Mountain States ACCUTEST LABORATORIES

06/19/12

Technical Report for

XTO Energy

FRU 297-17A

1108-13A

Accutest Job Number: D35289

Sampling Date: 06/07/12

Report to:

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

Total number of pages in report: **169**

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)

Test results relate only to samples analyzed.

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

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Accutest Laboratories

Sample Summary

XTO Energy

Job No: D35289

FRU 297-17A
Project No: 1108-13A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D35289-1	06/07/12	12:55	CB	06/09/12	SO	Soil	CUT 2 SUBLINER
D35289-1A	06/07/12	12:55	CB	06/09/12	SO	Soil	CUT 2 SUBLINER

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	XTO Energy	**Job No**	D35289
Site:	FRU 297-17A	**Report Date**	6/19/2012 1:07:04 PM

On 06/09/2012, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4.0 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D35289 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:** V5V1333

- All samples were analyzed within the recommended method holding time.
- Sample(s) D35289-1MS, D35289-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO **Batch ID:** OP6035

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D35267-1MS, D35267-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- The matrix spike (MS) recovery(s) of Benzo(a)anthracene, Indeno(1,2,3-cd)pyrene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Pyrene are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- The matrix spike (MS) recovery(s) of Chrysene are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- The RPD(s) for the MS and MSD recoveries of Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Pyrene are outside control limits for sample OP6035-MSD. Variability of recovery may be due to sample matrix/homogeneity.
- OP6035-MS: Outside control limits due to possible matrix interference.
- OP6035-MSD: Variability of recovery may be due to sample matrix/homogeneity.

Volatiles by GC By Method SW846 8015B

Matrix SO **Batch ID:** GGB906

- All samples were analyzed within the recommended method holding time.
- Sample(s) D35276-12MS, D35276-12MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GC By Method SW846-8015B

Matrix SO **Batch ID:** OP6047

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D35286-2MS, D35286-2MSD were used as the QC samples indicated.

Metals By Method SW846 6010C

Matrix AQ **Batch ID:** MP7669

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D35289-1AMS, D35289-1AMSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Sodium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Matrix SO **Batch ID:** MP7649

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D35291-1MS, D35291-1MSD, D35291-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Nickel, Zinc are outside control limits. Spike recovery indicates possible matrix interference.
- The matrix spike duplicate (MSD) recovery(s) of Nickel, Zinc are outside control limits. Probable cause due to matrix interference.
- The serial dilution RPD(s) for Cadmium, Selenium, Barium, Chromium, Nickel, Zinc are outside control limits for sample MP7649-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP7649-SD1 for Barium, Chromium, Nickel, and Zinc: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix SO **Batch ID:** MP7650

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D35291-1MS, D35291-1MSD, D35291-1SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471B

Matrix SO **Batch ID:** MP7638

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D34945-3MS, D34945-3MSD were used as the QC samples for the metals analysis.
- The matrix spike duplicate (MSD) recovery(s) of Mercury are outside control limits. Probable cause due to matrix interference.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO **Batch ID:** GN15371

- Sample(s) D35291-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO **Batch ID:** GN15369

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO **Batch ID:** R13078

- The data for SW846 3060/7196A M meets quality control requirements.
- D35289-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix	SO	Batch ID:	GP7450

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D35289-1DUP, D35289-1MSD were used as the QC samples for the Chromium, Hexavalent analysis.
- The matrix spike (MS) recovery(s) of Chromium, Hexavalent are outside control limits. Spike recovery indicates possible matrix interference.
- The matrix spike duplicate (MSD) recovery(s) of Chromium, Hexavalent are outside control limits. Probable cause due to matrix interference.

Wet Chemistry By Method SW846 9045D

Matrix	SO	Batch ID:	GN15359

- The following samples were run outside of holding time for method SW846 9045D: D35289-1

Wet Chemistry By Method USDA HANDBOOK 60

Matrix	SO	Batch ID:	MP7669

- D35289-1A 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.

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	CUT 2 SUBLINER		
Lab Sample ID:	D35289-1	**Date Sampled:**	06/07/12
Matrix:	SO - Soil	**Date Received:**	06/09/12
Method:	SW846 8260B	**Percent Solids:**	95.5
Project:	FRU 297-17A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V21819.D	1	06/11/12	BD	n/a	n/a	V5V1333
Run #2							

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0571	0.054	0.021	mg/kg	
108-88-3	Toluene	0.134	0.11	0.054	mg/kg	
100-41-4	Ethylbenzene	ND	0.11	0.021	mg/kg	
1330-20-7	Xylene (total)	ND	0.22	0.11	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	93%		61-130%
460-00-4	4-Bromofluorobenzene	97%		53-131%
17060-07-0	1,2-Dichloroethane-D4	102%		62-130%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	CUT 2 SUBLINER		
Lab Sample ID:	D35289-1	**Date Sampled:**	06/07/12
Matrix:	SO - Soil	**Date Received:**	06/09/12
Method:	SW846 8270C BY SIM SW846 3546	**Percent Solids:**	95.5
Project:	FRU 297-17A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G09686.D	1	06/15/12	DC	06/12/12	OP6035	E3G427
Run #2	3G09713.D	4	06/18/12	DC	06/12/12	OP6035	E3G428

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

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.0087	0.0045	mg/kg	
120-12-7	Anthracene	ND	0.0087	0.0045	mg/kg	
56-55-3	Benzo(a)anthracene	ND [a]	0.035	0.018	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.0087	0.0045	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.0061	0.0087	0.0045	mg/kg	J
207-08-9	Benzo(k)fluoranthene	ND	0.0087	0.0045	mg/kg	
218-01-9	Chrysene	ND [a]	0.035	0.018	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0087	0.0045	mg/kg	
206-44-0	Fluoranthene	ND	0.0087	0.0045	mg/kg	
86-73-7	Fluorene	0.0087	0.0087	0.0045	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0075	0.0087	0.0045	mg/kg	J
91-20-3	Naphthalene	0.0533	0.012	0.011	mg/kg	
129-00-0	Pyrene	ND [a]	0.035	0.018	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	62%	62%	10-145%
321-60-8	2-Fluorobiphenyl	77%	71%	10-130%
1718-51-0	Terphenyl-d14	97%	80%	22-130%

(a) Result is from Run# 2

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

Accutest Laboratories

Report of Analysis

Client Sample ID: CUT 2 SUBLINER
Lab Sample ID: D35289-1
Matrix: SO - Soil
Method: SW846 8015B
Project: FRU 297-17A

Date Sampled: 06/07/12
Date Received: 06/09/12
Percent Solids: 95.5

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB16310.D	1	06/11/12	SK	n/a	n/a	GGB906
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	11	5.4	mg/kg	

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID: CUT 2 SUBLINER
Lab Sample ID: D35289-1
Matrix: SO - Soil
Method: SW846-8015B SW846 3546
Project: FRU 297-17A

Date Sampled: 06/07/12
Date Received: 06/09/12
Percent Solids: 95.5

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD14257.D	1	06/14/12	AV	06/13/12	OP6047	GFD750
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)	30.0	7.0	4.5	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	66%		43-136%

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

Report of Analysis

Client Sample ID: CUT 2 SUBLINER
Lab Sample ID: D35289-1
Matrix: SO - Soil
Project: FRU 297-17A

Date Sampled: 06/07/12
Date Received: 06/09/12
Percent Solids: 95.5

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	10.7	0.10	mg/kg	5	06/12/12	06/13/12	JM	SW846 6020A [2]	SW846 3050B [6]
Barium	3040	1.0	mg/kg	1	06/12/12	06/13/12	JM	SW846 6010C [3]	SW846 3050B [5]
Cadmium	< 1.0	1.0	mg/kg	1	06/12/12	06/13/12	JM	SW846 6010C [3]	SW846 3050B [5]
Chromium	16.3	1.0	mg/kg	1	06/12/12	06/13/12	JM	SW846 6010C [3]	SW846 3050B [5]
Copper	13.4	1.0	mg/kg	1	06/12/12	06/13/12	JM	SW846 6010C [3]	SW846 3050B [5]
Lead	8.9	5.1	mg/kg	1	06/12/12	06/13/12	JM	SW846 6010C [3]	SW846 3050B [5]
Mercury	< 0.10	0.10	mg/kg	1	06/11/12	06/12/12	JB	SW846 7471B [1]	SW846 7471B [4]
Nickel	9.6	3.1	mg/kg	1	06/12/12	06/13/12	JM	SW846 6010C [3]	SW846 3050B [5]
Selenium	< 5.1	5.1	mg/kg	1	06/12/12	06/13/12	JM	SW846 6010C [3]	SW846 3050B [5]
Silver	< 3.1	3.1	mg/kg	1	06/12/12	06/13/12	JM	SW846 6010C [3]	SW846 3050B [5]
Zinc	32.0	3.1	mg/kg	1	06/12/12	06/13/12	JM	SW846 6010C [3]	SW846 3050B [5]

(1) Instrument QC Batch: MA2503
(2) Instrument QC Batch: MA2507
(3) Instrument QC Batch: MA2510
(4) Prep QC Batch: MP7638
(5) Prep QC Batch: MP7649
(6) Prep QC Batch: MP7650

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUT 2 SUBLINER		
Lab Sample ID:	D35289-1	**Date Sampled:**	06/07/12
Matrix:	SO - Soil	**Date Received:**	06/09/12
		Percent Solids:	95.5
Project:	FRU 297-17A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	06/12/12	CT	SW846 3060A/7196A
Chromium, Trivalent [a]	16.3	2.0	mg/kg	1	06/13/12 16:11	JM	SW846 3060/7196A M
Redox Potential Vs H2	113		mv	1	06/11/12	CJ	ASTM D1498-76M
Solids, Percent	95.5		%	1	06/11/12	SWT	SM19 2540B M
Specific Conductivity	2830	1.0	umhos/cm	1	06/15/12	JD	DEPT.OF AG, BOOK N9
pH	10.82		su	1	06/11/12 11:00	CJ	SW846 9045D

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUT 2 SUBLINER
Lab Sample ID: D35289-1A
Matrix: SO - Soil
Project: FRU 297-17A

Date Sampled: 06/07/12
Date Received: 06/09/12
Percent Solids: 95.5

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	70.7	2.0	mg/l	1	06/14/12	06/15/12	JM	SW846 6010C [1]	EPA 200.7 [2]
Magnesium	< 1.0	1.0	mg/l	1	06/14/12	06/15/12	JM	SW846 6010C [1]	EPA 200.7 [2]
Sodium	569	2.0	mg/l	1	06/14/12	06/15/12	JM	SW846 6010C [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA2516
(2) Prep QC Batch: MP7669

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUT 2 SUBLINER		
Lab Sample ID:	D35289-1A	**Date Sampled:**	06/07/12
Matrix:	SO - Soil	**Date Received:**	06/09/12
		Percent Solids:	95.5
Project:	FRU 297-17A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	18.5		ratio	1	06/15/12 10:34	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

PAGE 1 OF 1

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

FED-EX Tracking #: | Bottle Order Control #:
Accutest Quote #: | Accutest Job #: D35289

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): Craig Burger 970-488-1098

Project Information

Project Name: XTO FRU 297-17A
Street:
City: State:
Project #: 1108-13A
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)

Table 910-1

Matrix Codes

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

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfate	LAB USE ONLY
	Cut 2 Subliner		6/7/12	12:55	CAB	SO	5					5					01

Turnaround Time (Business days)

Approved By (Accutest PM): / Date:

- [ ] 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

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [x] 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		6/8/12				6/9 915
2						
3						
4						
5						

Custody Seal #: FED Ex — Intact / Not Intact — Preserved where applicable — On Ice — Cooler Temp: 4.0

D35289: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D35289 **Client:** KRW CONSULTING **Immediate Client Services Action Required:** No

Date / Time Received: 6/9/2012 9:15:00 AM **No. Coolers:** 1 **Client Service Action Required at Login:** No

Project: XTO FRU 297-17A **Airbill #'s:** FedEx

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

D35289: Chain of Custody
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Mountain States ACCUTEST LABORATORIES

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D35289
Account: XTOKRWR XTO Energy
Project: FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1333-MB	5V21812.D	1	06/11/12	BD	n/a	n/a	V5V1333

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

D35289-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	19	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	91%	61-130%
460-00-4	4-Bromofluorobenzene	85%	53-131%
17060-07-0	1,2-Dichloroethane-D4	100%	62-130%

Blank Spike Summary

Job Number: D35289
Account: XTOKRWR XTO Energy
Project: FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1333-BS	5V21815.D	1	06/11/12	BD	n/a	n/a	V5V1333

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

D35289-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	47.2	94	70-130
100-41-4	Ethylbenzene	50	51.3	103	70-130
108-88-3	Toluene	50	47.0	94	70-130
1330-20-7	Xylene (total)	150	158	105	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	96%	61-130%
460-00-4	4-Bromofluorobenzene	102%	53-131%
17060-07-0	1,2-Dichloroethane-D4	104%	62-130%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D35289
Account: XTOKRWR XTO Energy
Project: FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D35289-1MS	5V21817.D	1	06/11/12	BD	n/a	n/a	V5V1333
D35289-1MSD	5V21818.D	1	06/11/12	BD	n/a	n/a	V5V1333
D35289-1	5V21819.D	1	06/11/12	BD	n/a	n/a	V5V1333

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

D35289-1

CAS No.	Compound	D35289-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	57.1		2700	2900	105	2860	104	1	70-134/30
100-41-4	Ethylbenzene	ND		2700	2790	103	2730	101	2	70-137/30
108-88-3	Toluene	134		2700	2710	95	2660	93	2	70-130/30
1330-20-7	Xylene (total)	ND		8110	8710	107	8520	105	2	61-131/30

CAS No.	Surrogate Recoveries	MS	MSD	D35289-1	Limits
2037-26-5	Toluene-D8	95%	95%	93%	61-130%
460-00-4	4-Bromofluorobenzene	109%	111%	97%	53-131%
17060-07-0	1,2-Dichloroethane-D4	103%	102%	102%	62-130%

Mountain States ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5061112.S\
Data File : 5V21819.D
Acq On : 11 Jun 2012 4:48 pm
Operator : BRETD
Sample : D35289-1
Misc : MS4076,V5V1333,5.063,,100,5,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 12 09:00:06 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1304TVH1304.M
Quant Title : 8260
QLast Update : Thu May 24 07:55:17 2012
Response via : Initial Calibration

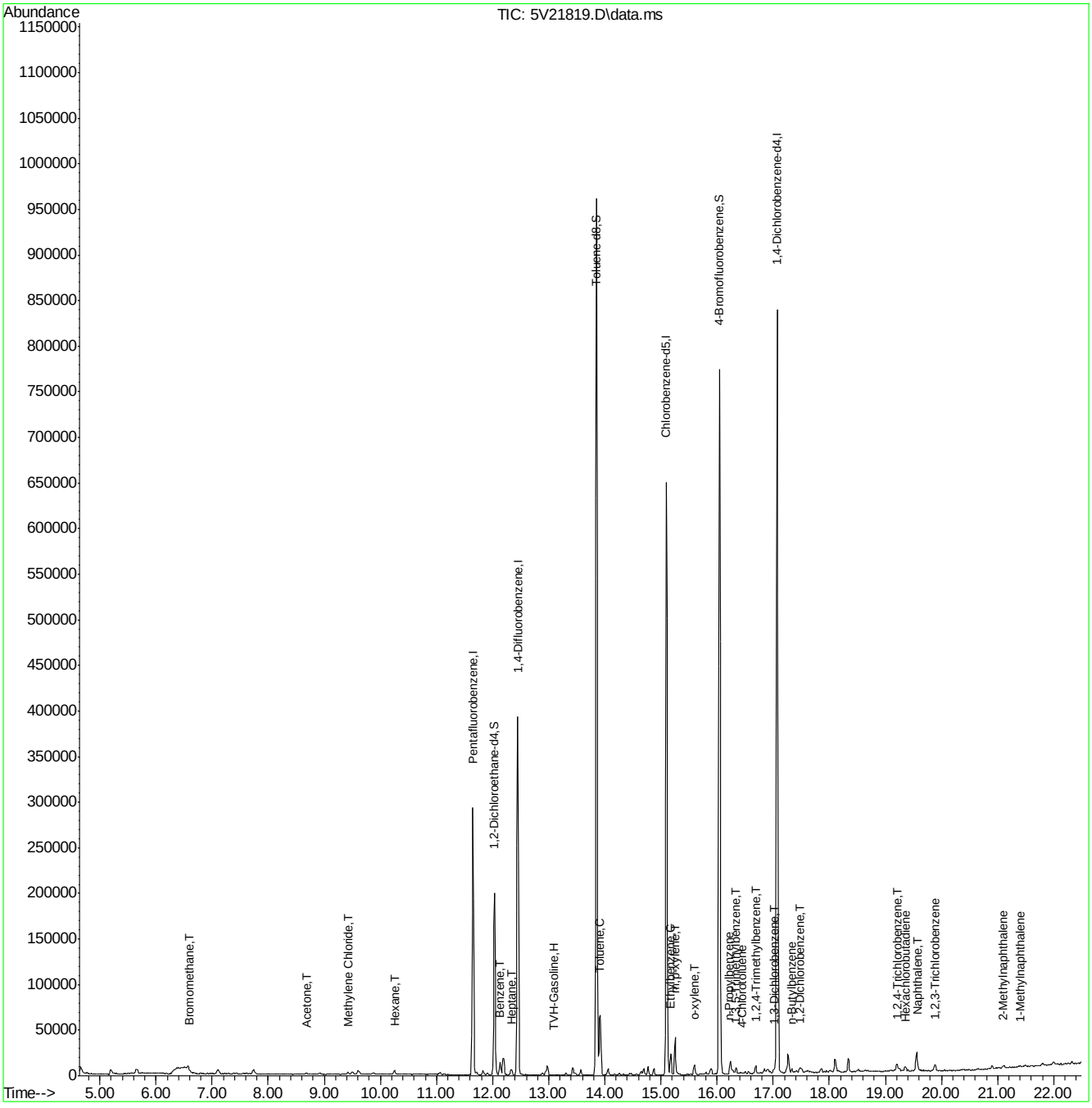
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
2) Pentafluorobenzene	11.647	168	219649	50.00	ug/l		0.00
35) 1,4-Difluorobenzene	12.446	114	332654	50.00	ug/l		0.00
53) Chlorobenzene-d5	15.095	117	408367	50.00	ug/l		0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	278359	50.00	ug/l		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4	12.035	102	34374	51.10	ug/l		0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 102.20%				
61) Toluene-d8	13.850	98	641195	46.46	ug/l		0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.92%				
69) 4-Bromofluorobenzene	16.043	95	273750	48.42	ug/l		0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 96.84%				
Target Compounds							Qvalue
1) TVH-Gasoline	13.102	TIC	206262m	11.69	ug/l		
6) Bromomethane	6.589	94	2646	0.68	ug/l	#	60
15) Acetone	8.690	58	783	0.33	ug/l		98
17) Methylene Chloride	9.421	84	1402	0.38	ug/l		88
41) Hexane	10.254	57	2386	0.52	ug/l		100
43) Heptane	12.332	43	2394	0.49	ug/l		95
50) Benzene	12.127	78	14589	1.06	ug/l		100
62) Toluene	13.908	92	26360	2.48	ug/l		96
66) Ethylbenzene	15.175	91	5052	0.26	ug/l		97
72) m,p-xylene	15.255	106	13102	1.67	ug/l		100
73) o-xylene	15.597	106	2077	0.27	ug/l		100
77) n-Propylbenzene	16.225	91	3234	0.13	ug/l	#	69
79) 4-Chlorotoluene	16.442	91	1647	0.11	ug/l	#	66
80) 1,3,5-Trimethylbenzene	16.339	105	3544	0.20	ug/l		88
82) 1,2,4-Trimethylbenzene	16.693	105	6518	0.36	ug/l		91
84) 1,3-Dichlorobenzene	17.024	146	1573	0.14	ug/l	#	1
87) 1,2-Dichlorobenzene	17.470	146	1843	0.17	ug/l		93
88) n-Butylbenzene	17.333	91	3006	0.16	ug/l		93
90) 1,2,4-Trichlorobenzene	19.205	180	4069	0.56	ug/l		94
91) Naphthalene	19.570	128	15281	1.65	ug/l		100
92) Hexachlorobutadiene	19.353	225	2616	0.48	ug/l		92
93) 1,2,3-Trichlorobenzene	19.879	180	4824	0.71	ug/l		90
94) 2-Methylnaphthalene	21.100	142	2398	1.75	ug/l		98
95) 1-Methylnaphthalene	21.408	142	1300	1.42	ug/l	#	67

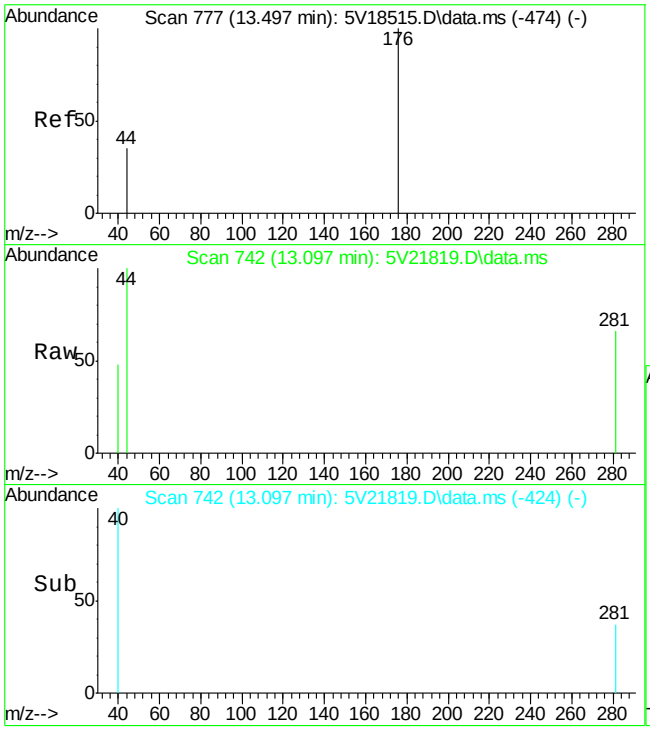
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5061112.S\
Data File : 5V21819.D
Acq On : 11 Jun 2012 4:48 pm
Operator : BRETD
Sample : D35289-1
Misc : MS4076,V5V1333,5.063,,100,5,1
ALS Vial : 11 Sample Multiplier: 1

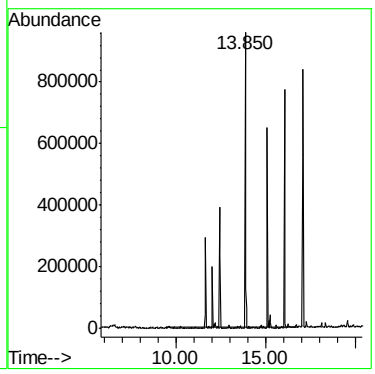
Quant Time: Jun 12 09:00:06 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1304TVH1304.M
Quant Title : 8260
QLast Update : Thu May 24 07:55:17 2012
Response via : Initial Calibration

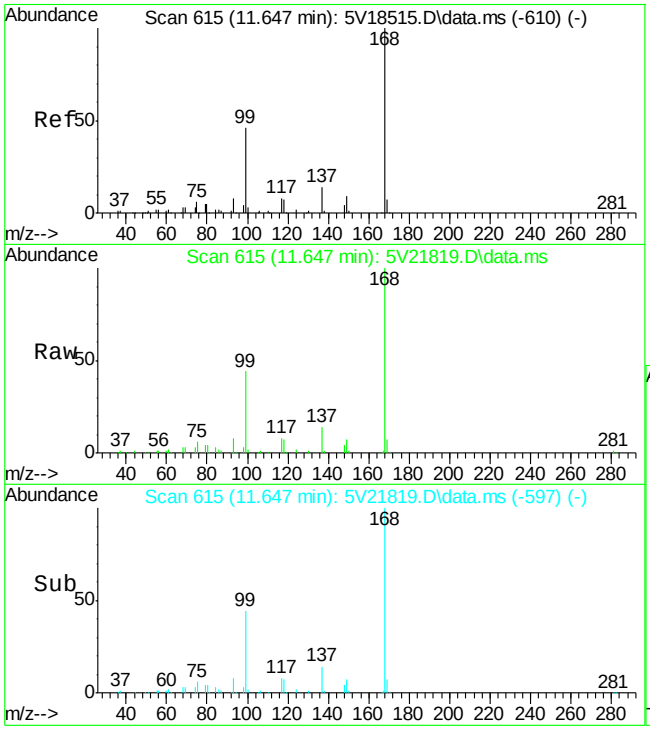




#1
TVH-Gasoline
Concen: 11.69 ug/l m
RT: 13.102 min Scan# 742
Delta R.T. 0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion:TIC Resp: 206262

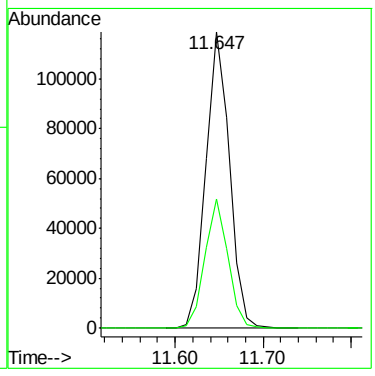


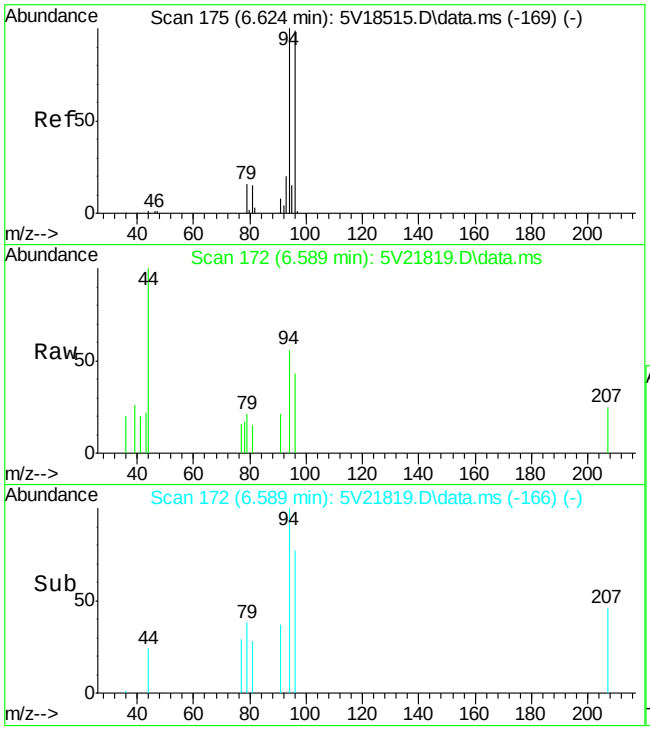


#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.647 min Scan# 615
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion:168 Resp: 219649

Ion	Ratio	Lower	Upper
168	100		
99	42.5	37.4	56.2

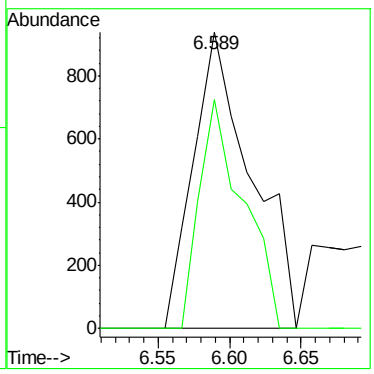


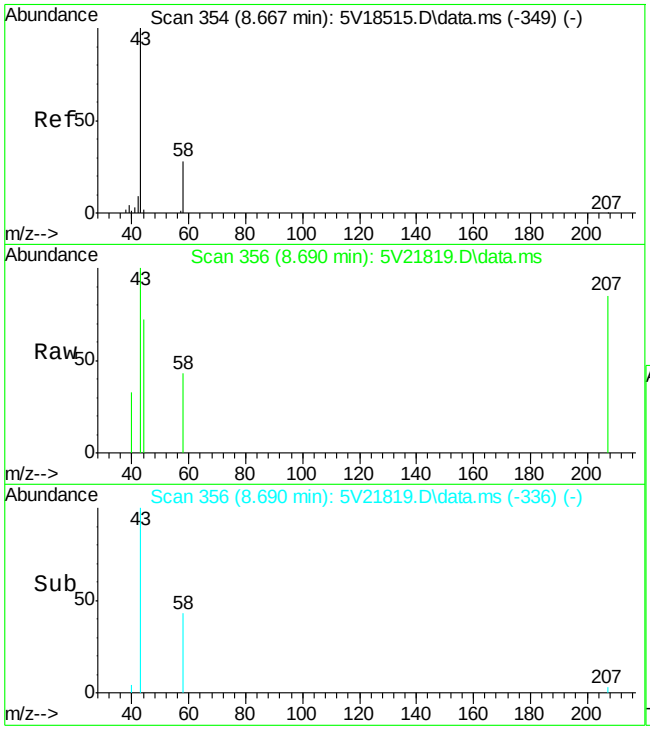


#6
Bromomethane
Concen: 0.68 ug/l
RT: 6.589 min Scan# 172
Delta R.T. -0.034 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion: 94 Resp: 2646

Ion	Ratio	Lower	Upper
94	100		
96	58.2	78.0	118.0#

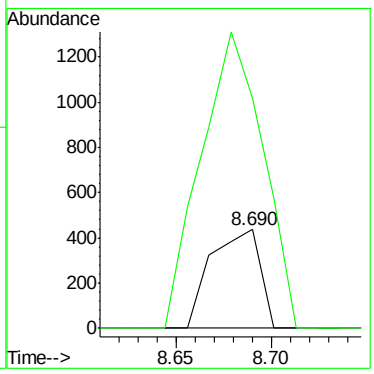


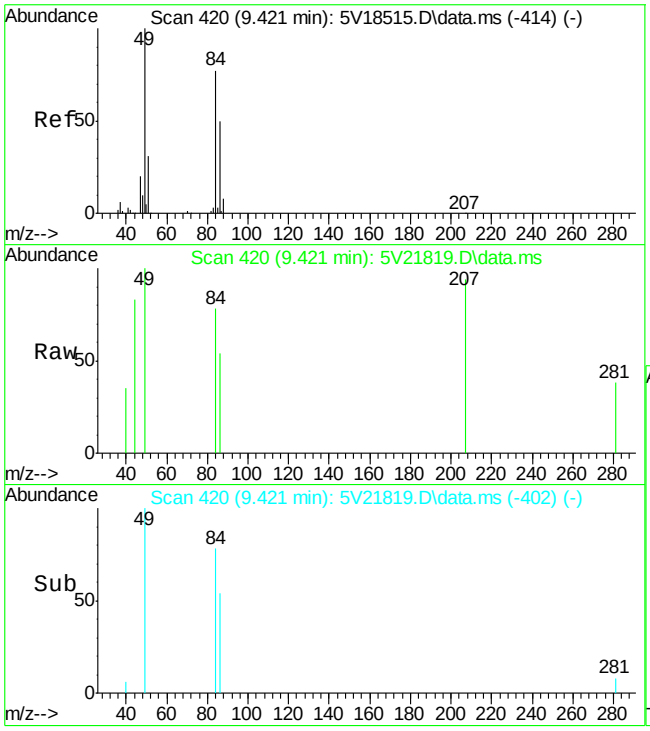


#15
Acetone
Concen: 0.33 ug/l
RT: 8.690 min Scan# 356
Delta R.T. 0.023 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion: 58 Resp: 783

Ion	Ratio	Lower	Upper
58	100		
43	378.8	353.6	393.6

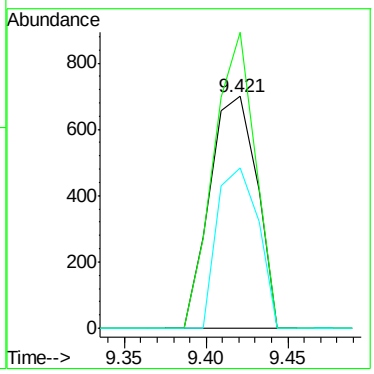


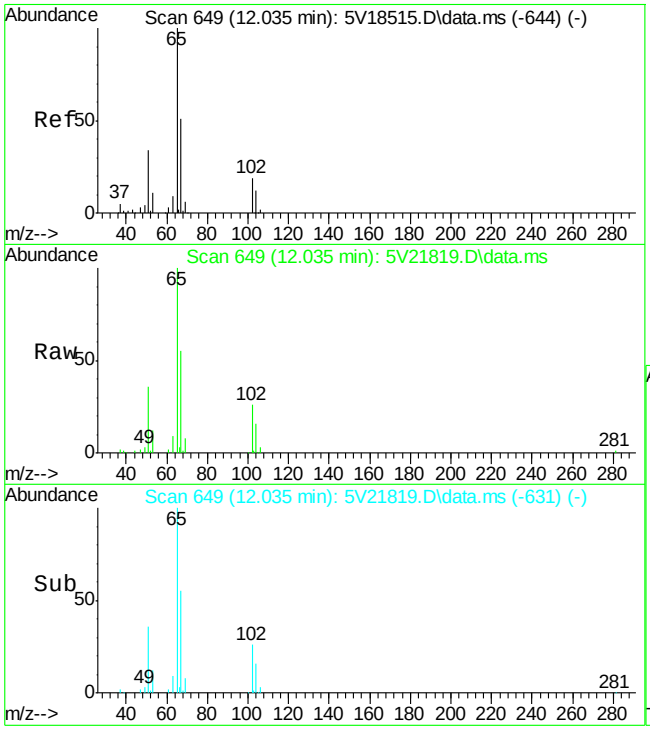


#17
Methylene Chloride
Concen: 0.38 ug/l
RT: 9.421 min Scan# 420
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion: 84 Resp: 1402

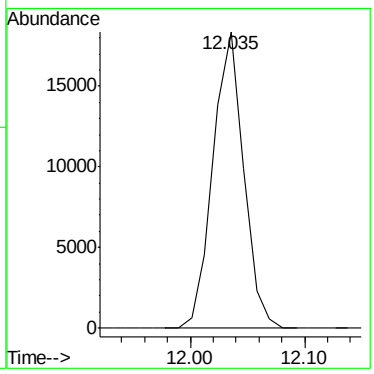
Ion	Ratio	Lower	Upper
84	100		
49	111.6	110.4	150.4
86	60.3	44.0	84.0

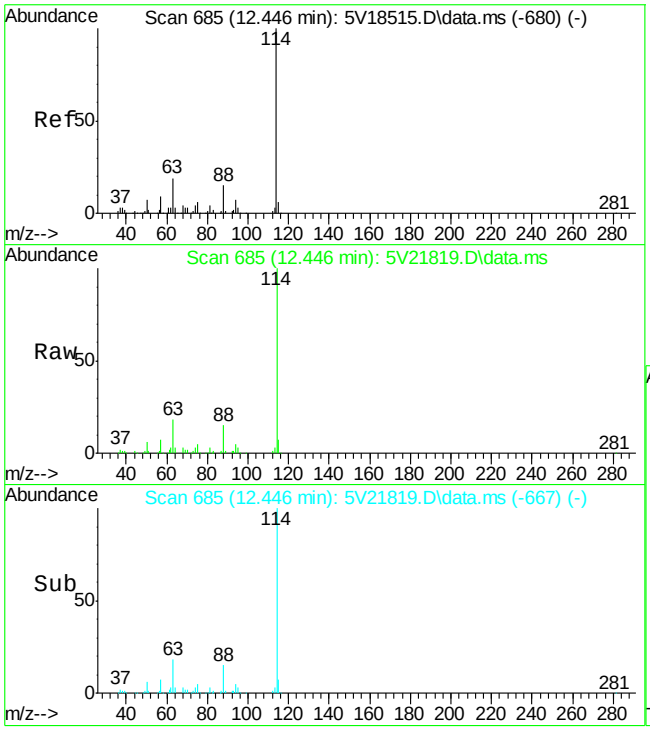




#33
1,2-Dichloroethane-d4
Concen: 51.10 ug/l
RT: 12.035 min Scan# 649
Delta R.T. 0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

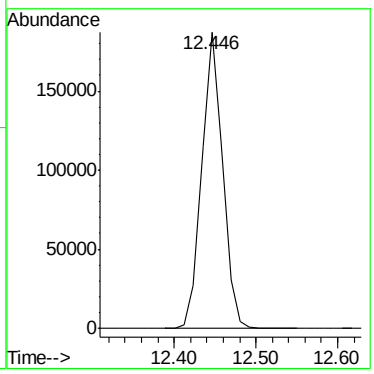
Tgt Ion:102 Resp: 34374

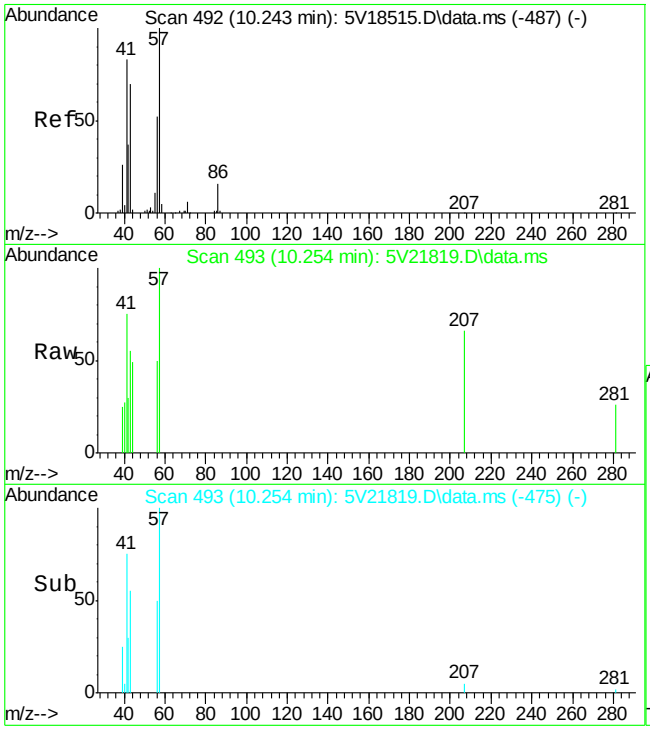




#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.446 min Scan# 685
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

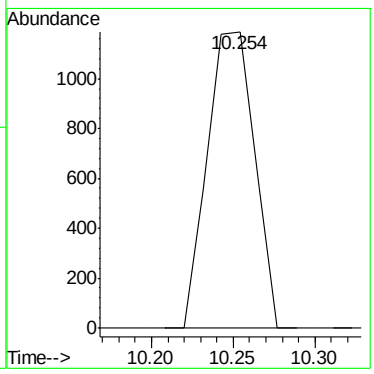
Tgt Ion:114 Resp: 332654

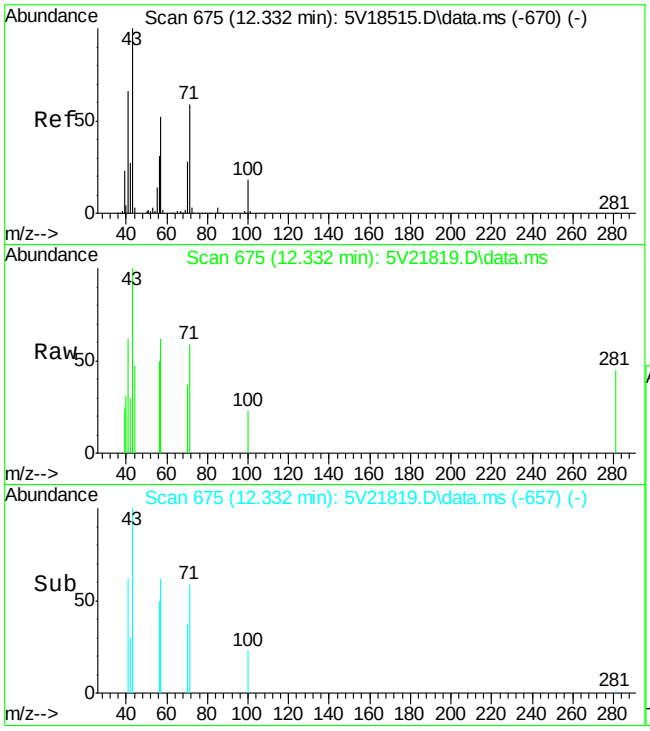




#41
Hexane
Concen: 0.52 ug/l
RT: 10.254 min Scan# 493
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion: 57 Resp: 2386

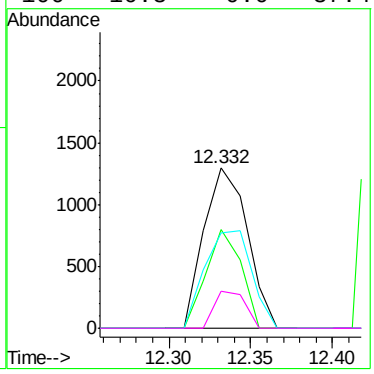


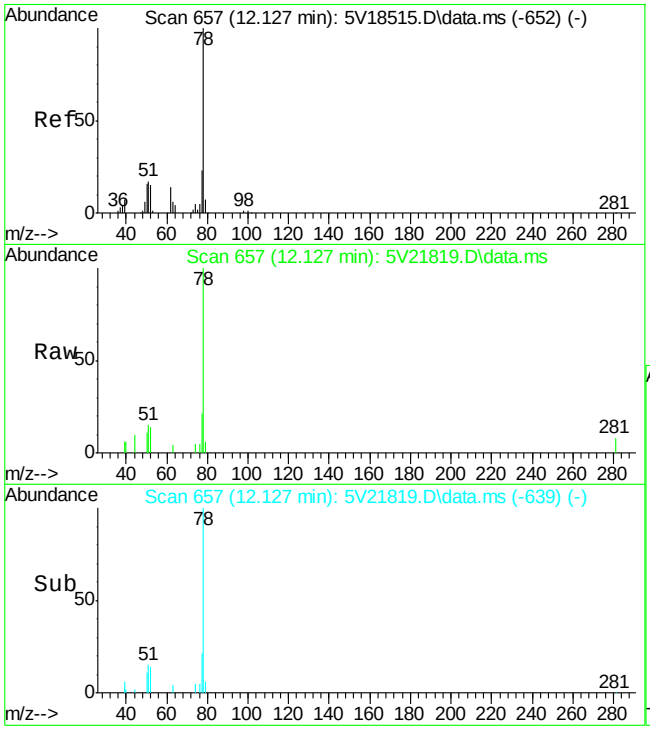


#43
Heptane
Concen: 0.49 ug/l
RT: 12.332 min Scan# 675
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion: 43 Resp: 2394

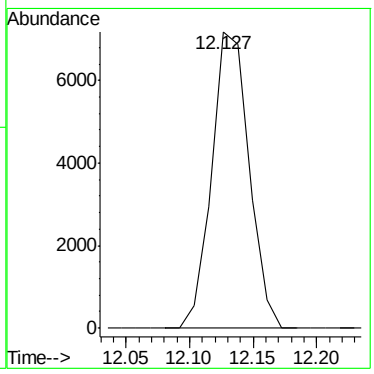
Ion	Ratio	Lower	Upper
43	100		
57	49.8	30.6	70.6
71	65.4	38.9	78.9
100	16.3	0.0	37.4

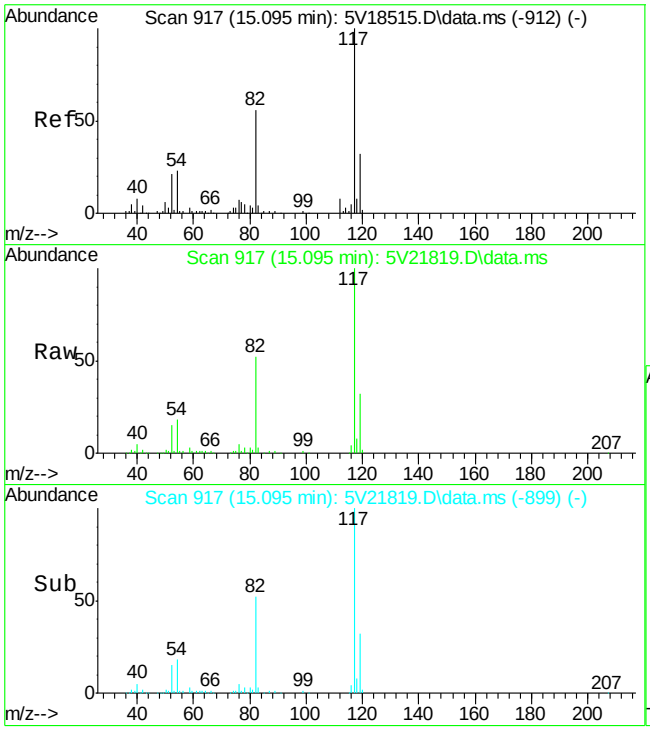




#50
Benzene
Concen: 1.06 ug/l
RT: 12.127 min Scan# 657
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

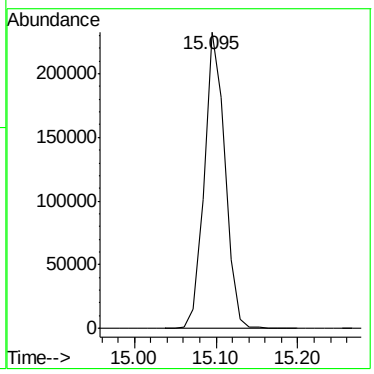
Tgt Ion: 78 Resp: 14589

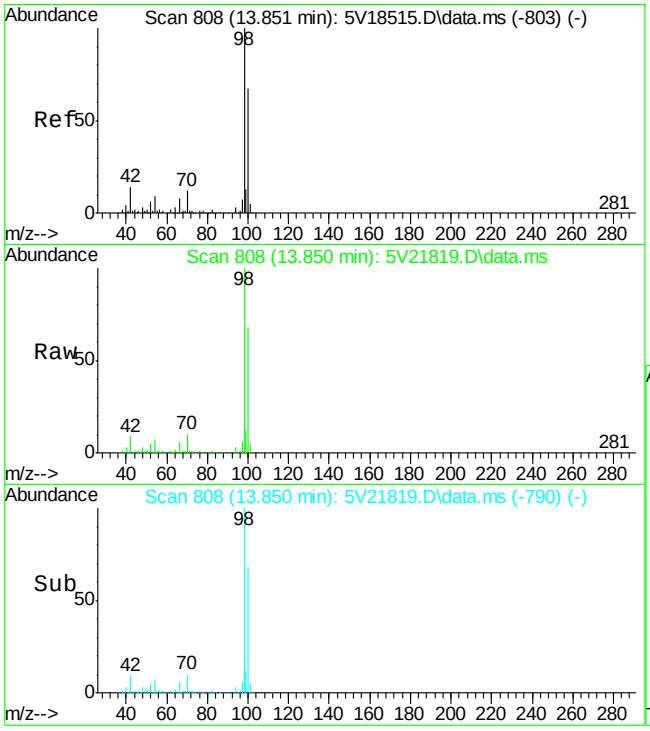




#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.095 min Scan# 917
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

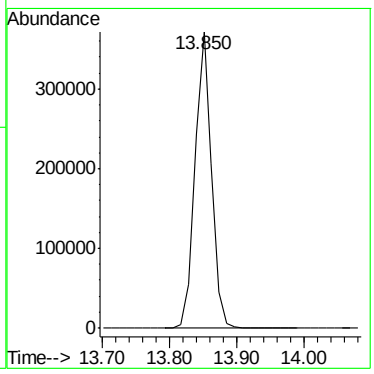
Tgt Ion:117 Resp: 408367

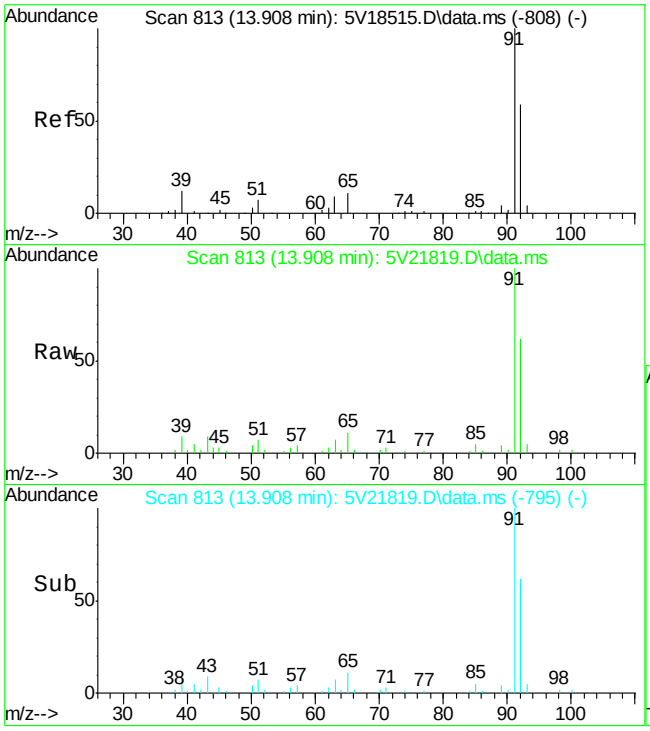




#61
Toluene-d8
Concen: 46.46 ug/l
RT: 13.850 min Scan# 808
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion: 98 Resp: 641195

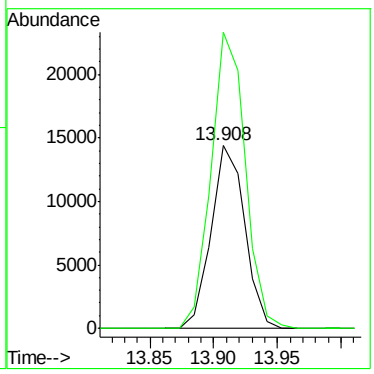


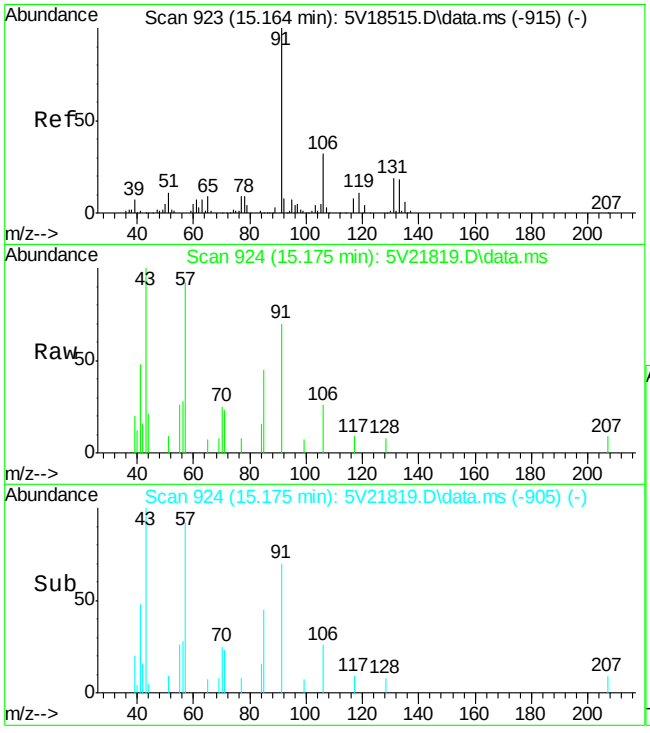


#62
Toluene
Concen: 2.48 ug/l
RT: 13.908 min Scan# 813
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion: 92 Resp: 26360

