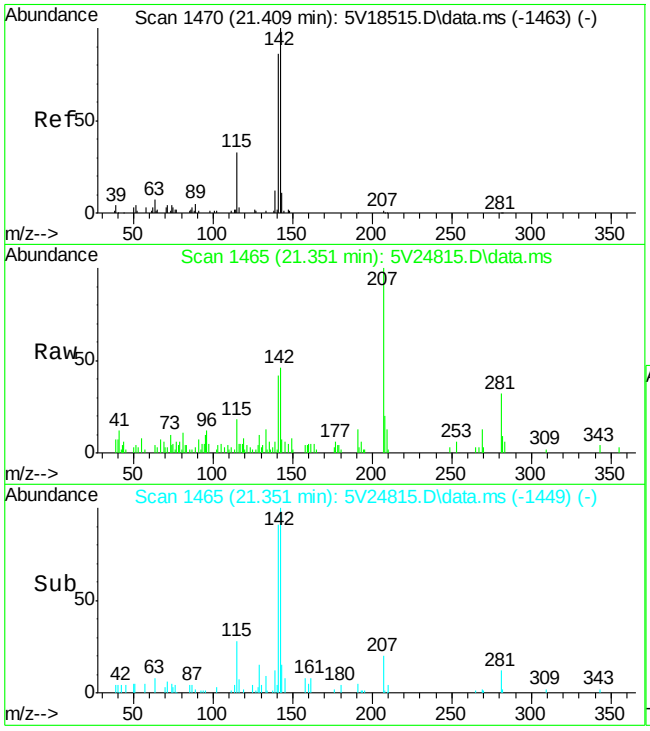


#94
2-Methylnaphthalene
Concen: 8.33 ug/l
RT: 21.054 min Scan# 1439
Delta R.T. -0.012 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion:142 Resp: 39467

Ion	Ratio	Lower	Upper
142	100		
141	86.9	66.2	99.4
115	39.3	25.9	38.9#

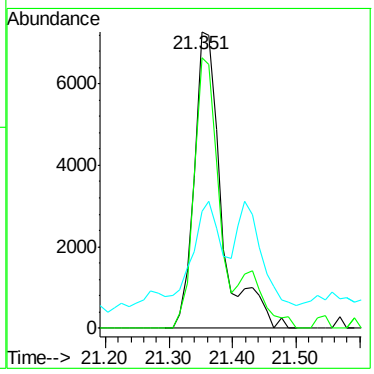




#95
1-Methylnaphthalene
Concen: 3.11 ug/l
RT: 21.351 min Scan# 1465
Delta R.T. -0.012 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion:142 Resp: 21738

Ion	Ratio	Lower	Upper
142	100		
141	82.3	68.9	103.3
115	40.4	27.3	40.9



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5113012.S\
Data File : 5V24804.D
Acq On : 30 Nov 2012 12:36 pm
Operator : BRETD
Sample : MB
Misc : MS5037,V5V1515,5.00,,100,5,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 03 15:25:05 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

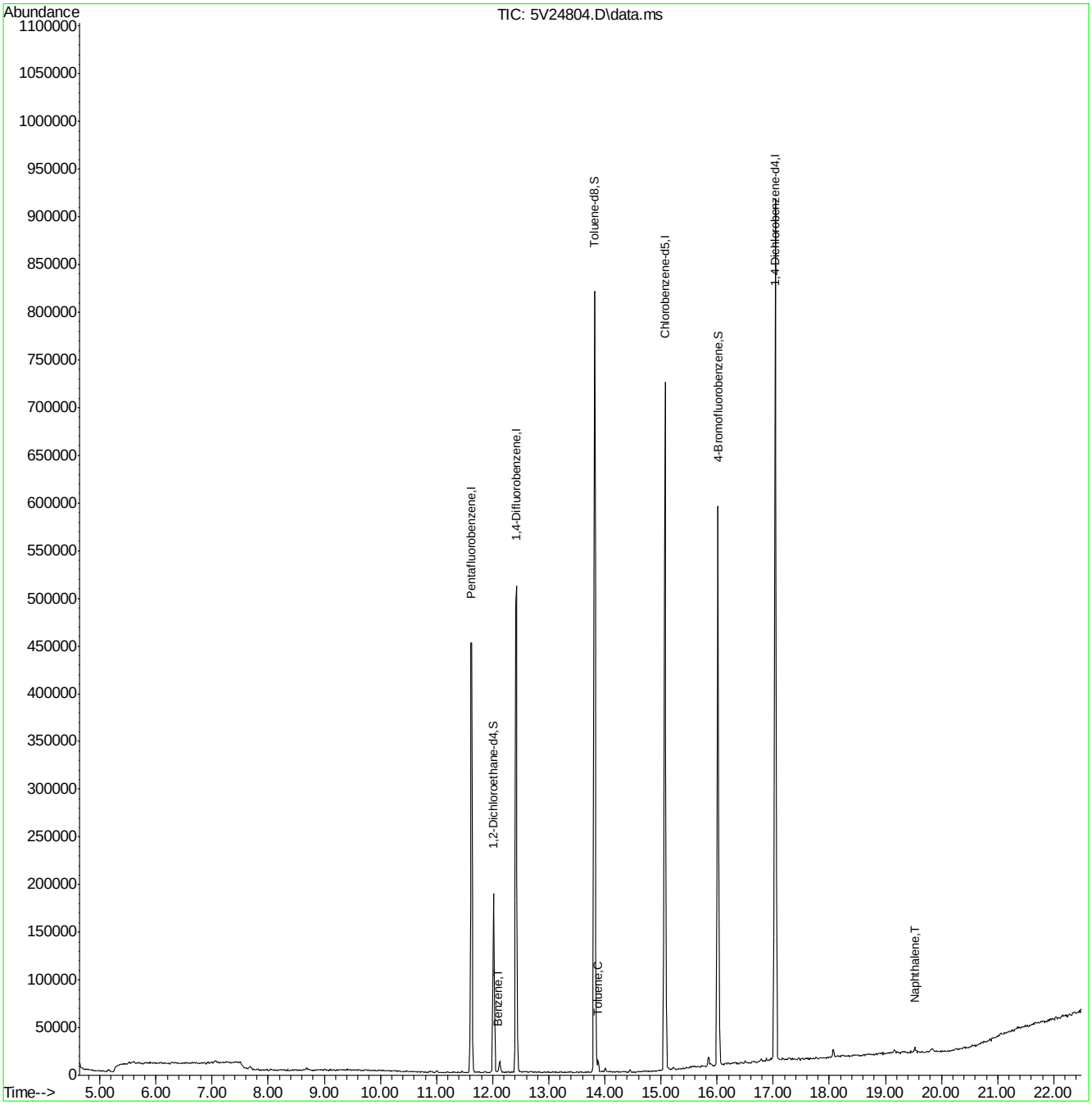
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.624	168	376674	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.423	114	473950	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.072	117	455154	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.036	152	308385	50.00	ug/l	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.012	102	33764	52.67	ug/l	-0.01
Spiked Amount 50.000	Range 70 - 130		Recovery = 105.34%			
61) Toluene-d8	13.816	98	534703	49.59	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 99.18%			
69) 4-Bromofluorobenzene	16.020	95	211026	45.41	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 90.82%			
Target Compounds						Qvalue
1) TVH-Gasoline	13.816	TIC	7299411m	Below Cal		
50) Benzene	12.092	78	1089	0.09	ug/l	100
62) Toluene	13.873	92	5761	0.69	ug/l	99
91) Naphthalene	19.525	128	6127	0.40	ug/l	100

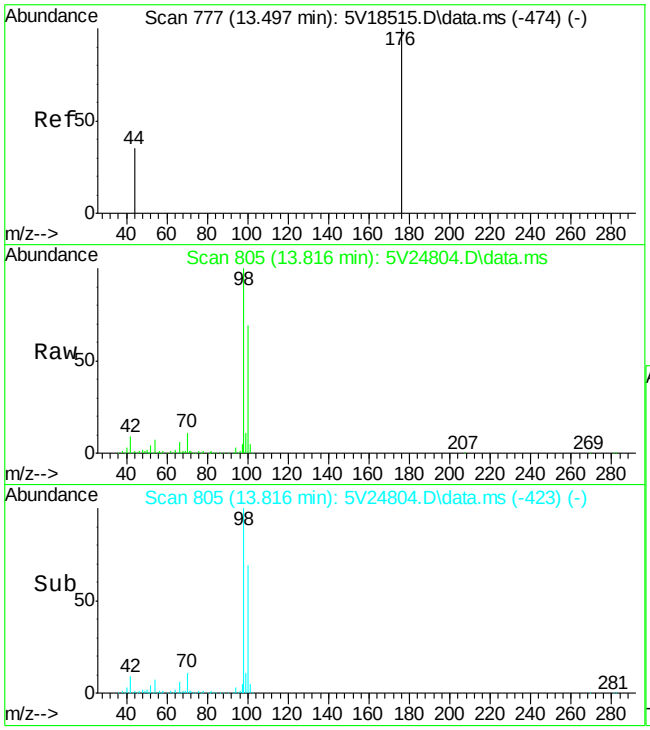
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5113012.S\
Data File : 5V24804.D
Acq On : 30 Nov 2012 12:36 pm
Operator : BRETD
Sample : MB
Misc : MS5037,V5V1515,5.00,,100,5,1
ALS Vial : 8 Sample Multiplier: 1

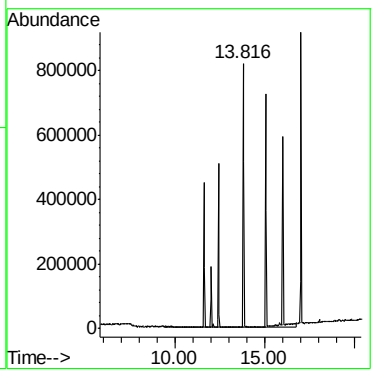
Quant Time: Dec 03 15:25:05 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1497TVH1497.M
Quant Title : 8260
QLast Update : Wed Nov 14 09:54:38 2012
Response via : Initial Calibration

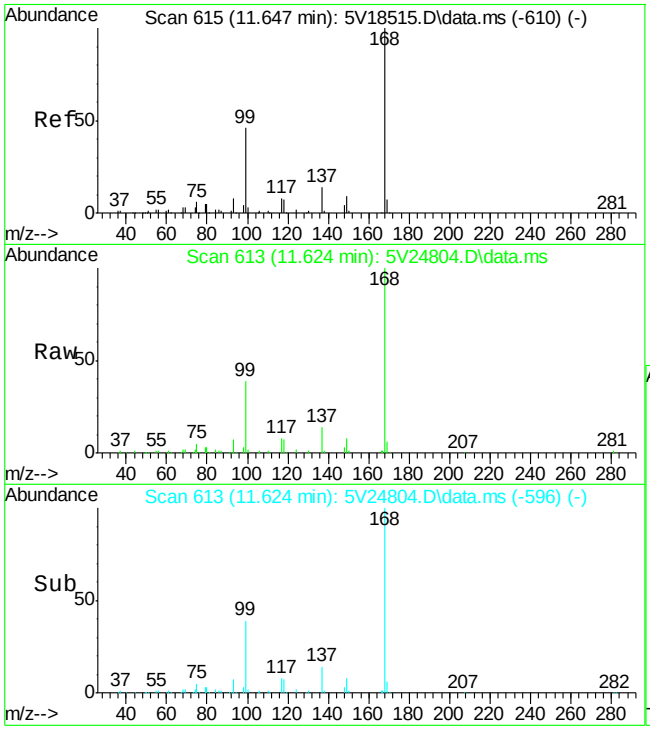




#1
TVH-Gasoline
Concen: Below Cal m
RT: 13.816 min Scan# 805
Delta R.T. 0.714 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

Tgt Ion:TIC Resp: 7299411

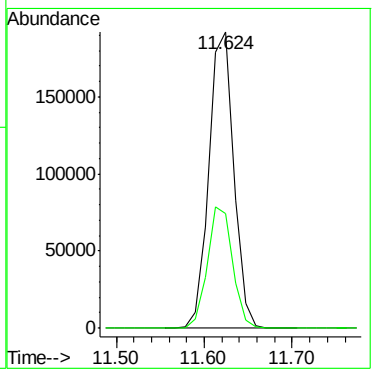


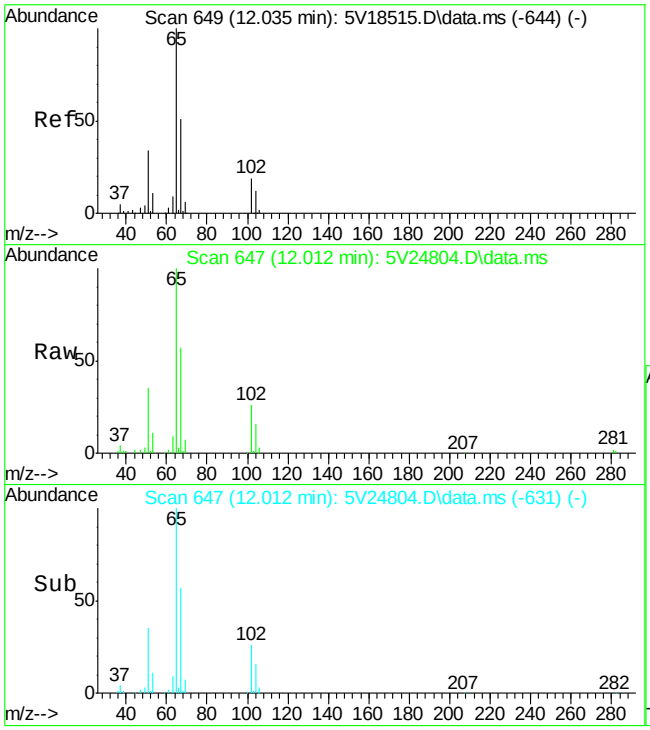


#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.624 min Scan# 613
Delta R.T. -0.000 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

Tgt Ion:168 Resp: 376674

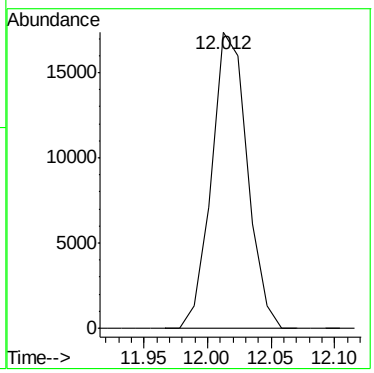
Ion	Ratio	Lower	Upper
168	100		
99	41.2	37.4	56.2

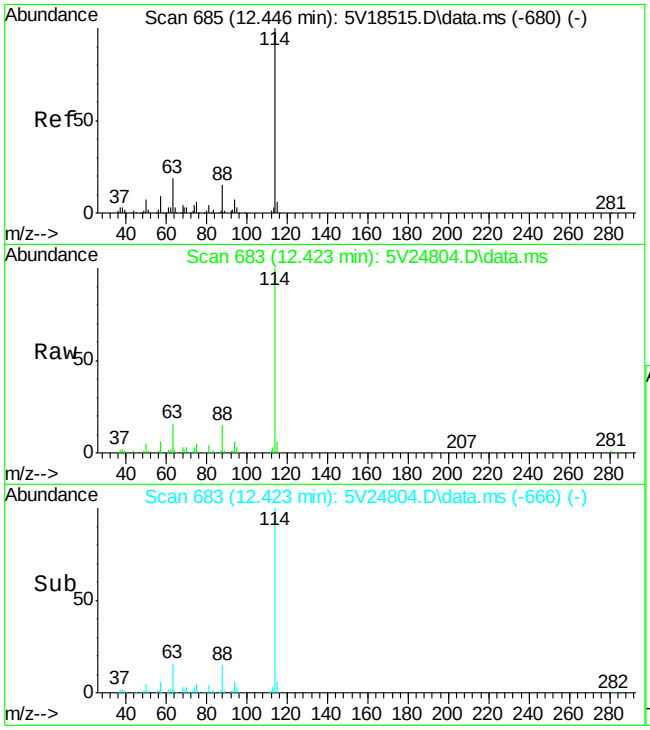




#33
1,2-Dichloroethane-d4
Concen: 52.67 ug/l
RT: 12.012 min Scan# 647
Delta R.T. -0.012 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

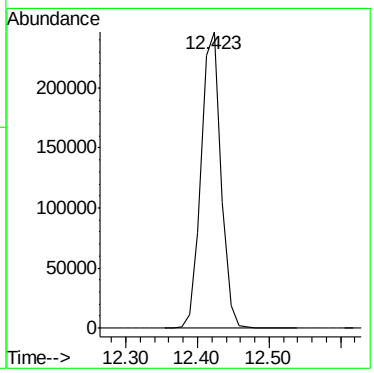
Tgt Ion:102 Resp: 33764

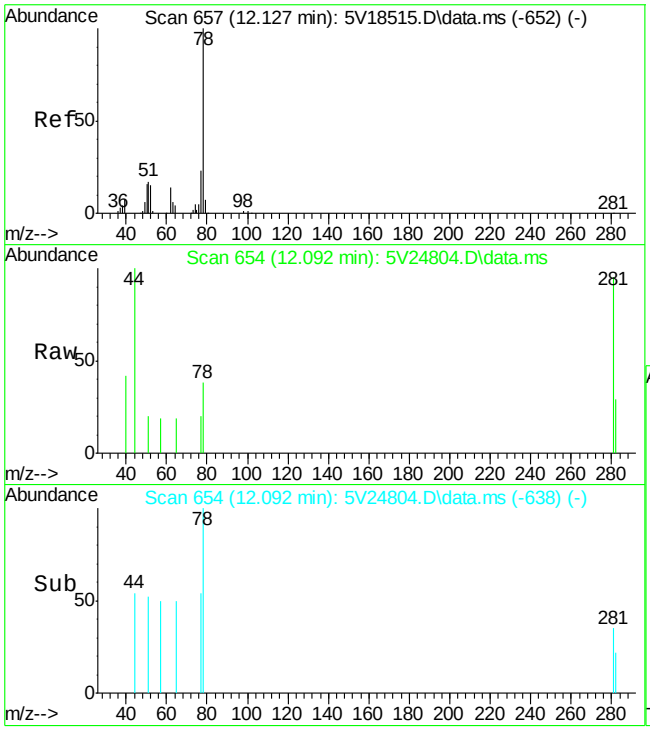




#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.423 min Scan# 683
Delta R.T. -0.000 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

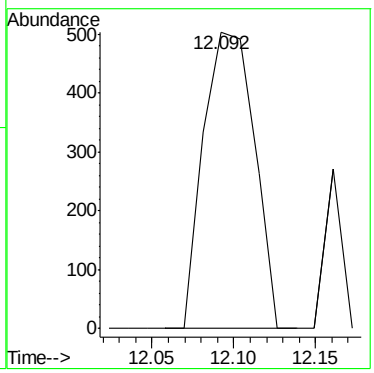
Tgt Ion:114 Resp: 473950

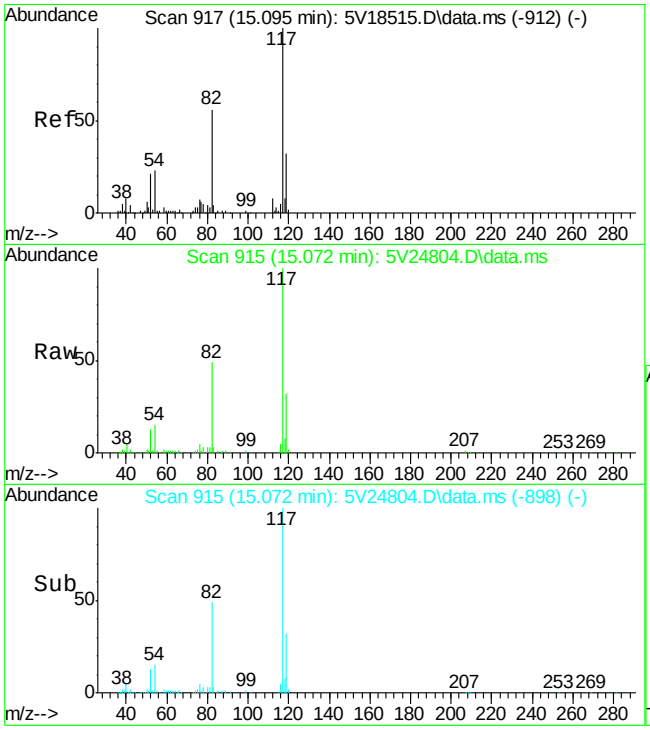




#50
Benzene
Concen: 0.09 ug/l
RT: 12.092 min Scan# 654
Delta R.T. -0.012 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

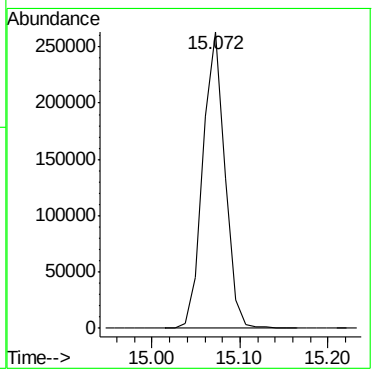
Tgt Ion: 78 Resp: 1089

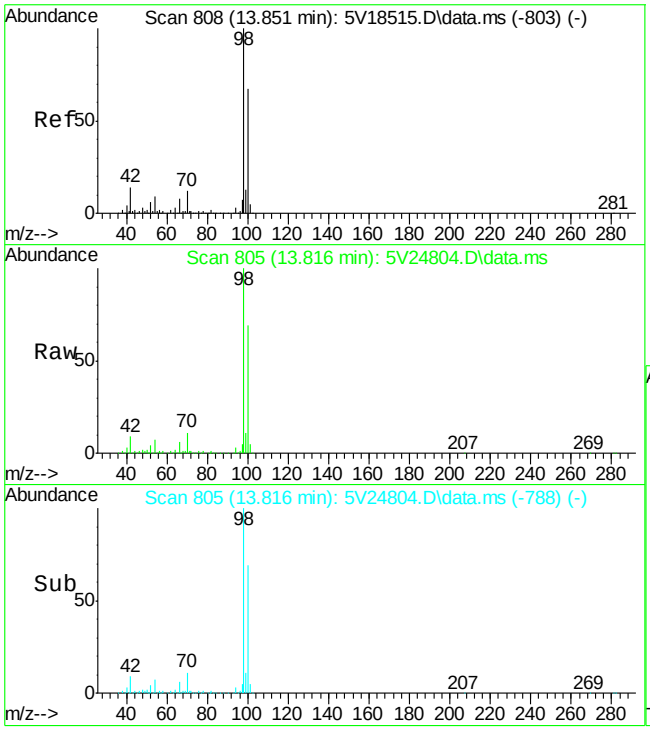




#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.072 min Scan# 915
Delta R.T. -0.000 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

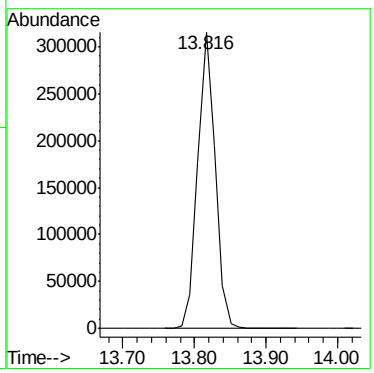
Tgt Ion:117 Resp: 455154

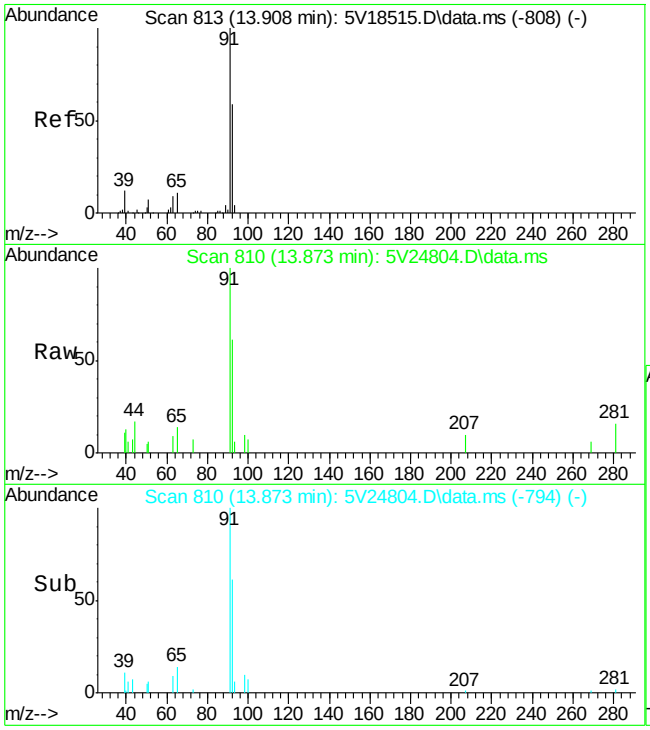




#61
Toluene-d8
Concen: 49.59 ug/l
RT: 13.816 min Scan# 805
Delta R.T. -0.000 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

Tgt Ion: 98 Resp: 534703

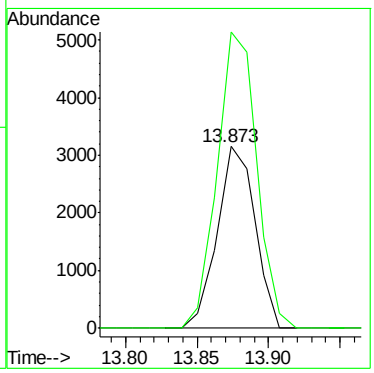


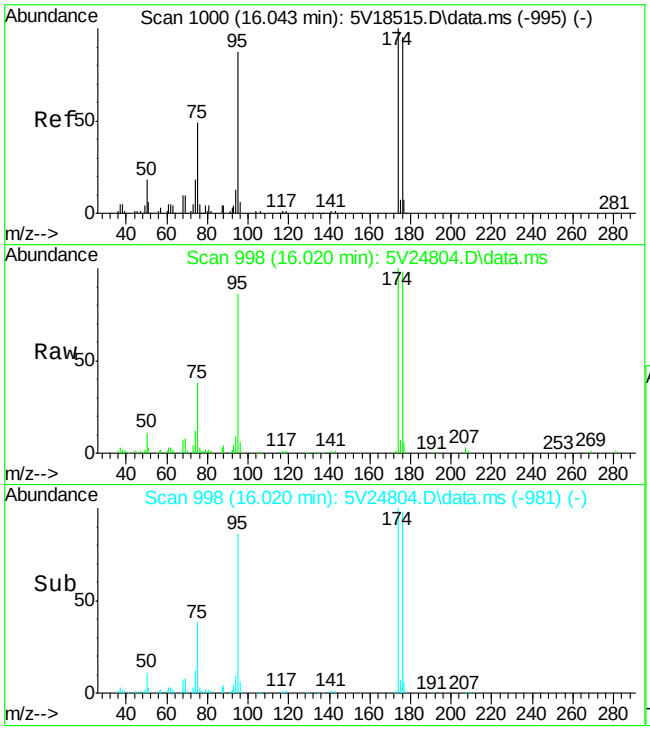


#62
Toluene
Concen: 0.69 ug/l
RT: 13.873 min Scan# 810
Delta R.T. -0.012 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

Tgt Ion: 92 Resp: 5761

Ion	Ratio	Lower	Upper
92	100		
91	170.9	149.8	189.8

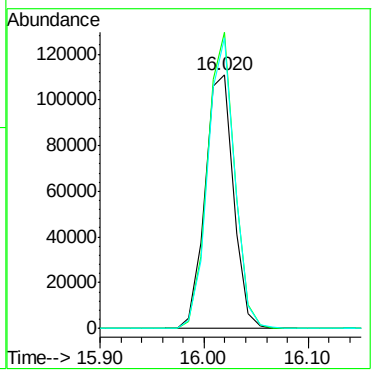


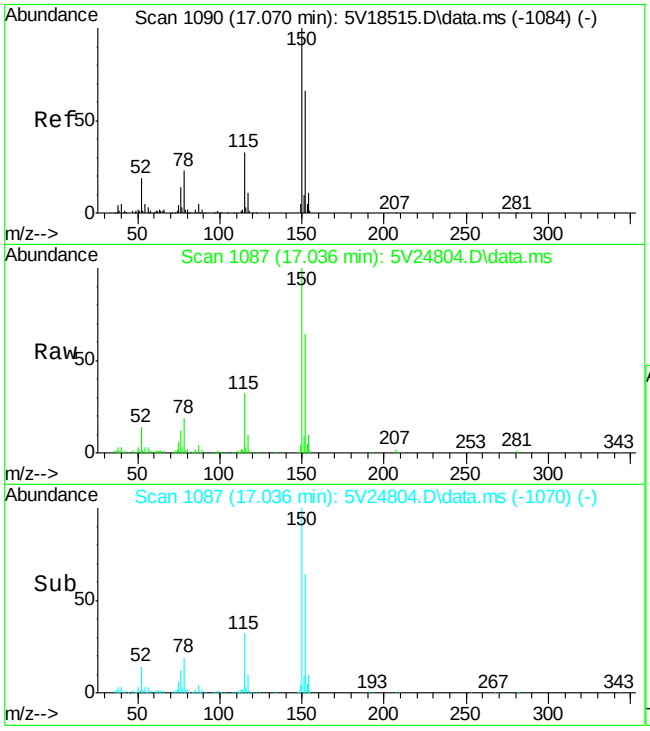


#69
4-Bromofluorobenzene
Concen: 45.41 ug/l
RT: 16.020 min Scan# 998
Delta R.T. -0.000 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