Ion	Ratio	Lower	Upper
92	100		
91	164.8	149.8	189.8

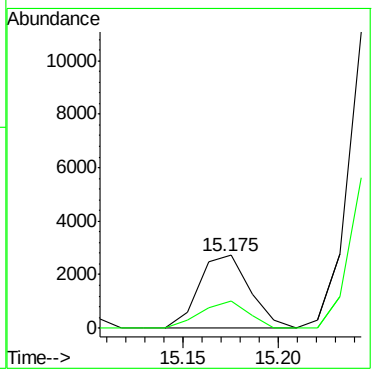


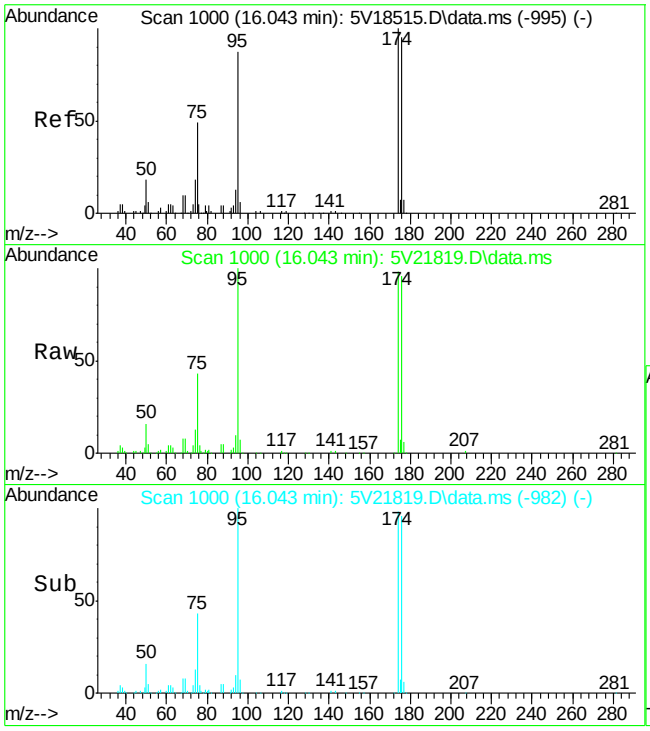


#66
Ethylbenzene
Concen: 0.26 ug/l
RT: 15.175 min Scan# 924
Delta R.T. 0.011 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion: 91 Resp: 5052

Ion	Ratio	Lower	Upper
91	100		
106	33.6	11.7	51.7

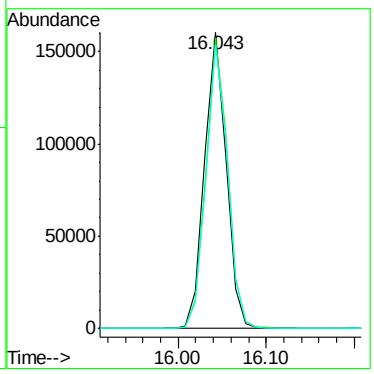


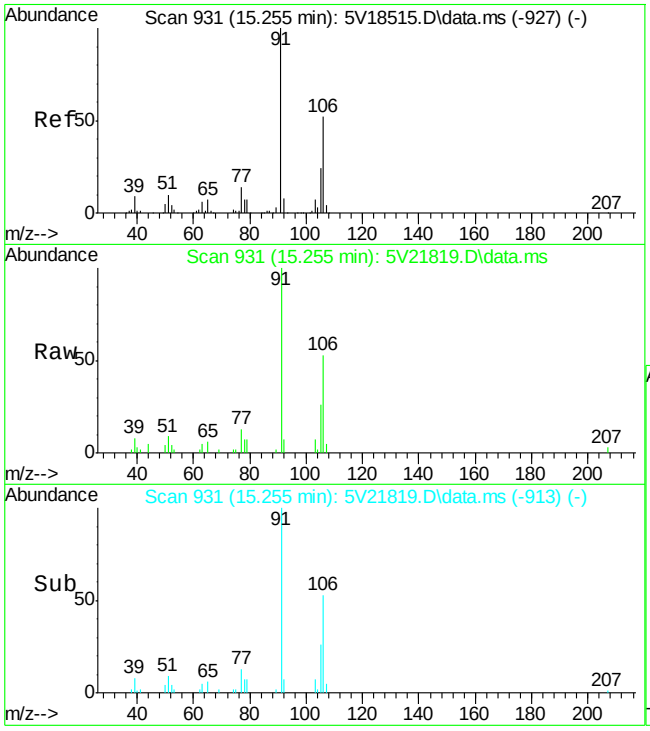


#69
4-Bromofluorobenzene
Concen: 48.42 ug/l
RT: 16.043 min Scan# 1000
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion: 95 Resp: 273750

Ion	Ratio	Lower	Upper
95	100		
174	98.9	77.1	117.1
176	95.7	73.4	113.4

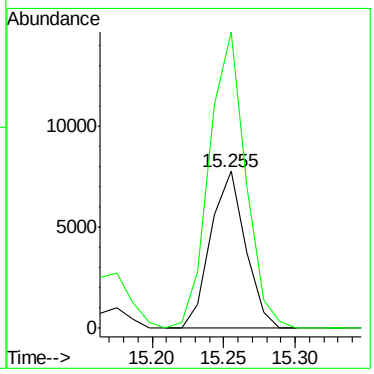


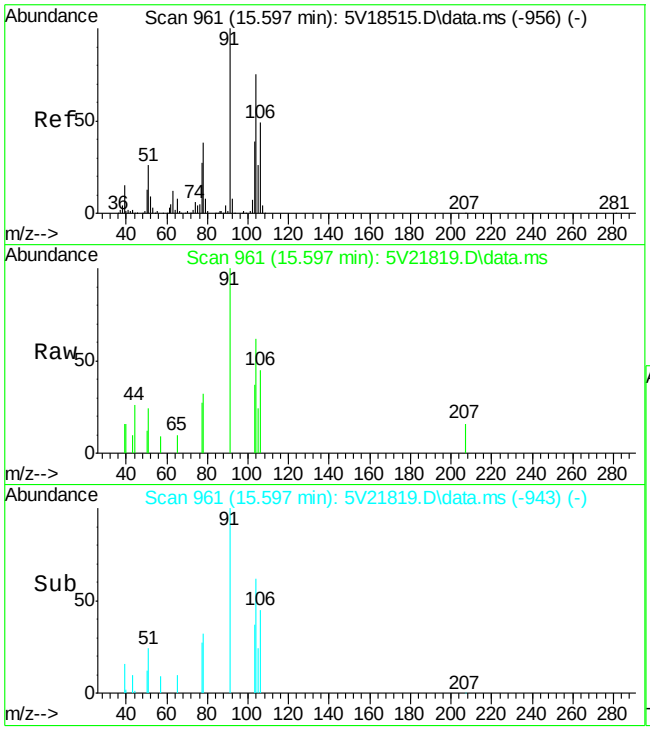


#72
m,p-xylene
Concen: 1.67 ug/l
RT: 15.255 min Scan# 931
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion:106 Resp: 13102

Ion	Ratio	Lower	Upper
106	100		
91	196.7	177.1	217.1

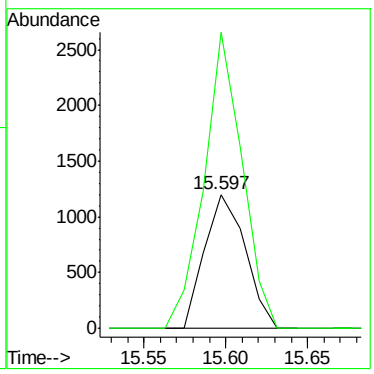


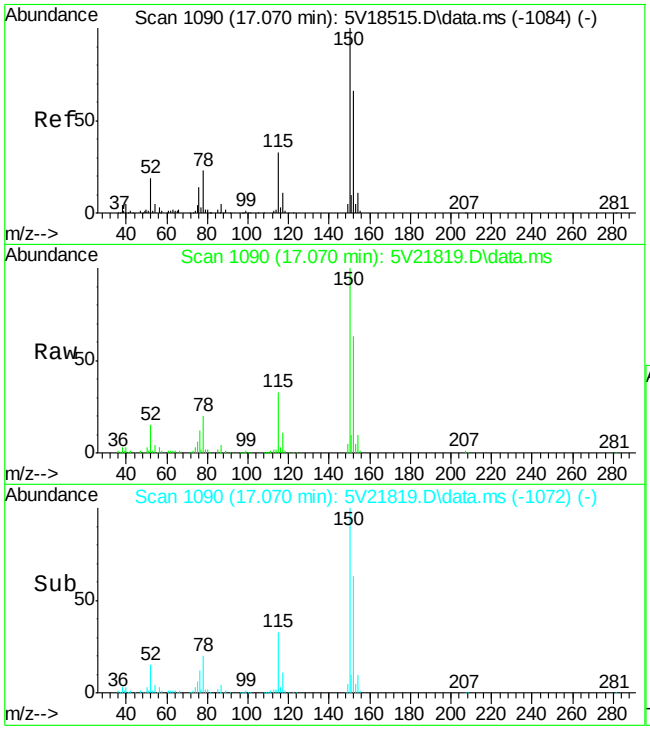


#73
o-xylene
Concen: 0.27 ug/l
RT: 15.597 min Scan# 961
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion:106 Resp: 2077

Ion	Ratio	Lower	Upper
106	100		
91	207.5	166.6	249.8

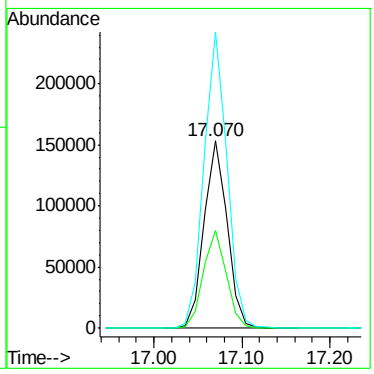


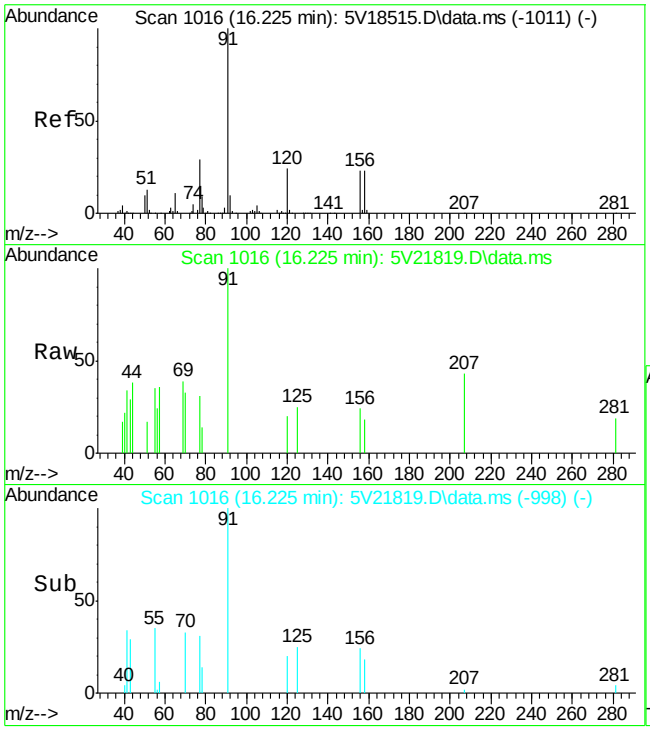


#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.070 min Scan# 1090
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion:152 Resp: 278359

Ion	Ratio	Lower	Upper
152	100		
115	52.0	41.4	62.0
150	157.7	153.9	230.9

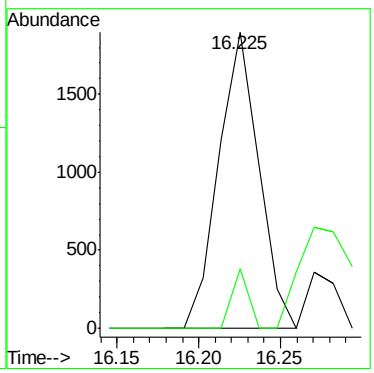


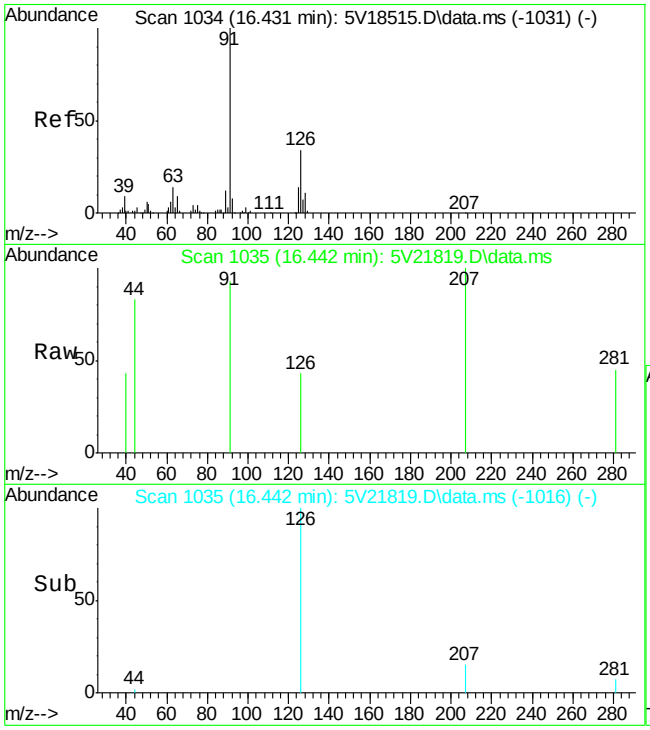


#77
n-Propylbenzene
Concen: 0.13 ug/l
RT: 16.225 min Scan# 1016
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion: 91 Resp: 3234

Ion	Ratio	Lower	Upper
91	100		
120	8.0	18.6	27.8#

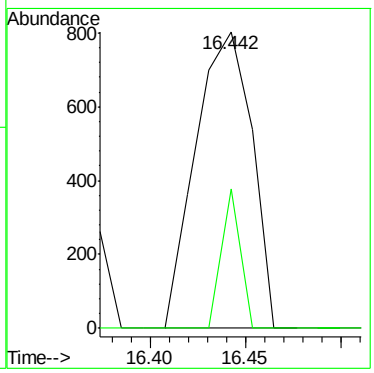


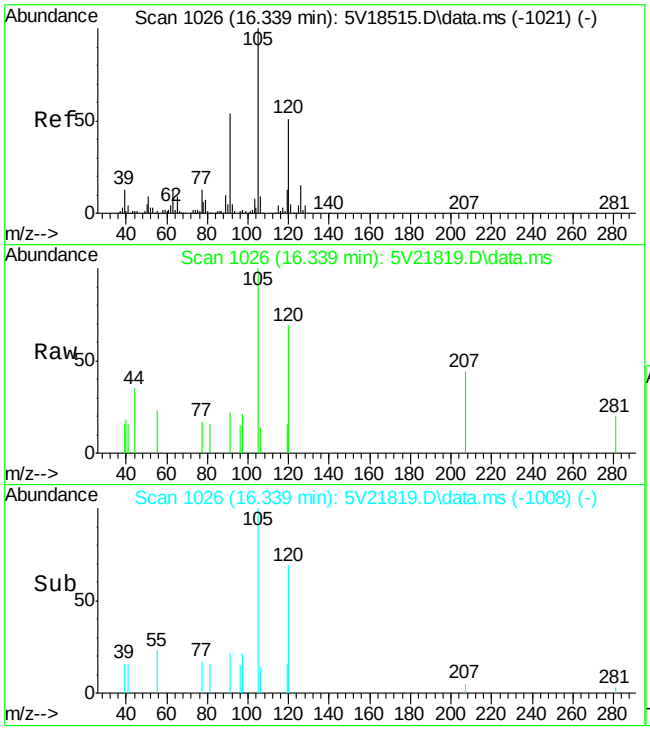


#79
4-Chlorotoluene
Concen: 0.11 ug/l
RT: 16.442 min Scan# 1035
Delta R.T. 0.011 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion: 91 Resp: 1647

Ion	Ratio	Lower	Upper
91	100		
126	15.7	28.4	42.6#

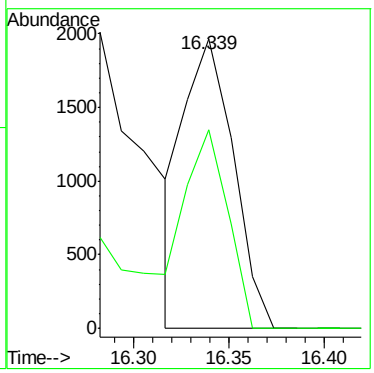


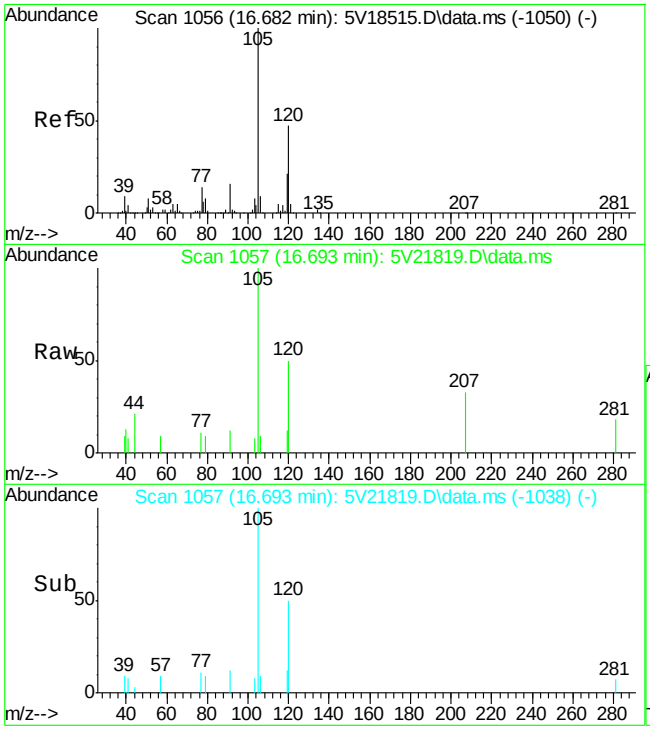


#80
1,3,5-Trimethylbenzene
Concen: 0.20 ug/l
RT: 16.339 min Scan# 1026
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion:105 Resp: 3544

Ion	Ratio	Lower	Upper
105	100		
120	58.7	40.1	60.1

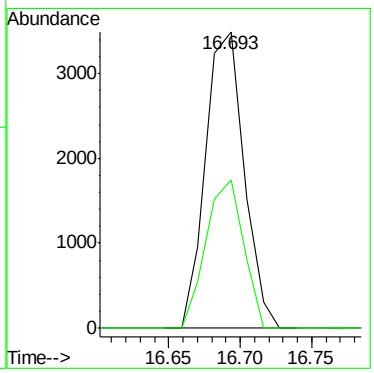


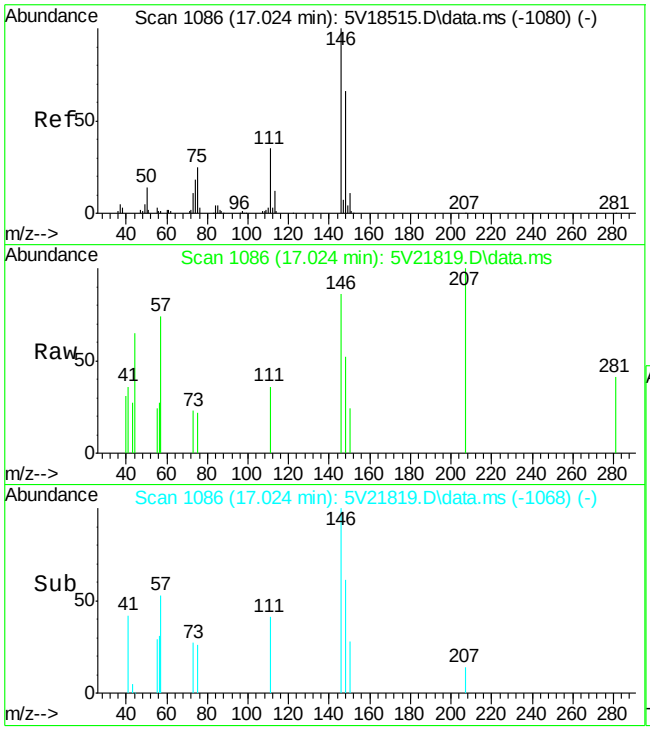


#82
1,2,4-Trimethylbenzene
Concen: 0.36 ug/l
RT: 16.693 min Scan# 1057
Delta R.T. 0.011 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion:105 Resp: 6518

Ion	Ratio	Lower	Upper
105	100		
120	48.5	43.8	65.8

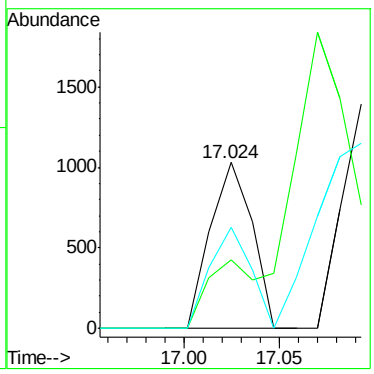


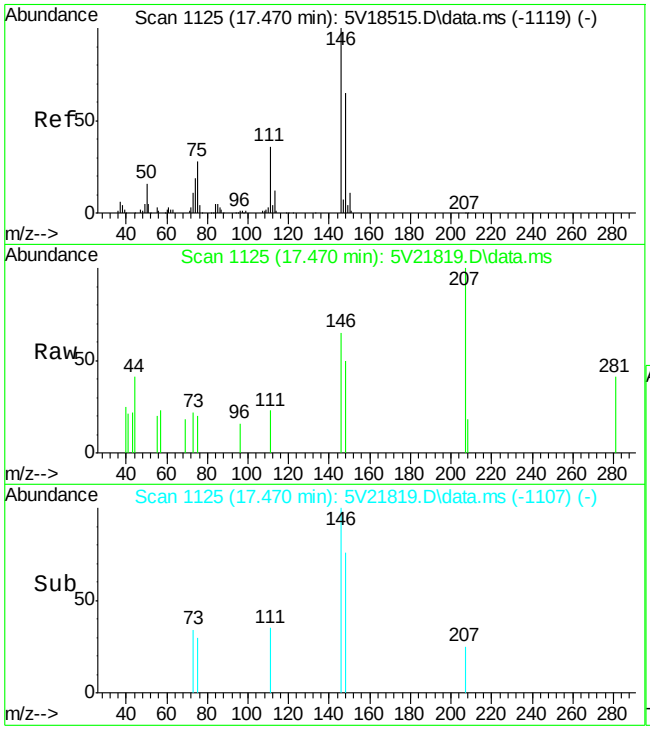


#84
1,3-Dichlorobenzene
Concen: 0.14 ug/l
RT: 17.024 min Scan# 1086
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion:146 Resp: 1573

Ion	Ratio	Lower	Upper
146	100		
111	249.3	29.7	44.5#
148	59.6	52.7	79.1

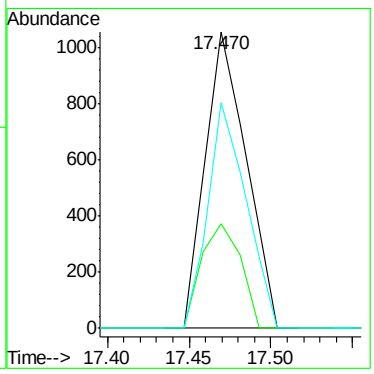


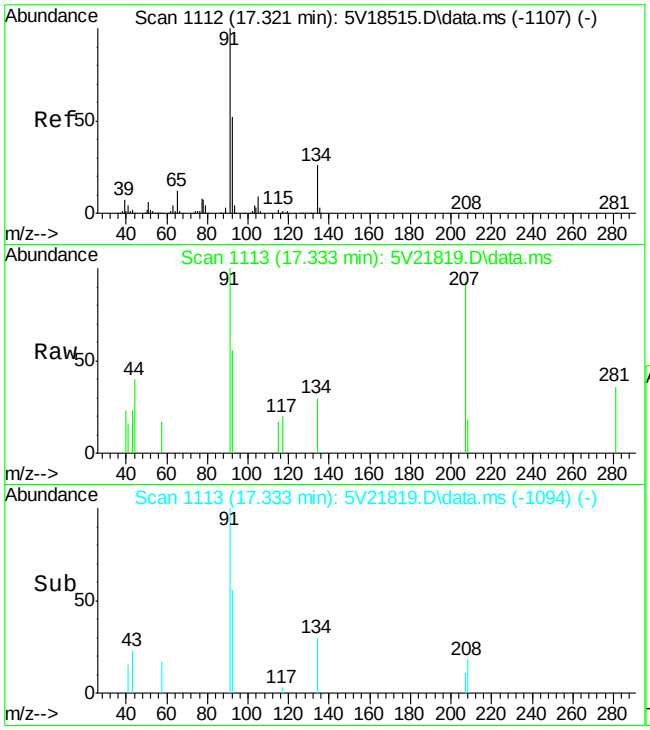


#87
1,2-Dichlorobenzene
Concen: 0.17 ug/l
RT: 17.470 min Scan# 1125
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion:146 Resp: 1843

Ion	Ratio	Lower	Upper
146	100		
111	33.6	29.9	44.9
148	71.4	51.9	77.9

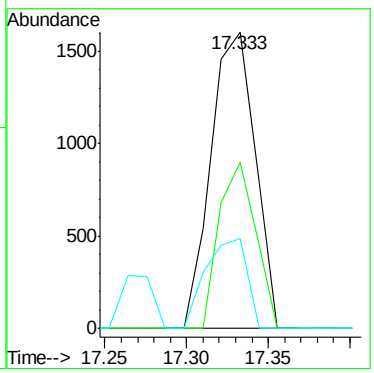


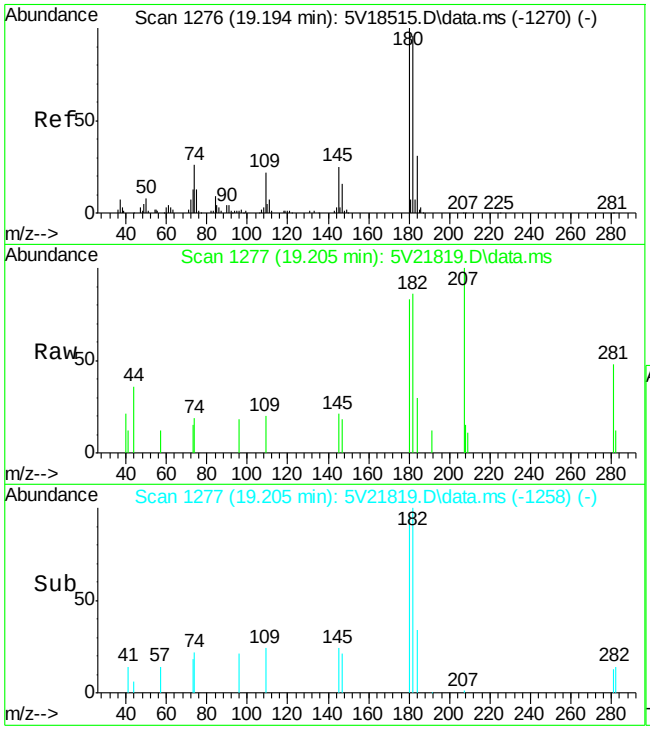


#88
n-Butylbenzene
Concen: 0.16 ug/l
RT: 17.333 min Scan# 1113
Delta R.T. 0.011 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion: 91 Resp: 3006

Ion	Ratio	Lower	Upper
91	100		
92	46.2	42.2	63.4
134	28.2	21.4	32.2

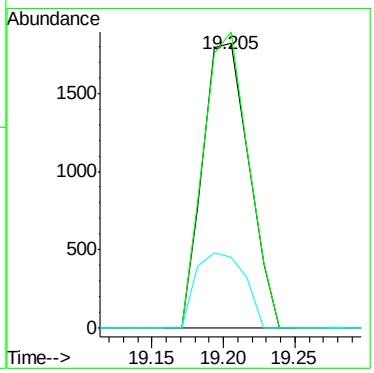


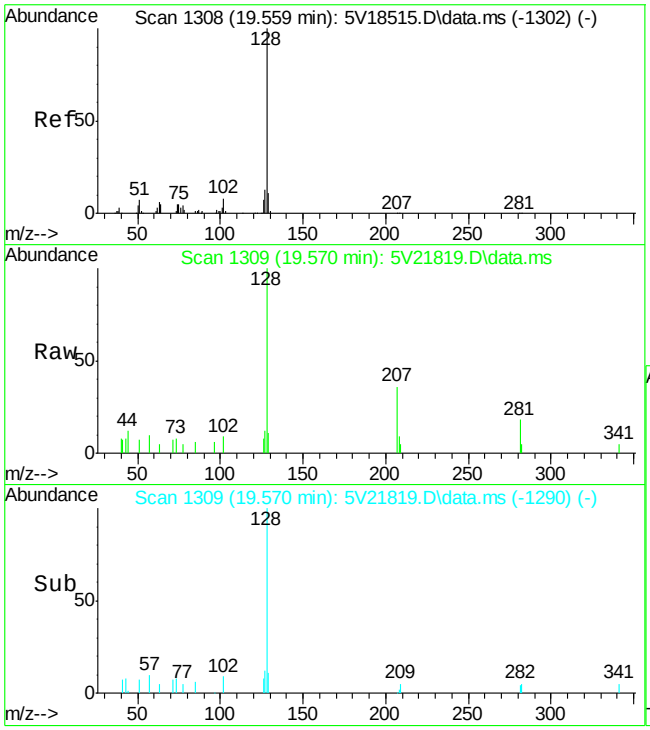


#90
1,2,4-Trichlorobenzene
Concen: 0.56 ug/l
RT: 19.205 min Scan# 1277
Delta R.T. 0.011 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion:180 Resp: 4069

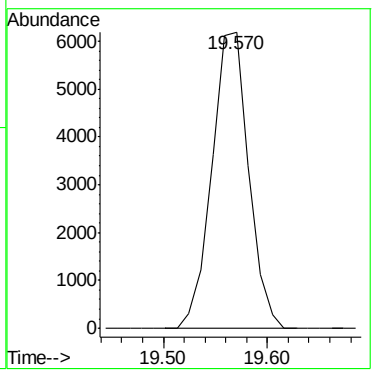
Ion	Ratio	Lower	Upper
180	100		
182	101.4	76.2	114.4
145	27.8	20.1	30.1

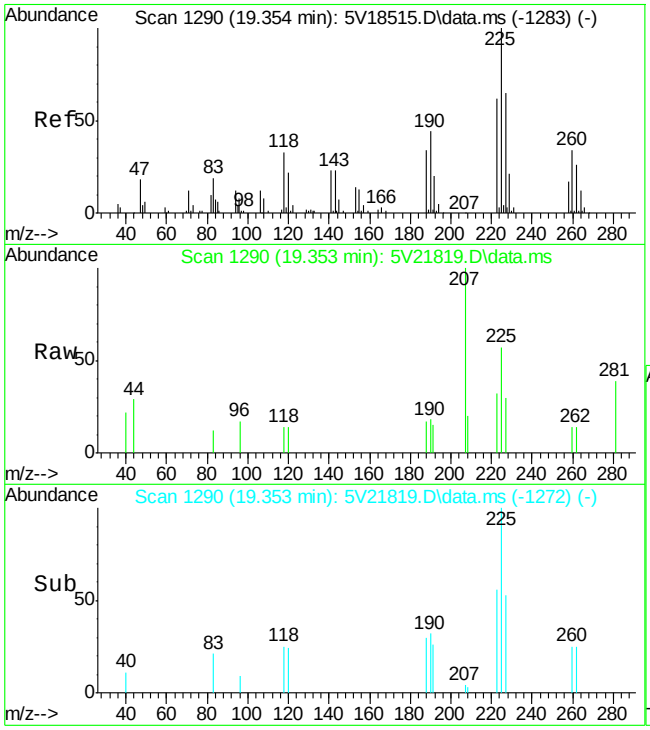




#91
Naphthalene
Concen: 1.65 ug/l
RT: 19.570 min Scan# 1309
Delta R.T. 0.012 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion:128 Resp: 15281

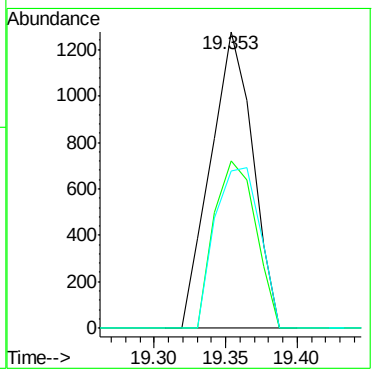


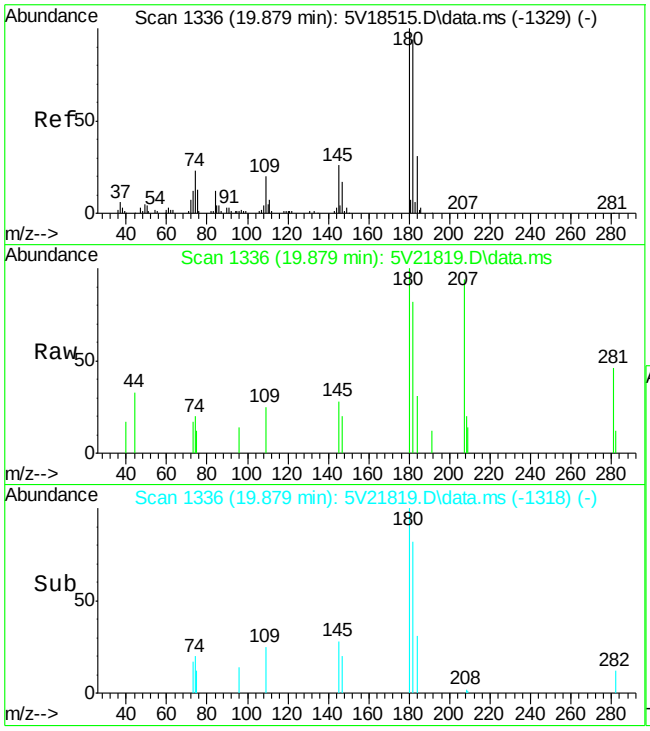


#92
Hexachlorobutadiene
Concen: 0.48 ug/l
RT: 19.353 min Scan# 1290
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion:225 Resp: 2616

Ion	Ratio	Lower	Upper
225	100		
223	55.5	49.5	74.3
227	57.6	51.1	76.7

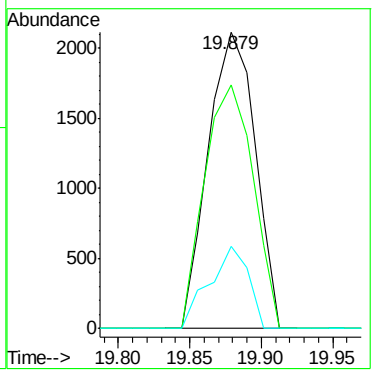


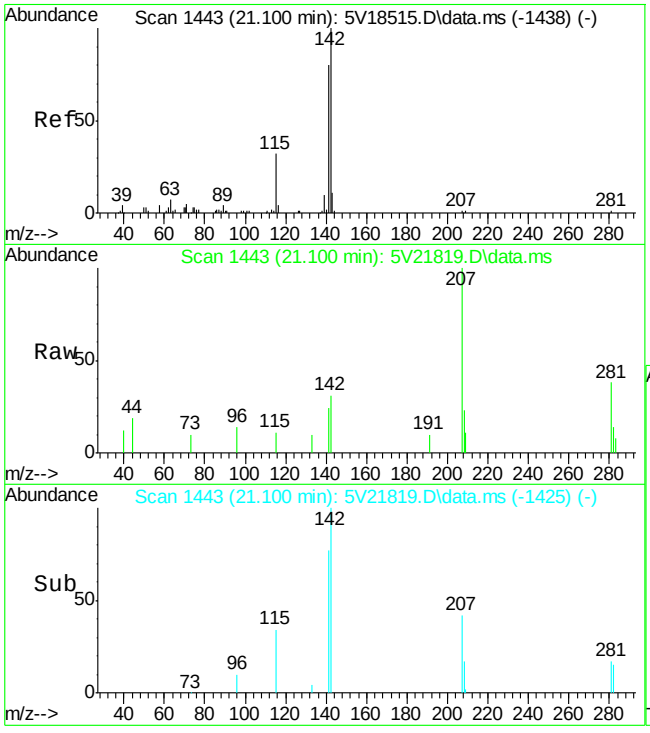


#93
1,2,3-Trichlorobenzene
Concen: 0.71 ug/l
RT: 19.879 min Scan# 1336
Delta R.T. -0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion:180 Resp: 4824

Ion	Ratio	Lower	Upper
180	100		
182	84.8	76.0	114.0
145	23.1	21.4	32.0

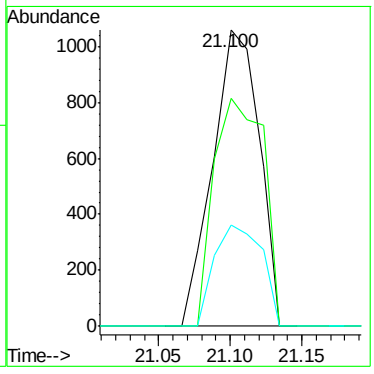


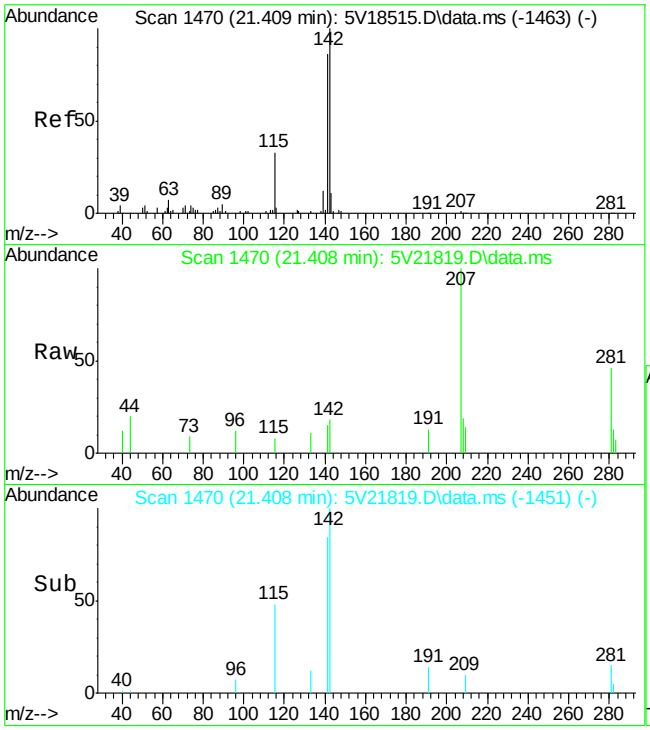


#94
2-Methylnaphthalene
Concen: 1.75 ug/l
RT: 21.100 min Scan# 1443
Delta R.T. 0.000 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion:142 Resp: 2398

Ion	Ratio	Lower	Upper
142	100		
141	82.0	66.2	99.4
115	34.8	25.9	38.9

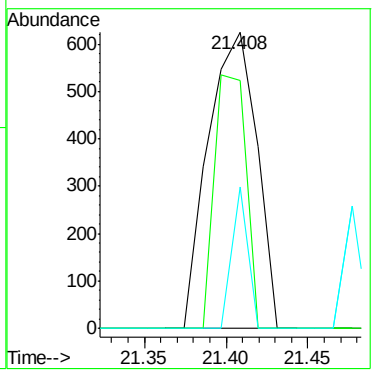




#95
1-Methylnaphthalene
Concen: 1.42 ug/l
RT: 21.408 min Scan# 1470
Delta R.T. 0.011 min
Lab File: 5V21819.D
Acq: 11 Jun 2012 4:48 pm

Tgt Ion:142 Resp: 1300

Ion	Ratio	Lower	Upper
142	100		
141	55.8	68.9	103.3#
115	15.7	27.3	40.9#



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5061112.S\
Data File : 5V21812.D
Acq On : 11 Jun 2012 1:00 pm
Operator : BRETD
Sample : MB
Misc : MS4076,V5V1333,5.00,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 12 08:54:01 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1304TVH1304.M
Quant Title : 8260
QLast Update : Thu May 24 07:55:17 2012
Response via : Initial Calibration

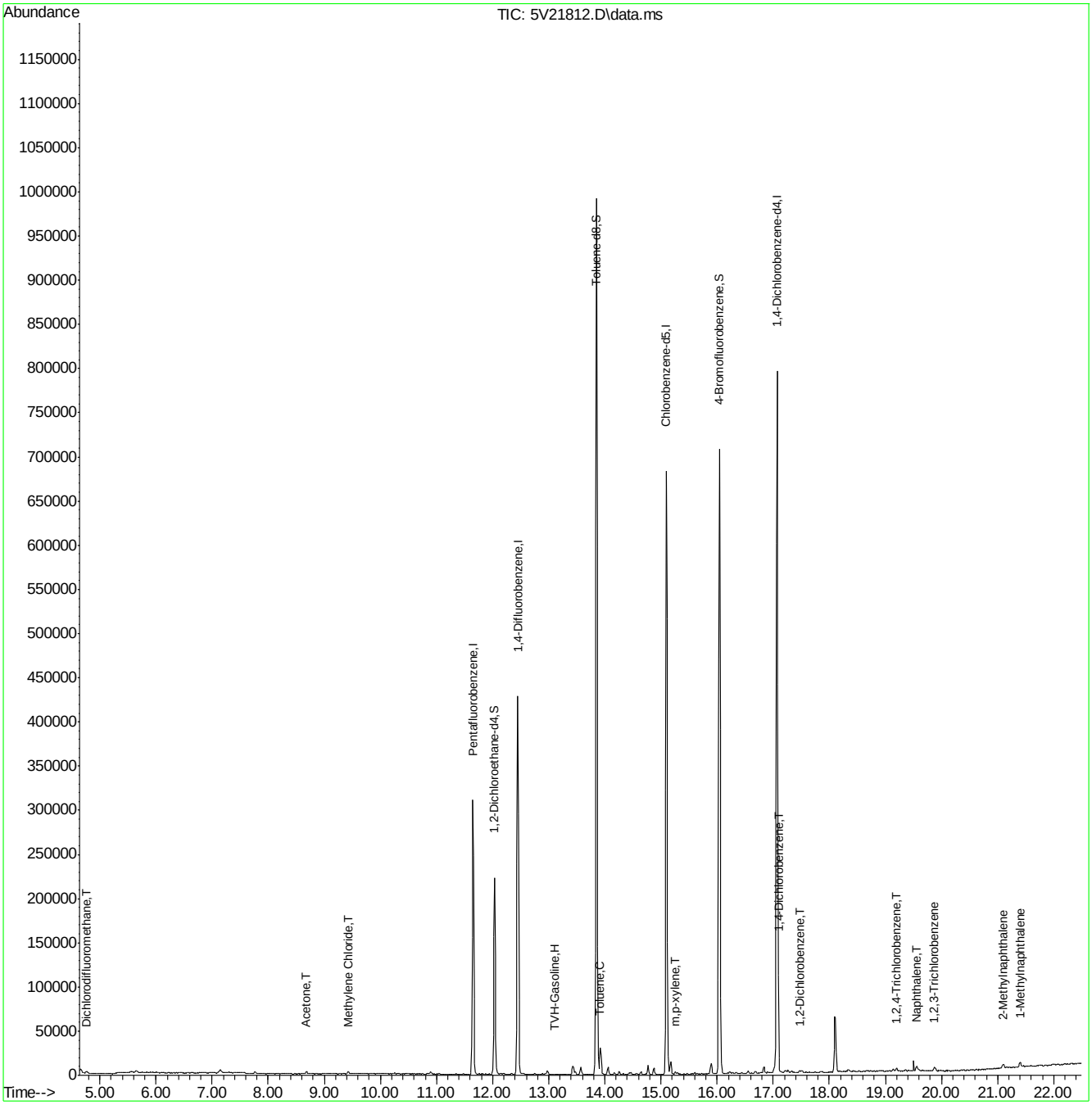
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
2) Pentafluorobenzene	11.647	168	241691	50.00	ug/l		0.00
35) 1,4-Difluorobenzene	12.446	114	366098	50.00	ug/l		0.00
53) Chlorobenzene-d5	15.095	117	430572	50.00	ug/l		0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	270594	50.00	ug/l		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4	12.035	102	37077	50.04	ug/l		0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 100.08%				
61) Toluene-d8	13.850	98	660548	45.39	ug/l		0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 90.78%				
69) 4-Bromofluorobenzene	16.043	95	253543	42.53	ug/l		0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 85.06%				
Target Compounds							Qvalue
1) TVH-Gasoline	13.102	TIC	40540m	3.43	ug/l		
3) Dichlorodifluoromethane	4.763	85	1667	0.79	ug/l		100
15) Acetone	8.679	58	1034	0.80	ug/l		97
17) Methylene Chloride	9.421	84	1267	0.31	ug/l		90
62) Toluene	13.908	92	2728	0.24	ug/l	#	82
72) m,p-xylene	15.255	106	1272	0.15	ug/l	#	80
85) 1,4-Dichlorobenzene	17.093	146	1450	0.13	ug/l	#	1
87) 1,2-Dichlorobenzene	17.470	146	1075	0.10	ug/l	#	86
90) 1,2,4-Trichlorobenzene	19.194	180	2163	0.30	ug/l	#	97
91) Naphthalene	19.559	128	7697	1.14	ug/l		100
93) 1,2,3-Trichlorobenzene	19.867	180	2860	0.43	ug/l	#	95
94) 2-Methylnaphthalene	21.100	142	3972	2.05	ug/l		93
95) 1-Methylnaphthalene	21.397	142	5161	2.11	ug/l		92

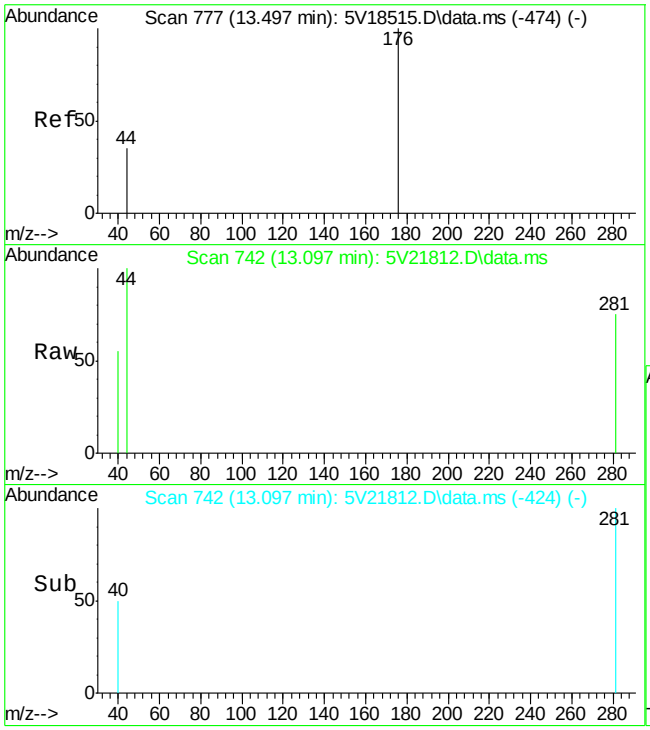
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5061112.S\
Data File : 5V21812.D
Acq On : 11 Jun 2012 1:00 pm
Operator : BRETD
Sample : MB
Misc : MS4076,V5V1333,5.00,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

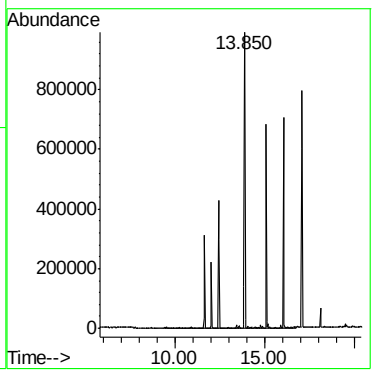
Quant Time: Jun 12 08:54:01 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1304TVH1304.M
Quant Title : 8260
QLast Update : Thu May 24 07:55:17 2012
Response via : Initial Calibration

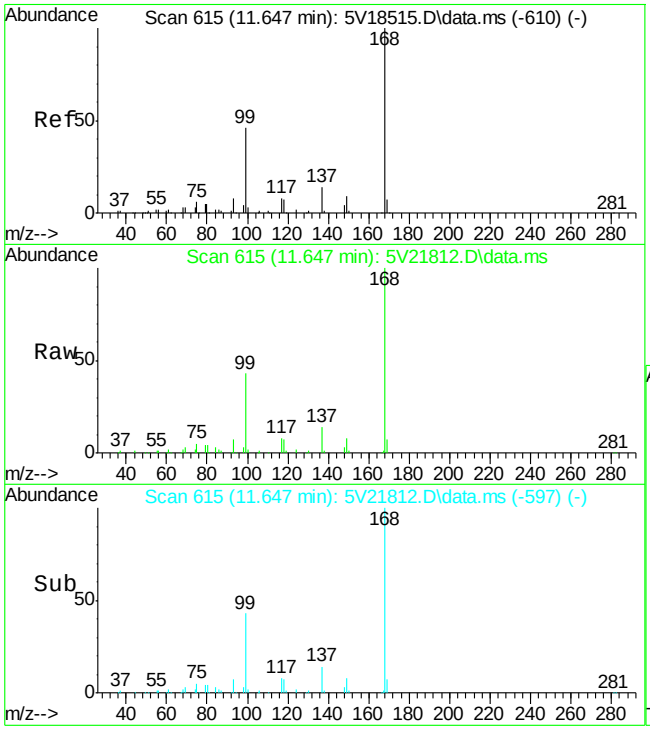




#1
TVH-Gasoline
Concen: 3.43 ug/l m
RT: 13.102 min Scan# 742
Delta R.T. 0.000 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