Tgt Ion: 95 Resp: 211026

Ion	Ratio	Lower	Upper
95	100		
174	110.8	77.1	117.1
176	108.4	73.4	113.4

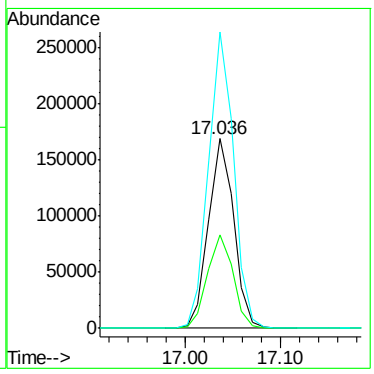


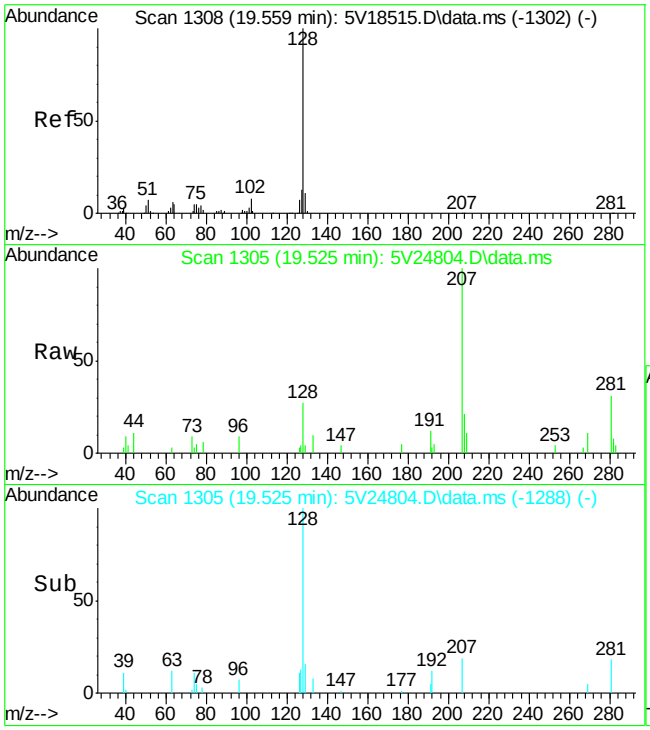


#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.036 min Scan# 1087
Delta R.T. -0.000 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

Tgt Ion:152 Resp: 308385

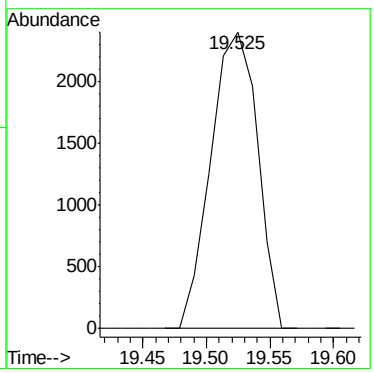
Ion	Ratio	Lower	Upper
152	100		
115	50.0	41.4	62.0
150	155.7	153.9	230.9





#91
Naphthalene
Concen: 0.40 ug/l
RT: 19.525 min Scan# 1305
Delta R.T. -0.000 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

Tgt Ion:128 Resp: 6127



7.2.1

7

Mountain States ACCUTEST LABORATORIES

GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7031-MB	3G12377.D	1	12/03/12	DC	11/30/12	OP7031	E3G586

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

D41305-1

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	89%	10-159%
321-60-8	2-Fluorobiphenyl	78%	19-131%
1718-51-0	Terphenyl-d14	84%	18-150%

Blank Spike Summary

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7031-BS	3G12378.D	1	12/03/12	DC	11/30/12	OP7031	E3G586

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

D41305-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	77.3	93	68-130
120-12-7	Anthracene	83.3	72.9	87	67-130
56-55-3	Benzo(a)anthracene	83.3	68.8	83	65-130
205-99-2	Benzo(b)fluoranthene	83.3	97.4	117	44-130
207-08-9	Benzo(k)fluoranthene	83.3	113	136* [a]	56-131
50-32-8	Benzo(a)pyrene	83.3	107	128	62-130
218-01-9	Chrysene	83.3	75.9	91	70-130
53-70-3	Dibenzo(a,h)anthracene	83.3	102	122	55-130
206-44-0	Fluoranthene	83.3	70.1	84	70-130
86-73-7	Fluorene	83.3	65.4	78	70-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	104	125	56-130
91-20-3	Naphthalene	83.3	84.6	102	70-130
129-00-0	Pyrene	83.3	75.8	91	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	91%	10-159%
321-60-8	2-Fluorobiphenyl	80%	19-131%
1718-51-0	Terphenyl-d14	82%	18-150%

(a) Compound ND in associated samples.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7031-MS	3G12380.D	1	12/03/12	DC	11/30/12	OP7031	E3G586
OP7031-MSD	3G12381.D	1	12/03/12	DC	11/30/12	OP7031	E3G586
D41248-1	3G12379.D	1	12/03/12	DC	11/30/12	OP7031	E3G586

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

D41305-1

CAS No.	Compound	D41248-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		95.4	75.9	80	73.5	77	3	25-151/30
120-12-7	Anthracene	ND		95.4	72.7	76	78.8	83	8	39-159/30
56-55-3	Benzo(a)anthracene	ND		95.4	70.4	74	81.7	86	15	39-168/30
205-99-2	Benzo(b)fluoranthene	ND		95.4	96.3	101	111	117	14	24-163/30
207-08-9	Benzo(k)fluoranthene	ND		95.4	109	114	125	131	14	10-188/30
50-32-8	Benzo(a)pyrene	ND		95.4	104	109	120	126	14	32-144/30
218-01-9	Chrysene	ND		95.4	73.9	77	85.3	90	14	43-150/30
53-70-3	Dibenzo(a,h)anthracene	ND		95.4	97.6	102	113	119	15	21-152/30
206-44-0	Fluoranthene	ND		95.4	70.7	74	80.8	85	13	36-157/30
86-73-7	Fluorene	ND		95.4	66.7	70	65.4	69	2	10-182/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		95.4	99.6	104	115	121	14	20-154/30
91-20-3	Naphthalene	ND		95.4	78.1	82	76.0	80	3	10-163/30
129-00-0	Pyrene	ND		95.4	76.8	81	88.2	93	14	25-180/30

CAS No.	Surrogate Recoveries	MS	MSD	D41248-1	Limits
4165-60-0	Nitrobenzene-d5	79%	65%	69%	10-159%
321-60-8	2-Fluorobiphenyl	74%	60%	66%	19-131%
1718-51-0	Terphenyl-d14	79%	77%	77%	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
12/04/12 14:06

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\120312\
Data File : 3g12385.D
Acq On : 3 Dec 2012 11:07 pm
Operator : DONC
Sample : D41305-1, 4x
Misc : OP7031,E3G586,30.09,,,1,4
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Dec 04 09:20:54 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G586.M
Quant Title : PAHSIM BASE
QLast Update : Tue Dec 04 08:50:28 2012
Response via : Initial Calibration

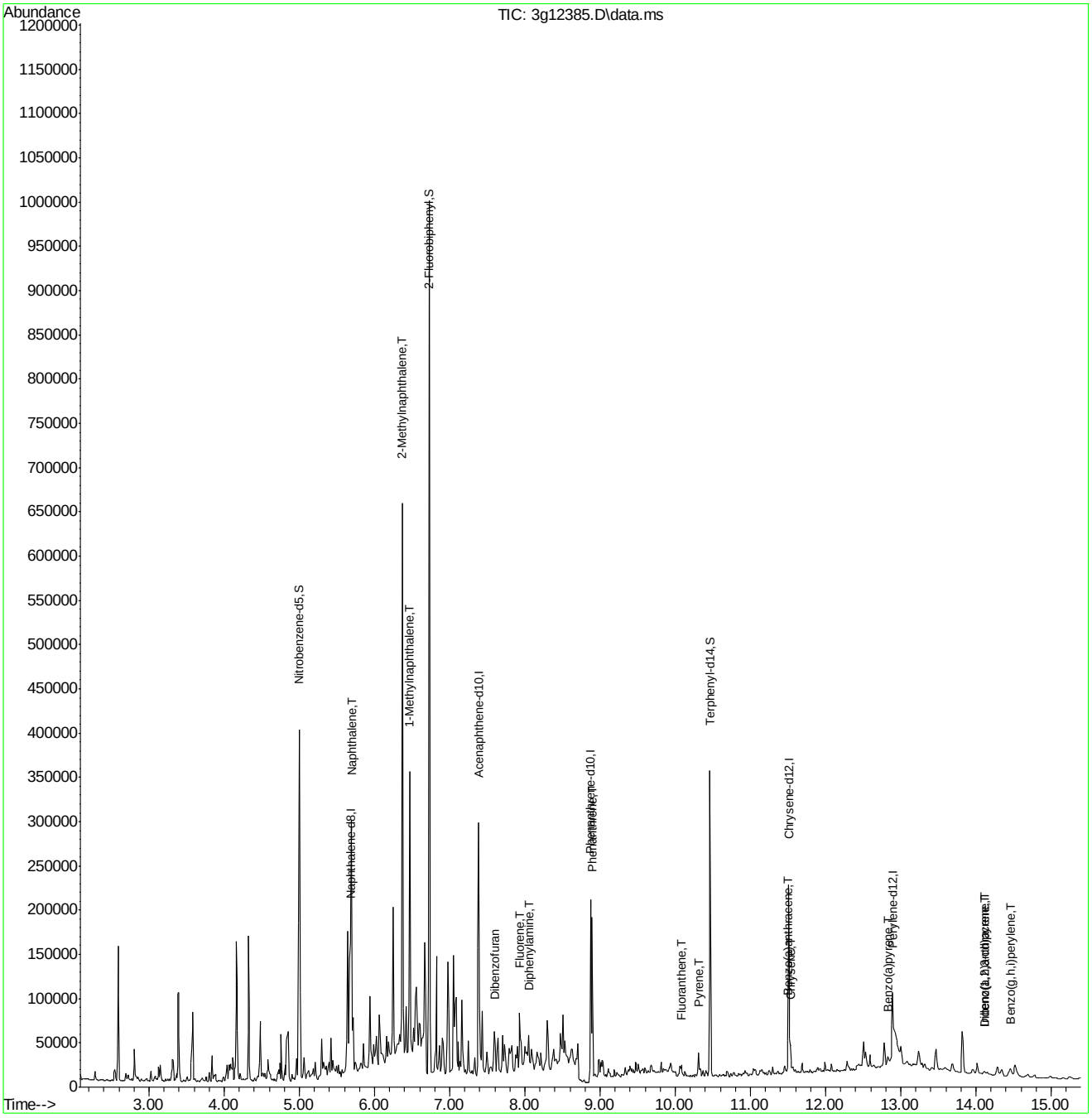
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.682	136	143561	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.389	164	90164	4.0000	ug/mL	0.00
15) Phenanthrene-d10	8.871	188	132788	4.0000	ug/mL	0.00
19) Chrysene-d12	11.509	240	102959	4.0000	ug/mL	0.00
24) Perylene-d12	12.892	264	56323	4.0000	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	4.996	82	176061	12.2686	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 24.54%#			
7) 2-Fluorobiphenyl	6.727	172	549500	12.9120	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 25.82%			
21) Terphenyl-d14	10.462	244	209540	13.8263	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 27.66%			
Target Compounds						Qvalue
3) N-Nitrosodimethylamine	0.000	74	0	N.D. d		
4) N-Nitrosodi-propylamine	0.000	70	0	N.D. d		
5) Naphthalene	5.694	128	177069	4.0769	ug/mL	95
8) 2-Methylnaphthalene	6.368	142	246043	7.6339	ug/mL	98
9) 1-Methylnaphthalene	6.467	142	122906	3.8478	ug/mL	96
10) Acenaphthylene	7.247	152	2418	N.D.		
11) Acenaphthene	7.424	154	2406	N.D.		
12) Dibenzofuran	7.601	168	15734	0.3016	ug/mL	79
13) Fluorene	7.932	166	32496	0.8043	ug/mL#	59
14) Diphenylamine	8.050	169	20714m	0.5928	ug/mL	
16) Phenanthrene	8.894	178	98875	1.8148	ug/mL	91
17) Anthracene	0.000	178	0	N.D. d		
18) Fluoranthene	10.082	202	11171	0.1872	ug/mL#	1
20) Pyrene	10.311	202	18239	0.3156	ug/mL#	72
22) Benzo(a)anthracene	11.496	228	7120	0.1439	ug/mL	78
23) Chrysene	11.535	228	24712m	0.5046	ug/mL	
25) Benzo(b)fluoranthene	0.000	252	0	N.D. d		
26) Benzo(k)fluoranthene	0.000	252	0	N.D. d		
27) Benzo(a)pyrene	12.829	252	5955	0.2083	ug/mL#	76
28) Indeno(1,2,3-cd)pyrene	14.112	276	2674	0.0883	ug/mL#	71
29) Dibenz(a,h)anthracene	14.122	278	2723	0.1169	ug/mL#	68
30) Benzo(g,h,i)perylene	14.459	276	8413	0.3156	ug/mL	82

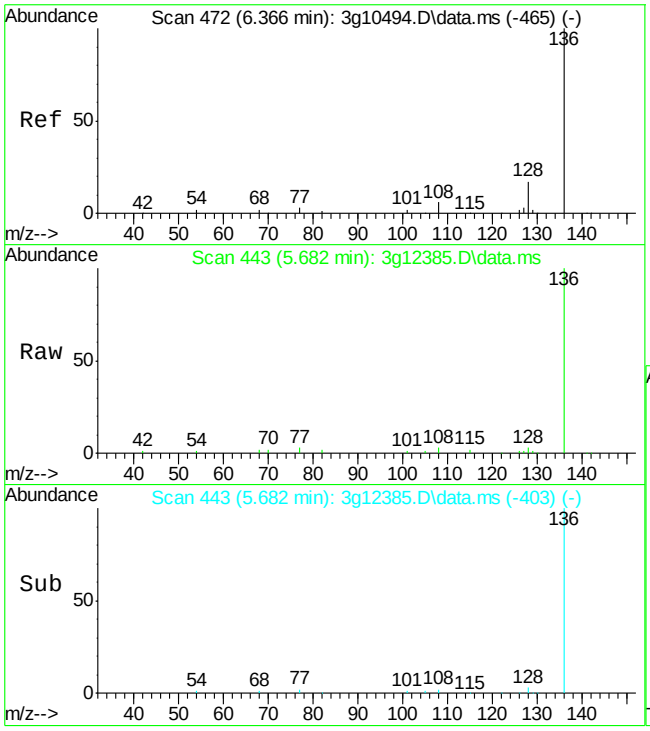
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\120312\
Data File : 3g12385.D
Acq On : 3 Dec 2012 11:07 pm
Operator : DONC
Sample : D41305-1, 4x
Misc : OP7031,E3G586,30.09,,,1,4
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Dec 04 09:20:54 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G586.M
Quant Title : PAHSIM BASE
QLast Update : Tue Dec 04 08:50:28 2012
Response via : Initial Calibration

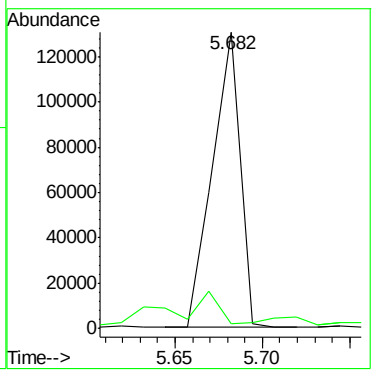


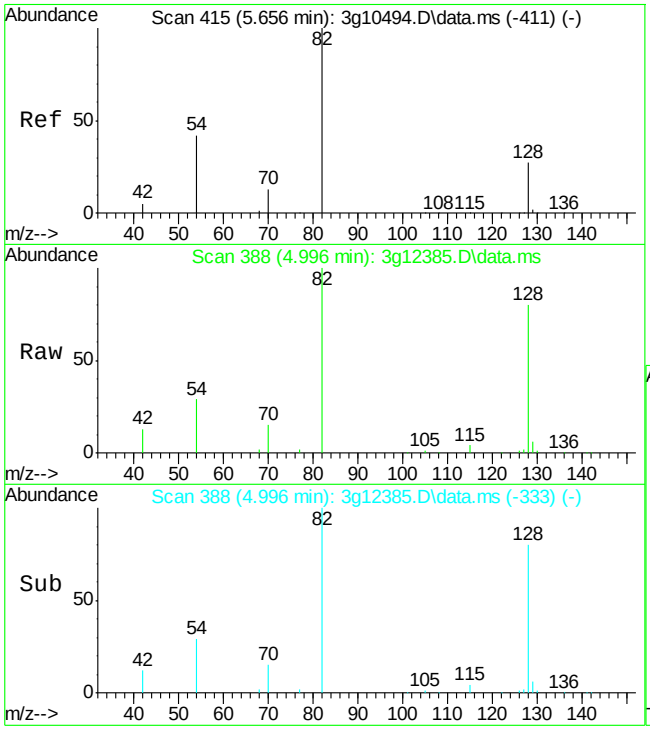


#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.682 min Scan# 443
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:136 Resp: 143561

Ion	Ratio	Lower	Upper
136	100		
68	3.4	0.0	28.4

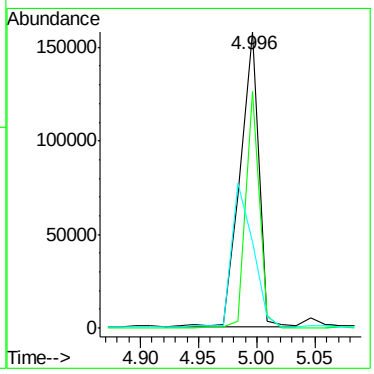


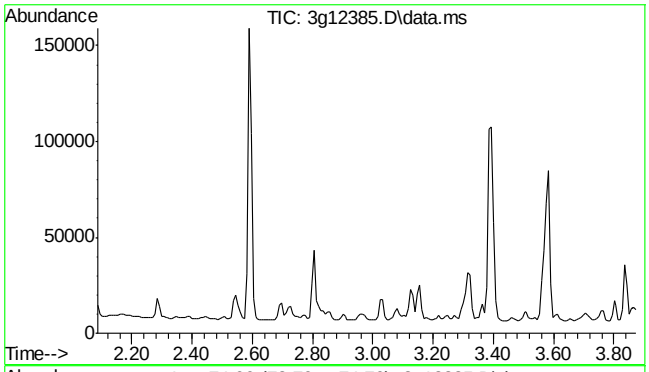


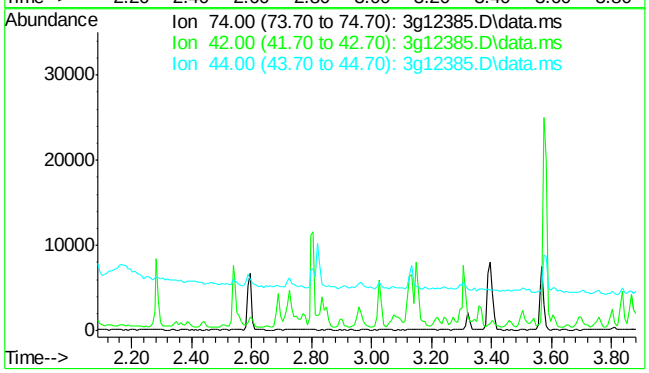
#2
Nitrobenzene-d5
Concen: 12.2686 ug/mL
RT: 4.996 min Scan# 388
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion: 82 Resp: 176061

Ion	Ratio	Lower	Upper
82	100		
128	58.6	31.8	71.8
54	55.7	29.2	69.2





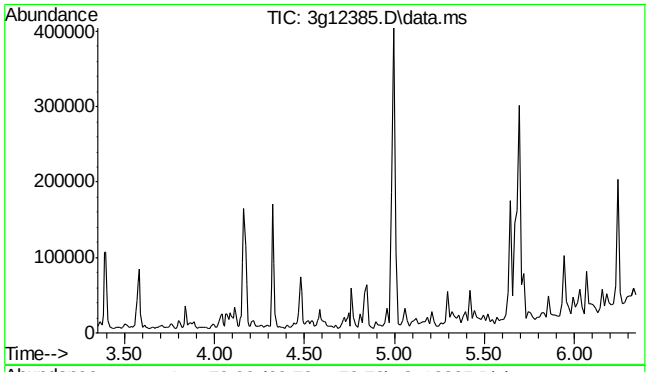


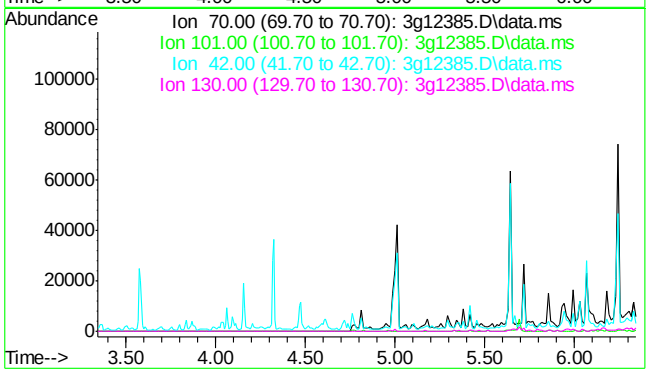
#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.38 min

Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion: 74

Sig	Exp Ratio
74	100
42	72.5
44	4.1



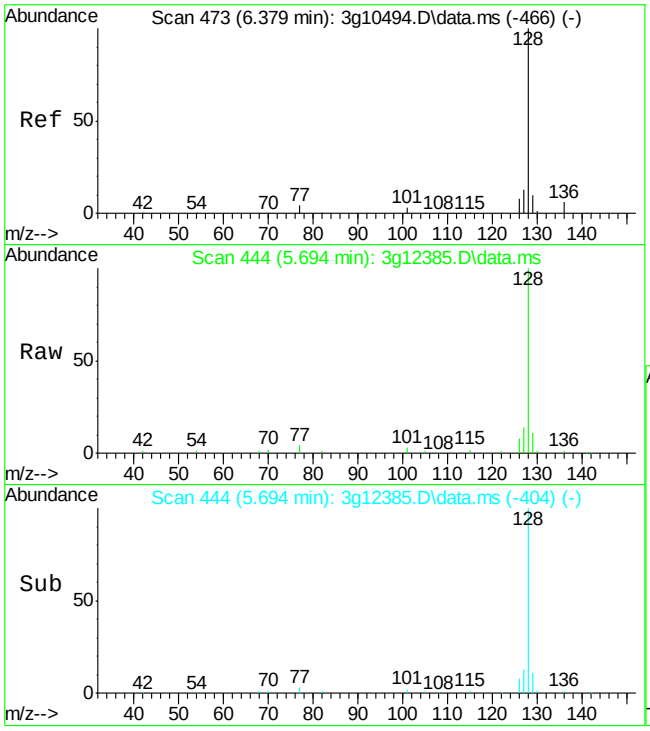


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 4.85 min

Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion: 70

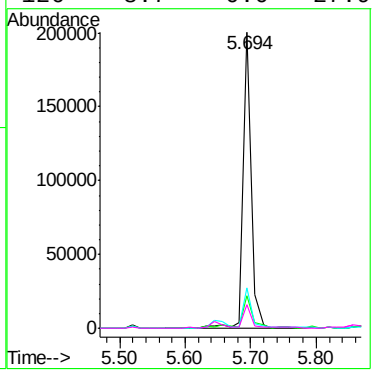
Sig	Exp Ratio
70	100
101	12.2
42	67.9
130	33.2

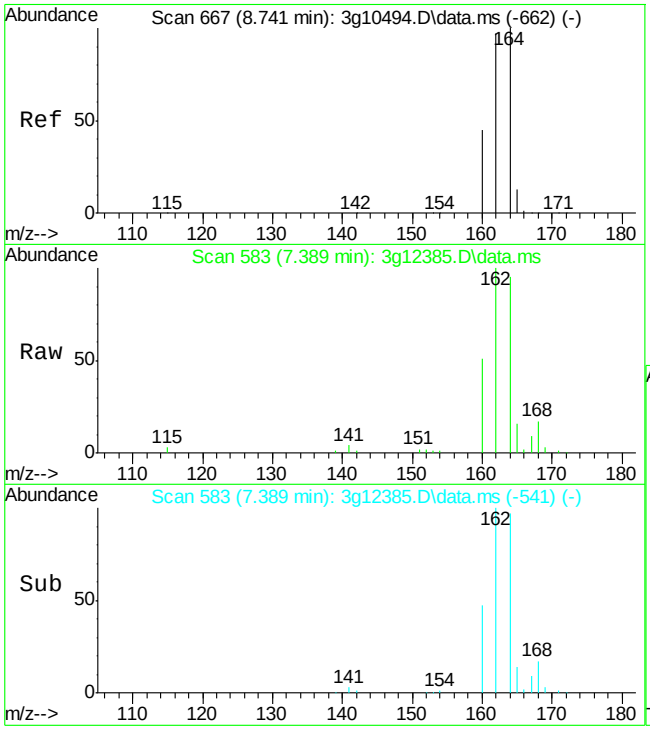


#5
Naphthalene
Concen: 4.0769 ug/mL
RT: 5.694 min Scan# 444
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:128 Resp: 177069

Ion	Ratio	Lower	Upper
128	100		
129	15.1	0.0	30.7
127	13.2	0.0	33.2
126	8.7	0.0	27.9

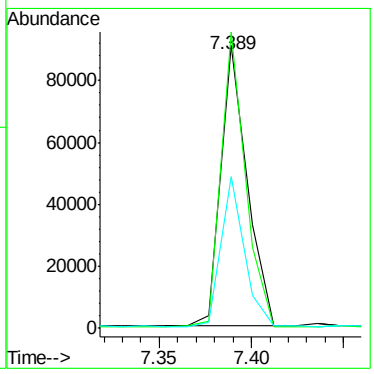


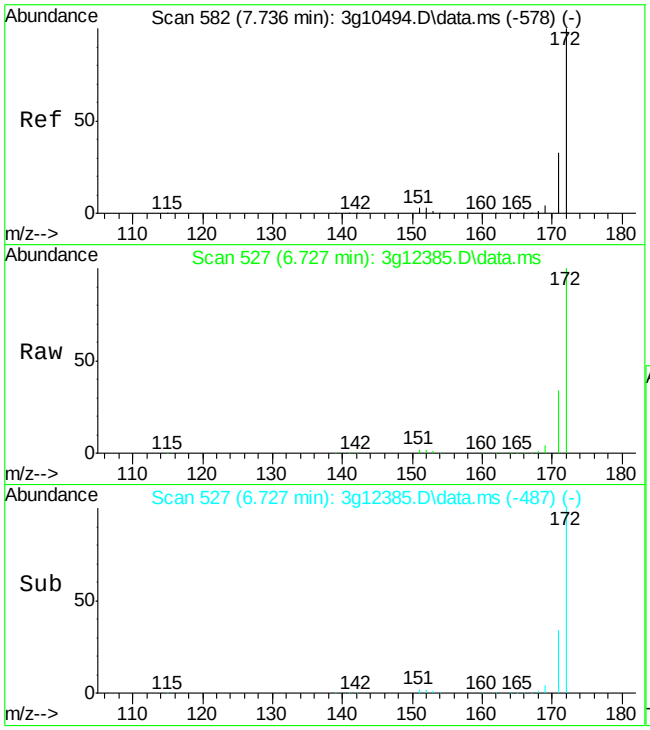


#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.389 min Scan# 583
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:164 Resp: 90164

Ion	Ratio	Lower	Upper
164	100		
162	97.5	78.0	118.0
160	47.4	27.3	67.3

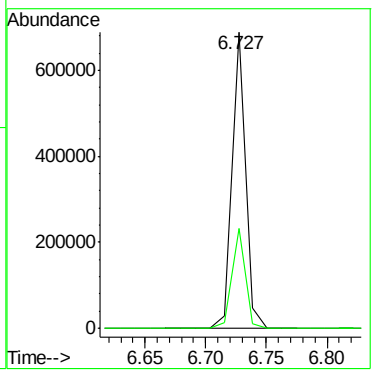


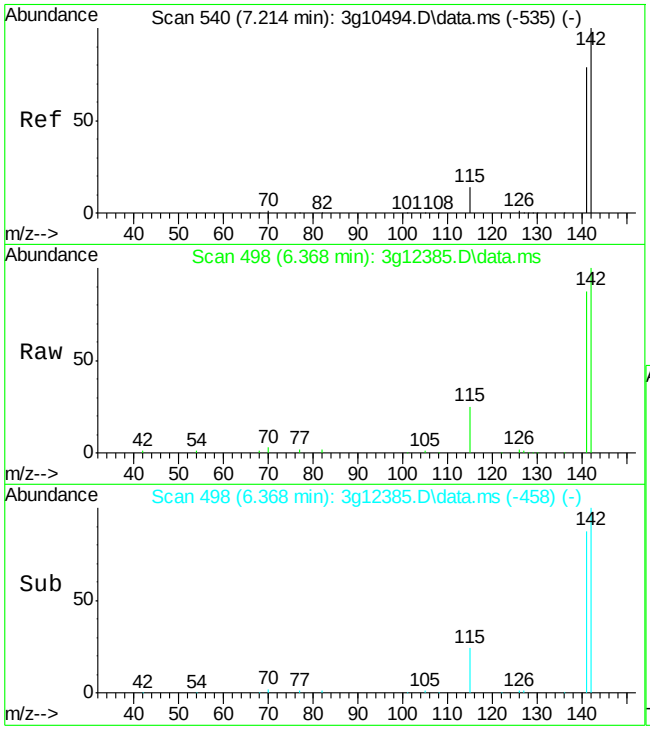


#7
2-Fluorobiphenyl
Concen: 12.9120 ug/mL
RT: 6.727 min Scan# 527
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:172 Resp: 549500

Ion	Ratio	Lower	Upper
172	100		
171	33.5	13.7	53.7

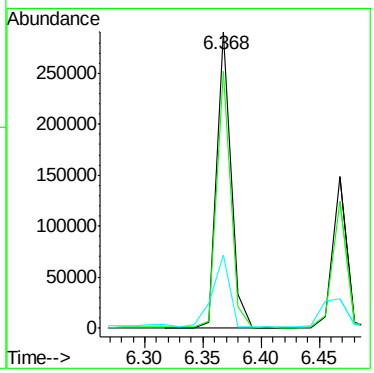


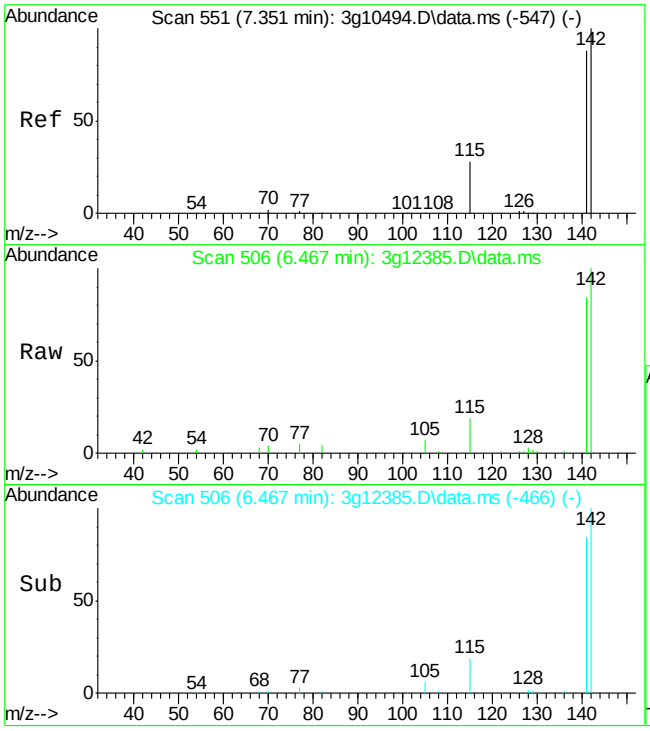


#8
2-Methylnaphthalene
Concen: 7.6339 ug/mL
RT: 6.368 min Scan# 498
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:142 Resp: 246043

Ion	Ratio	Lower	Upper
142	100		
141	86.0	65.6	105.6
115	29.1	12.2	52.2

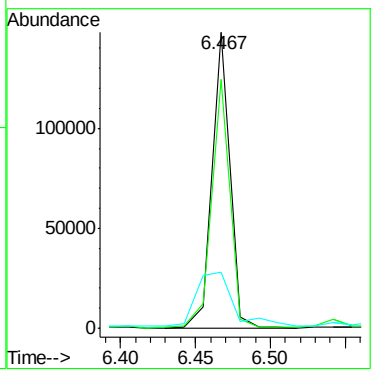


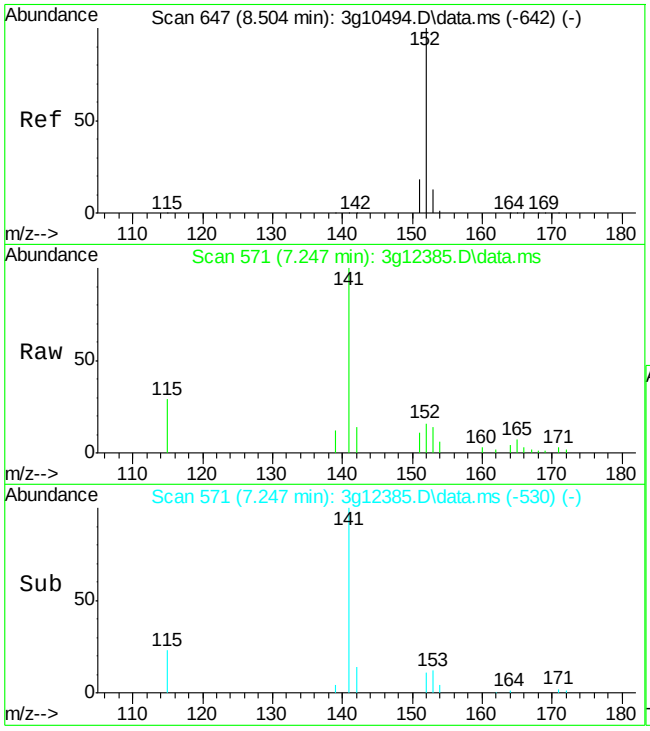


#9
1-Methylnaphthalene
Concen: 3.8478 ug/mL
RT: 6.467 min Scan# 506
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:142 Resp: 122906

Ion	Ratio	Lower	Upper
142	100		
141	86.6	67.0	107.0
115	38.1	9.3	49.3

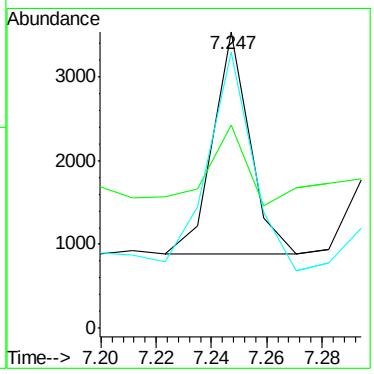


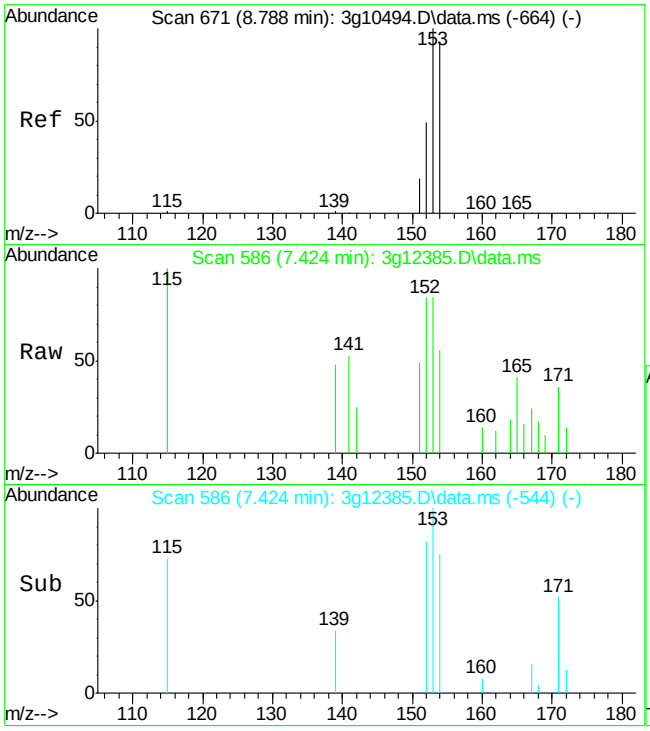


#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.247 min Scan# 571
Delta R.T. -0.012 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:152 Resp: 2418

Ion	Ratio	Lower	Upper
152	100		
151	32.3	0.0	39.5
153	109.1	0.0	33.0#

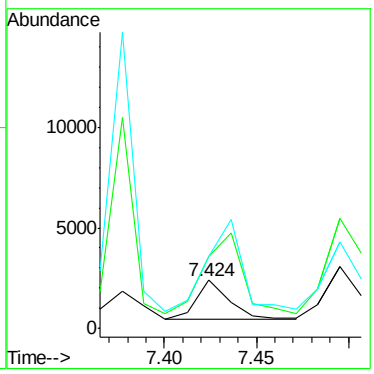


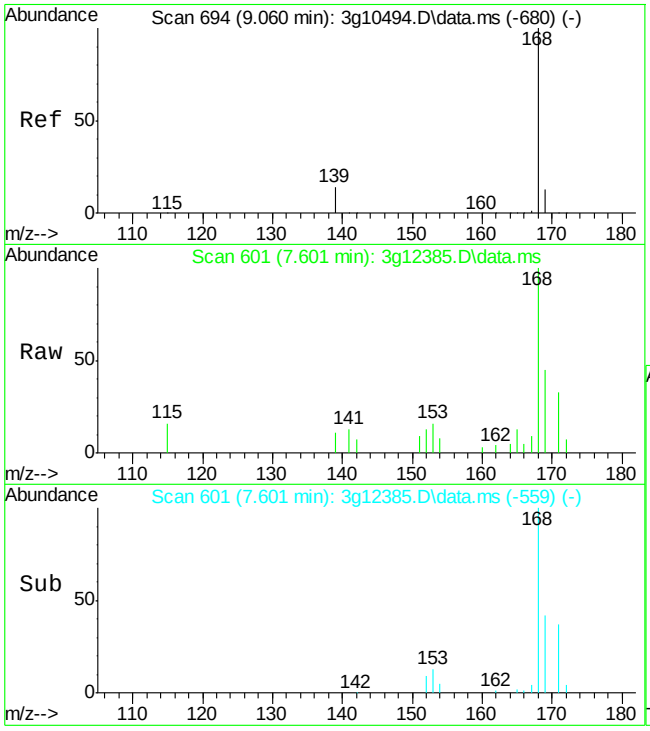


#11
Acenaphthene
Concen: Below ug/mL
RT: 7.424 min Scan# 586
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:154 Resp: 2406

Ion	Ratio	Lower	Upper
154	100		
153	244.8	84.7	124.7#
152	250.0	30.2	70.2#

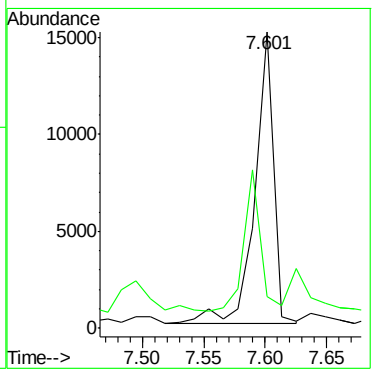


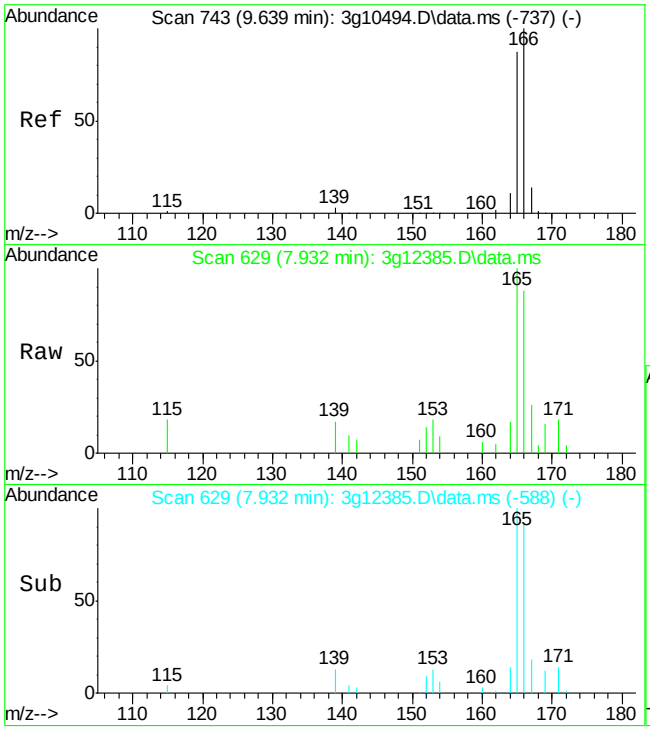


#12
Dibenzofuran
Concen: 0.3016 ug/mL
RT: 7.601 min Scan# 601
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:168 Resp: 15734

Ion	Ratio	Lower	Upper
168	100		
139	43.5	12.0	52.0

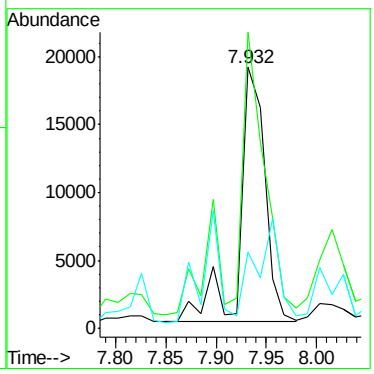


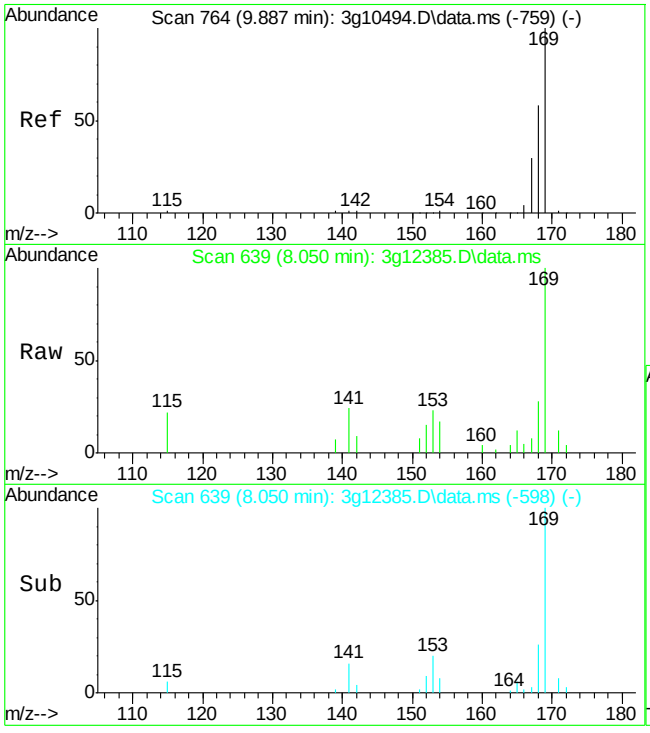


#13
Fluorene
Concen: 0.8043 ug/mL
RT: 7.932 min Scan# 629
Delta R.T. -0.012 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:166 Resp: 32496

Ion	Ratio	Lower	Upper
166	100		
165	126.6	70.1	110.1#
167	37.4	0.0	33.4#

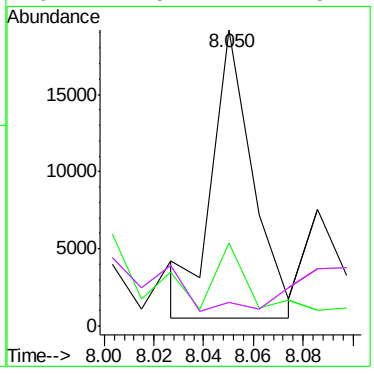


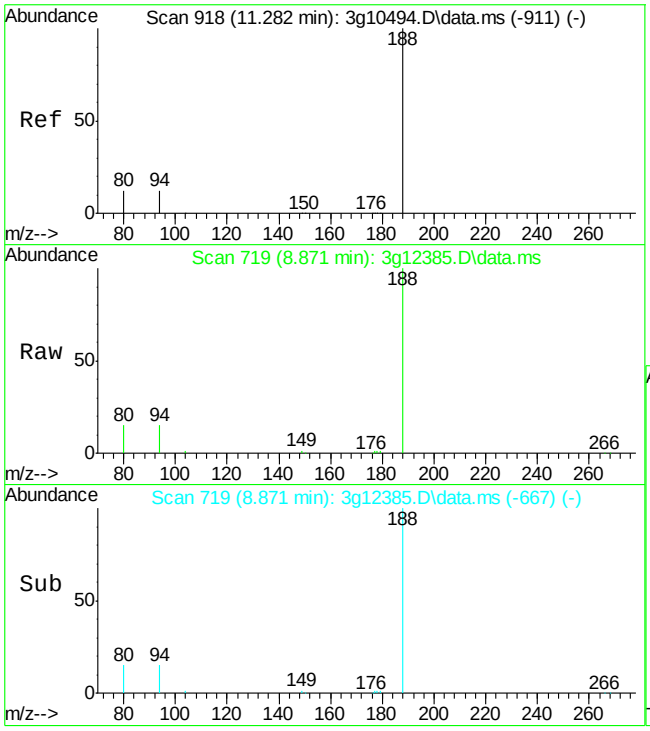


#14
Diphenylamine
Concen: 0.5928 ug/mL m
RT: 8.050 min Scan# 639
Delta R.T. -0.012 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:169 Resp: 20714

Ion	Ratio	Lower	Upper
169	100		
168	34.6	40.1	80.1#
167	22.3	12.1	52.1
167	22.3	12.1	52.1

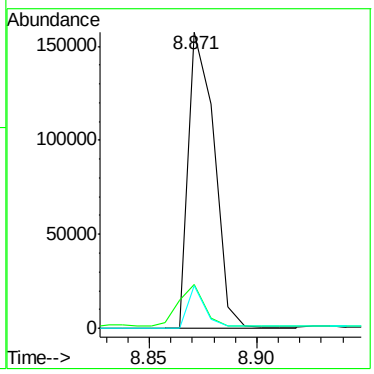


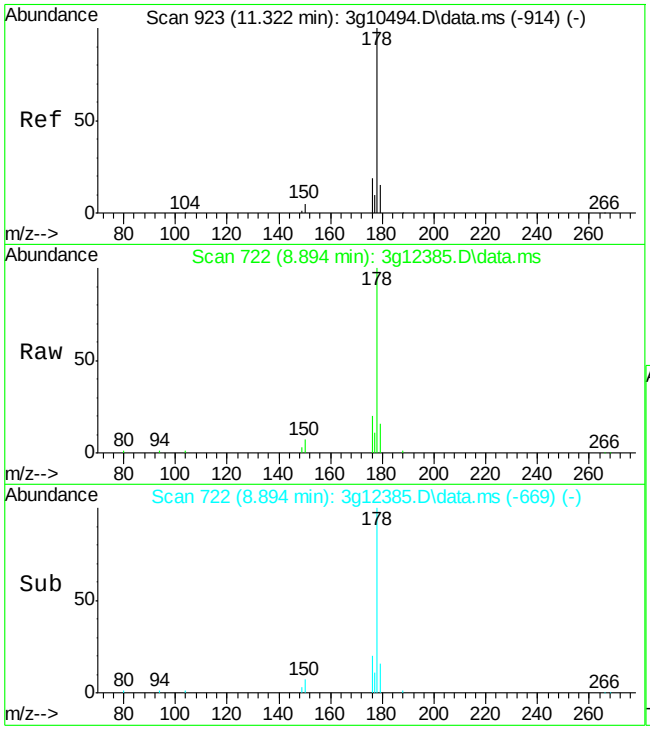


#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.871 min Scan# 719
Delta R.T. -0.008 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:188 Resp: 132788

Ion	Ratio	Lower	Upper
188	100		
94	14.3	0.0	33.4
80	11.0	0.0	28.9

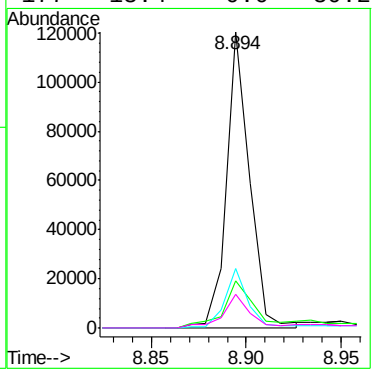


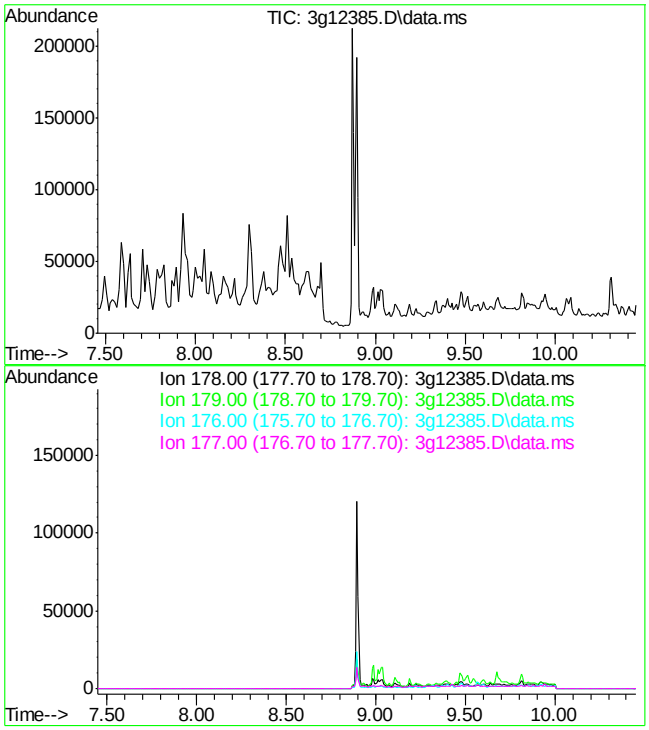


#16
Phenanthrene
Concen: 1.8148 ug/mL
RT: 8.894 min Scan# 722
Delta R.T. -0.008 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:178 Resp: 98875

Ion	Ratio	Lower	Upper
178	100		
179	20.7	0.0	35.3
176	20.9	0.0	38.6
177	13.4	0.0	30.2



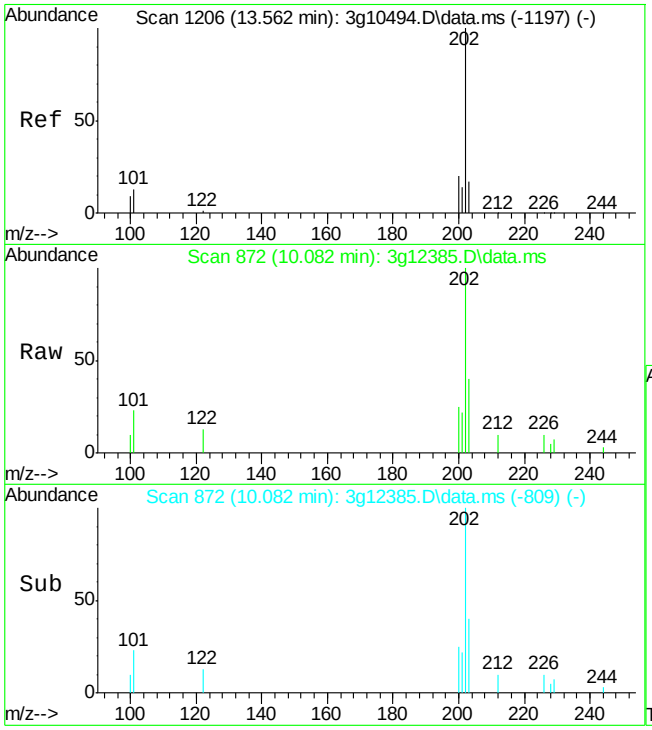


#17
Anthracene
Concen: N.D. ug/mL
Expected RT: 8.95 min

Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion: 178

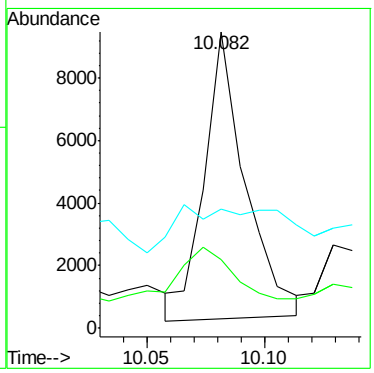
Sig	Exp Ratio
178	100
179	15.1
176	18.2
177	8.8

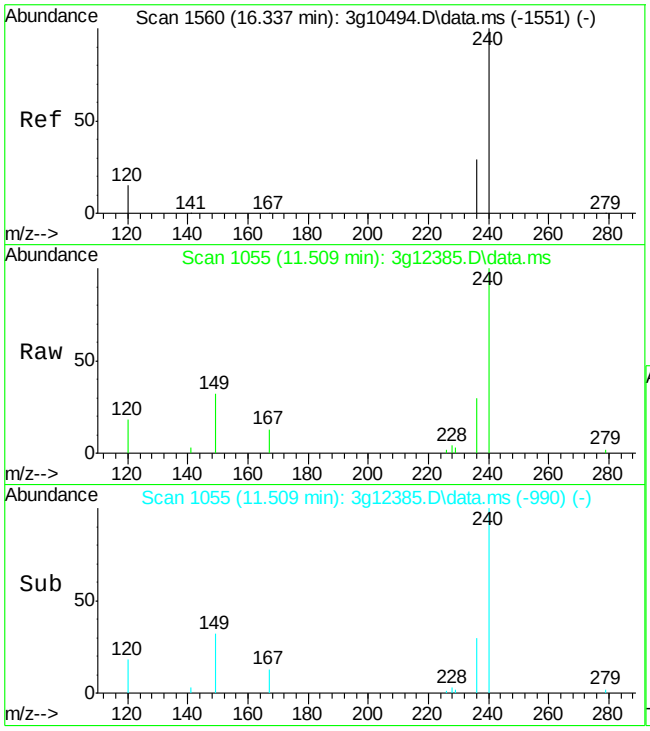


#18
Fluoranthene
Concen: 0.1872 ug/mL
RT: 10.082 min Scan# 872
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:202 Resp: 11171

Ion	Ratio	Lower	Upper
202	100		
101	43.4	0.0	32.5#
203	136.5	0.0	37.3#

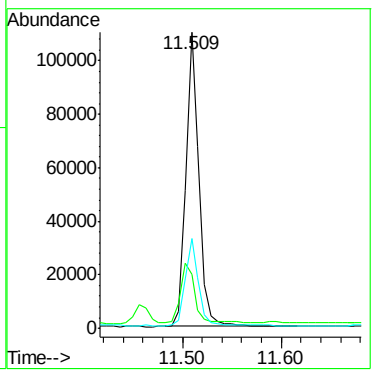


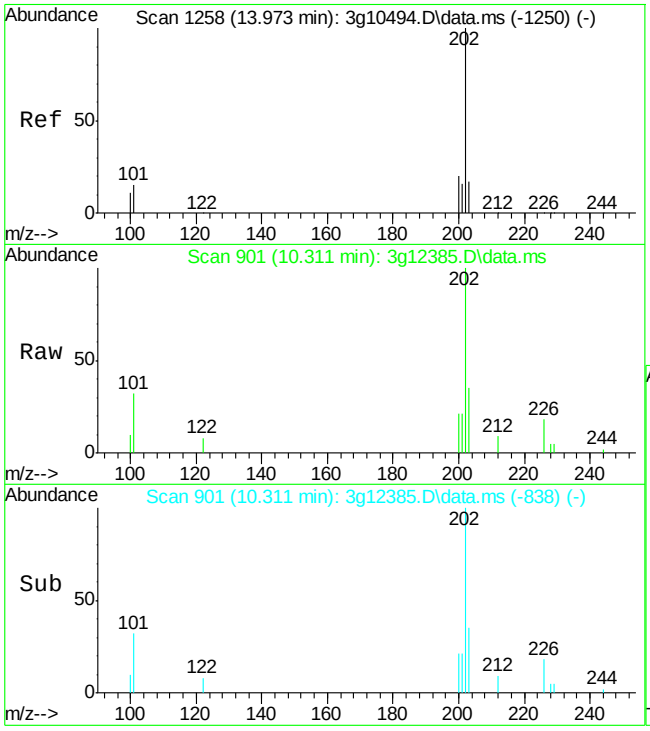


#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.509 min Scan# 1055
Delta R.T. -0.007 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:240 Resp: 102959

Ion	Ratio	Lower	Upper
240	100		
120	22.1	0.0	39.7
236	31.0	11.1	51.1

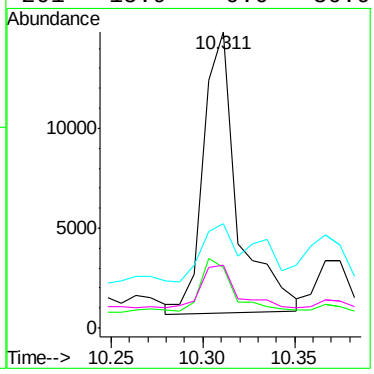


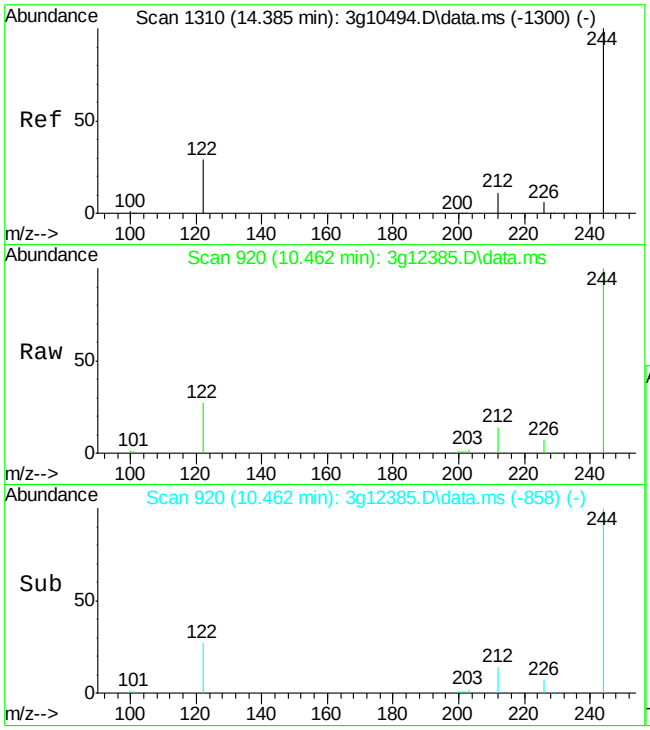


#20
Pyrene
Concen: 0.3156 ug/mL
RT: 10.311 min Scan# 901
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:202 Resp: 18239

Ion	Ratio	Lower	Upper
202	100		
200	17.1	0.7	40.7
203	51.7	0.0	37.8#
201	15.9	0.0	36.9