Tgt Ion:TIC Resp: 40540

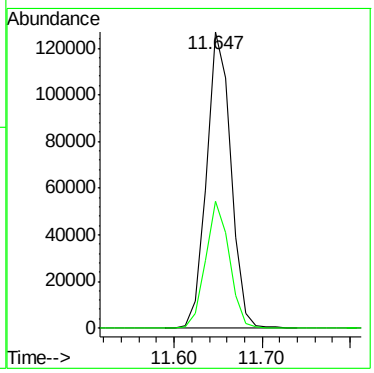


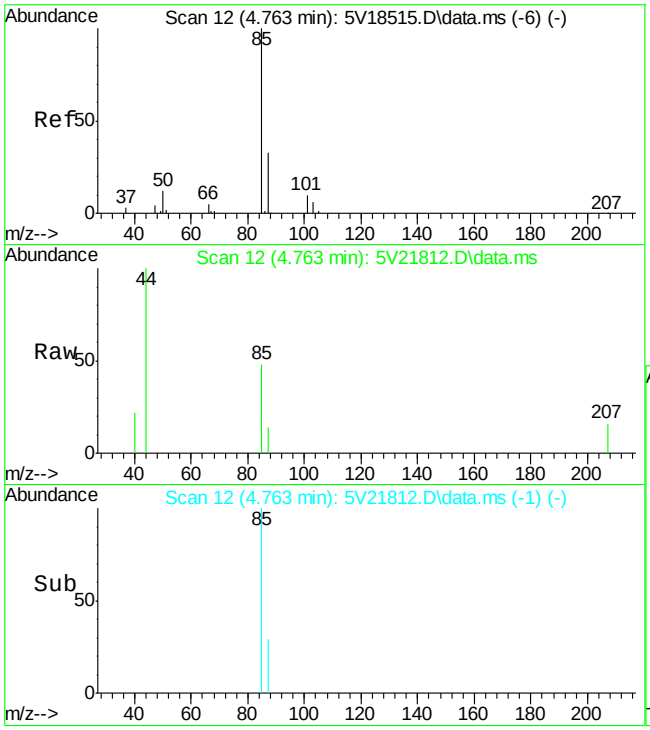


#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.647 min Scan# 615
Delta R.T. -0.000 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

Tgt Ion:168 Resp: 241691

Ion	Ratio	Lower	Upper
168	100		
99	41.9	37.4	56.2

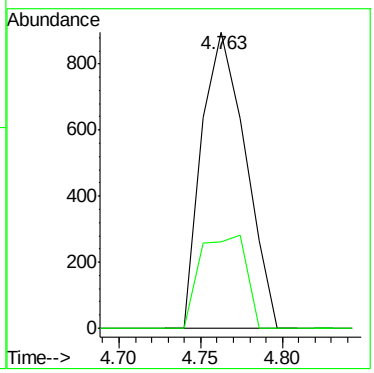


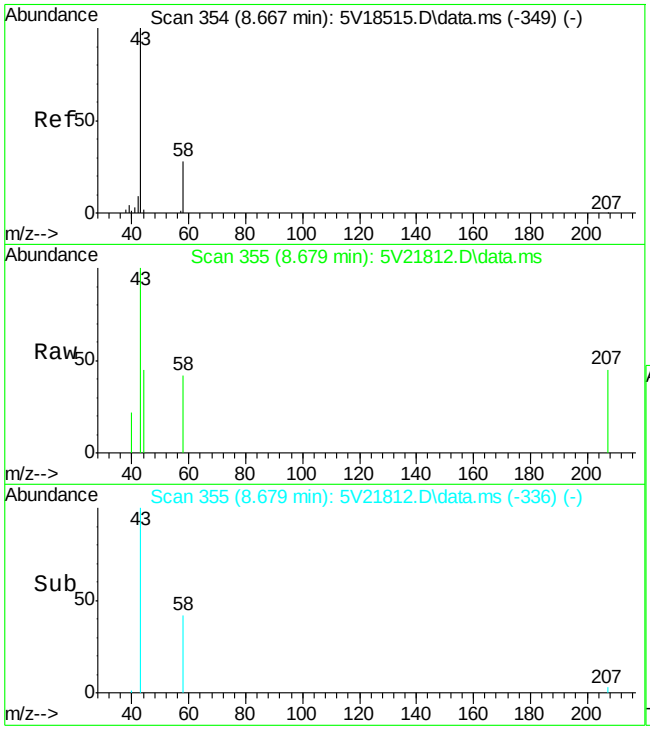


#3
Dichlorodifluoromethane
Concen: 0.79 ug/l
RT: 4.763 min Scan# 12
Delta R.T. 0.001 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

Tgt Ion: 85 Resp: 1667

Ion	Ratio	Lower	Upper
85	100		
87	32.9	12.9	52.9

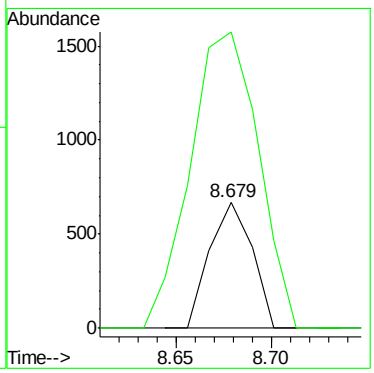


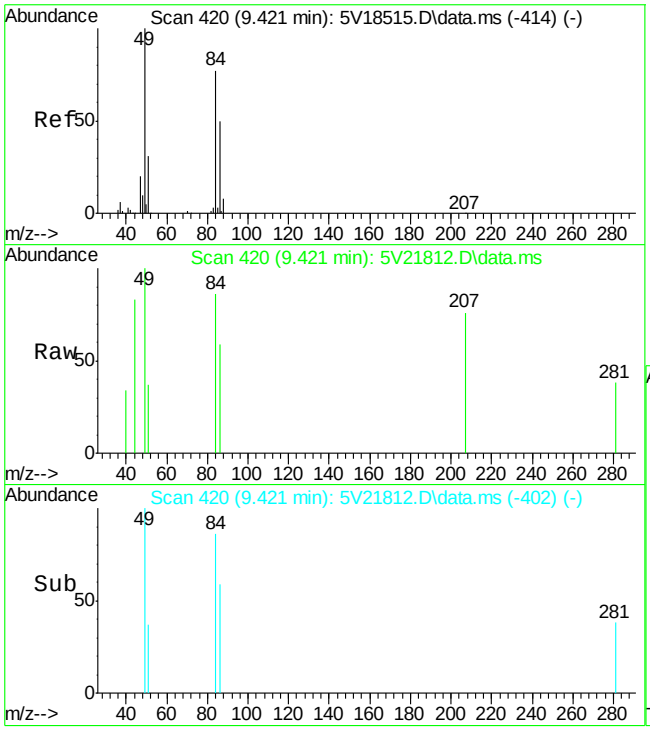


#15
Acetone
Concen: 0.80 ug/l
RT: 8.679 min Scan# 355
Delta R.T. 0.012 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

Tgt Ion: 58 Resp: 1034

Ion	Ratio	Lower	Upper
58	100		
43	379.7	353.6	393.6

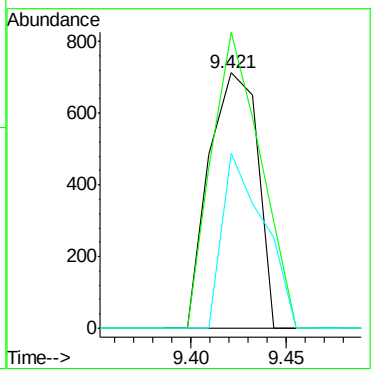


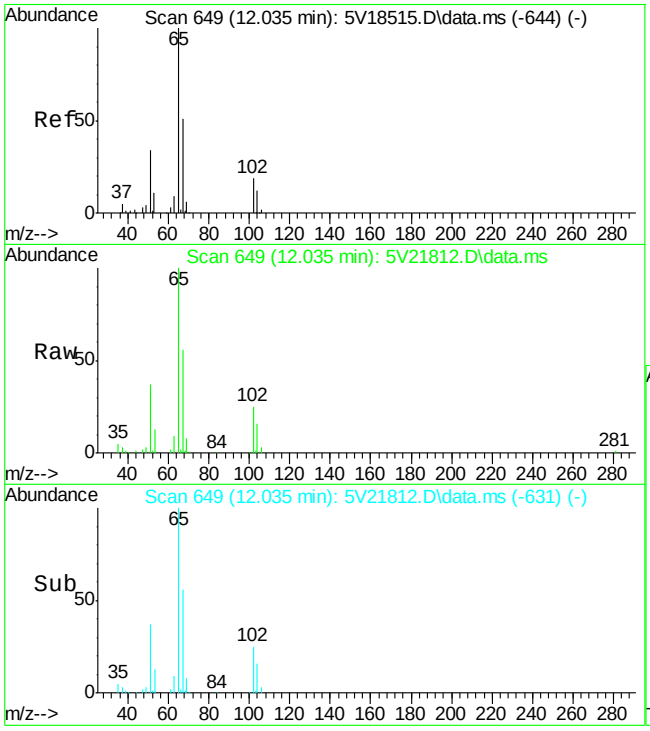


#17
Methylene Chloride
Concen: 0.31 ug/l
RT: 9.421 min Scan# 420
Delta R.T. -0.000 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

Tgt Ion: 84 Resp: 1267

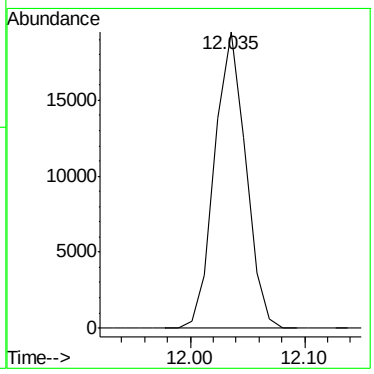
Ion	Ratio	Lower	Upper
84	100		
49	116.7	110.4	150.4
86	58.8	44.0	84.0

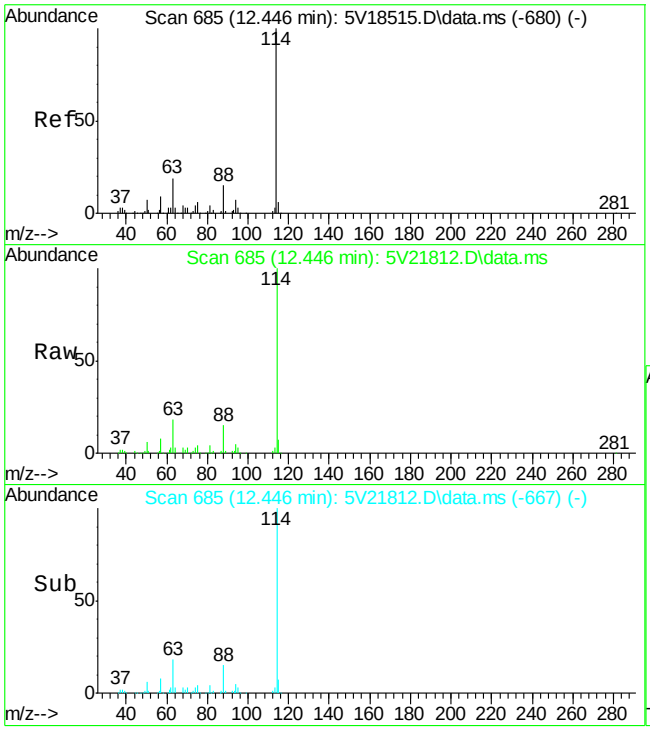




#33
1,2-Dichloroethane-d4
Concen: 50.04 ug/l
RT: 12.035 min Scan# 649
Delta R.T. 0.000 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

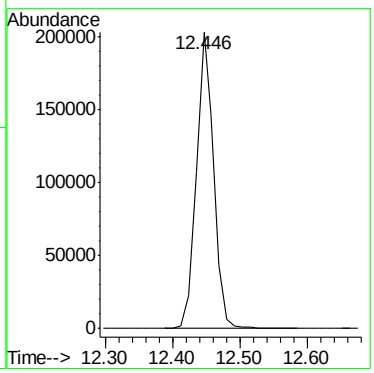
Tgt Ion:102 Resp: 37077

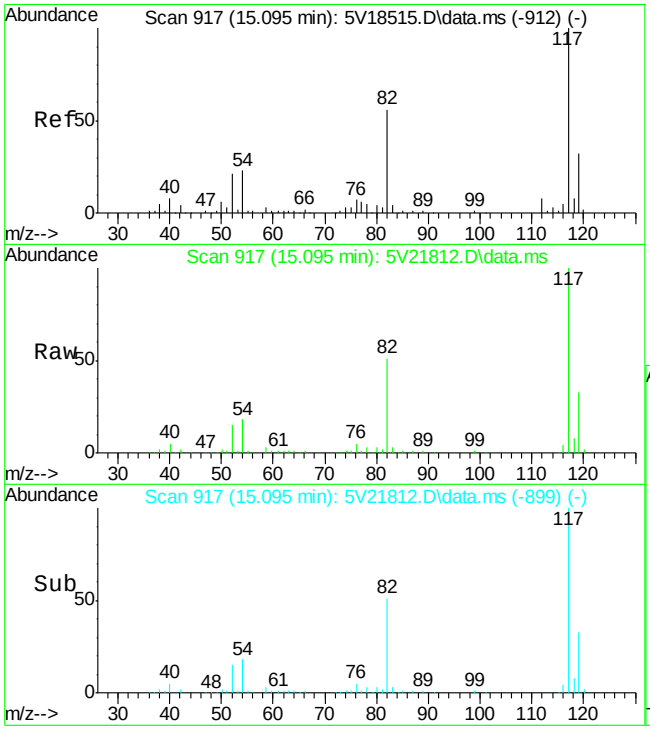




#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.446 min Scan# 685
Delta R.T. -0.000 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

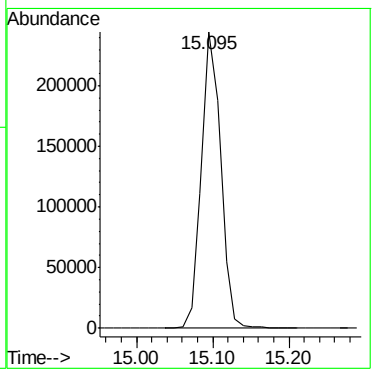
Tgt Ion:114 Resp: 366098

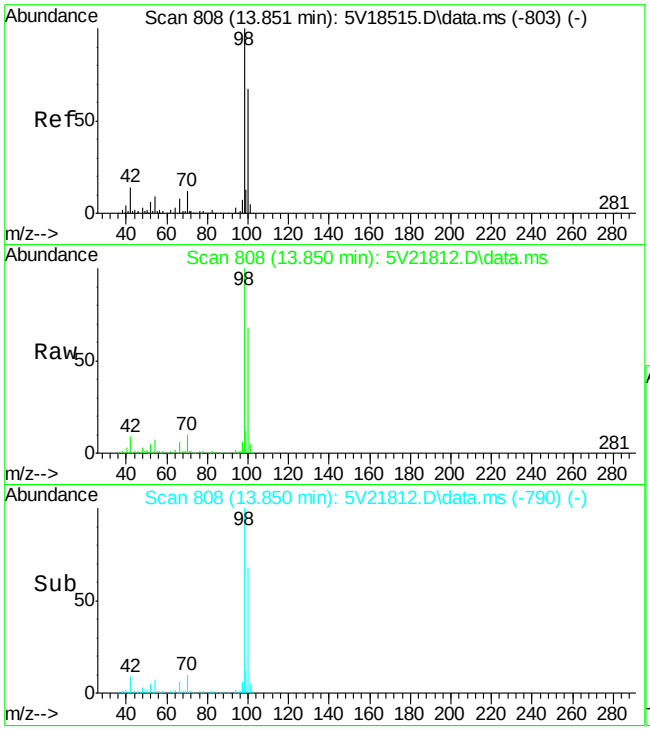




#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.095 min Scan# 917
Delta R.T. -0.000 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

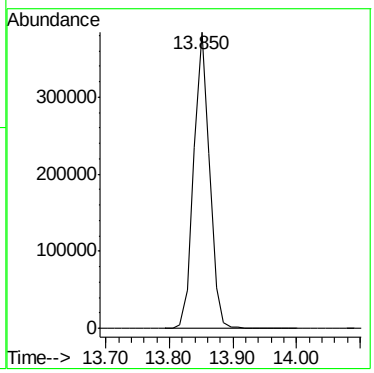
Tgt Ion:117 Resp: 430572

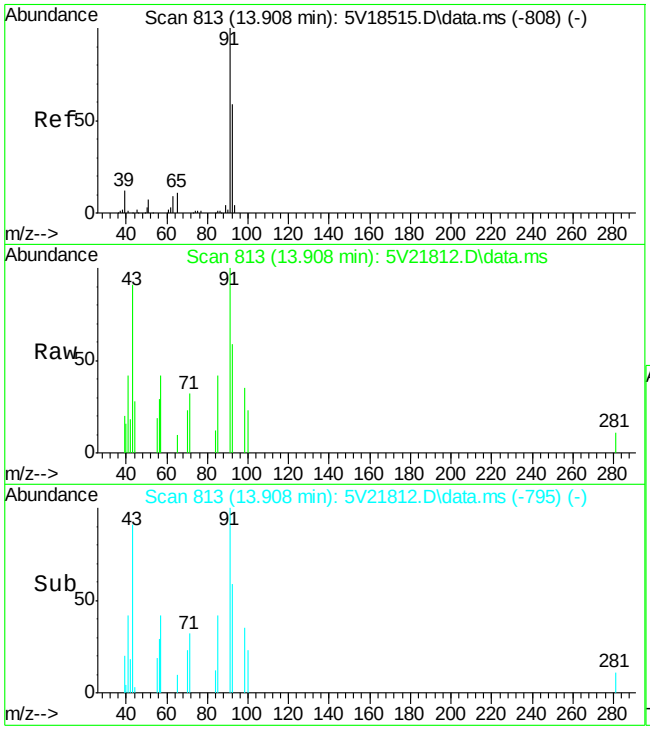




#61
Toluene-d8
Concen: 45.39 ug/l
RT: 13.850 min Scan# 808
Delta R.T. -0.000 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

Tgt Ion: 98 Resp: 660548

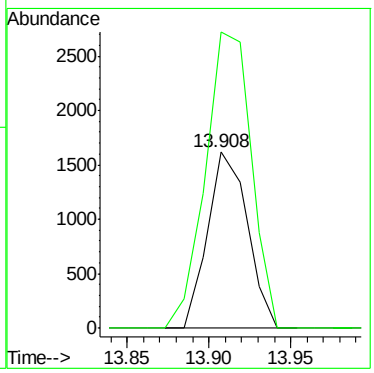


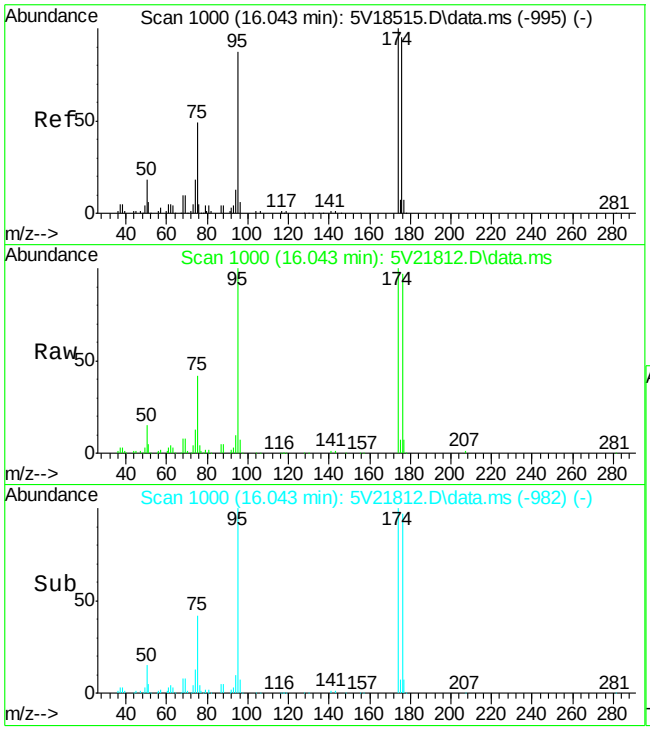


#62
Toluene
Concen: 0.24 ug/l
RT: 13.908 min Scan# 813
Delta R.T. -0.000 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

Tgt Ion: 92 Resp: 2728

Ion	Ratio	Lower	Upper
92	100		
91	194.4	149.8	189.8#

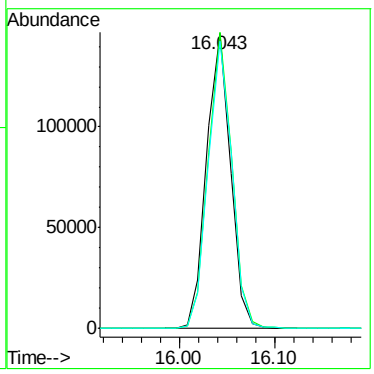


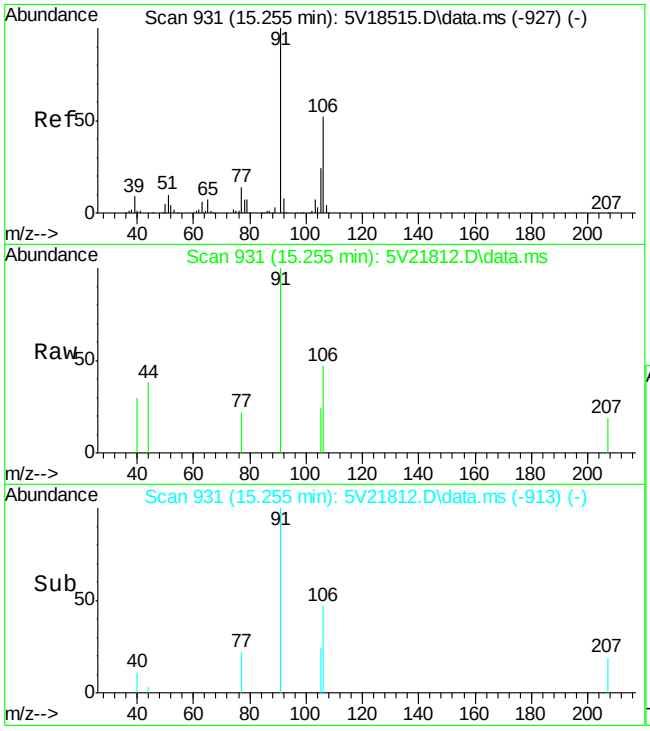


#69
4-Bromofluorobenzene
Concen: 42.53 ug/l
RT: 16.043 min Scan# 1000
Delta R.T. -0.000 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

Tgt Ion: 95 Resp: 253543

Ion	Ratio	Lower	Upper
95	100		
174	99.2	77.1	117.1
176	96.7	73.4	113.4

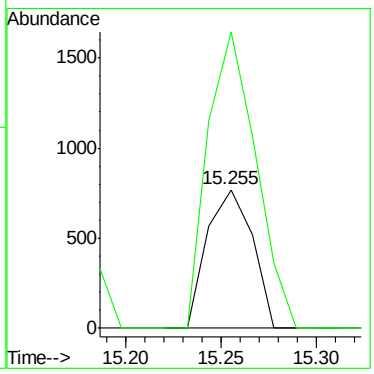


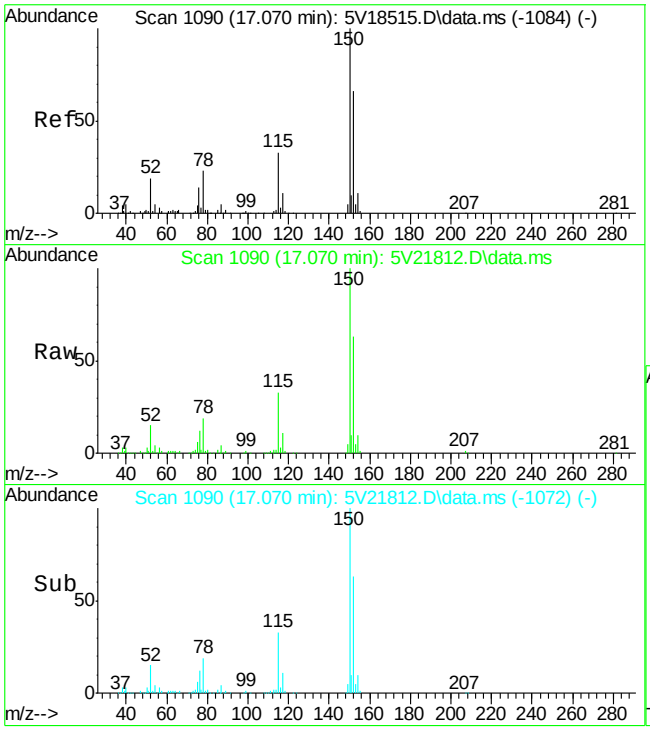


#72
m,p-xylene
Concen: 0.15 ug/l
RT: 15.255 min Scan# 931
Delta R.T. -0.000 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

Tgt Ion:106 Resp: 1272

Ion	Ratio	Lower	Upper
106	100		
91	227.6	177.1	217.1#

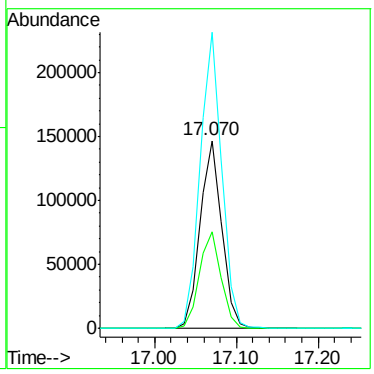


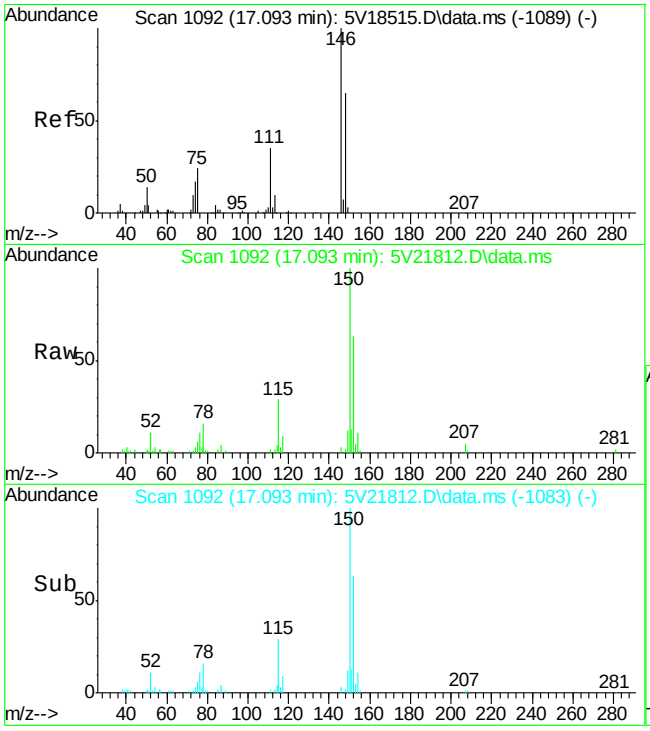


#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.070 min Scan# 1090
Delta R.T. -0.000 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

Tgt Ion:152 Resp: 270594

Ion	Ratio	Lower	Upper
152	100		
115	51.4	41.4	62.0
150	157.5	153.9	230.9

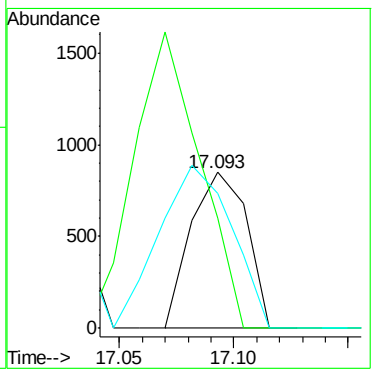


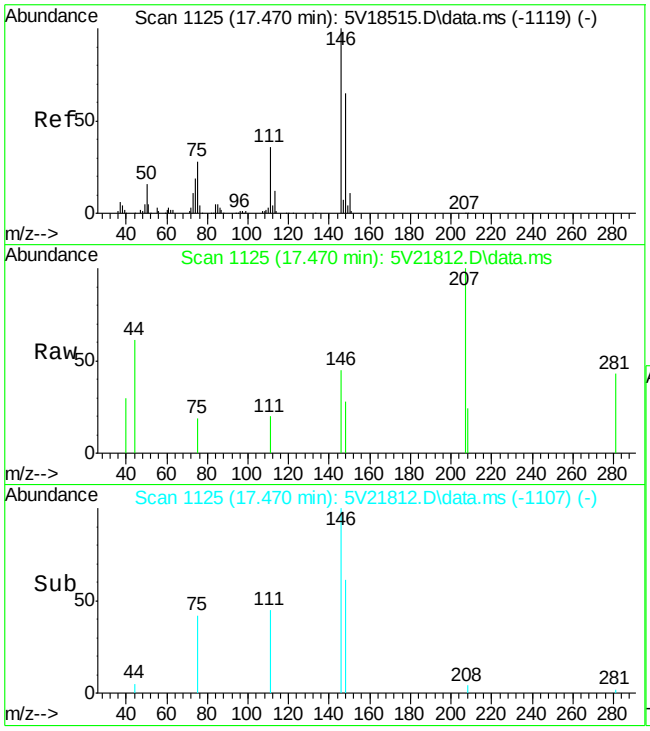


#85
1,4-Dichlorobenzene
Concen: 0.13 ug/l
RT: 17.093 min Scan# 1092
Delta R.T. -0.000 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

Tgt Ion:146 Resp: 1450

Ion	Ratio	Lower	Upper
146	100		
111	223.7	28.6	43.0#
148	136.7	51.9	77.9#

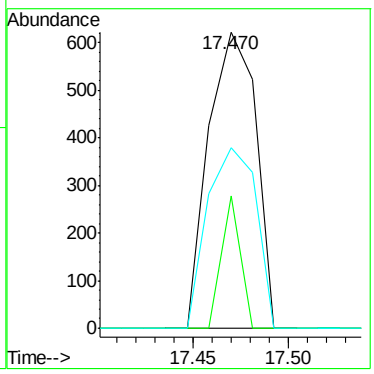


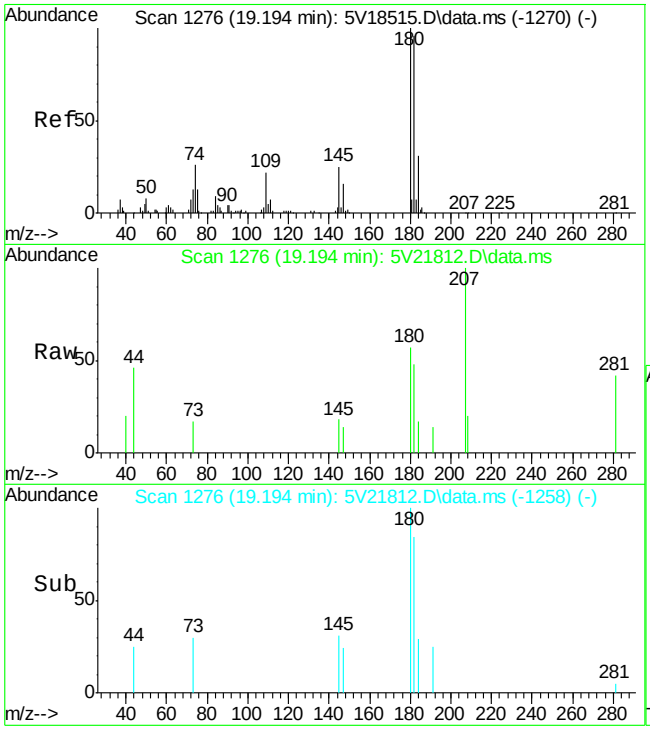


#87
1,2-Dichlorobenzene
Concen: 0.10 ug/l
RT: 17.470 min Scan# 1125
Delta R.T. -0.000 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

Tgt Ion:146 Resp: 1075

Ion	Ratio	Lower	Upper
146	100		
111	17.7	29.9	44.9#
148	63.0	51.9	77.9

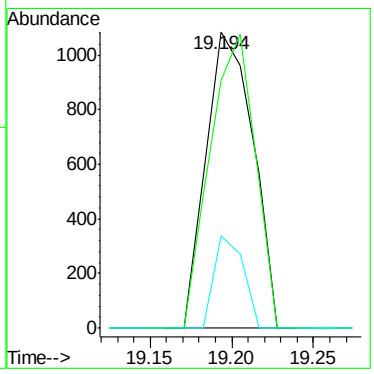


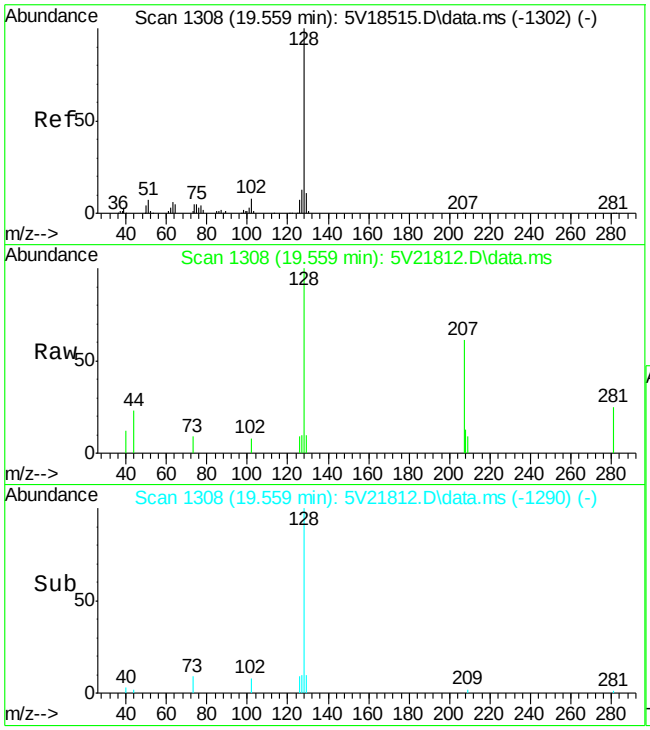


#90
1,2,4-Trichlorobenzene
Concen: 0.30 ug/l
RT: 19.194 min Scan# 1276
Delta R.T. -0.000 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

Tgt Ion:180 Resp: 2163

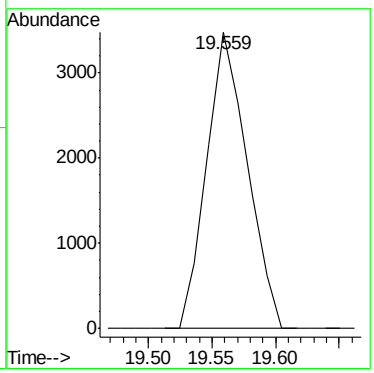
Ion	Ratio	Lower	Upper
180	100		
182	95.1	76.2	114.4
145	19.3	20.1	30.1#

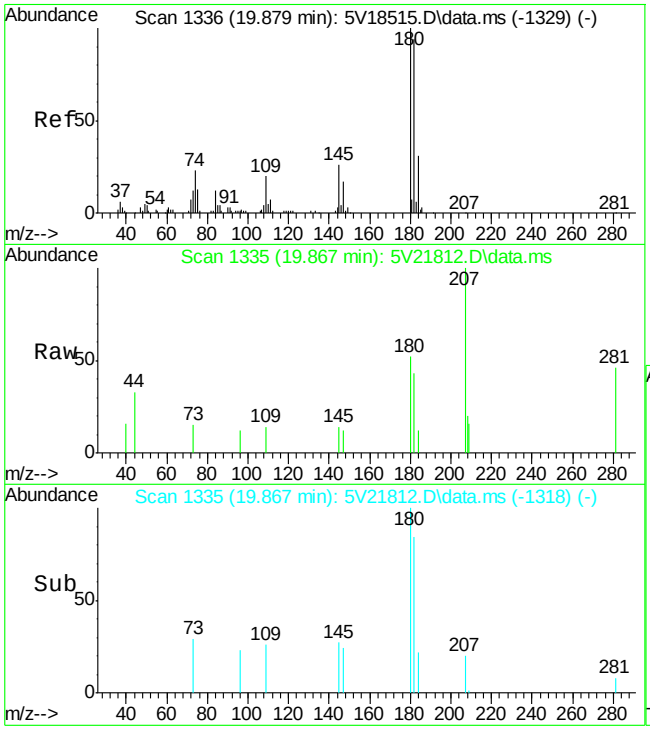




#91
Naphthalene
Concen: 1.14 ug/l
RT: 19.559 min Scan# 1308
Delta R.T. 0.001 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

Tgt Ion:128 Resp: 7697

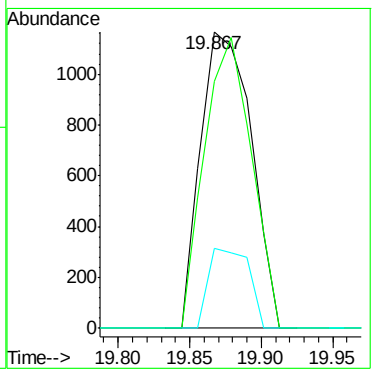


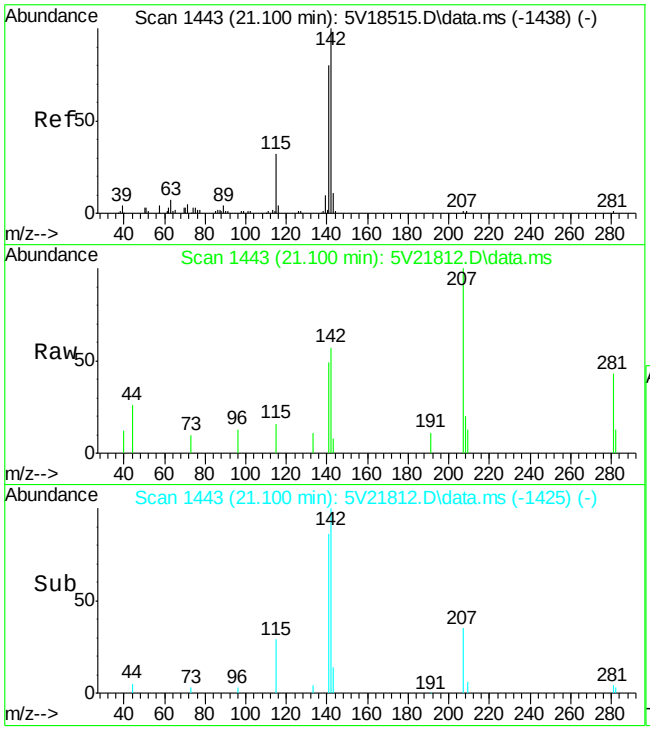


#93
1,2,3-Trichlorobenzene
Concen: 0.43 ug/l
RT: 19.867 min Scan# 1335
Delta R.T. -0.011 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

Tgt Ion:180 Resp: 2860

Ion	Ratio	Lower	Upper
180	100		
182	91.2	76.0	114.0
145	21.3	21.4	32.0#

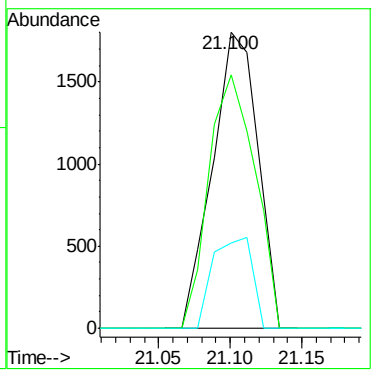


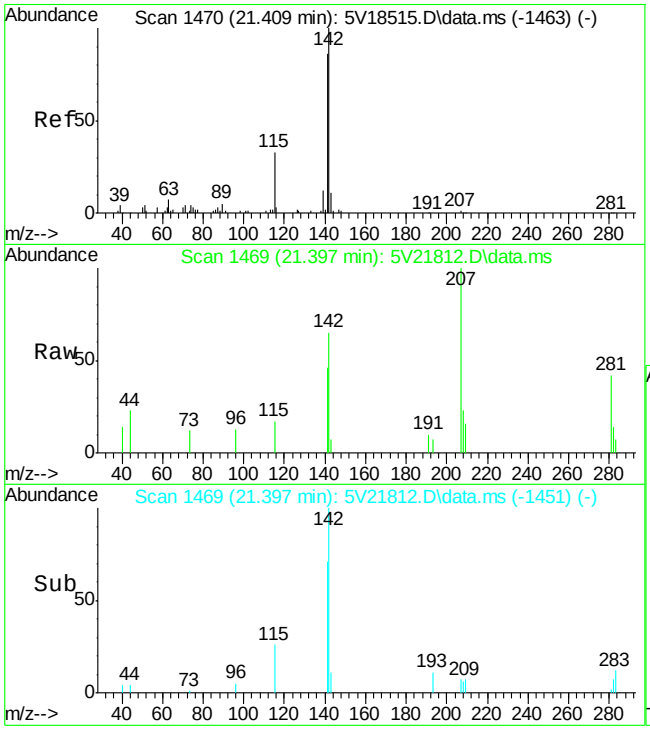


#94
2-Methylnaphthalene
Concen: 2.05 ug/l
RT: 21.100 min Scan# 1443
Delta R.T. 0.000 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

Tgt Ion:142 Resp: 3972

Ion	Ratio	Lower	Upper
142	100		
141	87.2	66.2	99.4
115	26.4	25.9	38.9

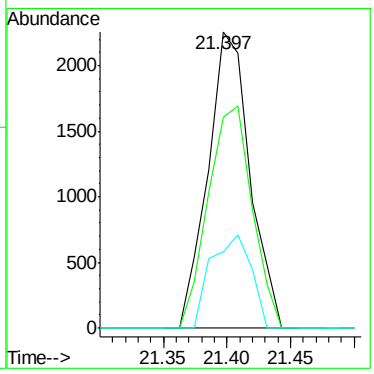




#95
1-Methylnaphthalene
Concen: 2.11 ug/l
RT: 21.397 min Scan# 1469
Delta R.T. 0.000 min
Lab File: 5V21812.D
Acq: 11 Jun 2012 1:00 pm

Tgt Ion:142 Resp: 5161

Ion	Ratio	Lower	Upper
142	100		
141	78.5	68.9	103.3
115	30.1	27.3	40.9



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: D35289
Account: XTOKRWR XTO Energy
Project: FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6035-MB	3G09645.D	1	06/14/12	DC	06/12/12	OP6035	E3G425

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

D35289-1

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

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	98%	10-145%
321-60-8	2-Fluorobiphenyl	98%	10-130%
1718-51-0	Terphenyl-d14	124%	22-130%

Blank Spike Summary

Job Number: D35289
Account: XTOKRWR XTO Energy
Project: FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6035-BS	3G09646.D	1	06/14/12	DC	06/12/12	OP6035	E3G425

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

D35289-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	76.7	92	34-130
120-12-7	Anthracene	83.3	71.3	86	35-130
56-55-3	Benzo(a)anthracene	83.3	67.6	81	36-130
50-32-8	Benzo(a)pyrene	83.3	60.3	72	36-130
205-99-2	Benzo(b)fluoranthene	83.3	59.9	72	35-130
207-08-9	Benzo(k)fluoranthene	83.3	82.7	99	37-130
218-01-9	Chrysene	83.3	81.1	97	40-130
53-70-3	Dibenzo(a,h)anthracene	83.3	62.5	75	32-130
206-44-0	Fluoranthene	83.3	75.6	91	38-130
86-73-7	Fluorene	83.3	79.0	95	35-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	65.0	78	28-130
91-20-3	Naphthalene	83.3	82.3	99	35-130
129-00-0	Pyrene	83.3	82.5	99	37-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	93%	10-145%
321-60-8	2-Fluorobiphenyl	94%	10-130%
1718-51-0	Terphenyl-d14	117%	22-130%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D35289
Account: XTOKRWR XTO Energy
Project: FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6035-MS [a]	3G09687.D	2	06/15/12	DC	06/12/12	OP6035	E3G427
OP6035-MSD [b]	3G09649.D	1	06/14/12	DC	06/12/12	OP6035	E3G425
D35267-1	3G09647.D	1	06/14/12	DC	06/12/12	OP6035	E3G425

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

D35289-1

CAS No.	Compound	D35267-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		84.9	58.8	69	45.1	53	26	10-155/30
120-12-7	Anthracene	9.6		84.9	140	154	87.3	91	46*	10-155/30
56-55-3	Benzo(a)anthracene	99.4		84.9	387	339*	194	111	66*	10-175/30
50-32-8	Benzo(a)pyrene	252		84.9	760	599* [c]	393	166*	64*	10-164/30
205-99-2	Benzo(b)fluoranthene	253		84.9	830	680* [c]	422	199*	65*	10-165/30
207-08-9	Benzo(k)fluoranthene	45.1		84.9	149	122	85.1	47	55*	10-178/30
218-01-9	Chrysene	428		84.9	1280	1004* [c]	640	250*	67*	10-147/30
53-70-3	Dibenzo(a,h)anthracene	189		84.9	547	422* [c]	288	117	62*	10-144/30
206-44-0	Fluoranthene	24.3		84.9	118	110	83.8	70	34*	10-207/30
86-73-7	Fluorene	ND		84.9	72.5	85	50.9	60	35*	10-163/30
193-39-5	Indeno(1,2,3-cd)pyrene	85.1		84.9	288	239*	158	86	58*	10-180/30
91-20-3	Naphthalene	24.3		84.9	113	105	69.0	53	48*	10-198/30
129-00-0	Pyrene	263		84.9	748	571* [c]	383	141	65*	10-189/30

CAS No.	Surrogate Recoveries	MS	MSD	D35267-1	Limits
4165-60-0	Nitrobenzene-d5	42%	28%	16%	10-145%
321-60-8	2-Fluorobiphenyl	56%	37%	18%	10-130%
1718-51-0	Terphenyl-d14	60%	40%	23%	22-130%

(a) Outside control limits due to possible matrix interference.
(b) Variability of recovery may be due to sample matrix/homogeneity.
(c) Outside control limits due to high level in sample relative to spike amount.