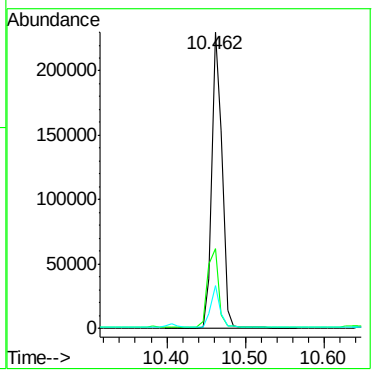


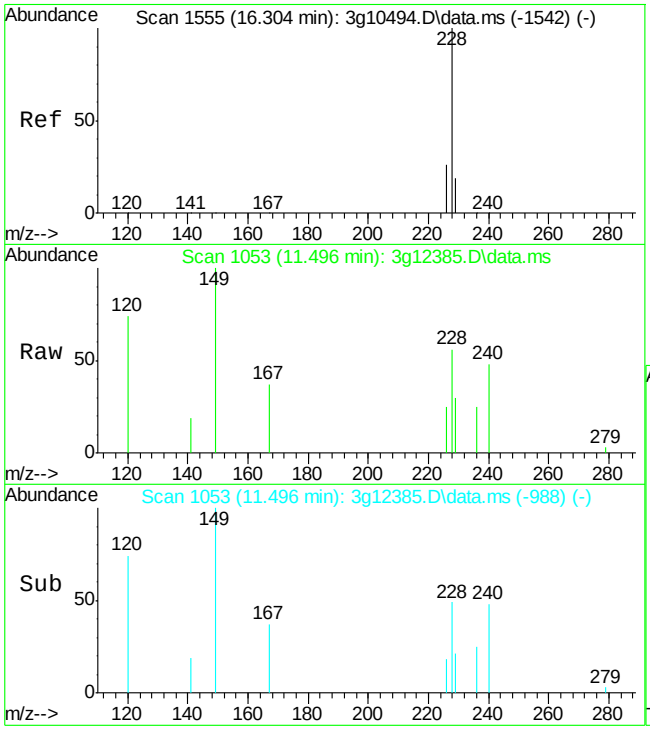


#21
Terphenyl-d14
Concen: 13.8263 ug/mL
RT: 10.462 min Scan# 920
Delta R.T. -0.008 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:244 Resp: 209540

Ion	Ratio	Lower	Upper
244	100		
122	28.5	6.8	46.8
212	12.6	0.0	32.3

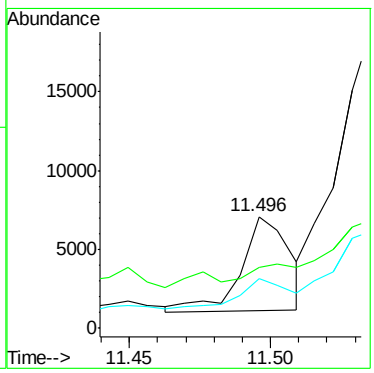


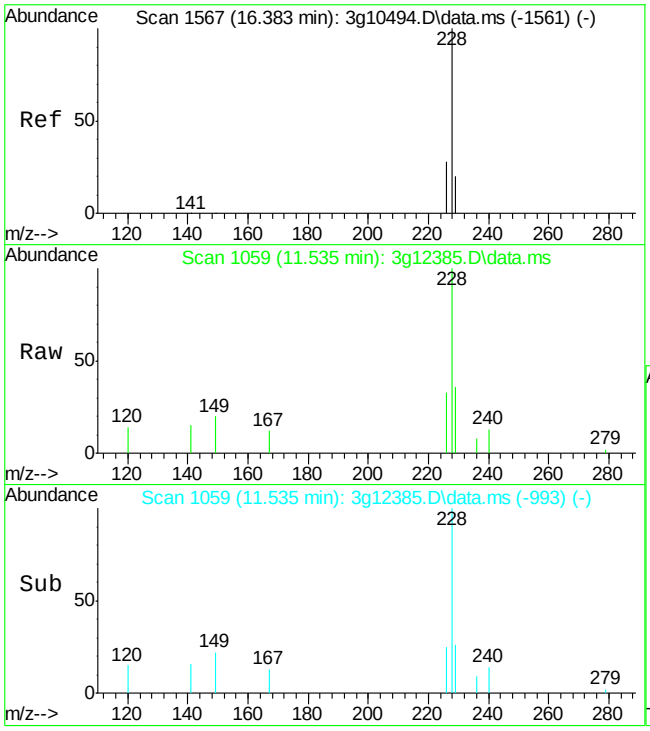


#22
Benzo(a)anthracene
Concen: 0.1439 ug/mL
RT: 11.496 min Scan# 1053
Delta R.T. -0.007 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:228 Resp: 7120

Ion	Ratio	Lower	Upper
228	100		
229	31.9	0.0	39.4
226	36.2	6.8	46.8

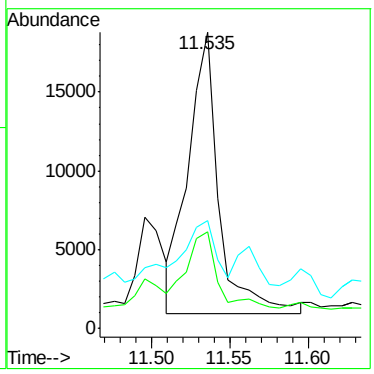


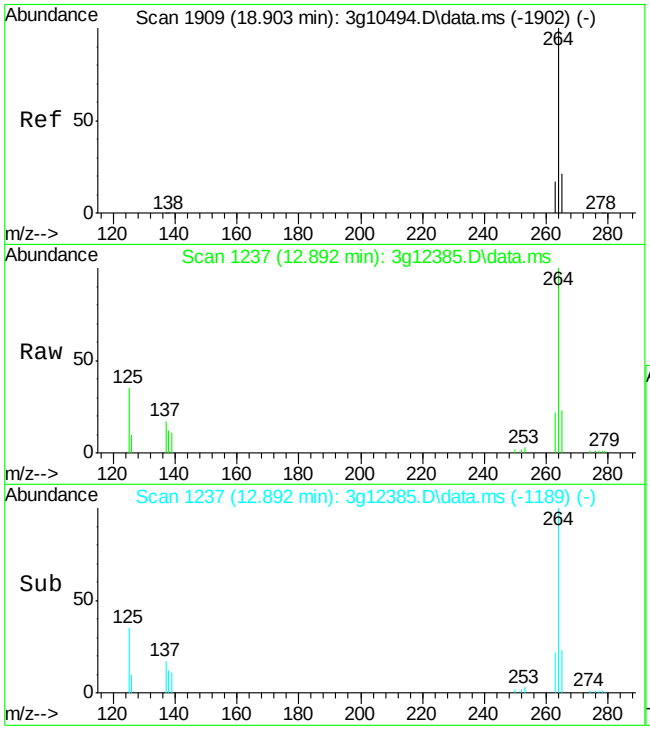


#23
Chrysene
Concen: 0.5046 ug/mL m
RT: 11.535 min Scan# 1059
Delta R.T. -0.007 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:228 Resp: 24712

Ion	Ratio	Lower	Upper
228	100		
226	10.4	9.2	49.2
229	9.3	0.0	39.4

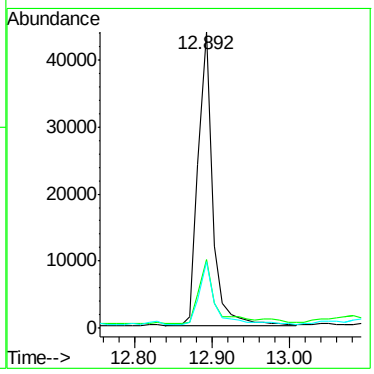


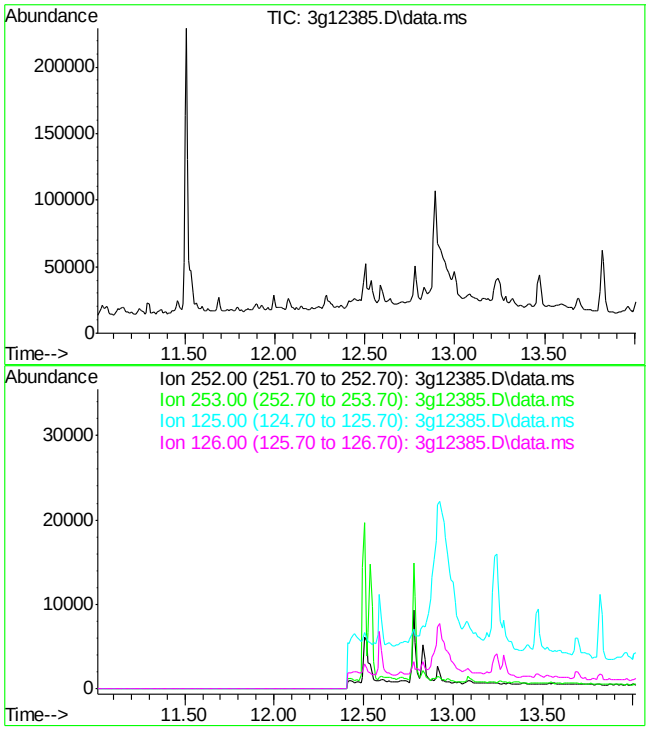


#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 12.892 min Scan# 1237
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:264 Resp: 56323

Ion	Ratio	Lower	Upper
264	100		
265	23.6	0.6	40.6
263	22.3	0.0	39.7



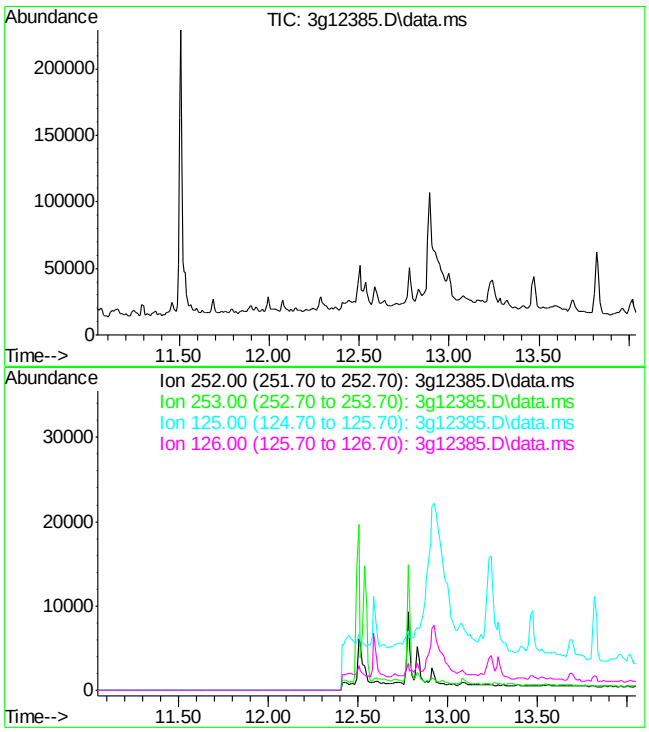


#25
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.51 min

Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	27.0
125	29.0
126	41.6

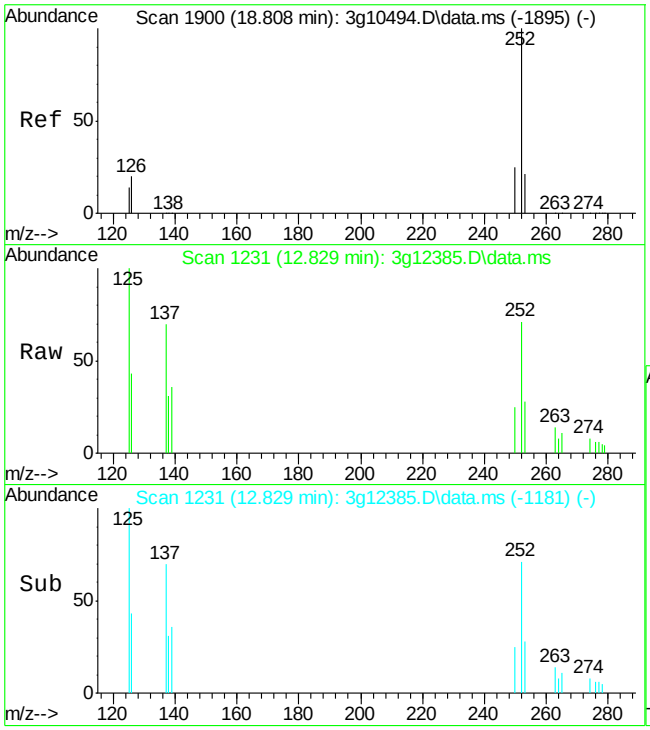


#26
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.54 min

Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion: 252

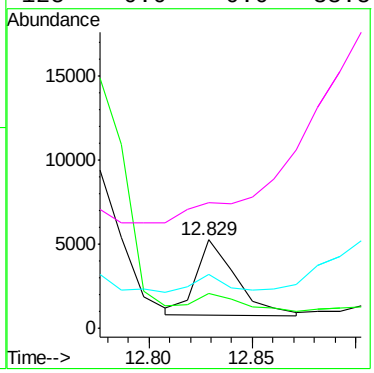
Sig	Exp Ratio
252	100
253	24.0
125	15.3
126	20.8

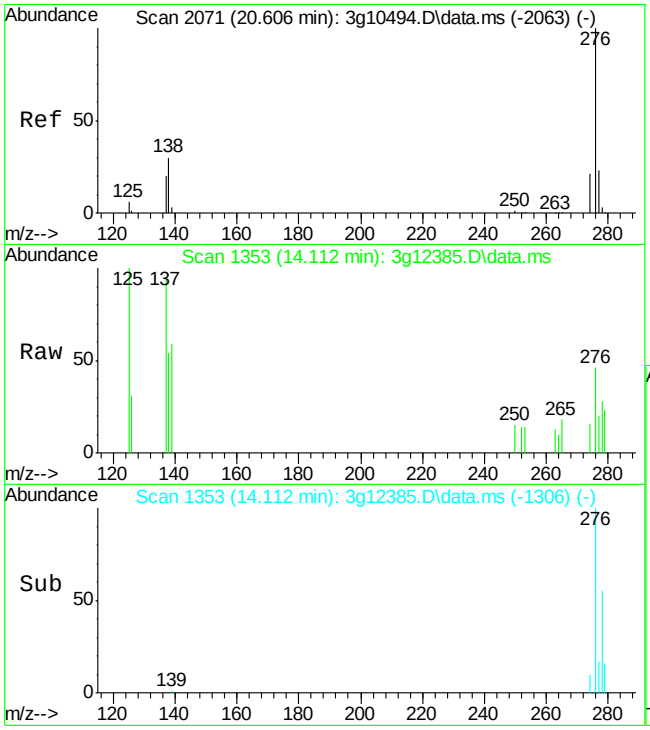


#27
Benzo(a)pyrene
Concen: 0.2083 ug/mL
RT: 12.829 min Scan# 1231
Delta R.T. -0.010 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:252 Resp: 5955

Ion	Ratio	Lower	Upper
252	100		
253	25.7	1.5	41.5
126	33.8	0.0	38.4
125	0.0	0.0	33.5

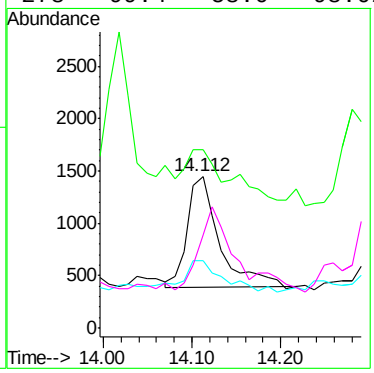


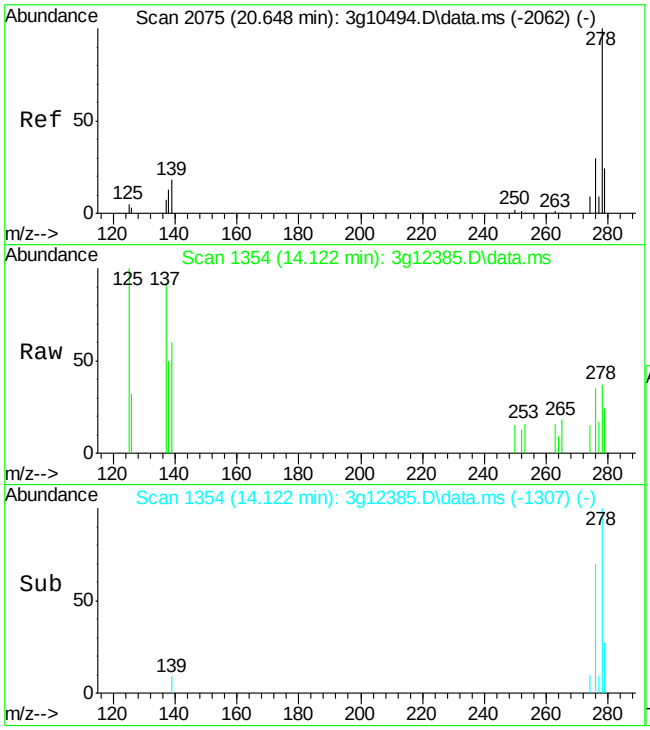


#28
Indeno(1,2,3-cd)pyrene
Concen: 0.0883 ug/mL
RT: 14.112 min Scan# 1353
Delta R.T. -0.010 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:276 Resp: 2674

Ion	Ratio	Lower	Upper
276	100		
138	59.3	16.0	56.0#
277	37.3	4.9	44.9
278	99.4	58.0	98.0#

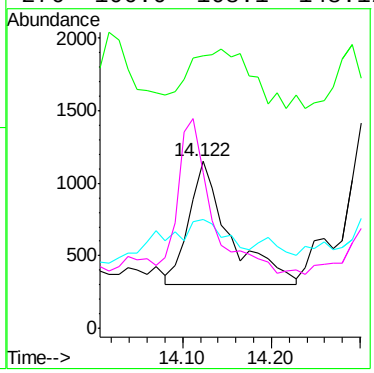


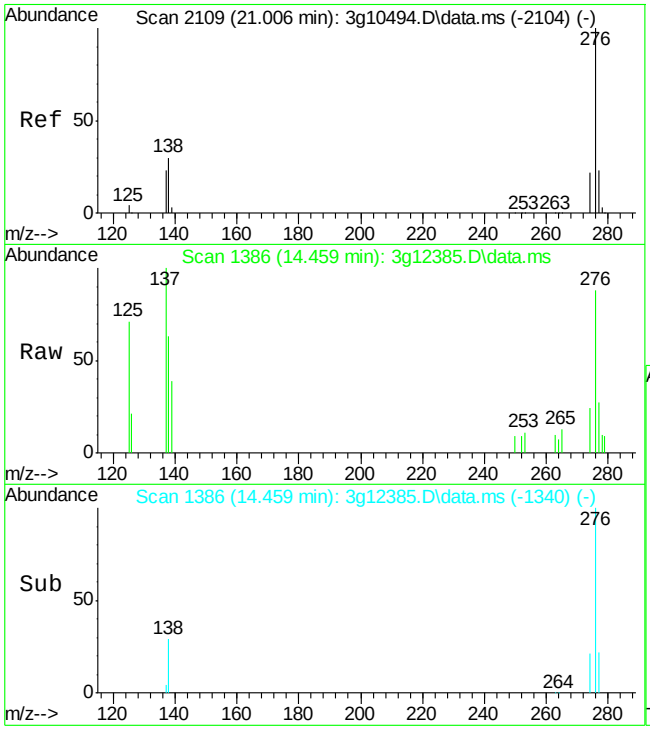


#29
Dibenz(a,h)anthracene
Concen: 0.1169 ug/mL
RT: 14.122 min Scan# 1354
Delta R.T. -0.010 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:278 Resp: 2723

Ion	Ratio	Lower	Upper
278	100		
139	87.9	7.4	47.4#
279	19.8	2.8	42.8
276	106.0	108.1	148.1#

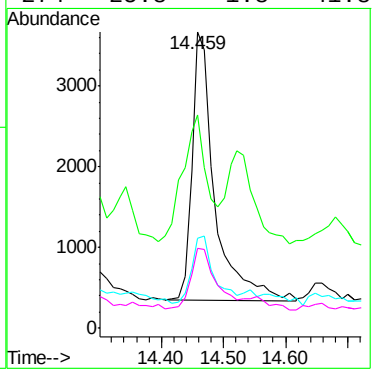




#30
Benzo(g,h,i)perylene
Concen: 0.3156 ug/mL
RT: 14.459 min Scan# 1386
Delta R.T. -0.021 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:276 Resp: 8413

Ion	Ratio	Lower	Upper
276	100		
138	50.6	10.9	50.9
277	24.5	3.2	43.2
274	25.8	1.8	41.8



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\120312\
Data File : 3g12377.D
Acq On : 3 Dec 2012 7:58 pm
Operator : DONC
Sample : OP7031-MB
Misc : OP7031,E3G586,30.00,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Dec 04 09:12:04 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G586.M
Quant Title : PAHSIM BASE
QLast Update : Tue Dec 04 08:50:28 2012
Response via : Initial Calibration

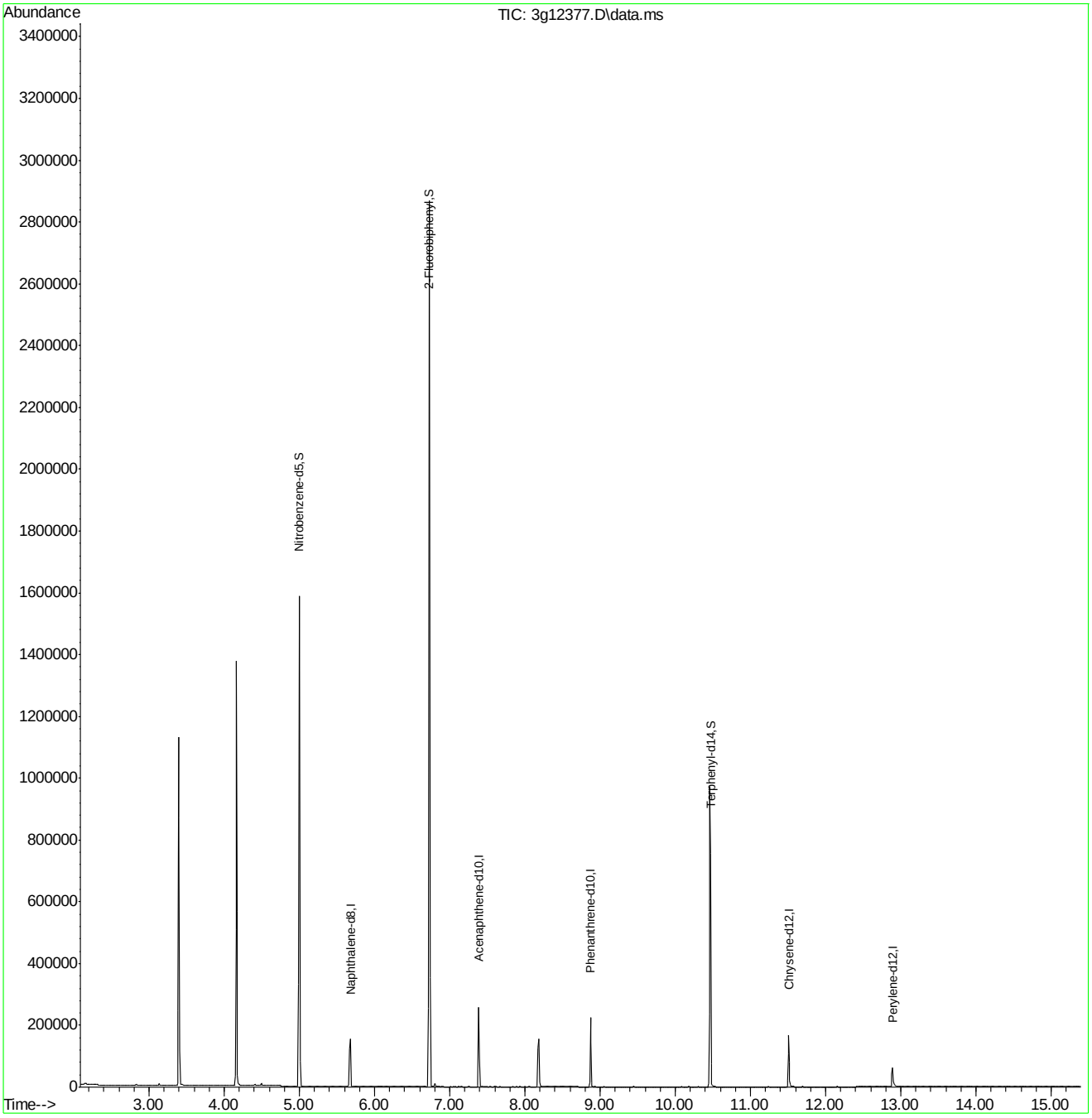
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.682	136	151768	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.389	164	95999	4.0000	ug/mL	0.00
15) Phenanthrene-d10	8.871	188	147491	4.0000	ug/mL	0.00
19) Chrysene-d12	11.509	240	108551	4.0000	ug/mL	0.00
24) Perylene-d12	12.892	264	61443	4.0000	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	4.996	82	677227	44.6396	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 89.28%			
7) 2-Fluorobiphenyl	6.727	172	1643542	39.1796	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 78.36%			
21) Terphenyl-d14	10.469	244	668273	41.8237	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 83.64%			
Target Compounds						Qvalue
3) N-Nitrosodimethylamine	2.385	74	41	N.D.		
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d	
5) Naphthalene	5.694	128	493	N.D.		
8) 2-Methylnaphthalene	6.368	142	288	N.D.		
9) 1-Methylnaphthalene	6.467	142	169	N.D.		
10) Acenaphthylene	7.117	152	305	N.D.		
11) Acenaphthene	7.389	154	560	Below Cal # 23		
12) Dibenzofuran	7.601	168	175	N.D.		
13) Fluorene	0.000	166	0	N.D.	d	
14) Diphenylamine	0.000	169	0	N.D.	d	
16) Phenanthrene	8.894	178	658	N.D.		
17) Anthracene	8.950	178	238	N.D.		
18) Fluoranthene	10.303	202	448	N.D.		
20) Pyrene	10.303	202	448	N.D.		
22) Benzo(a)anthracene	11.502	228	794	N.D.		
23) Chrysene	11.535	228	348	N.D.		
25) Benzo(b)fluoranthene	0.000	252	0	N.D.	d	
26) Benzo(k)fluoranthene	12.535	252	1693	N.D.		
27) Benzo(a)pyrene	12.829	252	290	N.D.		
28) Indeno(1,2,3-cd)pyrene	14.017	276	122	N.D.		
29) Dibenz(a,h)anthracene	14.122	278	173	N.D.		
30) Benzo(g,h,i)perylene	14.459	276	245	N.D.		

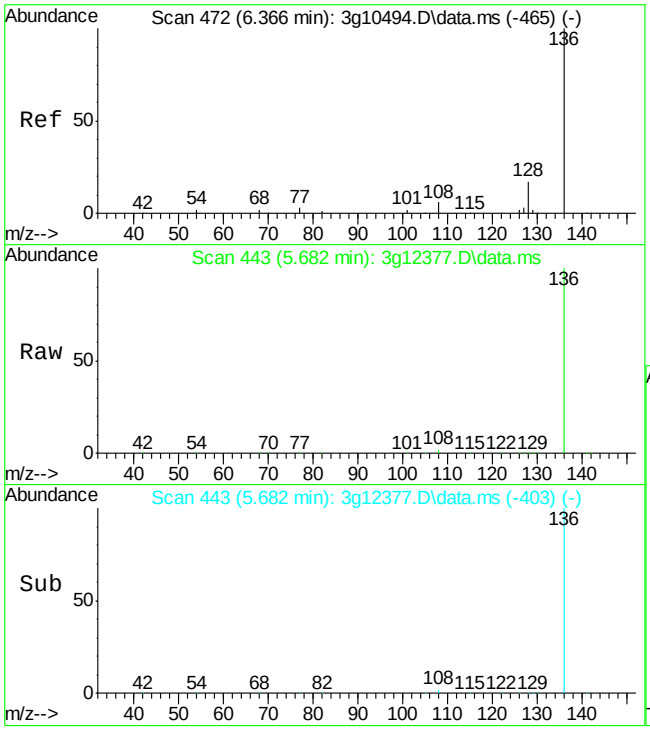
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\120312\
Data File : 3g12377.D
Acq On : 3 Dec 2012 7:58 pm
Operator : DONC
Sample : OP7031-MB
Misc : OP7031,E3G586,30.00,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Dec 04 09:12:04 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G586.M
Quant Title : PAHSIM BASE
QLast Update : Tue Dec 04 08:50:28 2012
Response via : Initial Calibration

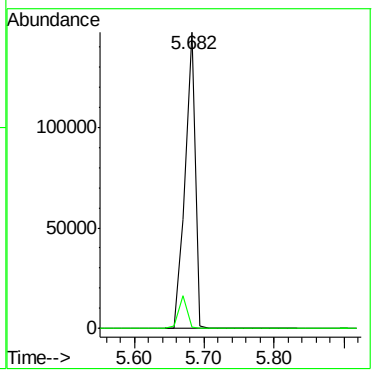


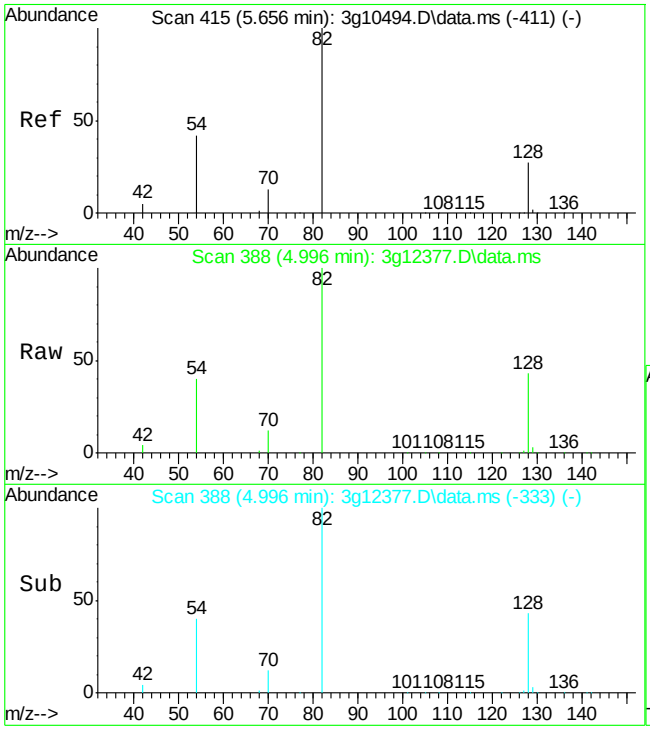


#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.682 min Scan# 443
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:136 Resp: 151768

Ion	Ratio	Lower	Upper
136	100		
68	8.7	0.0	28.4

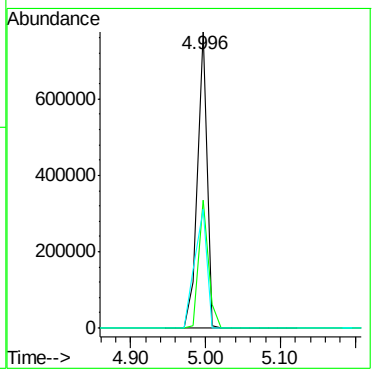


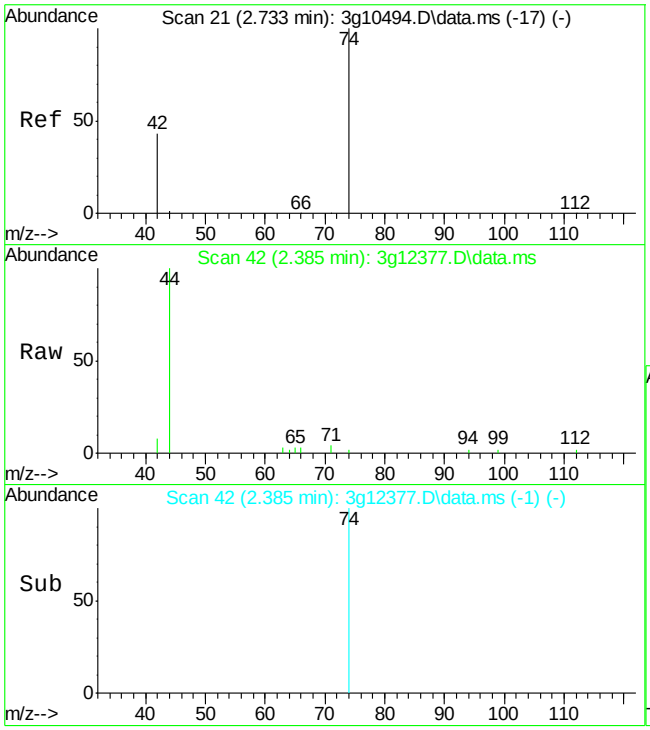


#2
Nitrobenzene-d5
Concen: 44.6396 ug/mL
RT: 4.996 min Scan# 388
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion: 82 Resp: 677227

Ion	Ratio	Lower	Upper
82	100		
128	44.6	31.8	71.8
54	51.5	29.2	69.2

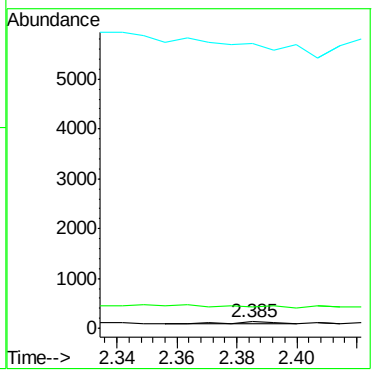


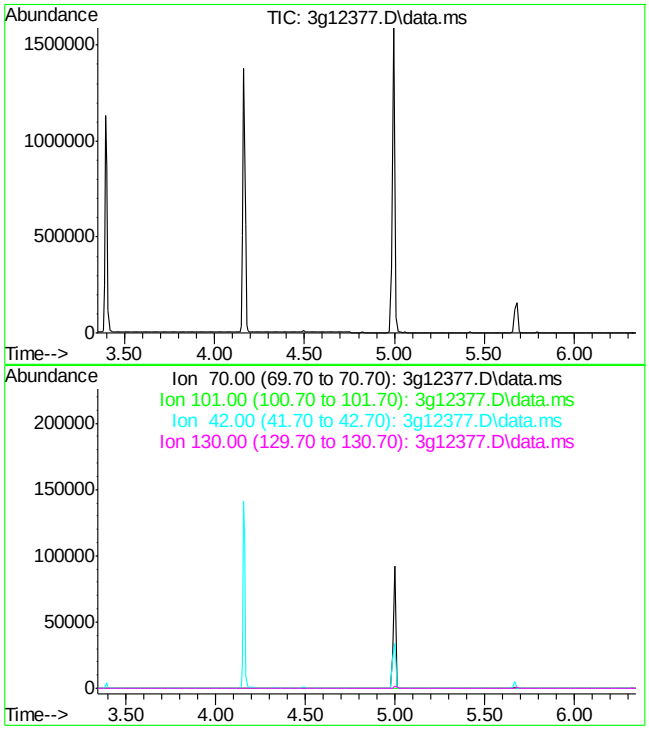


#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.385 min Scan# 42
Delta R.T. 0.007 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion: 74 Resp: 41

Ion	Ratio	Lower	Upper
74	100		
42	209.8	52.5	92.5#
44	0.0	0.0	24.1



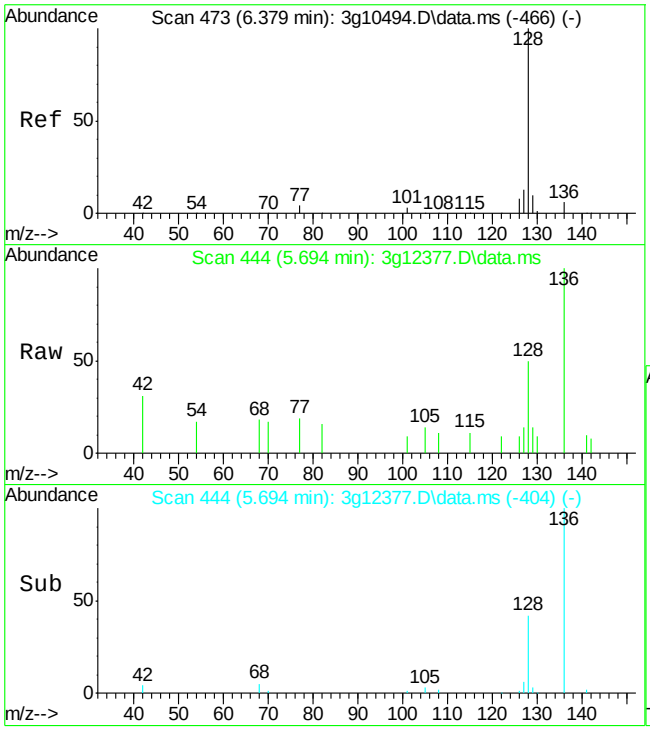


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 4.85 min

Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion: 70

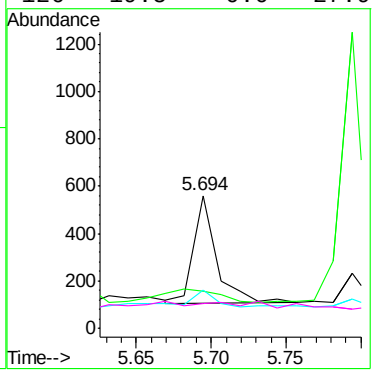
Sig	Exp Ratio
70	100
101	12.2
42	67.9
130	33.2

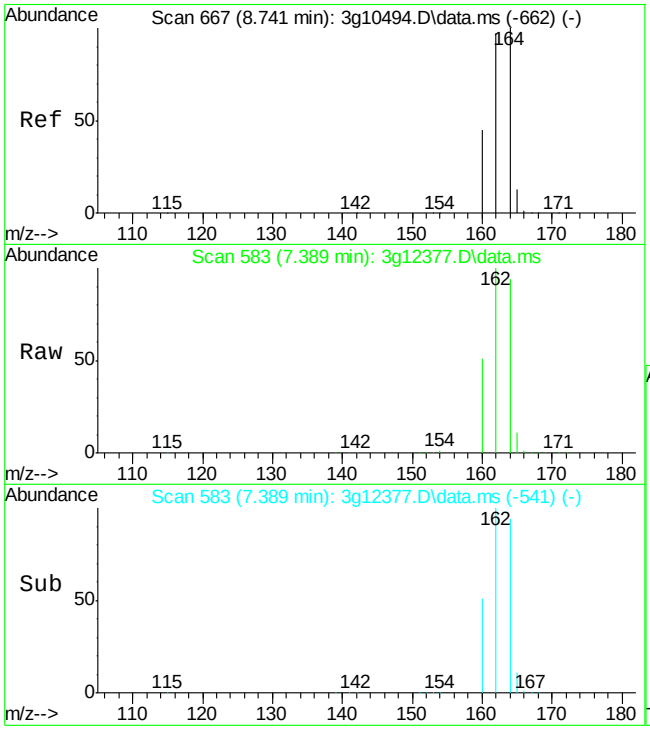


#5
Naphthalene
Concen: Below ug/mL
RT: 5.694 min Scan# 444
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:128 Resp: 493

Ion	Ratio	Lower	Upper
128	100		
129	32.3	0.0	30.7#
127	28.4	0.0	33.2
126	19.5	0.0	27.9

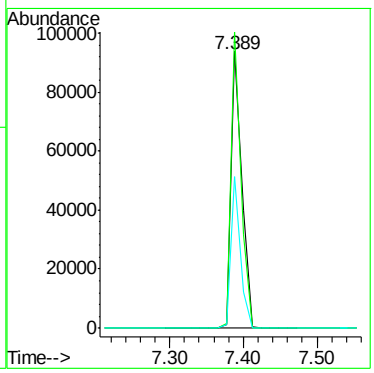


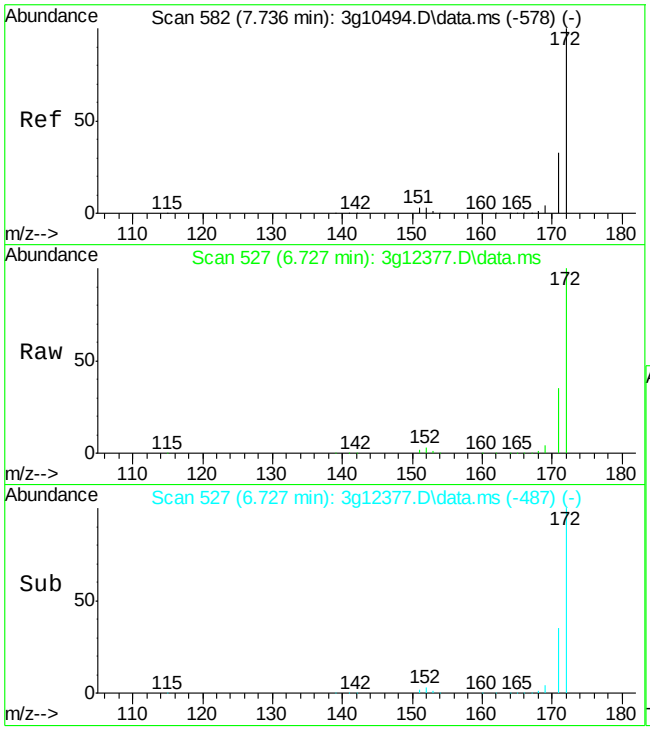


#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.389 min Scan# 583
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:164 Resp: 95999

Ion	Ratio	Lower	Upper
164	100		
162	98.8	78.0	118.0
160	47.9	27.3	67.3

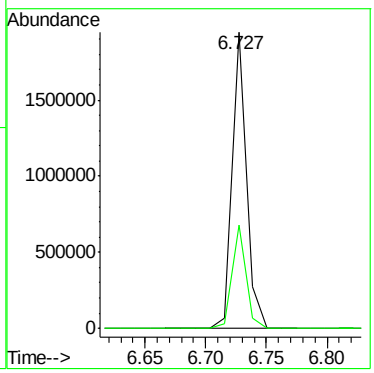


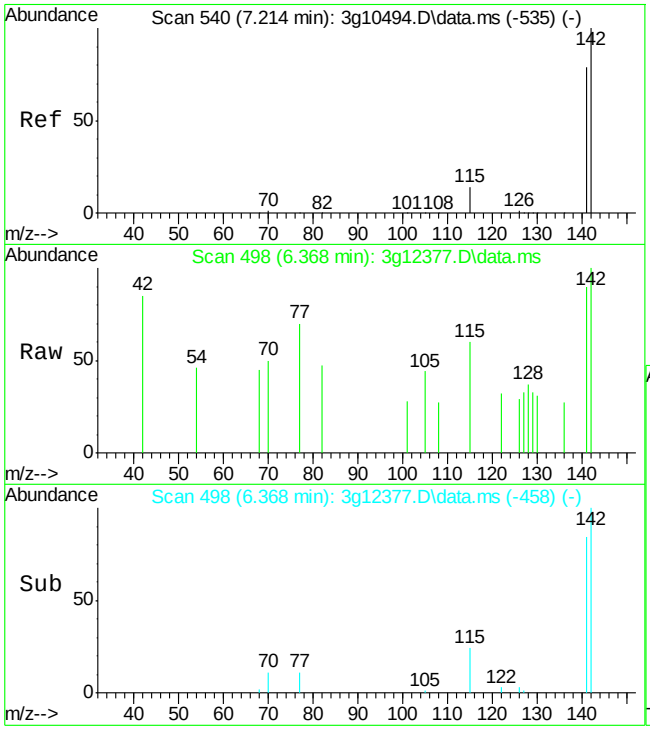


#7
2-Fluorobiphenyl
Concen: 39.1796 ug/mL
RT: 6.727 min Scan# 527
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:172 Resp: 1643542

Ion	Ratio	Lower	Upper
172	100		
171	33.9	13.7	53.7

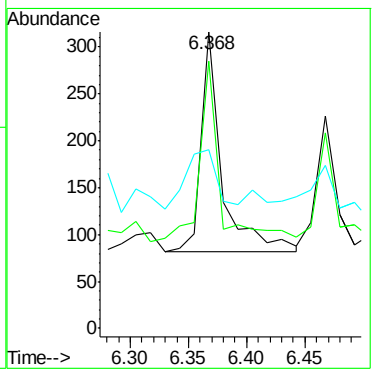


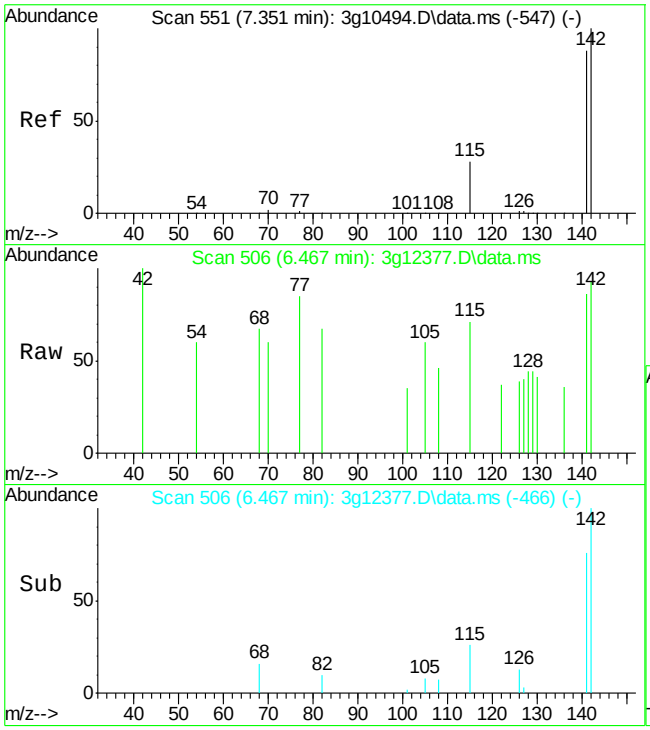


#8
2-Methylnaphthalene
Concen: Below ug/mL
RT: 6.368 min Scan# 498
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:142 Resp: 288

Ion	Ratio	Lower	Upper
142	100		
141	77.8	65.6	105.6
115	0.0	12.2	52.2#

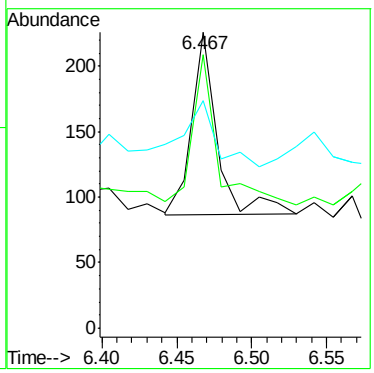


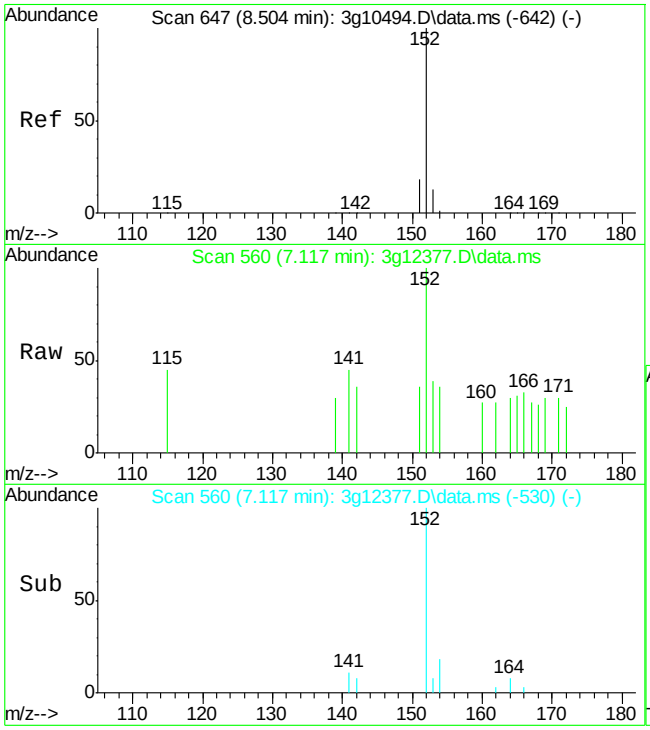


#9
1-Methylnaphthalene
Concen: Below ug/mL
RT: 6.467 min Scan# 506
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:142 Resp: 169

Ion	Ratio	Lower	Upper
142	100		
141	76.9	67.0	107.0
115	0.0	9.3	49.3#

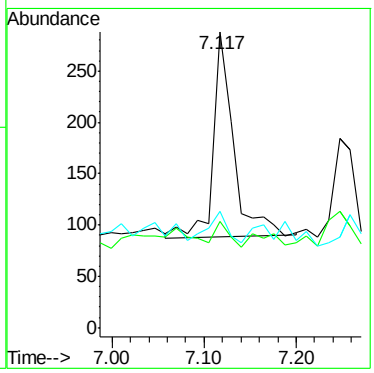


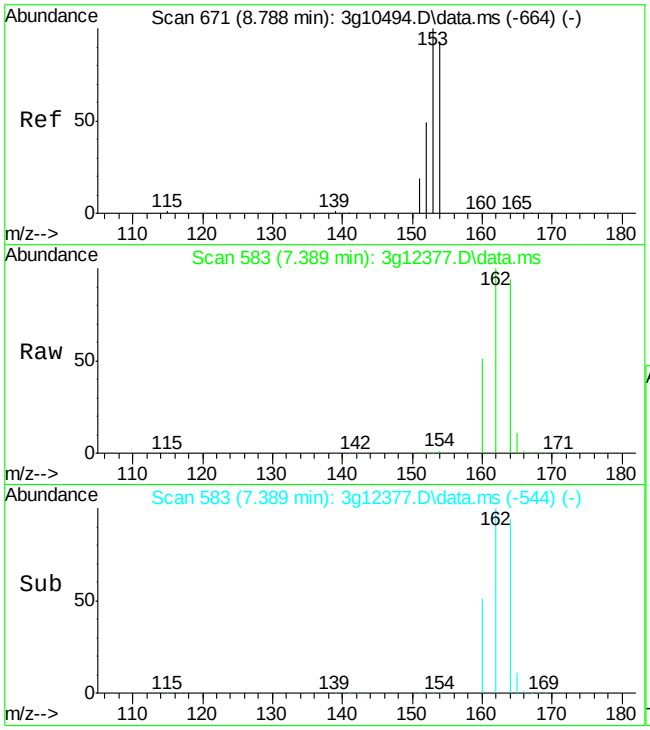


#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.117 min Scan# 560
Delta R.T. -0.142 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:152 Resp: 305

Ion	Ratio	Lower	Upper
152	100		
151	8.5	0.0	39.5
153	13.4	0.0	33.0

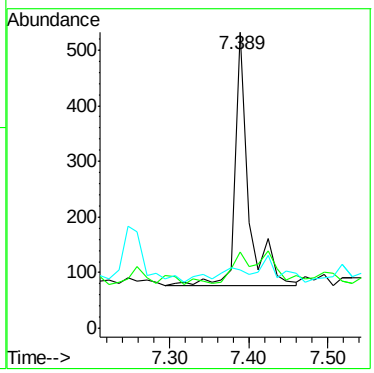


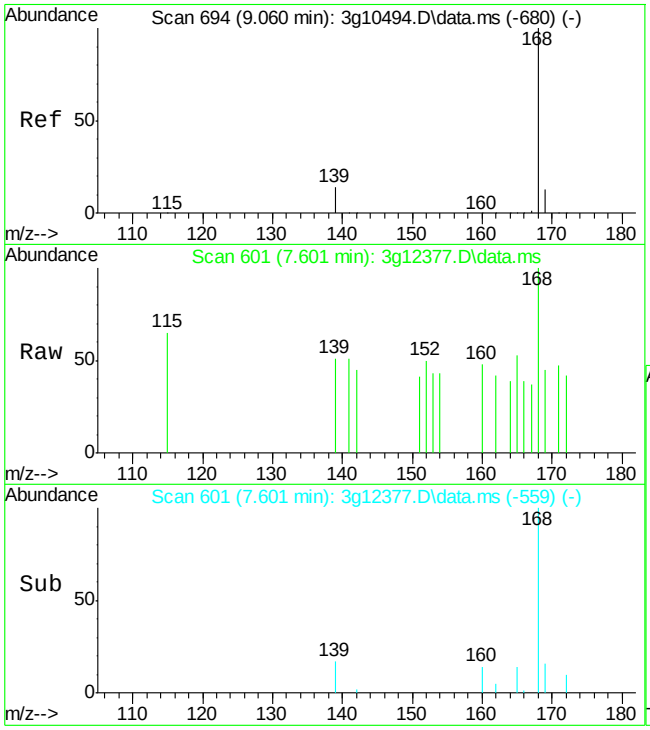


#11
Acenaphthene
Concen: Below ug/mL
RT: 7.389 min Scan# 583
Delta R.T. -0.035 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:154 Resp: 560

Ion	Ratio	Lower	Upper
154	100		
153	14.3	84.7	124.7#
152	13.2	30.2	70.2#

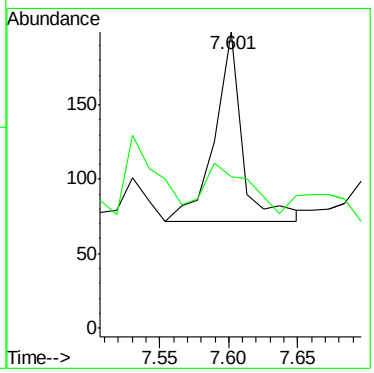


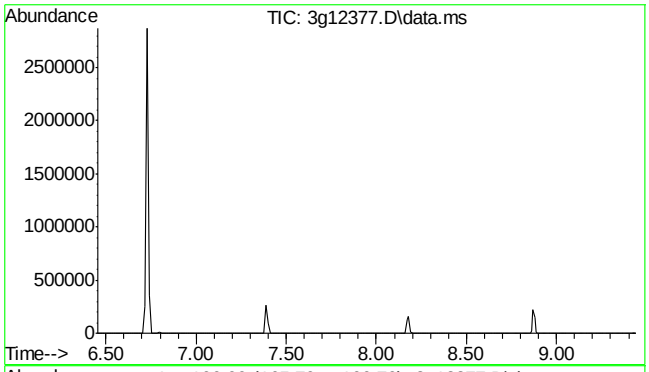


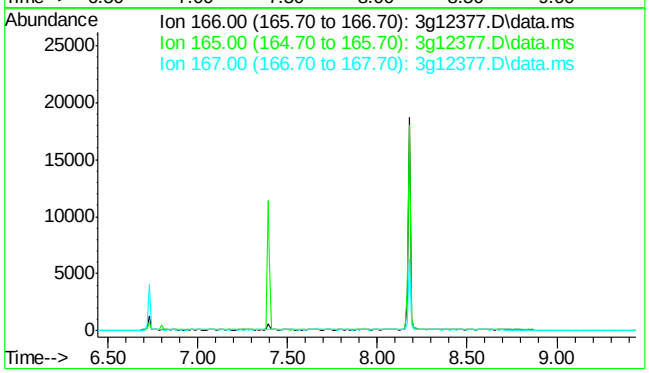
#12
Dibenzofuran
Concen: Below ug/mL
RT: 7.601 min Scan# 601
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:168 Resp: 175

Ion	Ratio	Lower	Upper
168	100		
139	48.0	12.0	52.0





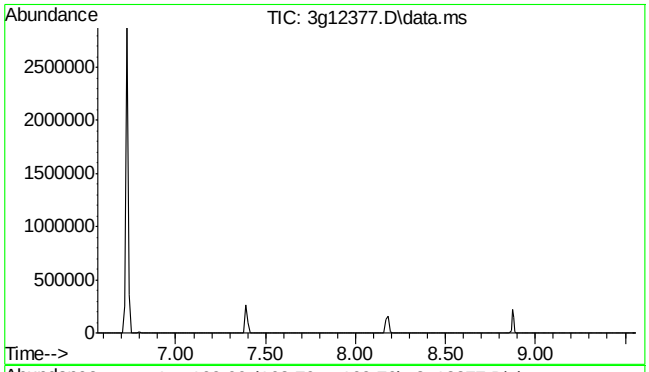


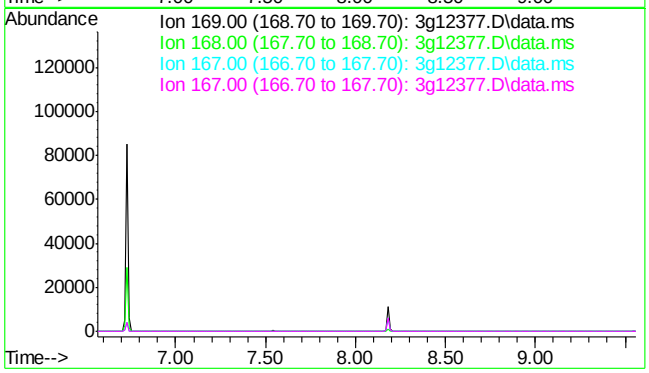
#13
Fluorene
Concen: N.D. ug/mL
Expected RT: 7.94 min

Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion: 166

Sig	Exp Ratio
166	100
165	90.1
167	13.4



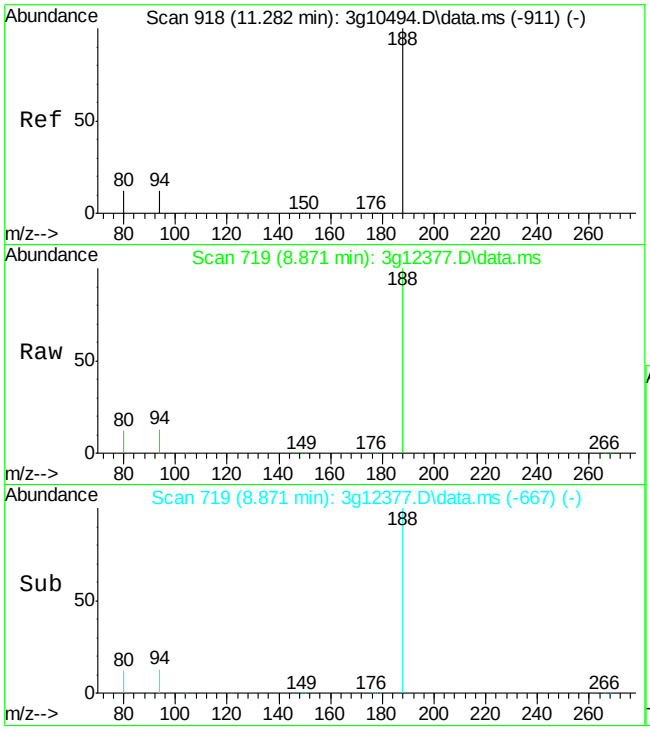


#14
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 8.06 min

Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion: 169

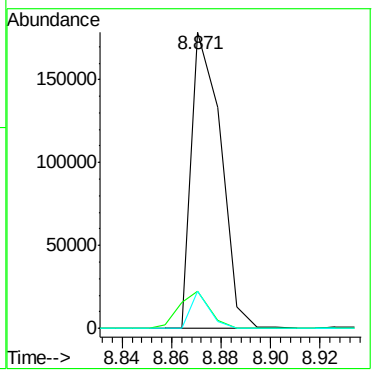
Sig	Exp Ratio
169	100
168	60.1
167	32.1
167	32.1