Mountain States ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 06/19/12 11:07

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\061512\
Data File : 3g09686.D
Acq On : 15 Jun 2012 5:30 pm
Operator : DONC
Sample : D35289-1
Misc : OP6035,E3G427,30.00,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 18 09:11:05 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G424.M
Quant Title : PAHSIM BASE
QLast Update : Fri Jun 15 12:25:10 2012
Response via : Initial Calibration

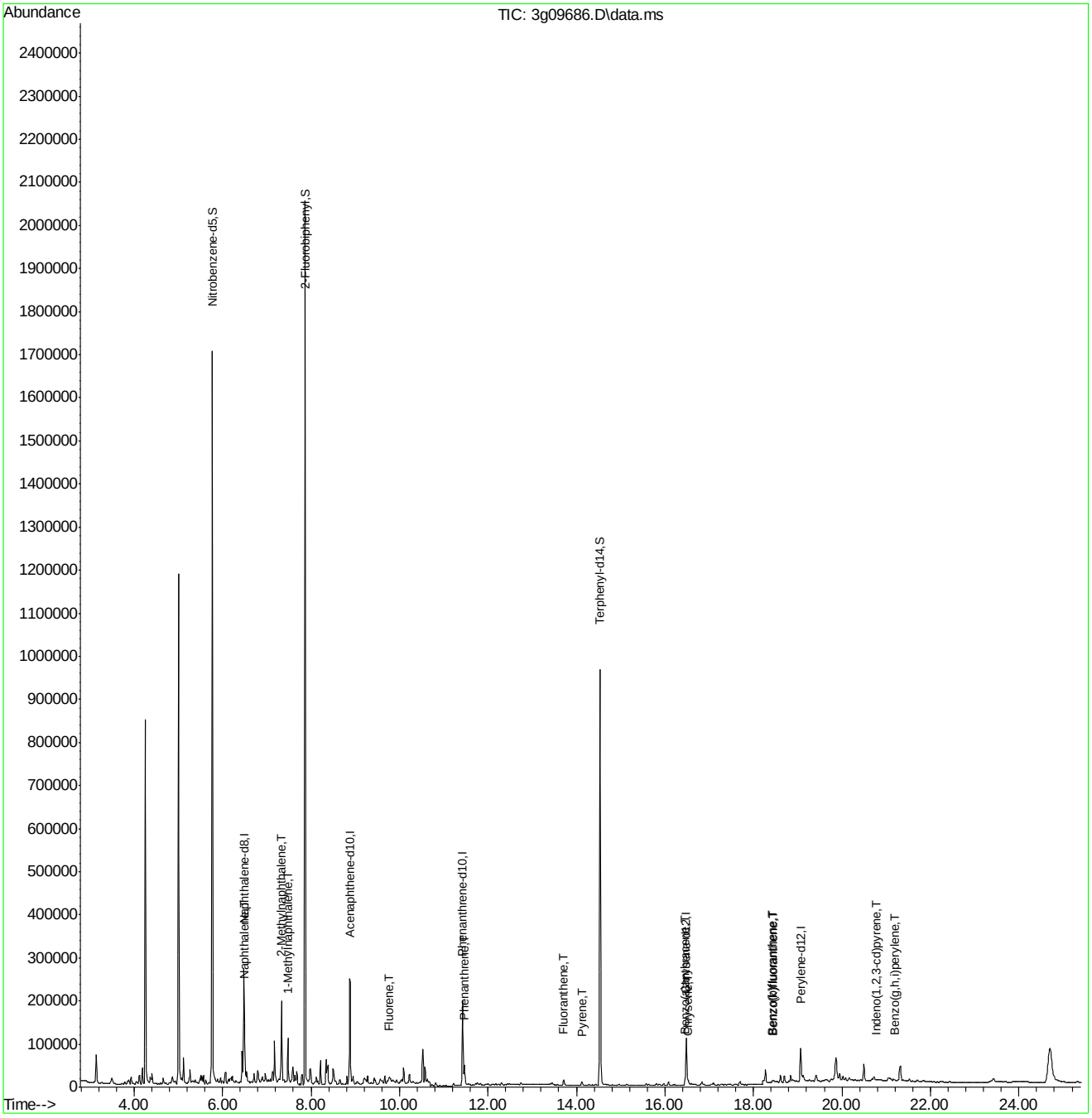
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.483	136	254652	4.0000	ug/mL	0.00
6) Acenaphthene-d10	8.886	164	156062	4.0000	ug/mL	0.00
14) Phenanthrene-d10	11.430	188	222623	4.0000	ug/mL	0.00
18) Chrysene-d12	16.481	240	133240	4.0000	ug/mL	-0.01
23) Perylene-d12	19.069	264	121743	4.0000	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.772	82	1091274	30.9349	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 61.86%			
7) 2-Fluorobiphenyl	7.870	172	1952559	38.5146	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 77.02%			
20) Terphenyl-d14	14.532	244	1136447	48.6803	ug/mL	-0.02
Spiked Amount 50.000	Range 25 - 135		Recovery = 97.36%			
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	6.495	128	107090	1.5259	ug/mL	97
8) 2-Methylnaphthalene	7.330	142	114608	2.6581	ug/mL	99
9) 1-Methylnaphthalene	7.480	142	55601	1.2720	ug/mL	98
10) Acenaphthylene	0.000	152	0	N.D.	d	
11) Acenaphthene	0.000	154	0	N.D.	d	
12) Fluorene	9.772	166	12483	0.2506	ug/mL#	55
13) Diphenylamine	0.000	169	0	N.D.	d	
15) Phenanthrene	11.469	178	44606	0.6691	ug/mL	95
16) Anthracene	0.000	178	0	N.D.	d	
17) Fluoranthene	13.709	202	8494	0.1156	ug/mL#	66
19) Pyrene	14.121	202	7249	0.1830	ug/mL#	77
21) Benzo(a)anthracene	16.454	228	4547m	0.1749	ug/mL	
22) Chrysene	16.527	228	9276	0.2109	ug/mL	91
24) Benzo(b)fluoranthene	18.428	252	6424m	0.1735	ug/mL	
25) Benzo(k)fluoranthene	18.449	252	4160m	0.1183	ug/mL	
26) Benzo(a)pyrene	0.000	252	0	N.D.	d	
27) Indeno(1,2,3-cd)pyrene	20.783	276	2604	0.2156	ug/mL#	77
28) Dibenz(a,h)anthracene	0.000	278	0	N.D.	d	
29) Benzo(g,h,i)perylene	21.193	276	3770	0.2292	ug/mL	89

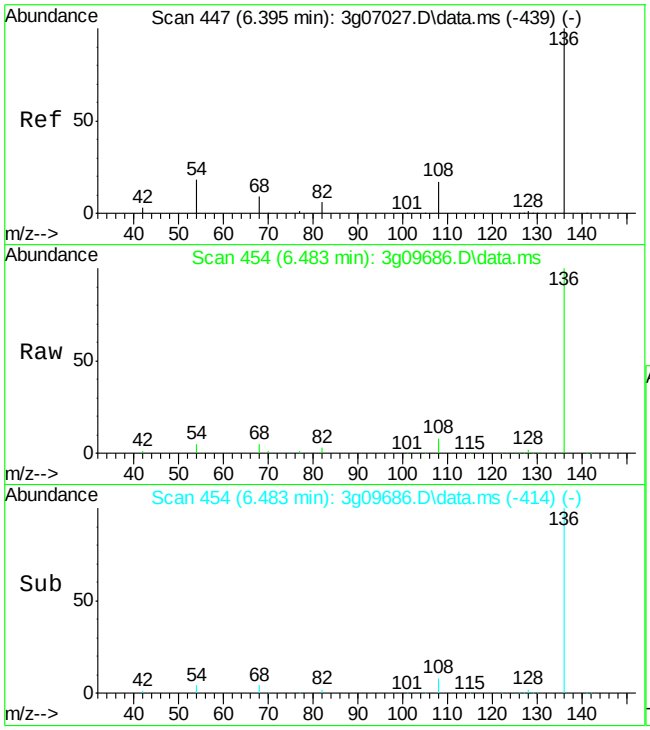
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\061512\
Data File : 3g09686.D
Acq On : 15 Jun 2012 5:30 pm
Operator : DONC
Sample : D35289-1
Misc : OP6035,E3G427,30.00,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 18 09:11:05 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G424.M
Quant Title : PAHSIM BASE
QLast Update : Fri Jun 15 12:25:10 2012
Response via : Initial Calibration

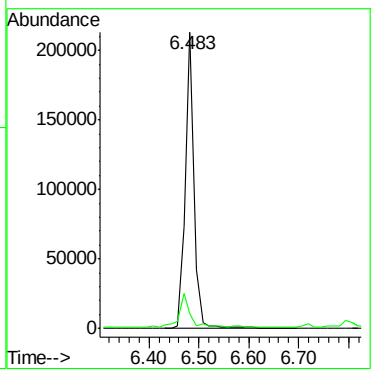


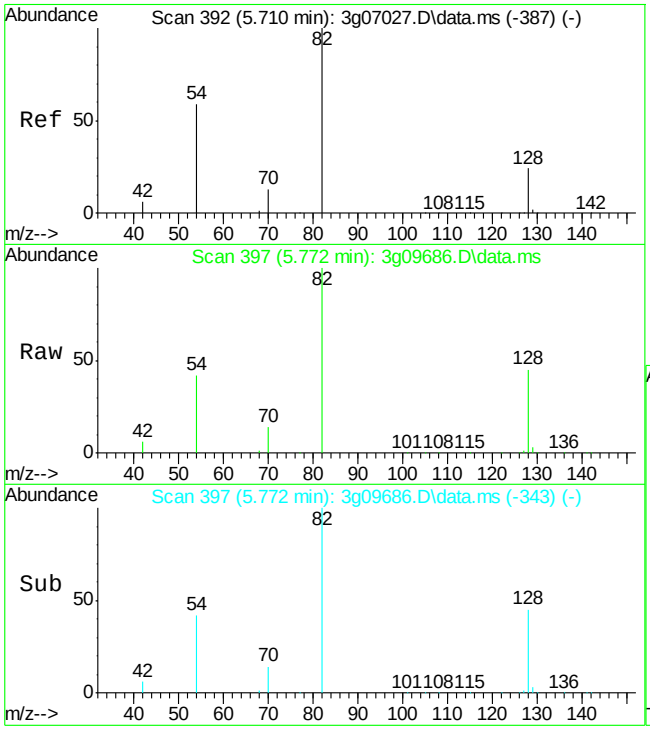


#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 6.483 min Scan# 454
Delta R.T. 0.000 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:136 Resp: 254652

Ion	Ratio	Lower	Upper
136	100		
68	15.1	0.0	32.1

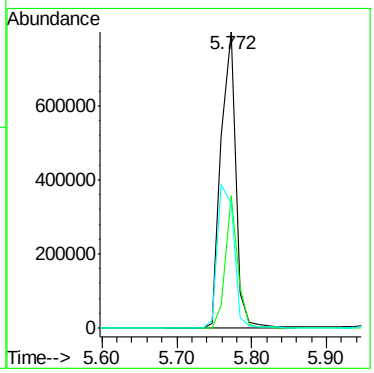


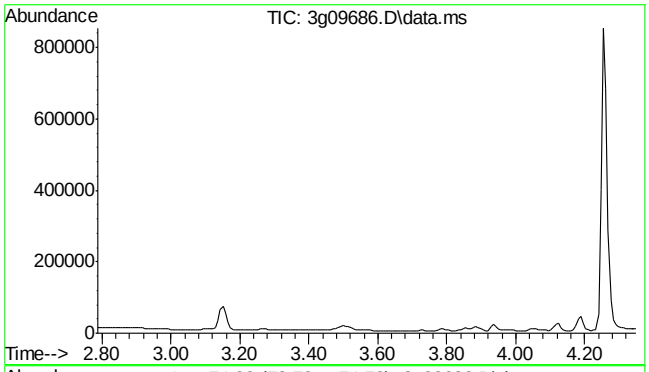


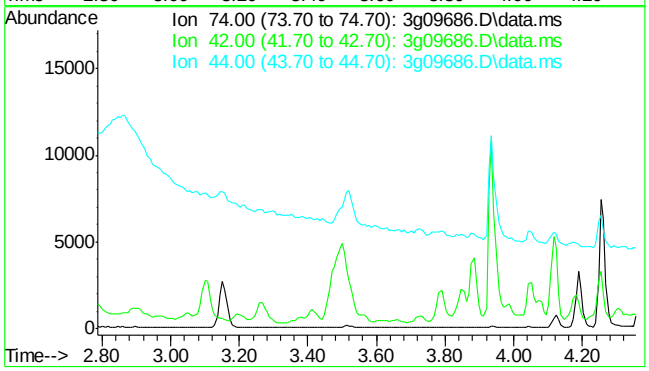
#2
Nitrobenzene-d5
Concen: 30.9349 ug/mL
RT: 5.772 min Scan# 397
Delta R.T. 0.000 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion: 82 Resp: 1091274

Ion	Ratio	Lower	Upper
82	100		
128	37.5	14.3	54.3
54	53.8	38.1	78.1





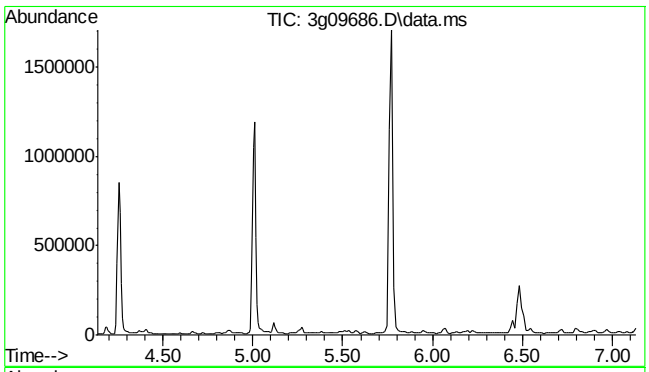


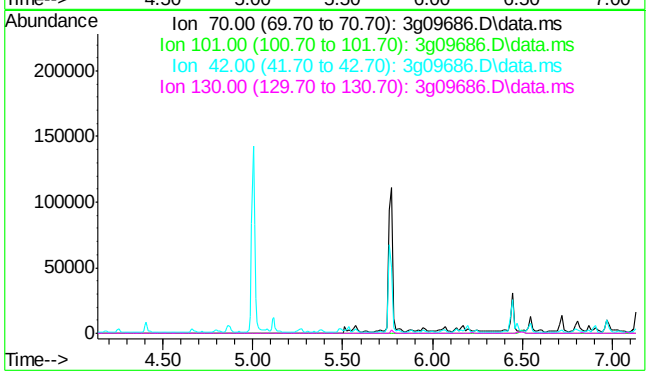
#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.85 min

Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion: 74

Sig	Exp Ratio
74	100
42	65.5
44	9.6



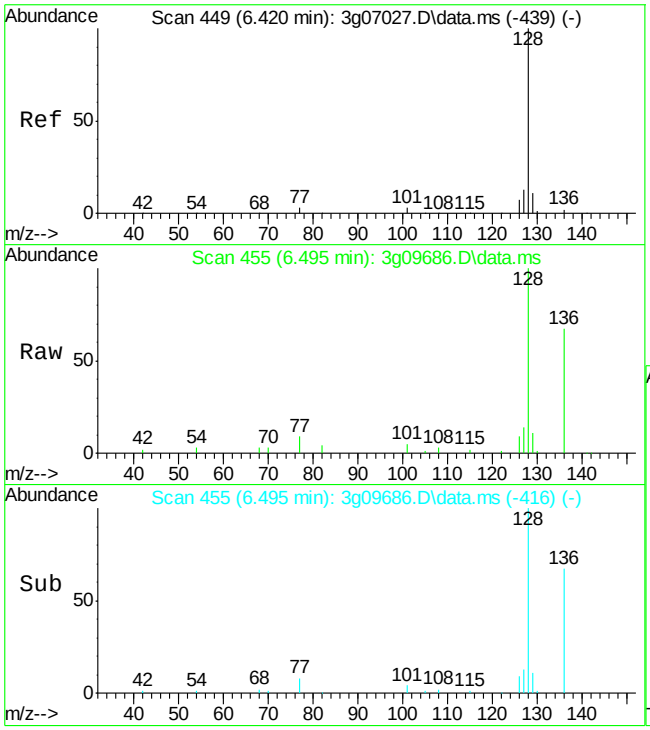


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.63 min

Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion: 70

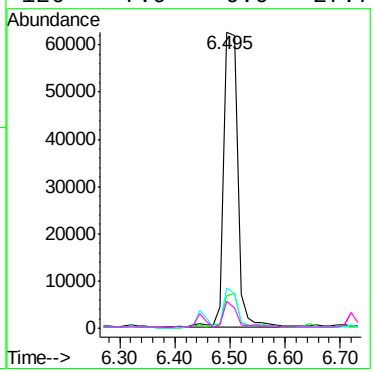
Sig	Exp Ratio
70	100
101	9.8
42	61.6
130	18.2

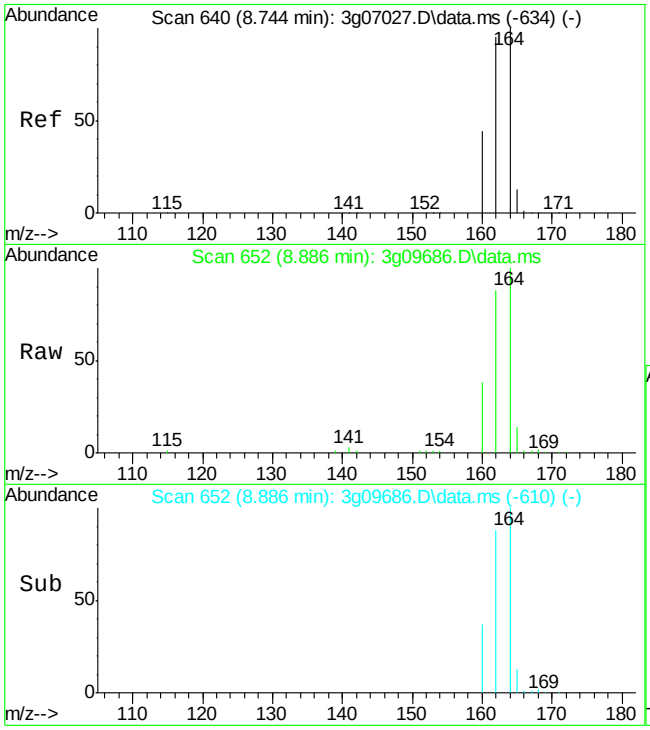


#5
Naphthalene
Concen: 1.5259 ug/mL
RT: 6.495 min Scan# 455
Delta R.T. -0.012 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:128 Resp: 107090

Ion	Ratio	Lower	Upper
128	100		
129	12.6	0.0	30.8
127	13.5	0.0	32.4
126	7.9	0.0	27.7

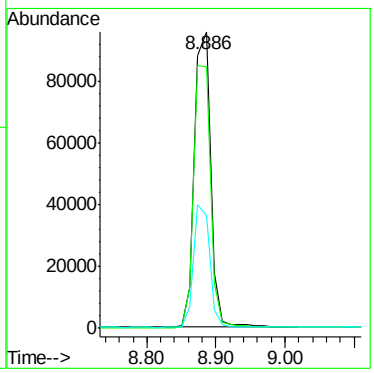


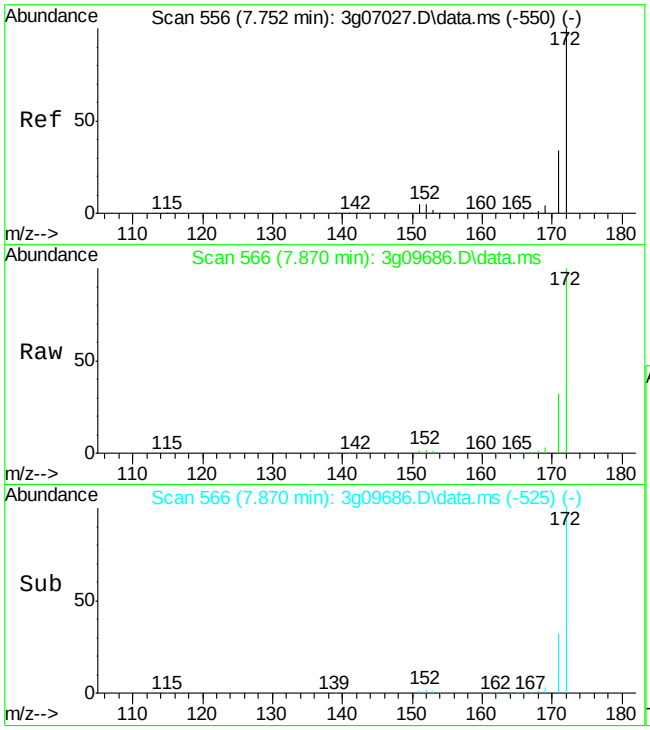


#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 8.886 min Scan# 652
Delta R.T. 0.000 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:164 Resp: 156062

Ion	Ratio	Lower	Upper
164	100		
162	91.6	72.8	112.8
160	41.1	22.3	62.3

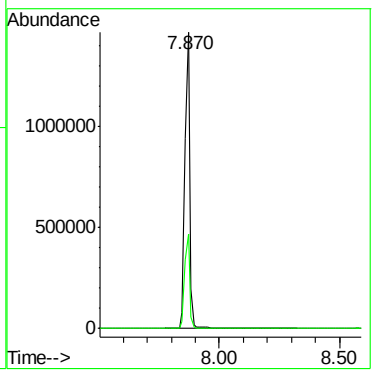


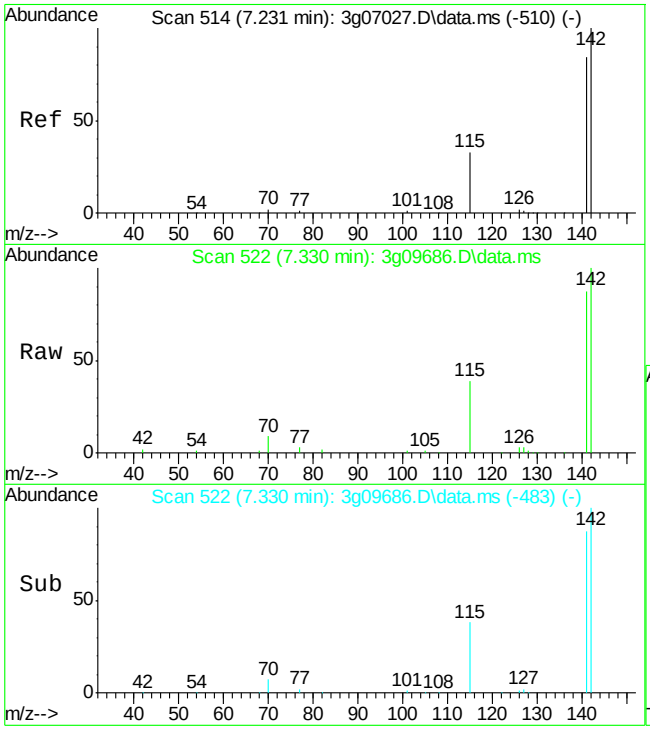


#7
2-Fluorobiphenyl
Concen: 38.5146 ug/mL
RT: 7.870 min Scan# 566
Delta R.T. 0.000 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:172 Resp: 1952559

Ion	Ratio	Lower	Upper
172	100		
171	33.1	13.3	53.3

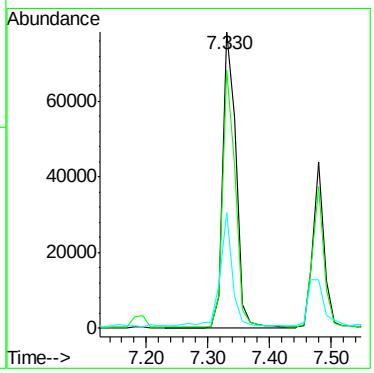


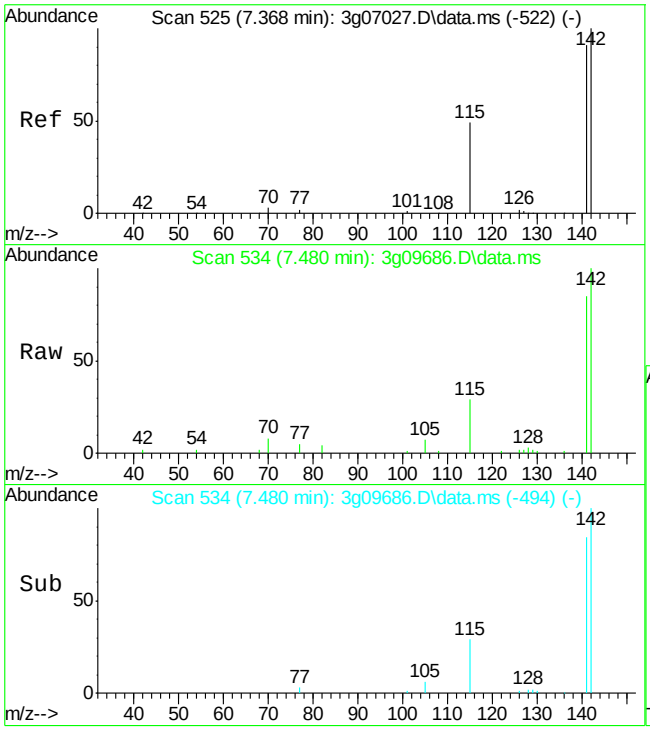


#8
2-Methylnaphthalene
Concen: 2.6581 ug/mL
RT: 7.330 min Scan# 522
Delta R.T. -0.012 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:142 Resp: 114608

Ion	Ratio	Lower	Upper
142	100		
141	82.7	63.5	103.5
115	35.5	15.6	55.6

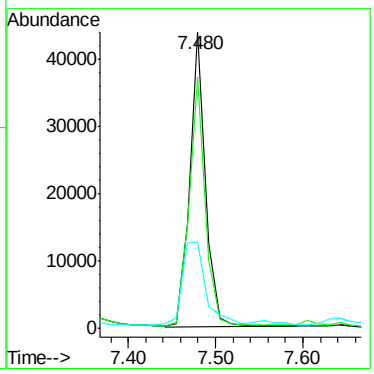


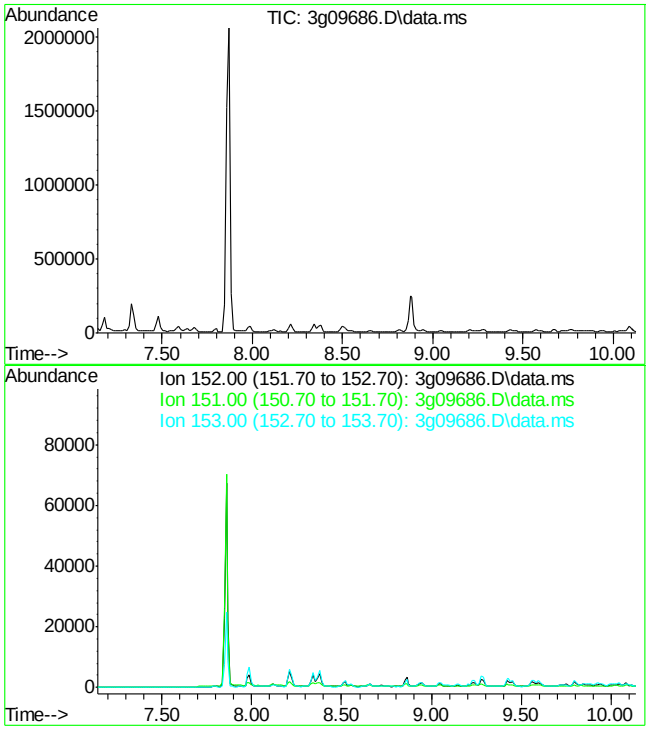


#9
1-Methylnaphthalene
Concen: 1.2720 ug/mL
RT: 7.480 min Scan# 534
Delta R.T. 0.000 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:142 Resp: 55601

Ion	Ratio	Lower	Upper
142	100		
141	86.1	66.5	106.5
115	41.4	17.1	57.1



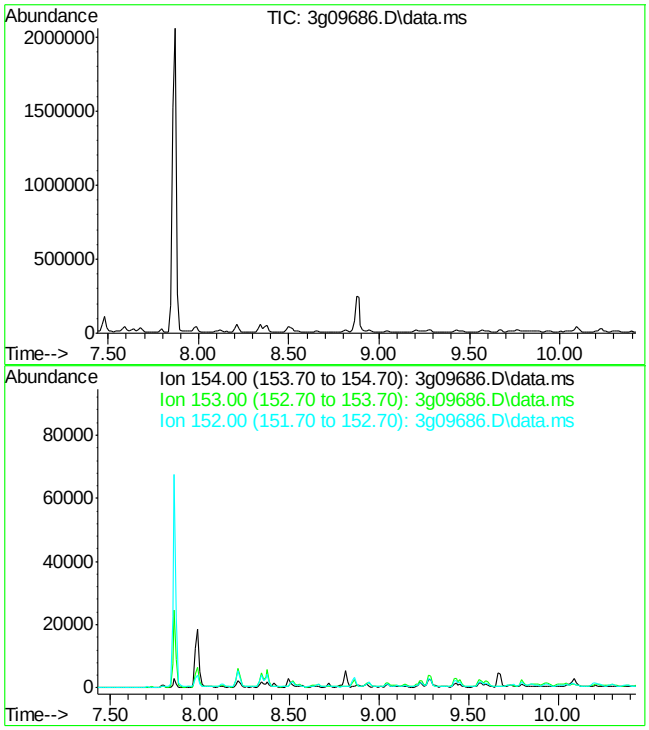


#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.64 min

Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion: 152

Sig	Exp Ratio
152	100
151	19.2
153	14.0

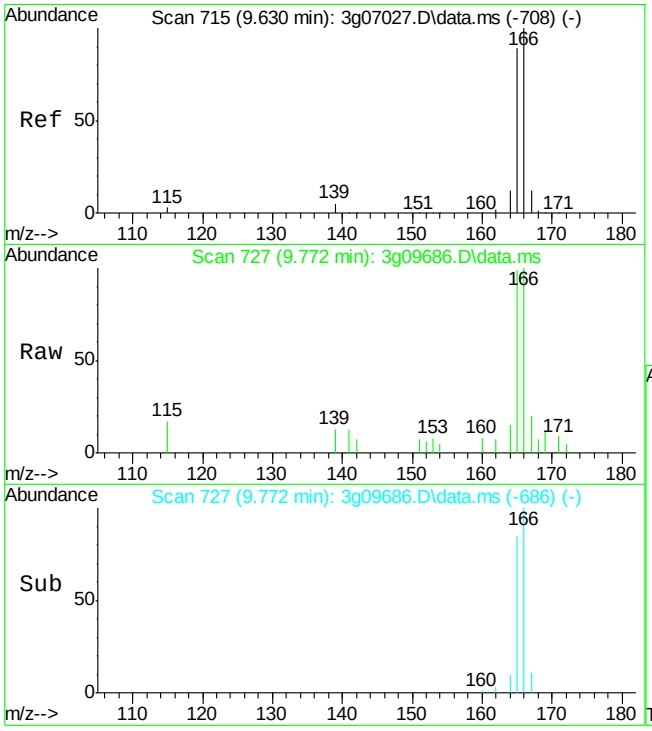


#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 8.93 min

Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion: 154

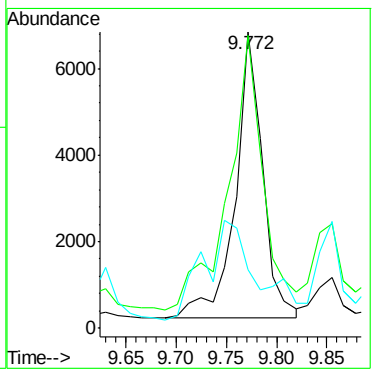
Sig	Exp Ratio
154	100
153	104.9
152	47.2

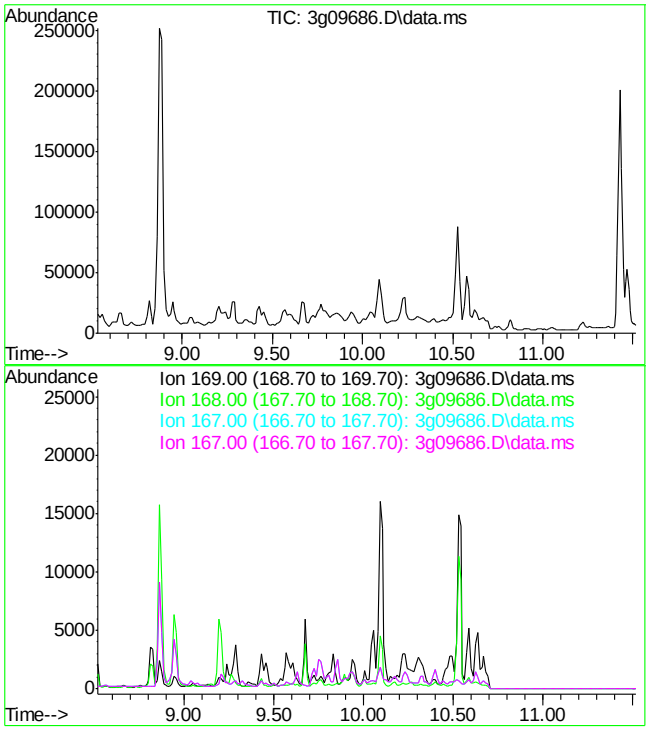


#12
Fluorene
Concen: 0.2506 ug/mL
RT: 9.772 min Scan# 727
Delta R.T. -0.012 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:166 Resp: 12483

Ion	Ratio	Lower	Upper
166	100		
165	120.7	71.4	111.4#
167	70.6	0.0	33.2#



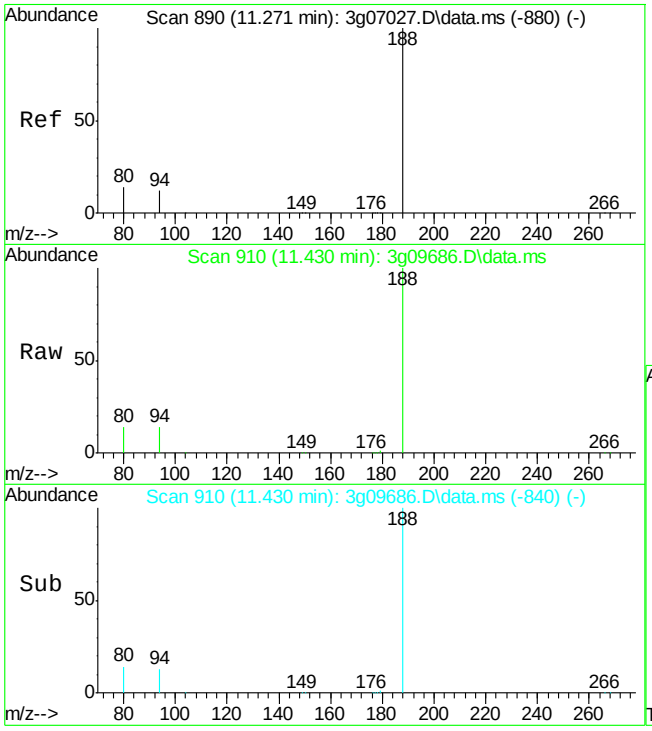


#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.02 min

Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion: 169

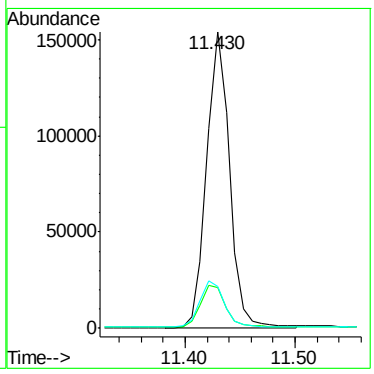
Sig	Exp Ratio
169	100
168	61.6
167	33.3
167	33.3

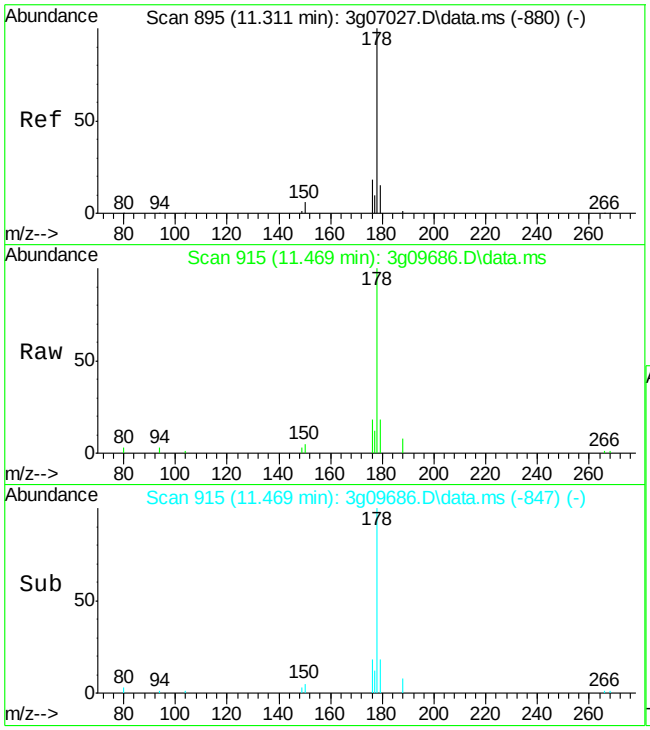


#14
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 11.430 min Scan# 910
Delta R.T. 0.000 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:188 Resp: 222623

Ion	Ratio	Lower	Upper
188	100		
94	15.4	0.0	36.4
80	16.5	0.0	38.0

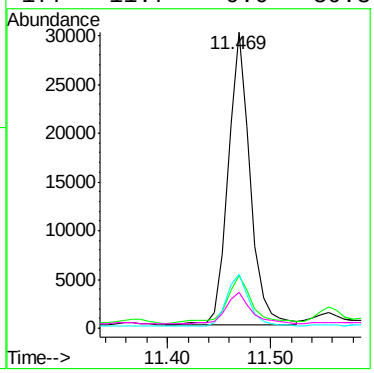


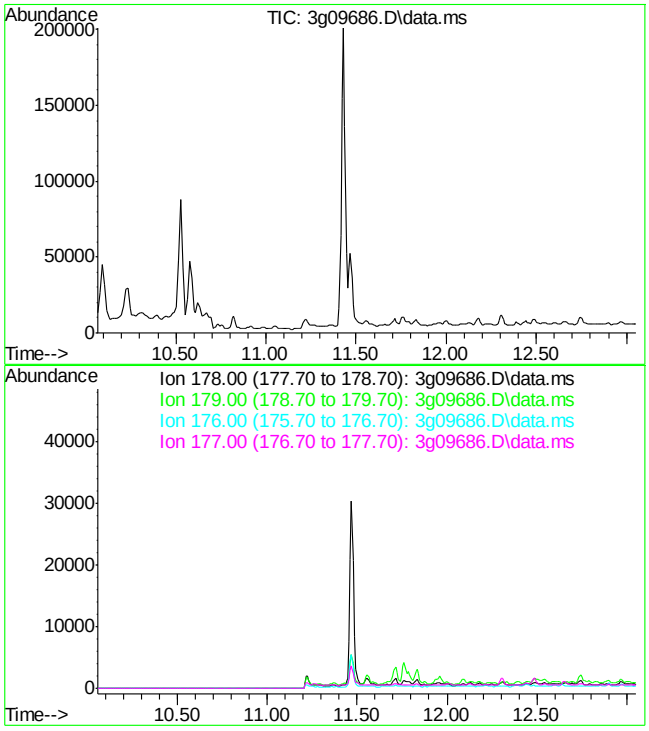


#15
Phenanthrene
Concen: 0.6691 ug/mL
RT: 11.469 min Scan# 915
Delta R.T. -0.008 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:178 Resp: 44606

Ion	Ratio	Lower	Upper
178	100		
179	19.5	0.0	35.0
176	17.9	0.0	38.8
177	11.7	0.0	30.3



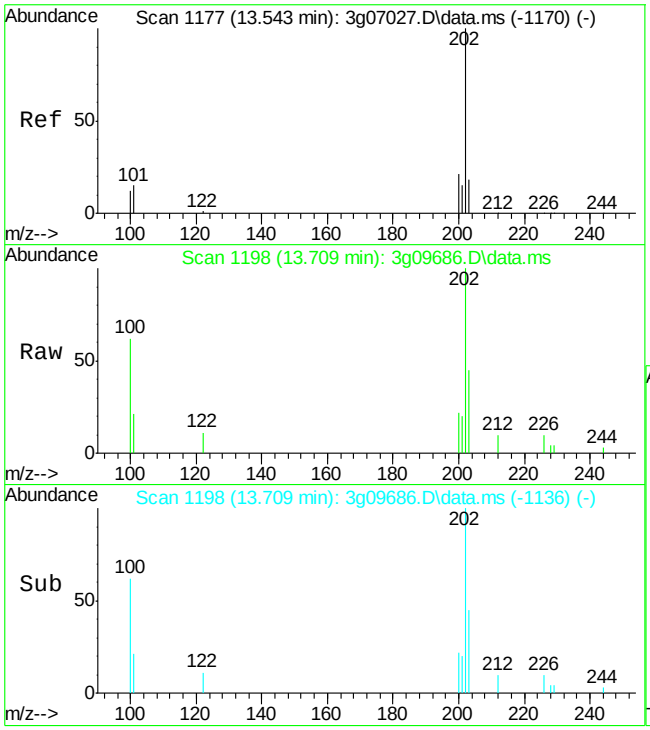


#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.56 min

Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion: 178

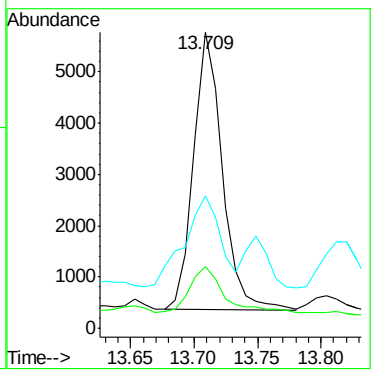
Sig	Exp Ratio
178	100
179	14.9
176	18.0
177	8.7

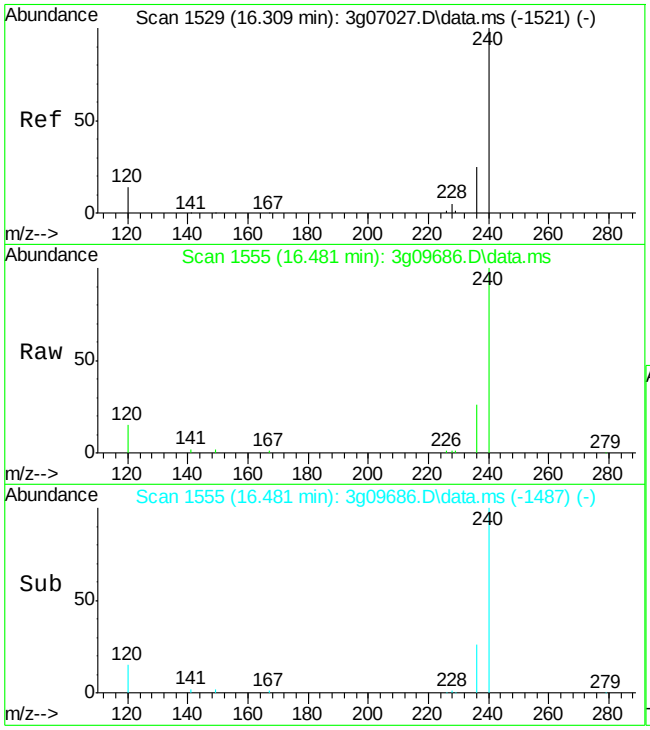


#17
Fluoranthene
Concen: 0.1156 ug/mL
RT: 13.709 min Scan# 1198
Delta R.T. -0.008 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:202 Resp: 8494

Ion	Ratio	Lower	Upper
202	100		
101	19.9	0.0	35.6
203	41.2	0.0	37.2#

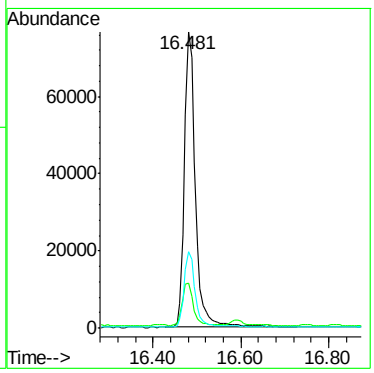


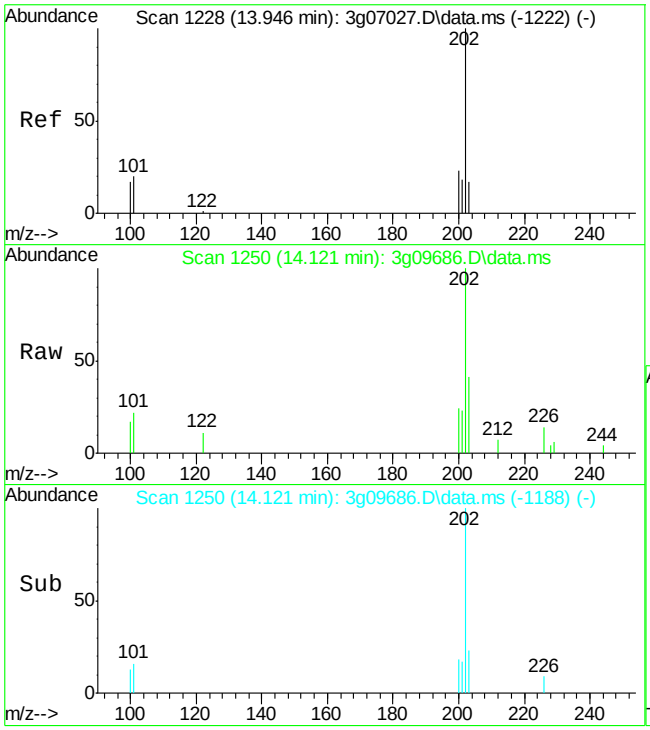


#18
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 16.481 min Scan# 1555
Delta R.T. -0.013 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:240 Resp: 133240

Ion	Ratio	Lower	Upper
240	100		
120	14.3	0.0	34.7
236	25.5	4.7	44.7

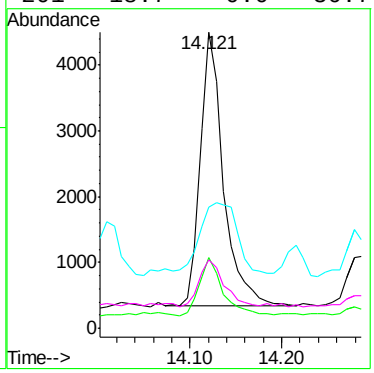


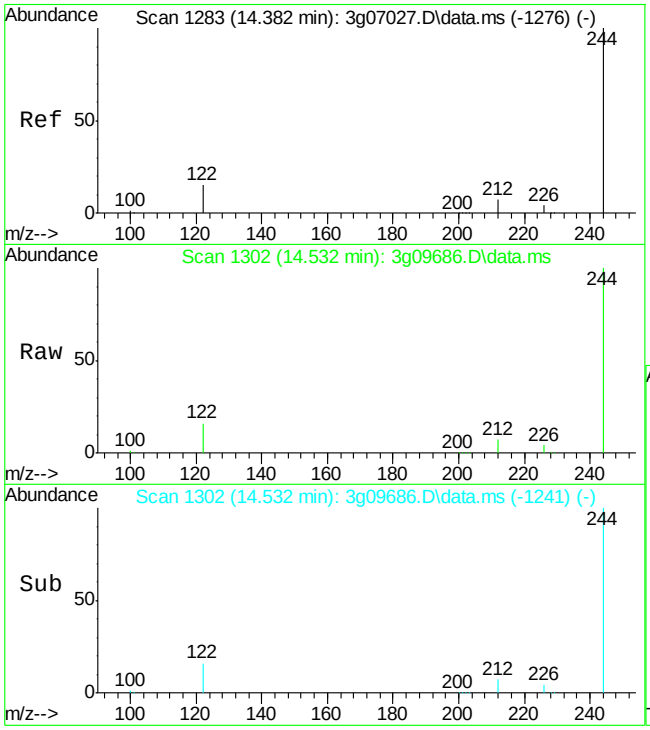


#19
Pyrene
Concen: 0.1830 ug/mL
RT: 14.121 min Scan# 1250
Delta R.T. -0.007 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:202 Resp: 7249

Ion	Ratio	Lower	Upper
202	100		
200	21.2	0.3	40.3
203	46.4	0.0	37.7#
201	18.7	0.0	36.7

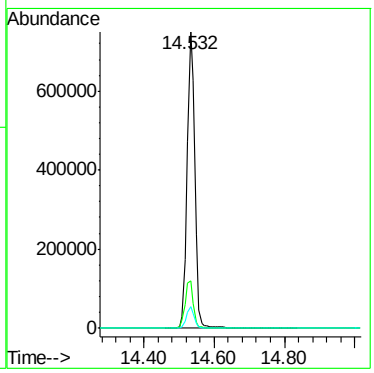


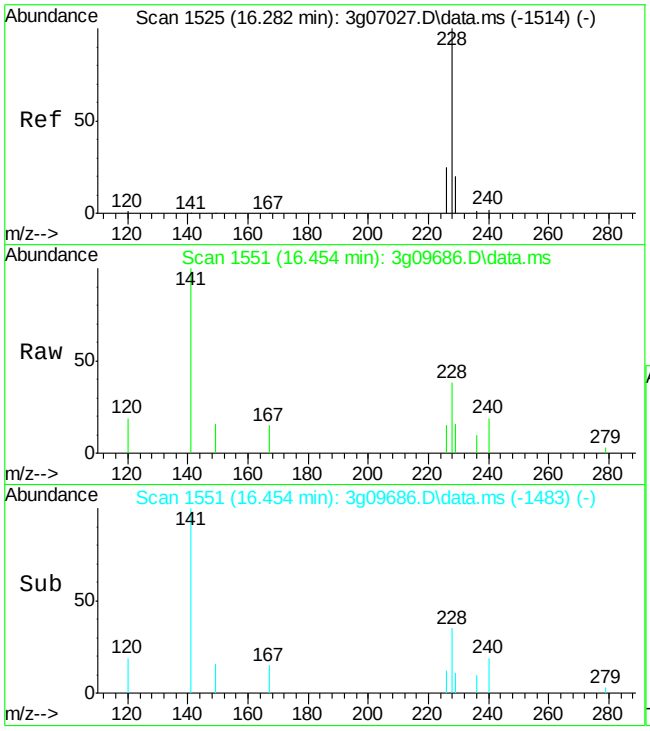


#20
Terphenyl-d14
Concen: 48.6803 ug/mL
RT: 14.532 min Scan# 1302
Delta R.T. -0.016 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:244 Resp: 1136447

Ion	Ratio	Lower	Upper
244	100		
122	16.6	0.0	35.5
212	7.0	0.0	26.6

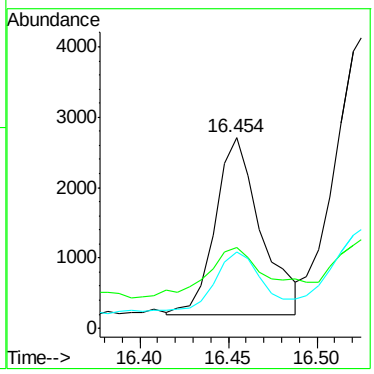


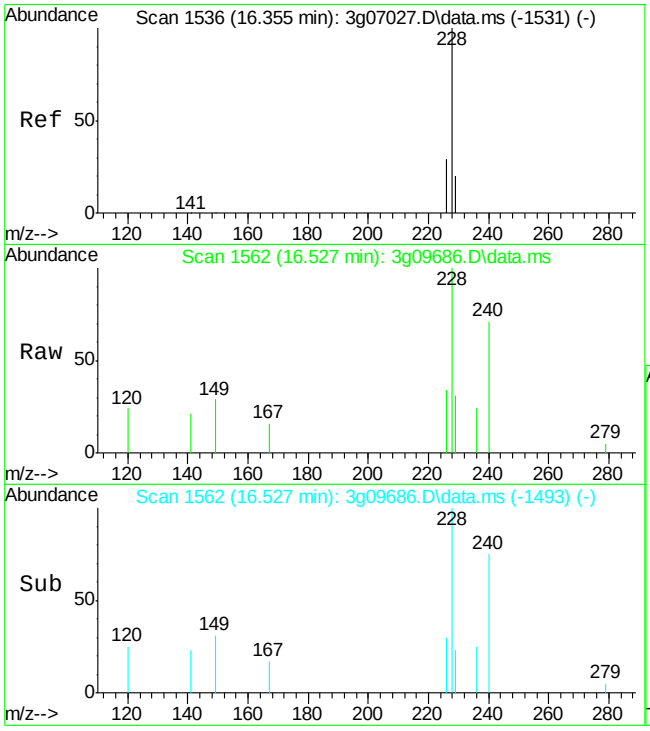


#21
Benzo(a)anthracene
Concen: 0.1749 ug/mL m
RT: 16.454 min Scan# 1551
Delta R.T. -0.006 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:228 Resp: 4547