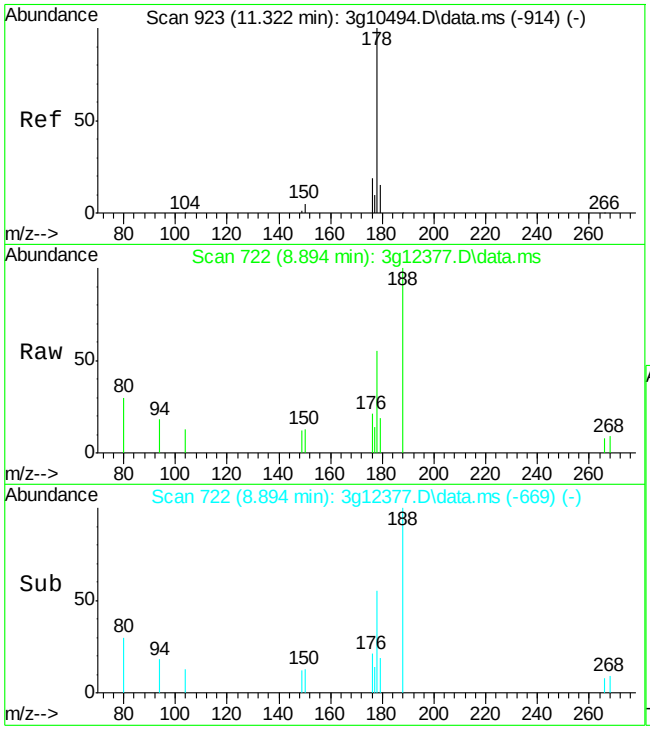


#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.871 min Scan# 719
Delta R.T. -0.008 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:188 Resp: 147491

Ion	Ratio	Lower	Upper
188	100		
94	13.7	0.0	33.4
80	8.4	0.0	28.9

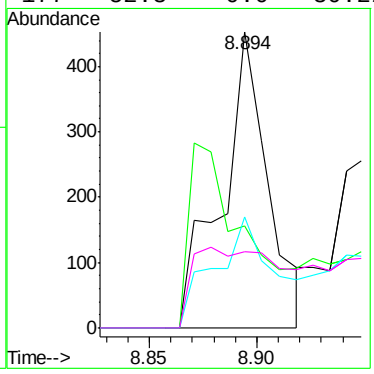


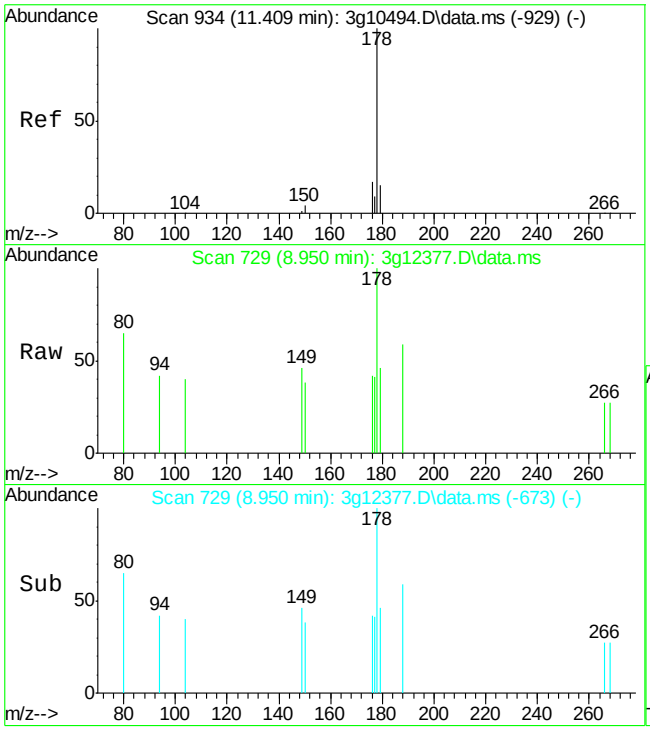


#16
Phenanthrene
Concen: Below ug/mL
RT: 8.894 min Scan# 722
Delta R.T. -0.008 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:178 Resp: 658

Ion	Ratio	Lower	Upper
178	100		
179	79.5	0.0	35.3#
176	47.7	0.0	38.6#
177	52.3	0.0	30.2#

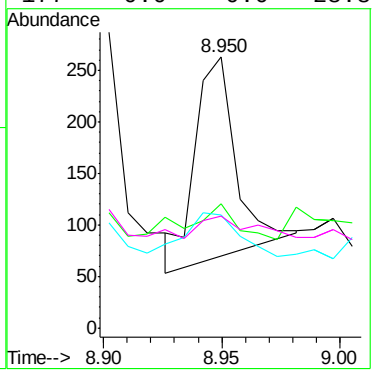


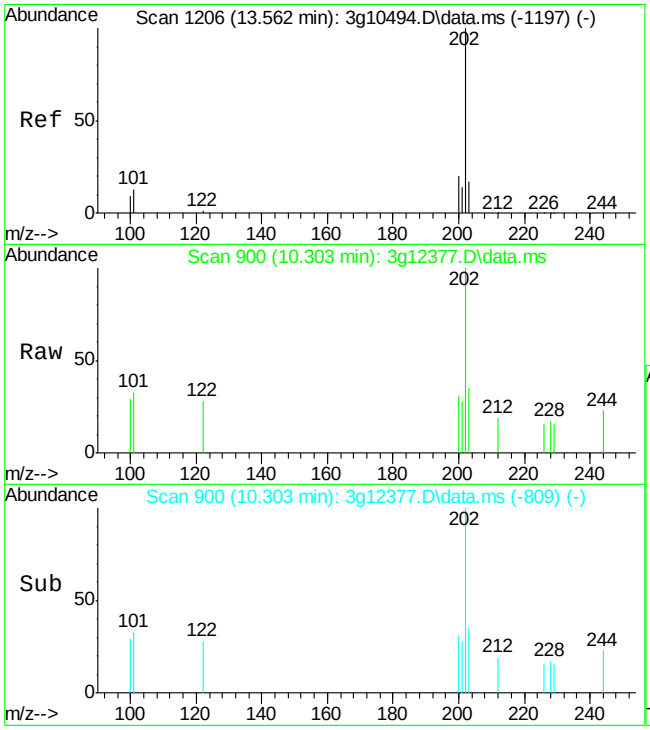


#17
Anthracene
Concen: Below ug/mL
RT: 8.950 min Scan# 729
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:178 Resp: 238

Ion	Ratio	Lower	Upper
178	100		
179	18.9	0.0	35.1
176	53.4	0.0	38.2#
177	0.0	0.0	28.8

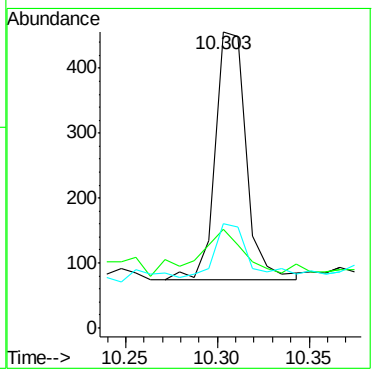


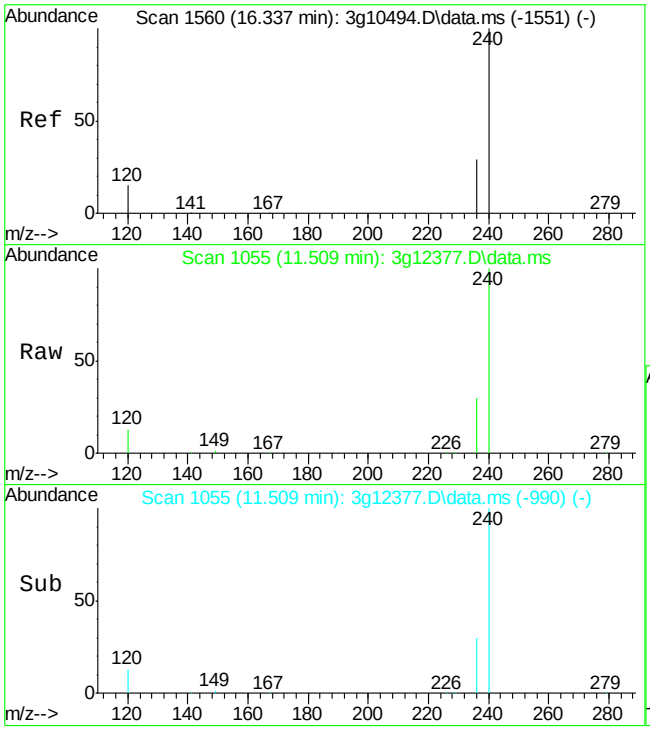


#18
Fluoranthene
Concen: Below ug/mL
RT: 10.303 min Scan# 900
Delta R.T. 0.222 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:202 Resp: 448

Ion	Ratio	Lower	Upper
202	100		
101	20.3	0.0	32.5
203	25.7	0.0	37.3

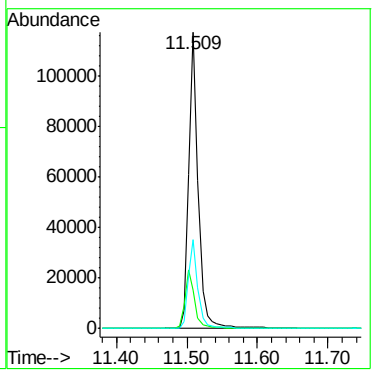


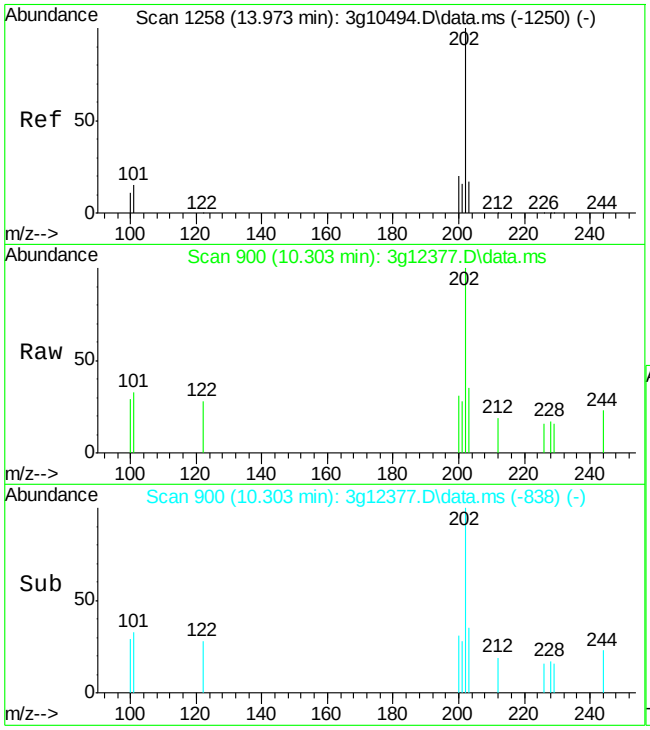


#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.509 min Scan# 1055
Delta R.T. -0.007 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:240 Resp: 108551

Ion	Ratio	Lower	Upper
240	100		
120	19.8	0.0	39.7
236	30.6	11.1	51.1

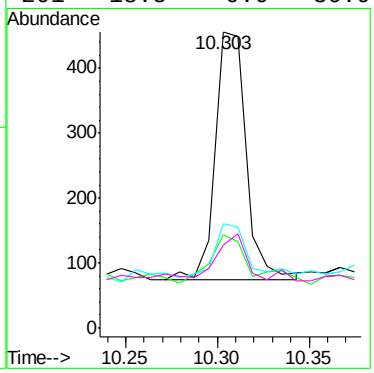


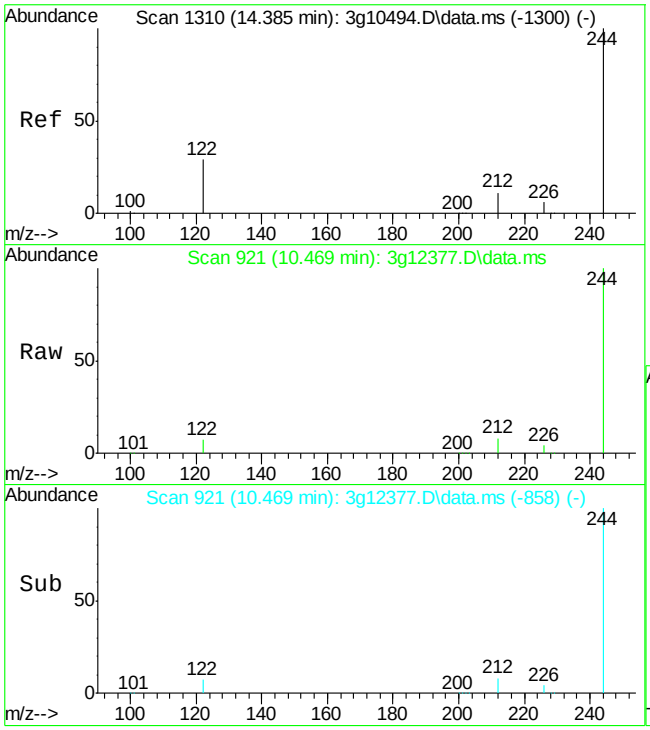


#20
Pyrene
Concen: Below ug/mL
RT: 10.303 min Scan# 900
Delta R.T. -0.008 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:202 Resp: 448

Ion	Ratio	Lower	Upper
202	100		
200	25.7	0.7	40.7
203	25.7	0.0	37.8
201	18.5	0.0	36.9

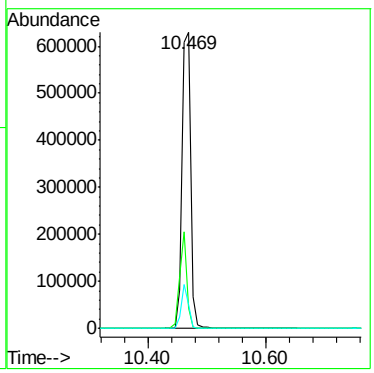


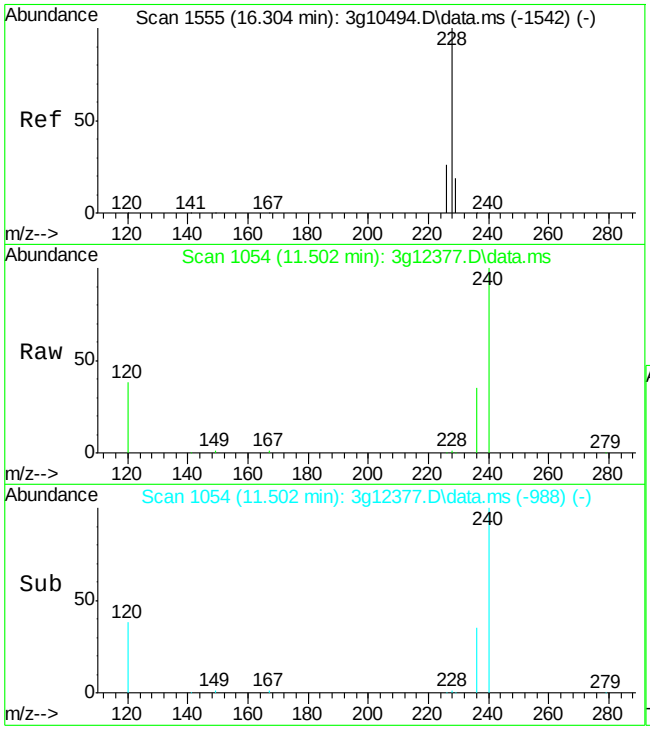


#21
Terphenyl-d14
Concen: 41.8237 ug/mL
RT: 10.469 min Scan# 921
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:244 Resp: 668273

Ion	Ratio	Lower	Upper
244	100		
122	26.4	6.8	46.8
212	12.1	0.0	32.3

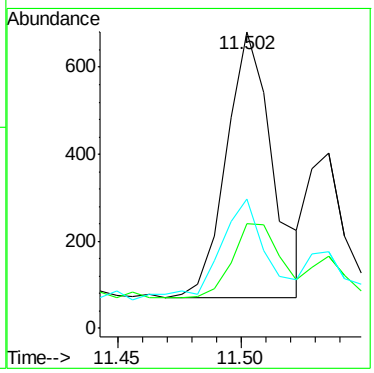


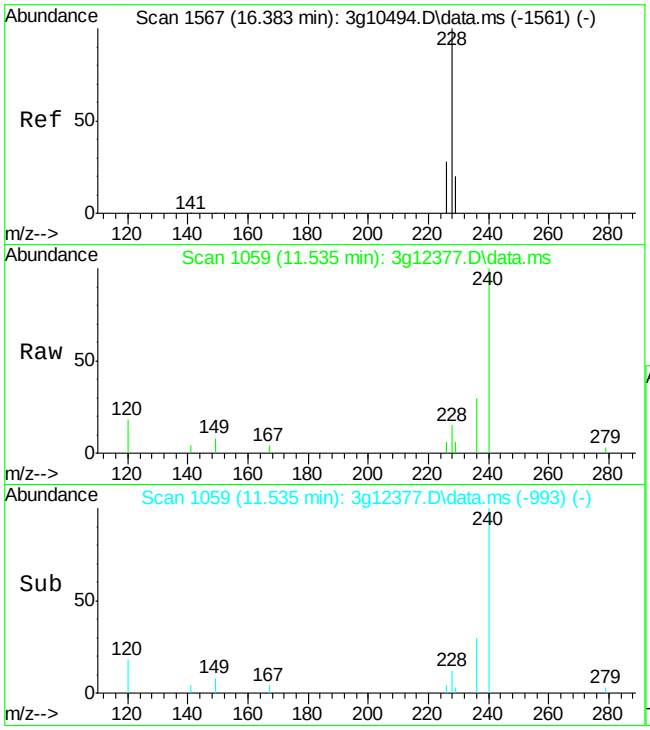


#22
Benzo(a)anthracene
Concen: Below ug/mL
RT: 11.502 min Scan# 1054
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:228 Resp: 794

Ion	Ratio	Lower	Upper
228	100		
229	29.0	0.0	39.4
226	39.4	6.8	46.8

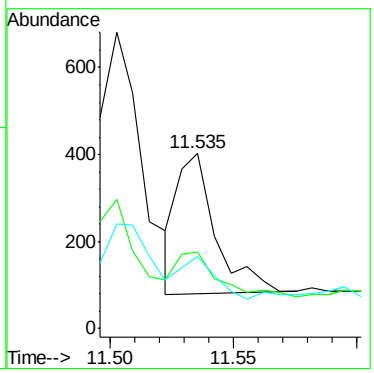


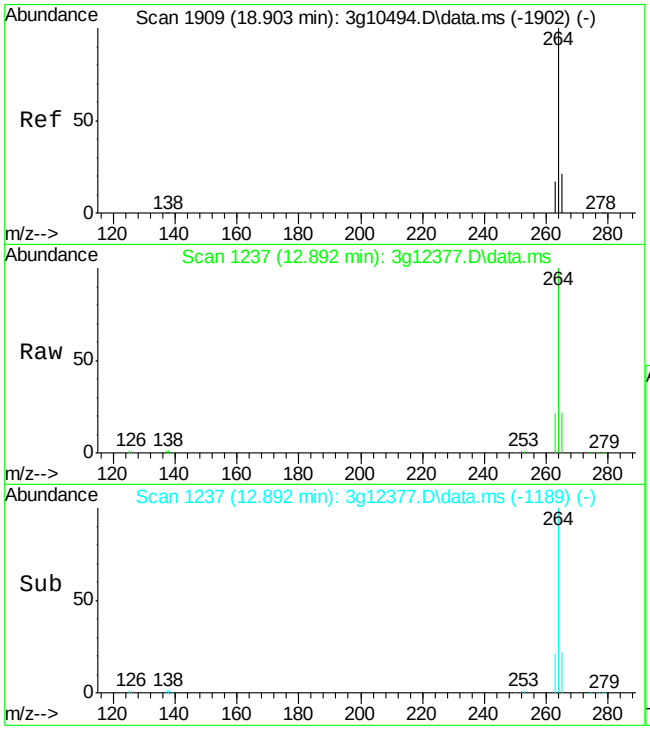


#23
Chrysene
Concen: Below ug/mL
RT: 11.535 min Scan# 1059
Delta R.T. -0.007 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:228 Resp: 348

Ion	Ratio	Lower	Upper
228	100		
226	35.9	9.2	49.2
229	13.5	0.0	39.4

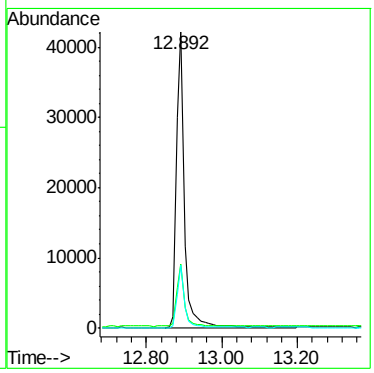


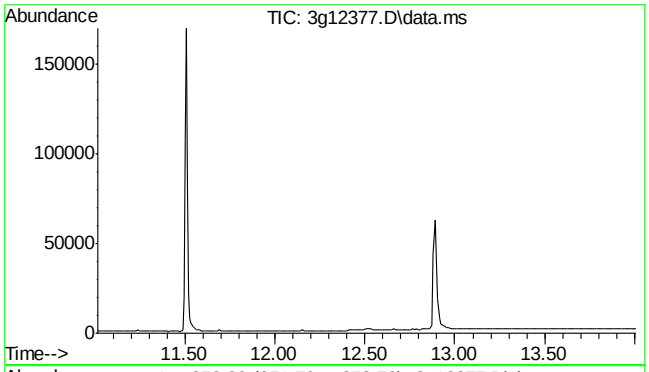


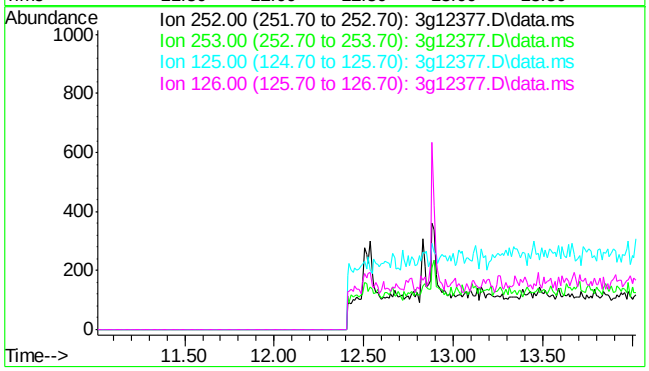
#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 12.892 min Scan# 1237
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:264 Resp: 61443

Ion	Ratio	Lower	Upper
264	100		
265	20.3	0.6	40.6
263	20.1	0.0	39.7





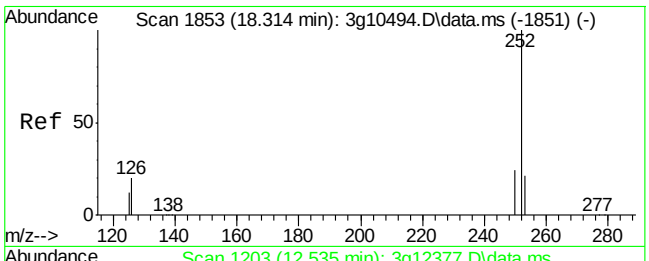


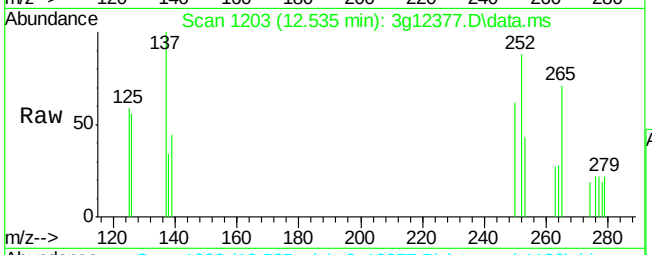
#25
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.51 min

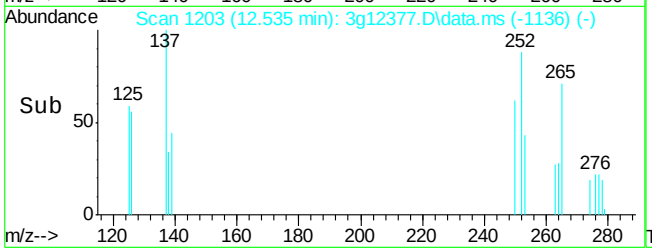
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	27.0
125	29.0
126	41.6



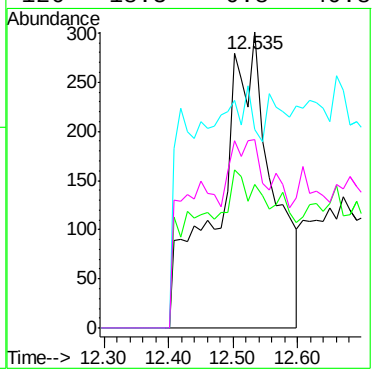


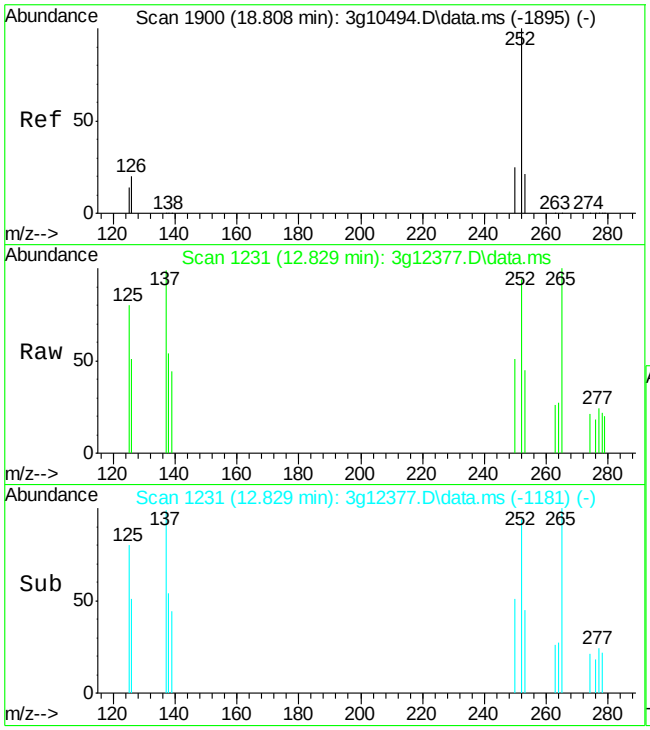


#26
Benzo(k)fluoranthene
Concen: Below ug/mL
RT: 12.535 min Scan# 1203
Delta R.T. -0.010 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:252 Resp: 1693

Ion	Ratio	Lower	Upper
252	100		
253	9.9	4.0	44.0
125	0.0	0.0	35.3
126	18.3	0.8	40.8

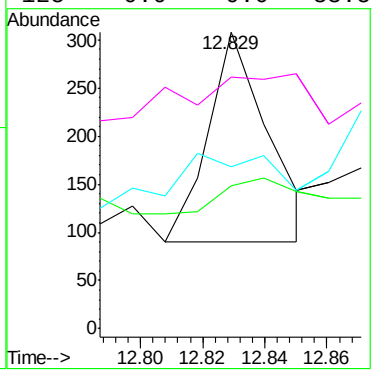


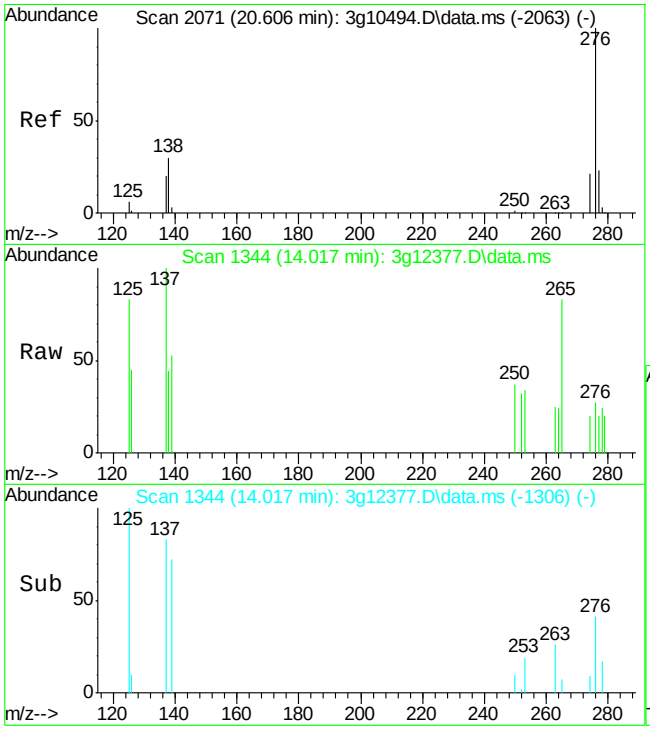


#27
Benzo(a)pyrene
Concen: Below ug/mL
RT: 12.829 min Scan# 1231
Delta R.T. -0.010 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:252 Resp: 290

Ion	Ratio	Lower	Upper
252	100		
253	24.8	1.5	41.5
126	34.5	0.0	38.4
125	0.0	0.0	33.5

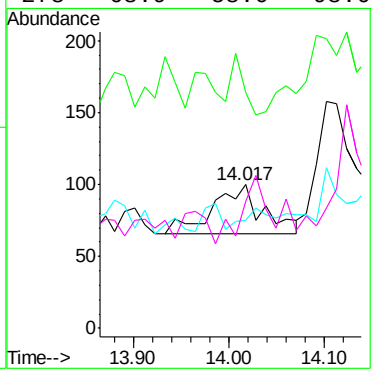


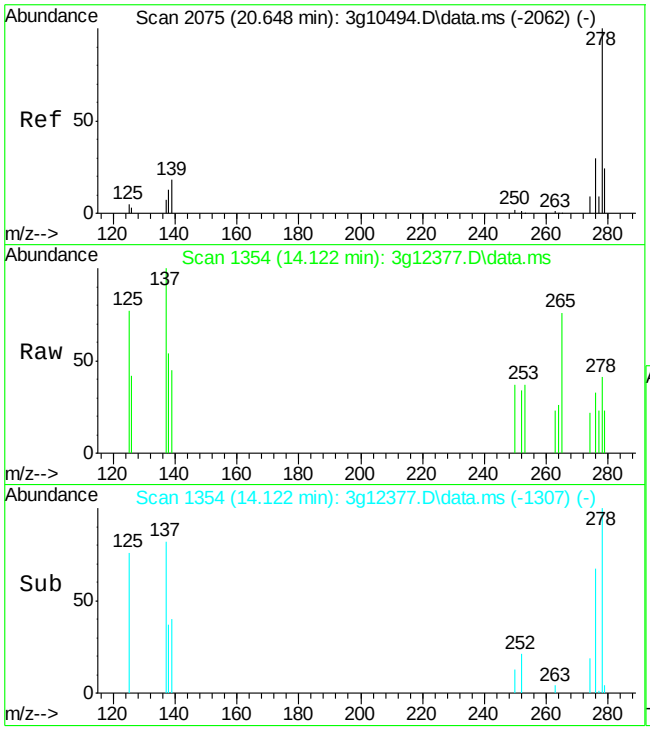


#28
Indeno(1,2,3-cd)pyrene
Concen: Below ug/mL
RT: 14.017 min Scan# 1344
Delta R.T. -0.105 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:276 Resp: 122

Ion	Ratio	Lower	Upper
276	100		
138	30.3	16.0	56.0
277	9.8	4.9	44.9
278	68.9	58.0	98.0

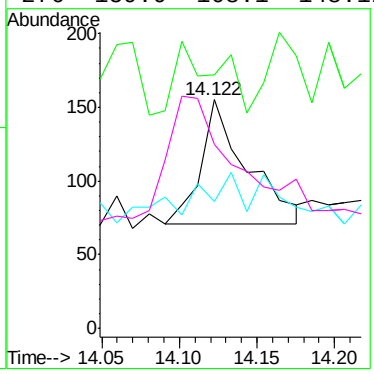


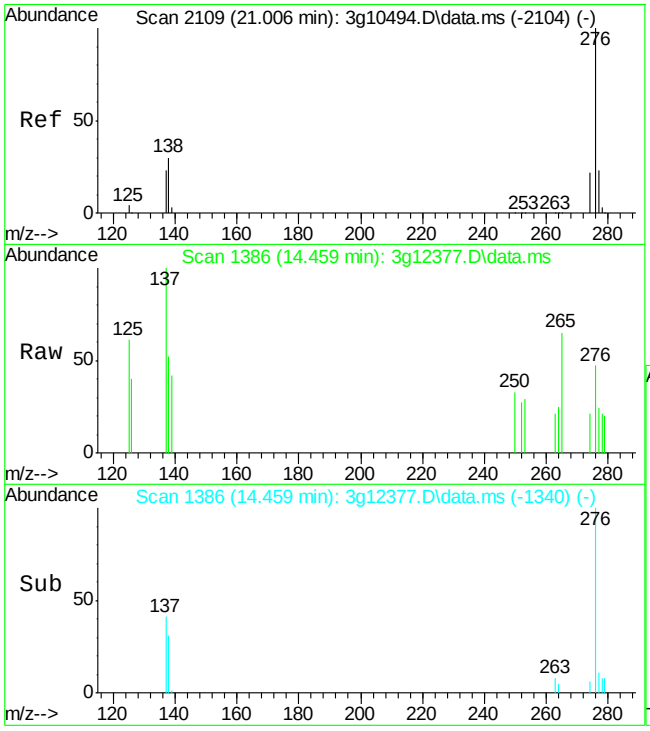


#29
Dibenz(a,h)anthracene
Concen: Below ug/mL
RT: 14.122 min Scan# 1354
Delta R.T. -0.010 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:278 Resp: 173

Ion	Ratio	Lower	Upper
278	100		
139	53.8	7.4	47.4#
279	45.1	2.8	42.8#
276	159.0	108.1	148.1#

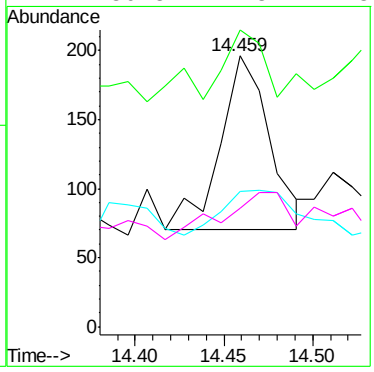




#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.459 min Scan# 1386
Delta R.T. -0.021 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion:276 Resp: 245

Ion	Ratio	Lower	Upper
276	100		
138	57.1	10.9	50.9#
277	41.2	3.2	43.2
274	36.3	1.8	41.8



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: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1016-MB	GB18638.D	1	11/29/12	SK	n/a	n/a	GGB1016

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

D41305-1

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	90%	60-140%

Blank Spike Summary

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1016-BS	GB18639.D	1	11/29/12	SK	n/a	n/a	GGB1016

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

D41305-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	123	112	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	107%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D41047-1MS	GB18641.D	1	11/29/12	SK	n/a	n/a	GGB1016
D41047-1MSD	GB18642.D	1	11/29/12	SK	n/a	n/a	GGB1016
D41047-1	GB18640.D	1	11/29/12	SK	n/a	n/a	GGB1016

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

D41305-1

CAS No.	Compound	D41047-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	76.5		157	249	110	246	108	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D41047-1	Limits
120-82-1	1,2,4-Trichlorobenzene	107%	108%	97%	60-140%

10.3.1
10

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

GC Volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 11/30/12 12:10

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\112912\GB18649.D\FID1A.CH Vial: 14
Signal #2 : Y:\1\DATA\112912\GB18649.D\FID2B.CH
Acq On : 29 Nov 2012 8:10 pm Operator: StephK
Sample : D41305-1, 50X Inst : GC/MS Ins
Misc : GC3260,GGB1016,5.065,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 30 08:17:10 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Nov 29 18:07:37 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	14.37	2842052	90.702	%	m
10) S	1,2,4-Trichlorobenzene (P)	14.37	14582093	89.721	%	
	Target Compounds					
1) H	TVH-Gasoline	7.23	8594928	0.103	mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5) T	Benzene	4.14	334968	0.831	ug/L	
6) T	Toluene	7.67	990686	2.500	ug/L	
7) T	Ethylbenzene	10.30	140799	0.416	ug/L	
8) T	m,p-Xylene	10.47	1051324	2.507	ug/L	
9) T	o-Xylene	10.98	239823	0.730	ug/L	
11) T	Naphthalene	14.56	701007	3.553	ug/L	

11.1.1 11

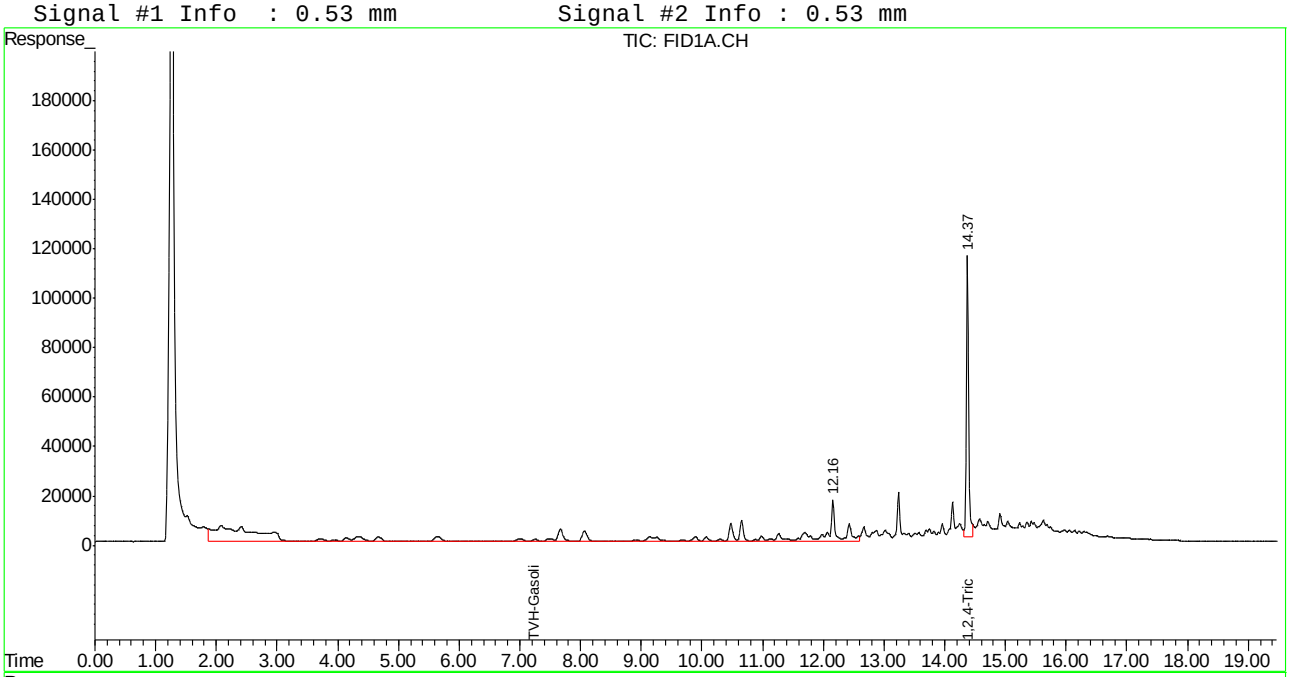
(f)=RT Delta > 1/2 Window (m)=manual int.

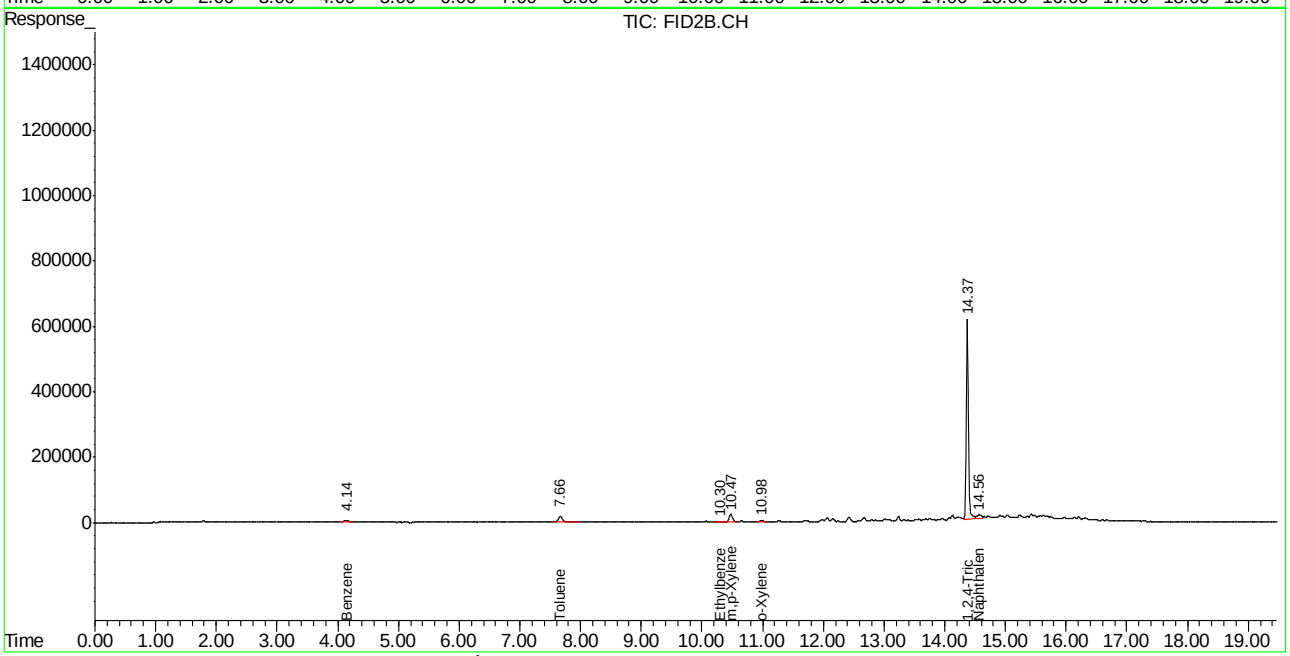
Quantitation Report (QT Reviewed)

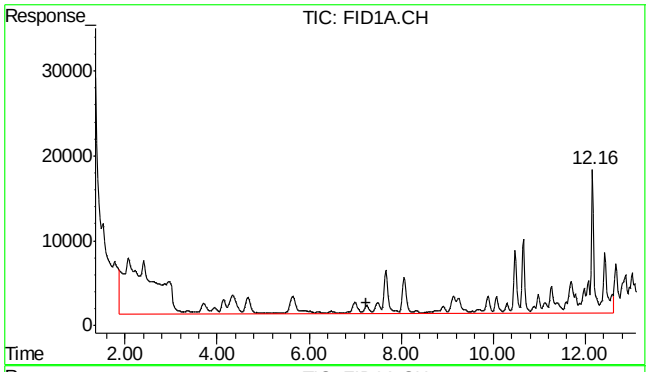
Signal #1 : Y:\1\DATA\112912\GB18649.D\FID1A.CH Vial: 14
Signal #2 : Y:\1\DATA\112912\GB18649.D\FID2B.CH
Acq On : 29 Nov 2012 8:10 pm Operator: StephK
Sample : D41305-1, 50X Inst : GC/MS Ins
Misc : GC3260,GGB1016,5.065,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 30 8:24 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Nov 29 18:07:37 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

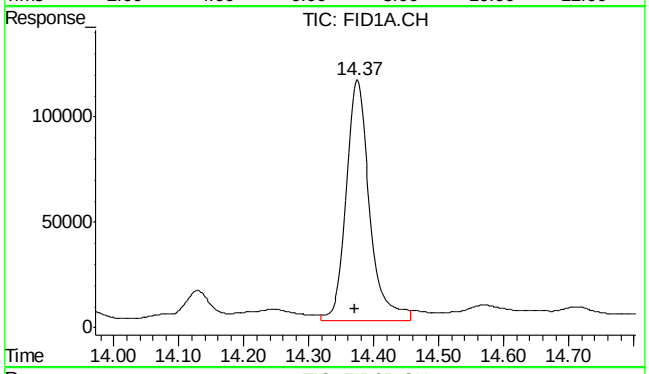






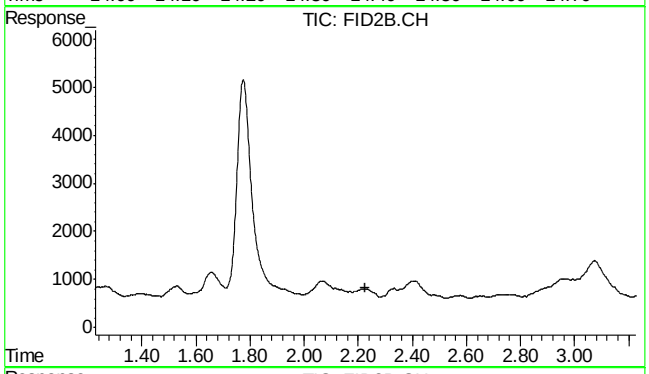
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 8594928
Conc: 0.10 mg/L m



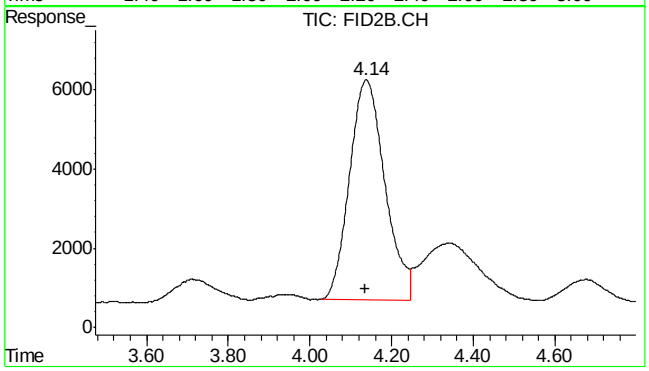
#2 1,2,4-Trichlorobenzene

R.T.: 14.374 min
Delta R.T.: 0.003 min
Response: 2842052
Conc: 90.70 % m



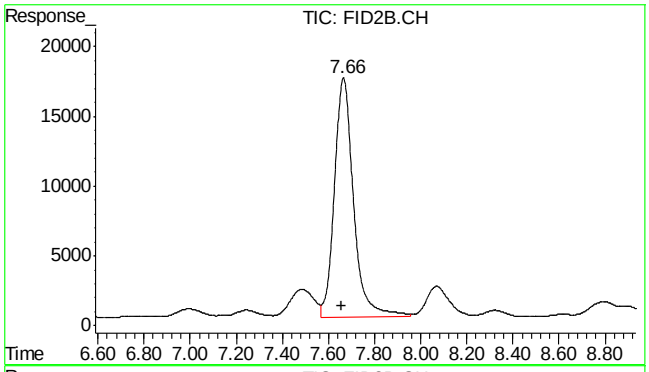
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.227 min
Response: 0
Conc: N.D.



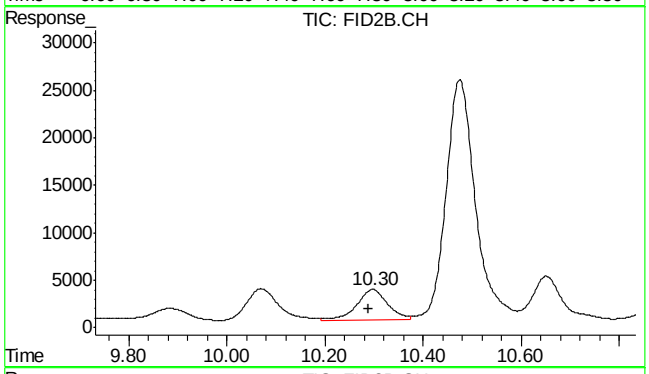
#5 Benzene

R.T.: 4.138 min
Delta R.T.: 0.004 min
Response: 334968
Conc: 0.83 ug/L



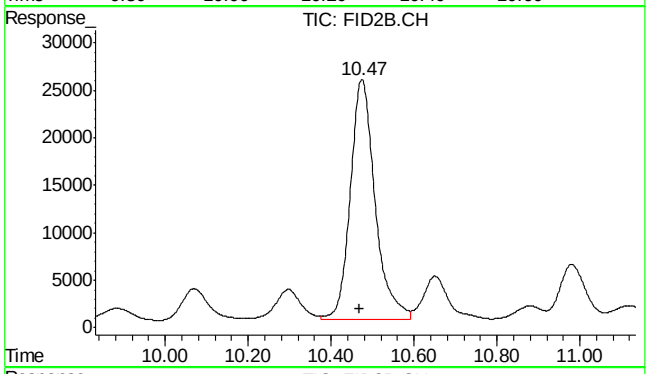
#6 Toluene

R.T.: 7.665 min
Delta R.T.: 0.008 min
Response: 990686
Conc: 2.50 ug/L



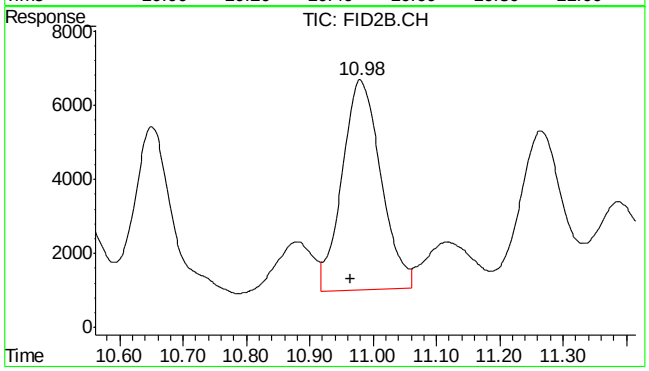
#7 Ethylbenzene

R.T.: 10.297 min
Delta R.T.: 0.009 min
Response: 140799
Conc: 0.42 ug/L



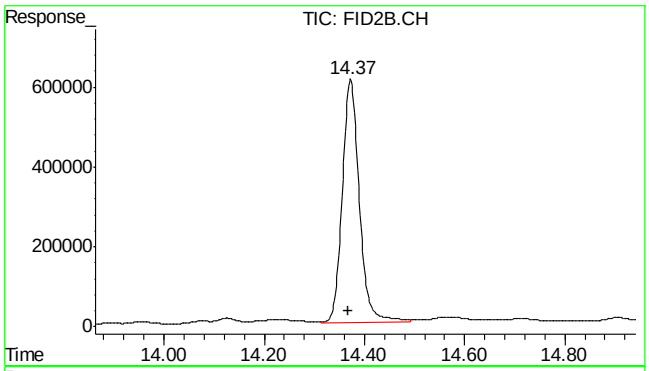
#8 m,p-Xylene

R.T.: 10.474 min
Delta R.T.: 0.006 min
Response: 1051324
Conc: 2.51 ug/L



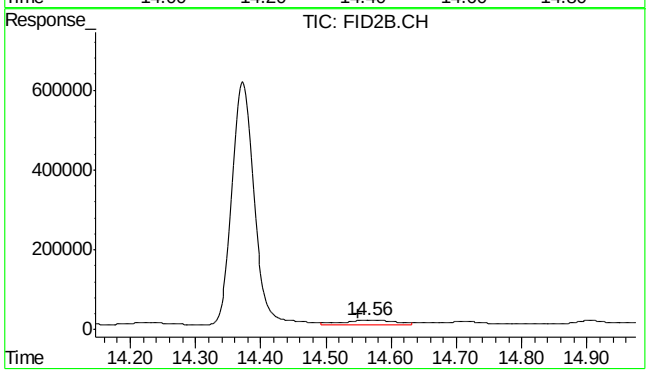
#9 o-Xylene

R.T.: 10.980 min
Delta R.T.: 0.015 min
Response: 239823
Conc: 0.73 ug/L



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

R.T.: 14.373 min
Delta R.T.: 0.004 min
Response: 14582093
Conc: 89.72 %



#11 Naphthalene

R.T.: 14.565 min
Delta R.T.: 0.015 min
Response: 701007
Conc: 3.55 ug/L

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\112912\GB18638.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\112912\GB18638.D\FID2B.CH
Acq On : 29 Nov 2012 1:39 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3260,GGB1016,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 29 18:07:57 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Nov 29 18:07:37 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

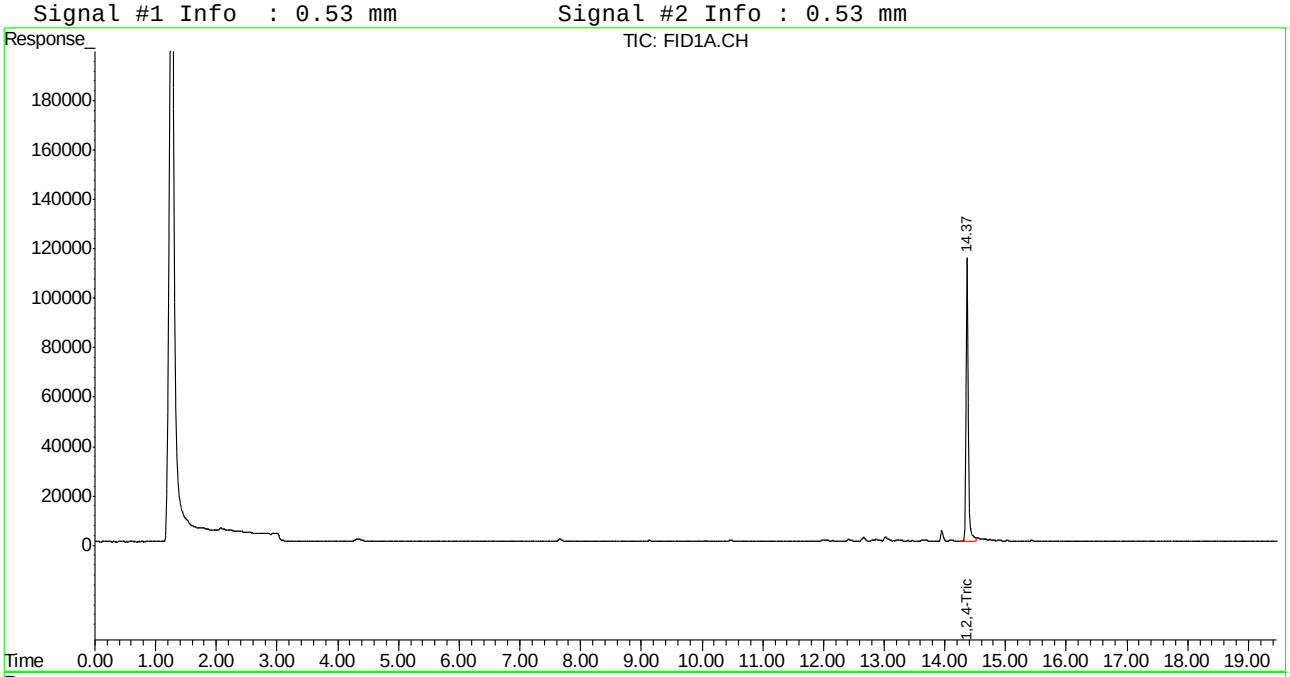
	Compound	R.T.	Response	Conc	Units	
	System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.37	2827268	90.230	%	
10) S	1,2,4-Trichlorobenzene (P)	14.37	14819830	91.184	%	
	Target Compounds					
1) H	TVH-Gasoline	7.23	3713773	<MDL	mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5) T	Benzene	0.00	0	N.D.	ug/L	d
6) T	Toluene	7.66	177074	0.447	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	213770	1.083	ug/L	

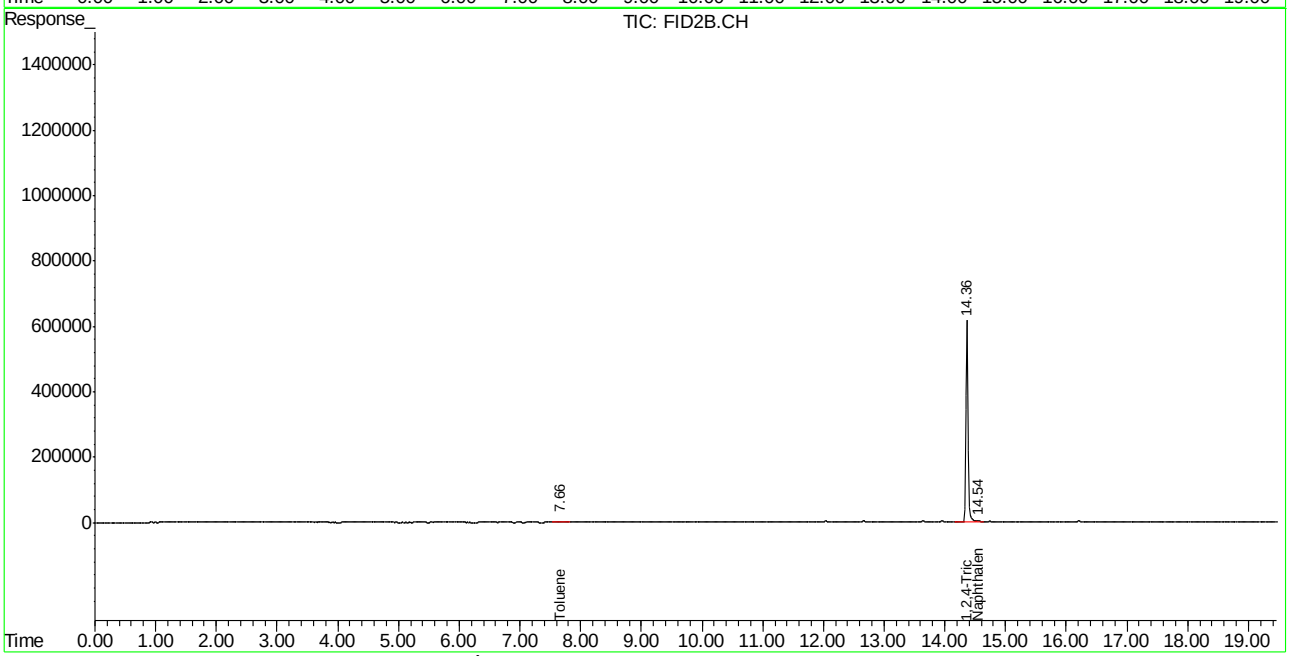
Quantitation Report (QT Reviewed)

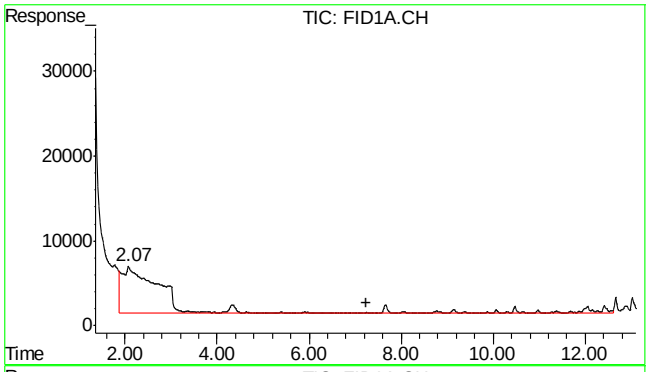
Signal #1 : Y:\1\DATA\112912\GB18638.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\112912\GB18638.D\FID2B.CH
Acq On : 29 Nov 2012 1:39 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3260,GGB1016,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 29 18:10 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Nov 29 18:07:37 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

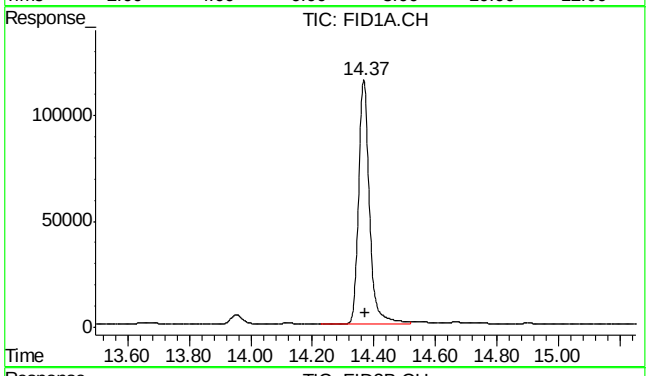






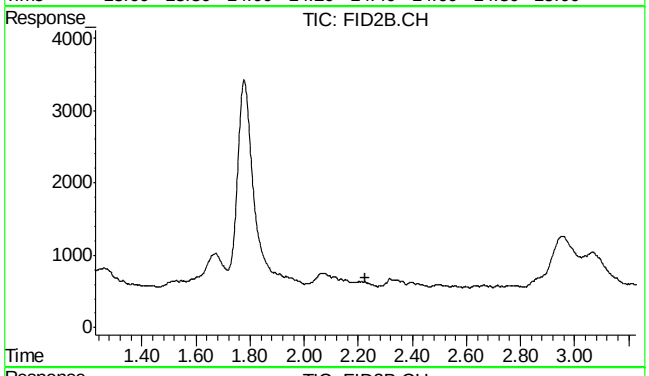
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 3713773
Conc: N.D.