Ion	Ratio	Lower	Upper
228	100		
229	56.6	0.0	39.5#
226	59.4	6.1	46.1#

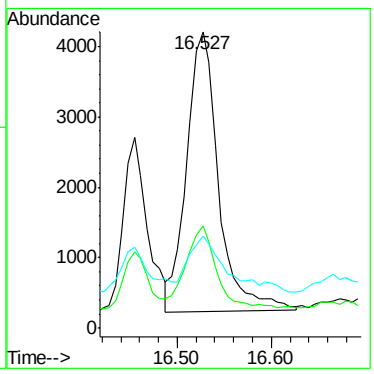


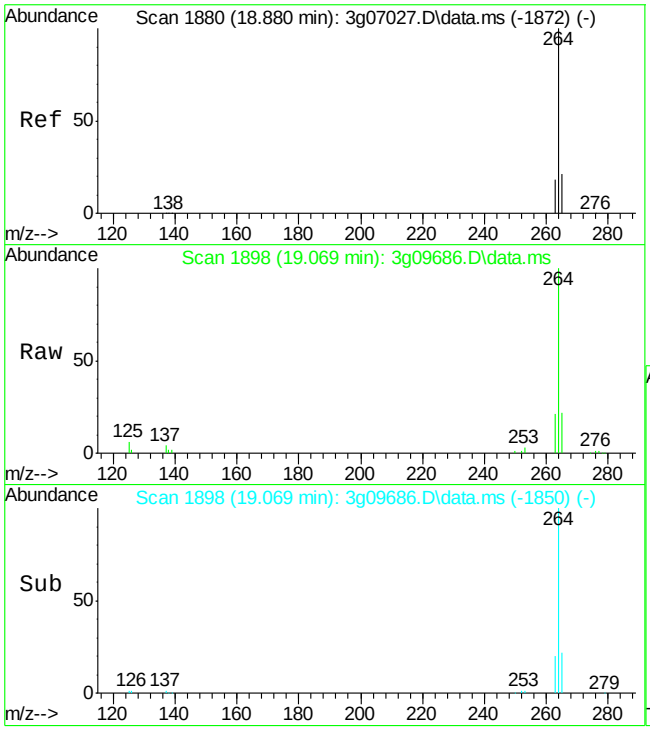


#22
Chrysene
Concen: 0.2109 ug/mL
RT: 16.527 min Scan# 1562
Delta R.T. -0.013 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:228 Resp: 9276

Ion	Ratio	Lower	Upper
228	100		
226	29.1	8.2	48.2
229	27.8	0.0	38.9

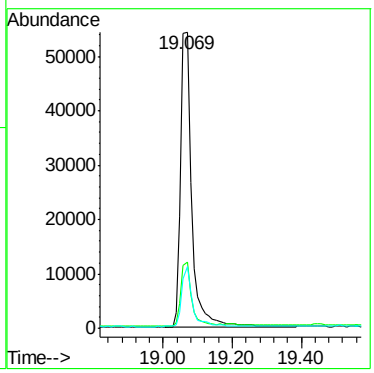


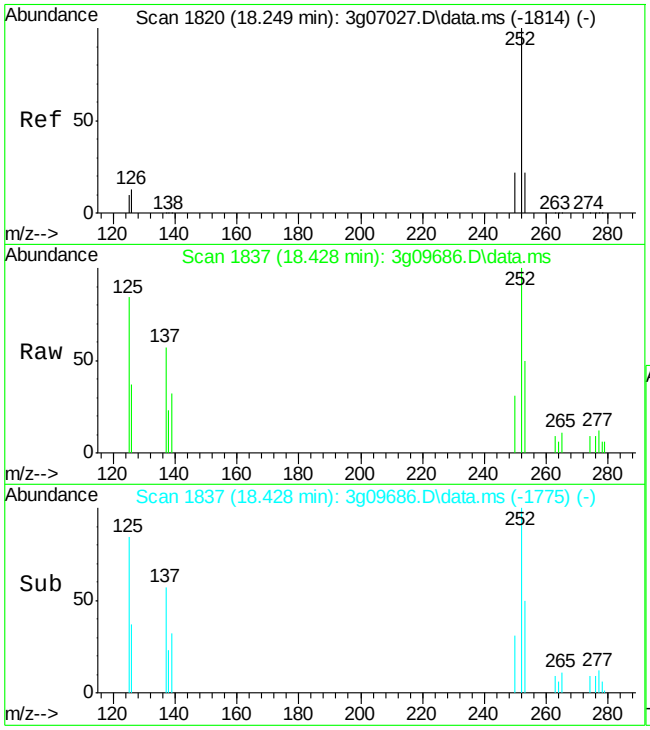


#23
Perylene-d12
Concen: 4.0000 ug/mL
RT: 19.069 min Scan# 1898
Delta R.T. 0.000 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:264 Resp: 121743

Ion	Ratio	Lower	Upper
264	100		
265	20.8	0.7	40.7
263	19.9	0.0	39.1

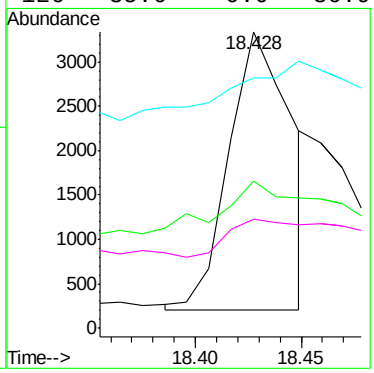


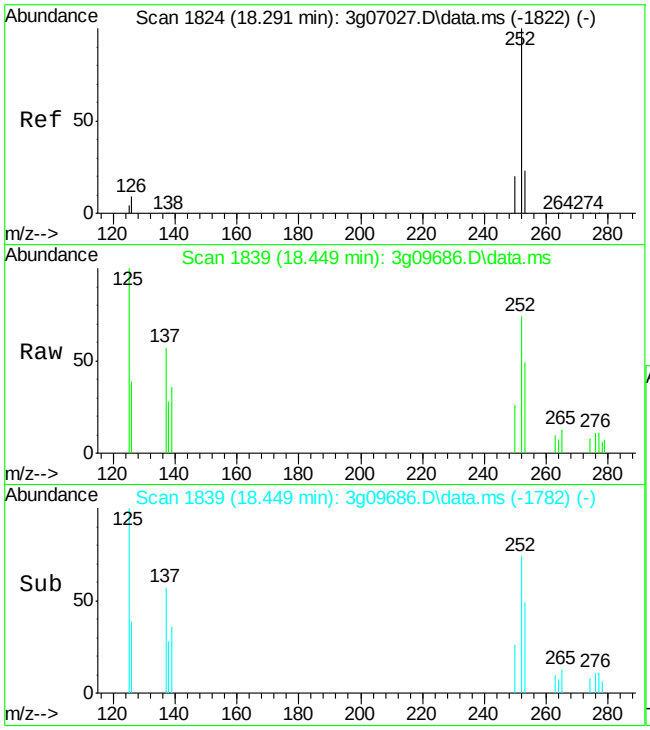


#24
Benzo(b)fluoranthene
Concen: 0.1735 ug/mL m
RT: 18.428 min Scan# 1837
Delta R.T. -0.009 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:252 Resp: 6424

Ion	Ratio	Lower	Upper
252	100		
253	30.3	1.4	41.4
125	0.0	0.0	32.2
126	35.6	0.0	36.9

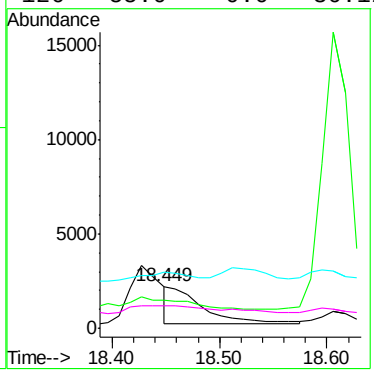


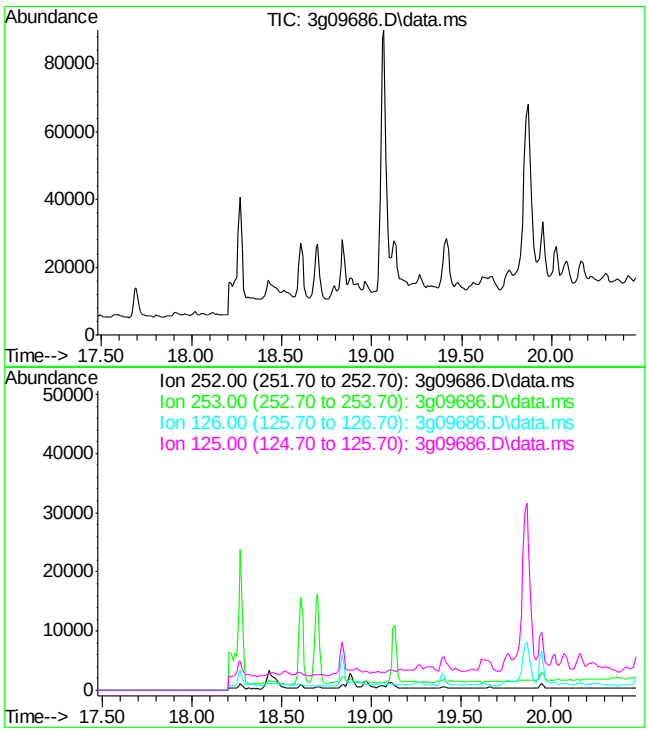


#25
Benzo(k)fluoranthene
Concen: 0.1183 ug/mL m
RT: 18.449 min Scan# 1839
Delta R.T. -0.030 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:252 Resp: 4160

Ion	Ratio	Lower	Upper
252	100		
253	46.8	1.7	41.7#
125	0.0	0.0	30.4
126	55.0	0.0	36.1#



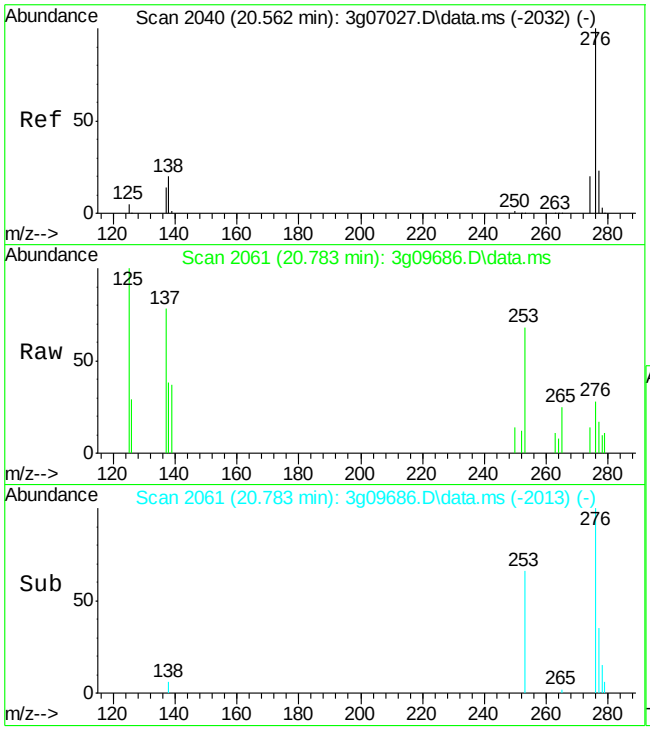


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 18.97 min

Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion: 252

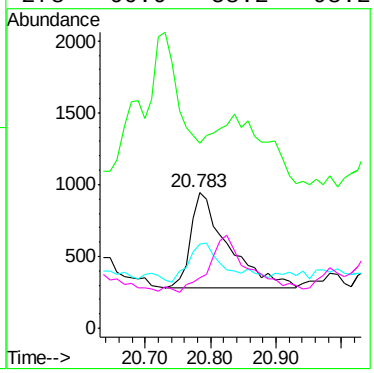
Sig	Exp Ratio
252	100
253	21.5
126	16.6
125	12.0

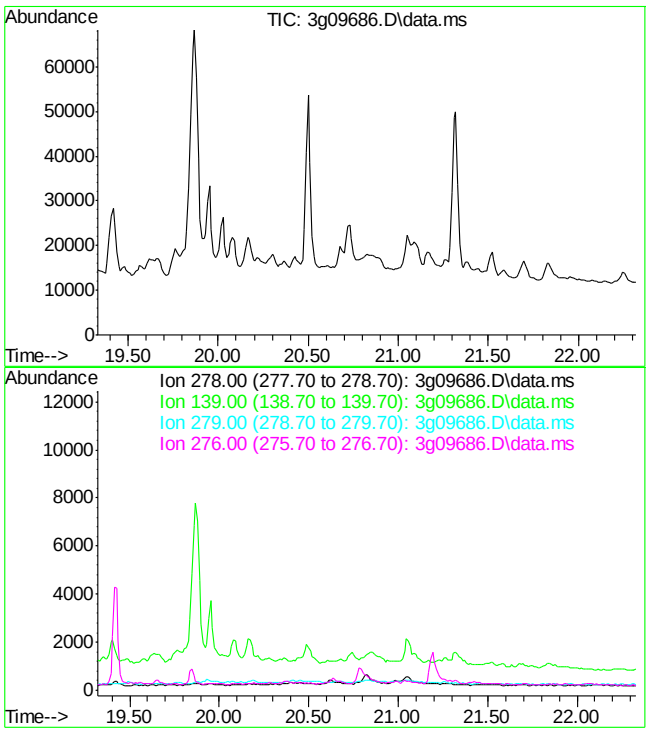


#27
Indeno(1,2,3-cd)pyrene
Concen: 0.2156 ug/mL
RT: 20.783 min Scan# 2061
Delta R.T. 0.000 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:276 Resp: 2604

Ion	Ratio	Lower	Upper
276	100		
138	0.0	6.6	46.6#
277	35.3	4.8	44.8
278	66.0	58.2	98.2



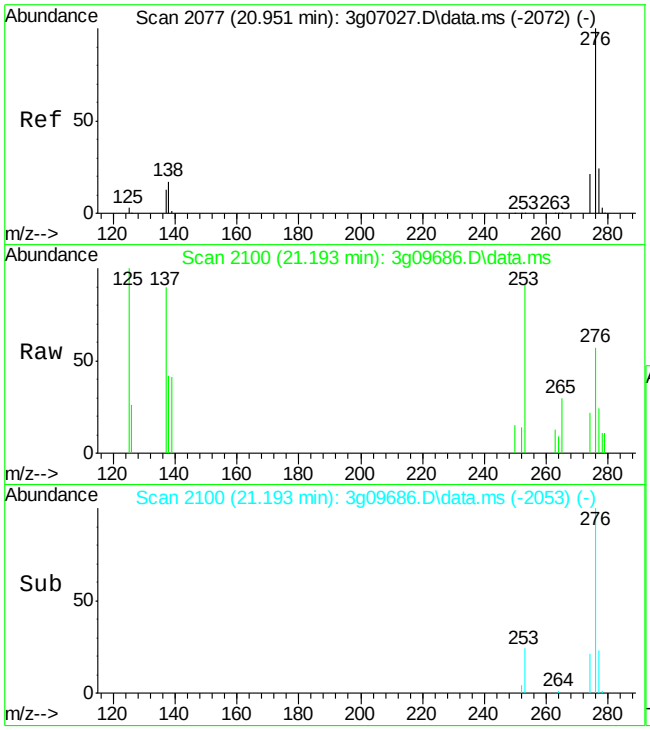


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 20.83 min

Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion: 278

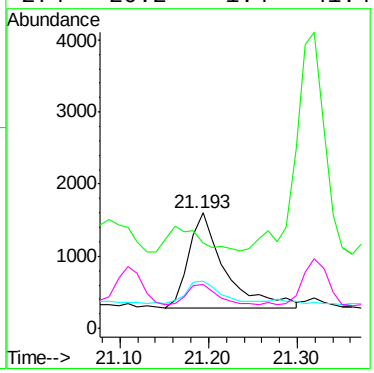
Sig	Exp Ratio
278	100
139	18.4
279	23.4
276	127.9



#29
Benzo(g,h,i)perylene
Concen: 0.2292 ug/mL
RT: 21.193 min Scan# 2100
Delta R.T. -0.010 min
Lab File: 3g09686.D
Acq: 15 Jun 12 5:30 pm

Tgt Ion:276 Resp: 3770

Ion	Ratio	Lower	Upper
276	100		
138	35.8	3.6	43.6
277	21.4	3.7	43.7
274	20.2	1.4	41.4



Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 06/19/12 11:18

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\061812\
Data File : 3g09713.D
Acq On : 18 Jun 2012 4:48 pm
Operator : DONC
Sample : D35289-1, 4x
Misc : OP6035,E3G428,30.00,,,1,4
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 19 09:04:33 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G428.M
Quant Title : PAHSIM BASE
QLast Update : Mon Jun 18 15:10:00 2012
Response via : Initial Calibration

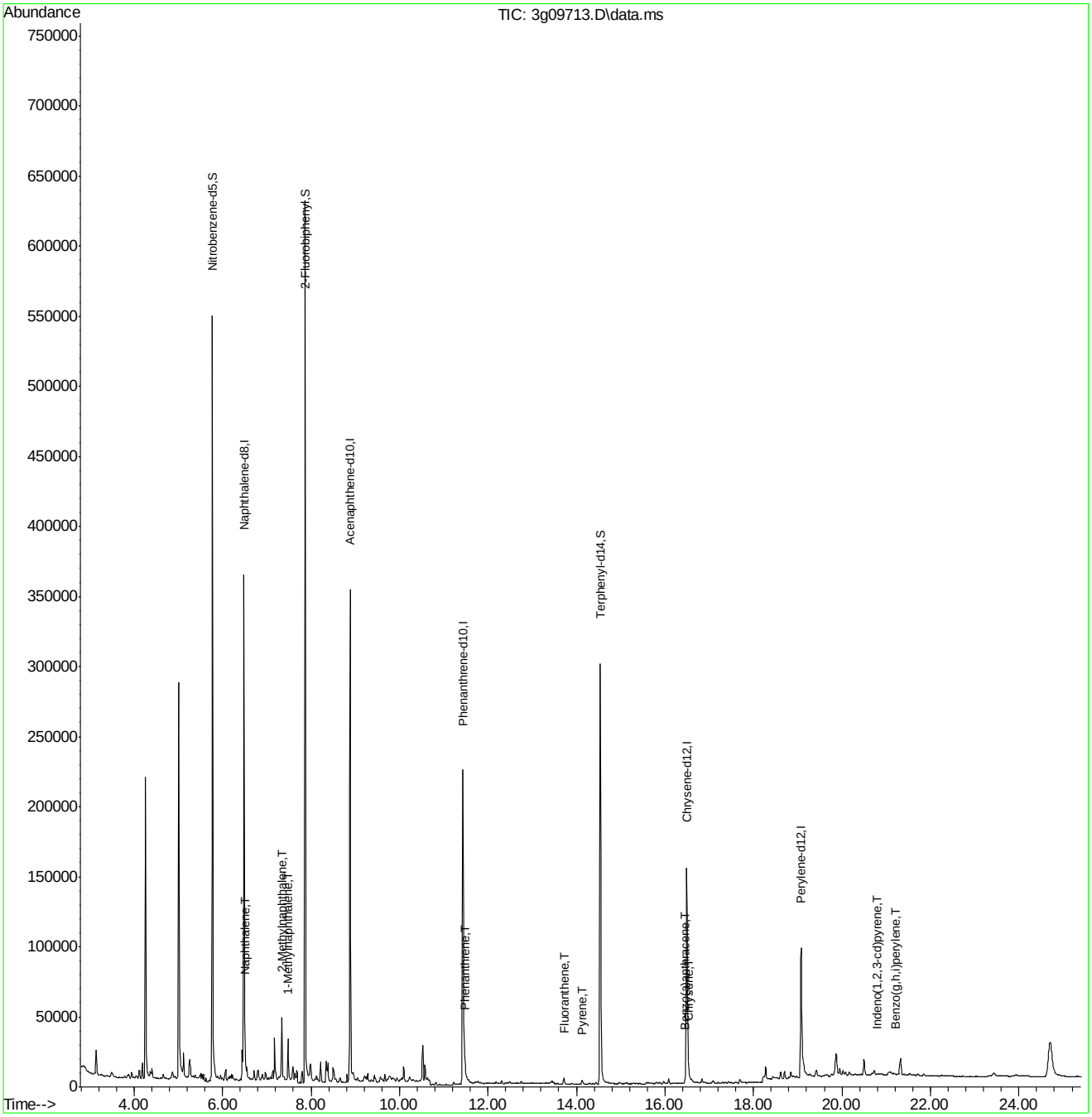
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.483	136	340839	4.0000	ug/mL	0.00
6) Acenaphthene-d10	8.886	164	208277	4.0000	ug/mL	0.00
14) Phenanthrene-d10	11.437	188	309728	4.0000	ug/mL	0.00
18) Chrysene-d12	16.494	240	214419	4.0000	ug/mL	0.00
23) Perylene-d12	19.079	264	161071	4.0000	ug/mL	0.01
System Monitoring Compounds						
2) Nitrobenzene-d5	5.772	82	327370	7.7647	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 15.52%#			
7) 2-Fluorobiphenyl	7.870	172	607129	8.9206	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 17.84%#			
20) Terphenyl-d14	14.540	244	406490	10.0124	ug/mL	-0.02
Spiked Amount 50.000	Range 25 - 135		Recovery = 20.02%#			
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	6.507	128	32565	0.3569	ug/mL	95
8) 2-Methylnaphthalene	7.343	142	33555	0.5864	ug/mL	98
9) 1-Methylnaphthalene	7.480	142	16775	0.2931	ug/mL	99
10) Acenaphthylene	0.000	152	0	N.D.	d	
11) Acenaphthene	0.000	154	0	N.D.	d	
12) Fluorene	0.000	166	0	N.D.	d	
13) Diphenylamine	0.000	169	0	N.D.	d	
15) Phenanthrene	11.477	178	14177	0.1600	ug/mL	94
16) Anthracene	0.000	178	0	N.D.	d	
17) Fluoranthene	13.717	202	3251	0.0308	ug/mL	72
19) Pyrene	14.128	202	2790m	0.0697	ug/mL	
21) Benzo(a)anthracene	16.461	228	2143	0.0559	ug/mL	89
22) Chrysene	16.534	228	3746	0.0541	ug/mL	96
24) Benzo(b)fluoranthene	0.000	252	0	N.D.	d	
25) Benzo(k)fluoranthene	0.000	252	0	N.D.	d	
26) Benzo(a)pyrene	0.000	252	0	N.D.	d	
27) Indeno(1,2,3-cd)pyrene	20.804	276	687	0.0464	ug/mL	86
28) Dibenz(a,h)anthracene	0.000	278	0	N.D.	d	
29) Benzo(g,h,i)perylene	21.214	276	1064	0.0720	ug/mL#	84

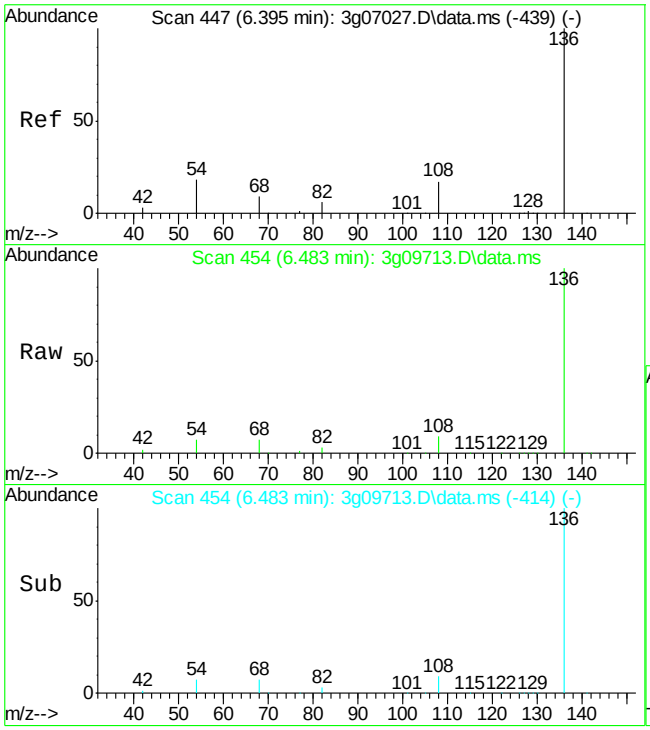
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\061812\
Data File : 3g09713.D
Acq On : 18 Jun 2012 4:48 pm
Operator : DONC
Sample : D35289-1, 4x
Misc : OP6035,E3G428,30.00,,,1,4
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 19 09:04:33 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G428.M
Quant Title : PAHSIM BASE
QLast Update : Mon Jun 18 15:10:00 2012
Response via : Initial Calibration

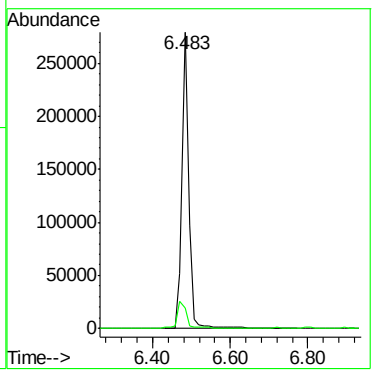


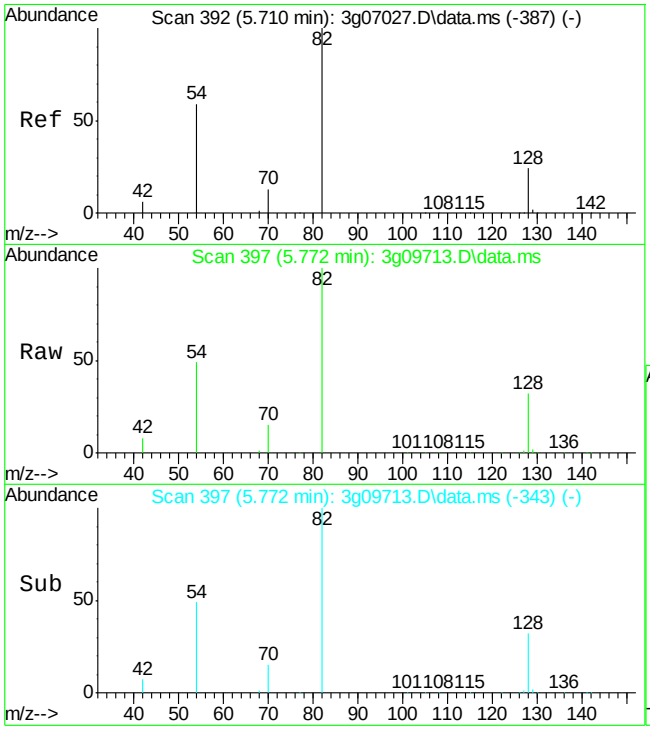


#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 6.483 min Scan# 454
Delta R.T. 0.000 min
Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion:136 Resp: 340839

Ion	Ratio	Lower	Upper
136	100		
68	11.5	0.0	32.1

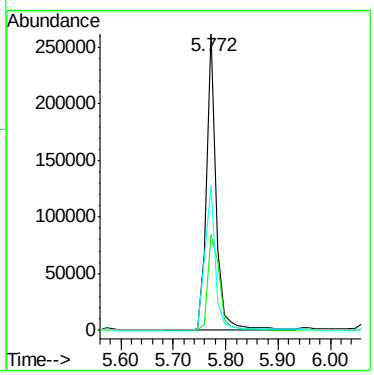


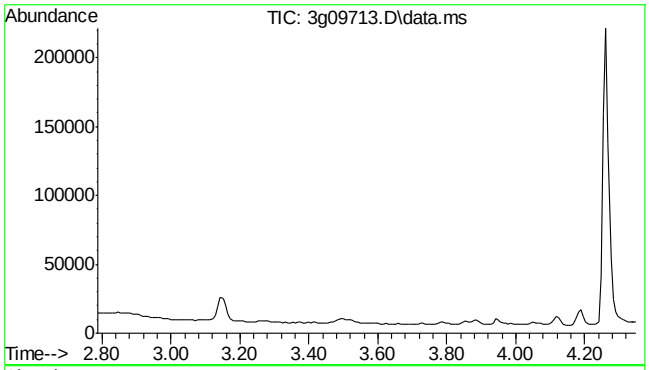


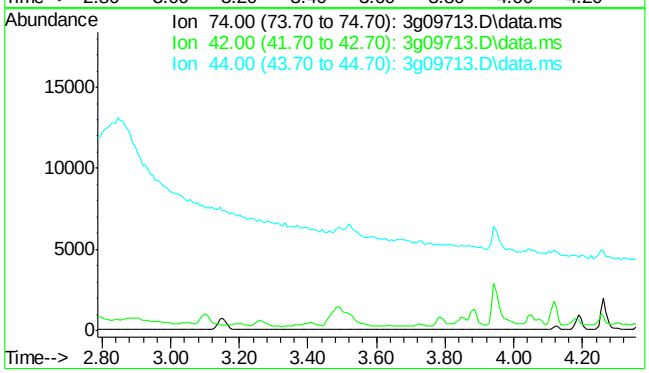
#2
Nitrobenzene-d5
Concen: 7.7647 ug/mL
RT: 5.772 min Scan# 397
Delta R.T. 0.000 min
Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion: 82 Resp: 327370

Ion	Ratio	Lower	Upper
82	100		
128	39.0	14.3	54.3
54	53.4	38.1	78.1





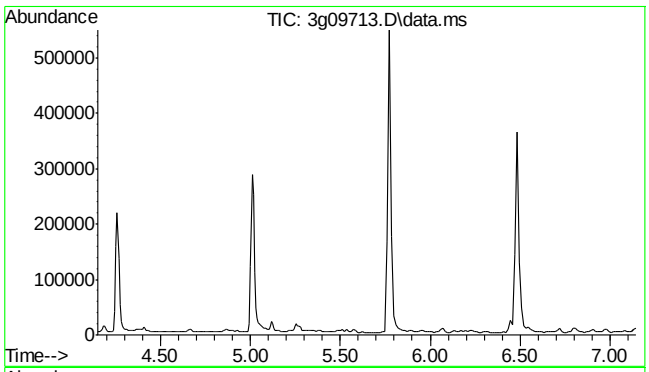


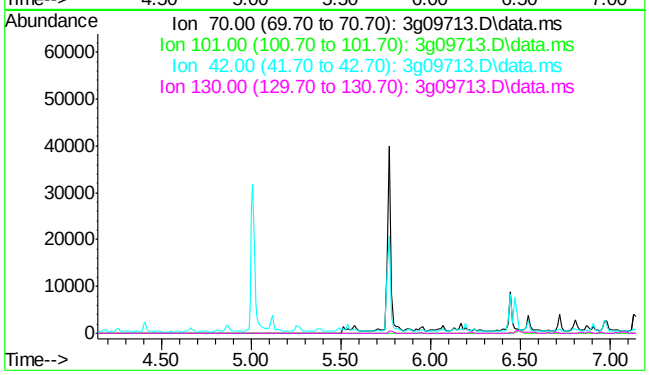
#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.85 min

Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion: 74

Sig	Exp Ratio
74	100
42	65.5
44	9.6



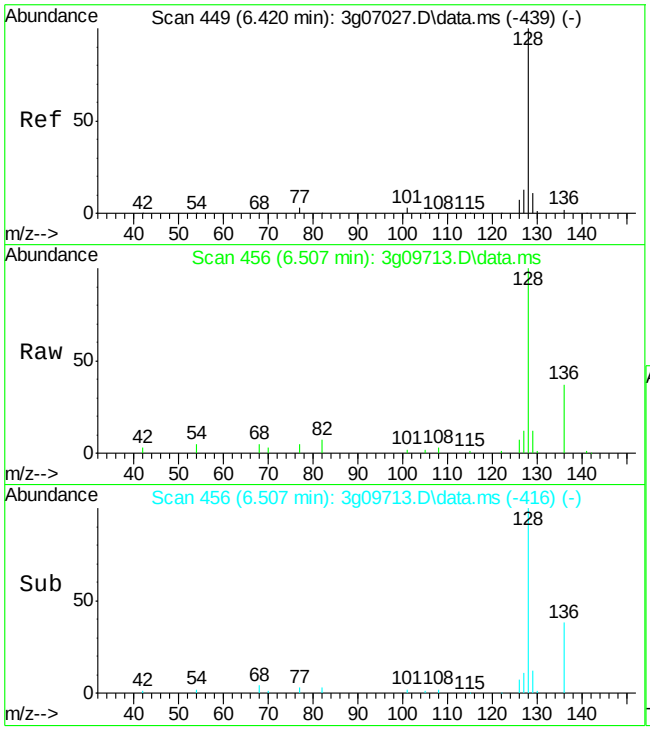


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.65 min

Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion: 70

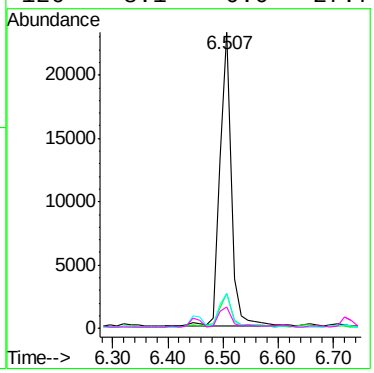
Sig	Exp Ratio
70	100
101	9.8
42	61.6
130	18.2

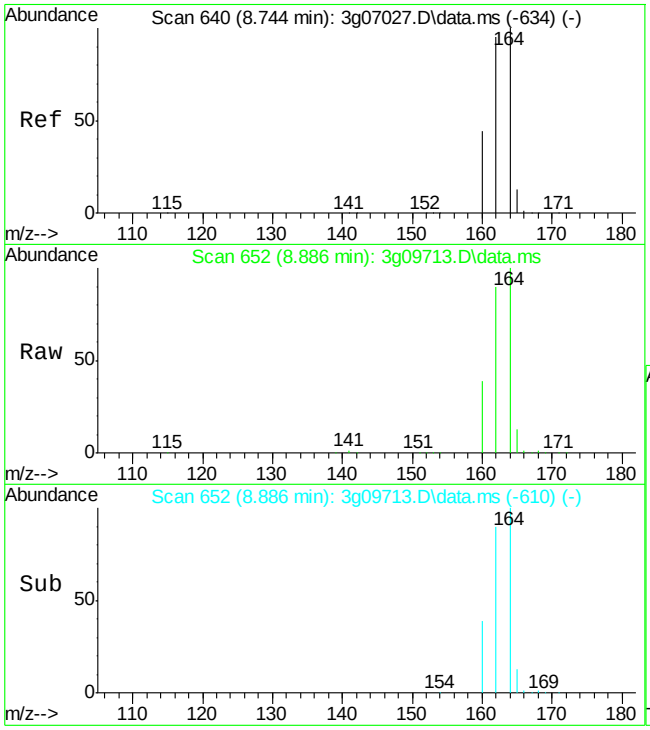


#5
Naphthalene
Concen: 0.3569 ug/mL
RT: 6.507 min Scan# 456
Delta R.T. 0.000 min
Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion:128 Resp: 32565

Ion	Ratio	Lower	Upper
128	100		
129	14.7	0.0	30.8
127	13.1	0.0	32.4
126	8.1	0.0	27.7

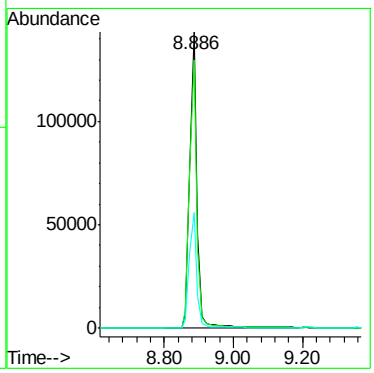


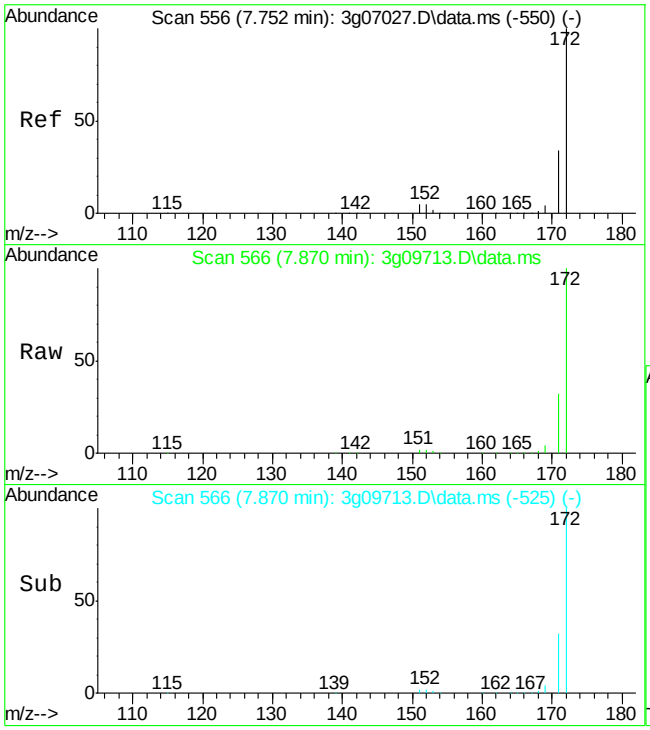


#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 8.886 min Scan# 652
Delta R.T. 0.000 min
Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion:164 Resp: 208277

Ion	Ratio	Lower	Upper
164	100		
162	92.4	72.8	112.8
160	40.9	22.3	62.3

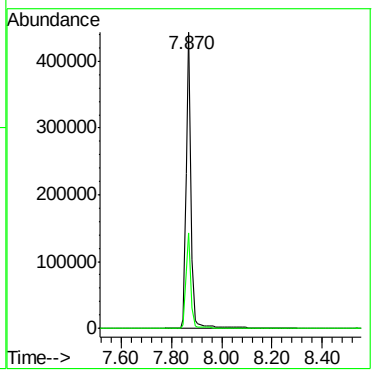


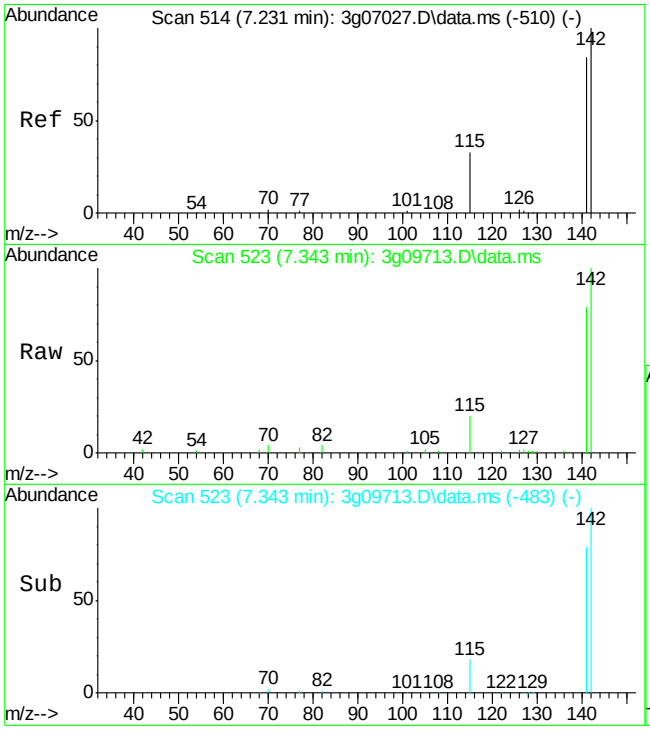


#7
2-Fluorobiphenyl
Concen: 8.9206 ug/mL
RT: 7.870 min Scan# 566
Delta R.T. 0.000 min
Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion:172 Resp: 607129

Ion	Ratio	Lower	Upper
172	100		
171	33.4	13.3	53.3

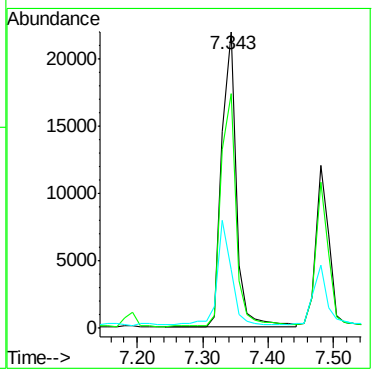


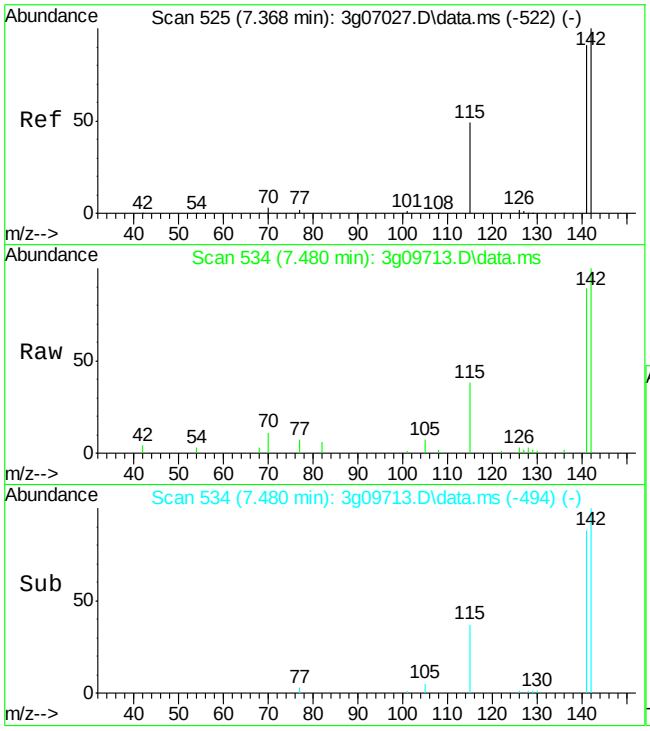


#8
2-Methylnaphthalene
Concen: 0.5864 ug/mL
RT: 7.343 min Scan# 523
Delta R.T. 0.000 min
Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion:142 Resp: 33555

Ion	Ratio	Lower	Upper
142	100		
141	82.2	63.5	103.5
115	34.1	15.6	55.6

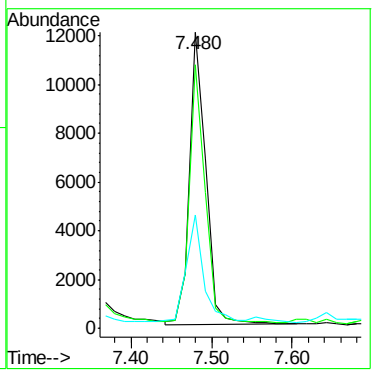


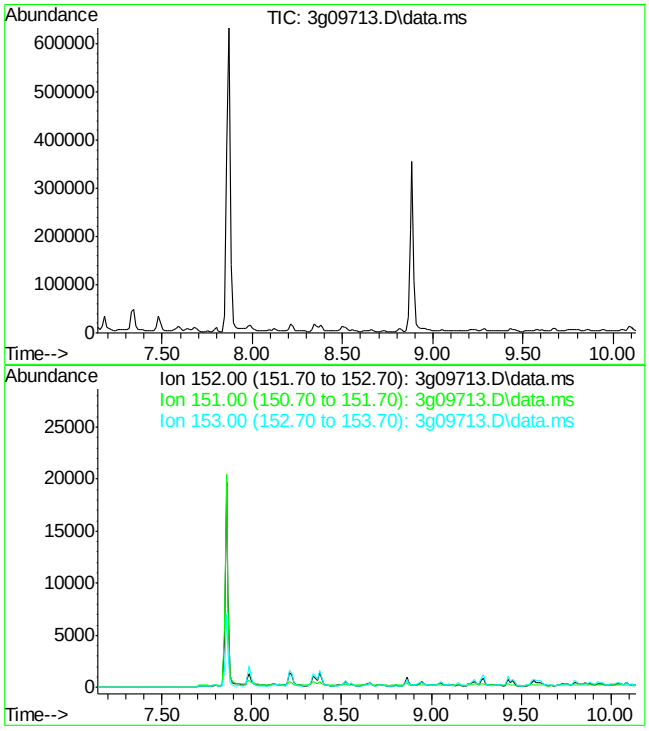


#9
1-Methylnaphthalene
Concen: 0.2931 ug/mL
RT: 7.480 min Scan# 534
Delta R.T. 0.000 min
Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion:142 Resp: 16775

Ion	Ratio	Lower	Upper
142	100		
141	86.2	66.5	106.5
115	38.8	17.1	57.1



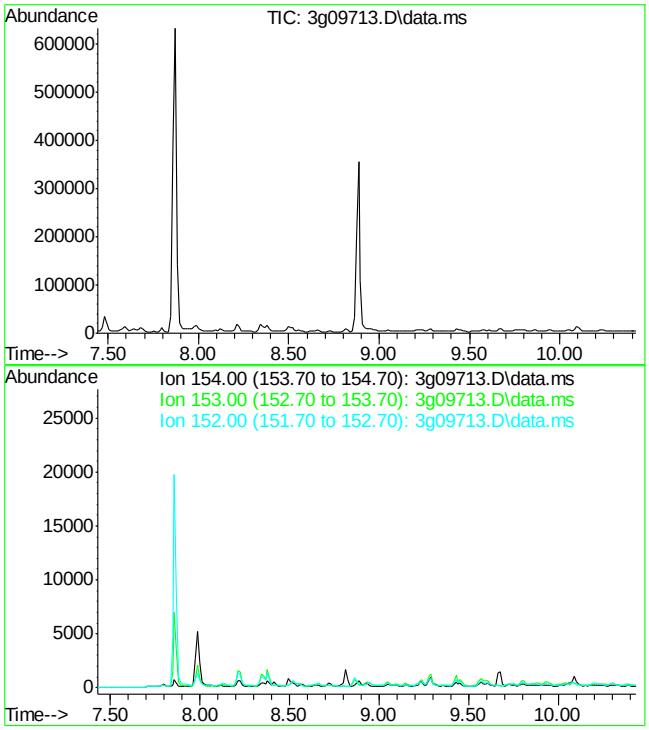


#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.64 min

Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion: 152

Sig	Exp Ratio
152	100
151	19.2
153	14.0

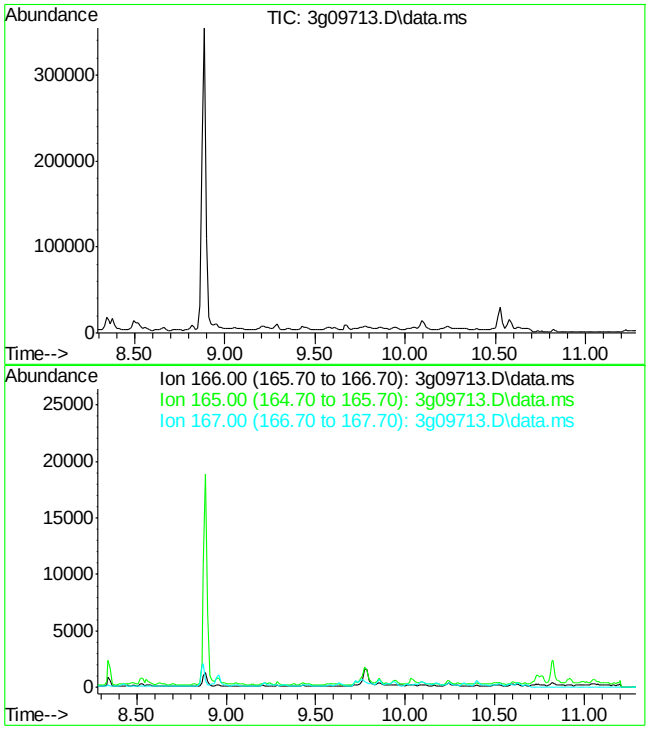


#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 8.93 min

Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion: 154

Sig	Exp Ratio
154	100
153	104.9
152	47.2

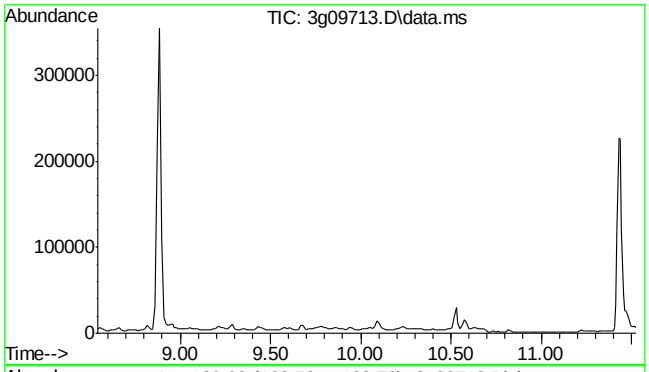


#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 9.78 min

Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion: 166

Sig	Exp Ratio
166	100
165	91.4
167	13.2

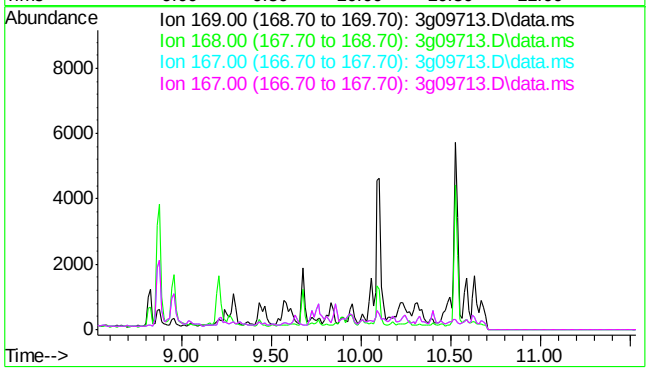


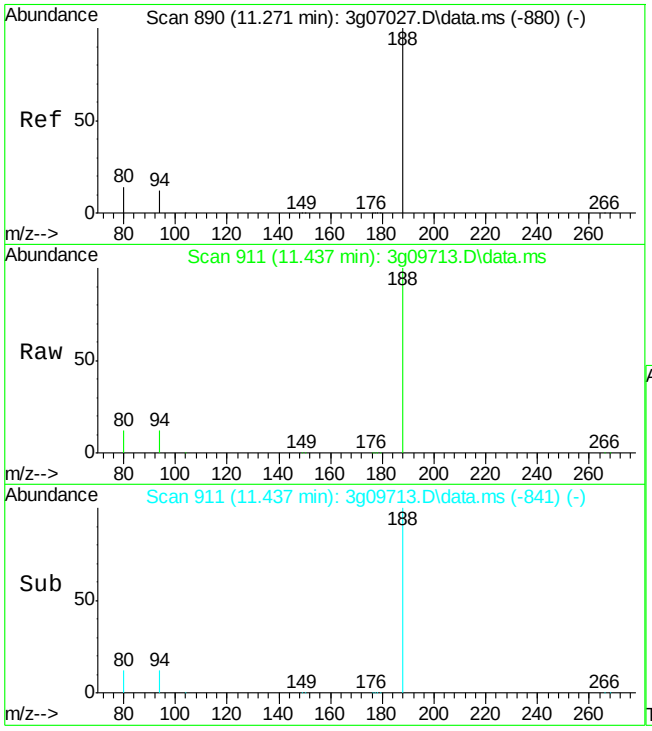
#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.03 min

Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion: 169

Sig	Exp Ratio
169	100
168	61.6
167	33.3
167	33.3

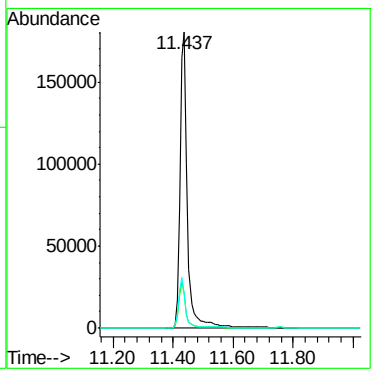


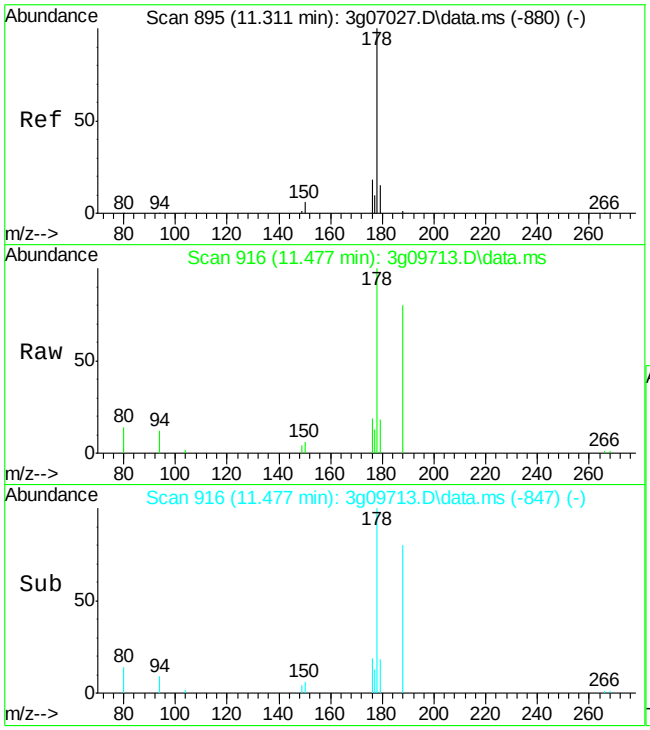


#14
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 11.437 min Scan# 911
Delta R.T. 0.000 min
Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion:188 Resp: 309728

Ion	Ratio	Lower	Upper
188	100		
94	15.0	0.0	36.4
80	16.3	0.0	38.0

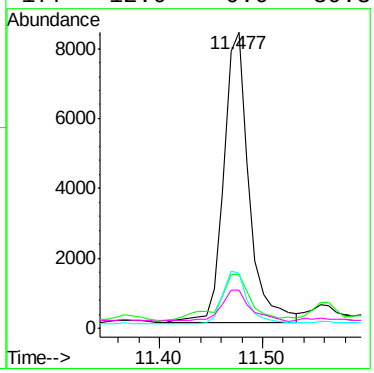


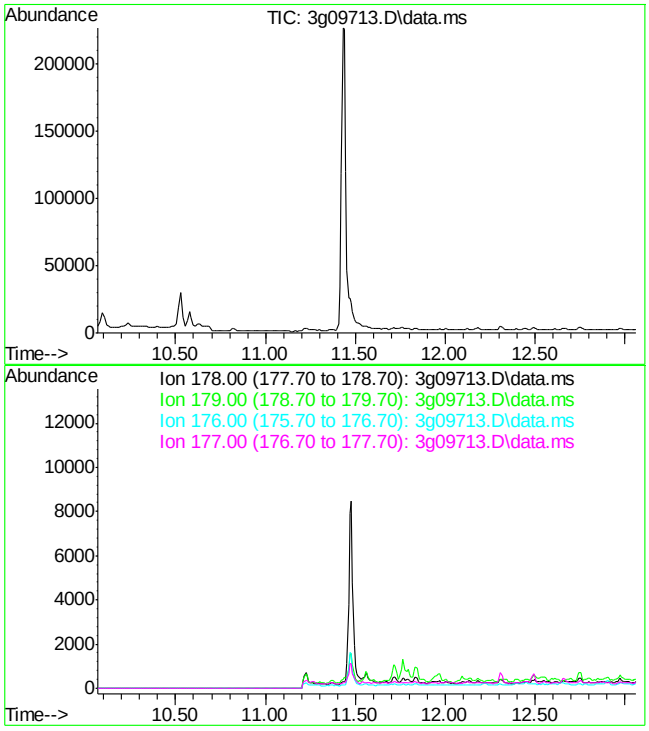


#15
Phenanthrene
Concen: 0.1600 ug/mL
RT: 11.477 min Scan# 916
Delta R.T. 0.000 min
Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion:178 Resp: 14177

Ion	Ratio	Lower	Upper
178	100		
179	20.1	0.0	35.0
176	17.8	0.0	38.8
177	12.0	0.0	30.3



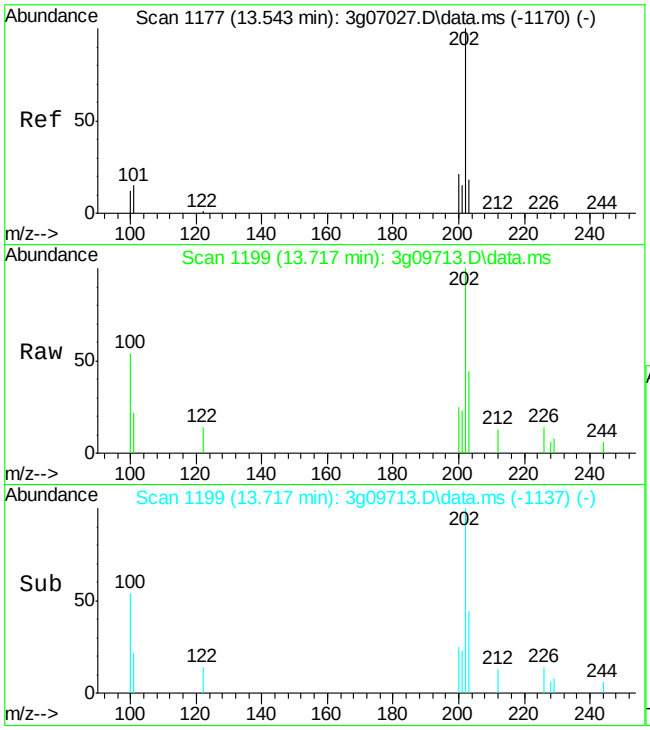


#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.56 min

Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion: 178

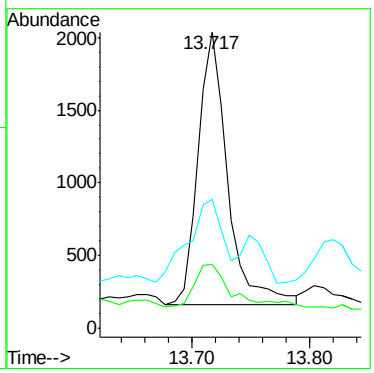
Sig	Exp Ratio
178	100
179	14.9
176	18.0
177	8.7

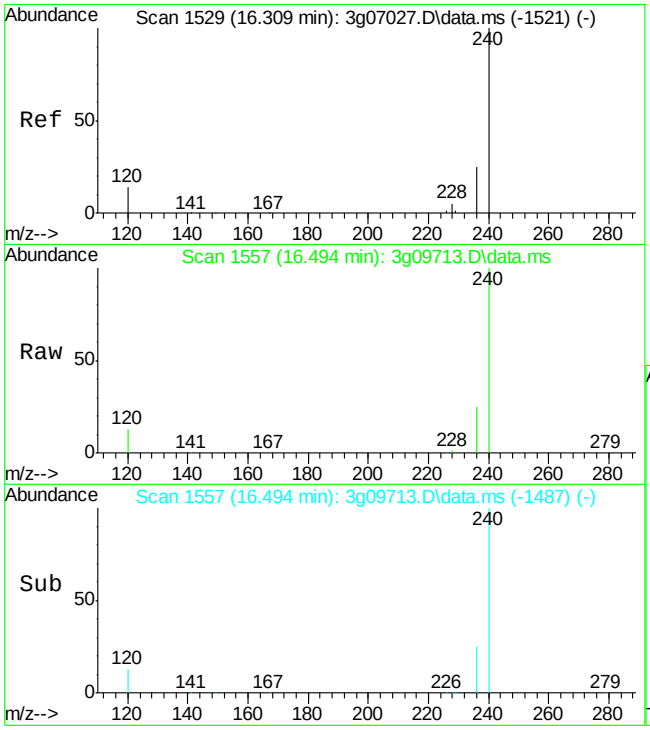


#17
Fluoranthene
Concen: 0.0308 ug/mL
RT: 13.717 min Scan# 1199
Delta R.T. -0.008 min
Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion:202 Resp: 3251

Ion	Ratio	Lower	Upper
202	100		
101	20.7	0.0	35.6
203	35.3	0.0	37.2

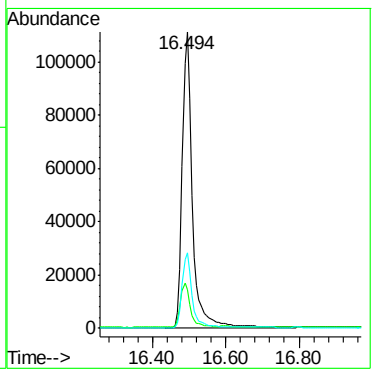


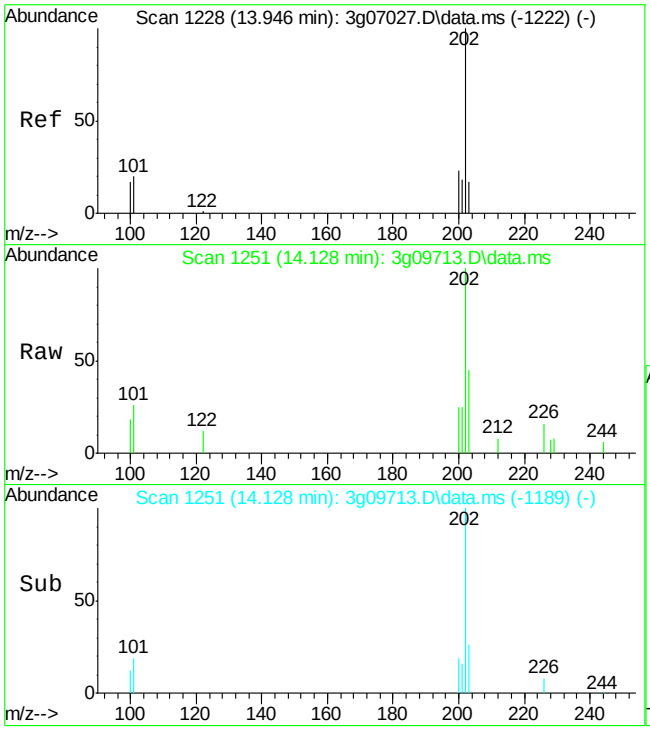


#18
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 16.494 min Scan# 1557
Delta R.T. 0.000 min
Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion:240 Resp: 214419

Ion	Ratio	Lower	Upper
240	100		
120	14.2	0.0	34.7
236	25.0	4.7	44.7

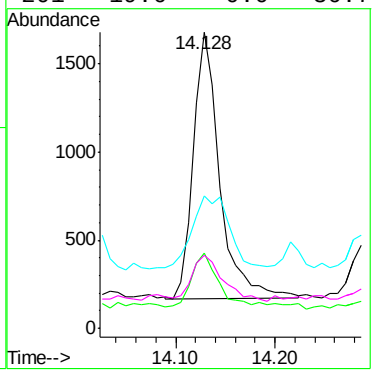


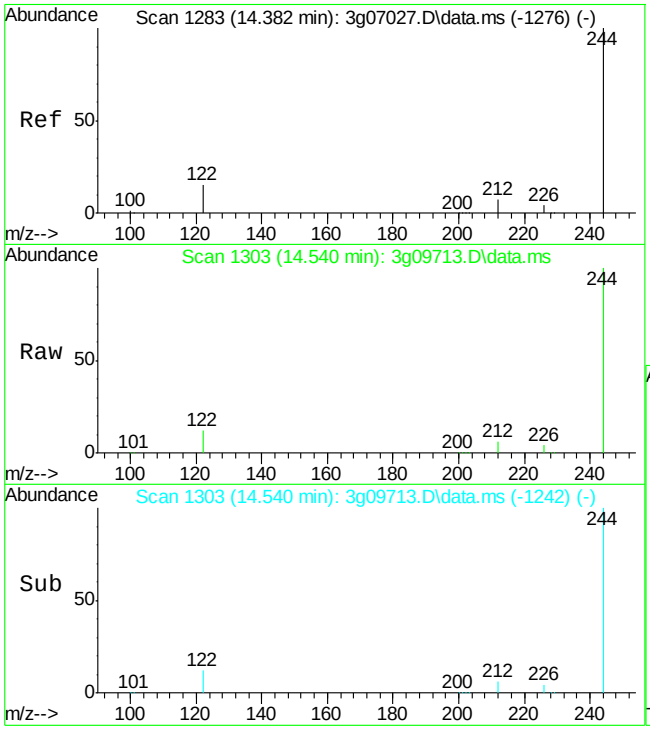


#19
Pyrene
Concen: 0.0697 ug/mL m
RT: 14.128 min Scan# 1251
Delta R.T. -0.008 min
Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion:202 Resp: 2790

Ion	Ratio	Lower	Upper
202	100		
200	25.5	0.3	40.3
203	41.1	0.0	37.7#
201	19.6	0.0	36.7

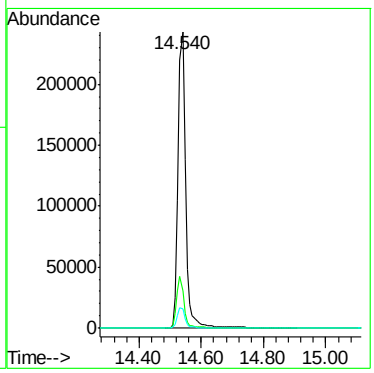


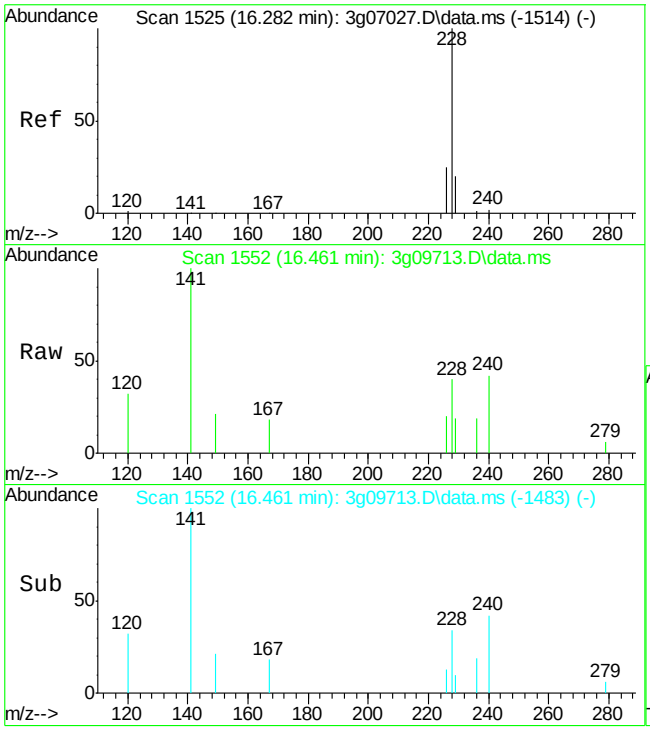


#20
Terphenyl-d14
Concen: 10.0124 ug/mL
RT: 14.540 min Scan# 1303
Delta R.T. -0.016 min
Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion:244 Resp: 406490

Ion	Ratio	Lower	Upper
244	100		
122	16.6	0.0	35.5
212	6.9	0.0	26.6

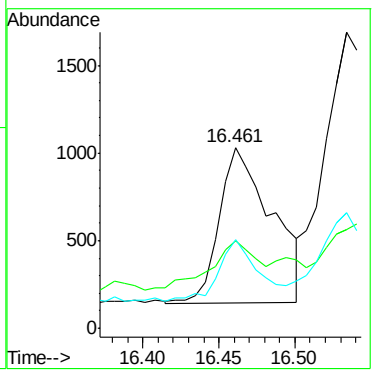


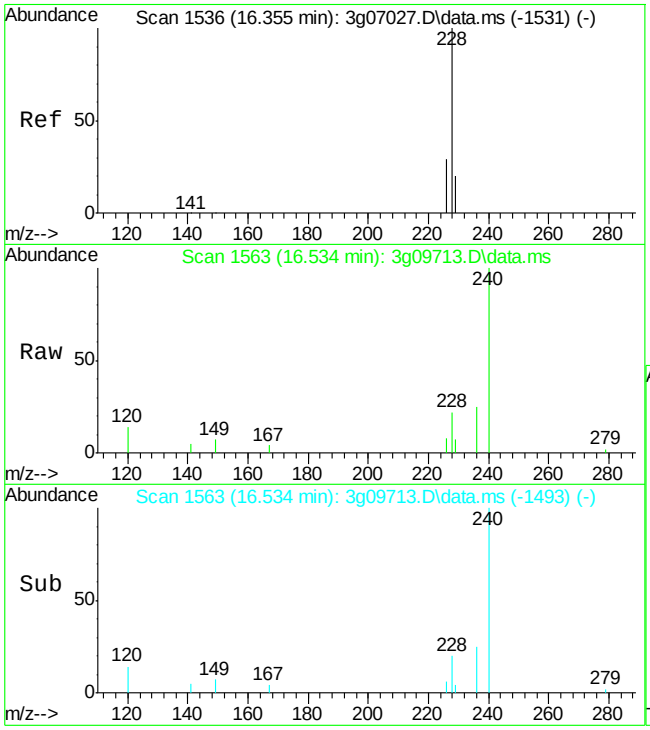


#21
Benzo(a)anthracene
Concen: 0.0559 ug/mL
RT: 16.461 min Scan# 1552
Delta R.T. -0.006 min
Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion:228 Resp: 2143

Ion	Ratio	Lower	Upper
228	100		
229	27.6	0.0	39.5
226	29.5	6.1	46.1

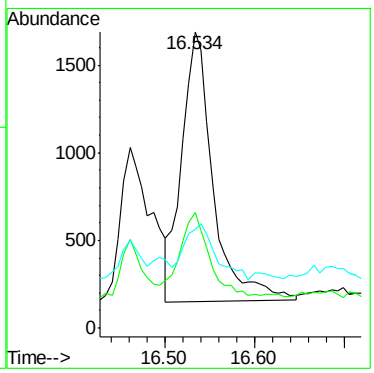


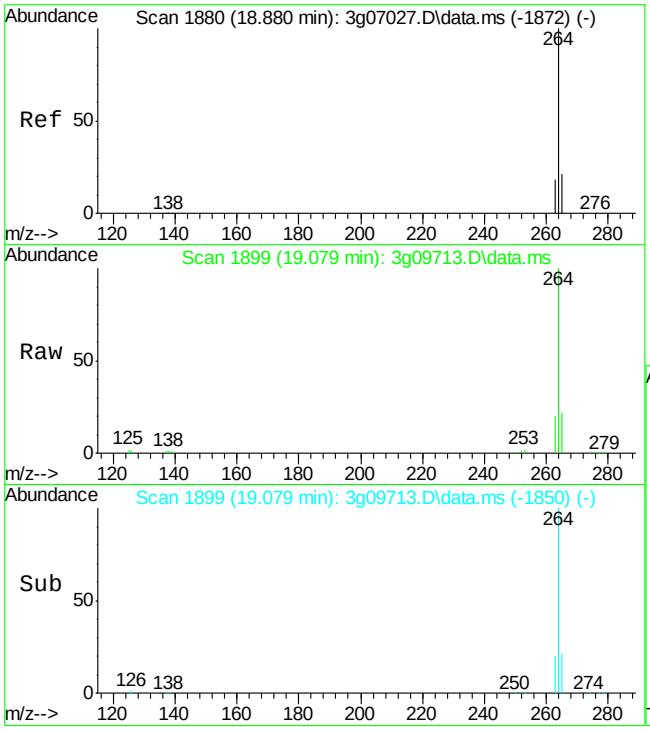


#22
Chrysene
Concen: 0.0541 ug/mL
RT: 16.534 min Scan# 1563
Delta R.T. -0.013 min
Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion:228 Resp: 3746

Ion	Ratio	Lower	Upper
228	100		
226	29.6	8.2	48.2
229	21.5	0.0	38.9

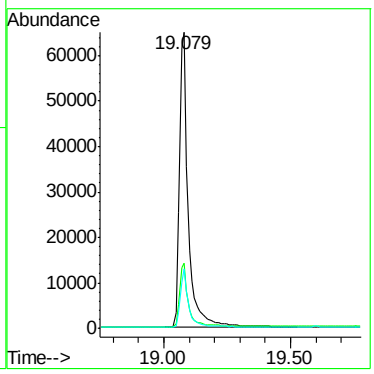


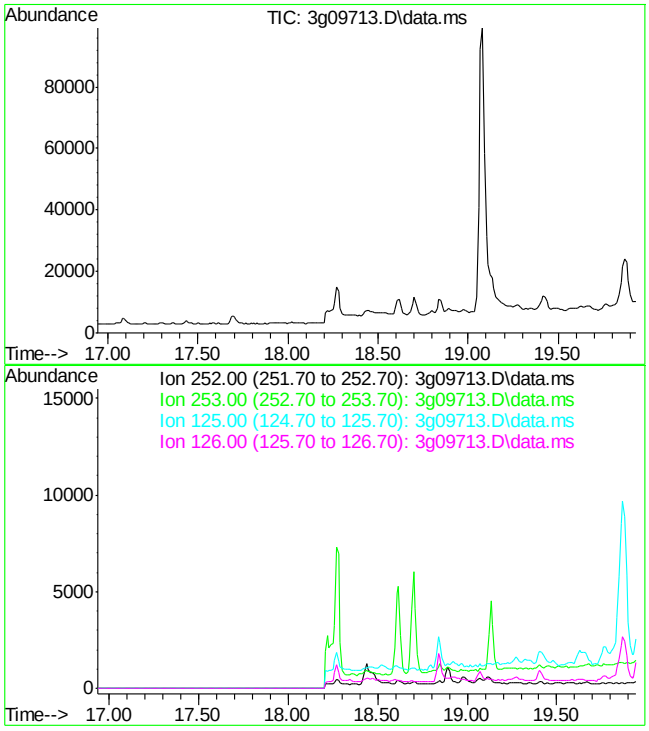


#23
Perylene-d12
Concen: 4.0000 ug/mL
RT: 19.079 min Scan# 1899
Delta R.T. 0.011 min
Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion:264 Resp: 161071

Ion	Ratio	Lower	Upper
264	100		
265	21.3	0.7	40.7
263	18.6	0.0	39.1



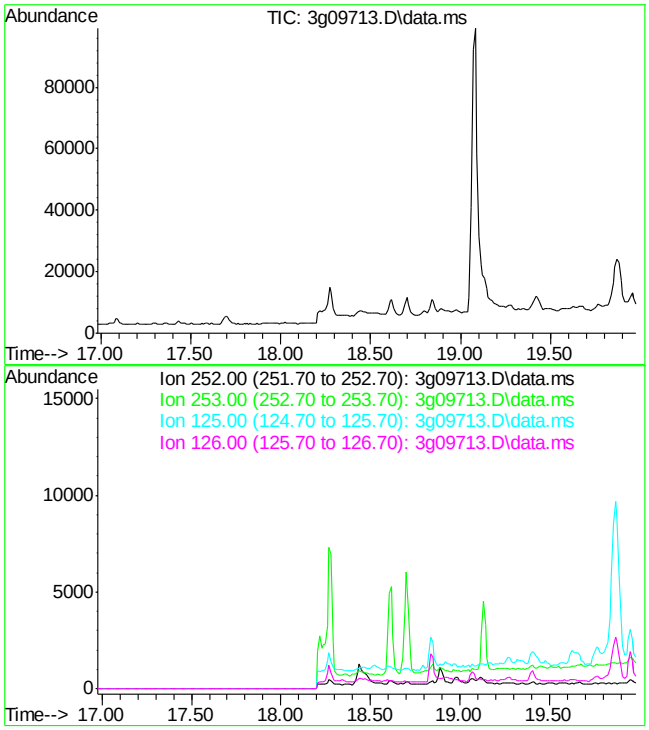


#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.44 min

Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	21.4
125	12.2
126	16.9

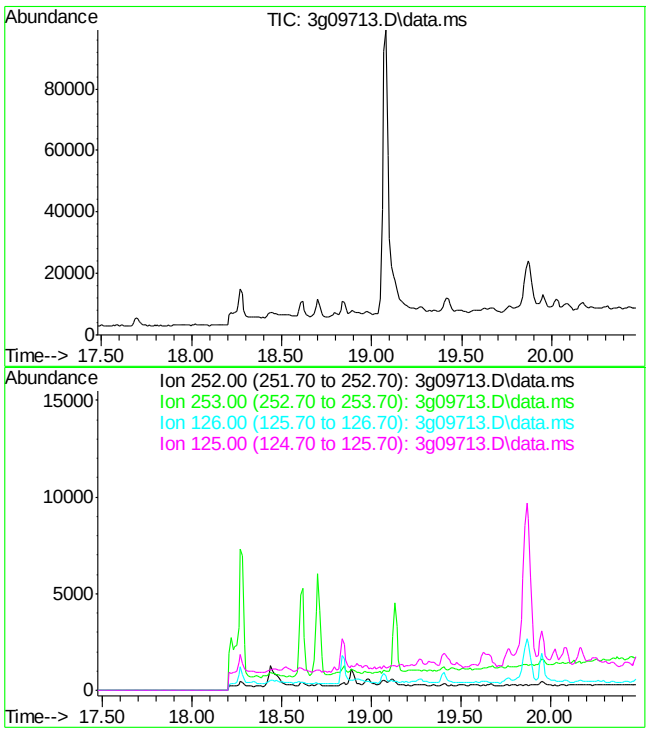


#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.48 min

Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	21.7
125	10.4
126	16.1

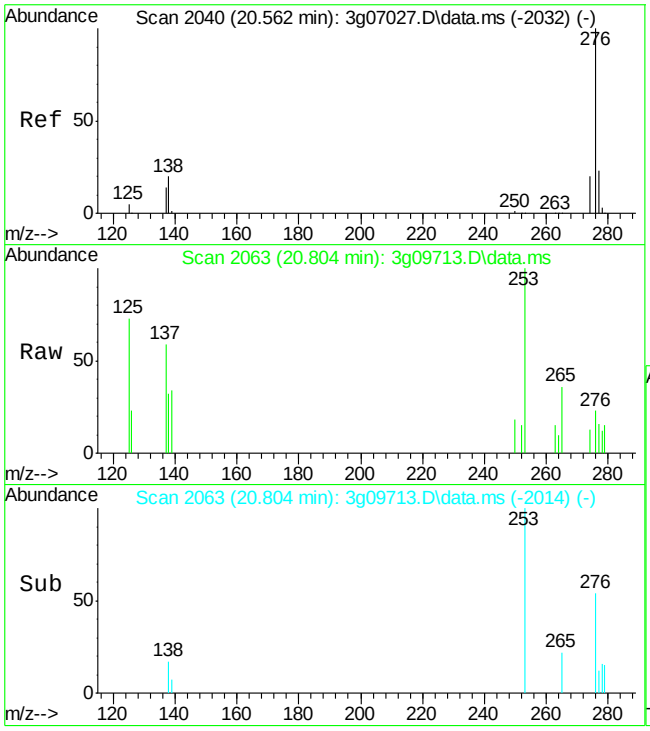


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 18.97 min

Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion: 252

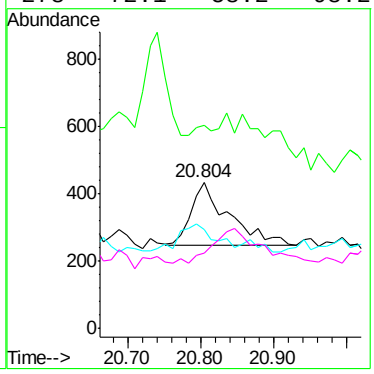
Sig	Exp Ratio
252	100
253	21.5
126	16.6
125	12.0

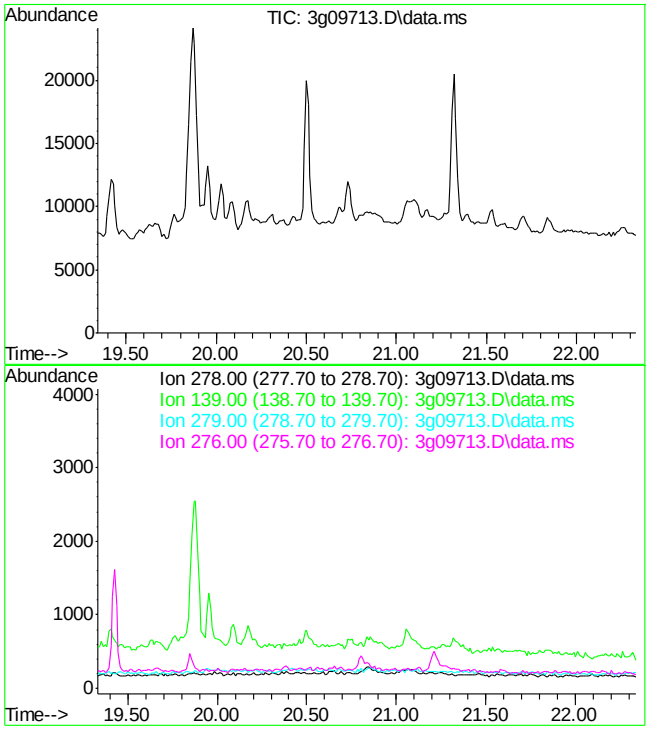


#27
Indeno(1,2,3-cd)pyrene
Concen: 0.0464 ug/mL
RT: 20.804 min Scan# 2063
Delta R.T. 0.011 min
Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion:276 Resp: 687

Ion	Ratio	Lower	Upper
276	100		
138	15.6	6.6	46.6
277	39.0	4.8	44.8
278	72.1	58.2	98.2



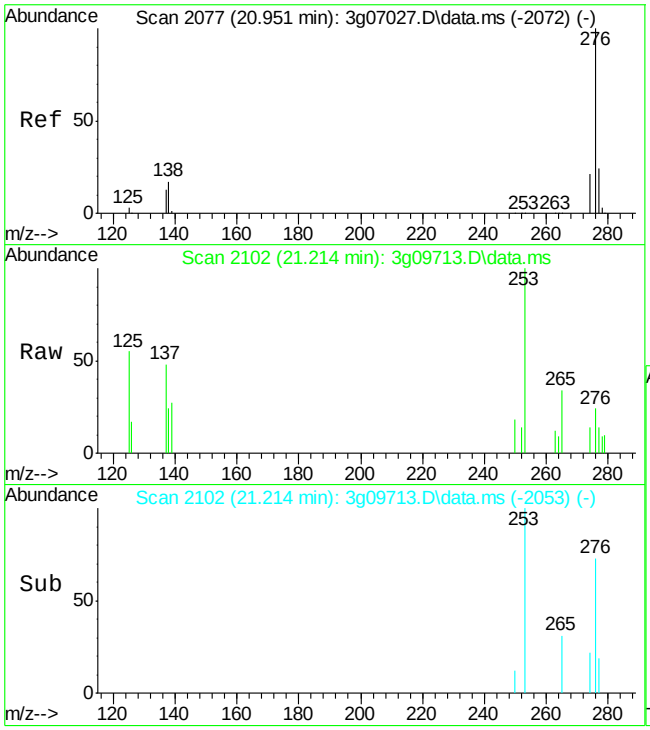


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 20.84 min

Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion: 278

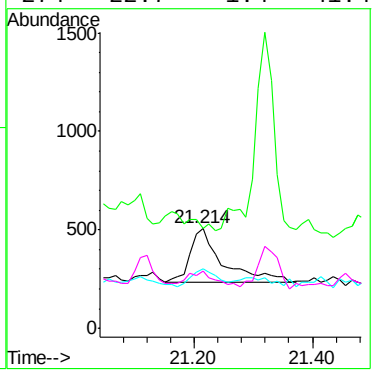
Sig	Exp Ratio
278	100
139	18.4
279	23.4
276	127.9



#29
Benzo(g,h,i)perylene
Concen: 0.0720 ug/mL
RT: 21.214 min Scan# 2102
Delta R.T. 0.011 min
Lab File: 3g09713.D
Acq: 18 Jun 12 4:48 pm

Tgt Ion:276 Resp: 1064

Ion	Ratio	Lower	Upper
276	100		
138	43.8	3.6	43.6#
277	25.0	3.7	43.7
274	22.7	1.4	41.4



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\061312\
Data File : 3g09645.D
Acq On : 14 Jun 2012 5:04 am
Operator : SARAHM1
Sample : OP6035-MB
Misc : OP6035,E3G425,30.00,,,1,1
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Jun 14 10:22:39 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G424.M
Quant Title : PAHSIM BASE
QLast Update : Thu Jun 14 08:41:26 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.483	136	210089	4.0000	ug/mL	0.00
6) Acenaphthene-d10	8.874	164	124348	4.0000	ug/mL	-0.01
14) Phenanthrene-d10	11.430	188	194321	4.0000	ug/mL	0.00
18) Chrysene-d12	16.487	240	151950	4.0000	ug/mL	0.00
23) Perylene-d12	19.069	264	79791	4.0000	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.759	82	1419137	48.7622	ug/mL	-0.01
Spiked Amount 50.000	Range 25 - 135		Recovery = 97.52%			
7) 2-Fluorobiphenyl	7.870	172	1987587	49.2046	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery = 98.40%			
20) Terphenyl-d14	14.532	244	1645448	61.8048	ug/mL	-0.02
Spiked Amount 50.000	Range 25 - 135		Recovery = 123.60%			

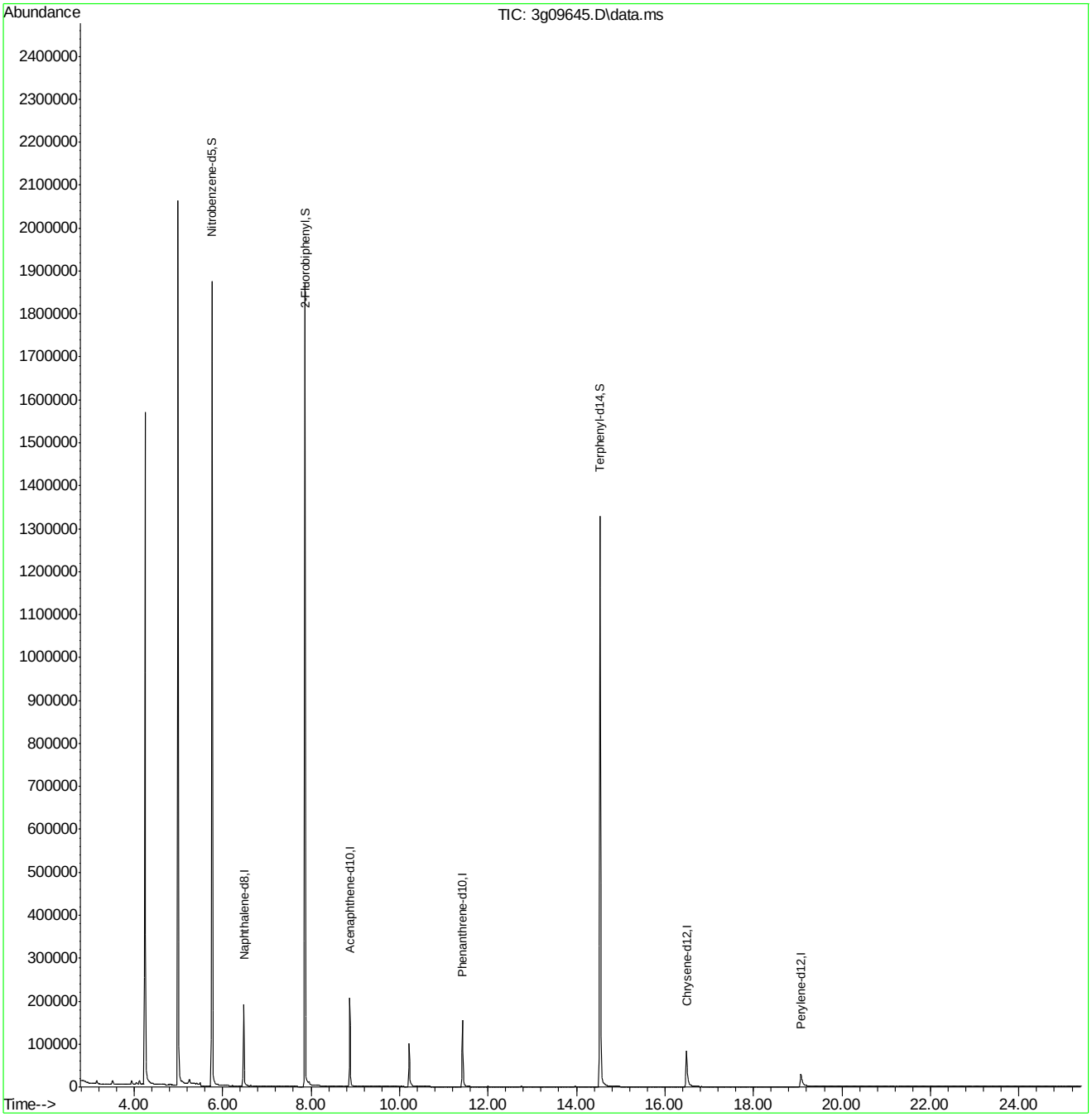
Target Compounds					Qvalue
3) N-Nitrosodimethylamine	0.000	74	0	N.D.	d
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d
5) Naphthalene	0.000	128	0	N.D.	d
8) 2-Methylnaphthalene	0.000	142	0	N.D.	d
9) 1-Methylnaphthalene	0.000	142	0	N.D.	d
10) Acenaphthylene	0.000	152	0	N.D.	d
11) Acenaphthene	0.000	154	0	N.D.	d
12) Fluorene	0.000	166	0	N.D.	
13) Diphenylamine	0.000	169	0	N.D.	d
15) Phenanthrene	0.000	178	0	N.D.	d
16) Anthracene	0.000	178	0	N.D.	d
17) Fluoranthene	0.000	202	0	N.D.	d
19) Pyrene	0.000	202	0	N.D.	d
21) Benzo(a)anthracene	0.000	228	0	N.D.	d
22) Chrysene	0.000	228	0	N.D.	d
24) Benzo(b)fluoranthene	0.000	252	0	N.D.	d
25) Benzo(k)fluoranthene	0.000	252	0	N.D.	d
26) Benzo(a)pyrene	0.000	252	0	N.D.	d
27) Indeno(1,2,3-cd)pyrene	0.000	276	0	N.D.	d
28) Dibenz(a,h)anthracene	0.000	278	0	N.D.	d
29) Benzo(g,h,i)perylene	0.000	276	0	N.D.	d

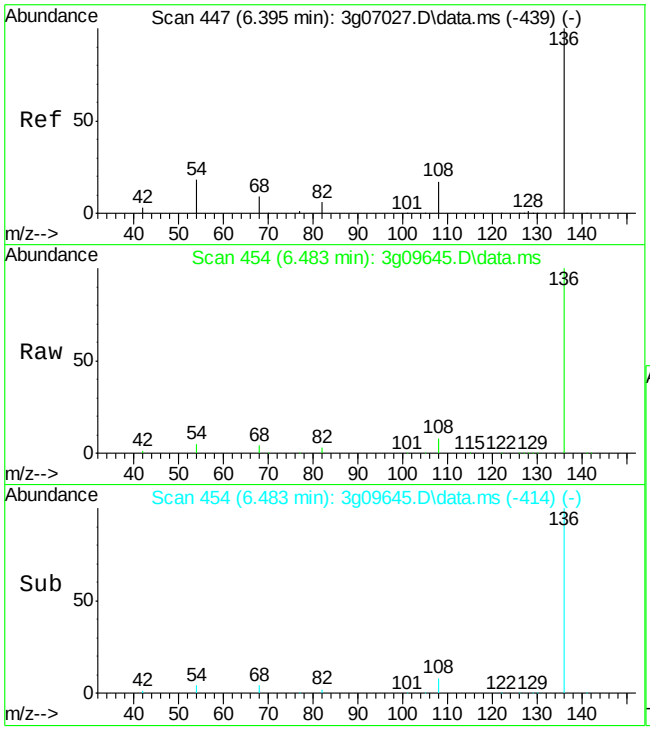
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\061312\
Data File : 3g09645.D
Acq On : 14 Jun 2012 5:04 am
Operator : SARAHM1
Sample : OP6035-MB
Misc : OP6035,E3G425,30.00,,,1,1
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Jun 14 10:22:39 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G424.M
Quant Title : PAHSIM BASE
QLast Update : Thu Jun 14 08:41:26 2012
Response via : Initial Calibration

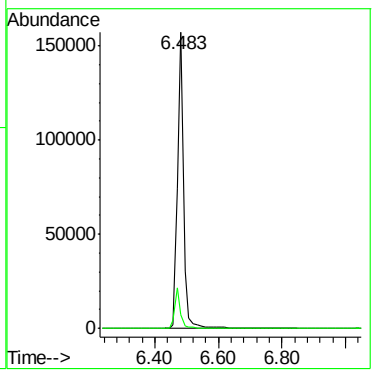


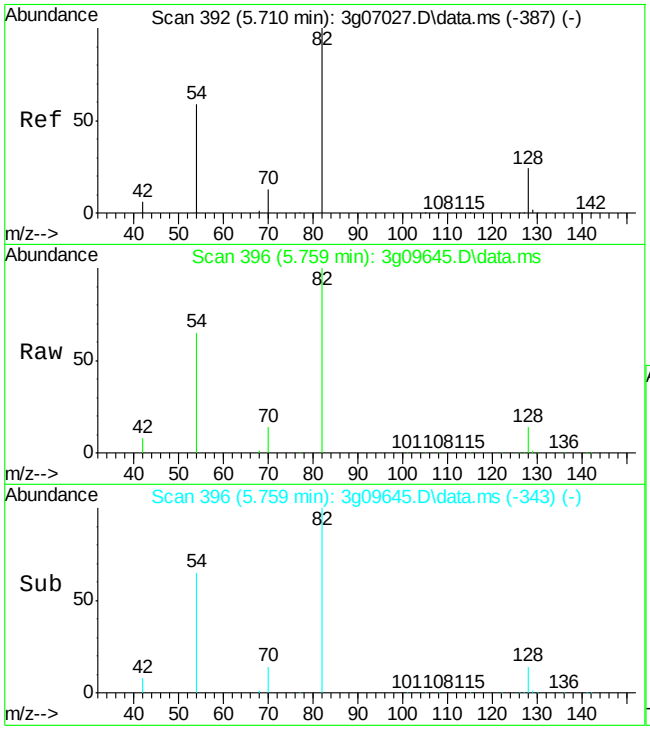


#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 6.483 min Scan# 454
Delta R.T. 0.000 min
Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion:136 Resp: 210089

Ion	Ratio	Lower	Upper
136	100		
68	12.9	0.0	32.1

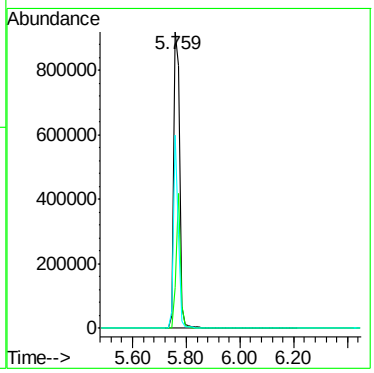


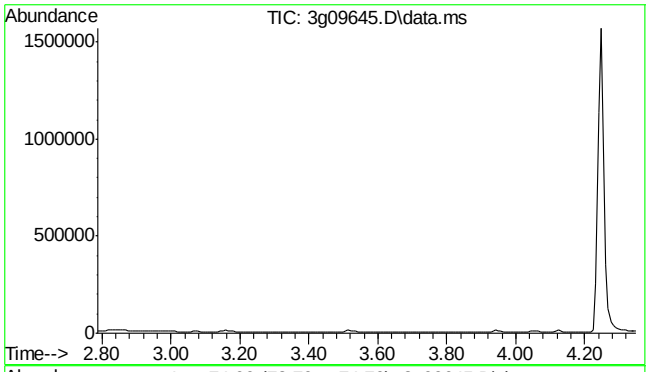


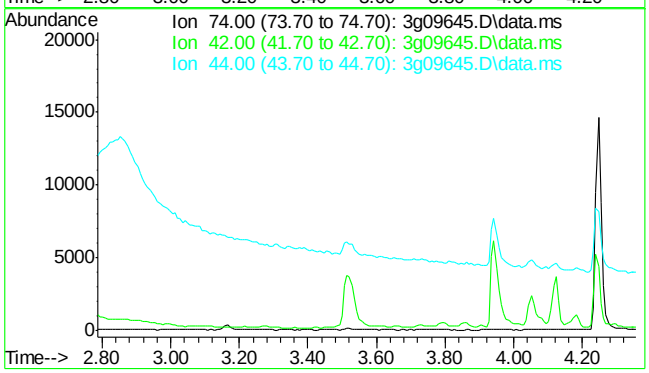
#2
Nitrobenzene-d5
Concen: 48.7622 ug/mL
RT: 5.759 min Scan# 396
Delta R.T. -0.012 min
Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 82 Resp: 1419137

Ion	Ratio	Lower	Upper
82	100		
128	33.5	14.3	54.3
54	52.3	38.1	78.1





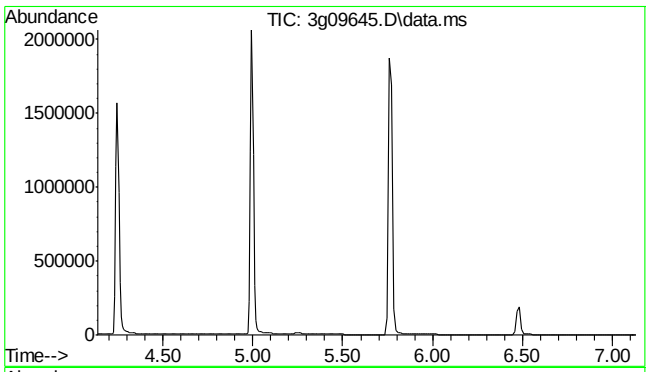


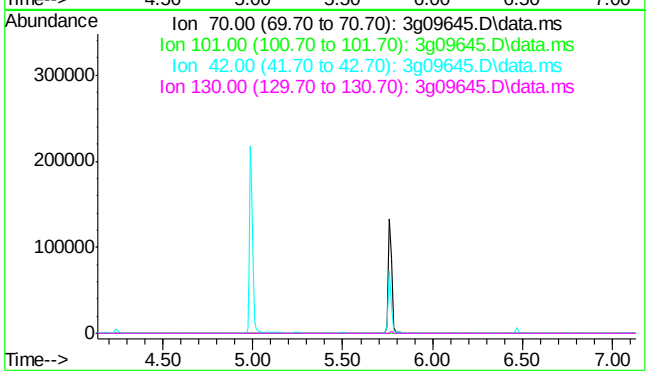
#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.85 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 74

Sig	Exp Ratio
74	100
42	65.5
44	9.6



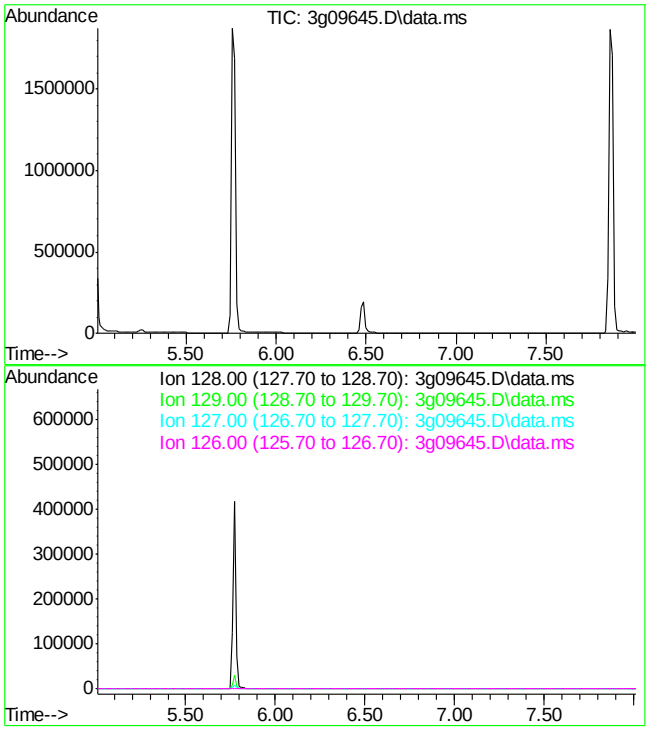


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.63 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 70

Sig	Exp Ratio
70	100
101	9.8
42	61.6
130	18.2

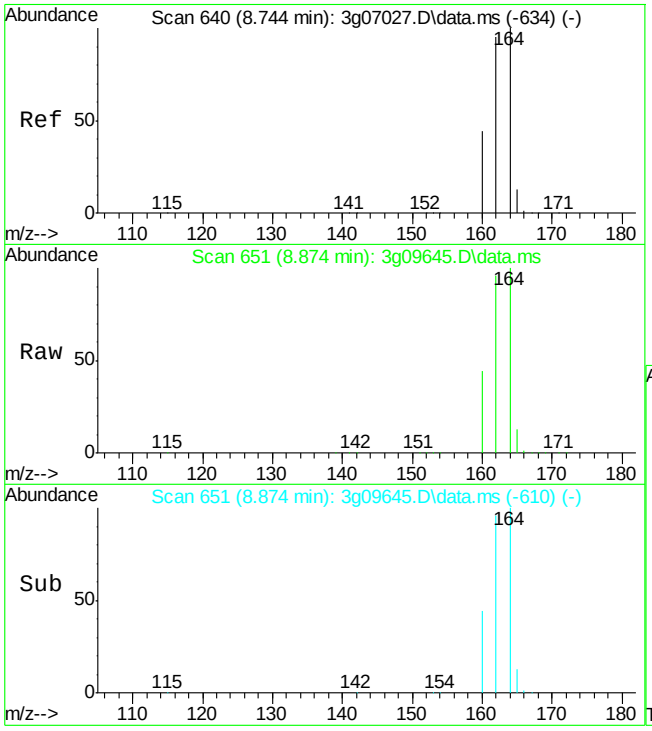


#5
Naphthalene
Concen: N.D. ug/mL
Expected RT: 6.51 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 128

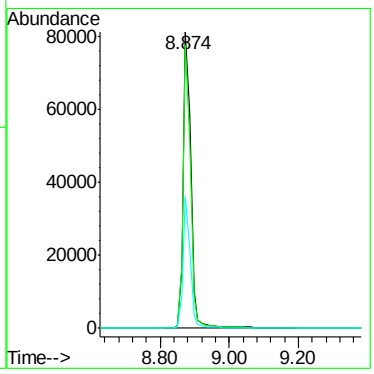
Sig	Exp Ratio
128	100
129	10.8
127	12.4
126	7.7

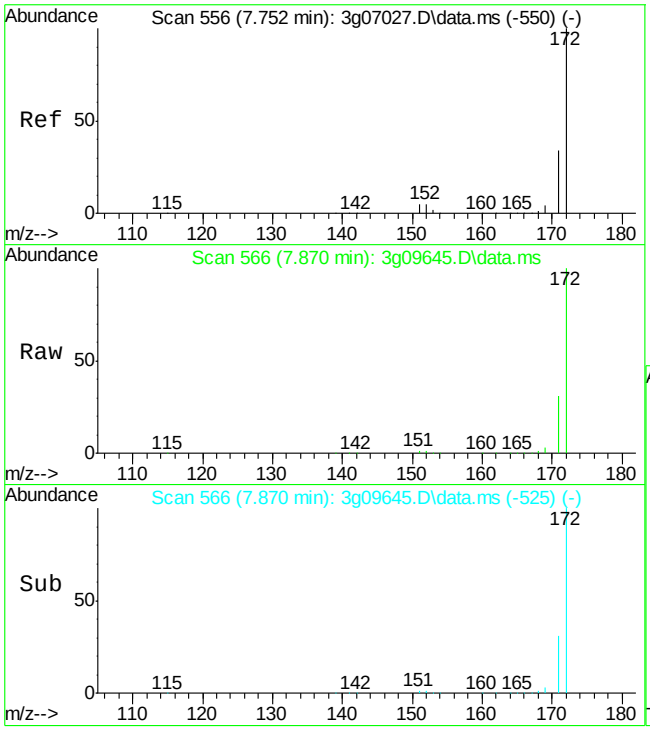


#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 8.874 min Scan# 651
Delta R.T. -0.012 min
Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion:164 Resp: 124348

Ion	Ratio	Lower	Upper
164	100		
162	93.1	72.8	112.8
160	42.3	22.3	62.3

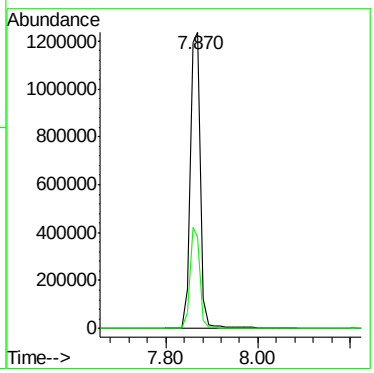


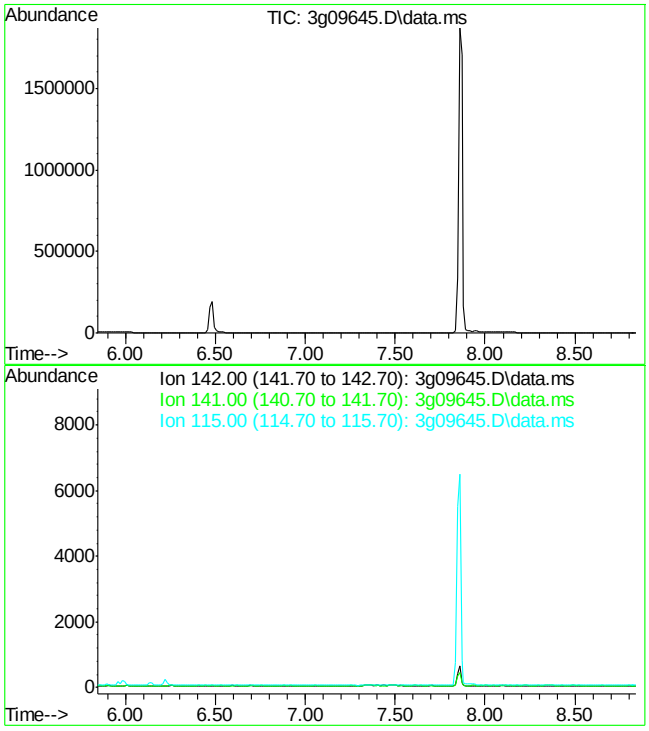


#7
2-Fluorobiphenyl
Concen: 49.2046 ug/mL
RT: 7.870 min Scan# 566
Delta R.T. 0.000 min
Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion:172 Resp: 1987587

Ion	Ratio	Lower	Upper
172	100		
171	33.1	13.3	53.3



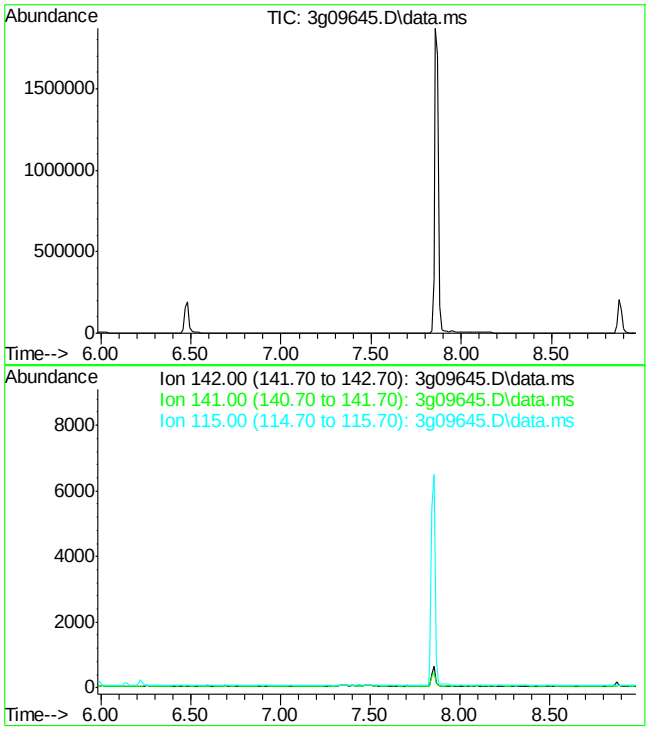


#8
2-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.34 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 142

Sig	Exp Ratio
142	100
141	83.5
115	35.6

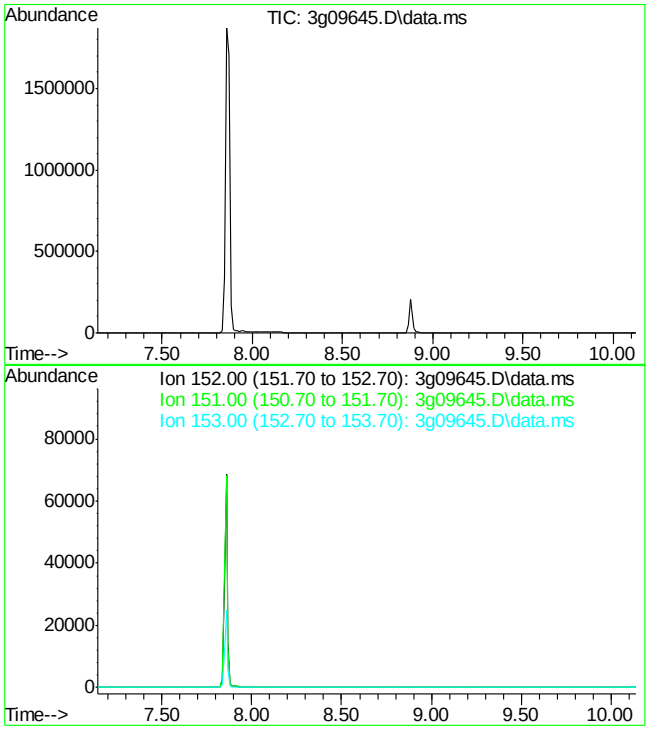


#9
1-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.48 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 142

Sig	Exp Ratio
142	100
141	86.5
115	37.1

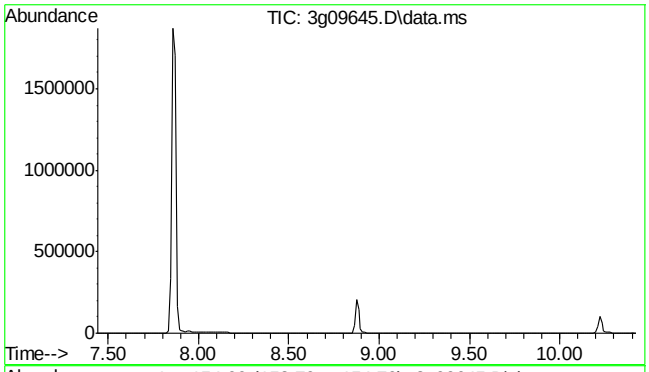


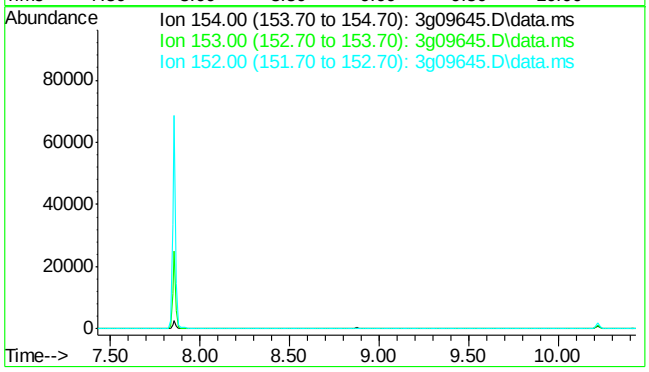
#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.64 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 152

Sig	Exp Ratio
152	100
151	19.2
153	14.0



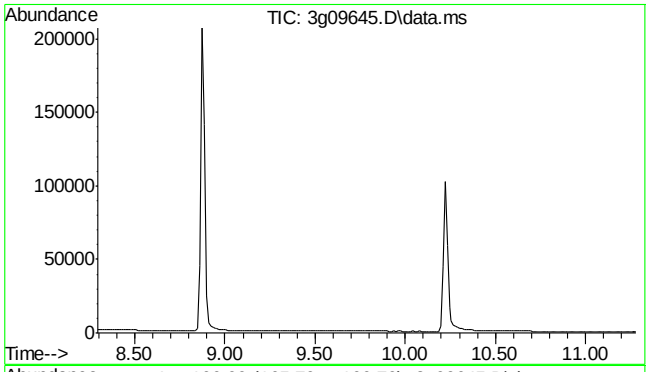


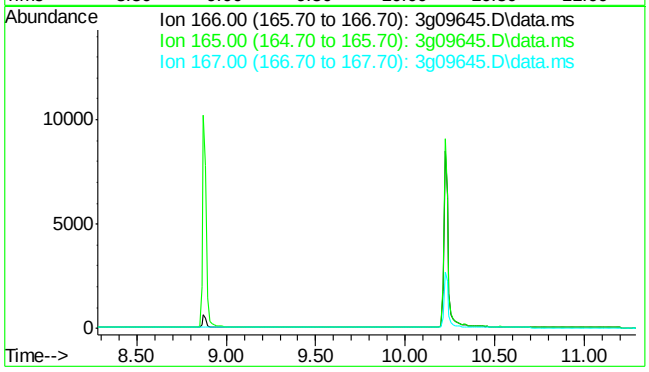
#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 8.93 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 154

Sig	Exp Ratio
154	100
153	104.9
152	47.2



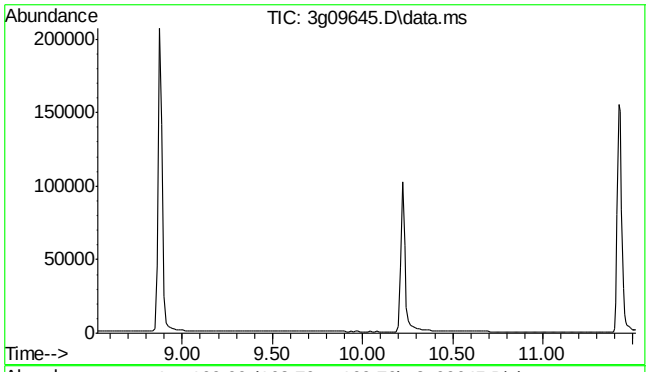


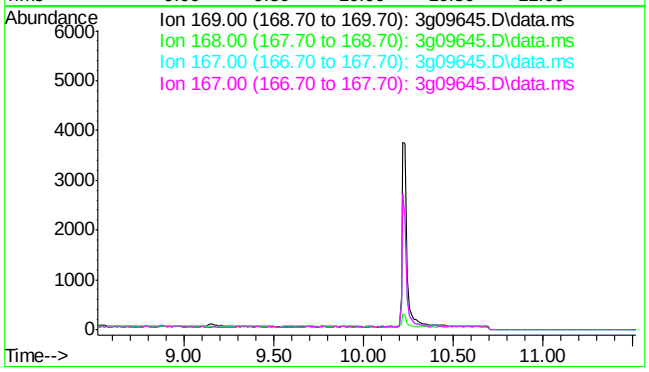
#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 9.78 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 166

Sig	Exp Ratio
166	100
165	91.4
167	13.2



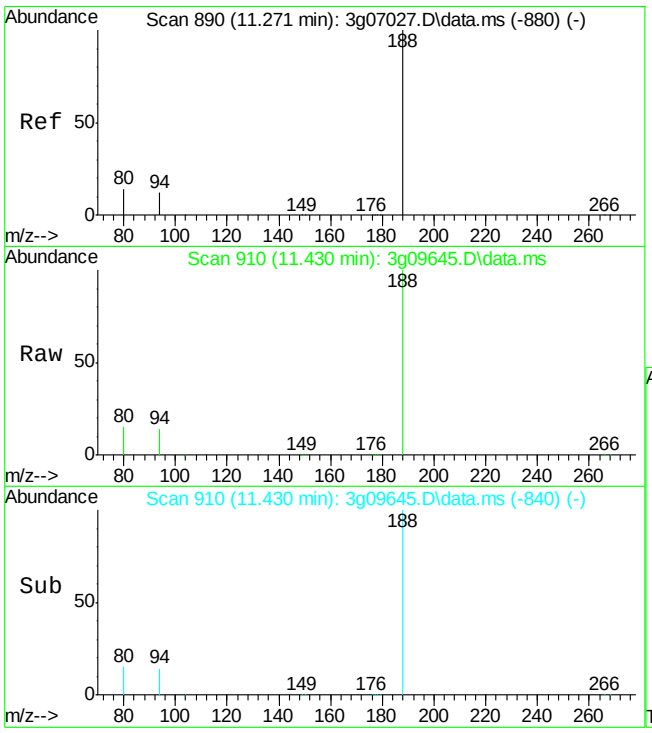


#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.02 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 169

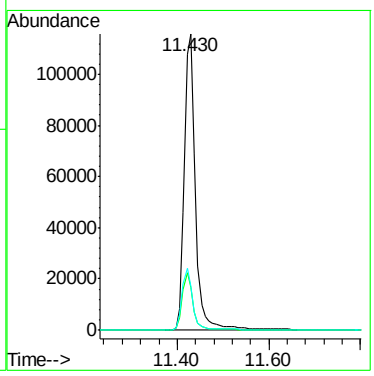
Sig	Exp Ratio
169	100
168	61.6
167	33.3
167	33.3

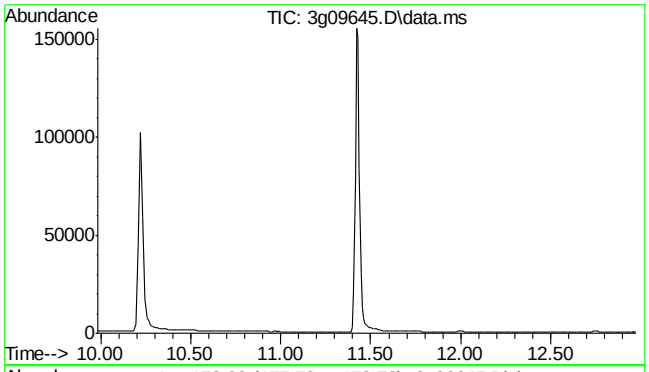


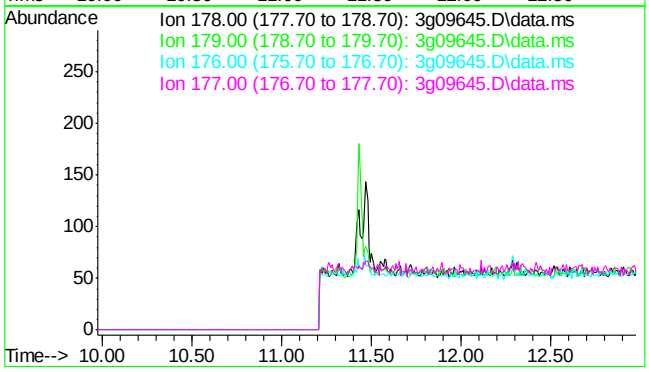
#14
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 11.430 min Scan# 910
Delta R.T. 0.000 min
Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion:188 Resp: 194321

Ion	Ratio	Lower	Upper
188	100		
94	18.5	0.0	36.4
80	19.8	0.0	38.0





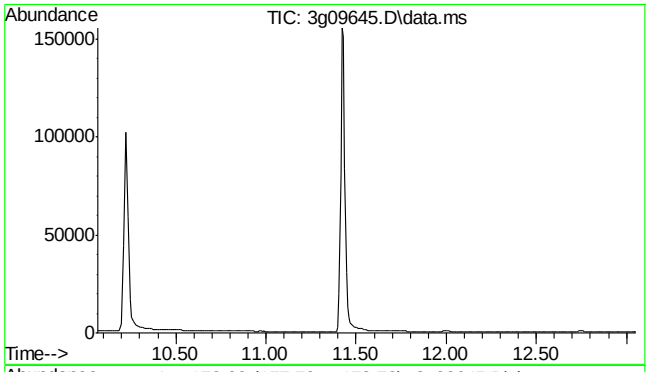


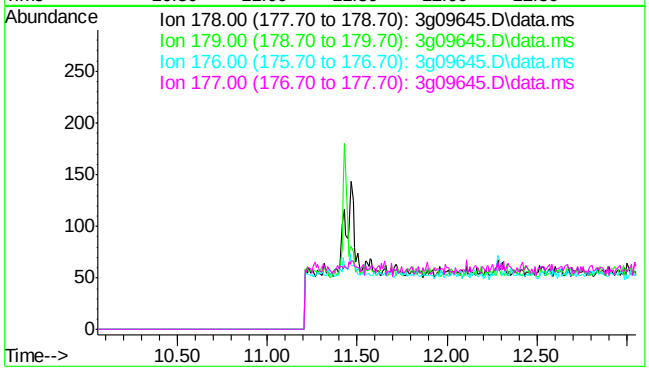
#15
Phenanthrene
Concen: N.D. ug/mL
Expected RT: 11.48 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 178

Sig	Exp Ratio
178	100
179	15.0
176	18.8
177	10.3



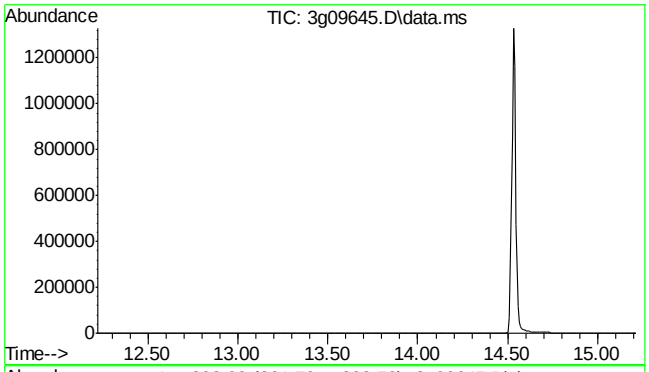


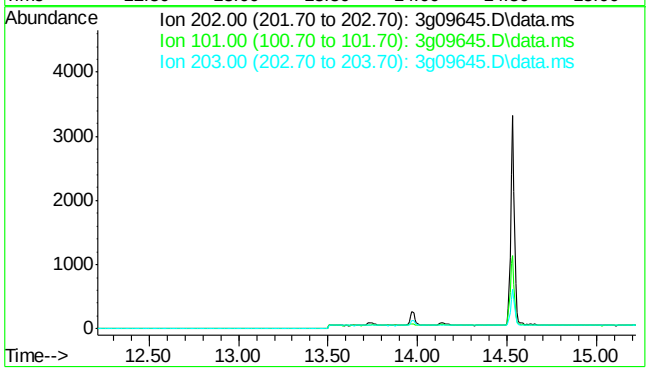
#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.56 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 178

Sig	Exp Ratio
178	100
179	14.9
176	18.0
177	8.7



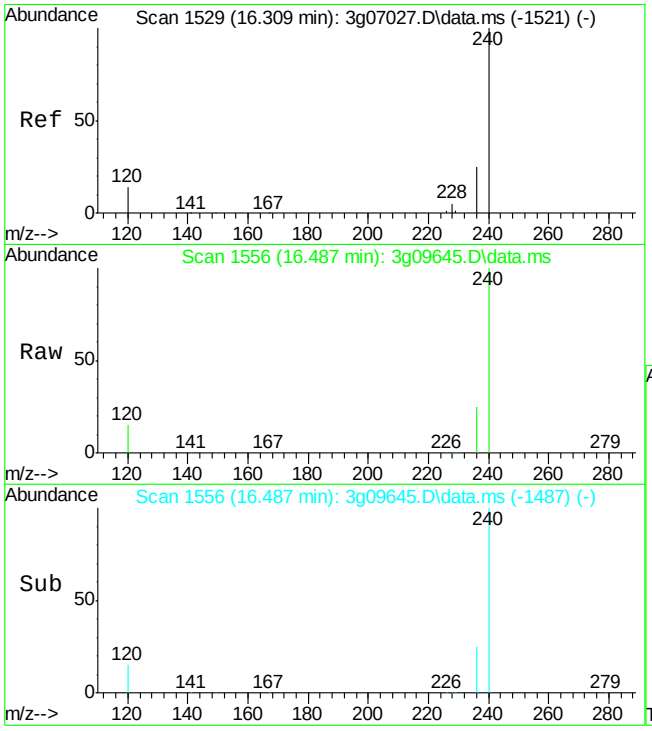


#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 13.72 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 202

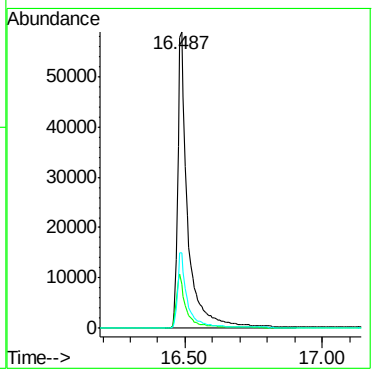
Sig	Exp Ratio
202	100
101	15.6
203	17.2

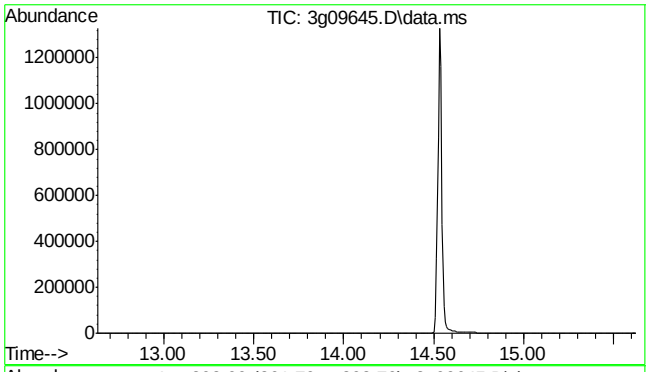


#18
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 16.487 min Scan# 1556
Delta R.T. -0.006 min
Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion:240 Resp: 151950

Ion	Ratio	Lower	Upper
240	100		
120	17.4	0.0	34.7
236	25.0	4.7	44.7



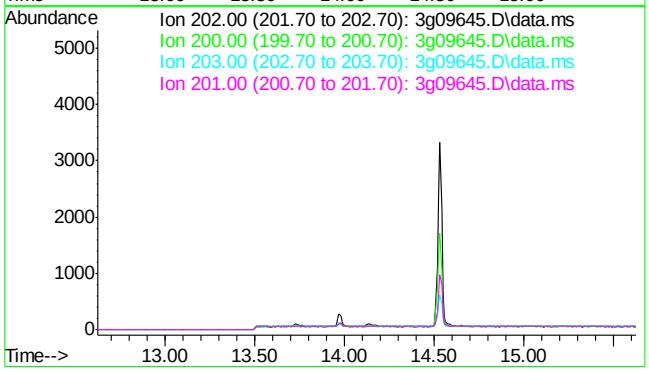


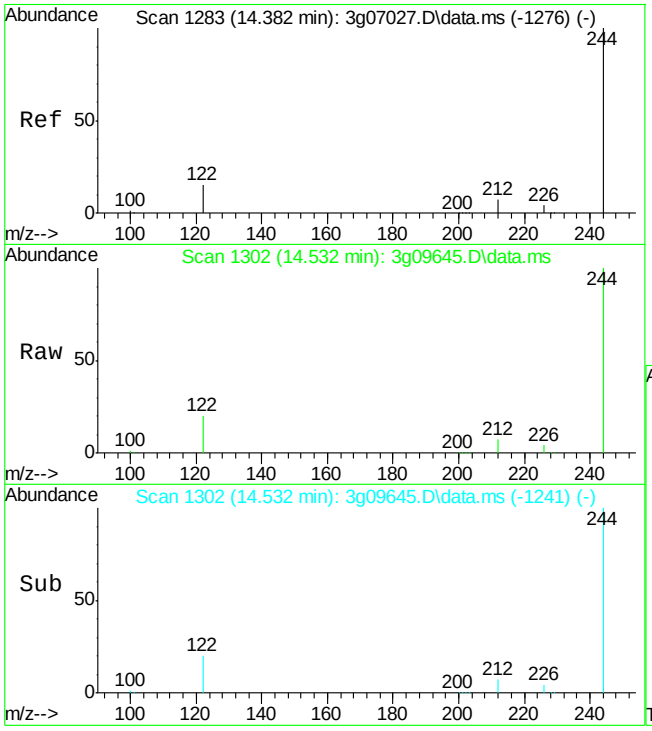
#19
Pyrene
Concen: N.D. ug/mL
Expected RT: 14.13 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 202

Sig	Exp Ratio
202	100
200	20.3
203	17.7
201	16.7

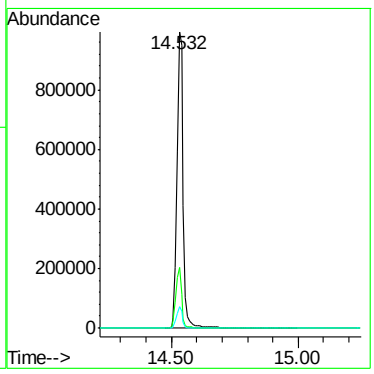


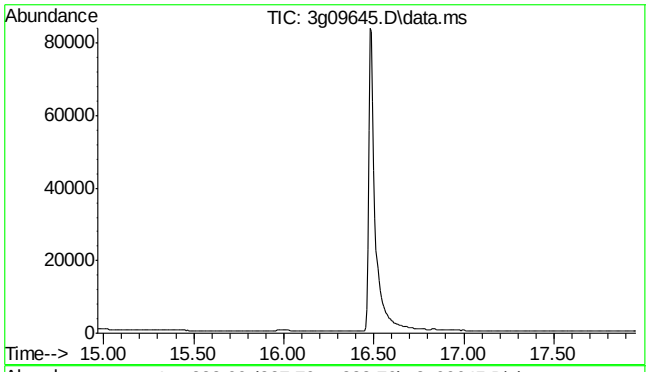


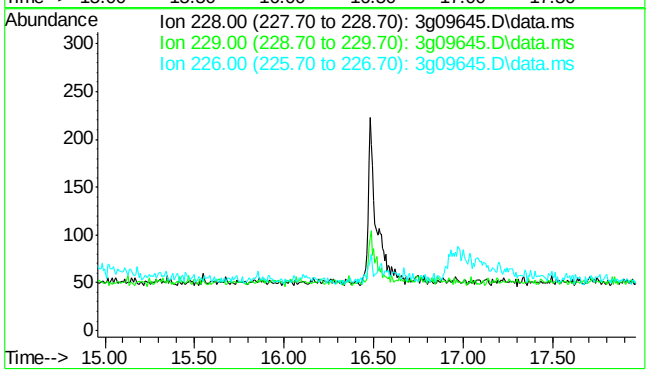
#20
Terphenyl-d14
Concen: 61.8048 ug/mL
RT: 14.532 min Scan# 1302
Delta R.T. -0.016 min
Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion:244 Resp: 1645448

Ion	Ratio	Lower	Upper
244	100		
122	19.1	0.0	35.5
212	7.0	0.0	26.6





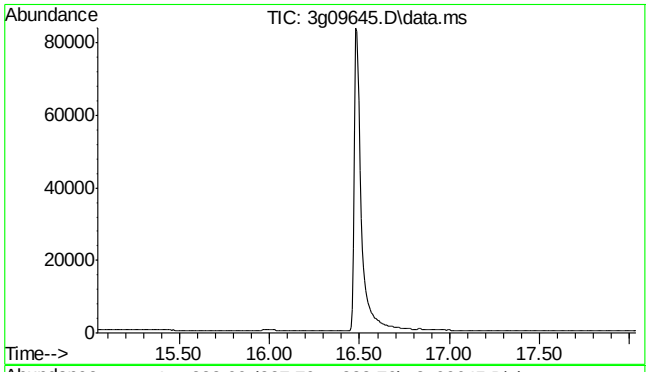


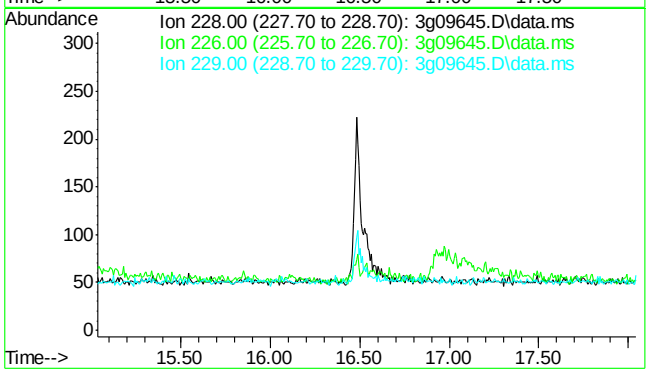
#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.46 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 228

Sig	Exp Ratio
228	100
229	19.5
226	26.1



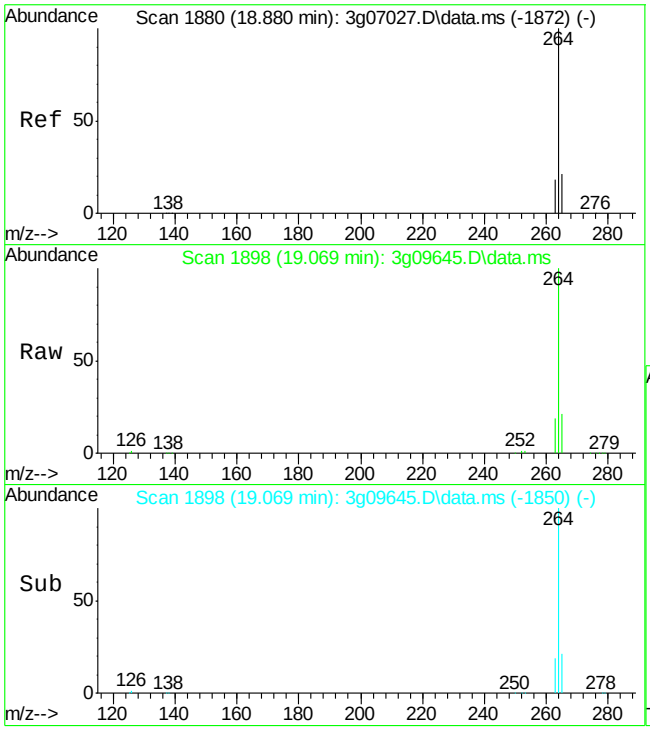


#22
Chrysene
Concen: N.D. ug/mL
Expected RT: 16.54 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 228

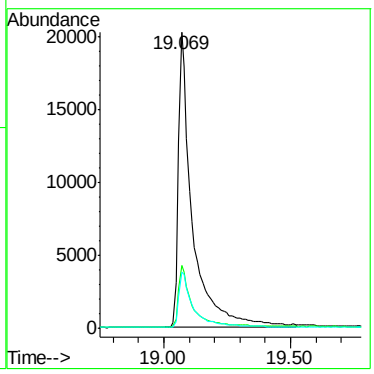
Sig	Exp Ratio
228	100
226	28.2
229	18.9

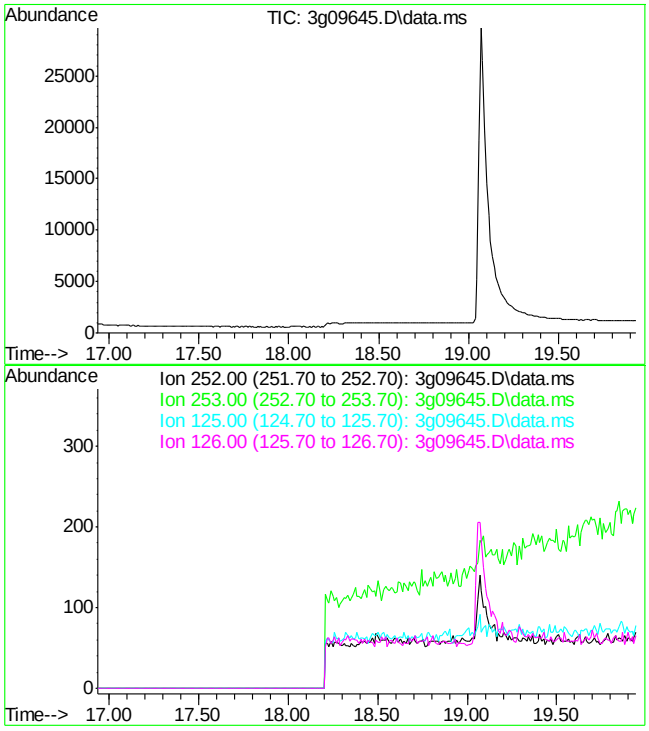


#23
Perylene-d12
Concen: 4.0000 ug/mL
RT: 19.069 min Scan# 1898
Delta R.T. 0.000 min
Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion:264 Resp: 79791

Ion	Ratio	Lower	Upper
264	100		
265	20.7	0.7	40.7
263	19.9	0.0	39.1



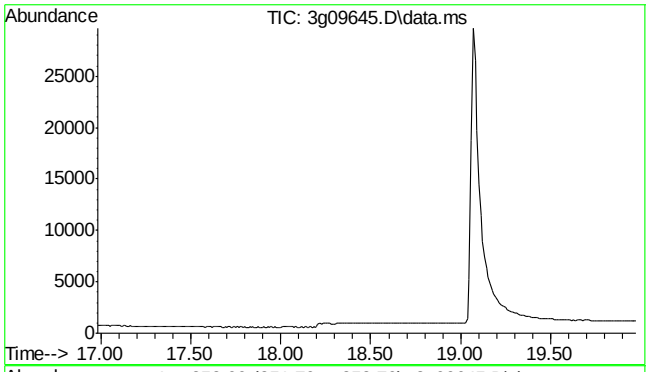


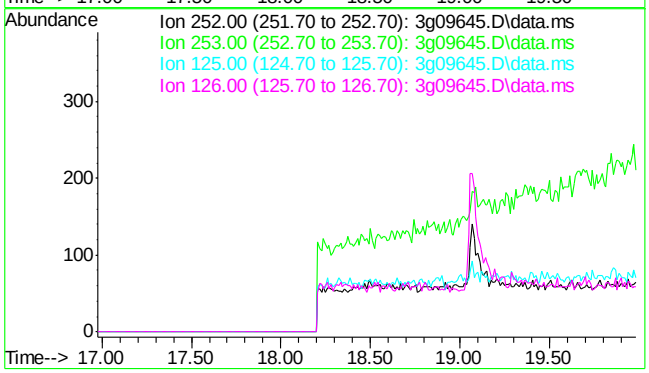
#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.44 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	21.4
125	12.2
126	16.9



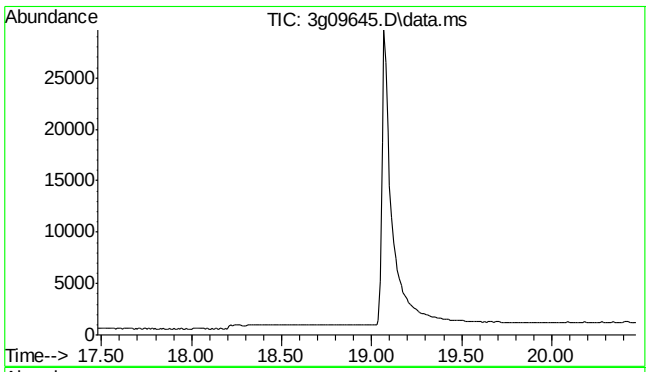


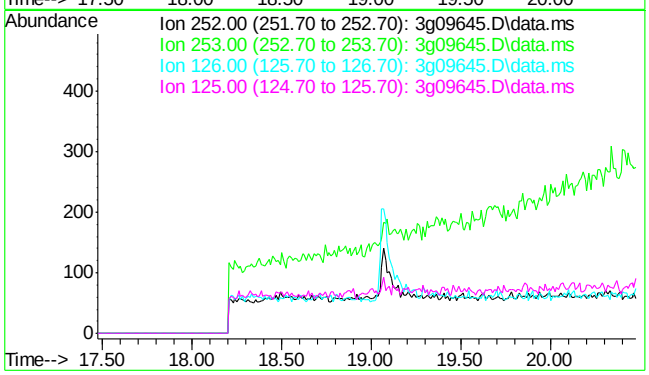
#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.48 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	21.7
125	10.4
126	16.1



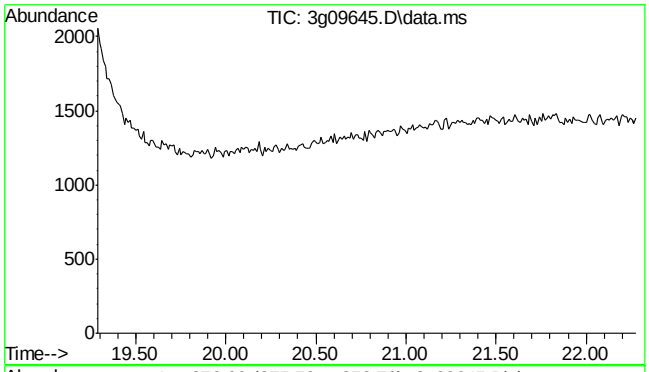


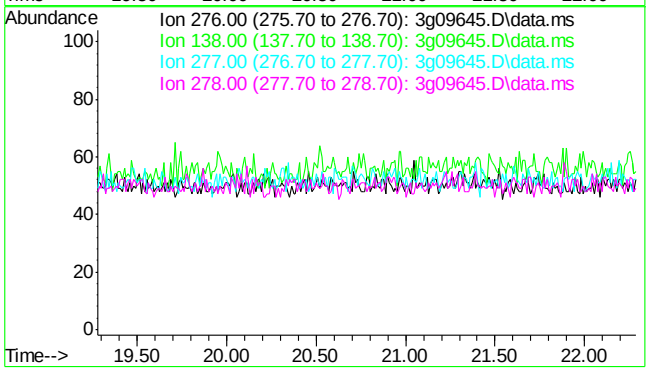
#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 18.97 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 252

Sig	Exp Ratio
252	100
253	21.5
126	16.6
125	12.0



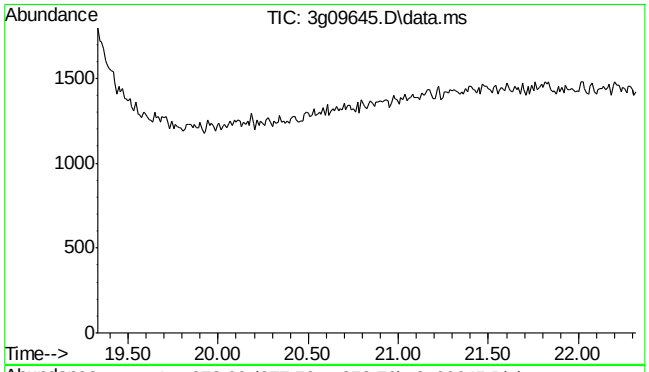


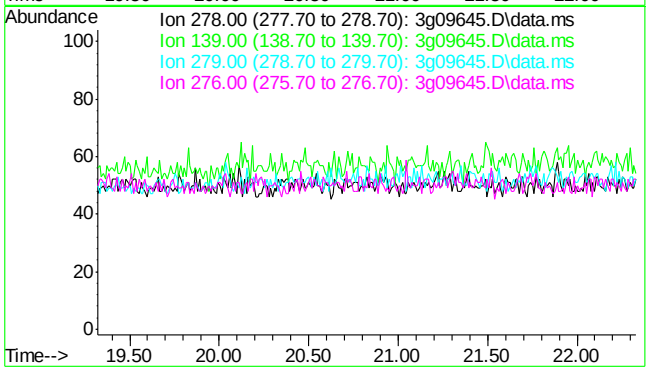
#27
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 20.78 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 276

Sig	Exp Ratio
276	100
138	26.6
277	24.8
278	78.2



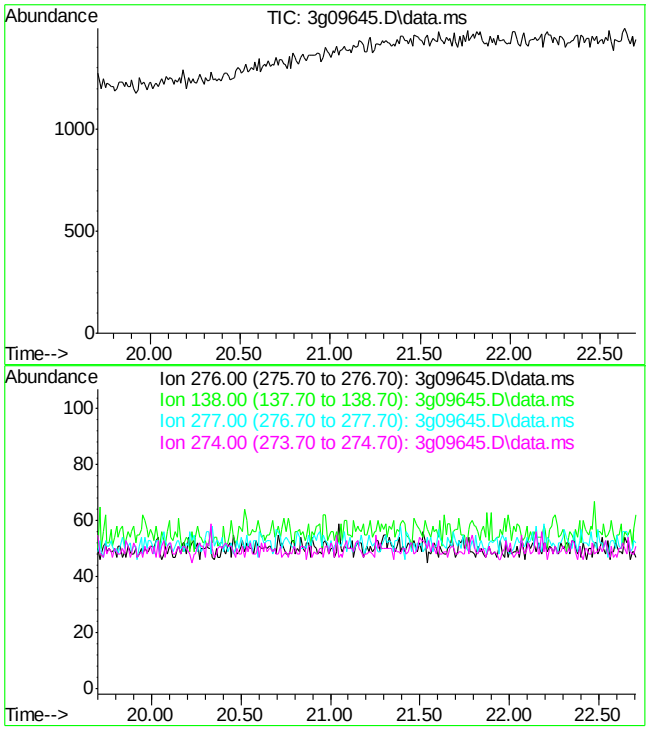


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 20.83 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 278

Sig	Exp Ratio
278	100
139	18.4
279	23.4
276	127.9



#29
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 21.20 min

Lab File: 3g09645.D
Acq: 14 Jun 12 5:04 am

Tgt Ion: 276

Sig	Exp Ratio
276	100
138	23.6
277	23.7
274	21.4

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: D35289
Account: XTOKRWR XTO Energy
Project: FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB906-MB	GB16294.D	1	06/11/12	SK	n/a	n/a	GGB906

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

D35289-1

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	104%	60-140%

Blank Spike Summary

Job Number: D35289
Account: XTOKRWR XTO Energy
Project: FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB906-BS	GB16295.D	1	06/11/12	SK	n/a	n/a	GGB906

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

D35289-1

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	121%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D35289
Account: XTOKRWR XTO Energy
Project: FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D35276-12MS	GB16297.D	1	06/11/12	SK	n/a	n/a	GGB906
D35276-12MSD	GB16298.D	1	06/11/12	SK	n/a	n/a	GGB906
D35276-12	GB16296.D	1	06/11/12	SK	n/a	n/a	GGB906

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

D35289-1

CAS No.	Compound	D35276-12 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		170	184	108	194	114	5	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D35276-12	Limits
120-82-1	1,2,4-Trichlorobenzene	108%	110%	103%	60-140%

Mountain States ACCUTEST LABORATORIES

GC Volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 06/12/12 09:24

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\061112\GB16310.D\FID1A.CH Vial: 21
Signal #2 : Y:\1\DATA\061112\GB16310.D\FID2B.CH
Acq On : 11 Jun 2012 10:15 pm Operator: StephK
Sample : D35289-1, 50X Inst : GC/MS Ins
Misc : GC2904,GGB906,5.063,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jun 12 08:46:20 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Tue Jun 12 08:45:42 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	14.34	3134723	100.042	%	m
10) S	1,2,4-Trichlorobenzene (P)	14.34	17671962	108.732	%	
	Target Compounds					
1) H	TVH-Gasoline	7.23	5255952	<MDL	mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5) T	Benzene	4.11	93852	0.233	ug/L	
6) T	Toluene	7.62	326852	0.825	ug/L	
7) T	Ethylbenzene	0.00	0	N.D.	ug/L	d
8) T	m,p-Xylene	10.44	302406	0.455	ug/L	
9) T	o-Xylene	10.95	86803	0.264	ug/L	
11) T	Naphthalene	14.52	281400	1.426	ug/L	

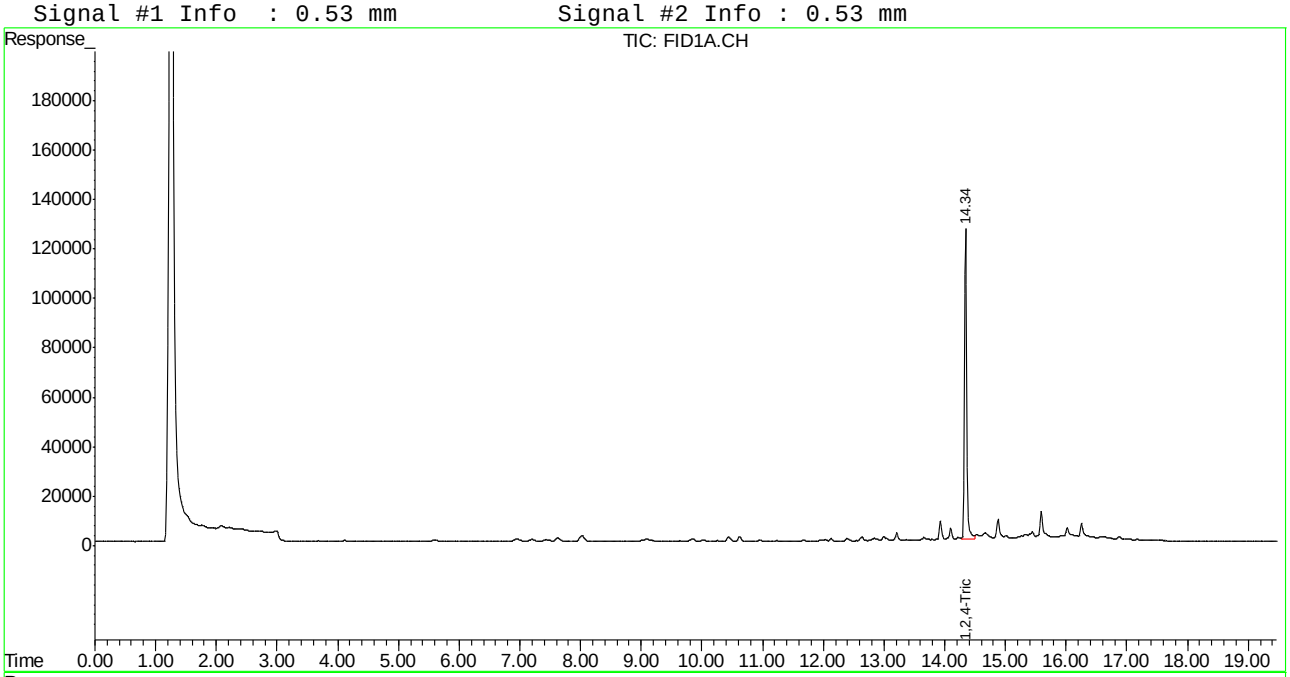
(f)=RT Delta > 1/2 Window (m)=manual int.
GB16310.D TB868GB868SOIL.M Tue Jun 12 08:50:47 2012 GC Page 1

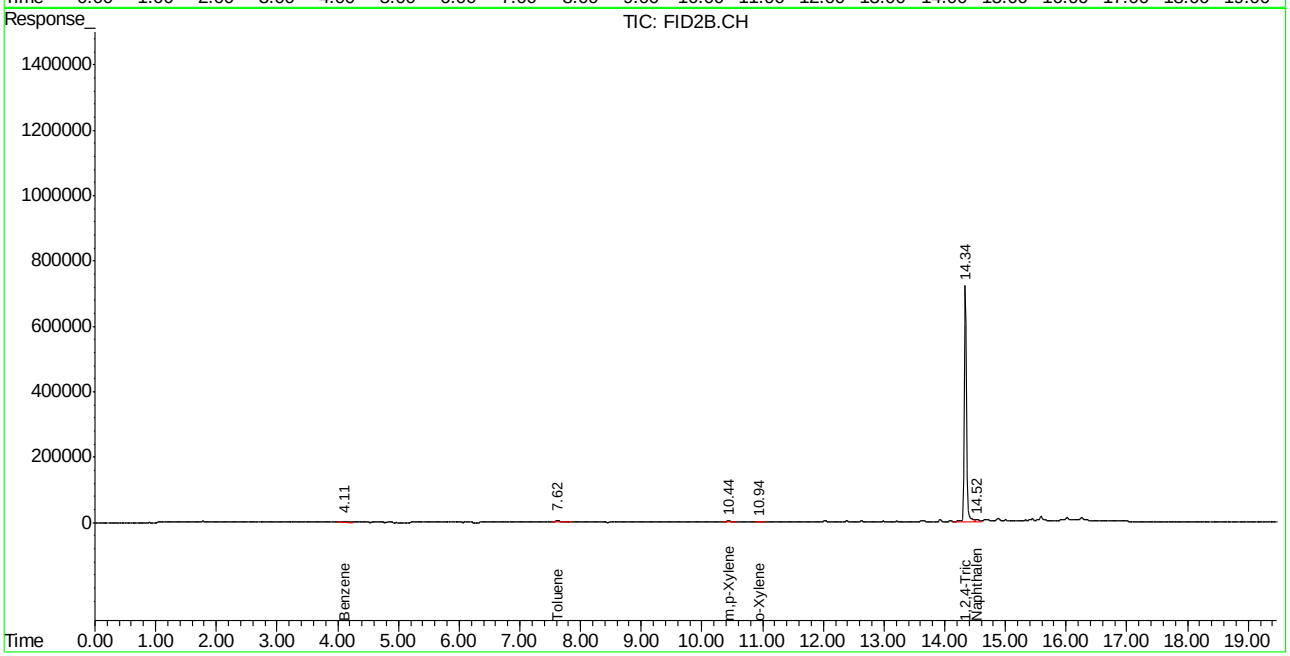
Quantitation Report (QT Reviewed)

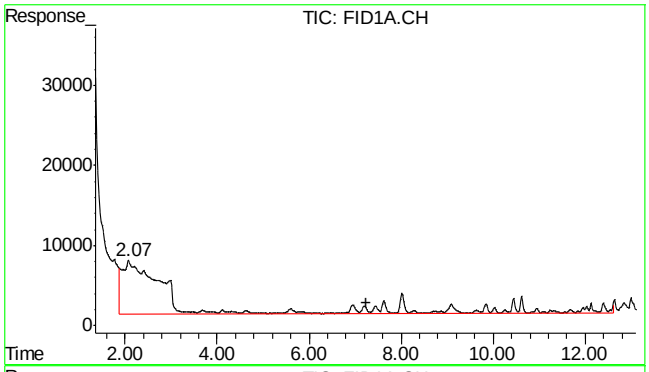
Signal #1 : Y:\1\DATA\061112\GB16310.D\FID1A.CH Vial: 21
Signal #2 : Y:\1\DATA\061112\GB16310.D\FID2B.CH
Acq On : 11 Jun 2012 10:15 pm Operator: StephK
Sample : D35289-1, 50X Inst : GC/MS Ins
Misc : GC2904,GGB906,5.063,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jun 12 7:52 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Tue Jun 12 08:45:42 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

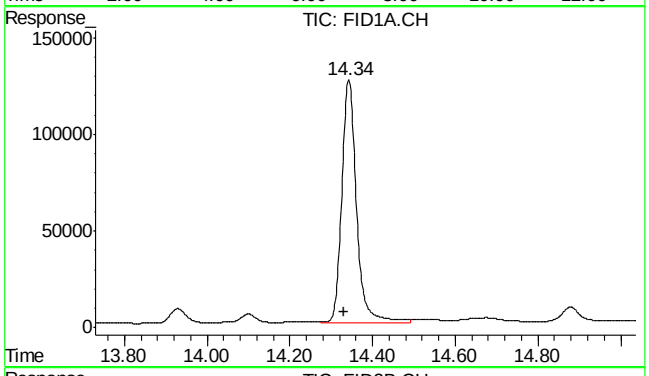






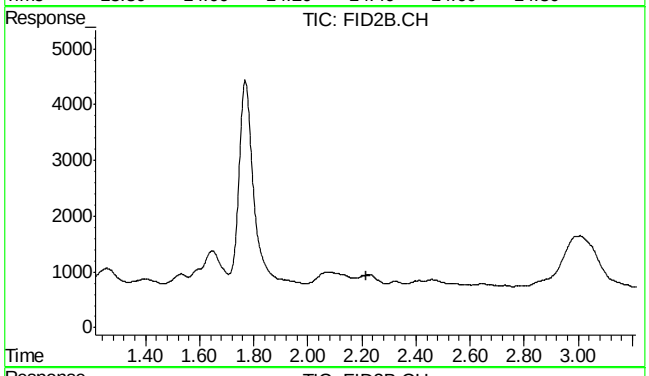
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 5255952
Conc: N.D.



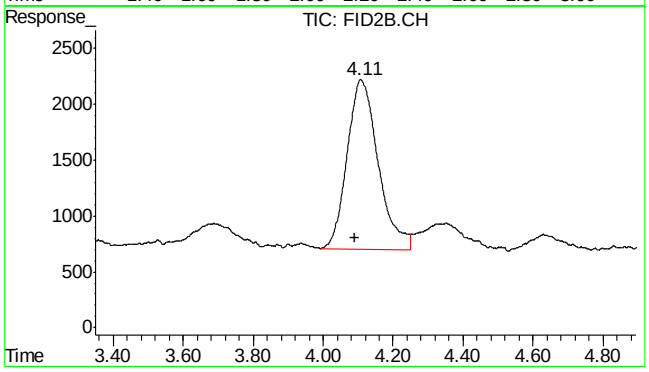
#2 1,2,4-Trichlorobenzene

R.T.: 14.342 min
Delta R.T.: 0.011 min
Response: 3134723
Conc: 100.04 % m



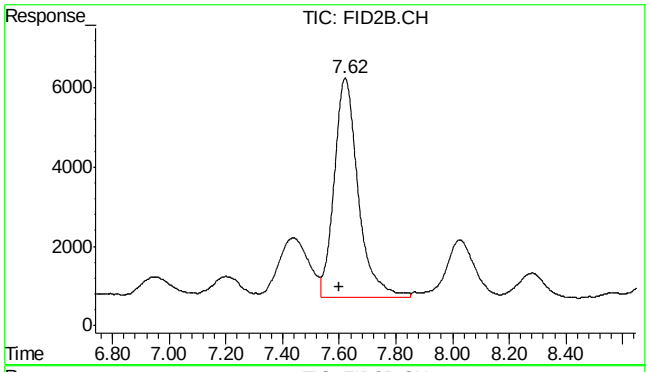
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.215 min
Response: 0
Conc: N.D.



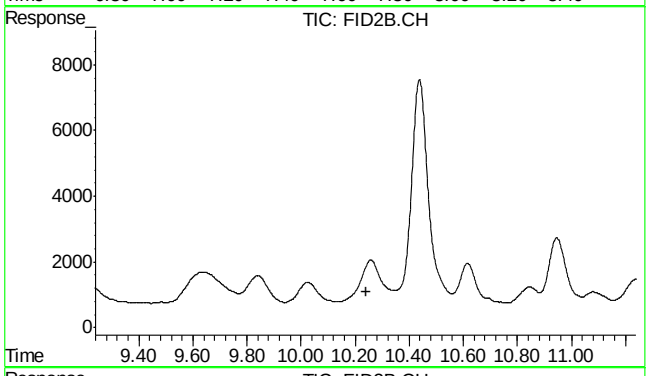
#5 Benzene

R.T.: 4.108 min
Delta R.T.: 0.017 min
Response: 93852
Conc: 0.23 ug/L



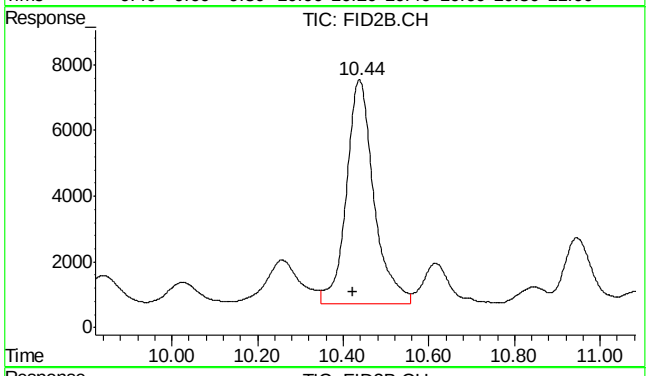
#6 Toluene

R.T.: 7.621 min
Delta R.T.: 0.019 min
Response: 326852
Conc: 0.82 ug/L



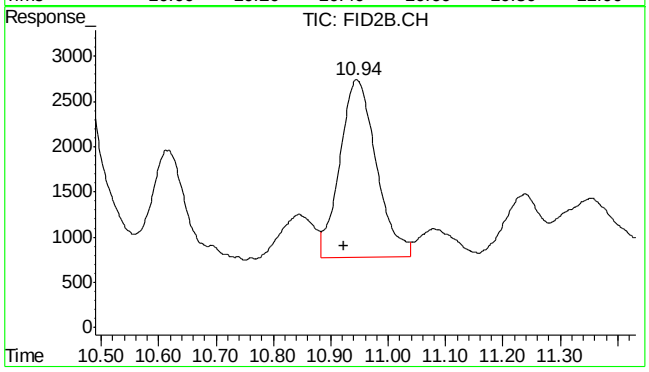
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.240 min
Response: 0
Conc: N.D.



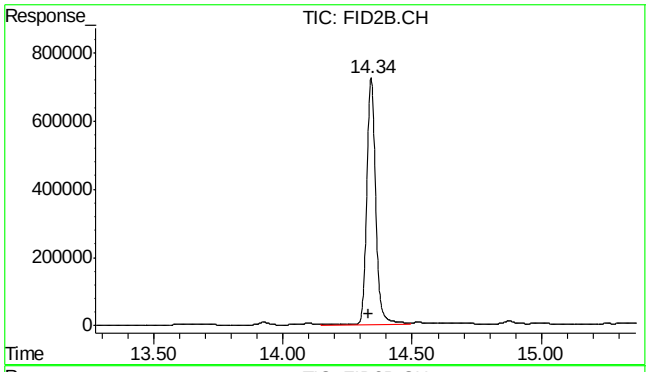
#8 m,p-Xylene

R.T.: 10.438 min
Delta R.T.: 0.016 min
Response: 302406
Conc: 0.45 ug/L



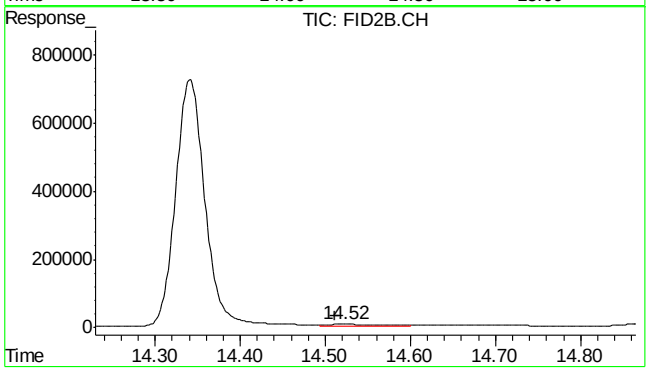
#9 o-Xylene

R.T.: 10.946 min
Delta R.T.: 0.023 min
Response: 86803
Conc: 0.26 ug/L



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

R.T.: 14.341 min
Delta R.T.: 0.012 min
Response: 17671962
Conc: 108.73 %



#11 Naphthalene

R.T.: 14.522 min
Delta R.T.: 0.011 min
Response: 281400
Conc: 1.43 ug/L

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 06/12/12 09:24

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\061112\GB16294.D\FID1A.CH Vial: 5
Signal #2 : Y:\1\DATA\061112\GB16294.D\FID2B.CH
Acq On : 11 Jun 2012 12:51 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC2904,GGB906,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jun 11 13:08:10 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Jun 11 13:03:48 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	14.35	3244057	103.531 %		m
10) S	1,2,4-Trichlorobenzene (P)	14.34	18276099	112.449 %		
	Target Compounds					
1) H	TVH-Gasoline	7.23	4675842	<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	7.63	181555	0.458	ug/L	
7) T	Ethylbenzene	0.00	0	N.D.	ug/L	d
8) T	m,p-Xylene	10.44	181324	0.123	ug/L	
9) T	o-Xylene	0.00	0	N.D.	ug/L	d
11) T	Naphthalene	14.52	215354	1.091	ug/L	

10.2.1 10

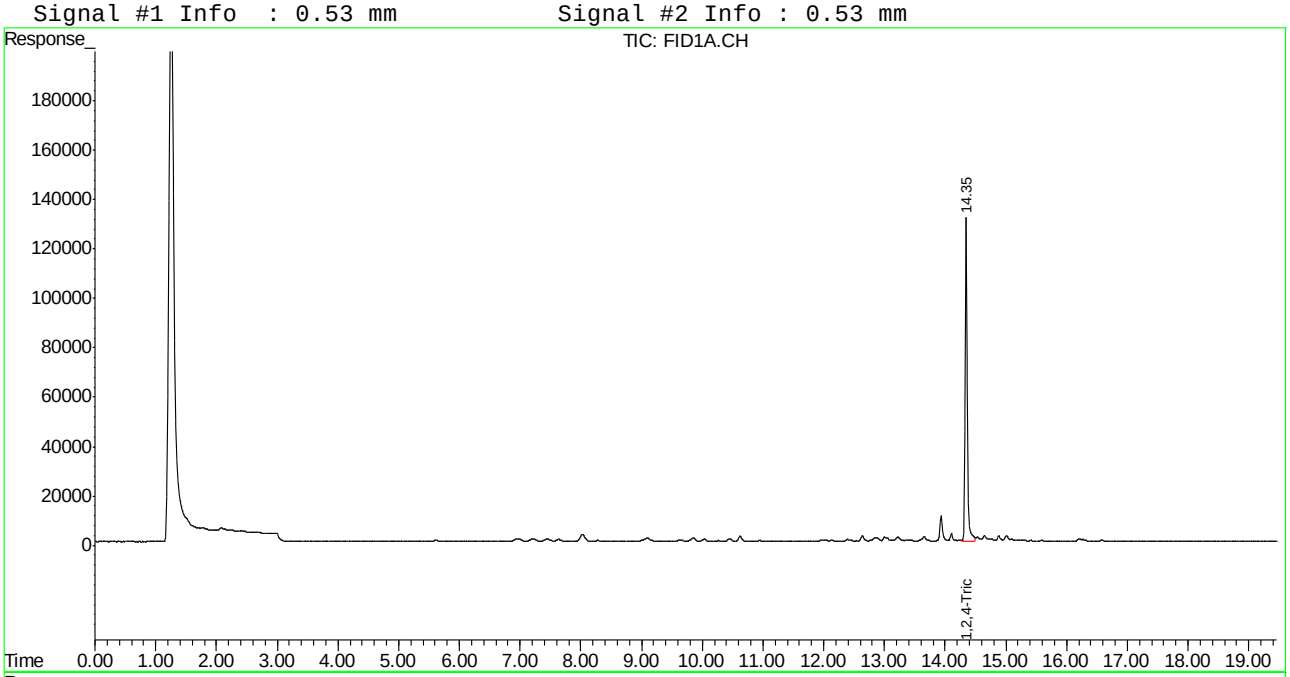
(f)=RT Delta > 1/2 Window (m)=manual int.

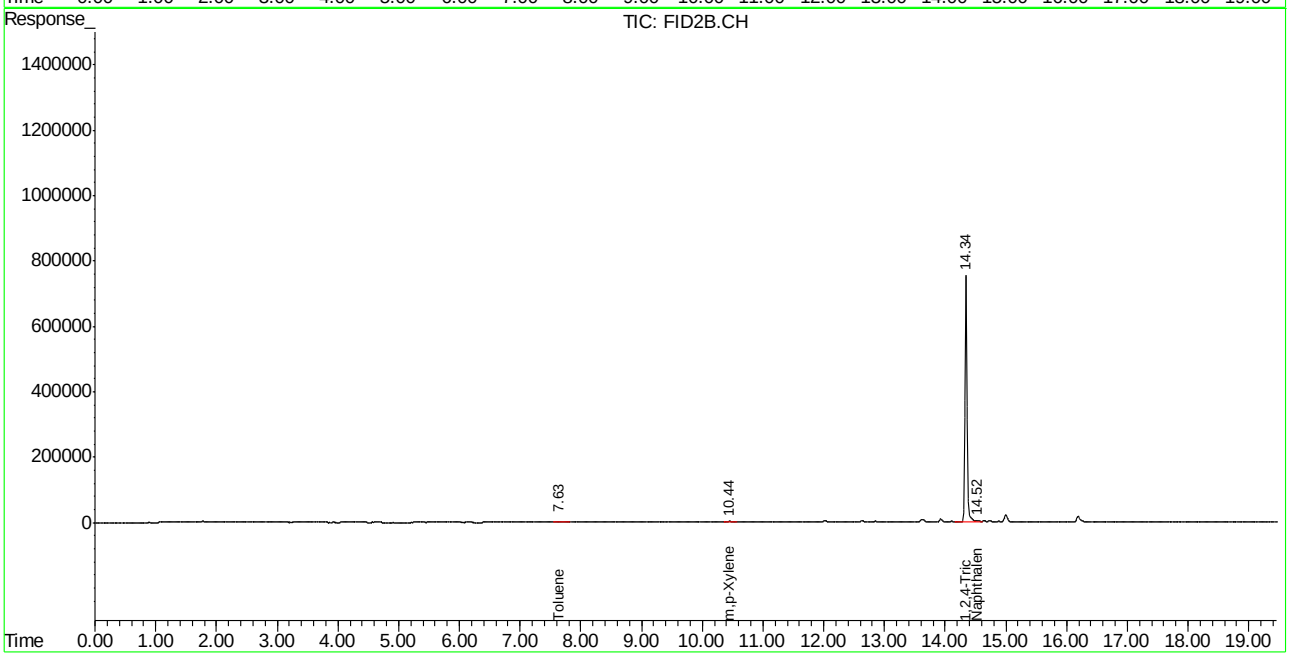
Quantitation Report (QT Reviewed)

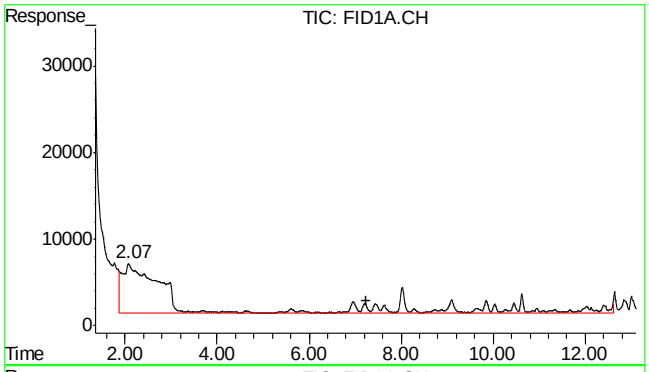
Signal #1 : Y:\1\DATA\061112\GB16294.D\FID1A.CH Vial: 5
Signal #2 : Y:\1\DATA\061112\GB16294.D\FID2B.CH
Acq On : 11 Jun 2012 12:51 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC2904,GGB906,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jun 11 12:11 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Jun 11 13:03:48 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

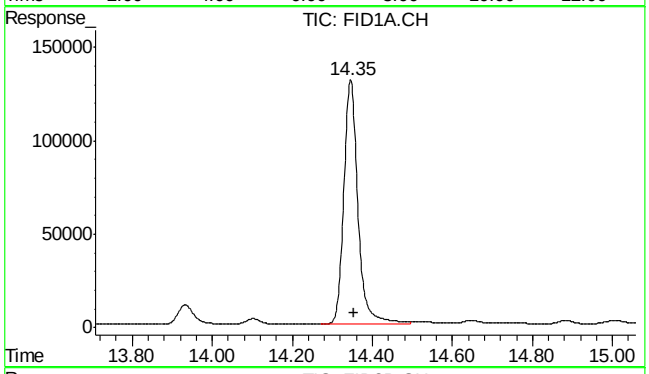






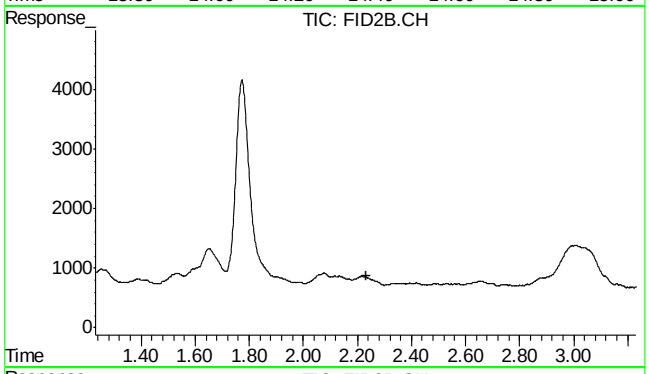
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 4675842
Conc: N.D.



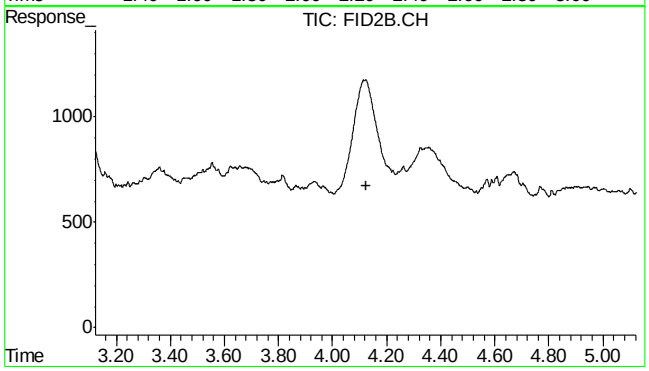
#2 1,2,4-Trichlorobenzene

R.T.: 14.345 min
Delta R.T.: -0.008 min
Response: 3244057
Conc: 103.53 % m



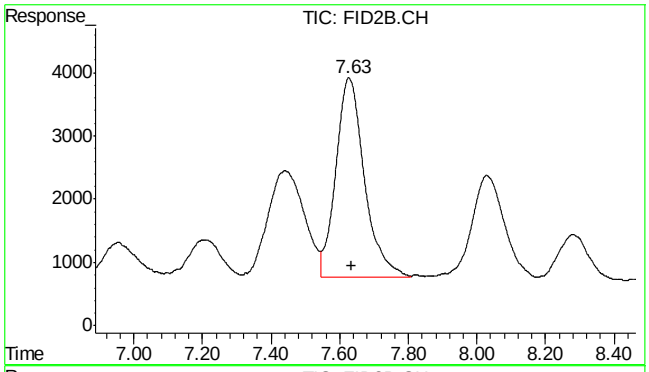
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.231 min
Response: 0
Conc: N.D.



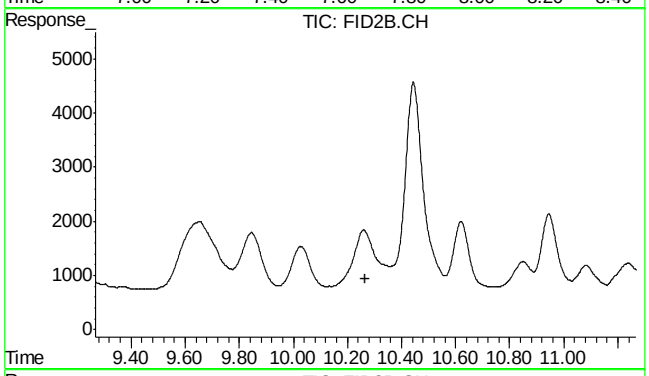
#5 Benzene

R.T.: 0.000 min
Exp R.T. : 4.123 min
Response: 0
Conc: N.D.



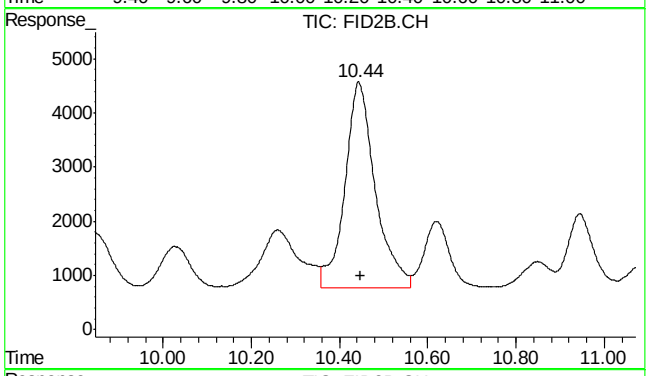
#6 Toluene

R.T.: 7.627 min
Delta R.T.: -0.009 min
Response: 181555
Conc: 0.46 ug/L



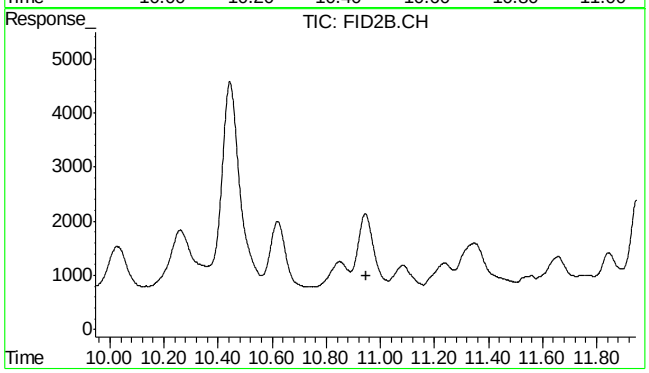
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.267 min
Response: 0
Conc: N.D.



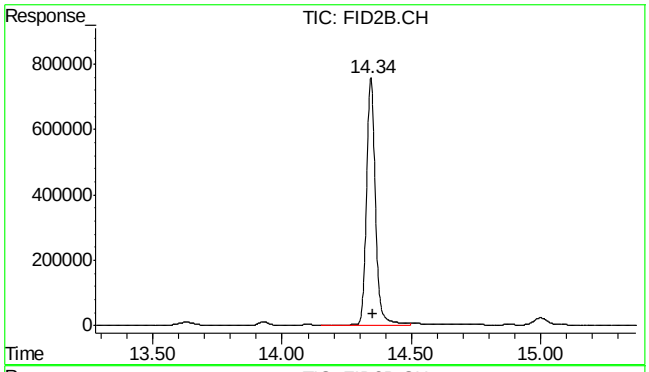
#8 m,p-Xylene

R.T.: 10.444 min
Delta R.T.: -0.004 min
Response: 181324
Conc: 0.12 ug/L



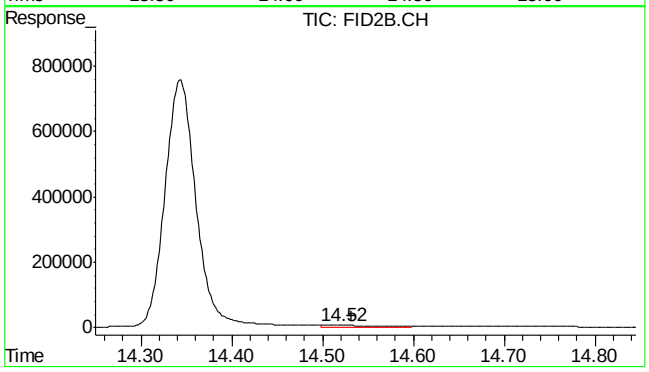
#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 10.946 min
Response: 0
Conc: N.D.



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

R.T.: 14.344 min
Delta R.T.: -0.007 min
Response: 18276099
Conc: 112.45 %



#11 Naphthalene

R.T.: 14.521 min
Delta R.T.: -0.011 min
Response: 215354
Conc: 1.09 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: D35289
Account: XTOKRWR XTO Energy
Project: FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6047-MB	FD14227.D	1	06/14/12	AV	06/13/12	OP6047	GFD750

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

D35289-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	6.7	4.3	mg/kg	

CAS No.	Surrogate Recoveries		Limits
84-15-1	o-Terphenyl	79%	43-136%

Blank Spike Summary

Job Number: D35289
Account: XTOKRWR XTO Energy
Project: FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6047-BS	FD14229.D	1	06/14/12	AV	06/13/12	OP6047	GFD750

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

D35289-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	417	63	58-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	70%	43-136%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D35289
Account: XTOKRWR XTO Energy
Project: FRU 297-17A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6047-MS	FD14231.D	1	06/14/12	AV	06/13/12	OP6047	GFD750
OP6047-MSD	FD14233.D	1	06/14/12	AV	06/13/12	OP6047	GFD750
D35286-2	FD14235.D	1	06/14/12	AV	06/13/12	OP6047	GFD750

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

D35289-1

CAS No.	Compound	D35286-2 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	7.99		756	450	58	370	48	20	20-183/43

CAS No.	Surrogate Recoveries	MS	MSD	D35286-2	Limits
84-15-1	o-Terphenyl	65%	59%	70%	43-136%

Mountain States ACCUTEST LABORATORIES

GC Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 06/15/12 10:37

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\JUNE\FD061412\FD14257.D Vial: 18
Acq On : 6-14-2012 07:32:51 PM Operator: ashleyv
Sample : D35289-1 Inst : FID5
Misc : OP6047,GFD750,30.00,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Jun 15 08:58:20 2012 Quant Results File: DRO-GFD740F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD740F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Mon Jun 11 09:22:41 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	9.34	62424284	1326.460	mg/L	m
	Target Compounds					
2) H	TPH-DRO (c10-c28)	7.19	36796797	860.784	mg/L	

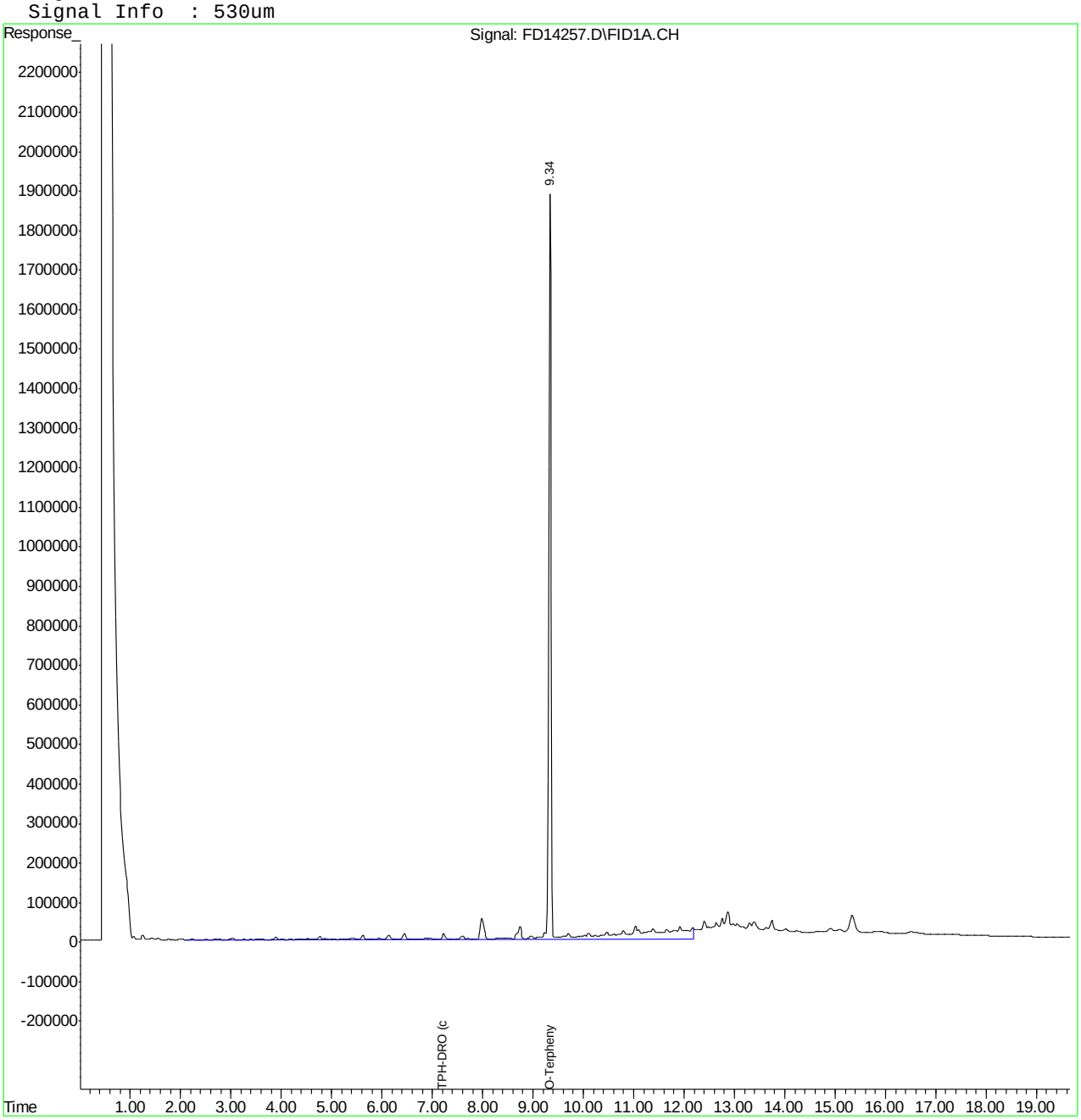
(f)=RT Delta > 1/2 Window (m)=manual int.
FD14257.D DRO-GFD740F.M Fri Jun 15 09:22:33 2012 GC Page 1

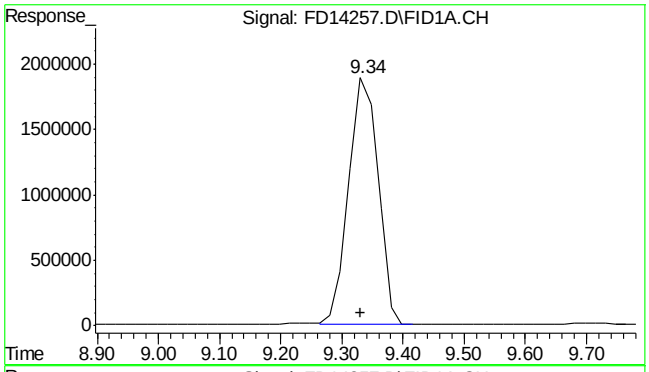
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\JUNE\FD061412\FD14257.D Vial: 18
Acq On : 6-14-2012 07:32:51 PM Operator: ashleyv
Sample : D35289-1 Inst : FID5
Misc : OP6047,GFD750,30.00,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Jun 15 8:59 2012 Quant Results File: DRO-GFD740F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD740F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Mon Jun 11 09:22:41 2012
Response via : Multiple Level Calibration
DataAcq Meth : DRODUAL.M

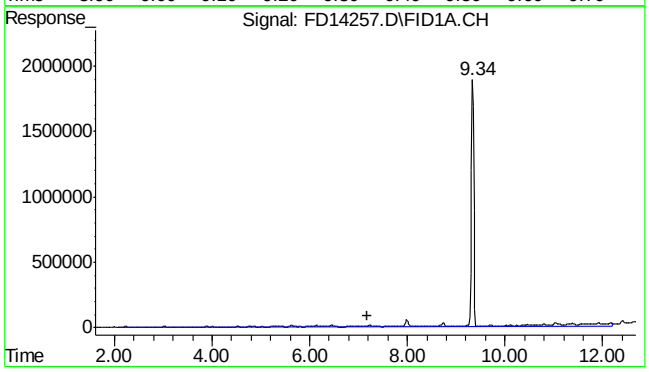
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.335 min
Delta R.T.: 0.005 min
Response: 62424284
Conc: 1326.46 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 7.190 min
Delta R.T.: 0.000 min
Response: 36796797
Conc: 860.78 mg/L m

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson 06/15/12 10:37

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\JUNE\FD061412\FD14227.D Vial: 3
Acq On : 14 Jun 2012 12:48 pm Operator: ashleyv
Sample : OP6047-MB Inst : FID5
Misc : OP6047,GFD750,30.00,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Jun 14 15:34:59 2012 Quant Results File: DRO-GFD740F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD740F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Mon Jun 11 09:22:41 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	9.35	74347937	1579.827	mg/L	m
	Target Compounds					
2) H	TPH-DRO (c10-c28)	7.19	2239439	52.387	mg/L	

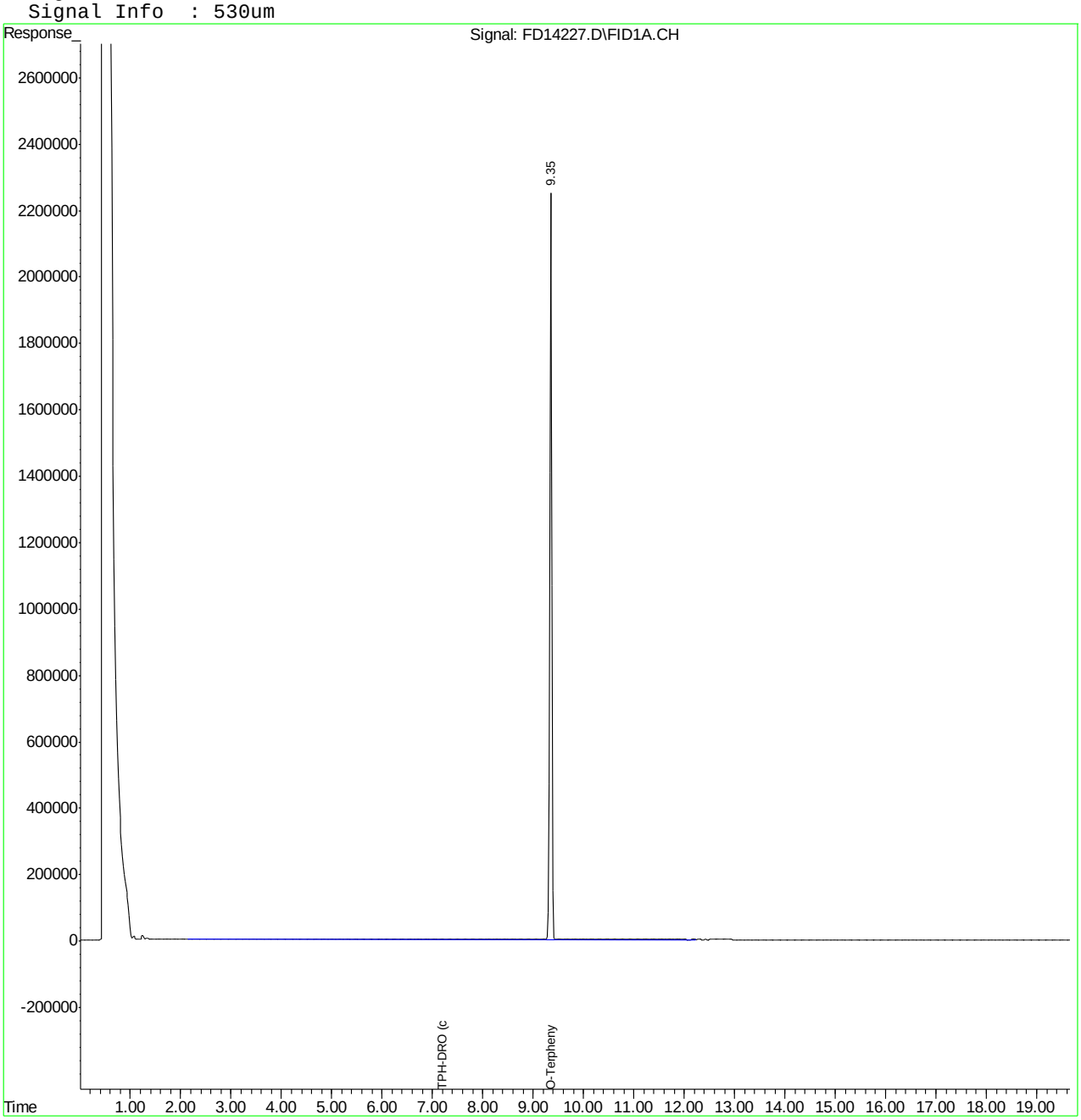
(f)=RT Delta > 1/2 Window (m)=manual int.

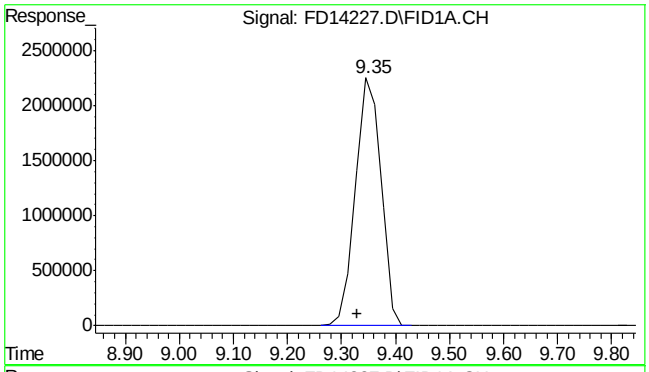
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\JUNE\FD061412\FD14227.D Vial: 3
Acq On : 14 Jun 2012 12:48 pm Operator: ashleyv
Sample : OP6047-MB Inst : FID5
Misc : OP6047,GFD750,30.00,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Jun 14 15:35 2012 Quant Results File: DRO-GFD740F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD740F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Mon Jun 11 09:22:41 2012
Response via : Multiple Level Calibration
DataAcq Meth : DRODUAL.M

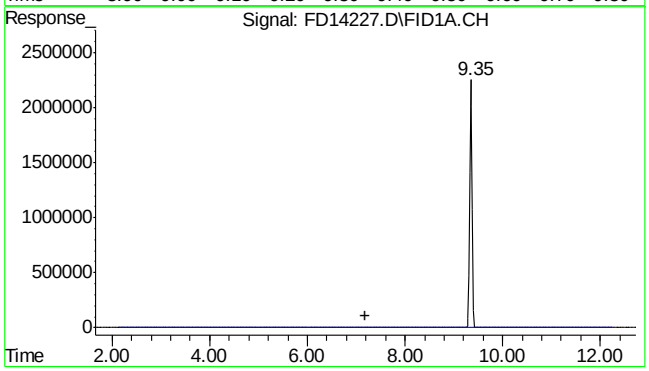
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.349 min
Delta R.T.: 0.019 min
Response: 74347937
Conc: 1579.83 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 7.190 min
Delta R.T.: 0.000 min
Response: 2239439
Conc: 52.39 mg/L m

Mountain States ACCUTEST LABORATORIES

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7638 Methods: SW846 7471B
Matrix Type: SOLID Units: mg/kg

Prep Date: 06/11/12

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.10	.0011	.0009	0.00058	<0.10

Associated samples MP7638: D35289-1

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: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7638
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 06/11/12

Metal	D34945-3 Original	MS	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.72	1.9	1.3	90.6	75-125

Associated samples MP7638: D35289-1

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: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7638 Methods: SW846 7471B
Matrix Type: SOLID Units: mg/kg

Prep Date: 06/11/12

Metal	D34945-3 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.72	1.7	1.36	72.3N(a)	11.1	

Associated samples MP7638: D35289-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7638
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 06/11/12

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

Associated samples MP7638: D35289-1

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: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7649
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 06/12/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.96	.57		
Antimony	3.0	.17	.12		
Arsenic	2.5	.44	.56		
Barium	1.0	.01	.11	0.090	<1.0
Beryllium	1.0	.13	.15		
Boron	5.0	.1	.06		
Cadmium	1.0	.06	.036	0.030	<1.0
Calcium	40	.54	9		
Chromium	1.0	.03	.03	0.050	<1.0
Cobalt	0.50	.04	.07		
Copper	1.0	.12	.15	0.060	<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	0.060	<3.0
Phosphorus	10	1.4	1.9		
Potassium	200	6.1	7		
Selenium	5.0	.48	.36	-0.15	<5.0
Silicon	5.0	.29	.37		
Silver	3.0	.04	.06	0.0	<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	0.35	<3.0

Associated samples MP7649: D35289-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7649
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7649
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 06/12/12

Metal	D35291-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	132	318	213	87.3	75-125
Beryllium	anr				
Boron					
Cadmium	0.46	45.9	53.3	85.3	75-125
Calcium					
Chromium	9.7	55.2	53.3	85.4	75-125
Cobalt	anr				
Copper	18.0	67.7	53.3	93.3	75-125
Iron	anr				
Lead	11.8	99.2	107	82.0	75-125
Lithium					
Magnesium					
Manganese	anr				
Molybdenum					
Nickel	21.7	59.8	53.3	71.5N(a)	75-125
Phosphorus					
Potassium					
Selenium	0.60	94.3	107	87.9	75-125
Silicon					
Silver	0.0	19.5	21.3	91.5	75-125
Sodium					
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium					
Vanadium	anr				
Zinc	50.9	88.9	53.3	71.3N(a)	75-125

Associated samples MP7649: D35289-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7649
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7649
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 06/12/12

Metal	D35291-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	132	318	211	88.2	0.0	20
Beryllium	anr					
Boron						
Cadmium	0.46	44.9	52.7	84.3	2.2	20
Calcium						
Chromium	9.7	54.6	52.7	85.1	1.1	20
Cobalt	anr					
Copper	18.0	67.2	52.7	93.3	0.7	20
Iron	anr					
Lead	11.8	97.6	105	81.3	1.6	20
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	21.7	59.6	52.7	71.9N(a)	0.3	20
Phosphorus						
Potassium						
Selenium	0.60	92.6	105	87.2	1.8	20
Silicon						
Silver	0.0	19.1	21.1	90.5	2.1	20
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium						
Vanadium	anr					
Zinc	50.9	89.1	52.7	72.4N(a)	0.2	20

Associated samples MP7649: D35289-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7649
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7649
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 06/12/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	199	200	99.5	80-120
Beryllium	anr			
Boron				
Cadmium	48.6	50	97.2	80-120
Calcium				
Chromium	51.4	50	102.8	80-120
Cobalt	anr			
Copper	50.5	50	101.0	80-120
Iron	anr			
Lead	97.7	100	97.7	80-120
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	48.8	50	97.6	80-120
Phosphorus				
Potassium				
Selenium	98.3	100	98.3	80-120
Silicon				
Silver	20.5	20	102.5	80-120
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	49.6	50	99.2	80-120

Associated samples MP7649: D35289-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7649
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7649
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 06/12/12

Metal	D35291-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	1240	1420	14.9*(a)	0-10
Beryllium	anr			
Boron				
Cadmium	4.30	0.00	100.0(b)	0-10
Calcium				
Chromium	91.3	107	16.6*(a)	0-10
Cobalt	anr			
Copper	169	178	5.5	0-10
Iron	anr			
Lead	111	118	6.8	0-10
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	203	245	20.5*(a)	0-10
Phosphorus				
Potassium				
Selenium	5.60	0.00	100.0(b)	0-10
Silicon				
Silver	0.00	0.00	NC	0-10
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	478	599	25.3*(a)	0-10

Associated samples MP7649: D35289-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7649
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: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7650
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 06/12/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.042	.06	0.0078	<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 MP7650: D35289-1

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: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7650
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 06/12/12

Metal	D35291-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	9.9	127	107	109.9	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 MP7650: D35289-1

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: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7650
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 06/12/12

Metal	D35291-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	9.9	124	105	108.2	2.4	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 MP7650: D35289-1

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: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7650
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 06/12/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	108	100	108.0	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 MP7650: D35289-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7650
Matrix Type: SOLID

Methods: SW846 6020A
Units: ug/l

Prep Date: 06/12/12

Metal	D35291-1 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	92.8	91.0	2.0	0-10
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP7650: D35289-1

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: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7669
Matrix Type: AQUEOUS

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

Prep Date: 06/14/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	48	110		
Antimony	150	8.5	16		
Arsenic	130	22	38		
Barium	50	.5	2.5		
Beryllium	50	6.5	16		
Boron	250	5	13		
Cadmium	50	3	3		
Calcium	2000	27	37	-31	<2000
Chromium	50	1.5	2		
Cobalt	25	2	2		
Copper	50	6	15		
Iron	350	6	95		
Lead	250	9.5	15		
Lithium	10	2.5	3.3		
Magnesium	1000	33	55	24.0	<1000
Manganese	25	6	9		
Molybdenum	50	11	11		
Nickel	150	2.5	2.7		
Phosphorus	500	70	300		
Potassium	5000	310	310		
Selenium	250	24	29		
Silicon	250	15	11		
Silver	150	2	3.3		
Sodium	2000	30	490	-170	<2000
Strontium	25	.2	7.5		
Thallium	50	15	15		
Tin	250	60	120		
Titanium	50	.5	6		
Uranium	250	11	11		
Vanadium	50	1	2		
Zinc	150	2.5	7.5		

Associated samples MP7669: D35289-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7669
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: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7669
Matrix Type: AQUEOUS

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

Prep Date: 06/14/12

Metal	D35289-1A Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	70700	218000	125000	117.8	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	350	133000	125000	106.1	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	569000	757000	125000	150.4(a)	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP7669: D35289-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7669
Matrix Type: AQUEOUS

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

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7669
Matrix Type: AQUEOUS

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

Prep Date: 06/14/12

Metal	D35289-1A Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	70700	212000	125000	113.0	2.8	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	350	131000	125000	104.5	1.5	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	569000	740000	125000	136.8(a)	2.3	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP7669: D35289-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7669
Matrix Type: AQUEOUS

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

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7669
Matrix Type: AQUEOUS

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

Prep Date: 06/14/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	136000	125000	108.8	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	130000	125000	104.0	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	133000	125000	106.4	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP7669: D35289-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

QC Batch ID: MP7669
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

Mountain States ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP7450/GN15392	1.0	0.0	mg/kg	261	216	82.9	80-120%
Specific Conductivity	GP7492/GN15439			umhos/cm	10009	9900	98.9	90-110%
pH	GN15359			su	8.00	7.98	99.8	99.3-100.7%

Associated Samples:
Batch GN15359: D35289-1
Batch GP7450: D35289-1
Batch GP7492: D35289-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP7450/GN15392	D35289-1	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN15371	D35291-1	mv	169	168	0.6	0-20%

Associated Samples:
Batch GN15371: D35289-1
Batch GP7450: D35289-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP7450/GN15392	D35289-1	mg/kg	0.0	40	23.2	58.1*(a)	75-125%

Associated Samples:
Batch GP7450: D35289-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Spike recovery indicates possible matrix interference.

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D35289
Account: XTOKRWR - XTO Energy
Project: FRU 297-17A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chromium, Hexavalent	GP7450/GN15392	D35289-1	mg/kg	0.0	40	23.1	0.4(a)	

Associated Samples:
Batch GP7450: D35289-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Spike recovery indicates possible matrix interference.