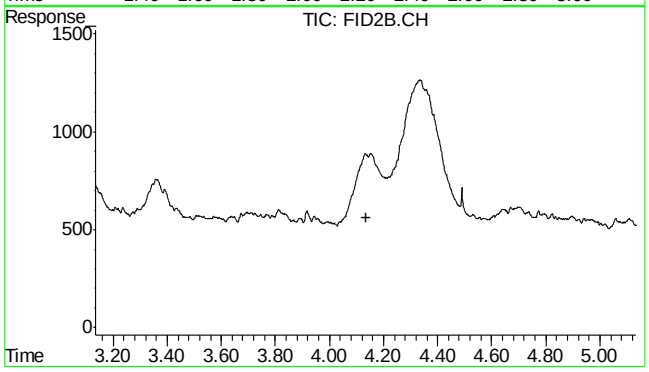
#2 1,2,4-Trichlorobenzene

R.T.: 14.367 min
Delta R.T.: -0.003 min
Response: 2827268
Conc: 90.23 %



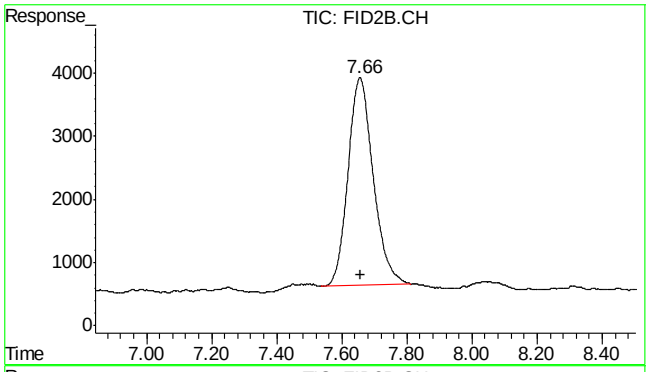
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.227 min
Response: 0
Conc: N.D.



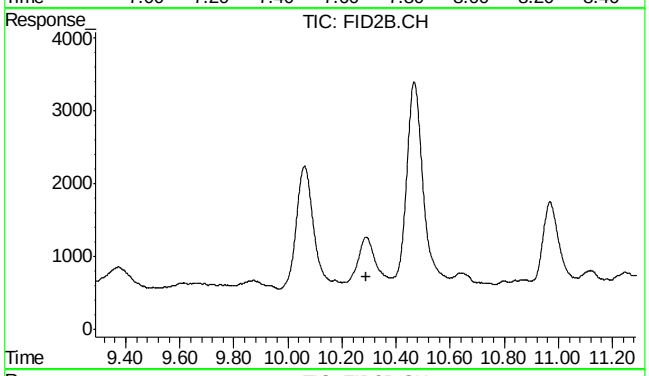
#5 Benzene

R.T.: 0.000 min
Exp R.T. : 4.134 min
Response: 0
Conc: N.D.



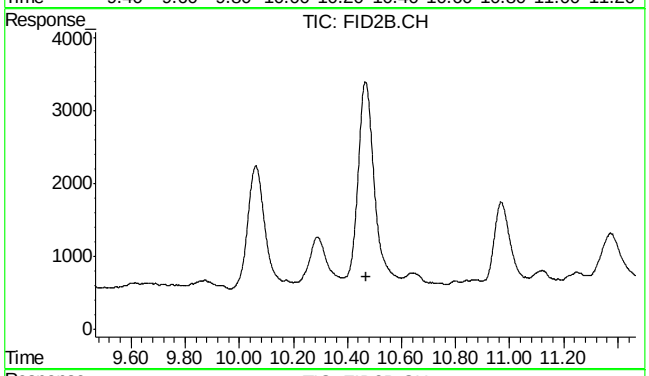
#6 Toluene

R.T.: 7.656 min
Delta R.T.: -0.001 min
Response: 177074
Conc: 0.45 ug/L



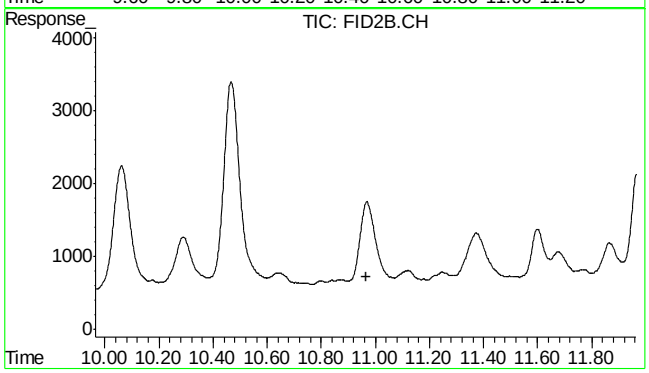
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.288 min
Response: 0
Conc: N.D.



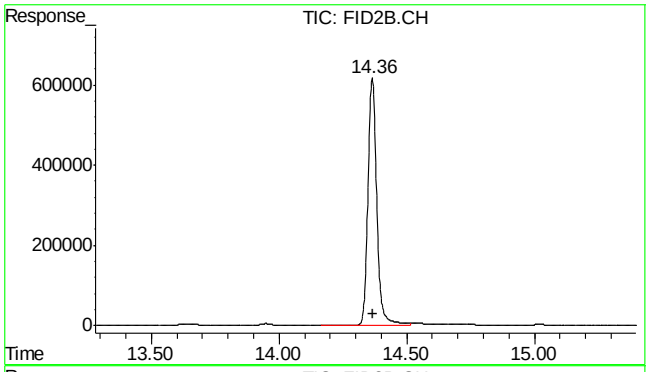
#8 m,p-Xylene

R.T.: 0.000 min
Exp R.T. : 10.468 min
Response: 0
Conc: N.D.



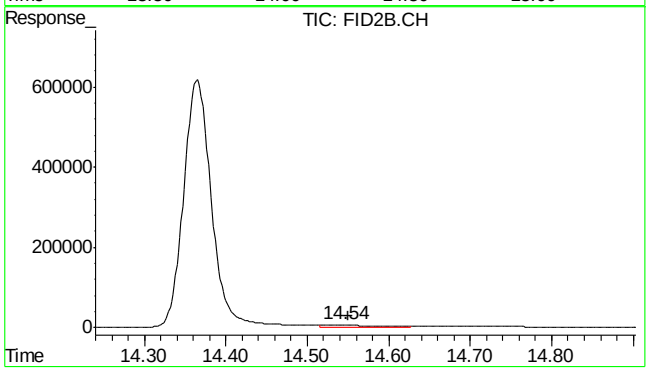
#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 10.964 min
Response: 0
Conc: N.D.



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

R.T.: 14.365 min
Delta R.T.: -0.003 min
Response: 14819830
Conc: 91.18 %



#11 Naphthalene

R.T.: 14.545 min
Delta R.T.: -0.005 min
Response: 213770
Conc: 1.08 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: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7032-MB	FD20087.D	1	11/30/12	AV	11/30/12	OP7032	GFD1007

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

D41305-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	6.7	4.0	mg/kg	

CAS No.	Surrogate Recoveries		Limits
84-15-1	o-Terphenyl	66%	35-130%

Blank Spike Summary

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7032-BS	FD20089.D	1	11/30/12	AV	11/30/12	OP7032	GFD1007

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

D41305-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	603	90	48-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	86%	35-130%

12.2.1
12

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7032-MS	FD20093.D	1	11/30/12	AV	11/30/12	OP7032	GFD1007
OP7032-MSD	FD20095.D	1	11/30/12	AV	11/30/12	OP7032	GFD1007
D41047-2 [a]	FD20099.D	1	11/30/12	AV	11/30/12	OP7032	GFD1007

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

D41305-1

CAS No.	Compound	D41047-2 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	30.4		762	686	86	578	72	17	20-168/30

CAS No.	Surrogate Recoveries	MS	MSD	D41047-2	Limits
84-15-1	o-Terphenyl	79%	69%	67%	35-130%

(a) Sample extracted beyond hold time per client instruction.

12.3.1
12

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

GC Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 12/04/12 11:12

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\DEC\FD120312.SEC\FD20152.D Vial: 69
Acq On : 12-3-2012 08:10:48 PM Operator: TedR
Sample : D41305-1, 10X Inst : FID5
Misc : OP7032,GFD1010,30.02,,,1,10 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Dec 04 09:00:57 2012 Quant Results File: DRO-GFD983R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD983R.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Mon Nov 19 13:57:49 2012
Response via : Initial Calibration
DataAcq Meth : DRODUAL.M

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

	Compound	R.T.	Response	Conc Units
	System Monitoring Compounds			
1) S	O-Terphenyl	9.02	5789098	113.224 mg/L m
	Target Compounds			
2) H	TPH-DRO (c10-c28)	6.93	21820948	590.417 mg/L

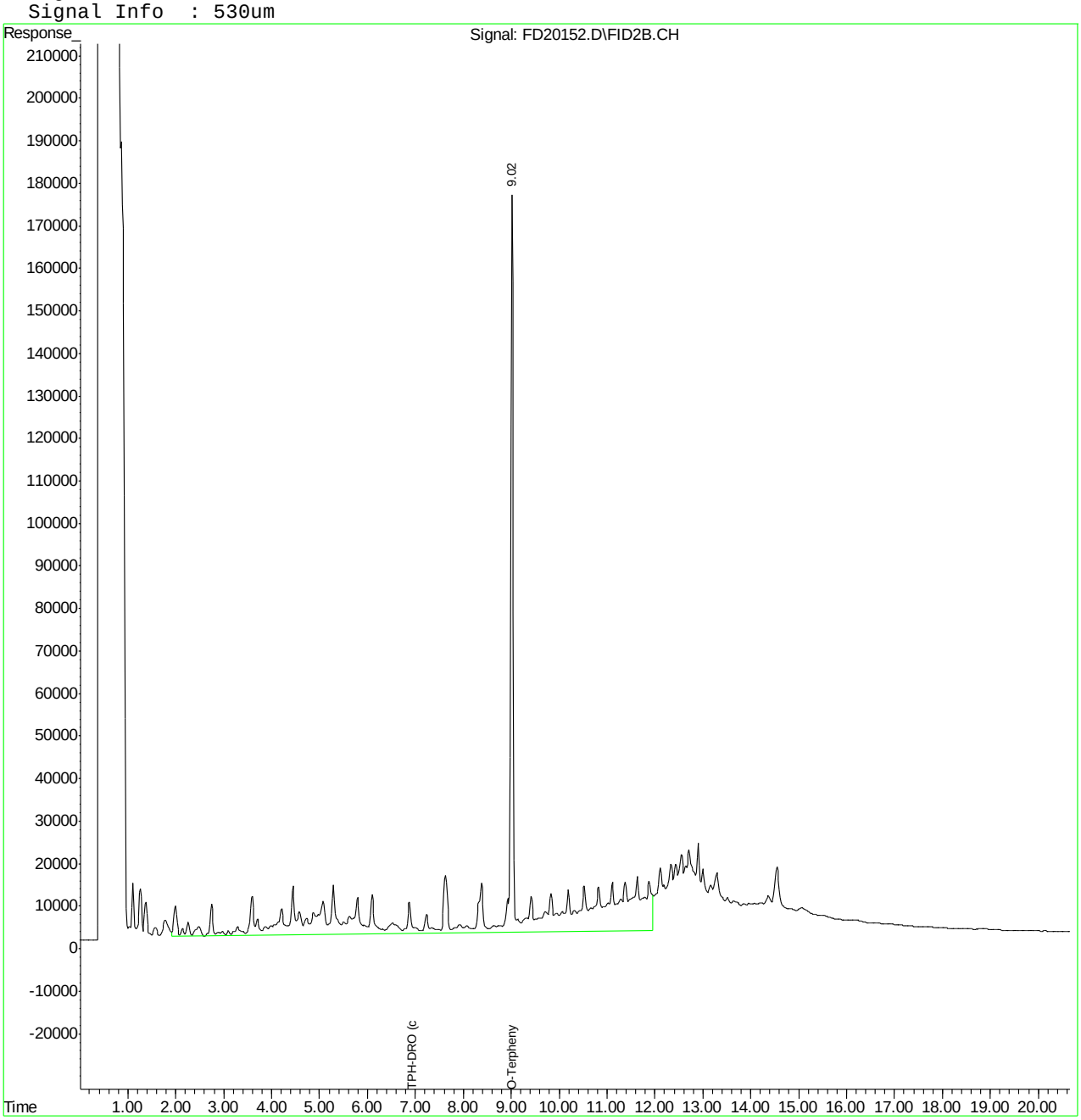
(f)=RT Delta > 1/2 Window (m)=manual int.
FD20152.D DRO-GFD983R.M Tue Dec 04 09:39:37 2012 GC Page 1

Quantitation Report (QT Reviewed)

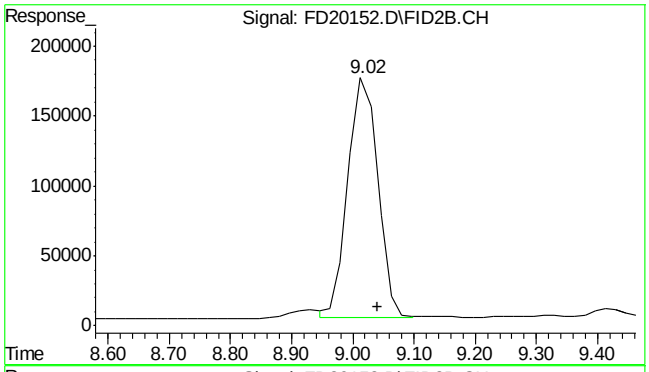
Data File : C:\MSDCHEM\2\DATA\2012\DEC\FD120312.SEC\FD20152.D Vial: 69
Acq On : 12-3-2012 08:10:48 PM Operator: TedR
Sample : D41305-1, 10X Inst : FID5
Misc : OP7032,GFD1010,30.02,,,1,10 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Dec 4 9:01 2012 Quant Results File: DRO-GFD983R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD983R.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Mon Nov 19 13:57:49 2012
Response via : Multiple Level Calibration
DataAcq Meth : DRODUAL.M

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

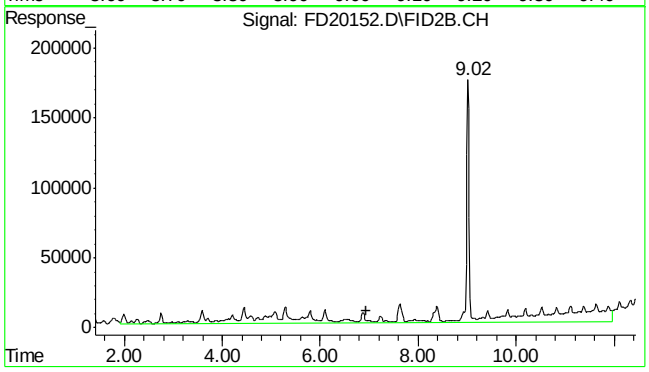


FD20152.D DRO-GFD983R.M Tue Dec 04 09:39:37 2012 GC Page 2



#1 O-Terphenyl

R.T.: 9.016 min
Delta R.T.: -0.024 min
Response: 5789098
Conc: 113.22 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 6.935 min
Delta R.T.: 0.000 min
Response: 21820948
Conc: 590.42 mg/L m

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\NOV\FD113012\FD20087.D Vial: 13
Acq On : 30 Nov 2012 12:56 pm Operator: ashleyv
Sample : OP7032-MB Inst : FID5
Misc : OP7032,GFD1007,30.00,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Nov 30 13:55:45 2012 Quant Results File: DRO-GFD982F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD982F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Thu Nov 29 16:03:22 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	8.93	72889083	1317.343	mg/L
	Target Compounds				
2) H	TPH-DRO (c10-c28)	6.89	1324851	34.887	mg/L

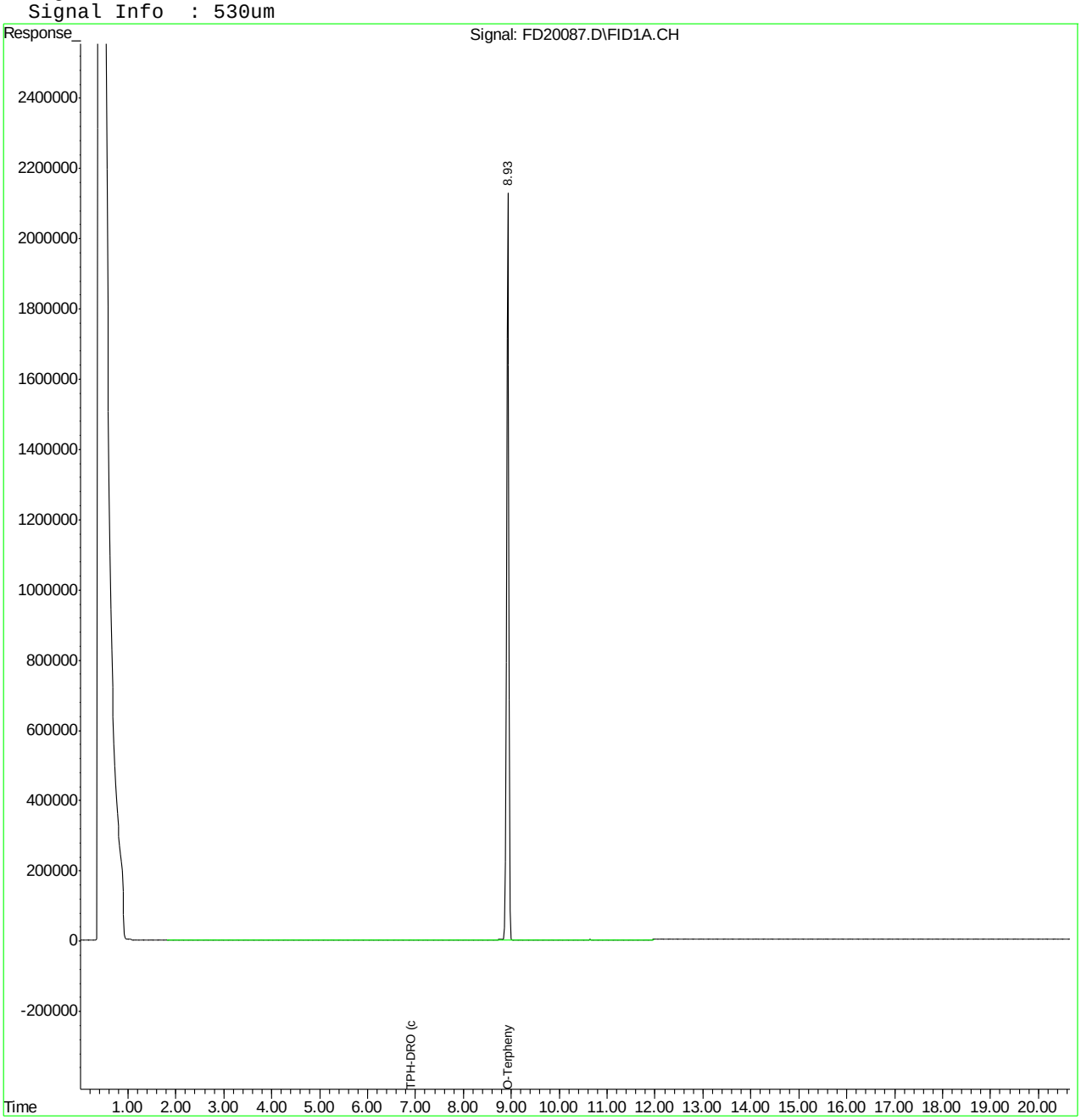
(f)=RT Delta > 1/2 Window (m)=manual int.
FD20087.D DRO-GFD982F.M Mon Dec 03 10:38:14 2012 GC Page 1

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\NOV\FD113012\FD20087.D Vial: 13
Acq On : 30 Nov 2012 12:56 pm Operator: ashleyv
Sample : OP7032-MB Inst : FID5
Misc : OP7032,GFD1007,30.00,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Nov 30 13:55 2012 Quant Results File: DRO-GFD982F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD982F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Thu Nov 29 16:03:22 2012
Response via : Multiple Level Calibration
DataAcq Meth : DRODUAL.M

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



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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8965 Methods: SW846 7471B
Matrix Type: SOLID Units: mg/kg

Prep Date: 11/30/12

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.083	.00088	.00075	0.0024	<0.083

Associated samples MP8965: D41305-1

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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8965
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 11/30/12

Metal	D41219-3 Original	MS	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.022	0.34	0.336	94.5	75-125

Associated samples MP8965: D41305-1

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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8965 Methods: SW846 7471B
Matrix Type: SOLID Units: mg/kg

Prep Date: 11/30/12

Metal	D41219-3 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.022	0.34	0.336	94.5	0.0	20

Associated samples MP8965: D41305-1

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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8965
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 11/30/12

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.32	0.333	96.0	80-120

Associated samples MP8965: D41305-1

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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
Matrix Type: AQUEOUS

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

Prep Date: 11/30/12

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	20.5	<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	4.5	<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	727	<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 MP8975: D41305-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
Matrix Type: AQUEOUS

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

Prep Date: 11/30/12

Metal	D41248-1A Original MS		Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	14300	147000	125000	106.2	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	5510	130000	125000	99.6	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	54700	179000	125000	99.4	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP8975: D41305-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
Matrix Type: AQUEOUS

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

Prep Date: 11/30/12

Metal	D41248-1A Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	14300	146000	125000	105.4	0.7	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	5510	129000	125000	98.8	0.8	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	54700	176000	125000	97.0	1.7	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP8975: D41305-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
Matrix Type: AQUEOUS

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

Prep Date: 11/30/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	135000	125000	108.0	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	123000	125000	98.4	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	126000	125000	100.8	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8975: D41305-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
Matrix Type: AQUEOUS

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

Prep Date: 11/30/12

Metal	D41248-1A Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	2860	2740	4.0	0-10
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	1100	1190	8.0	0-10
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	10900	12200	11.6*(a)	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8975: D41305-1A

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/03/12

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	0.12	<1.0
Beryllium	1.0	.13	.15		
Boron	5.0	.1	.06		
Cadmium	1.0	.06	.036	0.0	<1.0
Calcium	40	.54	9		
Chromium	1.0	.03	.03	0.070	<1.0
Cobalt	0.50	.04	.07		
Copper	1.0	.12	.15	-0.020	<1.0
Iron	7.0	.12	.87		
Lead	5.0	.19	.24	0.040	<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	0.11	<3.0
Phosphorus	10	1.4	1.9		
Potassium	200	6.1	7		
Selenium	5.0	.48	.36	0.080	<5.0
Silicon	5.0	.29	.37		
Silver	3.0	.04	.06	-0.070	<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	0.25	<3.0

Associated samples MP8983: D41305-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/03/12

Metal	D41305-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony	anr				
Arsenic	anr				
Barium	8740	10900	244	884.5(a)	75-125
Beryllium	anr				
Boron					
Cadmium	0.0	52.1	61.1	85.3	75-125
Calcium					
Chromium	13.5	63.2	61.1	81.4	75-125
Cobalt	anr				
Copper	28.9	80.7	61.1	84.8	75-125
Iron					
Lead	30.2	126	122	79.1	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum	anr				
Nickel	12.7	60.0	61.1	77.5	75-125
Phosphorus					
Potassium					
Selenium	1.1	111	122	90.0	75-125
Silicon					
Silver	0.0	22.5	24.4	92.1	75-125
Sodium					
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium					
Vanadium	anr				
Zinc	35.3	82.8	61.1	77.8	75-125

Associated samples MP8983: D41305-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
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.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/03/12

Metal	D41305-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	8740	11000	239	944.0(a)	0.9	20
Beryllium	anr					
Boron						
Cadmium	0.0	49.6	59.9	82.9	4.9	20
Calcium						
Chromium	13.5	63.1	59.9	82.9	0.2	20
Cobalt	anr					
Copper	28.9	83.1	59.9	90.6	2.9	20
Iron						
Lead	30.2	125	120	79.9	0.8	20
Lithium						
Magnesium						
Manganese						
Molybdenum	anr					
Nickel	12.7	59.8	59.9	78.7	0.3	20
Phosphorus						
Potassium						
Selenium	1.1	111	120	91.8	0.0	20
Silicon						
Silver	0.0	22.3	23.9	93.1	0.9	20
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium						
Vanadium	anr					
Zinc	35.3	84.9	59.9	82.9	2.5	20

Associated samples MP8983: D41305-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
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.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/03/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	204	200	102.0	80-120
Beryllium	anr			
Boron				
Cadmium	46.1	50	92.2	80-120
Calcium				
Chromium	49.2	50	98.4	80-120
Cobalt	anr			
Copper	47.4	50	94.8	80-120
Iron				
Lead	94.9	100	94.9	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	46.7	50	93.4	80-120
Phosphorus				
Potassium				
Selenium	95.5	100	95.5	80-120
Silicon				
Silver	19.7	20	98.5	80-120
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	48.2	50	96.4	80-120

Associated samples MP8983: D41305-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 12/03/12

Metal	D41305-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	831000	66700	9.6	0-10
Beryllium	anr			
Boron				
Cadmium	48.4	0.00	NC	0-10
Calcium				
Chromium	114	124	9.0	0-10
Cobalt	anr			
Copper	244	243	0.5	0-10
Iron				
Lead	255	269	8.5	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	1140	123	14.5*(a)	0-10
Phosphorus				
Potassium				
Selenium	0.00	0.00	NC (b)	0-10
Silicon				
Silver	0.00	0.00	NC	0-10
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	2710	357	19.9*(a)	0-10

Associated samples MP8983: D41305-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8984
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 12/03/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.006	.06	0.0041	<0.10
Barium	1.0	.0065	.037		
Beryllium	0.10	.016	.09		
Boron	20	1.2	1.2		
Cadmium	0.050	.014	.021		
Calcium	200	7.9	8		
Chromium	1.0	.033	.19		
Cobalt	0.10	.0012	.015		
Copper	1.0	.017	.065		
Iron	20	.8	5		
Lead	0.25	.0011	.024		
Magnesium	50	.44	.85		
Manganese	0.50	.0043	.02		
Molybdenum	0.50	.018	.018		
Nickel	1.0	.0049	.011		
Phosphorus	30	1.4	3.6		
Potassium	100	9.8	10		
Selenium	0.20	.029	.14		
Silver	0.050	.0009	.0065		
Sodium	250	1.5	2.3		
Strontium	10	.036	.036		
Thallium	0.10	.00095	.0095		
Tin	5.0	.023	.34		
Titanium	1.0	.044	.1		
Uranium	0.25	.00085	.001		
Vanadium	2.0	.12	.21		
Zinc	5.0	.033	.35		

Associated samples MP8984: D41305-1

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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8984
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 12/03/12

Metal	D41305-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	8.3	115	122	87.4	75-125
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP8984: D41305-1

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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8984
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 12/03/12

Metal	D41305-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	8.3	119	120	92.5	3.4	20
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP8984: D41305-1

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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8984
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 12/03/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	95.0	100	95.0	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8984: D41305-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8984
Matrix Type: SOLID

Methods: SW846 6020A
Units: ug/l

Prep Date: 12/03/12

Metal	D41305-1 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	70.3	69.2	1.6	0-10
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8984: D41305-1

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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP8811/GN17932	1.0	0.0	mg/kg	176.0	171	97.0	80-120%
Specific Conductivity	GP8815/GN17934			umhos/cm	9992	9910	99.2	90-110%
pH	GN17890			su	8.00	8.00	100.0	99.3-100.7%

Associated Samples:
Batch GP8811: D41305-1
Batch GP8815: D41305-1
Batch GN17890: D41305-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP8811/GN17932	D41305-1	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN17892	D41266-1	mv	43.1	33.4	25.4*(a)	0-20%

Associated Samples:
Batch GP8811: D41305-1
Batch GN17892: D41305-1
(*) Outside of QC limits
(a) High RPD due to possible nonhomogeniety.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP8811/GN17932	D41305-1	mg/kg	0.0	40.0	35.8	89.6	75-125%

Associated Samples:
Batch GP8811: D41305-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chromium, Hexavalent	GP8811/GN17932	D41305-1	mg/kg	0.0	40.0	37.1	3.5	20%

Associated Samples:
Batch GP8811: D41305-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits