



06/28/12

Technical Report for

XTO Energy

FRU 297-8B

1106-06

Accutest Job Number: D35708

Sampling Date: 06/20/12

Report to:

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Total number of pages in report: 151



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.


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

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Test results relate only to samples analyzed.

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Sample Summary

XTO Energy

Job No: D35708

FRU 297-8B

Project No: 1106-06

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D35708-1	06/20/12	12:00 DS	06/21/12	SO	Soil	CUT 2 SUBLINER
D35708-1A	06/20/12	12:00 DS	06/21/12	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 D35708

Site: FRU 297-8B

Report Date 6/28/2012 8:47:36 AM

On 06/21/2012, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4.1 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D35708 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: V5V1355

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D35708-1MS, D35708-1MSD were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO

Batch ID: OP6113

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D35708-1MS, D35708-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Volatiles by GC By Method SW846 8015B

Matrix SO

Batch ID: GGB910

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D35708-1MS, D35708-1MSD were used as the QC samples indicated.

Extractables by GC By Method SW846-8015B

Matrix SO

Batch ID: OP6112

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D35708-1MS, D35708-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Metals By Method SW846 6010C

Matrix AQ

Batch ID: MP7743

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D35708-1AMS, D35708-1AMSD, D35708-1ASDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Sodium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Matrix SO

Batch ID: MP7737

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D35708-1MS, D35708-1MSD, D35708-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Barium are outside control limits. Spike recovery indicates possible matrix interference.
- The serial dilution RPD(s) for Cadmium, Selenium, Barium, Chromium, Nickel, Zinc are outside control limits for sample MP7737-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP7737-SD1 for Barium, Chromium, Nickel, and Zinc: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix SO

Batch ID: MP7738

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D35708-1MS, D35708-1MSD, D35708-1SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471B

Matrix SO

Batch ID: MP7755

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D35710-1MS, D35710-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO

Batch ID: GN15599

- Sample(s) D35794-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN15536

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO

Batch ID: R13250

- The data for SW846 3060/7196A M meets quality control requirements.
- D35708-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO

Batch ID: GP7549

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D35573-1DUP, D35573-1MS, D35573-1MSD were used as the QC samples for the Chromium, Hexavalent analysis.

Wet Chemistry By Method SW846 9045D

Matrix SO

Batch ID: GN15564

- The following samples were run outside of holding time for method SW846 9045D: D35708-1

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO

Batch ID: MP7743

- D35708-1A for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

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.

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	CUT 2 SUBLINER	
Lab Sample ID:	D35708-1	Date Sampled: 06/20/12
Matrix:	SO - Soil	Date Received: 06/21/12
Method:	SW846 8260B	Percent Solids: 95.0
Project:	FRU 297-8B	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V22136.D	1	06/25/12	BD	n/a	n/a	V5V1355
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.03 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0220	0.055	0.021	mg/kg	J
108-88-3	Toluene	0.445	0.11	0.055	mg/kg	
100-41-4	Ethylbenzene	0.149	0.11	0.021	mg/kg	
1330-20-7	Xylene (total)	0.614	0.22	0.11	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	95%		61-130%
460-00-4	4-Bromofluorobenzene	103%		53-131%
17060-07-0	1,2-Dichloroethane-D4	114%		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

Report of Analysis

Client Sample ID:	CUT 2 SUBLINER	
Lab Sample ID:	D35708-1	Date Sampled: 06/20/12
Matrix:	SO - Soil	Date Received: 06/21/12
Method:	SW846 8270C BY SIM SW846 3546	Percent Solids: 95.0
Project:	FRU 297-8B	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G09820.D	1	06/22/12	SM	06/22/12	OP6113	E3G436
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.0088	0.0046	mg/kg	
120-12-7	Anthracene	ND	0.0088	0.0046	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.0088	0.0046	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.0088	0.0046	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.0088	0.0046	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.0088	0.0046	mg/kg	
218-01-9	Chrysene	ND	0.0088	0.0046	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0088	0.0046	mg/kg	
206-44-0	Fluoranthene	ND	0.0088	0.0046	mg/kg	
86-73-7	Fluorene	ND	0.0088	0.0046	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.0088	0.0046	mg/kg	
91-20-3	Naphthalene	0.0578	0.012	0.011	mg/kg	
129-00-0	Pyrene	ND	0.0088	0.0046	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	62%		10-145%
321-60-8	2-Fluorobiphenyl	71%		10-130%
1718-51-0	Terphenyl-d14	90%		22-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	CUT 2 SUBLINER	
Lab Sample ID:	D35708-1	Date Sampled: 06/20/12
Matrix:	SO - Soil	Date Received: 06/21/12
Method:	SW846 8015B	Percent Solids: 95.0
Project:	FRU 297-8B	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB16416.D	1	06/21/12	SK	n/a	n/a	GGB910
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	11	5.5	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	98%		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

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Client Sample ID:	CUT 2 SUBLINER	
Lab Sample ID:	D35708-1	Date Sampled: 06/20/12
Matrix:	SO - Soil	Date Received: 06/21/12
Method:	SW846-8015B SW846 3546	Percent Solids: 95.0
Project:	FRU 297-8B	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD14706.D	1	06/23/12	AW	06/22/12	OP6112	GFD764
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	107	14	9.1	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	96%		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: D35708-1

Matrix: SO - Soil

Project: FRU 297-8B

Date Sampled: 06/20/12

Date Received: 06/21/12

Percent Solids: 95.0

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	8.9	0.10	mg/kg	5	06/22/12	06/24/12 JM	SW846 6020A ²	SW846 3050B ⁵
Barium	807	1.0	mg/kg	1	06/22/12	06/23/12 JM	SW846 6010C ¹	SW846 3050B ⁴
Cadmium	< 1.0	1.0	mg/kg	1	06/22/12	06/23/12 JM	SW846 6010C ¹	SW846 3050B ⁴
Chromium	36.5	1.0	mg/kg	1	06/22/12	06/23/12 JM	SW846 6010C ¹	SW846 3050B ⁴
Copper	11.3	1.0	mg/kg	1	06/22/12	06/23/12 JM	SW846 6010C ¹	SW846 3050B ⁴
Lead	11.5	5.1	mg/kg	1	06/22/12	06/23/12 JM	SW846 6010C ¹	SW846 3050B ⁴
Mercury	< 0.10	0.10	mg/kg	1	06/26/12	06/26/12 JM	SW846 7471B ³	SW846 7471B ⁶
Nickel	15.4	3.1	mg/kg	1	06/22/12	06/23/12 JM	SW846 6010C ¹	SW846 3050B ⁴
Selenium	< 5.1	5.1	mg/kg	1	06/22/12	06/23/12 JM	SW846 6010C ¹	SW846 3050B ⁴
Silver	< 3.1	3.1	mg/kg	1	06/22/12	06/23/12 JM	SW846 6010C ¹	SW846 3050B ⁴
Zinc	44.2	3.1	mg/kg	1	06/22/12	06/23/12 JM	SW846 6010C ¹	SW846 3050B ⁴

(1) Instrument QC Batch: MA2541

(2) Instrument QC Batch: MA2543

(3) Instrument QC Batch: MA2547

(4) Prep QC Batch: MP7737

(5) Prep QC Batch: MP7738

(6) Prep QC Batch: MP7755

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUT 2 SUBLINER**Lab Sample ID:** D35708-1**Matrix:** SO - Soil**Project:** FRU 297-8B**Date Sampled:** 06/20/12**Date Received:** 06/21/12**Percent Solids:** 95.0**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	06/25/12	CJ	SW846 3060A/7196A
Chromium, Trivalent ^a	36.5	2.0	mg/kg	1	06/25/12	CJ	SW846 3060/7196A M
Redox Potential Vs H2	263		mv	1	06/26/12 12:50	JK	ASTM D1498-76M
Solids, Percent	95		%	1	06/21/12	SWT	SM19 2540B M
Specific Conductivity	7860	1.0	umhos/cm	1	06/22/12	CJ	DEPT.OF AG, BOOK N9
pH	10.59		su	1	06/22/12 13:15	JK	SW846 9045D

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

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUT 2 SUBLINER	Date Sampled:	06/20/12
Lab Sample ID:	D35708-1A	Date Received:	06/21/12
Matrix:	SO - Soil	Percent Solids:	95.0
Project:	FRU 297-8B		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	139	2.0	mg/l	1	06/22/12	06/23/12 JM	SW846 6010C ¹	EPA 200.7 ²
Magnesium	16.0	1.0	mg/l	1	06/22/12	06/23/12 JM	SW846 6010C ¹	EPA 200.7 ²
Sodium	1620	2.0	mg/l	1	06/22/12	06/23/12 JM	SW846 6010C ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA2541
(2) Prep QC Batch: MP7743

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUT 2 SUBLINER	Date Sampled:	06/20/12
Lab Sample ID:	D35708-1A	Date Received:	06/21/12
Matrix:	SO - Soil	Percent Solids:	95.0
Project:	FRU 297-8B		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	34.7		ratio	1	06/23/12 14:53	JM	USDA HANDBOOK 60

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

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D35708

Client: KRW

Immediate Client Services Action Required: No

Date / Time Received: 6/21/2012 10:20:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XTO

Airbill #'s: CO

Cooler Security

Y or N

Y or N

- | | | | | | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler Temperature

Y or N

- | | | |
|------------------------------|-------------------------------------|--------------------------|
| 1. Temp criteria achieved: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Cooler temp verification: | Infrared gun | |
| 3. Cooler media: | Ice (bag) | |

Quality Control Preservation

Y or N

N/A

- | | | | |
|---------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2. Trip Blank listed on COC: | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3. Samples preserved properly: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. VOCs headspace free: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Sample Integrity - Documentation

Y or N

- | | | |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Container labeling complete: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Sample Integrity - Condition

Y or N

- | | | |
|----------------------------------|-------------------------------------|--------------------------|
| 1. Sample recvd within HT: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. All containers accounted for: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Condition of sample: | Intact | |

Sample Integrity - Instructions

Y or N N/A

- | | | | |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2. Bottles received for unspecified tests | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 3. Sufficient volume rec'd for analysis: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. Compositing instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Comments

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Wheat Ridge, CO
www.accutest.com

D35708: Chain of Custody
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GC/MS Volatiles

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QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D35708
Account: XTOKRWR XTO Energy
Project: FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1355-MB	5V22134.D	1	06/25/12	BD	n/a	n/a	V5V1355

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

D35708-1

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	88% 61-130%
460-00-4	4-Bromofluorobenzene	88% 53-131%
17060-07-0	1,2-Dichloroethane-D4	110% 62-130%

Blank Spike Summary

Page 1 of 1

Job Number: D35708
Account: XTOKRWR XTO Energy
Project: FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1355-BS	5V22135.D	1	06/25/12	BD	n/a	n/a	V5V1355

The QC reported here applies to the following samples:

Method: SW846 8260B

D35708-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	49.0	98	70-130
100-41-4	Ethylbenzene	50	46.0	92	70-130
108-88-3	Toluene	50	43.2	86	70-130
1330-20-7	Xylene (total)	150	141	94	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	83%	61-130%
460-00-4	4-Bromofluorobenzene	93%	53-131%
17060-07-0	1,2-Dichloroethane-D4	98%	62-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D35708
Account: XTOKRWR XTO Energy
Project: FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D35708-1MS	5V22137.D	1	06/25/12	BD	n/a	n/a	V5V1355
D35708-1MSD	5V22138.D	1	06/25/12	BD	n/a	n/a	V5V1355
D35708-1	5V22136.D	1	06/25/12	BD	n/a	n/a	V5V1355

The QC reported here applies to the following samples:

Method: SW846 8260B

D35708-1

CAS No.	Compound	D35708-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	22.0	J	2750	2880	104	2870	104	0	70-134/30
100-41-4	Ethylbenzene	149		2750	2770	95	2740	94	1	70-137/30
108-88-3	Toluene	445		2750	2740	83	2740	83	0	70-130/30
1330-20-7	Xylene (total)	614		8250	8670	98	8540	96	2	61-131/30

CAS No.	Surrogate Recoveries	MS	MSD	D35708-1	Limits
2037-26-5	Toluene-D8	88%	85%	95%	61-130%
460-00-4	4-Bromofluorobenzene	108%	103%	103%	53-131%
17060-07-0	1,2-Dichloroethane-D4	107%	96%	114%	62-130%

* = Outside of Control Limits.

GC/MS Volatiles

Raw Data



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5062512.S\
 Data File : 5V22136.D
 Acq On : 25 Jun 2012 1:51 pm
 Operator : BRETD
 Sample : D35708-1, X50
 Misc : MS4172,V5V1355,5.025,,100,5,1
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 26 08:33:44 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	160570	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	256583	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	340291	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	247942	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.035	102	27919	57.04	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	114.08%
61) Toluene-d8	13.851	98	544815	47.37	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	94.74%
69) 4-Bromofluorobenzene	16.043	95	243100	51.60	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	103.20%

Target Compounds

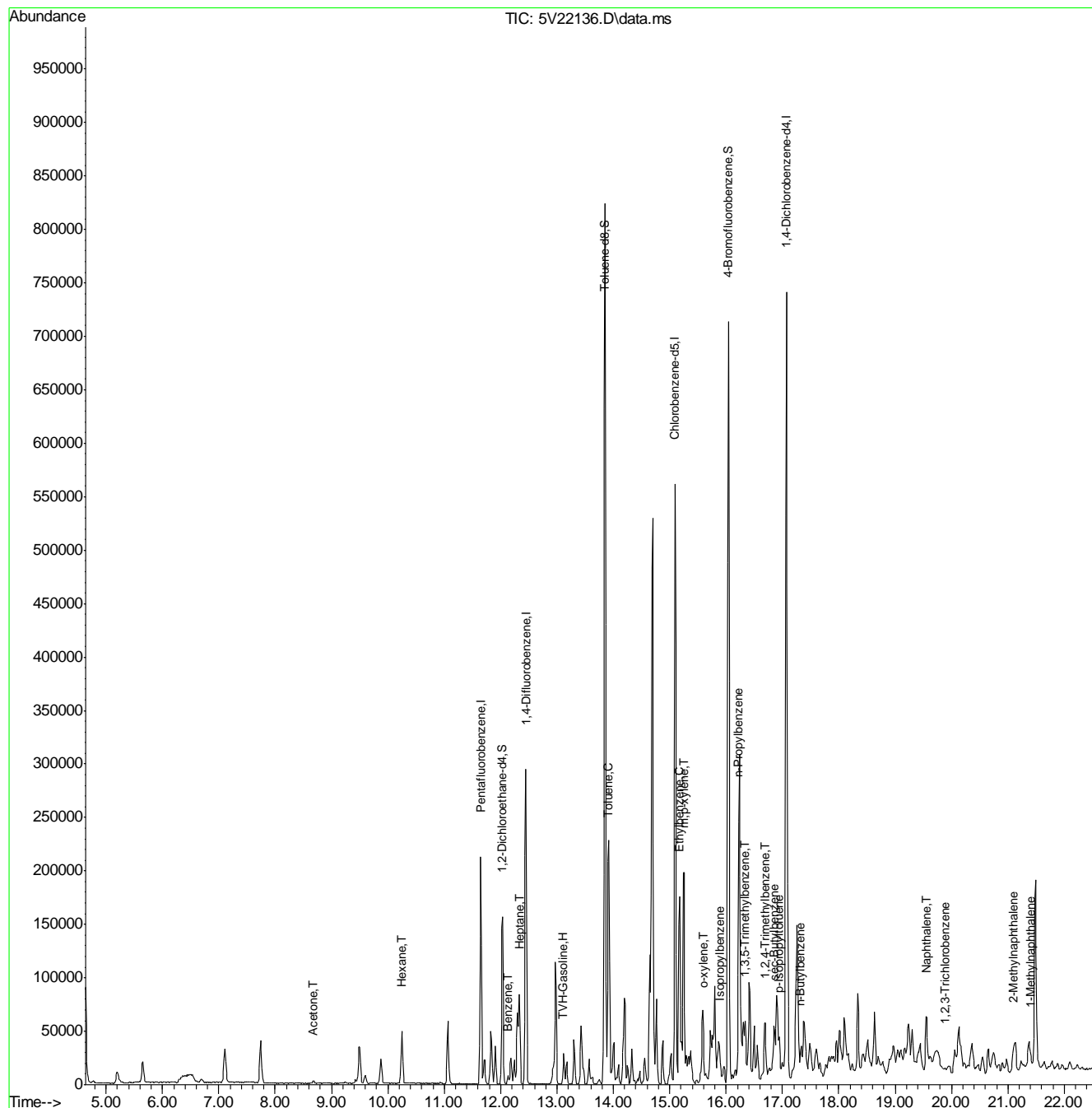
					Qvalue
1) TVH-Gasoline	13.102	TIC	6589295m	330.05	ug/l
15) Acetone	8.679	58	1029	2.19	ug/l 95
41) Hexane	10.243	57	26178	7.37	ug/l 100
43) Heptane	12.332	43	30260	7.96	ug/l 81
50) Benzene	12.127	78	4270	0.40	ug/l 100
62) Toluene	13.908	92	71634	8.09	ug/l 99
66) Ethylbenzene	15.175	91	44450	2.71	ug/l 99
68) Isopropylbenzene	15.883	105	2908	0.18	ug/l # 85
72) m,p-xylene	15.255	106	67088	10.23	ug/l 91
73) o-xylene	15.597	106	5871	0.93	ug/l 99
77) n-Propylbenzene	16.225	91	15956	0.72	ug/l 98
80) 1,3,5-Trimethylbenzene	16.339	105	3487m	0.22	ug/l
82) 1,2,4-Trimethylbenzene	16.693	105	20587	1.29	ug/l 87
83) sec-Butylbenzene	16.853	105	2814	0.13	ug/l 92
86) p-Isopropyltoluene	16.945	119	18870	1.05	ug/l 95
88) n-Butylbenzene	17.321	91	12880	0.77	ug/l # 89
91) Naphthalene	19.559	128	25961	2.62	ug/l 100
93) 1,2,3-Trichlorobenzene	19.879	180	3594	0.59	ug/l # 85
94) 2-Methylnaphthalene	21.100	142	14990	4.23	ug/l # 92
95) 1-Methylnaphthalene	21.397	142	7645	2.67	ug/l # 88

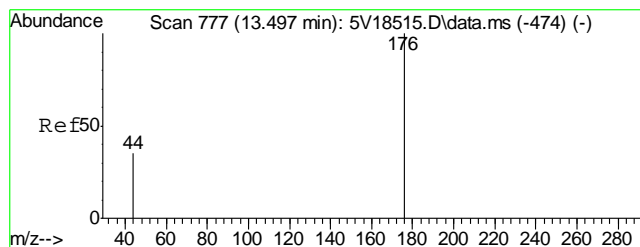
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5062512.S\
Data File : 5V22136.D
Acq On : 25 Jun 2012 1:51 pm
Operator : BRETD
Sample : D35708-1, X50
Misc : MS4172,V5V1355,5.025,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

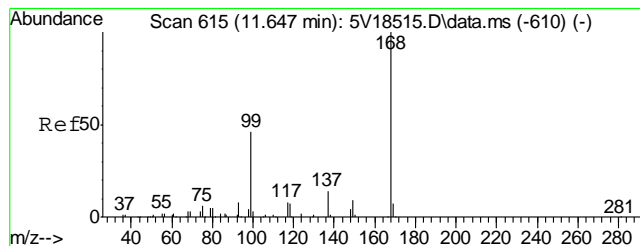
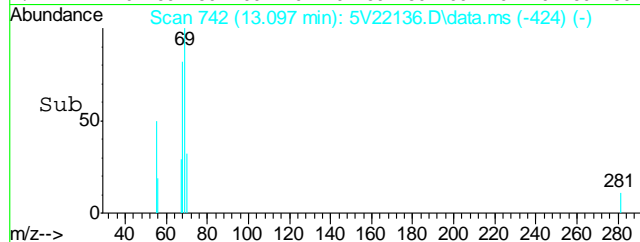
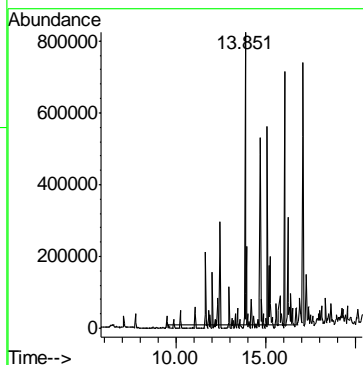
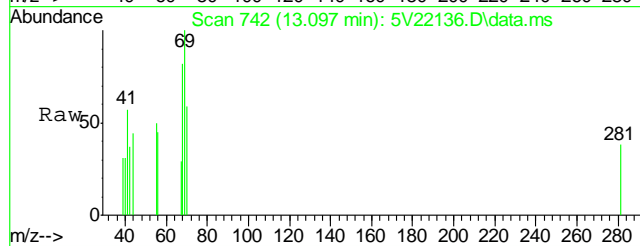
Quant Time: Jun 26 08:33:44 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1304TVH1304.M
Quant Title : 8260
QLast Update : Thu May 24 07:55:17 2012
Response via : Initial Calibration





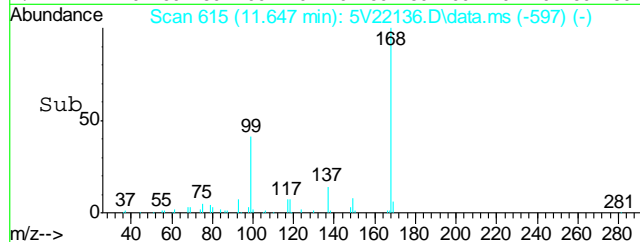
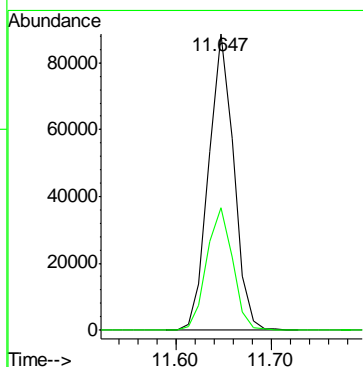
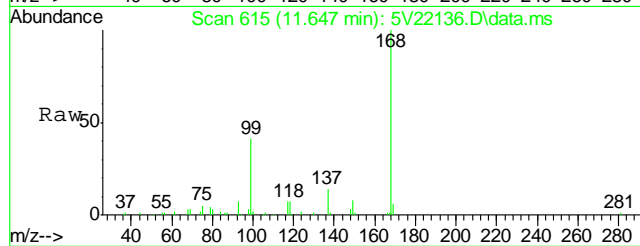
#1
TVH-Gasoline
Concen: 330.05 ug/l m
RT: 13.102 min Scan# 742
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

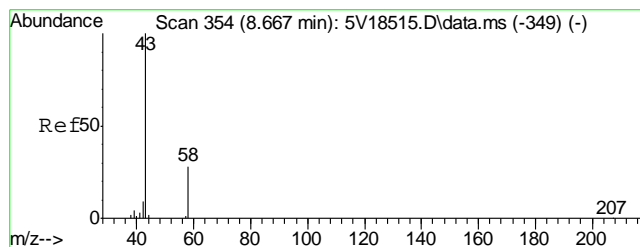
Tgt Ion:TIC Resp: 6589295



#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.647 min Scan# 615
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

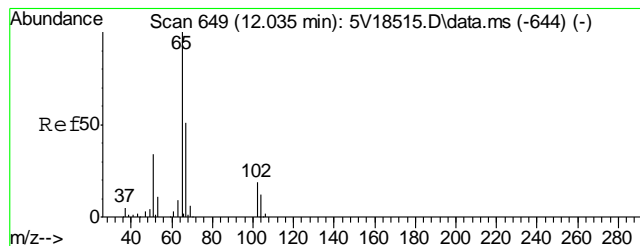
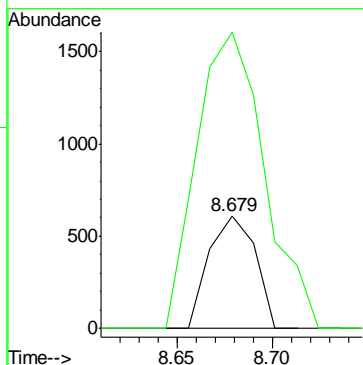
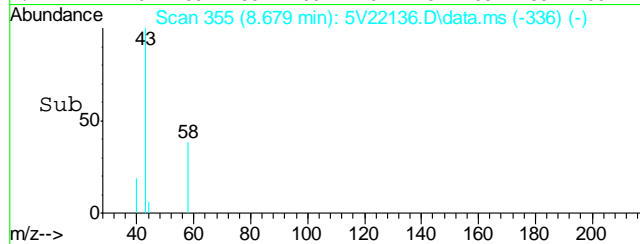
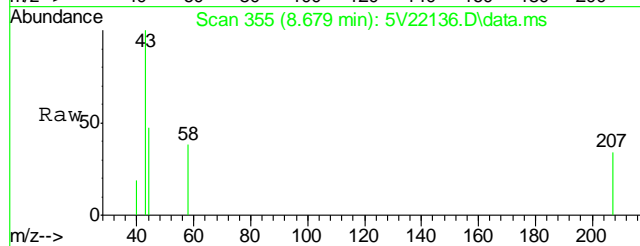
Tgt Ion:168 Resp: 160570
Ion Ratio Lower Upper
168 100
99 42.7 37.4 56.2





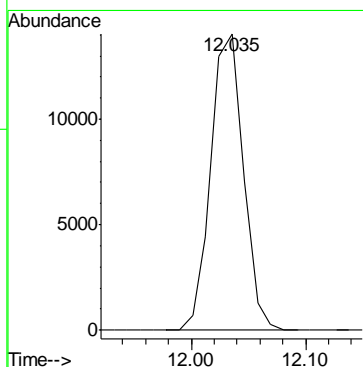
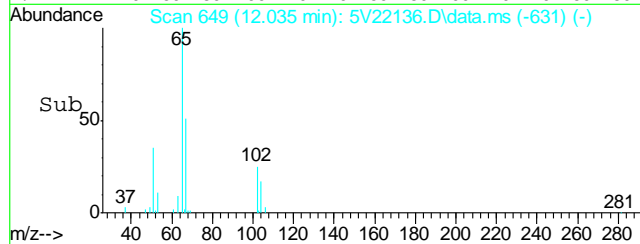
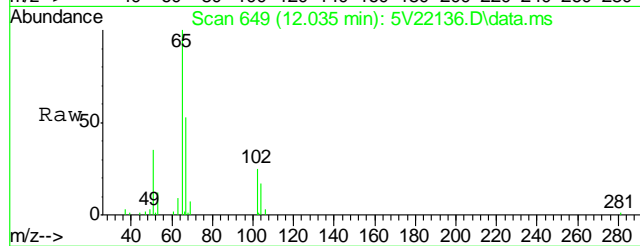
#15
Acetone
Concen: 2.19 ug/l
RT: 8.679 min Scan# 355
Delta R.T. 0.012 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

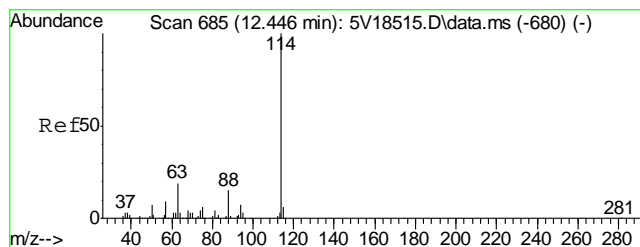
Tgt Ion: 58 Resp: 1029
Ion Ratio Lower Upper
58 100
43 386.0 353.6 393.6



#33
1,2-Dichloroethane-d4
Concen: 57.04 ug/l
RT: 12.035 min Scan# 649
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

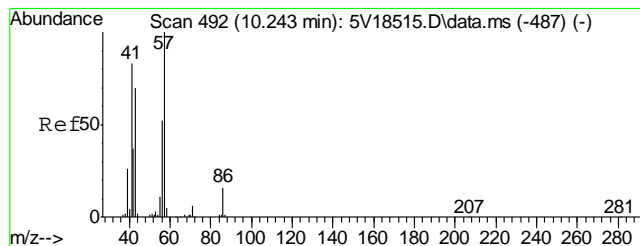
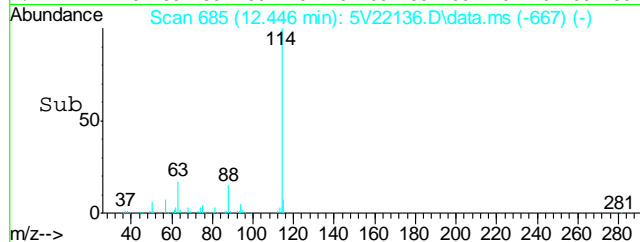
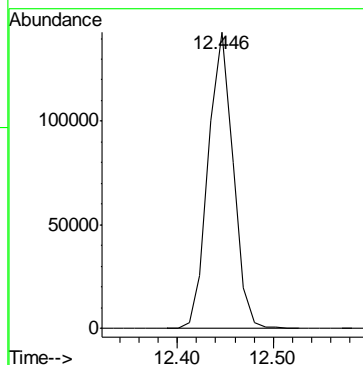
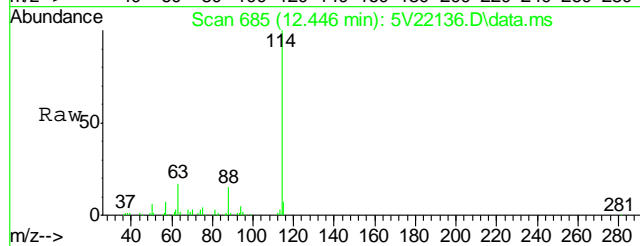
Tgt Ion: 102 Resp: 27919





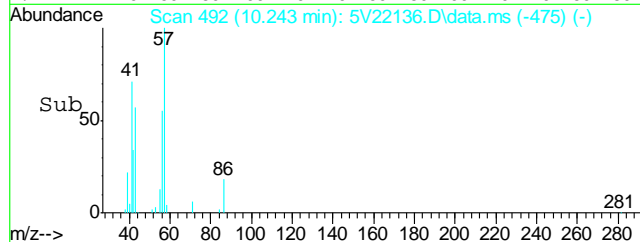
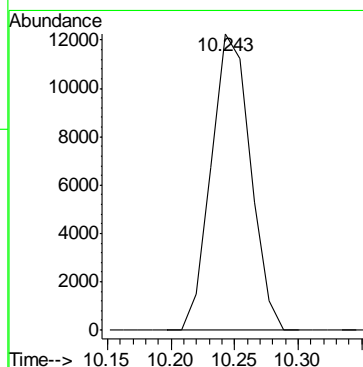
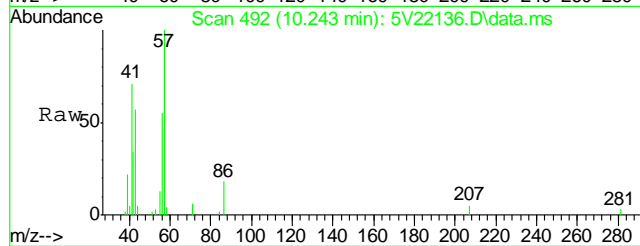
#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.446 min Scan# 685
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

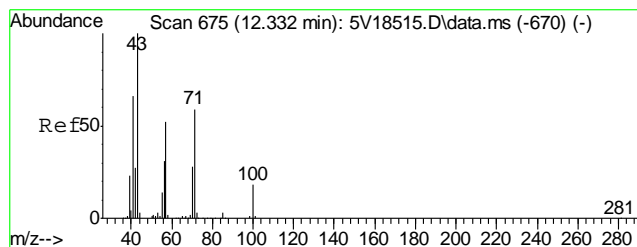
Tgt Ion: 114 Resp: 256583



#41
Hexane
Concen: 7.37 ug/l
RT: 10.243 min Scan# 492
Delta R.T. -0.011 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

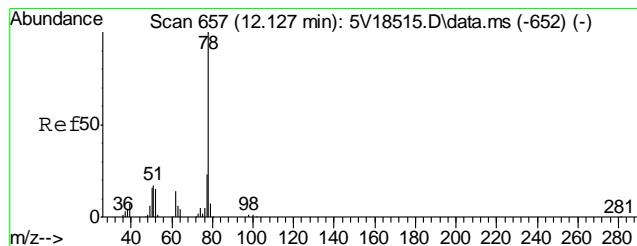
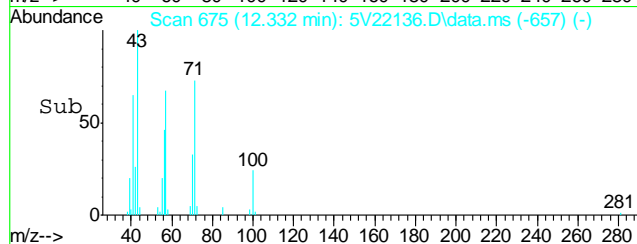
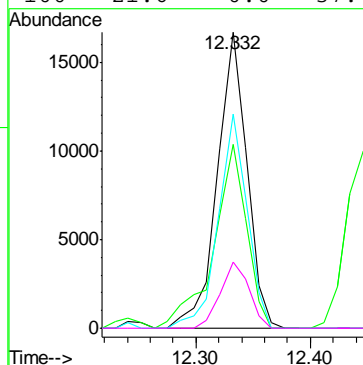
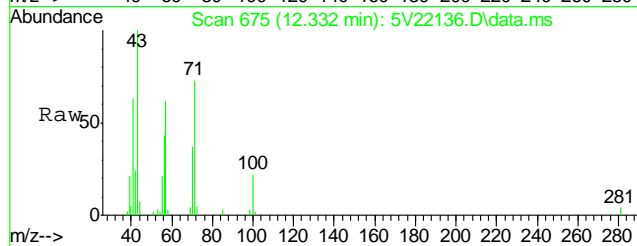
Tgt Ion: 57 Resp: 26178





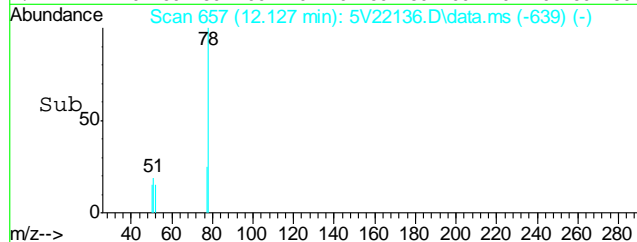
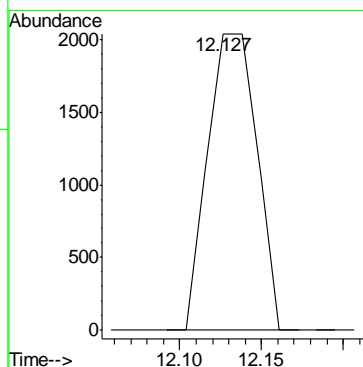
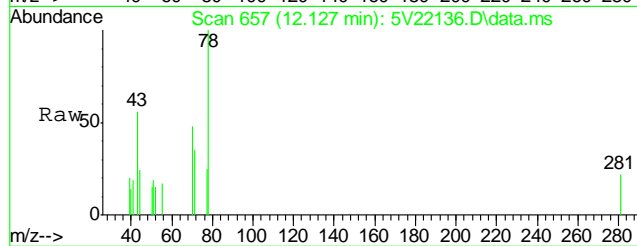
#43
Heptane
Concen: 7.96 ug/l
RT: 12.332 min Scan# 675
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

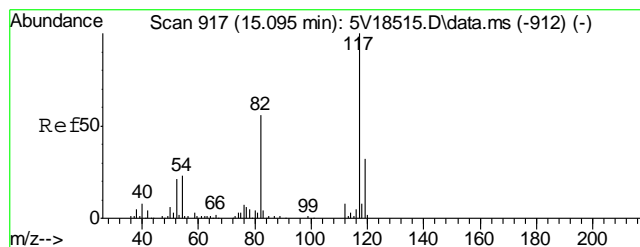
Tgt Ion	Ratio	Lower	Upper
43	100		
57	68.6	30.6	70.6
71	70.5	38.9	78.9
100	21.6	0.0	37.4



#50
Benzene
Concen: 0.40 ug/l
RT: 12.127 min Scan# 657
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

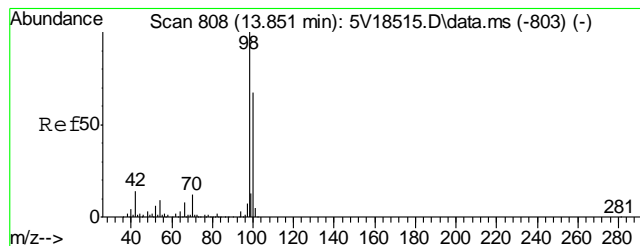
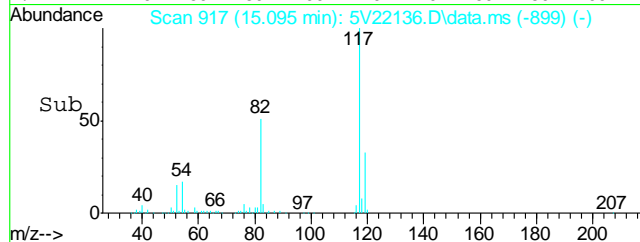
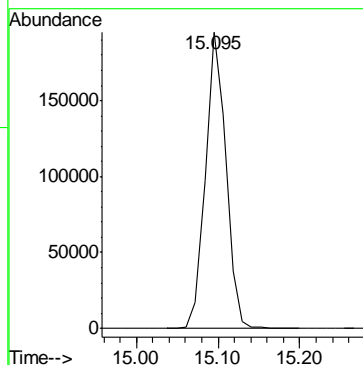
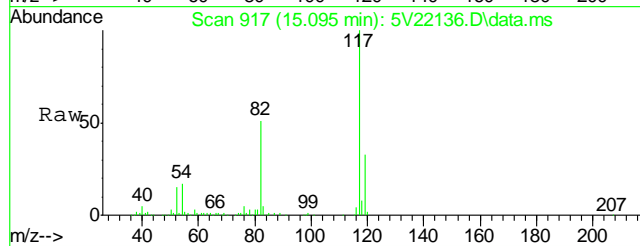
Tgt Ion: 78 Resp: 4270





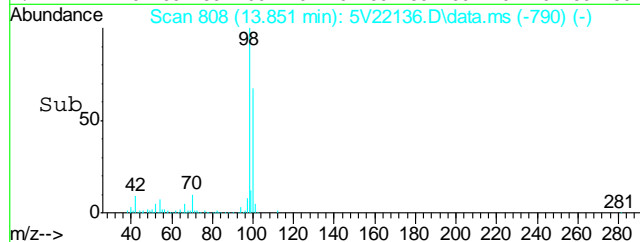
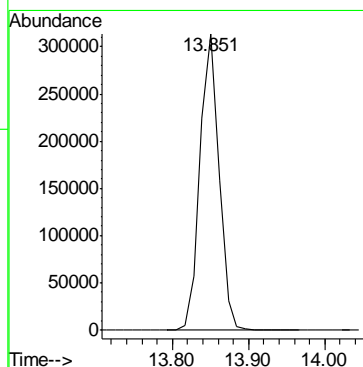
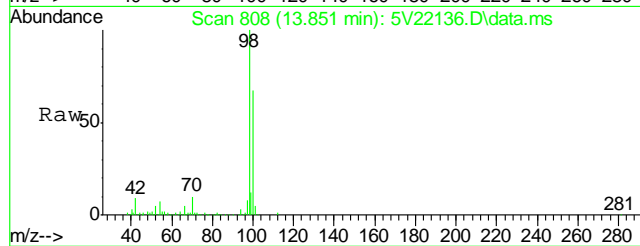
#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.095 min Scan# 917
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

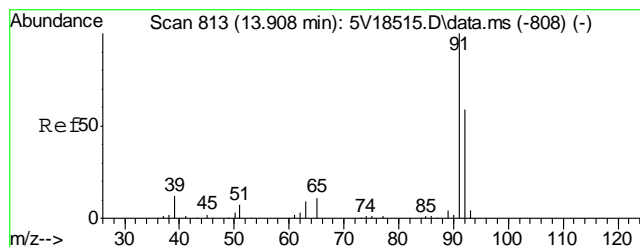
Tgt Ion: 117 Resp: 340291



#61
Toluene-d8
Concen: 47.37 ug/l
RT: 13.851 min Scan# 808
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

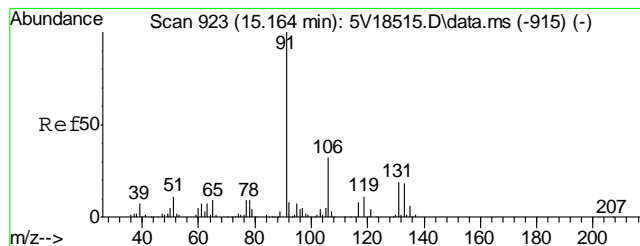
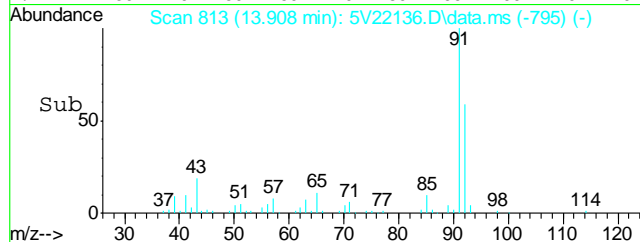
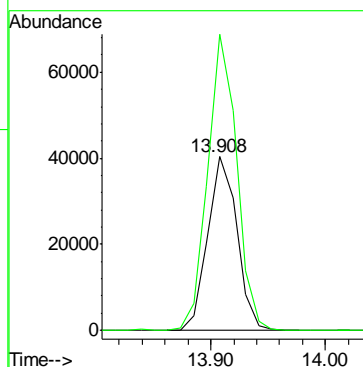
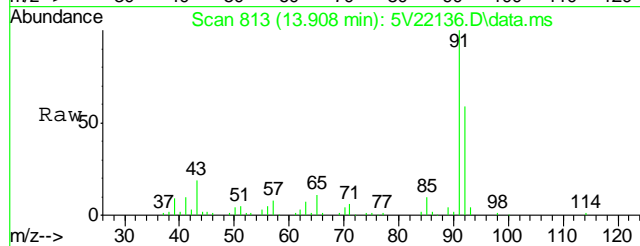
Tgt Ion: 98 Resp: 544815





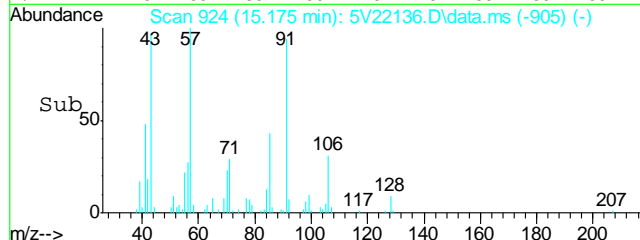
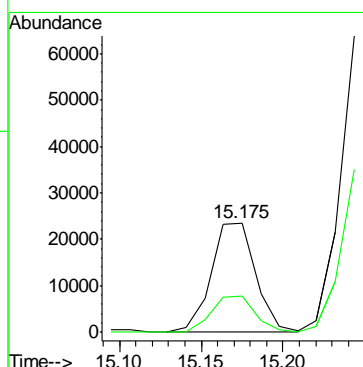
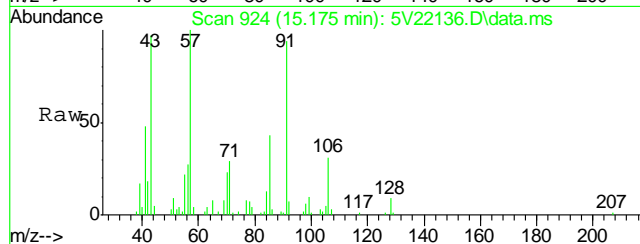
#62
Toluene
Concen: 8.09 ug/l
RT: 13.908 min Scan# 813
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

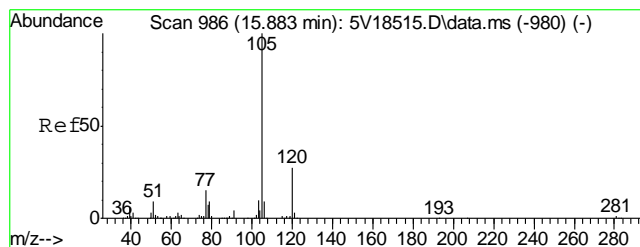
Tgt Ion: 92 Resp: 71634
Ion Ratio Lower Upper
92 100
91 168.7 149.8 189.8



#66
Ethylbenzene
Concen: 2.71 ug/l
RT: 15.175 min Scan# 924
Delta R.T. 0.011 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

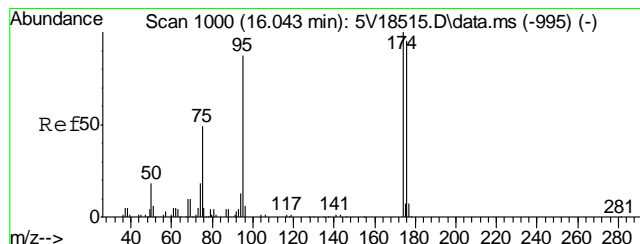
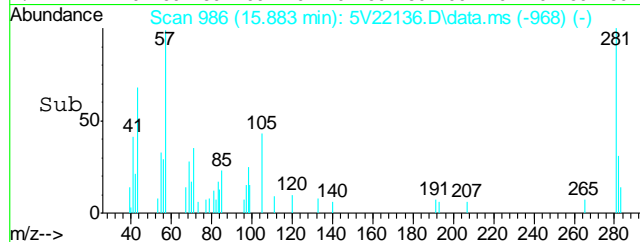
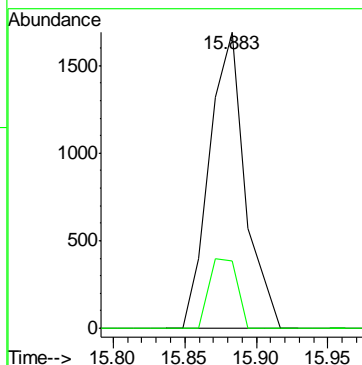
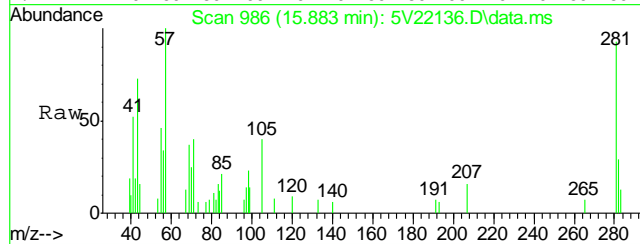
Tgt Ion: 91 Resp: 44450
Ion Ratio Lower Upper
91 100
106 32.2 11.7 51.7





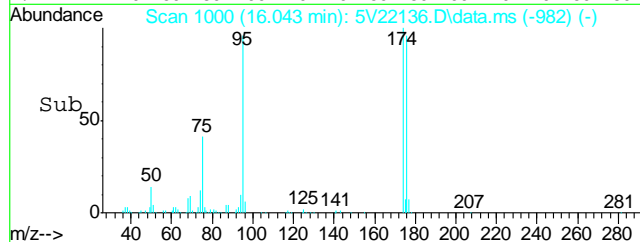
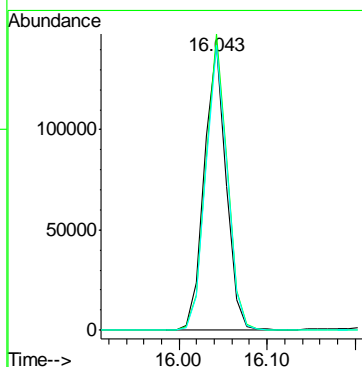
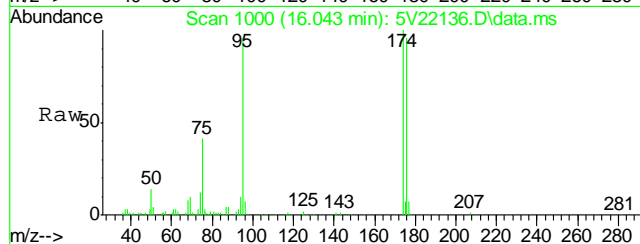
#68
Isopropylbenzene
Concen: 0.18 ug/l
RT: 15.883 min Scan# 986
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

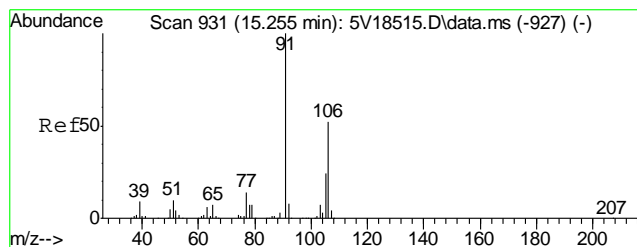
Tgt Ion	Ratio	Lower	Upper
105	100		
120	18.3	21.0	31.4#



#69
4-Bromofluorobenzene
Concen: 51.60 ug/l
RT: 16.043 min Scan# 1000
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

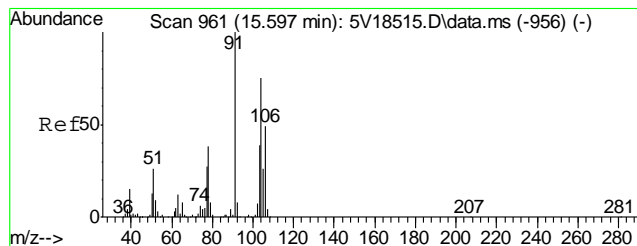
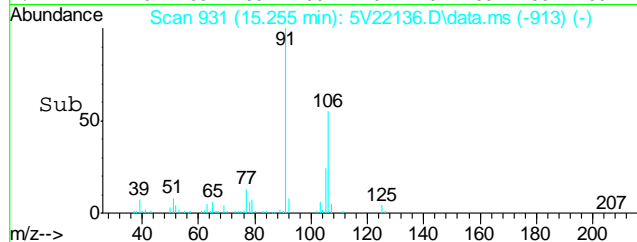
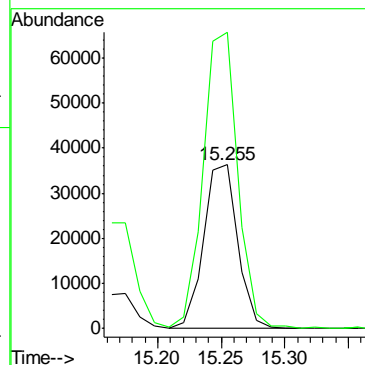
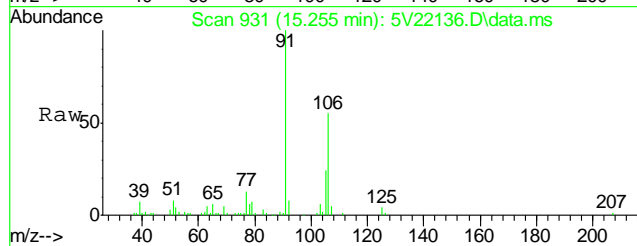
Tgt Ion	Ratio	Lower	Upper
95	100		
174	102.2	77.1	117.1
176	98.7	73.4	113.4





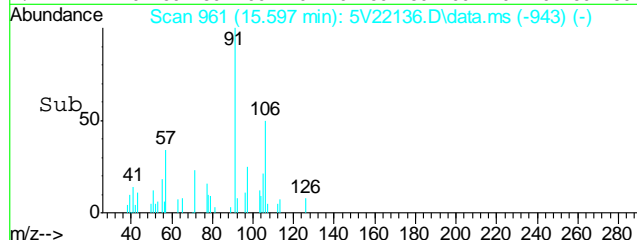
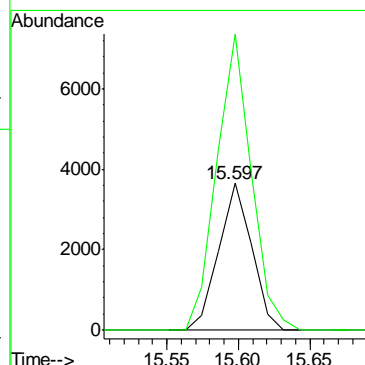
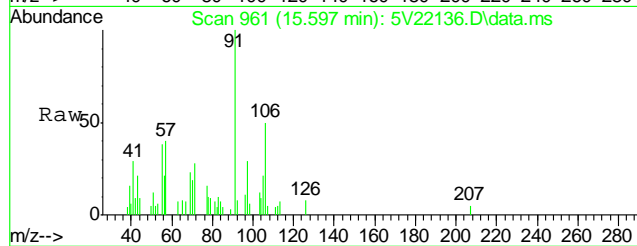
#72
m,p-xylene
Concen: 10.23 ug/l
RT: 15.255 min Scan# 931
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

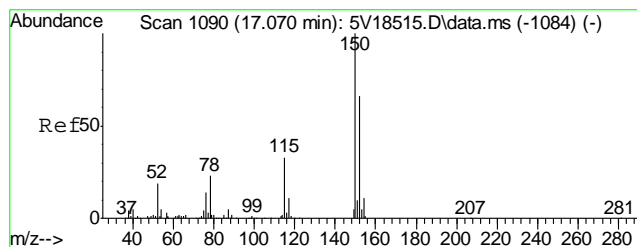
Tgt Ion	Ratio	Lower	Upper
106	100		
91	184.3	177.1	217.1



#73
o-xylene
Concen: 0.93 ug/l
RT: 15.597 min Scan# 961
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

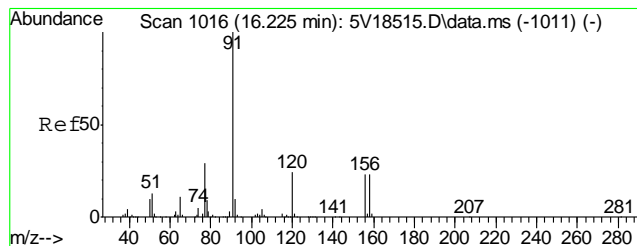
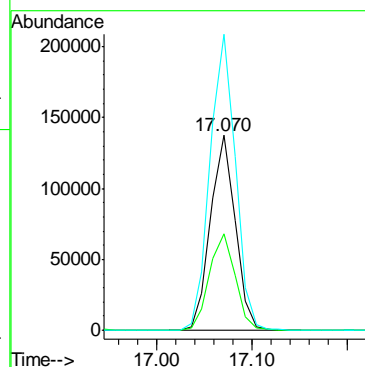
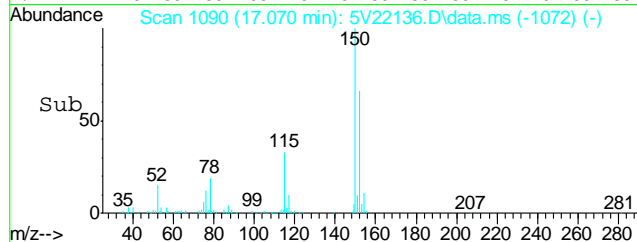
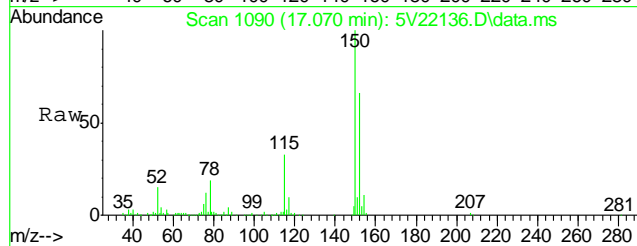
Tgt Ion	Ratio	Lower	Upper
106	100		
91	210.4	166.6	249.8





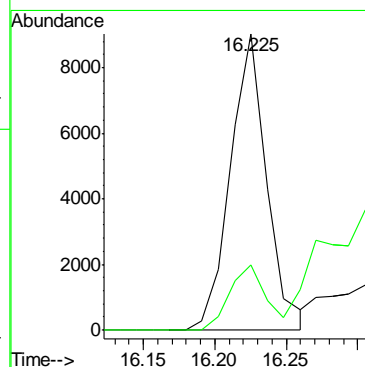
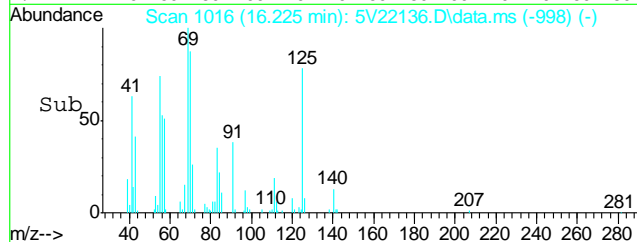
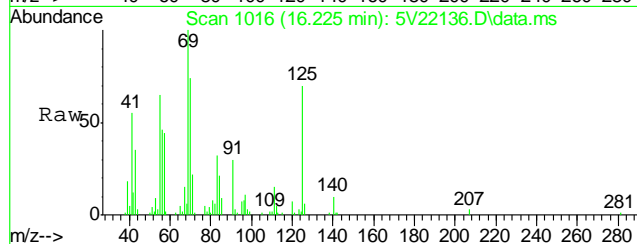
#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.070 min Scan# 1090
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

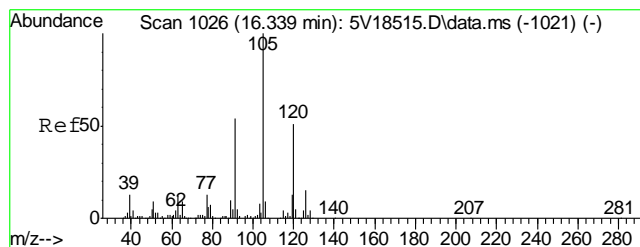
Tgt Ion:	152	Resp:	247942
Ion Ratio	Lower	Upper	
152	100		
115	51.5	41.4	62.0
150	155.0	153.9	230.9



#77
n-Propylbenzene
Concen: 0.72 ug/l
RT: 16.225 min Scan# 1016
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

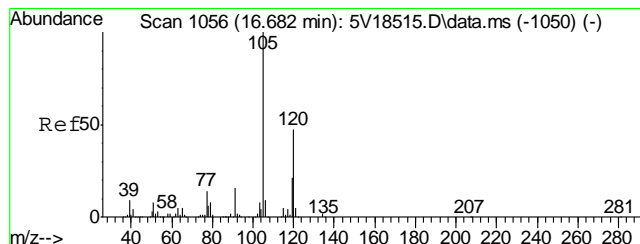
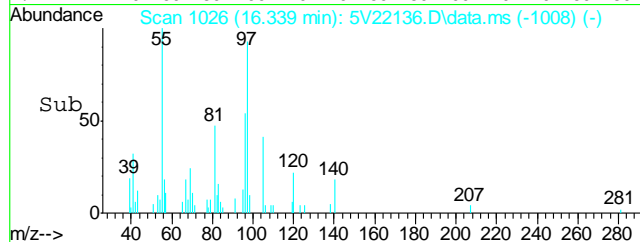
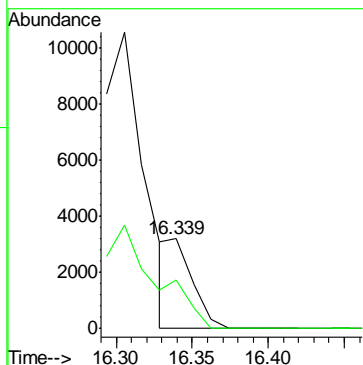
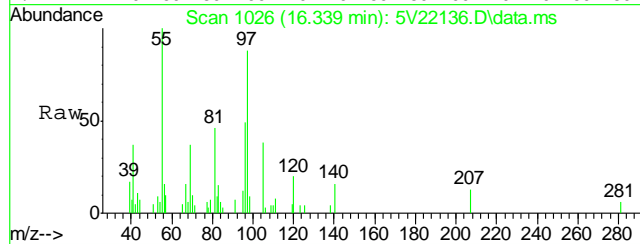
Tgt Ion:	91	Resp:	15956
Ion Ratio	Lower	Upper	
91	100		
120	22.1	18.6	27.8





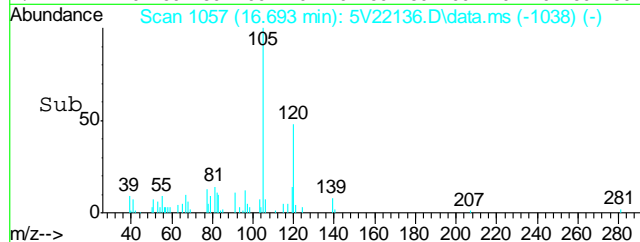
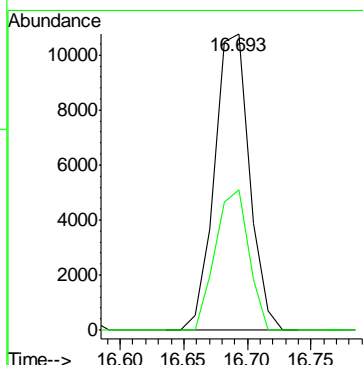
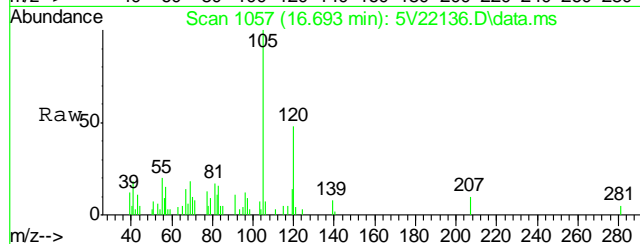
#80
1,3,5-Trimethylbenzene
Concen: 0.22 ug/l m
RT: 16.339 min Scan# 1026
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

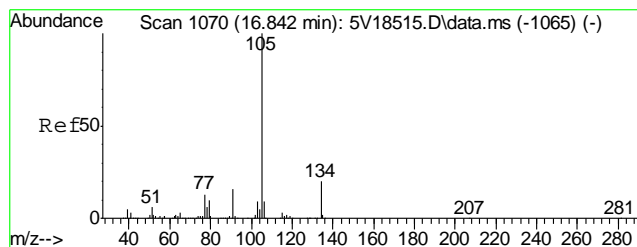
Tgt Ion	Ratio	Lower	Upper
105	100		
120	369.3	40.1	60.1#



#82
1,2,4-Trimethylbenzene
Concen: 1.29 ug/l
RT: 16.693 min Scan# 1057
Delta R.T. 0.011 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

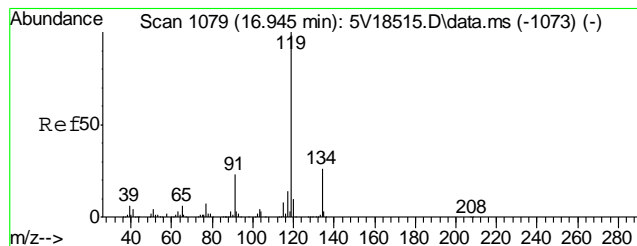
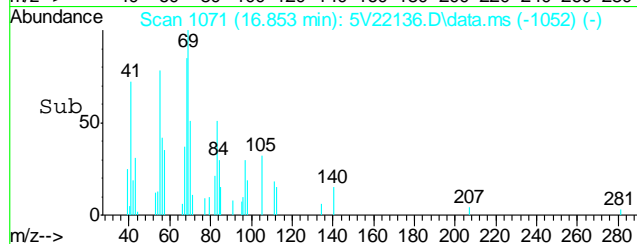
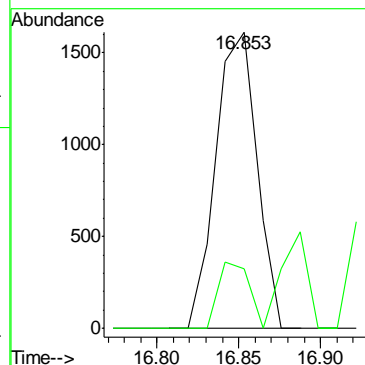
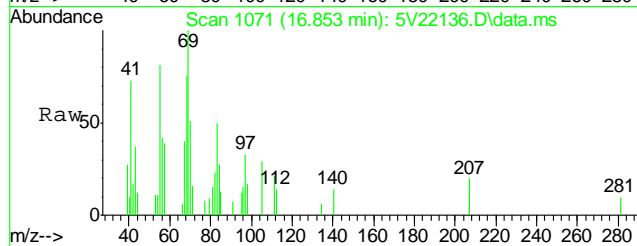
Tgt Ion	Ratio	Lower	Upper
105	100		
120	45.2	43.8	65.8





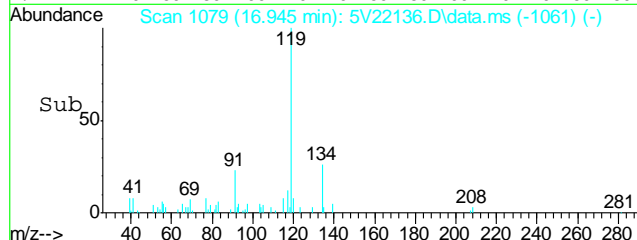
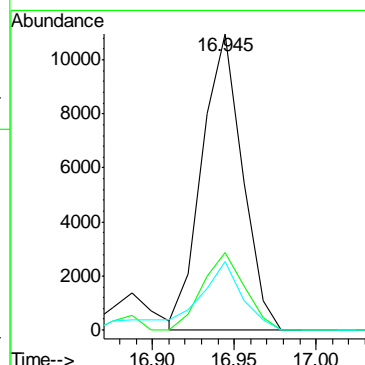
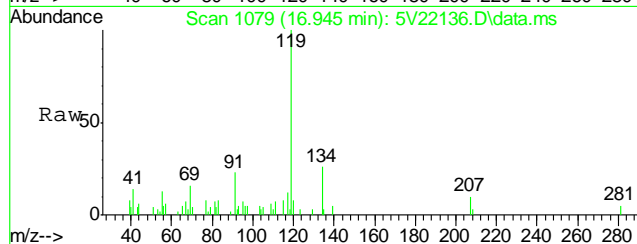
#83
 sec-Butylbenzene
 Concen: 0.13 ug/l
 RT: 16.853 min Scan# 1071
 Delta R.T. 0.011 min
 Lab File: 5V22136.D
 Acq: 25 Jun 2012 1:51 pm

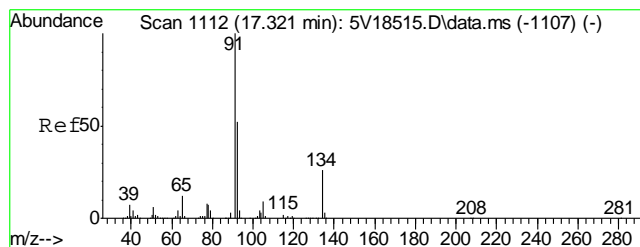
Tgt Ion	Ratio	Lower	Upper
105	100		
134	16.7	16.5	24.7



#86
 p-Isopropyltoluene
 Concen: 1.05 ug/l
 RT: 16.945 min Scan# 1079
 Delta R.T. 0.000 min
 Lab File: 5V22136.D
 Acq: 25 Jun 2012 1:51 pm

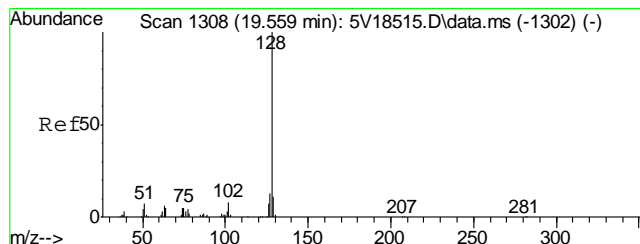
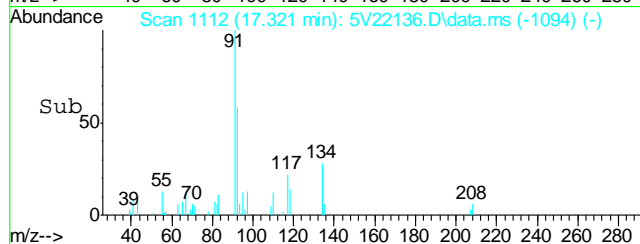
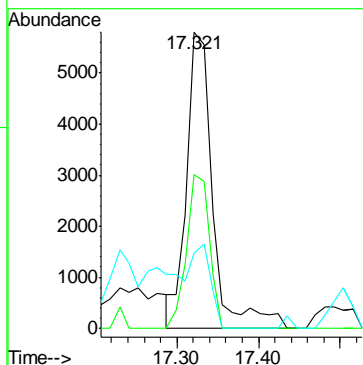
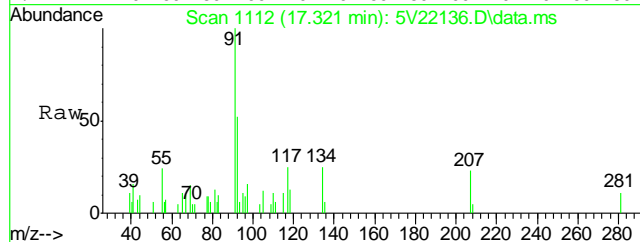
Tgt Ion	Ratio	Lower	Upper
119	100		
134	27.2	21.3	31.9
91	28.4	19.0	28.6





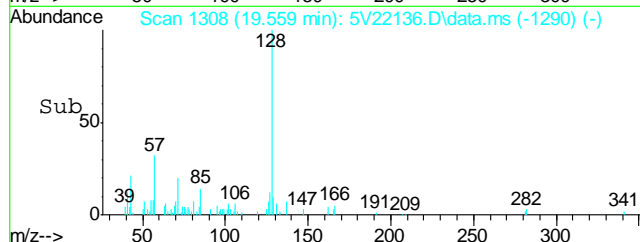
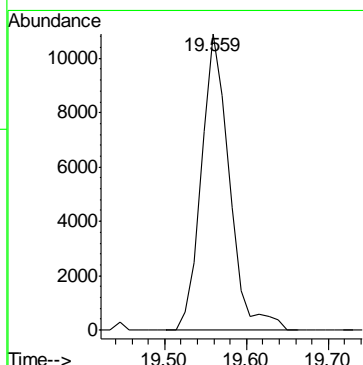
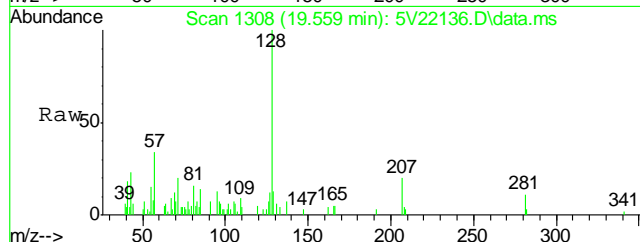
#88
n-Butylbenzene
Concen: 0.77 ug/l
RT: 17.321 min Scan# 1112
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

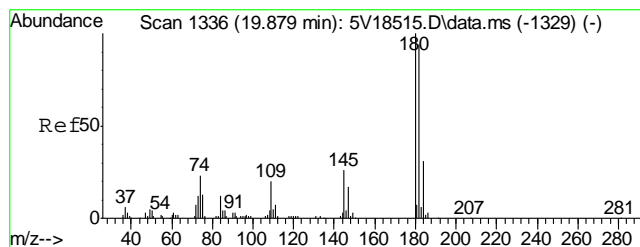
Tgt Ion:	91	Resp:	12880
Ion Ratio	Lower	Upper	
91	100		
92	45.3	42.2	63.4
134	20.4	21.4	32.2#



#91
Naphthalene
Concen: 2.62 ug/l
RT: 19.559 min Scan# 1308
Delta R.T. 0.001 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

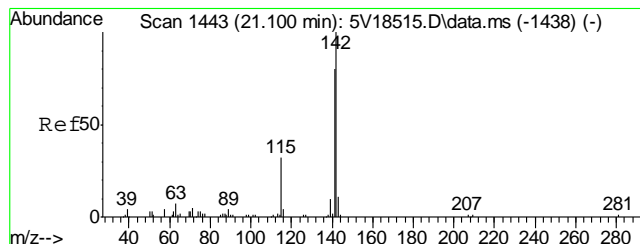
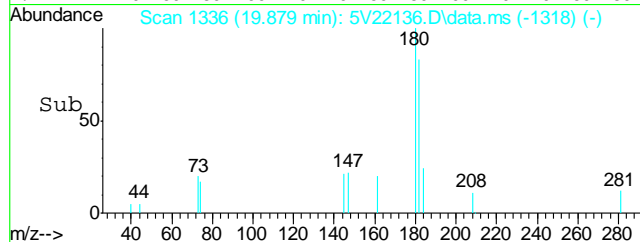
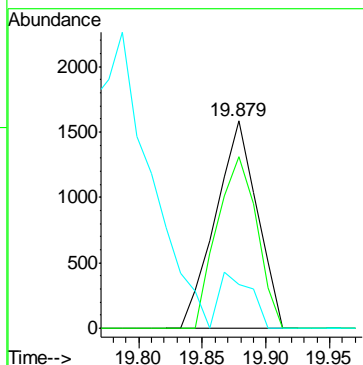
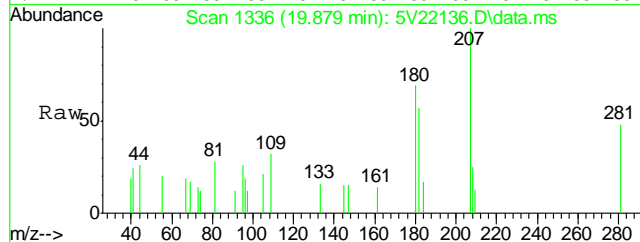
Tgt Ion:	128	Resp:	25961
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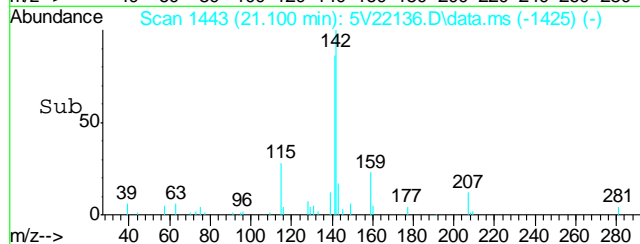
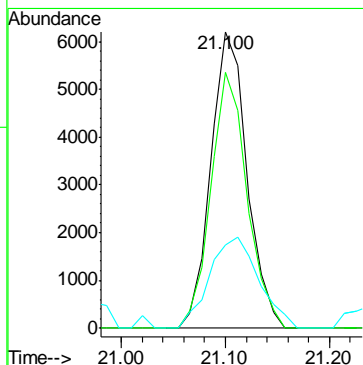
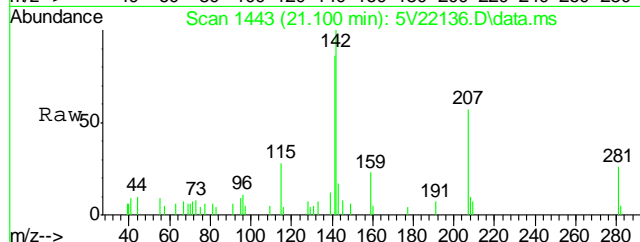
#93
1,2,3-Trichlorobenzene
Concen: 0.59 ug/l
RT: 19.879 min Scan# 1336
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

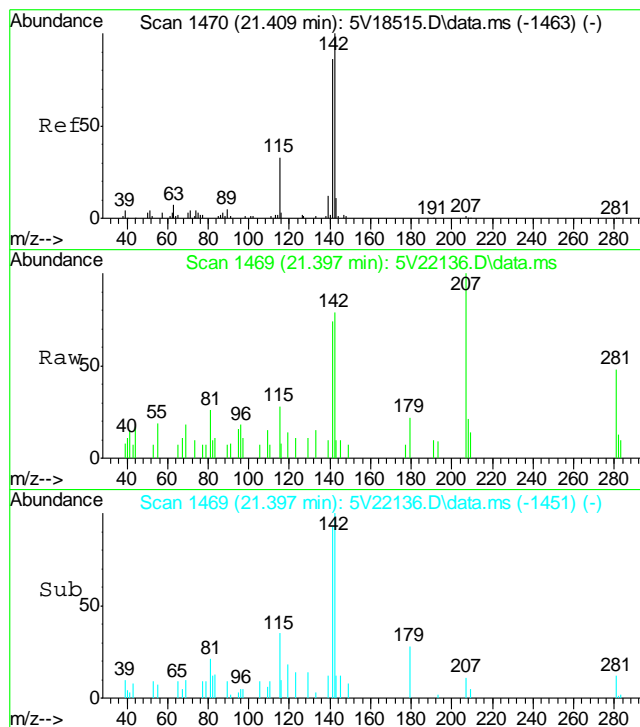
Tgt Ion	Ratio	Lower	Upper
180	100		
182	79.4	76.0	114.0
145	20.3	21.4	32.0#



#94
2-Methylnaphthalene
Concen: 4.23 ug/l
RT: 21.100 min Scan# 1443
Delta R.T. 0.000 min
Lab File: 5V22136.D
Acq: 25 Jun 2012 1:51 pm

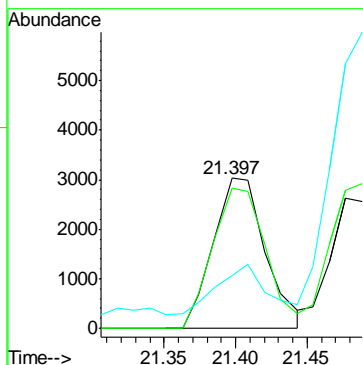
Tgt Ion	Ratio	Lower	Upper
142	100		
141	86.5	66.2	99.4
115	41.8	25.9	38.9#





#95
 1-Methylnaphthalene
 Concen: 2.67 ug/l
 RT: 21.397 min Scan# 1469
 Delta R.T. 0.000 min
 Lab File: 5V22136.D
 Acq: 25 Jun 2012 1:51 pm

Tgt Ion:	142	Resp:	7645
Ion Ratio	Lower	Upper	
142	100		
141	96.4	68.9	103.3
115	41.8	27.3	40.9#



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5062512.S\
Data File : 5V22134.D
Acq On : 25 Jun 2012 12:48 pm
Operator : BRETD
Sample : MB
Misc : MS4172,V5V1355,5.00,,100,5,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jun 26 08:09:10 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	184781	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	295222	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	382975	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	250095	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.035	102	30897	54.76	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	109.52%
61) Toluene-d8	13.850	98	570641	44.09	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	88.18%
69) 4-Bromofluorobenzene	16.042	95	234606	44.25	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	88.50%

Target Compounds

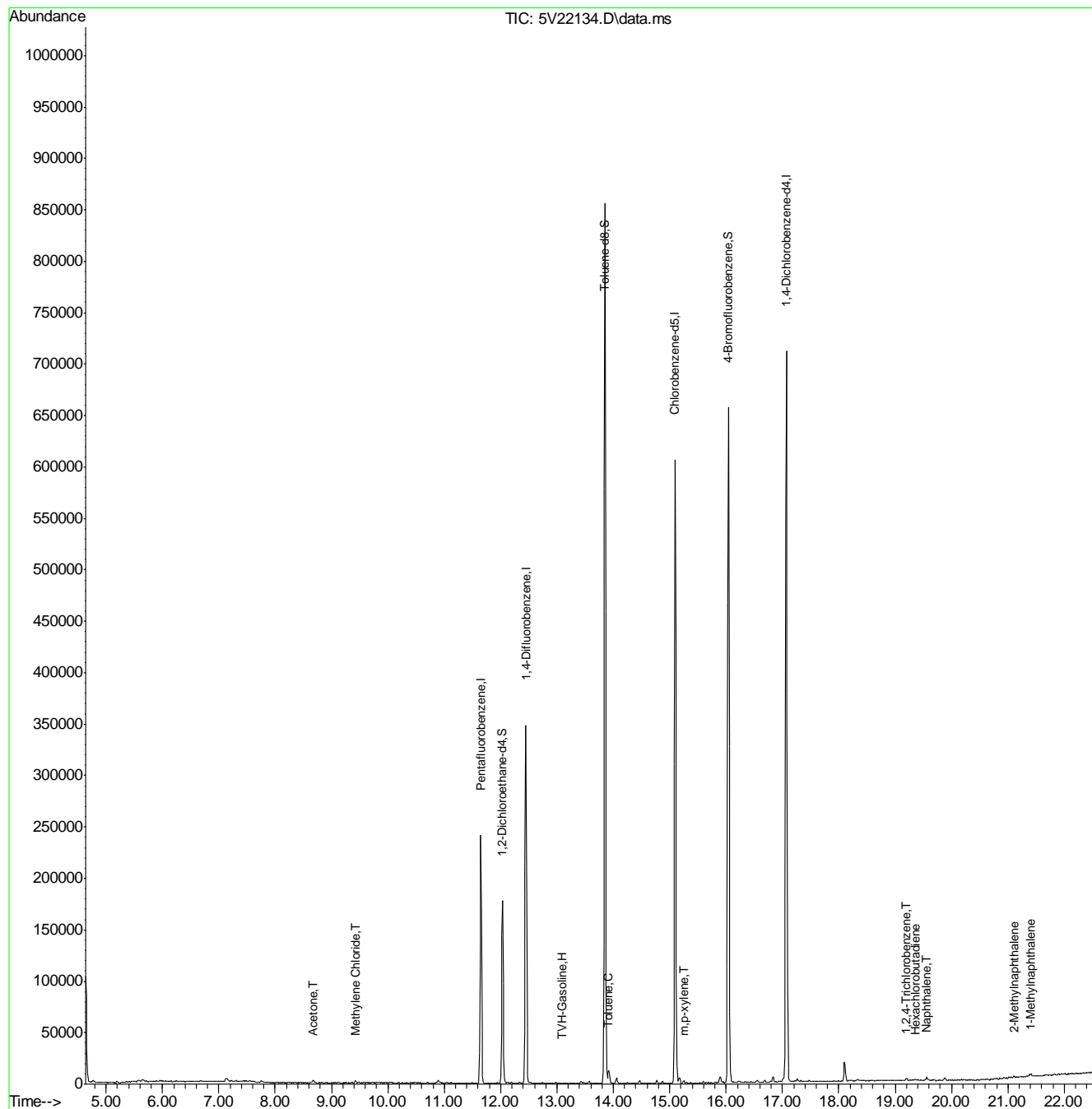
					Qvalue
1) TVH-Gasoline	13.102	TIC	3202m	1.56	ug/l
15) Acetone	8.679	58	1372	2.86	ug/l # 78
17) Methylene Chloride	9.421	84	1205	0.39	ug/l # 79
62) Toluene	13.908	92	2752	0.28	ug/l 95
72) m,p-xylene	15.255	106	1050	0.14	ug/l 96
90) 1,2,4-Trichlorobenzene	19.194	180	1591	0.24	ug/l # 86
91) Naphthalene	19.559	128	4770	0.96	ug/l 100
92) Hexachlorobutadiene	19.353	225	489	0.10	ug/l # 19
94) 2-Methylnaphthalene	21.112	142	1809	1.69	ug/l # 89
95) 1-Methylnaphthalene	21.397	142	1948	1.57	ug/l 94

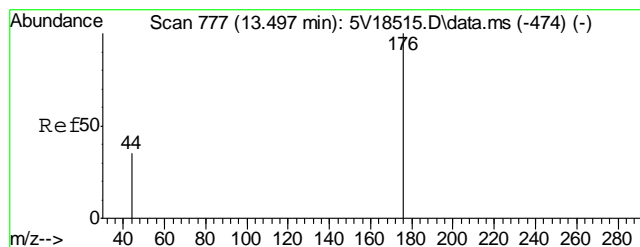
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5062512.S\
Data File : 5V22134.D
Acq On : 25 Jun 2012 12:48 pm
Operator : BRETD
Sample : MB
Misc : MS4172,V5V1355,5.00,,100,5,1
ALS Vial : 3 Sample Multiplier: 1

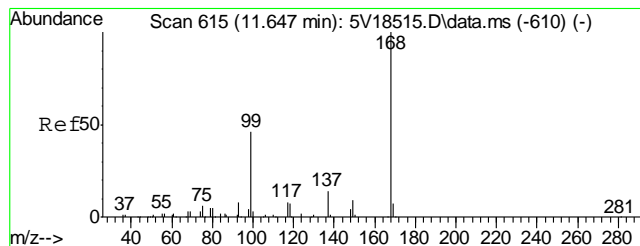
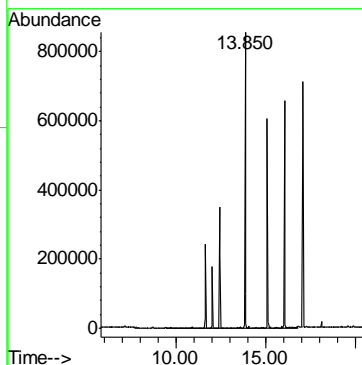
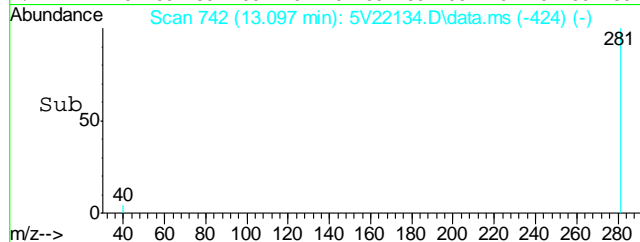
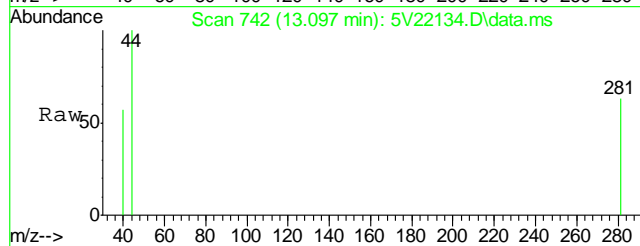
Quant Time: Jun 26 08:09:10 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1304TVH1304.M
Quant Title : 8260
QLast Update : Thu May 24 07:55:17 2012
Response via : Initial Calibration





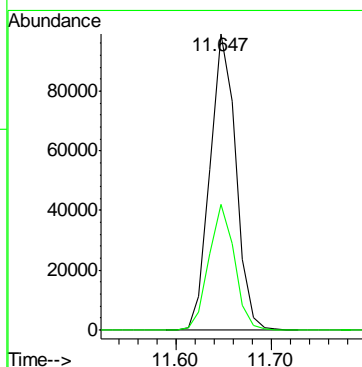
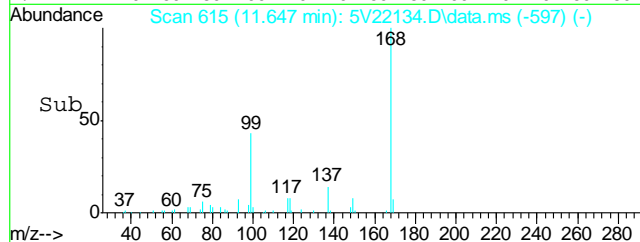
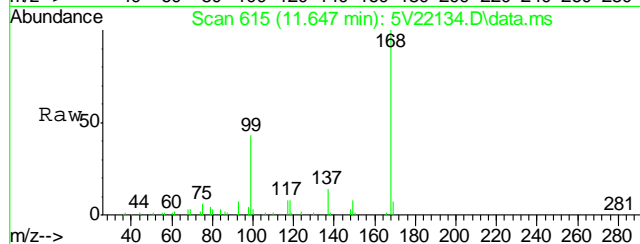
#1
TVH-Gasoline
Concen: 1.56 ug/l m
RT: 13.102 min Scan# 742
Delta R.T. 0.000 min
Lab File: 5V22134.D
Acq: 25 Jun 2012 12:48 pm

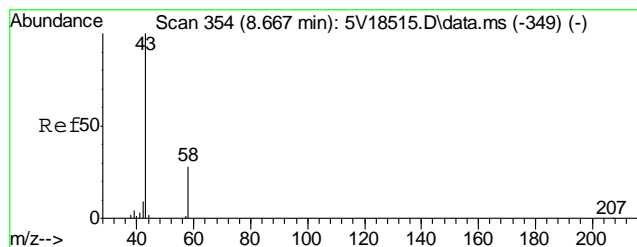
Tgt Ion:TIC Resp: 3202



#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.647 min Scan# 615
Delta R.T. -0.000 min
Lab File: 5V22134.D
Acq: 25 Jun 2012 12:48 pm

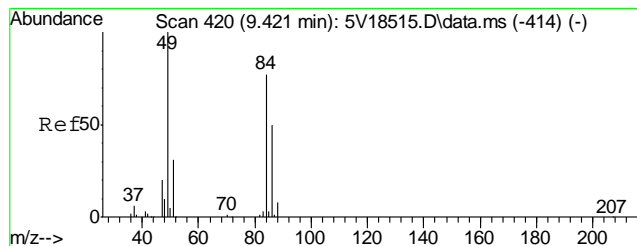
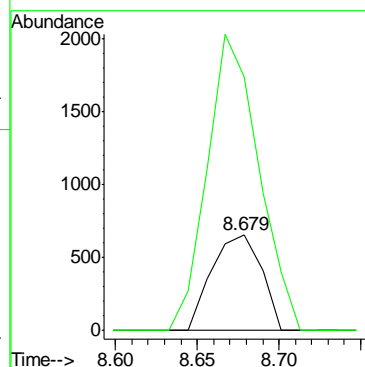
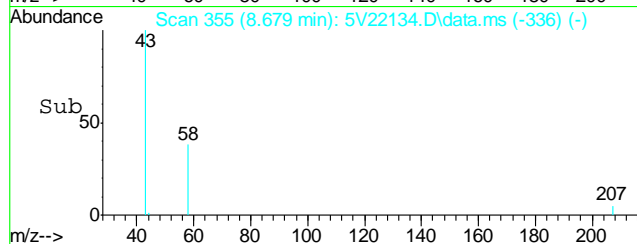
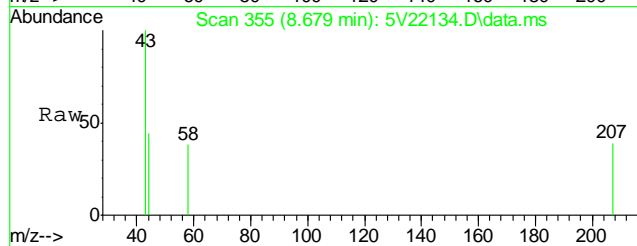
Tgt Ion:168 Resp: 184781
Ion Ratio Lower Upper
168 100
99 42.0 37.4 56.2





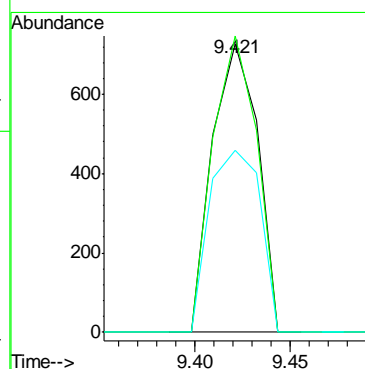
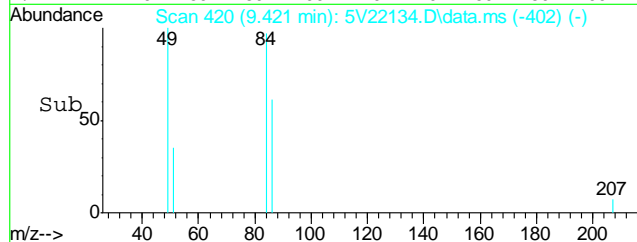
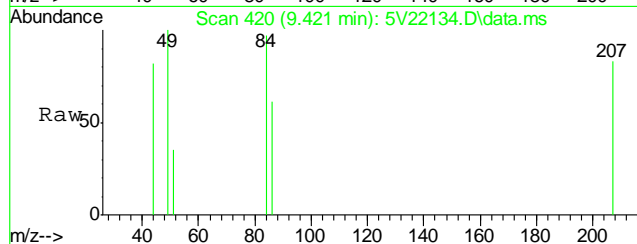
#15
Acetone
Concen: 2.86 ug/l
RT: 8.679 min Scan# 355
Delta R.T. 0.012 min
Lab File: 5V22134.D
Acq: 25 Jun 2012 12:48 pm

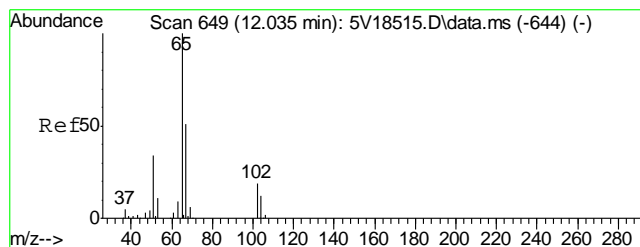
Tgt Ion: 58 Resp: 1372
Ion Ratio Lower Upper
58 100
43 323.3 353.6 393.6#



#17
Methylene Chloride
Concen: 0.39 ug/l
RT: 9.421 min Scan# 420
Delta R.T. -0.000 min
Lab File: 5V22134.D
Acq: 25 Jun 2012 12:48 pm

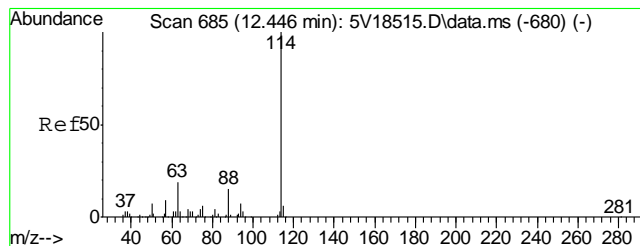
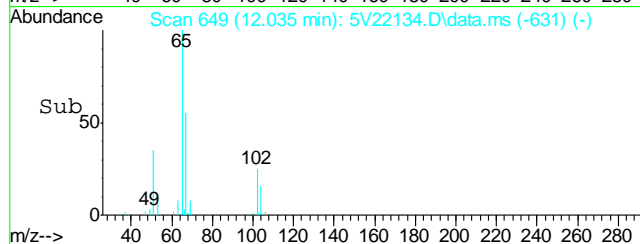
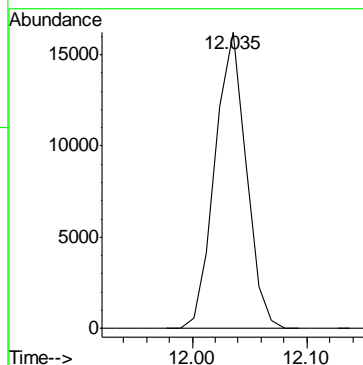
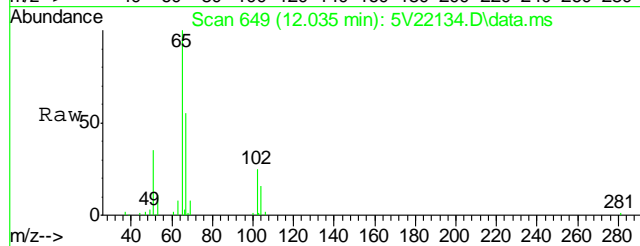
Tgt Ion: 84 Resp: 1205
Ion Ratio Lower Upper
84 100
49 99.4 110.4 150.4#
86 71.0 44.0 84.0





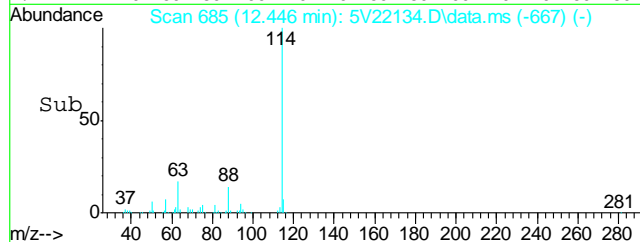
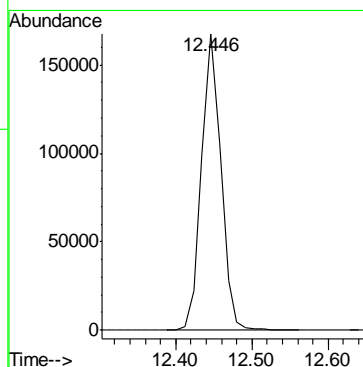
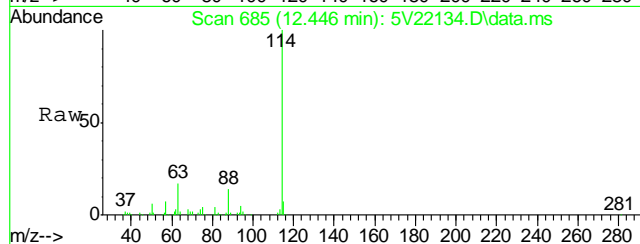
#33
1,2-Dichloroethane-d4
Concen: 54.76 ug/l
RT: 12.035 min Scan# 649
Delta R.T. 0.000 min
Lab File: 5V22134.D
Acq: 25 Jun 2012 12:48 pm

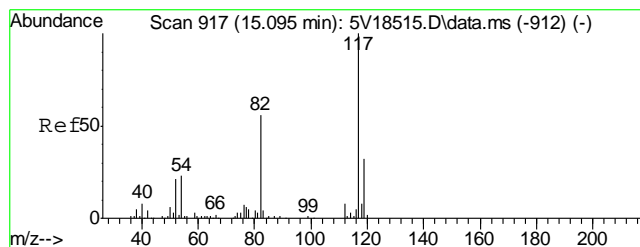
Tgt Ion:102 Resp: 30897



#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.446 min Scan# 685
Delta R.T. -0.000 min
Lab File: 5V22134.D
Acq: 25 Jun 2012 12:48 pm

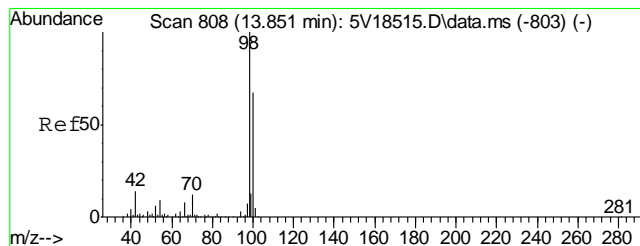
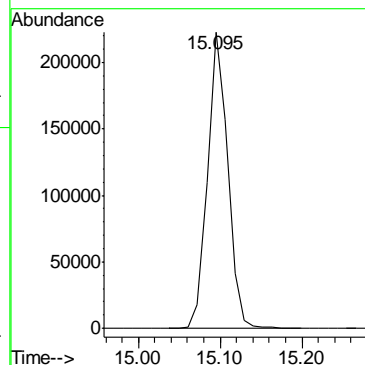
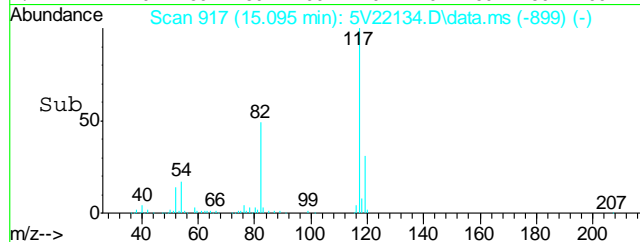
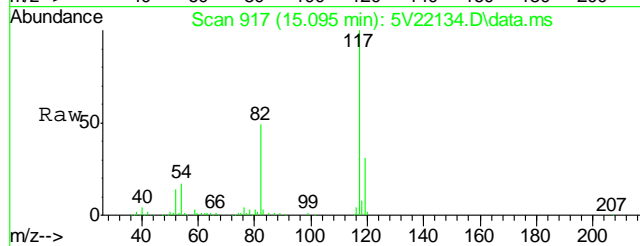
Tgt Ion:114 Resp: 295222





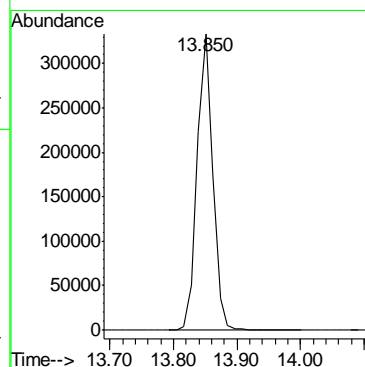
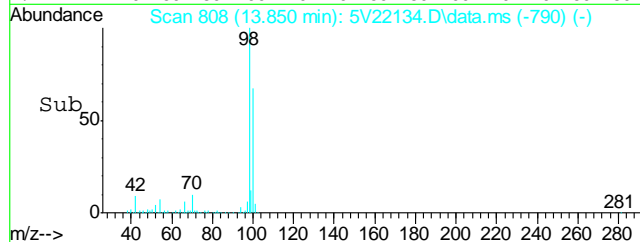
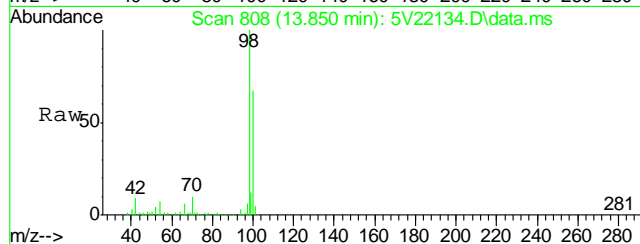
#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.095 min Scan# 917
Delta R.T. -0.000 min
Lab File: 5V22134.D
Acq: 25 Jun 2012 12:48 pm

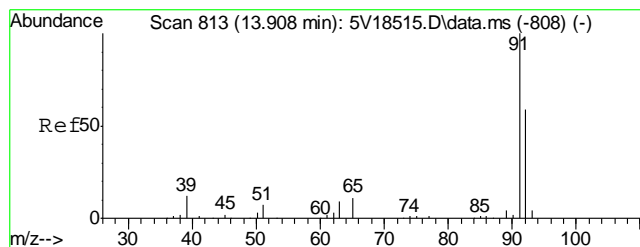
Tgt Ion: 117 Resp: 382975



#61
Toluene-d8
Concen: 44.09 ug/l
RT: 13.850 min Scan# 808
Delta R.T. -0.000 min
Lab File: 5V22134.D
Acq: 25 Jun 2012 12:48 pm

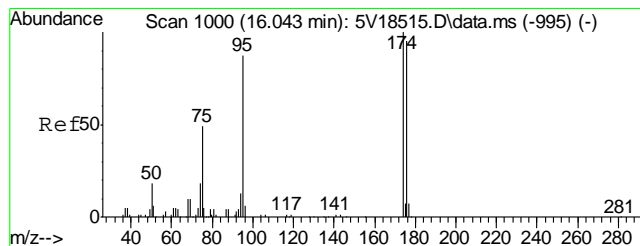
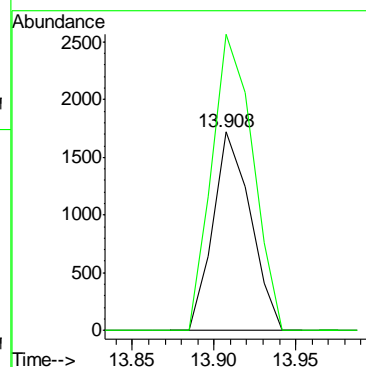
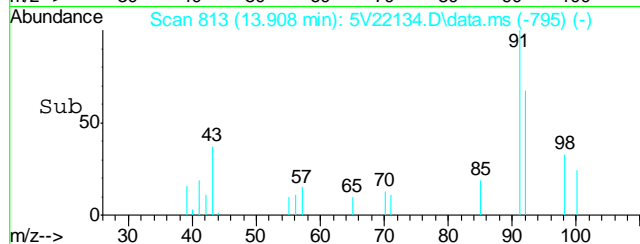
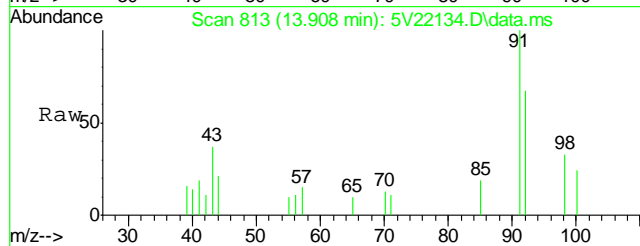
Tgt Ion: 98 Resp: 570641





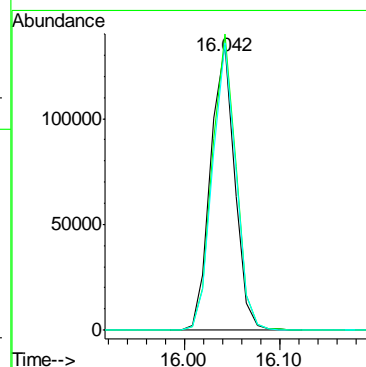
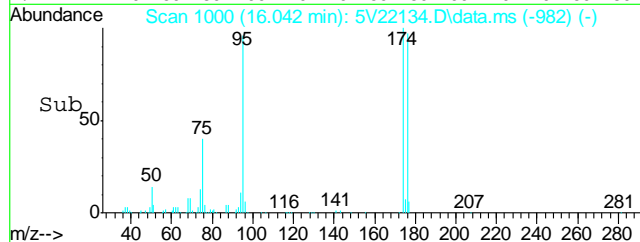
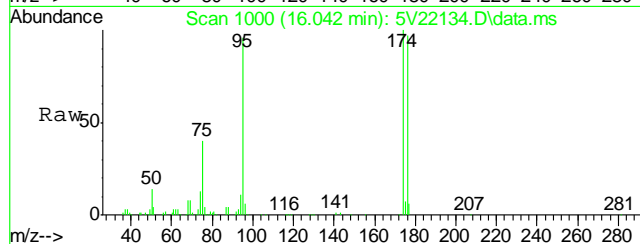
#62
Toluene
Concen: 0.28 ug/l
RT: 13.908 min Scan# 813
Delta R.T. -0.000 min
Lab File: 5V22134.D
Acq: 25 Jun 2012 12:48 pm

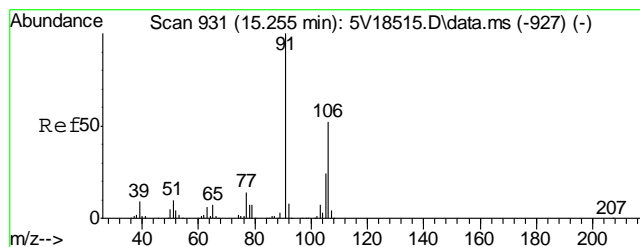
Tgt Ion: 92 Resp: 2752
Ion Ratio Lower Upper
92 100
91 163.1 149.8 189.8



#69
4-Bromofluorobenzene
Concen: 44.25 ug/l
RT: 16.042 min Scan# 1000
Delta R.T. -0.000 min
Lab File: 5V22134.D
Acq: 25 Jun 2012 12:48 pm

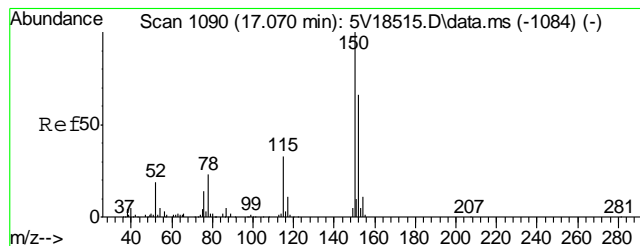
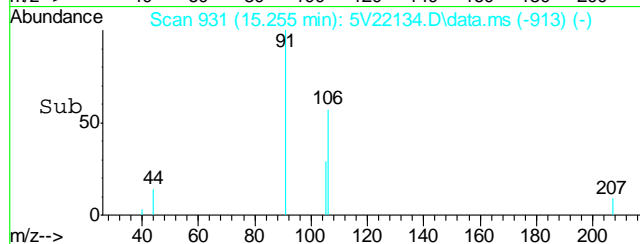
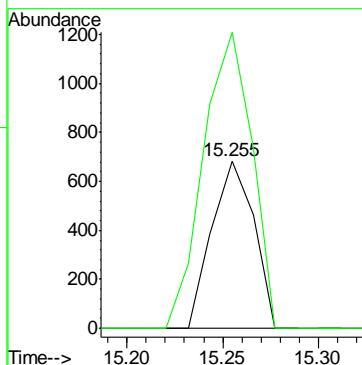
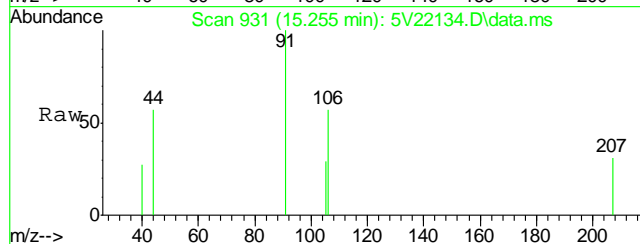
Tgt Ion: 95 Resp: 234606
Ion Ratio Lower Upper
95 100
174 102.3 77.1 117.1
176 98.2 73.4 113.4





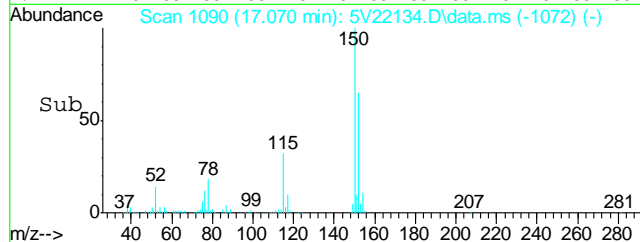
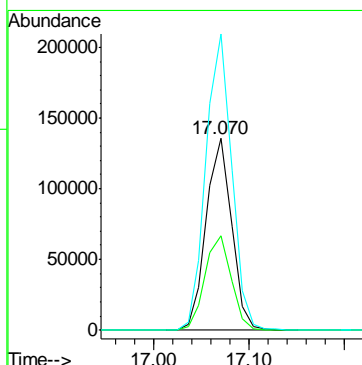
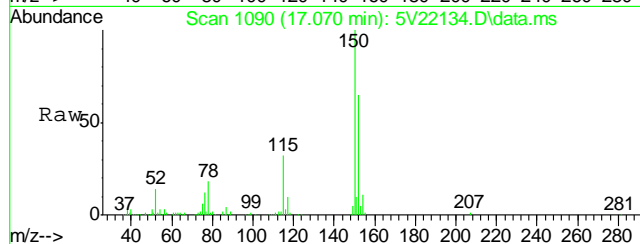
#72
m,p-xylene
Concen: 0.14 ug/l
RT: 15.255 min Scan# 931
Delta R.T. -0.000 min
Lab File: 5V22134.D
Acq: 25 Jun 2012 12:48 pm

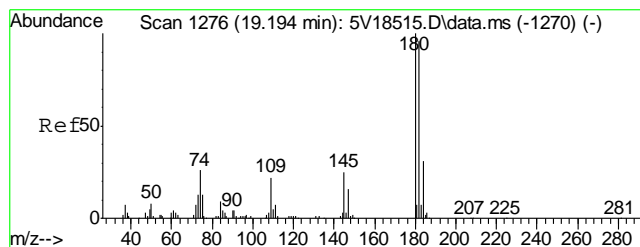
Tgt Ion	Ratio	Lower	Upper
106	100		
91	203.7	177.1	217.1



#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.070 min Scan# 1090
Delta R.T. -0.000 min
Lab File: 5V22134.D
Acq: 25 Jun 2012 12:48 pm

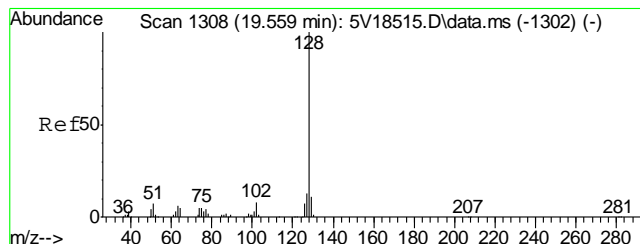
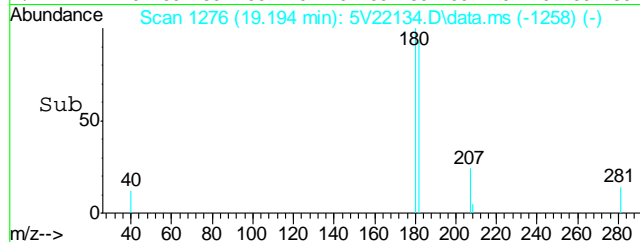
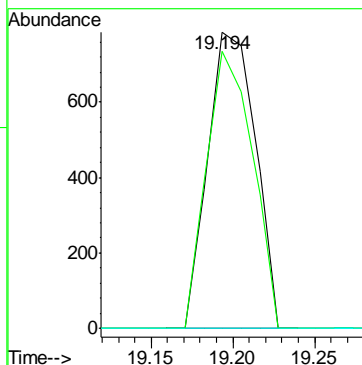
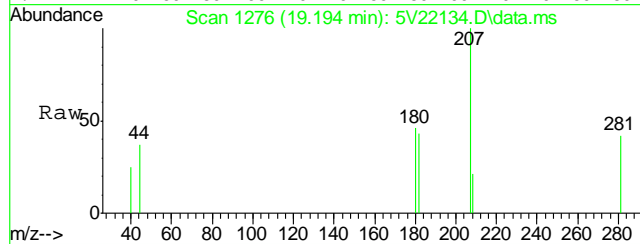
Tgt Ion	Ratio	Lower	Upper
152	100		
115	50.7	41.4	62.0
150	156.7	153.9	230.9





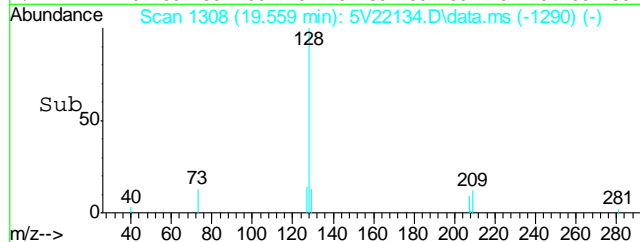
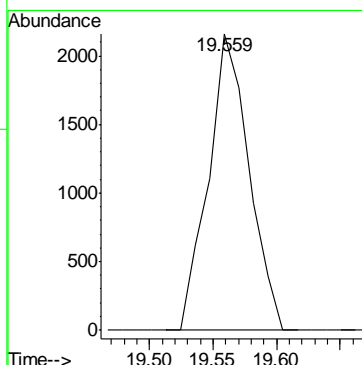
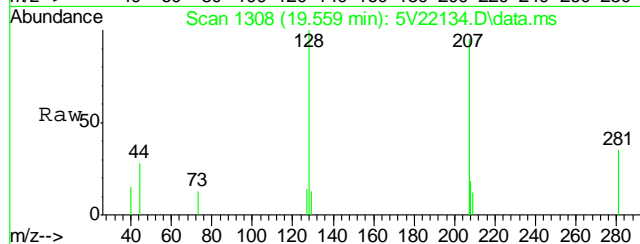
#90
1,2,4-Trichlorobenzene
Concen: 0.24 ug/l
RT: 19.194 min Scan# 1276
Delta R.T. -0.000 min
Lab File: 5V22134.D
Acq: 25 Jun 2012 12:48 pm

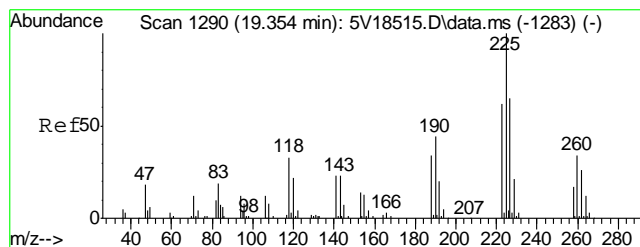
Tgt Ion:180	Resp:	1591
Ion Ratio	Lower	Upper
180	100	
182	90.6	76.2 114.4
145	0.0	20.1 30.1#



#91
Naphthalene
Concen: 0.96 ug/l
RT: 19.559 min Scan# 1308
Delta R.T. 0.001 min
Lab File: 5V22134.D
Acq: 25 Jun 2012 12:48 pm

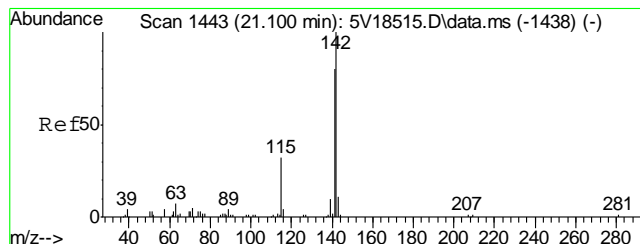
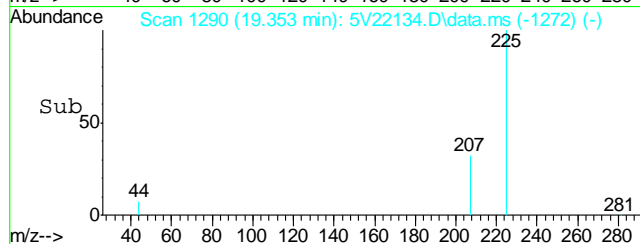
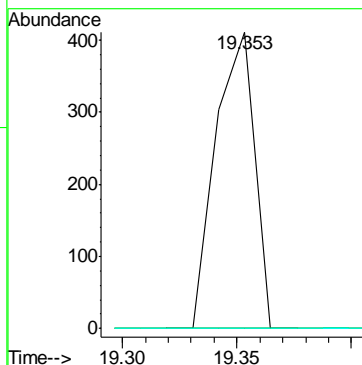
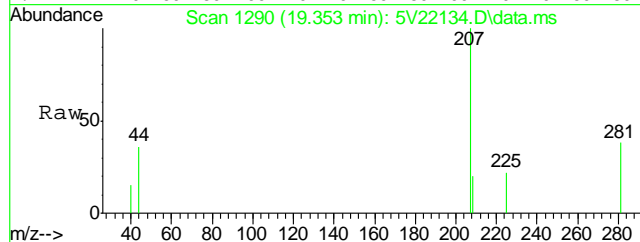
Tgt Ion:128 Resp: 4770





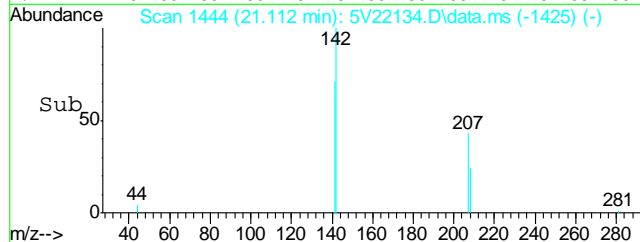
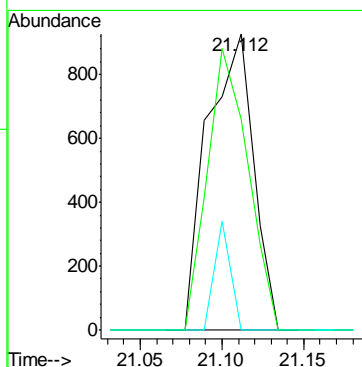
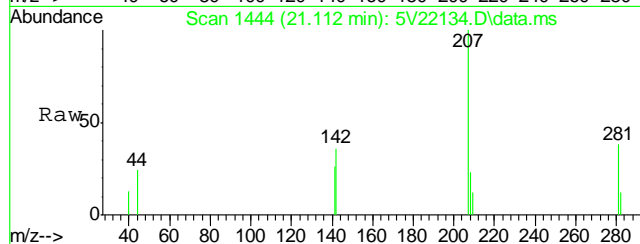
#92
Hexachlorobutadiene
Concen: 0.10 ug/l
RT: 19.353 min Scan# 1290
Delta R.T. -0.000 min
Lab File: 5V22134.D
Acq: 25 Jun 2012 12:48 pm

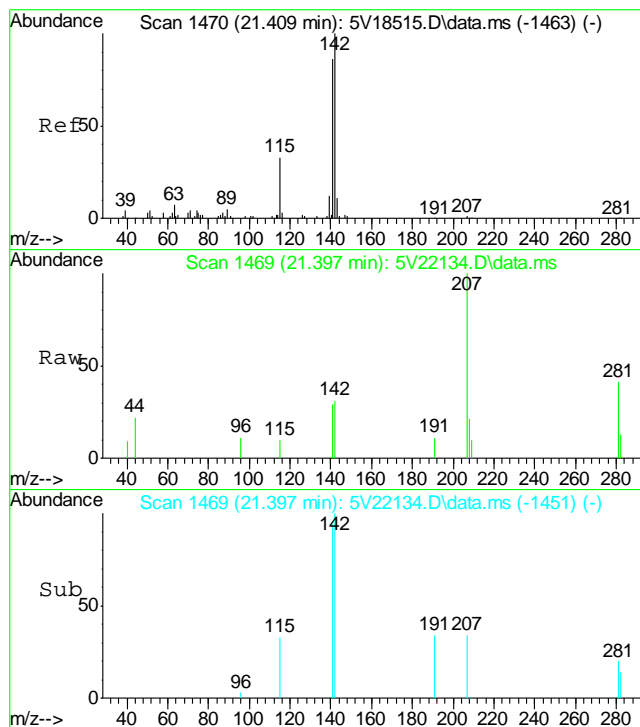
Tgt Ion	225	223	227
Resp	489		
Ratio	100	0.0	0.0
Lower		49.5	51.1
Upper		74.3	76.7



#94
2-Methylnaphthalene
Concen: 1.69 ug/l
RT: 21.112 min Scan# 1444
Delta R.T. 0.012 min
Lab File: 5V22134.D
Acq: 25 Jun 2012 12:48 pm

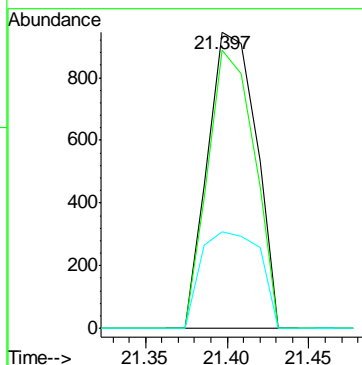
Tgt Ion	142	141	115
Resp	1809		
Ratio	100	84.2	12.9
Lower		66.2	25.9
Upper		99.4	38.9





#95
1-Methylnaphthalene
Concen: 1.57 ug/l
RT: 21.397 min Scan# 1469
Delta R.T. 0.000 min
Lab File: 5V22134.D
Acq: 25 Jun 2012 12:48 pm

Tgt Ion	142	Resp	1948
Ion Ratio	100		
141	90.2	68.9	103.3
115	39.6	27.3	40.9



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

Page 1 of 1

Job Number: D35708
Account: XTOKRWR XTO Energy
Project: FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6113-MB	3G09818.D	1	06/22/12	SM	06/22/12	OP6113	E3G436

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

D35708-1

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	76% 10-145%
321-60-8	2-Fluorobiphenyl	80% 10-130%
1718-51-0	Terphenyl-d14	97% 22-130%

Blank Spike Summary

Page 1 of 1

Job Number: D35708
Account: XTOKRWR XTO Energy
Project: FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6113-BS	3G09819.D	1	06/22/12	SM	06/22/12	OP6113	E3G436

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D35708-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	75.2	90	34-130
120-12-7	Anthracene	83.3	81.4	98	35-130
56-55-3	Benzo(a)anthracene	83.3	78.2	94	36-130
50-32-8	Benzo(a)pyrene	83.3	65.7	79	36-130
205-99-2	Benzo(b)fluoranthene	83.3	65.2	78	35-130
207-08-9	Benzo(k)fluoranthene	83.3	90.2	108	37-130
218-01-9	Chrysene	83.3	76.5	92	40-130
53-70-3	Dibenzo(a,h)anthracene	83.3	56.5	68	32-130
206-44-0	Fluoranthene	83.3	78.6	94	38-130
86-73-7	Fluorene	83.3	76.8	92	35-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	55.7	67	28-130
91-20-3	Naphthalene	83.3	75.2	90	35-130
129-00-0	Pyrene	83.3	76.5	92	37-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	79%	10-145%
321-60-8	2-Fluorobiphenyl	82%	10-130%
1718-51-0	Terphenyl-d14	87%	22-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D35708
Account: XTOKRWR XTO Energy
Project: FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6113-MS	3G09821.D	1	06/22/12	SM	06/22/12	OP6113	E3G436
OP6113-MSD	3G09822.D	1	06/22/12	SM	06/22/12	OP6113	E3G436
D35708-1	3G09820.D	1	06/22/12	SM	06/22/12	OP6113	E3G436

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D35708-1

CAS No.	Compound	D35708-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		87.7	77.5	88	78.3	89	1	10-155/30
120-12-7	Anthracene	ND		87.7	85.8	98	85.9	98	0	10-155/30
56-55-3	Benzo(a)anthracene	ND		87.7	97.0	111	98.1	112	1	10-175/30
50-32-8	Benzo(a)pyrene	ND		87.7	77.3	88	79.5	91	3	10-164/30
205-99-2	Benzo(b)fluoranthene	ND		87.7	87.5	100	92.6	106	6	10-165/30
207-08-9	Benzo(k)fluoranthene	ND		87.7	66.9	76	69.3	79	4	10-178/30
218-01-9	Chrysene	ND		87.7	85.0	97	87.0	99	2	10-147/30
53-70-3	Dibenzo(a,h)anthracene	ND		87.7	75.7	86	72.8	83	4	10-144/30
206-44-0	Fluoranthene	ND		87.7	72.9	83	71.7	82	2	10-207/30
86-73-7	Fluorene	ND		87.7	83.6	95	82.6	94	1	10-163/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		87.7	71.2	81	70.3	80	1	10-180/30
91-20-3	Naphthalene	57.8		87.7	130	82	129	81	1	10-198/30
129-00-0	Pyrene	ND		87.7	105	120	97.5	111	7	10-189/30

CAS No.	Surrogate Recoveries	MS	MSD	D35708-1	Limits
4165-60-0	Nitrobenzene-d5	60%	57%	62%	10-145%
321-60-8	2-Fluorobiphenyl	75%	72%	71%	10-130%
1718-51-0	Terphenyl-d14	89%	78%	90%	22-130%

* = Outside of Control Limits.

GC/MS Semi-volatiles

Raw Data

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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\062212\
 Data File : 3g09820.D
 Acq On : 22 Jun 2012 5:34 pm
 Operator : SARAHM1
 Sample : D35708-1
 Misc : OP6113,E3G436,30.07,,,1,1
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jun 25 10:21:12 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G436.M
 Quant Title : PAHSIM BASE
 QLast Update : Fri Jun 22 16:07:04 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.429	136	271423	4.0000	ug/mL	0.00
6) Acenaphthene-d10	8.823	164	163161	4.0000	ug/mL	0.00
14) Phenanthrene-d10	11.368	188	238594	4.0000	ug/mL	0.00
18) Chrysene-d12	16.422	240	155070	4.0000	ug/mL	0.00
23) Perylene-d12	19.006	264	135316	4.0000	ug/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	5.718	82	1208537	31.0322	ug/mL	-0.01
Spiked Amount 50.000	Range 25 - 135		Recovery =	62.06%		
7) 2-Fluorobiphenyl	7.807	172	1909982	35.2632	ug/mL	-0.01
Spiked Amount 50.000	Range 25 - 135		Recovery =	70.52%		
20) Terphenyl-d14	14.478	244	1260153	44.8234	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	89.64%		

Target Compounds

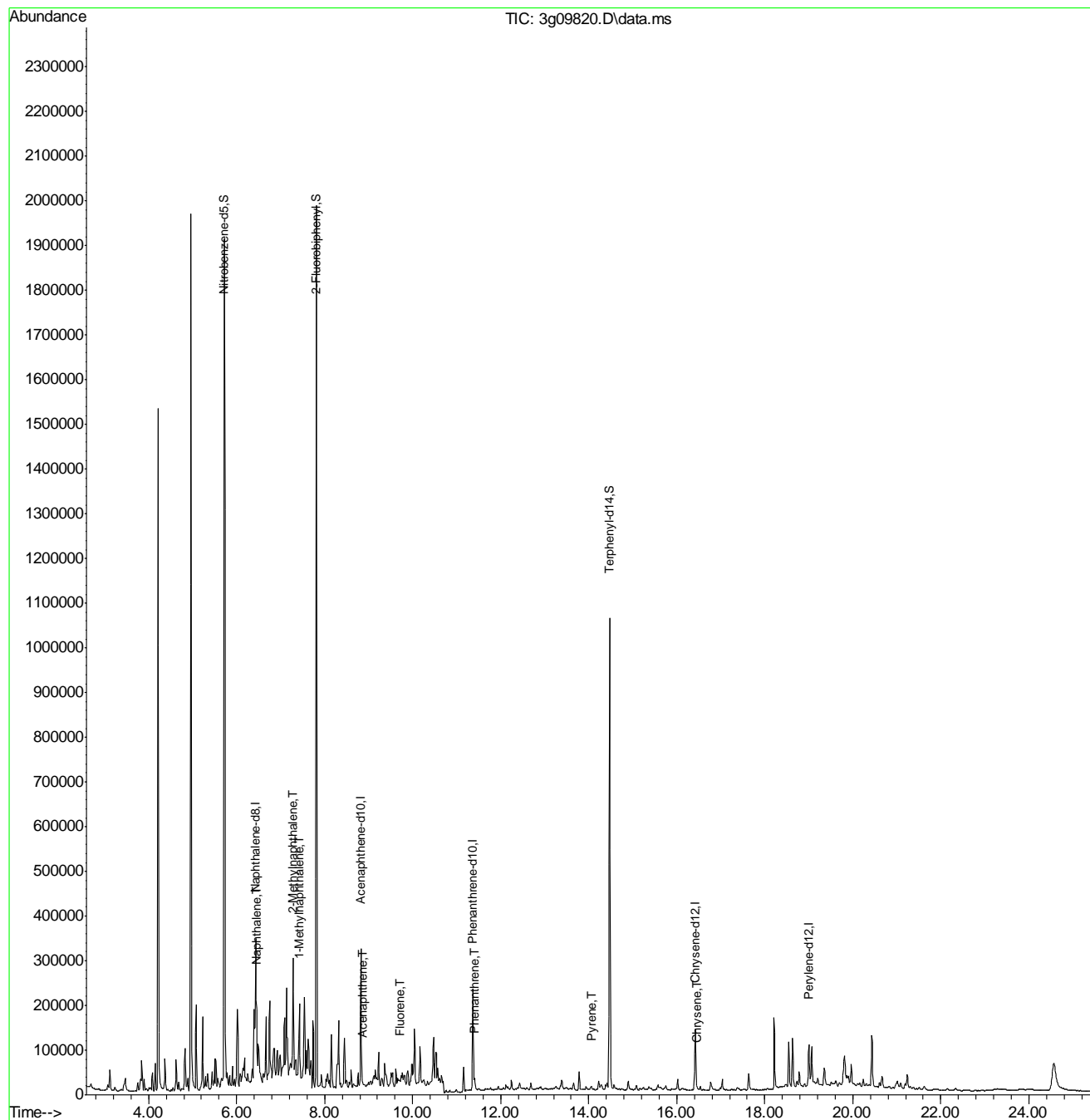
						Qvalue
3) N-Nitrosodimethylamine	0.000	74	0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d	
5) Naphthalene	6.454	128	122860	1.6499	ug/mL	94
8) 2-Methylnaphthalene	7.276	142	157942	3.3920	ug/mL	96
9) 1-Methylnaphthalene	7.426	142	81264	1.7687	ug/mL	91
10) Acenaphthylene	0.000	152	0	N.D.	d	
11) Acenaphthene	8.870	154	3812	0.0809	ug/mL#	73
12) Fluorene	9.709	166	6326	0.1188	ug/mL	81
13) Diphenylamine	0.000	169	0	N.D.	d	
15) Phenanthrene	11.408	178	32339	0.4394	ug/mL	96
16) Anthracene	0.000	178	0	N.D.	d	
17) Fluoranthene	0.000	202	0	N.D.	d	
19) Pyrene	14.059	202	5718	0.1014	ug/mL	85
21) Benzo(a)anthracene	0.000	228	0	N.D.	d	
22) Chrysene	16.468	228	4492	0.0943	ug/mL	88
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) Dibenzo(a,h)anthracene	0.000	278	0	N.D.	d	
29) Benzo(g,h,i)perylene	0.000	276	0	N.D.	d	

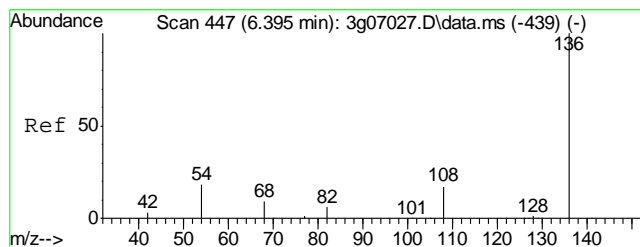
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\062212\
Data File : 3g09820.D
Acq On : 22 Jun 2012 5:34 pm
Operator : SARAHM1
Sample : D35708-1
Misc : OP6113,E3G436,30.07,,,1,1
ALS Vial : 13 Sample Multiplier: 1

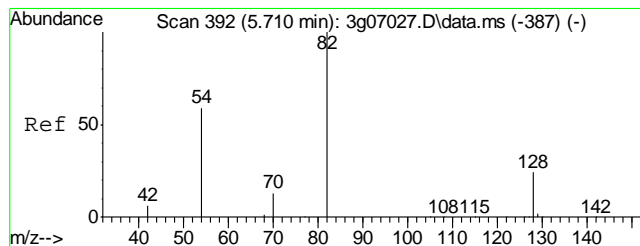
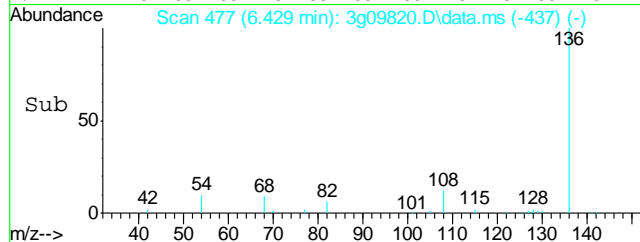
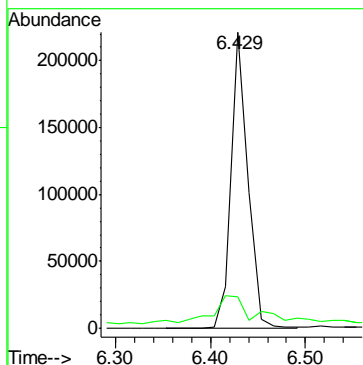
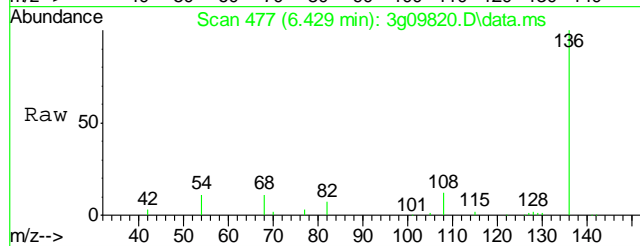
Quant Time: Jun 25 10:21:12 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G436.M
Quant Title : PAHSIM BASE
QLast Update : Fri Jun 22 16:07:04 2012
Response via : Initial Calibration





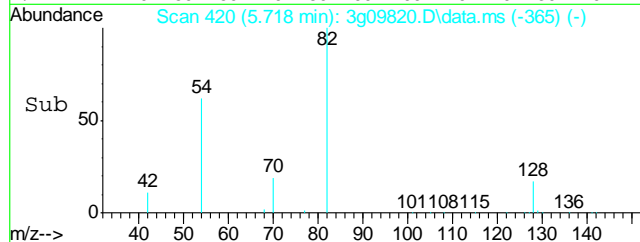
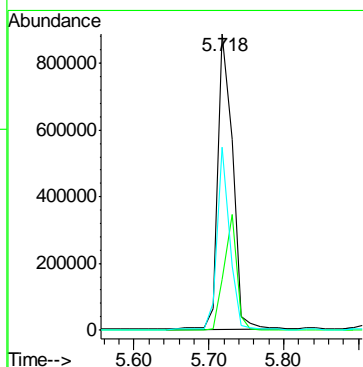
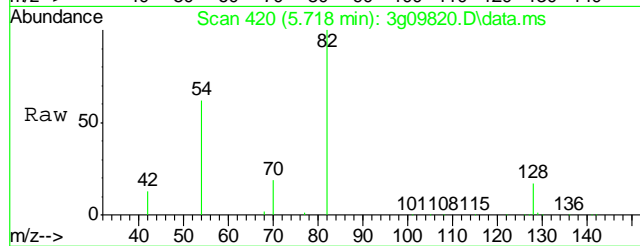
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 6.429 min Scan# 477
Delta R.T. 0.000 min
Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

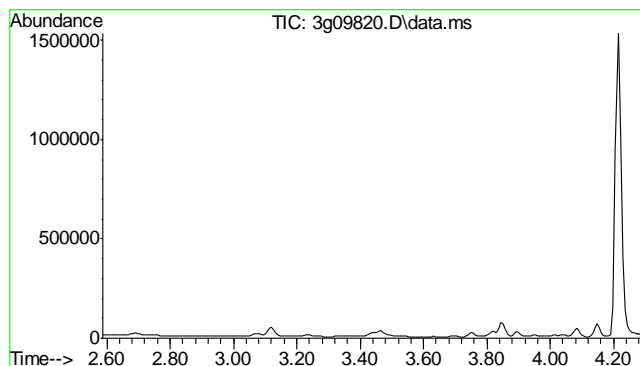
Tgt Ion	Ratio	Lower	Upper
136	100		
68	28.4	0.0	32.0



#2
Nitrobenzene-d5
Concen: 31.0322 ug/mL
RT: 5.718 min Scan# 420
Delta R.T. -0.012 min
Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

Tgt Ion	Ratio	Lower	Upper
82	100		
128	34.3	15.2	55.2
54	52.2	34.0	74.0

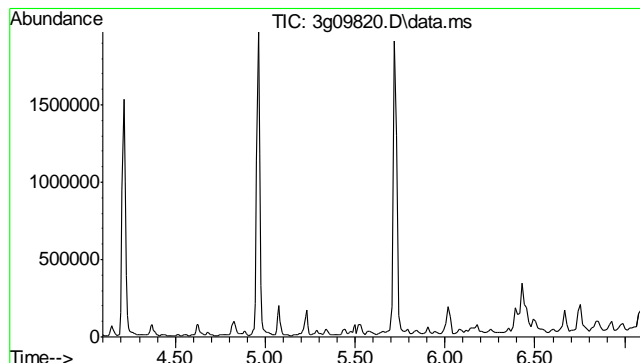
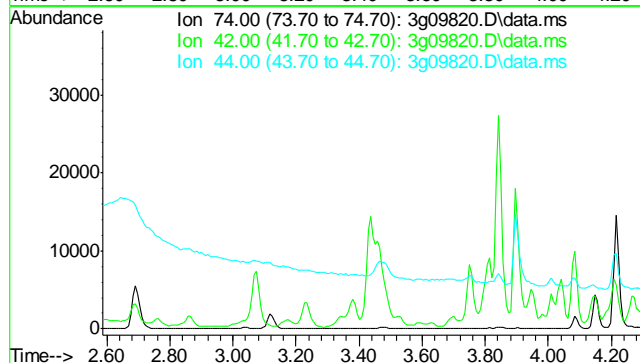




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.79 min

Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

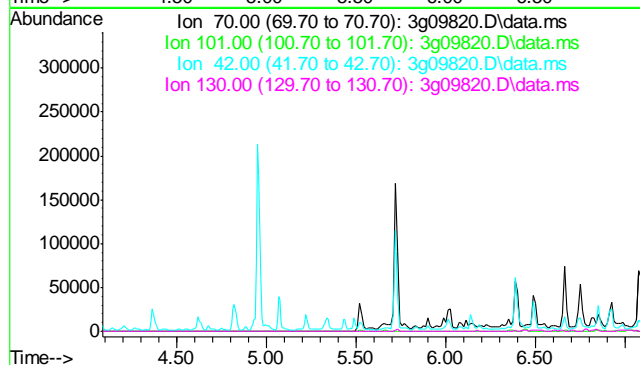
Tgt Ion	Exp Ratio
74	100
42	51.8
44	10.0

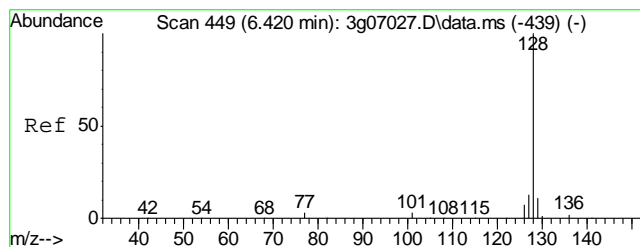


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.59 min

Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

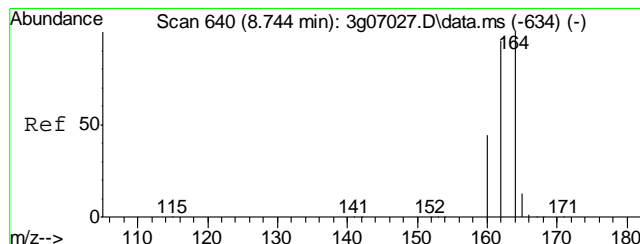
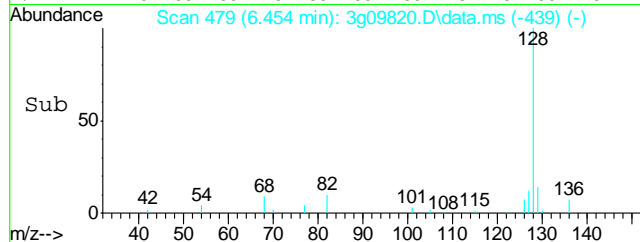
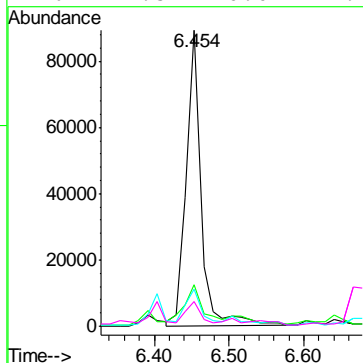
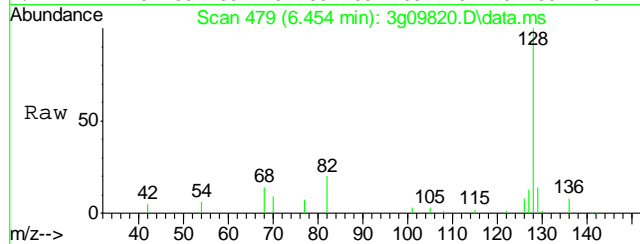
Tgt Ion	Exp Ratio
70	100
101	10.3
42	59.5
130	20.1





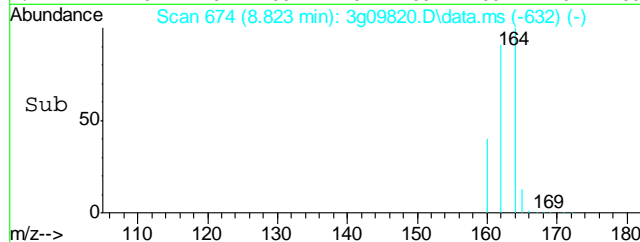
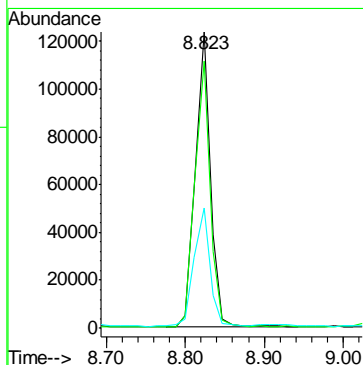
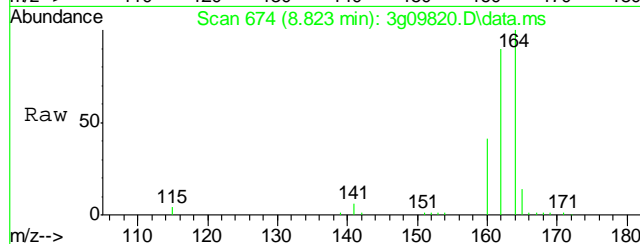
#5
Naphthalene
Concen: 1.6499 ug/mL
RT: 6.454 min Scan# 479
Delta R.T. 0.000 min
Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

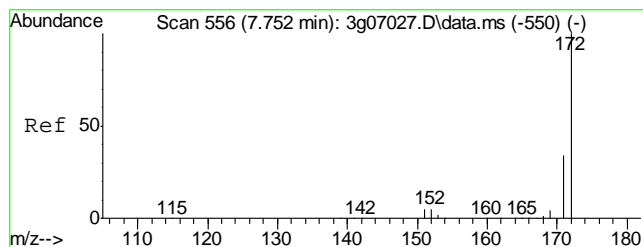
Tgt Ion:	128	Resp:	122860
Ion Ratio	Lower	Upper	
128	100		
129	14.5	0.0	30.9
127	10.2	0.0	32.4
126	7.5	0.0	27.7



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 8.823 min Scan# 674
Delta R.T. 0.000 min
Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

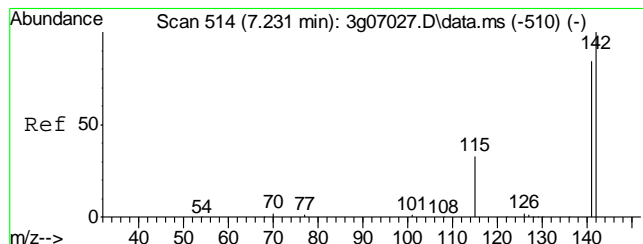
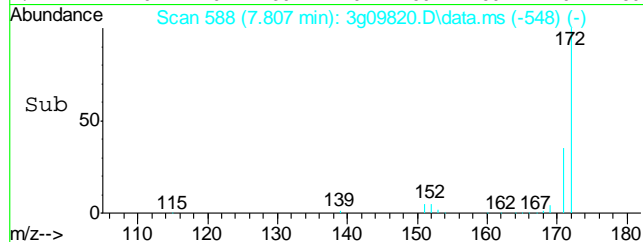
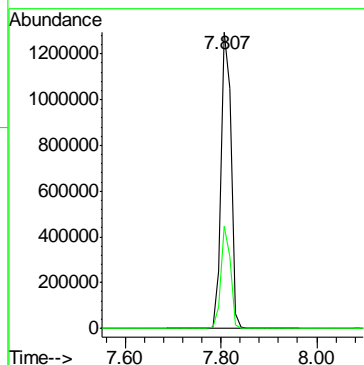
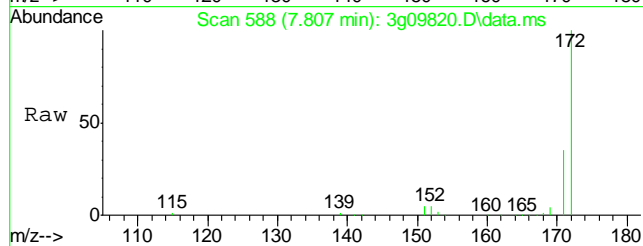
Tgt Ion:	164	Resp:	163161
Ion Ratio	Lower	Upper	
164	100		
162	92.2	72.5	112.5
160	43.1	20.9	60.9





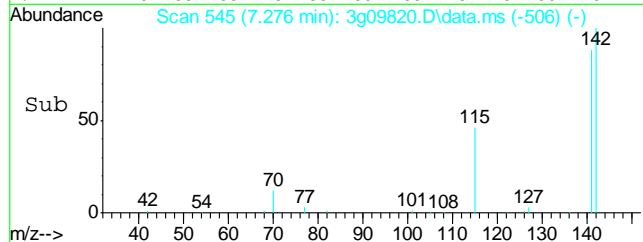
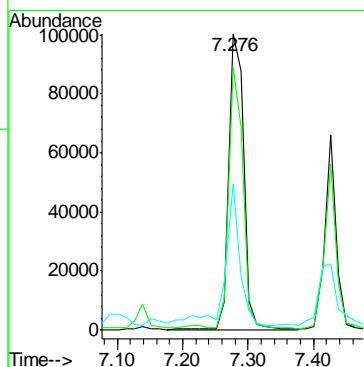
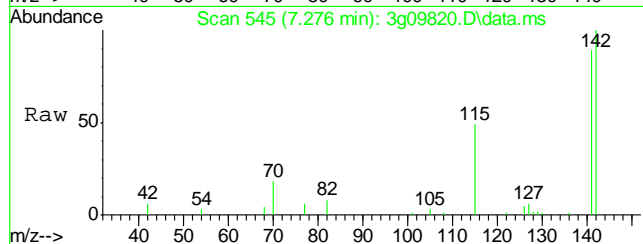
#7
2-Fluorobiphenyl
Concen: 35.2632 ug/mL
RT: 7.807 min Scan# 588
Delta R.T. -0.012 min
Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

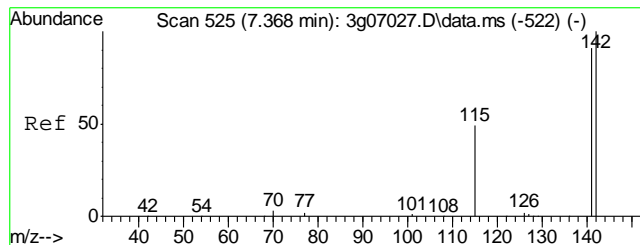
Tgt Ion	Ratio	Lower	Upper
172	100		
171	33.0	13.2	53.2



#8
2-Methylnaphthalene
Concen: 3.3920 ug/mL
RT: 7.276 min Scan# 545
Delta R.T. -0.012 min
Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

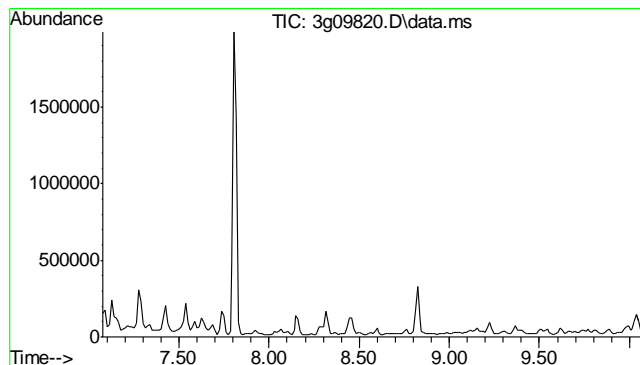
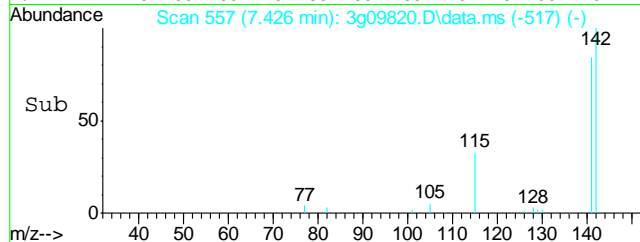
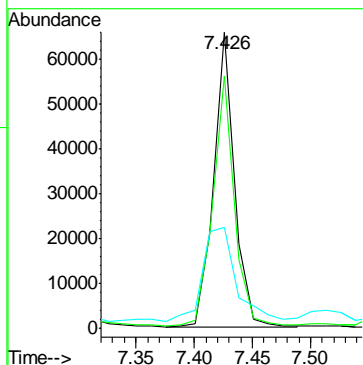
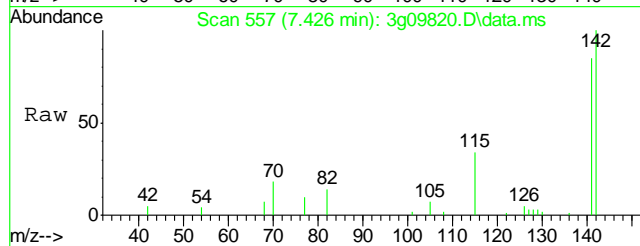
Tgt Ion	Ratio	Lower	Upper
142	100		
141	83.7	63.1	103.1
115	42.6	14.8	54.8





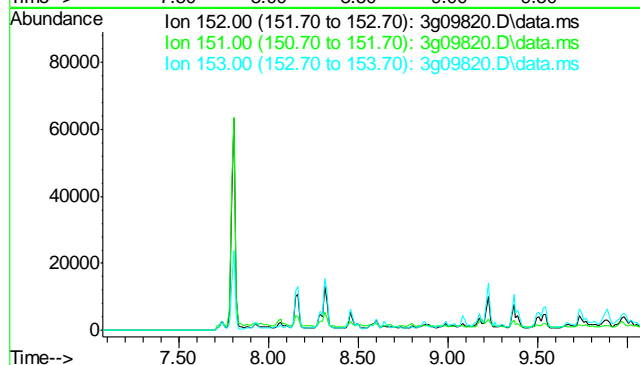
#9
1-Methylnaphthalene
Concen: 1.7687 ug/mL
RT: 7.426 min Scan# 557
Delta R.T. 0.000 min
Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

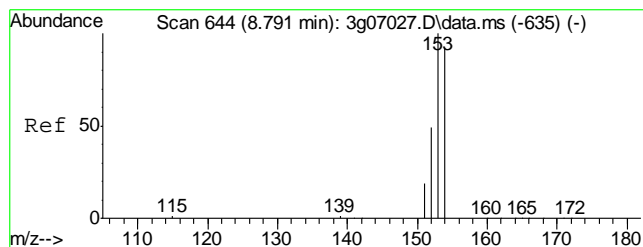
Tgt Ion	Ratio	Lower	Upper
142	100		
141	88.0	66.4	106.4
115	50.8	16.1	56.1



#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.58 min
Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

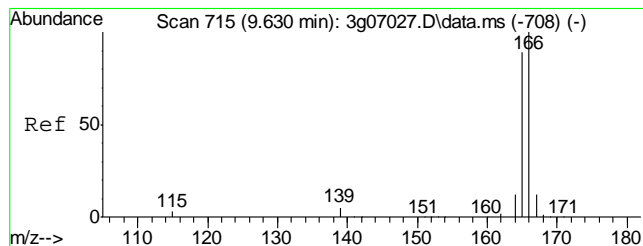
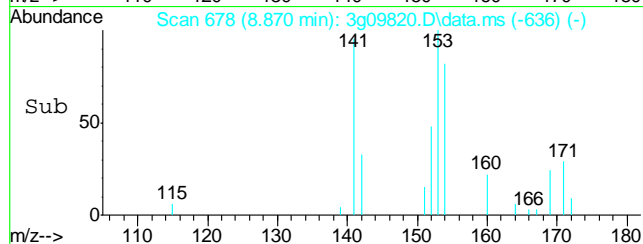
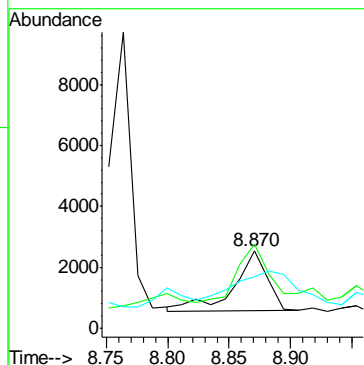
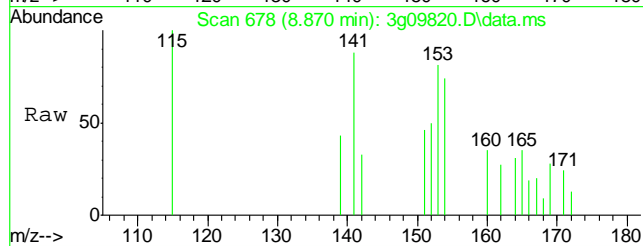
Tgt Ion	Sig	Exp Ratio
152	100	
151	19.1	
153	14.1	





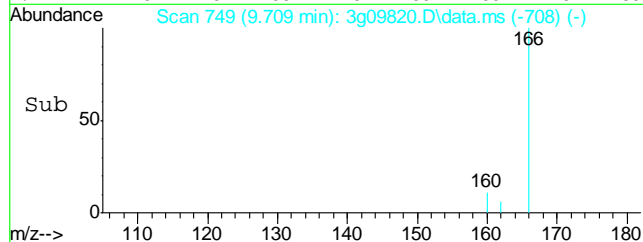
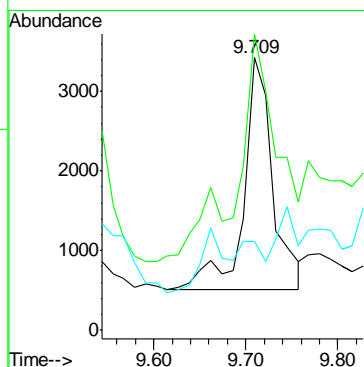
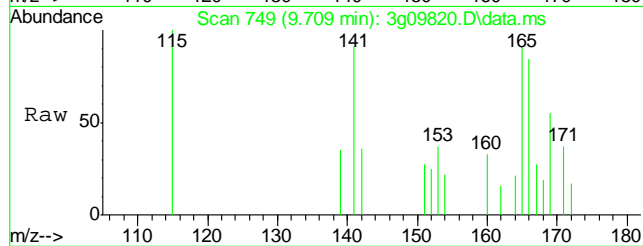
#11
Acenaphthene
Concen: 0.0809 ug/mL
RT: 8.870 min Scan# 678
Delta R.T. 0.000 min
Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

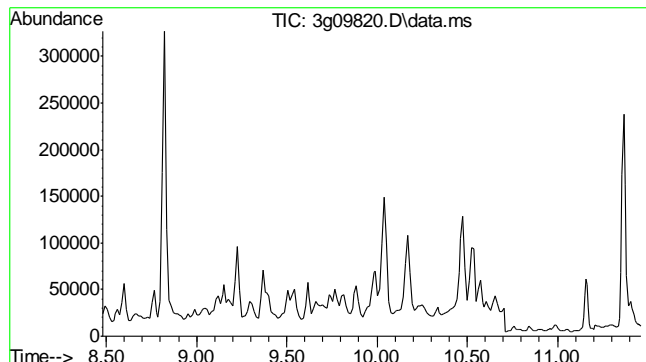
Tgt Ion:154 Resp: 3812
Ion Ratio Lower Upper
154 100
153 102.2 84.2 124.2
152 101.2 25.3 65.3#



#12
Fluorene
Concen: 0.1188 ug/mL
RT: 9.709 min Scan# 749
Delta R.T. -0.012 min
Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

Tgt Ion:166 Resp: 6326
Ion Ratio Lower Upper
166 100
165 73.3 70.8 110.8
167 22.0 0.0 33.3

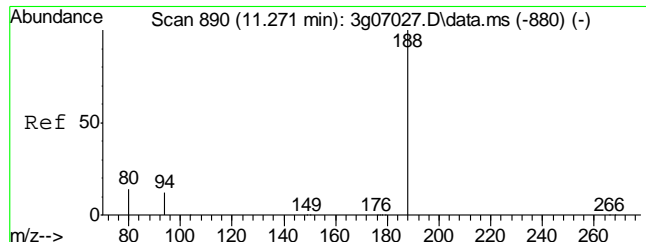
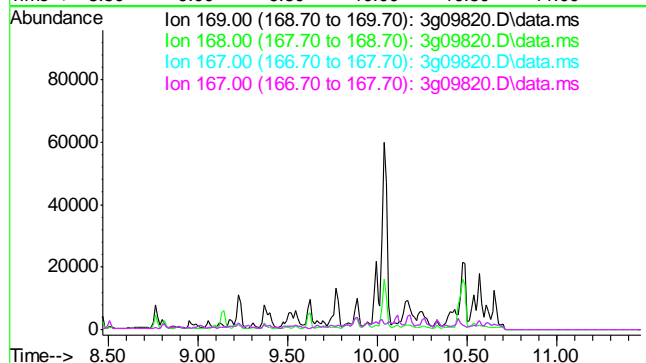




#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 9.97 min

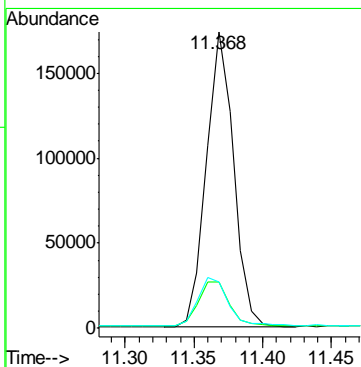
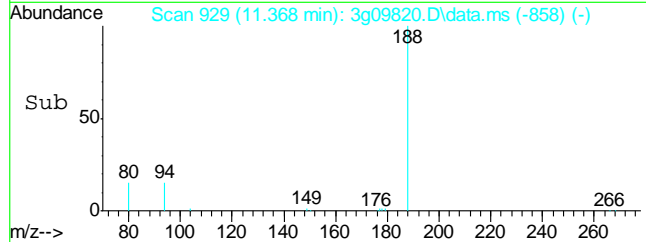
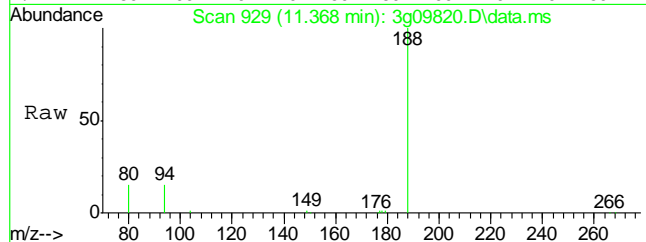
Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

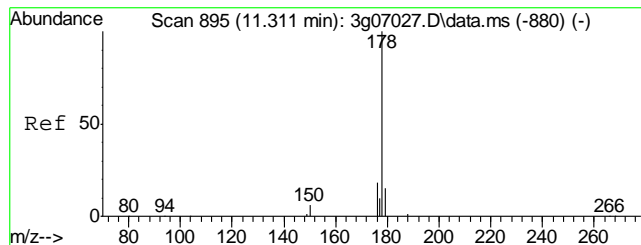
Tgt Ion: 169
Sig Exp Ratio
169 100
168 62.1
167 33.2
167 33.2



#14
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 11.368 min Scan# 929
Delta R.T. -0.001 min
Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

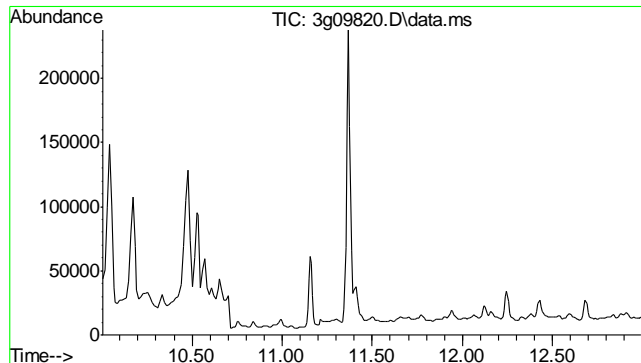
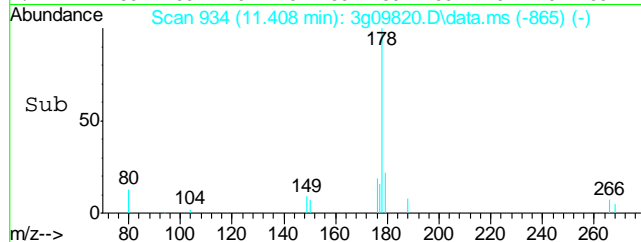
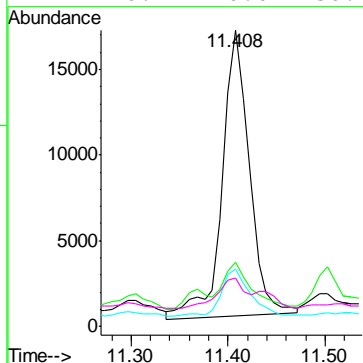
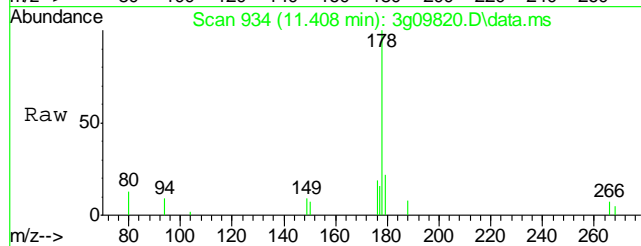
Tgt Ion: 188 Resp: 238594
Ion Ratio Lower Upper
188 100
94 16.6 0.0 37.2
80 18.7 0.0 38.3





#15
Phenanthrene
Concen: 0.4394 ug/mL
RT: 11.408 min Scan# 934
Delta R.T. -0.009 min
Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

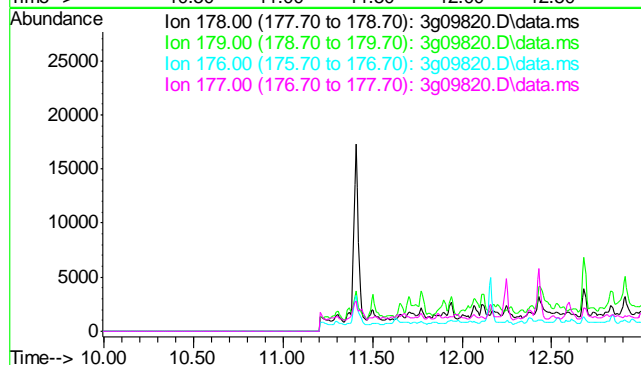
Tgt Ion:	178	Resp:	32339
Ion	Ratio	Lower	Upper
178	100		
179	19.5	0.0	35.1
176	18.1	0.0	38.6
177	10.7	0.0	30.4

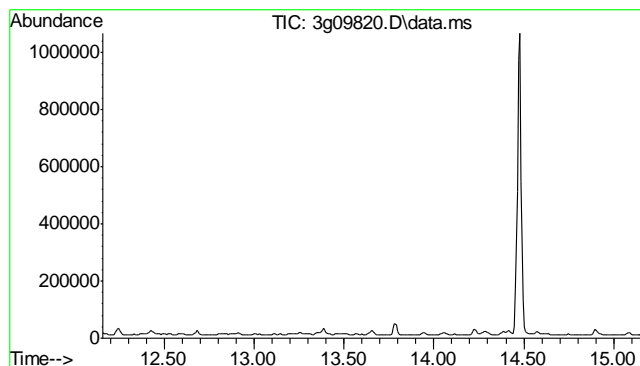


#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.50 min

Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

Tgt Ion:	178
Sig	Exp Ratio
178	100
179	15.0
176	17.9
177	8.9

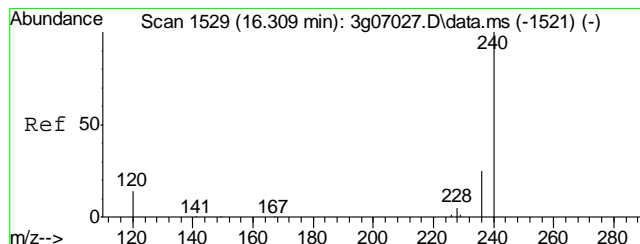
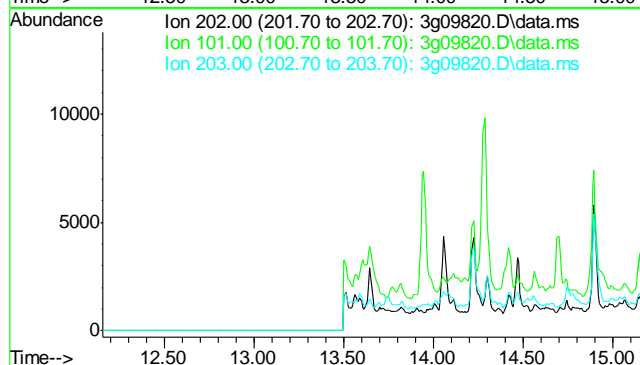




#17
 Fluoranthene
 Concen: N.D. ug/mL
 Expected RT: 13.66 min

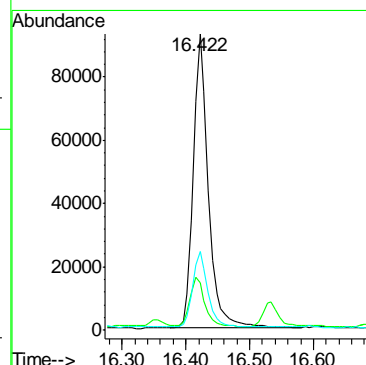
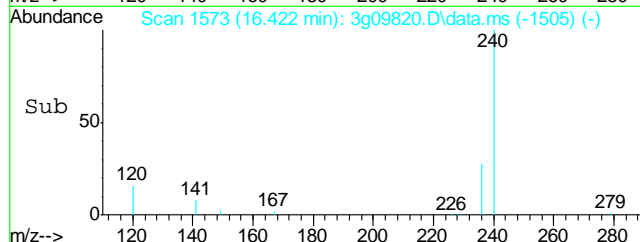
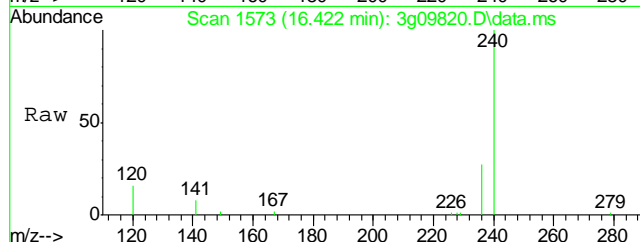
Lab File: 3g09820.D
 Acq: 22 Jun 12 5:34 pm

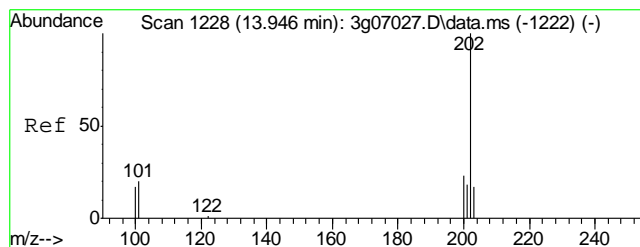
Tgt Ion: 202
 Sig Exp Ratio
 202 100
 101 17.6
 203 17.1



#18
 Chrysene-d12
 Concen: 4.0000 ug/mL
 RT: 16.422 min Scan# 1573
 Delta R.T. -0.001 min
 Lab File: 3g09820.D
 Acq: 22 Jun 12 5:34 pm

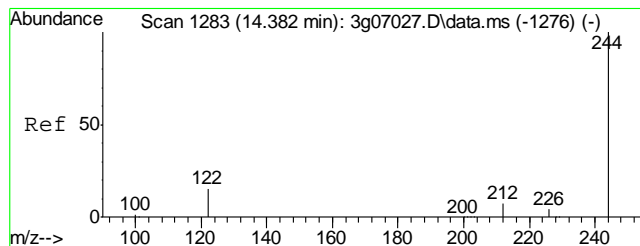
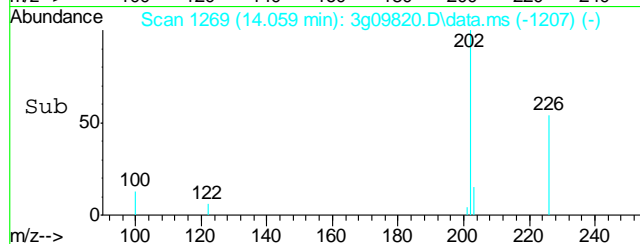
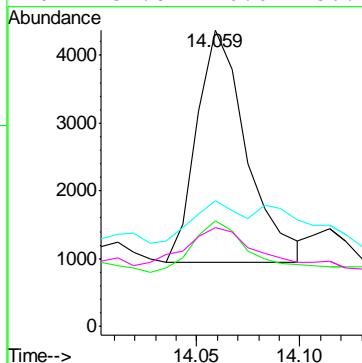
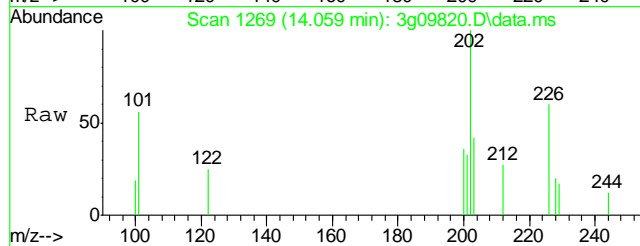
Tgt Ion: 240 Resp: 155070
 Ion Ratio Lower Upper
 240 100
 120 19.4 0.0 37.2
 236 25.5 5.2 45.2





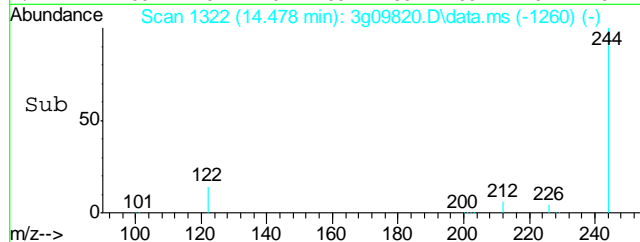
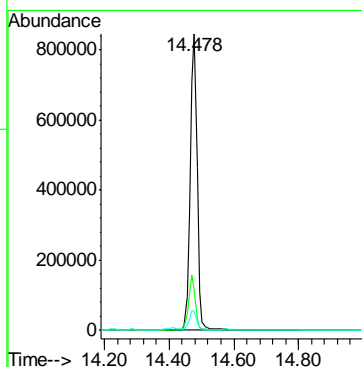
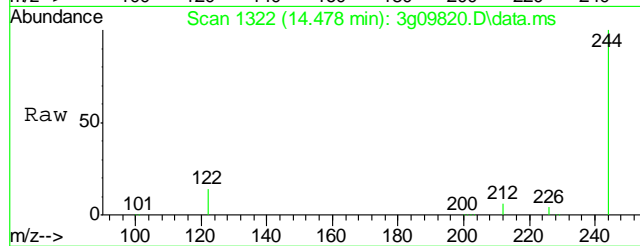
#19
Pyrene
Concen: 0.1014 ug/mL
RT: 14.059 min Scan# 1269
Delta R.T. -0.009 min
Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

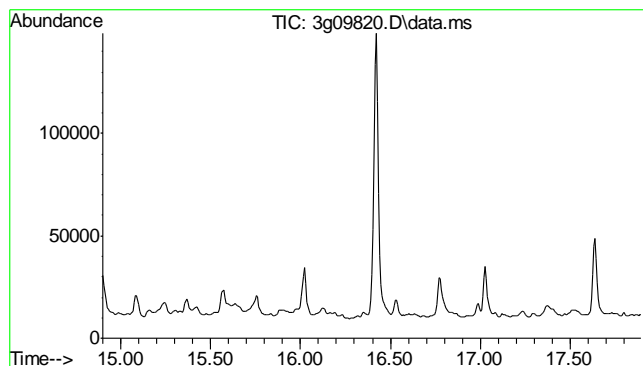
Tgt Ion: 202	Resp: 5718
Ion Ratio	Lower Upper
202 100	
200 25.3	0.4 40.4
203 18.4	0.0 37.9
201 31.8	0.0 36.8



#20
Terphenyl-d14
Concen: 44.8234 ug/mL
RT: 14.478 min Scan# 1322
Delta R.T. -0.009 min
Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

Tgt Ion: 244	Resp: 1260153
Ion Ratio	Lower Upper
244 100	
122 18.3	0.0 38.8
212 6.9	0.0 26.9

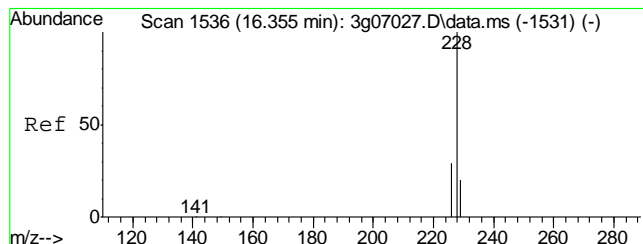
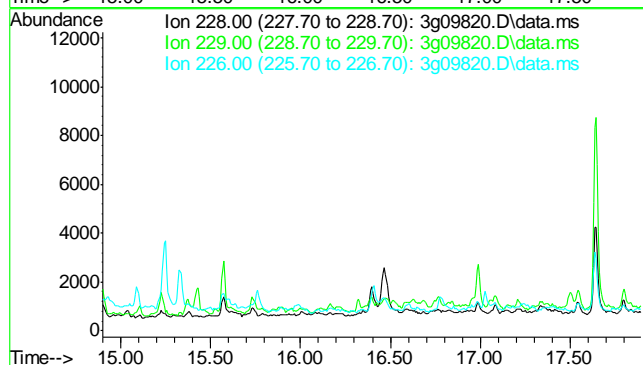




#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.40 min

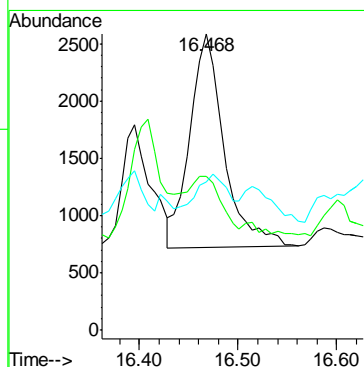
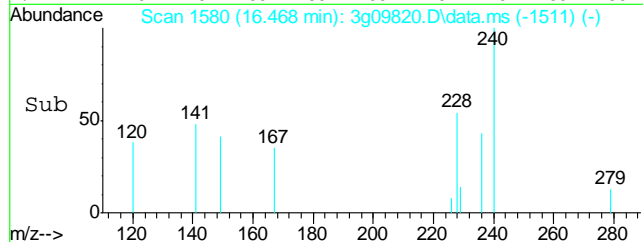
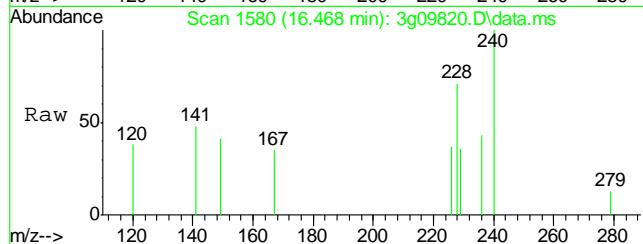
Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

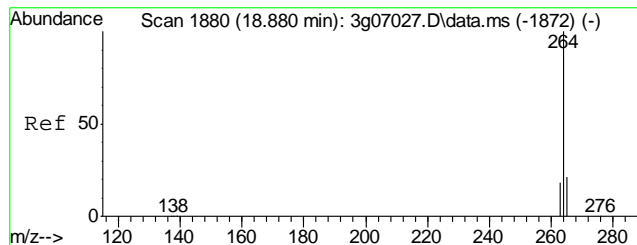
Tgt Ion: 228
Sig Exp Ratio
228 100
229 19.4
226 26.4



#22
Chrysene
Concen: 0.0943 ug/mL
RT: 16.468 min Scan# 1580
Delta R.T. -0.008 min
Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

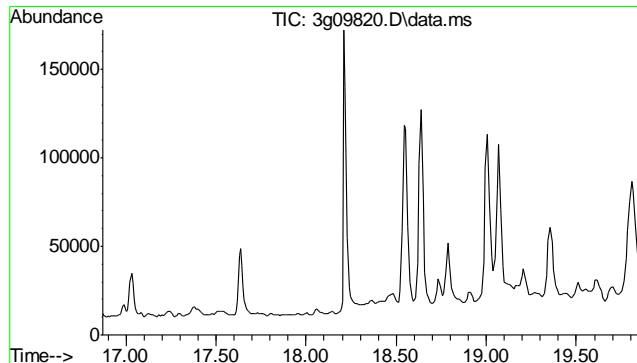
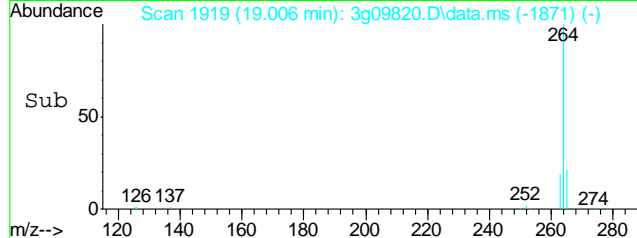
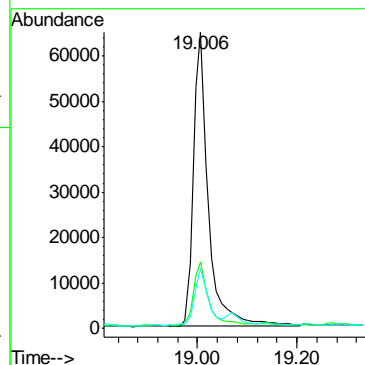
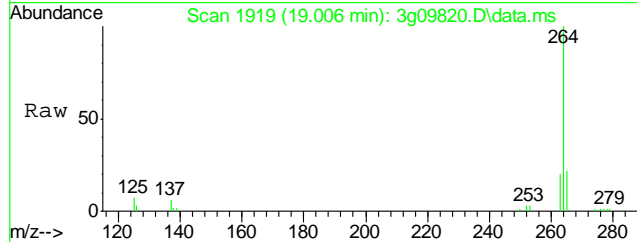
Tgt Ion: 228 Resp: 4492
Ion Ratio Lower Upper
228 100
226 20.3 8.9 48.9
229 16.7 0.0 39.3





#23
Perylene-d12
Concen: 4.0000 ug/mL
RT: 19.006 min Scan# 1919
Delta R.T. 0.009 min
Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

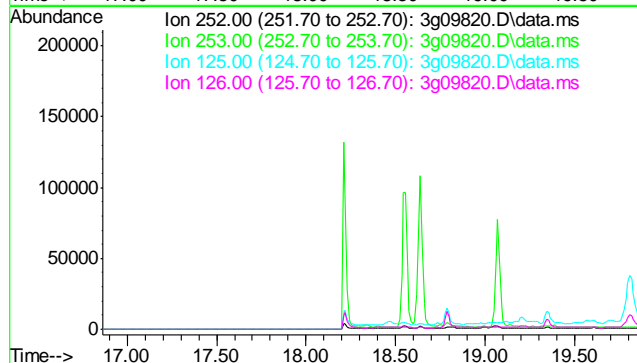
Tgt Ion:	264	Resp:	135316
Ion Ratio	Lower	Upper	
264	100		
265	21.1	1.1	41.1
263	18.3	0.0	38.6

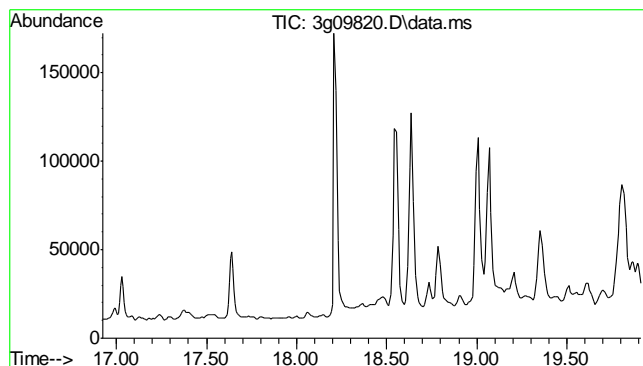


#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.37 min

Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.3
125	14.7
126	20.4

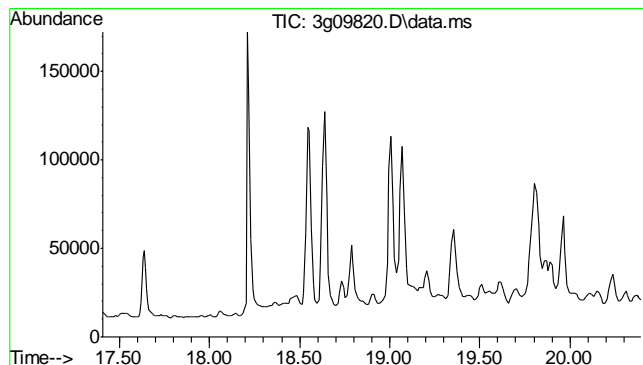
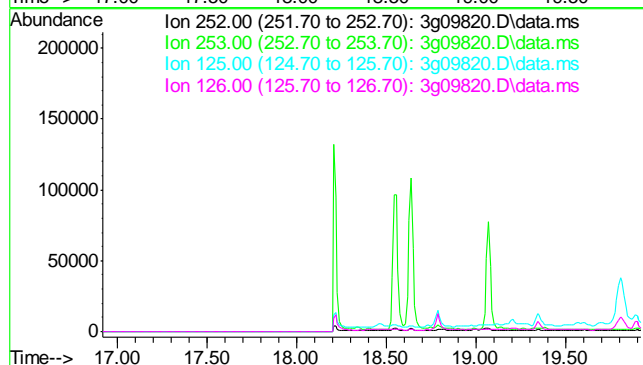




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.42 min

Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

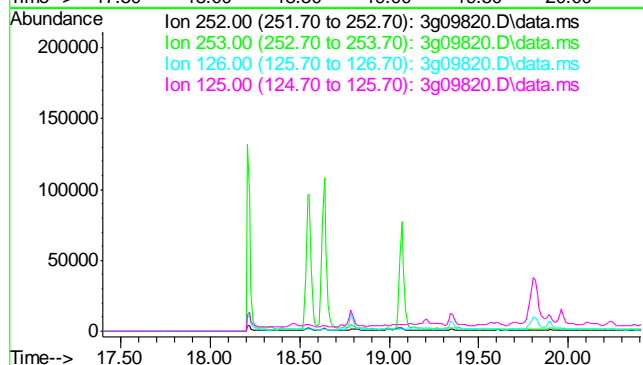
Tgt Ion	Sig	Exp Ratio
252	100	
253	21.8	
125	12.9	
126	20.1	

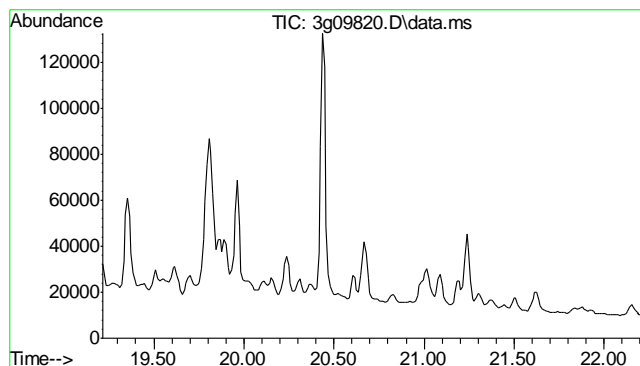


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 18.90 min

Lab File: 3g09820.D
Acq: 22 Jun 12 5:34 pm

Tgt Ion	Sig	Exp Ratio
252	100	
253	21.6	
126	19.7	
125	14.8	

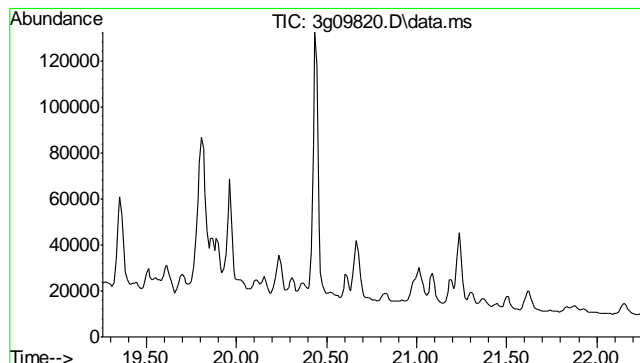
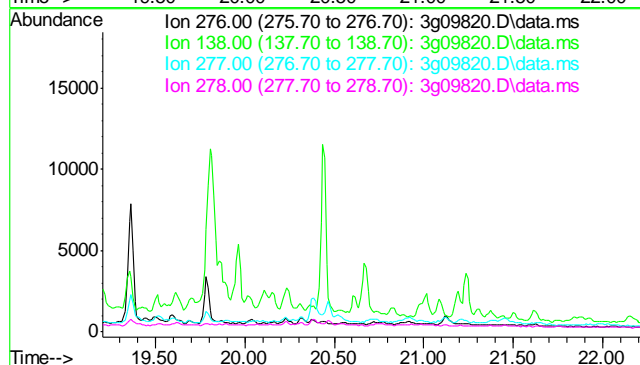




#27
 Indeno(1,2,3-cd)pyrene
 Concen: N.D. ug/mL
 Expected RT: 20.71 min

 Lab File: 3g09820.D
 Acq: 22 Jun 12 5:34 pm

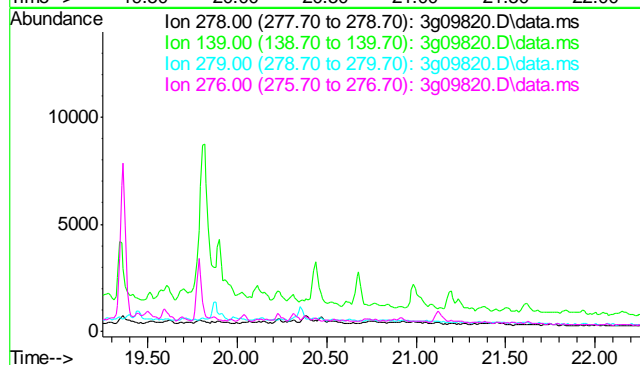
Tgt Ion	Exp Ratio
276	100
138	31.5
277	25.0
278	81.3

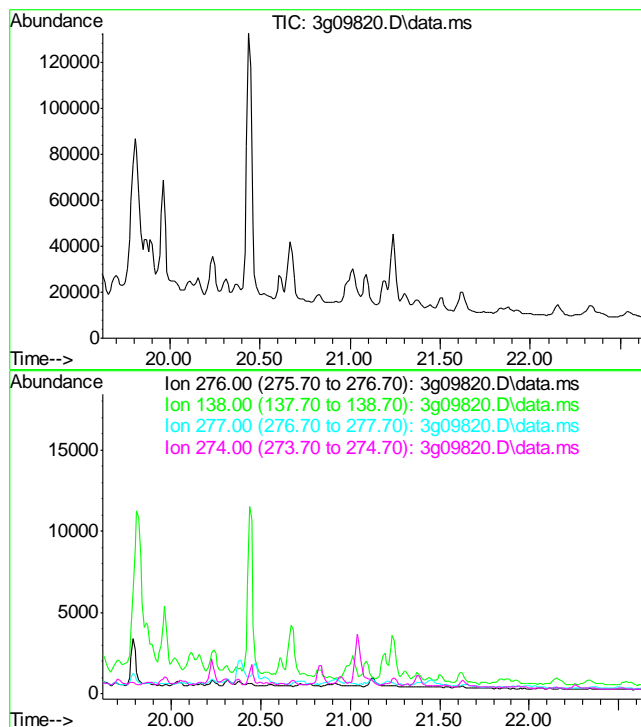


#28
 Dibenz(a,h)anthracene
 Concen: N.D. ug/mL
 Expected RT: 20.75 min

 Lab File: 3g09820.D
 Acq: 22 Jun 12 5:34 pm

Tgt Ion	Exp Ratio
278	100
139	21.3
279	23.4
276	123.0





#29
 Benzo(g,h,i)perylene
 Concen: N.D. ug/mL
 Expected RT: 21.12 min

Lab File: 3g09820.D
 Acq: 22 Jun 12 5:34 pm

Tgt Ion	Exp Ratio
276	100
138	27.1
277	23.7
274	21.6

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\062212\
 Data File : 3g09818.D
 Acq On : 22 Jun 2012 4:19 pm
 Operator : SARAHM1
 Sample : OP6113-MB
 Misc : OP6113,E3G436,30.00,,,1,1
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 25 10:17:13 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G436.M
 Quant Title : PAHSIM BASE
 QLast Update : Fri Jun 22 16:07:04 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.429	136	246720	4.0000	ug/mL	0.00
6) Acenaphthene-d10	8.823	164	141681	4.0000	ug/mL	0.00
14) Phenanthrene-d10	11.369	188	221405	4.0000	ug/mL	0.00
18) Chrysene-d12	16.417	240	186931	4.0000	ug/mL	0.00
23) Perylene-d12	18.997	264	102831	4.0000	ug/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5		5.718	82	1341362	37.8914	ug/mL	-0.01
Spiked Amount	50.000	Range	25 - 135	Recovery	=	75.78%	
7) 2-Fluorobiphenyl		7.807	172	1871755	39.7966	ug/mL	-0.01
Spiked Amount	50.000	Range	25 - 135	Recovery	=	79.60%	
20) Terphenyl-d14		14.472	244	1636911	48.3007	ug/mL	-0.02
Spiked Amount	50.000	Range	25 - 135	Recovery	=	96.60%	

Target Compounds

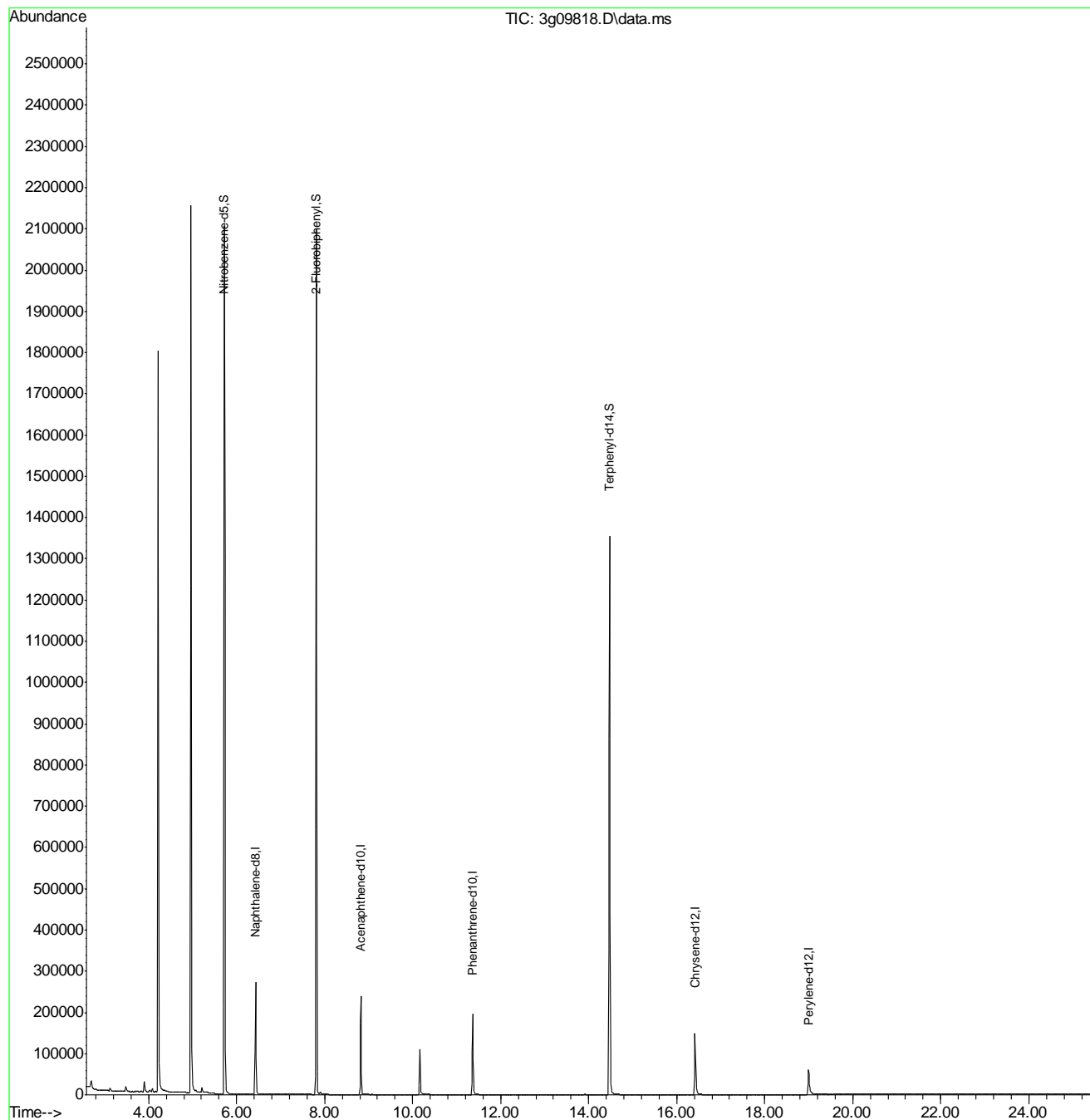
						Qvalue
3) N-Nitrosodimethylamine	0.000	74	0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d	
5) Naphthalene	0.000	128	0	N.D.	d	
8) 2-Methylnaphthalene	0.000	142	0	N.D.	d	
9) 1-Methylnaphthalene	0.000	142	0	N.D.	d	
10) Acenaphthylene	0.000	152	0	N.D.	d	
11) Acenaphthene	0.000	154	0	N.D.	d	
12) Fluorene	0.000	166	0	N.D.	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) Dibenzo(a,h)anthracene	0.000	278	0	N.D.	d	
29) Benzo(g,h,i)perylene	0.000	276	0	N.D.	d	

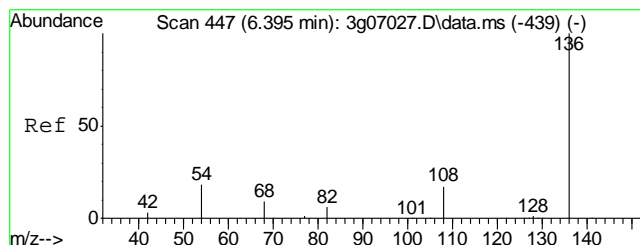
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\062212\
Data File : 3g09818.D
Acq On : 22 Jun 2012 4:19 pm
Operator : SARAHM1
Sample : OP6113-MB
Misc : OP6113,E3G436,30.00,,,1,1
ALS Vial : 11 Sample Multiplier: 1

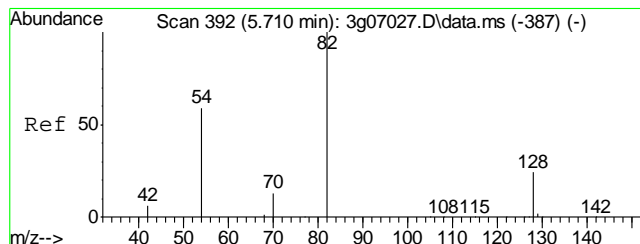
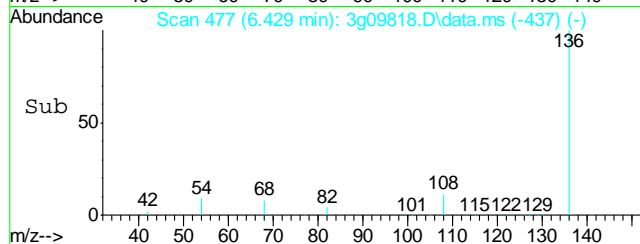
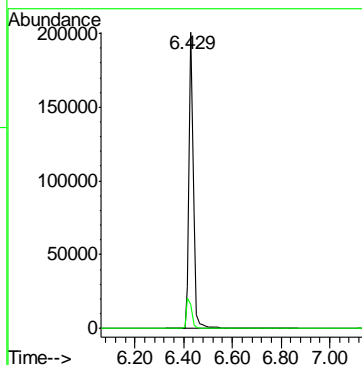
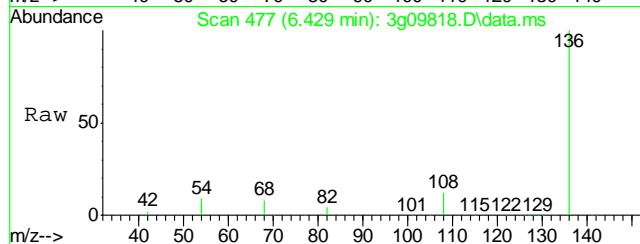
Quant Time: Jun 25 10:17:13 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G436.M
Quant Title : PAHSIM BASE
QLast Update : Fri Jun 22 16:07:04 2012
Response via : Initial Calibration





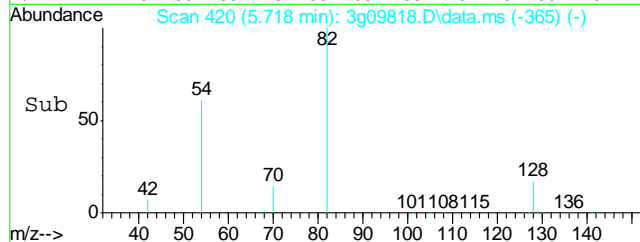
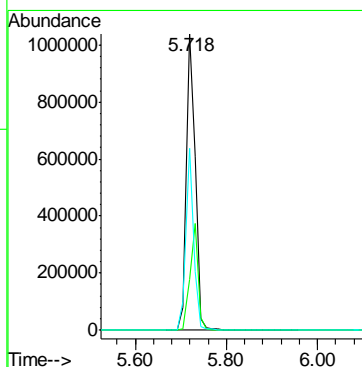
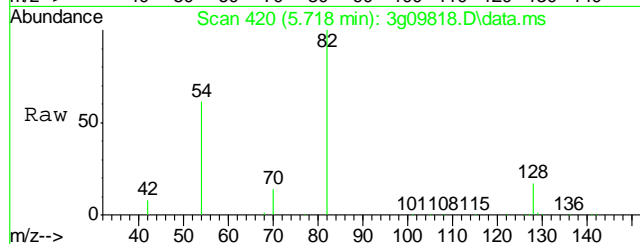
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 6.429 min Scan# 477
Delta R.T. 0.000 min
Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

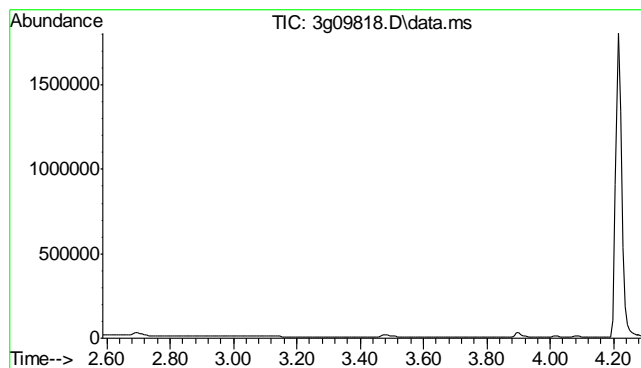
Tgt Ion: 136 Resp: 246720
Ion Ratio Lower Upper
136 100
68 12.4 0.0 32.0



#2
Nitrobenzene-d5
Concen: 37.8914 ug/mL
RT: 5.718 min Scan# 420
Delta R.T. -0.012 min
Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

Tgt Ion: 82 Resp: 1341362
Ion Ratio Lower Upper
82 100
128 33.8 15.2 55.2
54 54.1 34.0 74.0

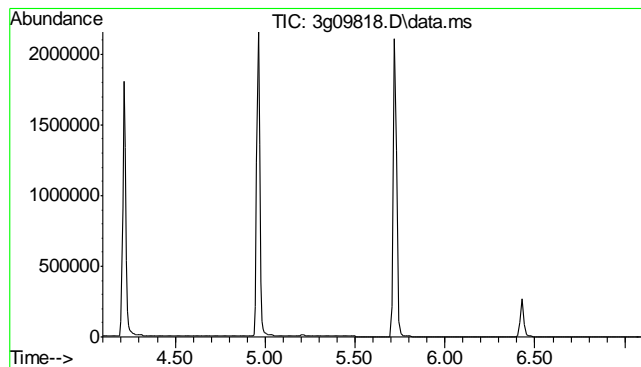
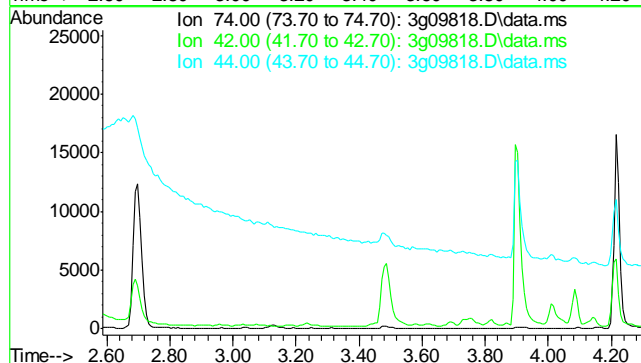




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.79 min

Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

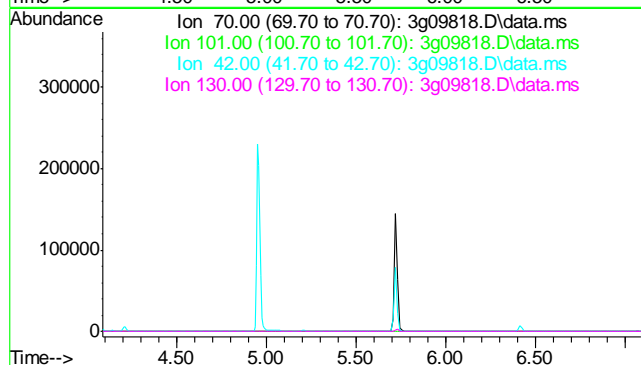
Tgt Ion:	74
Sig	Exp Ratio
74	100
42	51.8
44	10.0

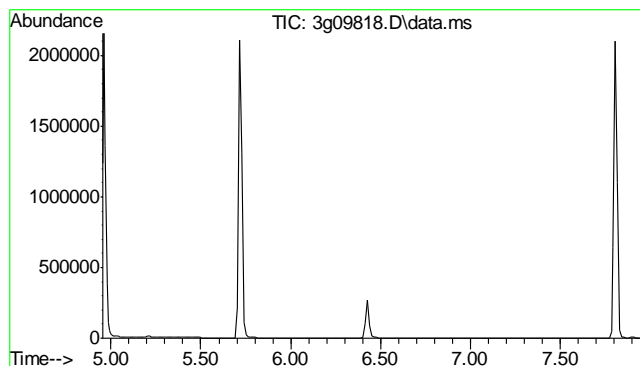


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.59 min

Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

Tgt Ion:	70
Sig	Exp Ratio
70	100
101	10.3
42	59.5
130	20.1

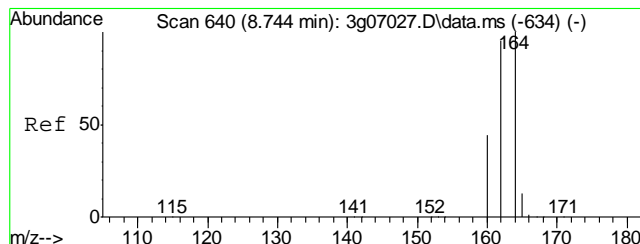
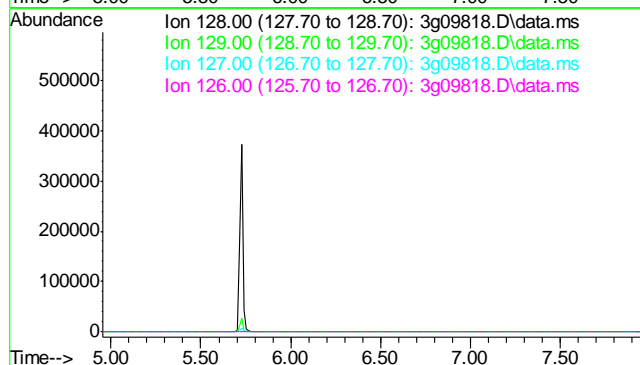




#5
Naphthalene
Concen: N.D. ug/mL
Expected RT: 6.45 min

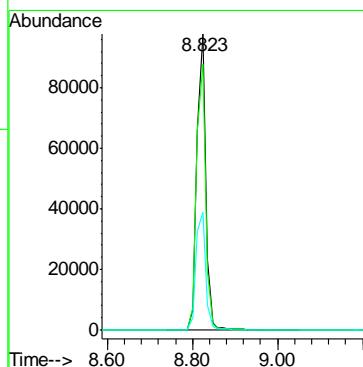
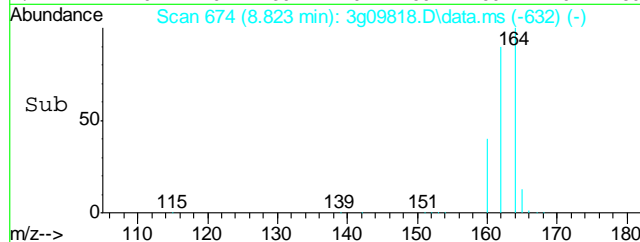
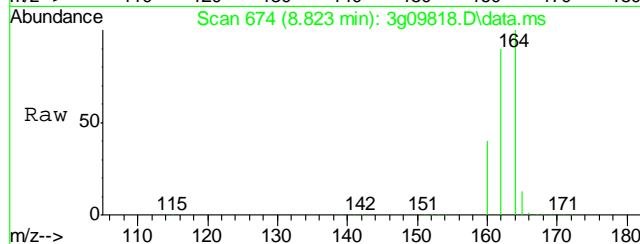
Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

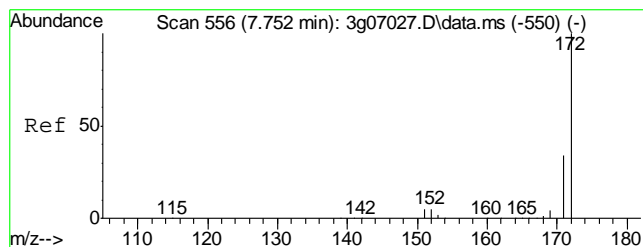
Tgt Ion: 128
Sig Exp Ratio
128 100
129 10.9
127 12.4
126 7.7



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 8.823 min Scan# 674
Delta R.T. 0.000 min
Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

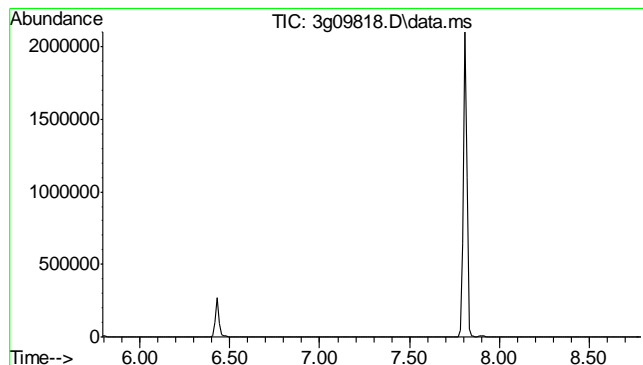
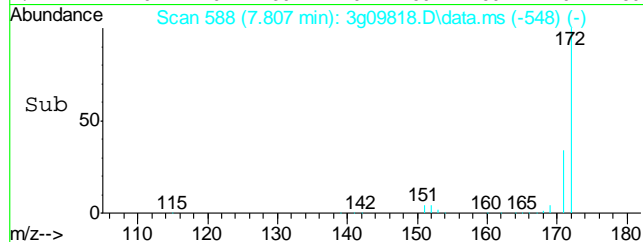
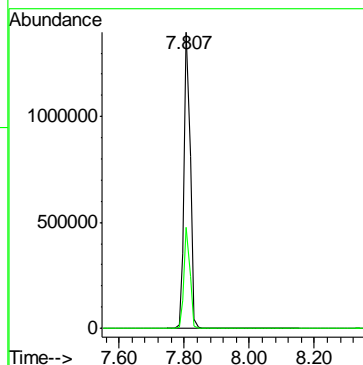
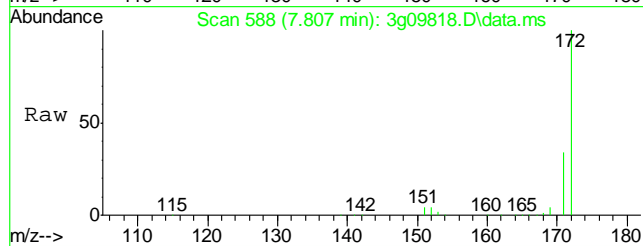
Tgt Ion: 164 Resp: 141681
Ion Ratio Lower Upper
164 100
162 93.3 72.5 112.5
160 43.2 20.9 60.9





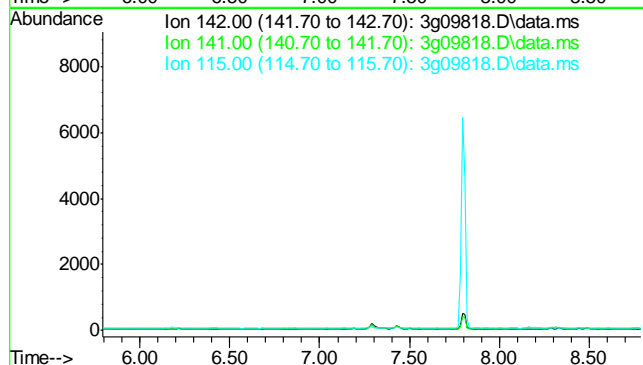
#7
2-Fluorobiphenyl
Concen: 39.7966 ug/mL
RT: 7.807 min Scan# 588
Delta R.T. -0.012 min
Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

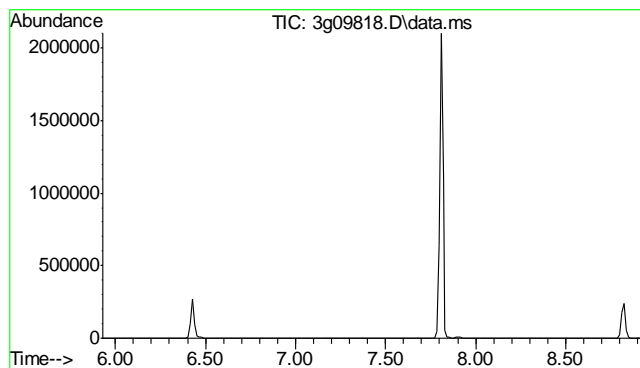
Tgt Ion: 172 Resp: 1871755
Ion Ratio Lower Upper
172 100
171 33.2 13.2 53.2



#8
2-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.29 min
Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

Tgt Ion: 142
Sig Exp Ratio
142 100
141 83.1
115 34.8

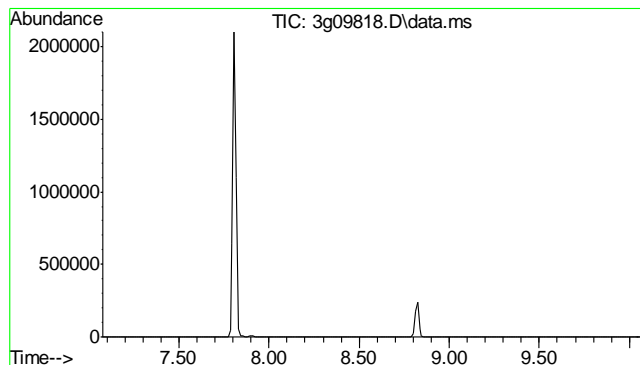
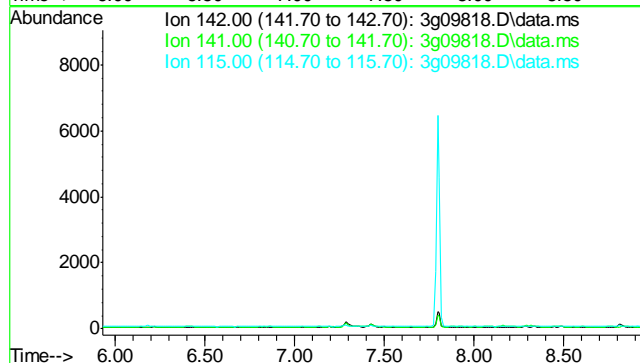




#9
1-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.43 min

Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

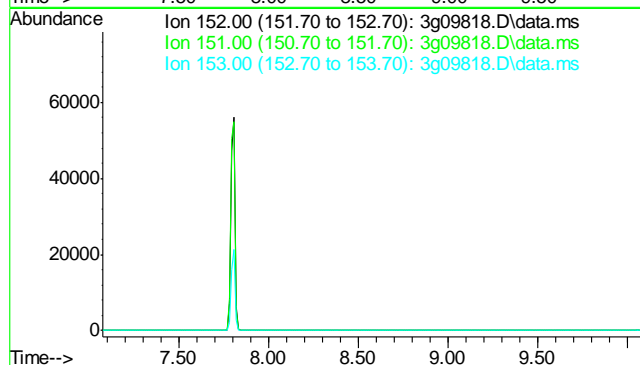
Tgt Ion:	142
Sig	Exp Ratio
142	100
141	86.4
115	36.1

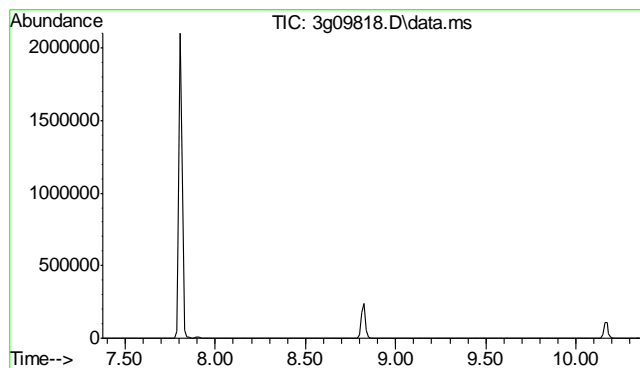


#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.58 min

Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

Tgt Ion:	152
Sig	Exp Ratio
152	100
151	19.1
153	14.1

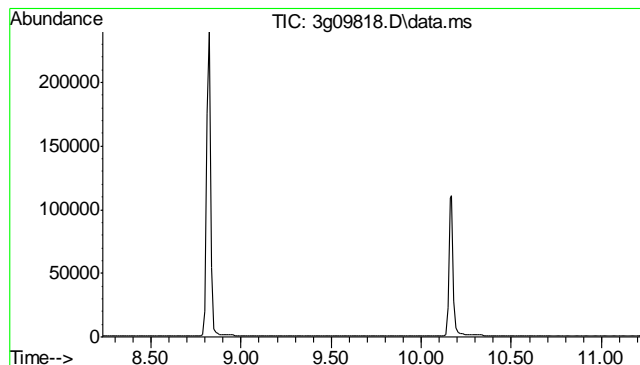
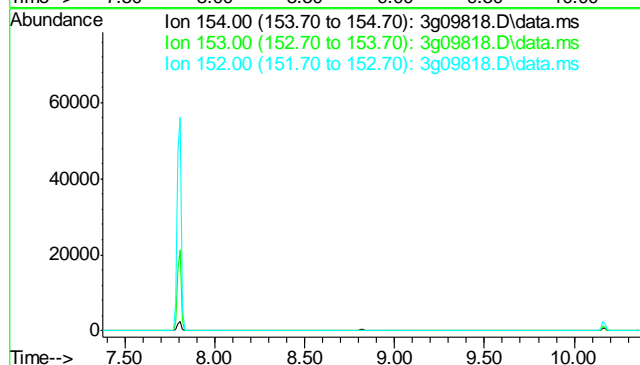




#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 8.87 min

Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

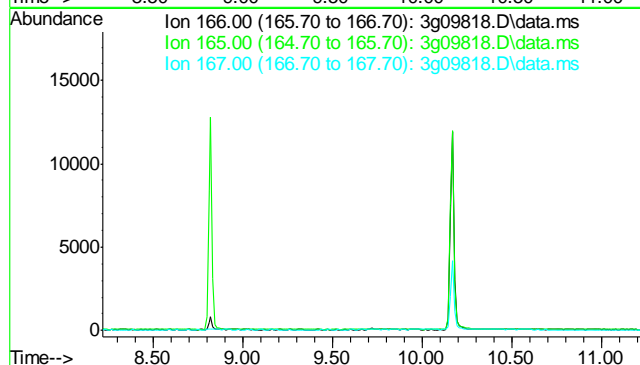
Tgt Ion: 154
Sig Exp Ratio
154 100
153 104.2
152 45.3

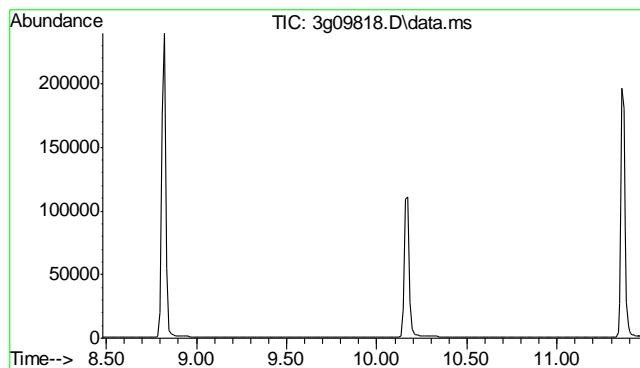


#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 9.72 min

Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

Tgt Ion: 166
Sig Exp Ratio
166 100
165 90.8
167 13.3

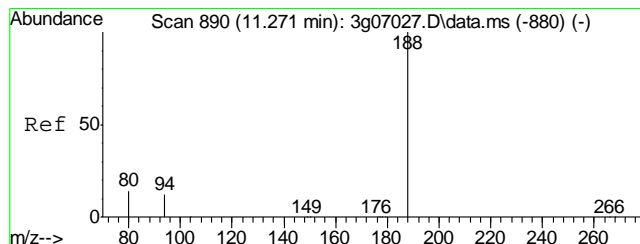
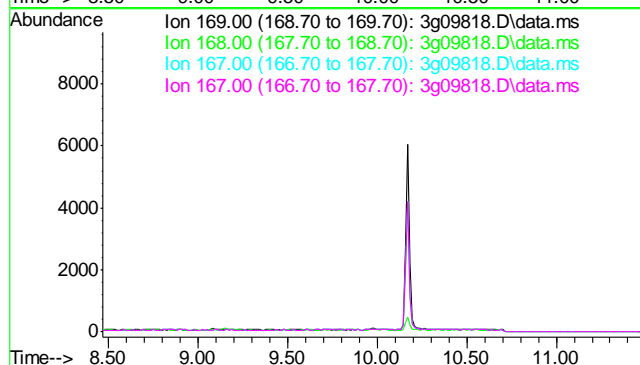




#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 9.97 min

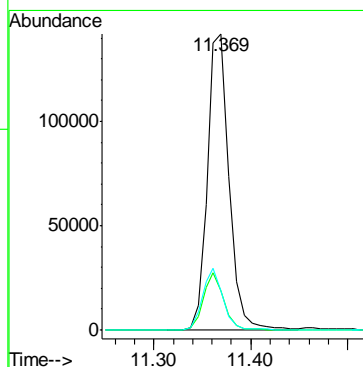
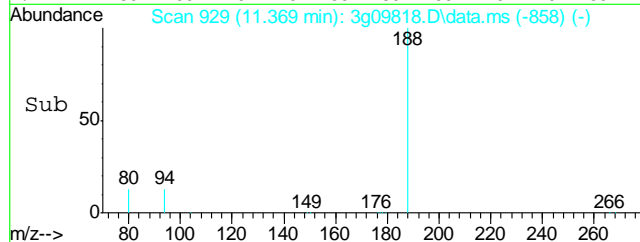
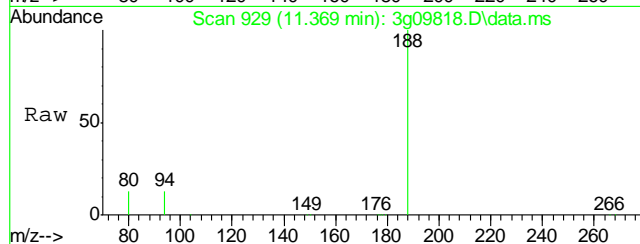
Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

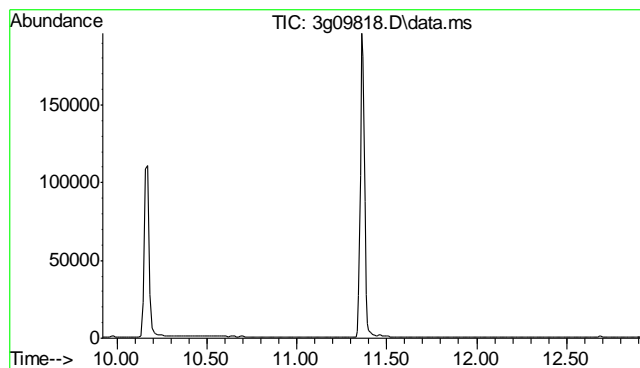
Tgt Ion: 169
Sig Exp Ratio
169 100
168 62.1
167 33.2
167 33.2



#14
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 11.369 min Scan# 929
Delta R.T. 0.000 min
Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

Tgt Ion: 188 Resp: 221405
Ion Ratio Lower Upper
188 100
94 18.2 0.0 37.2
80 20.0 0.0 38.3

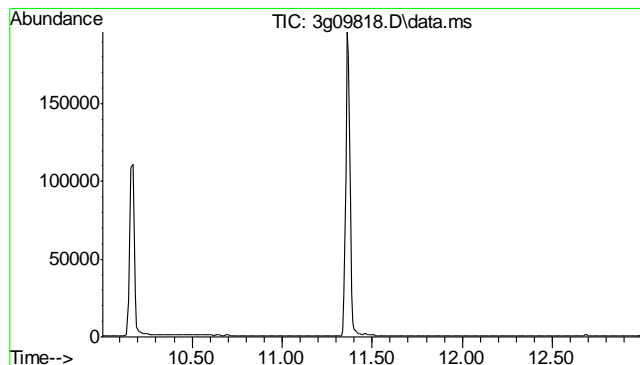
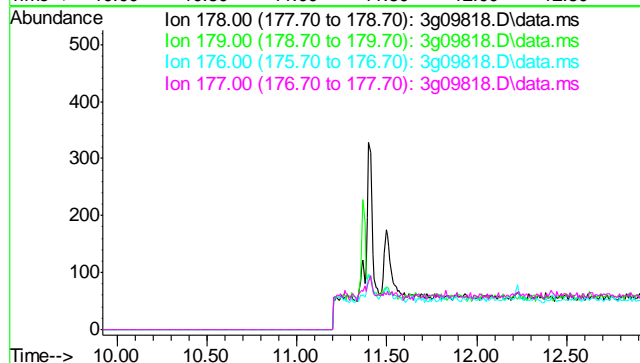




#15
Phenanthrene
Concen: N.D. ug/mL
Expected RT: 11.42 min

Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

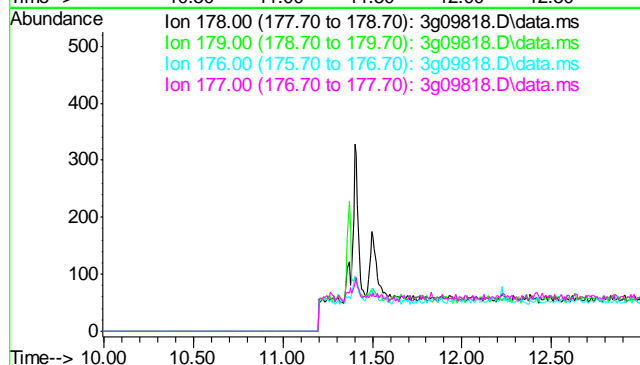
Tgt Ion: 178
Sig Exp Ratio
178 100
179 15.1
176 18.6
177 10.4

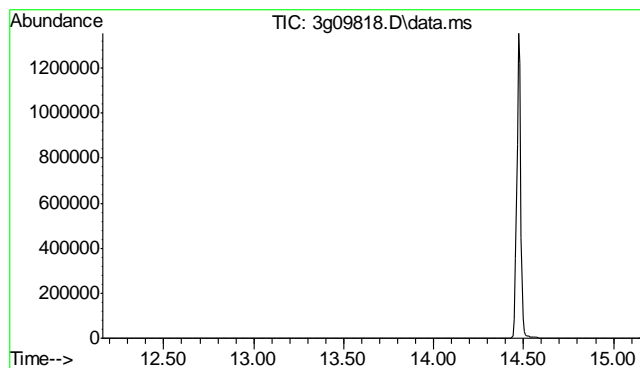


#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.50 min

Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

Tgt Ion: 178
Sig Exp Ratio
178 100
179 15.0
176 17.9
177 8.9

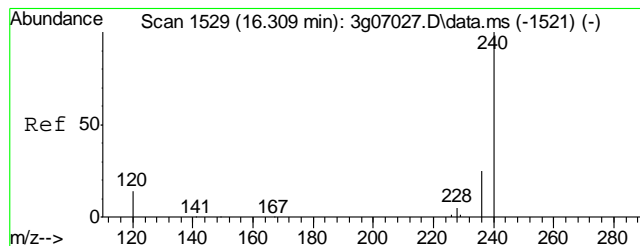
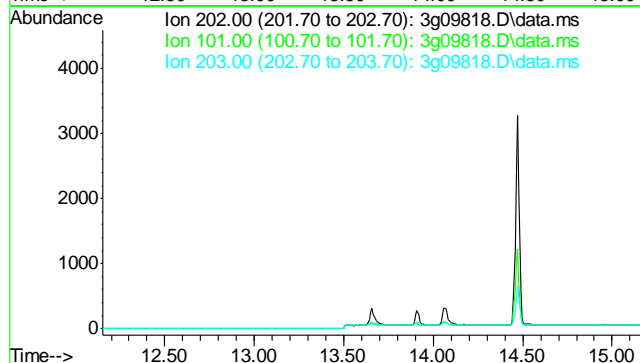




#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 13.66 min

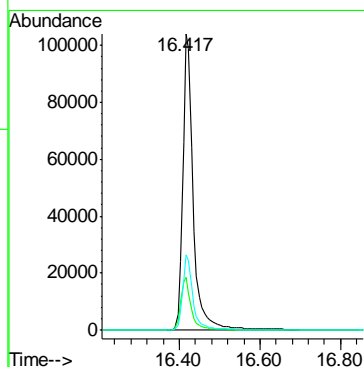
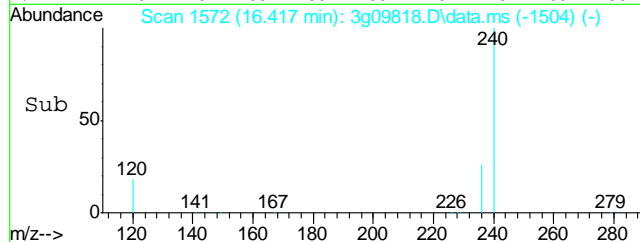
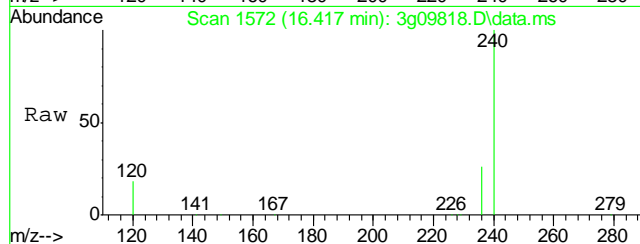
Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

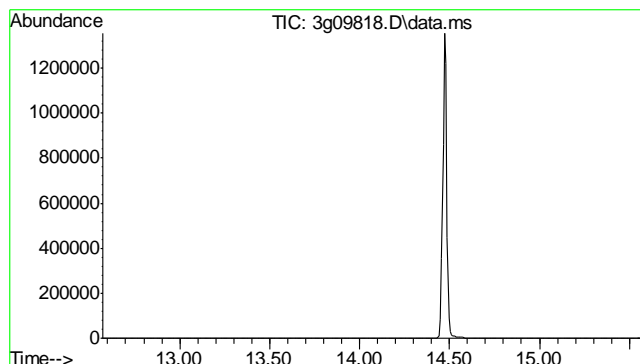
Tgt Ion: 202
Sig Exp Ratio
202 100
101 17.6
203 17.1



#18
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 16.417 min Scan# 1572
Delta R.T. -0.006 min
Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

Tgt Ion: 240 Resp: 186931
Ion Ratio Lower Upper
240 100
120 17.4 0.0 37.2
236 25.3 5.2 45.2

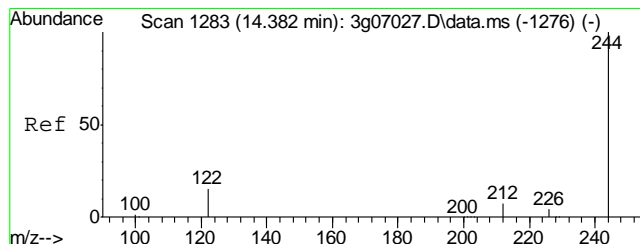
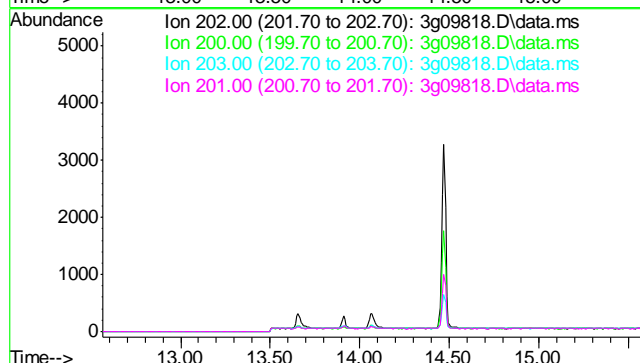




#19
Pyrene
Concen: N.D. ug/mL
Expected RT: 14.07 min

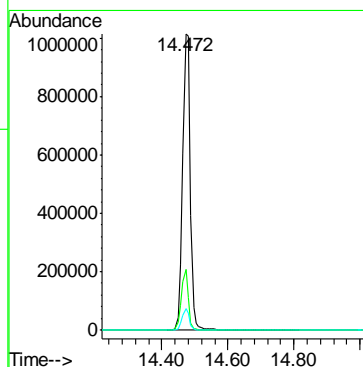
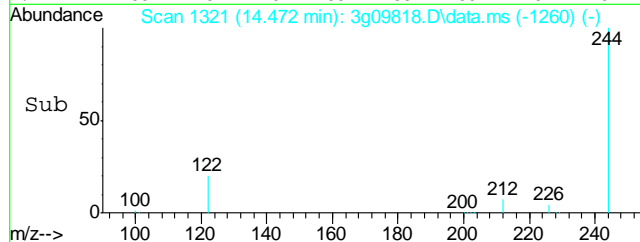
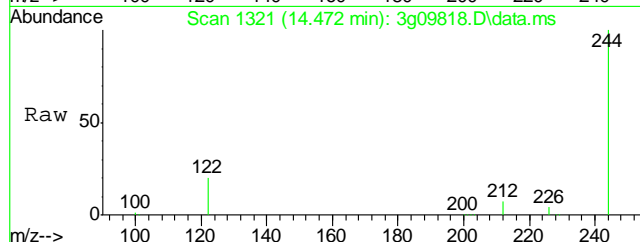
Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

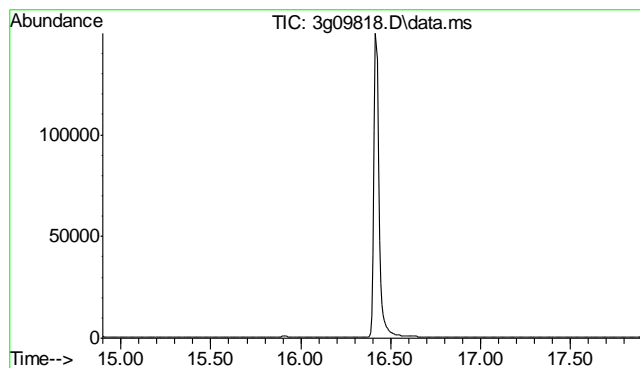
Tgt Ion:	202
Sig	Exp Ratio
202	100
200	20.4
203	17.9
201	16.8



#20
Terphenyl-d14
Concen: 48.3007 ug/mL
RT: 14.472 min Scan# 1321
Delta R.T. -0.016 min
Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

Tgt Ion:	244	Resp:	1636911
Ion	Ratio	Lower	Upper
244	100		
122	18.6	0.0	38.8
212	6.8	0.0	26.9

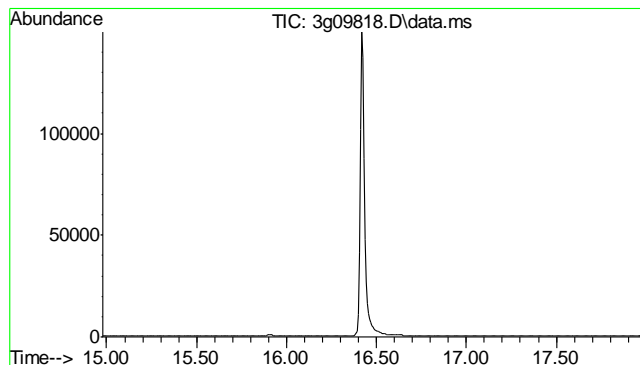
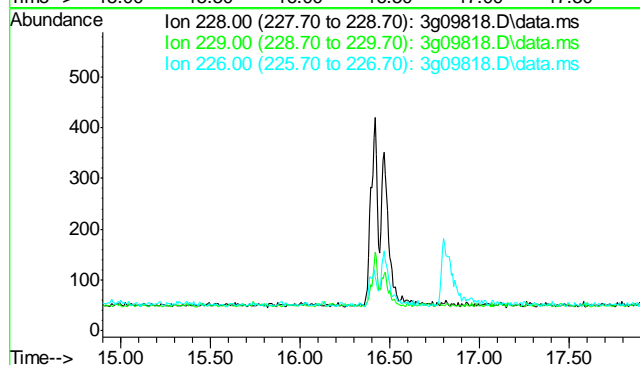




#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.40 min

Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

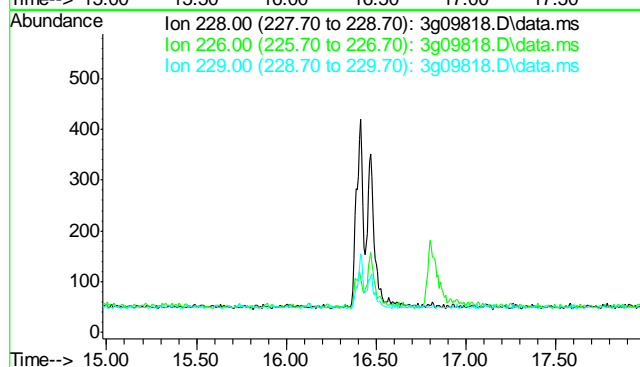
Tgt Ion:	228
Sig	Exp Ratio
228	100
229	19.4
226	26.4

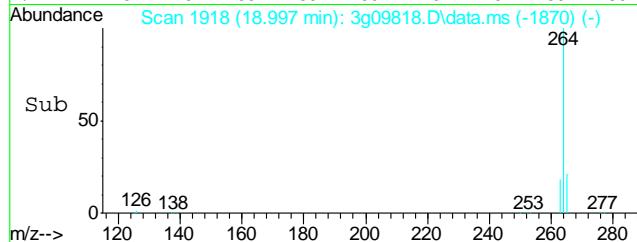
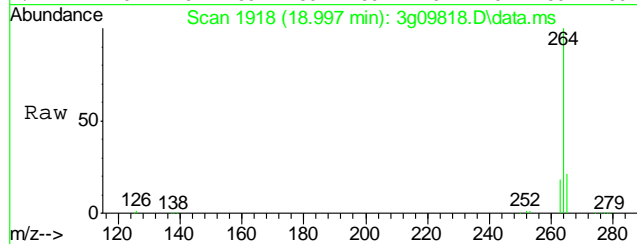
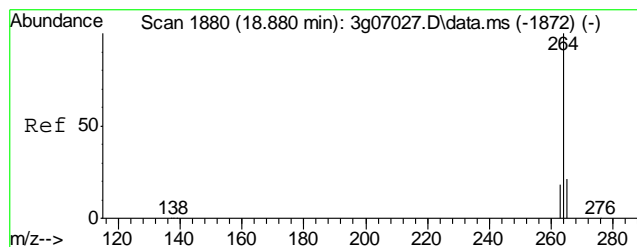


#22
Chrysene
Concen: N.D. ug/mL
Expected RT: 16.48 min

Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

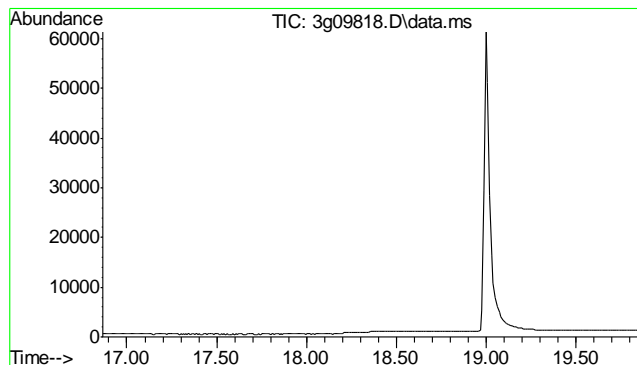
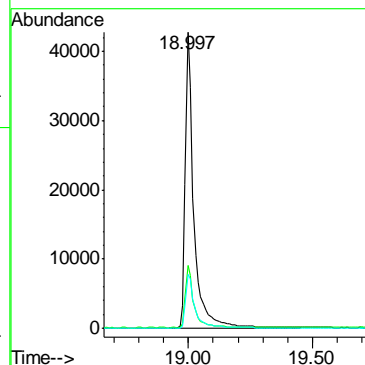
Tgt Ion:	228
Sig	Exp Ratio
228	100
226	28.9
229	19.3





#23
Perylene-d12
Concen: 4.0000 ug/mL
RT: 18.997 min Scan# 1918
Delta R.T. 0.000 min
Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

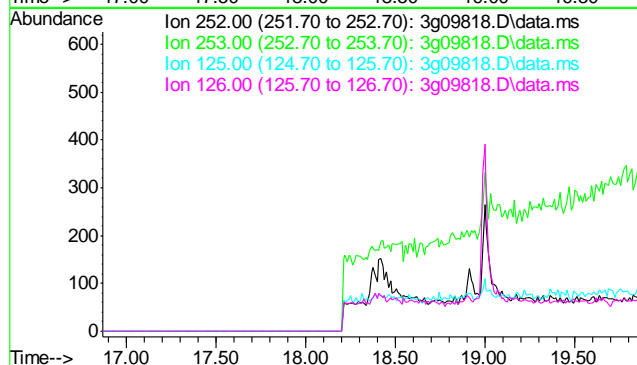
Tgt Ion:	264	Resp:	102831
Ion Ratio	Lower	Upper	
264	100		
265	20.6	1.1	41.1
263	19.4	0.0	38.6

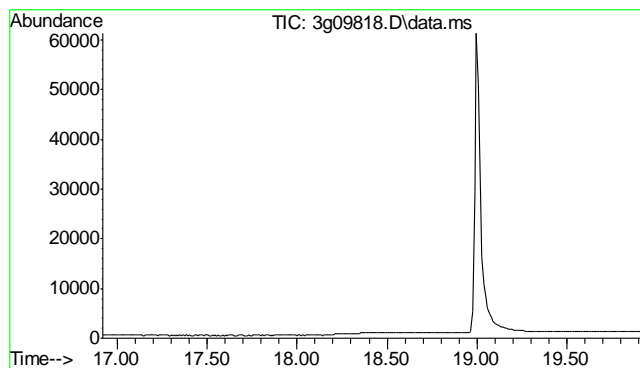


#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.37 min

Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.3
125	14.7
126	20.4

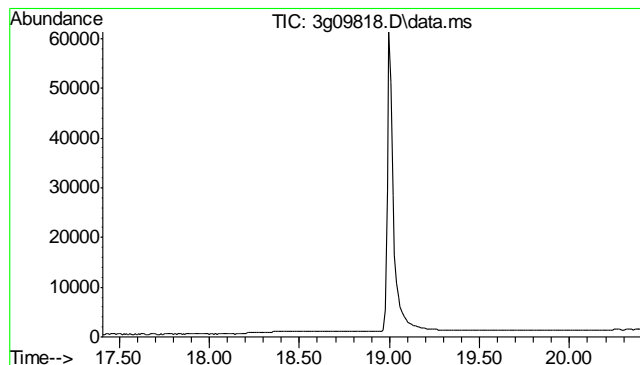
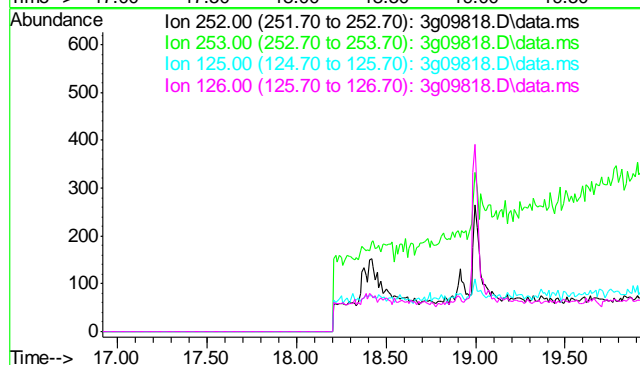




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.42 min

Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

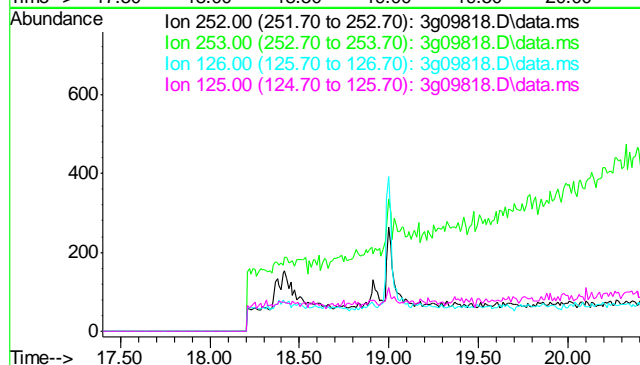
Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.8
125	12.9
126	20.1

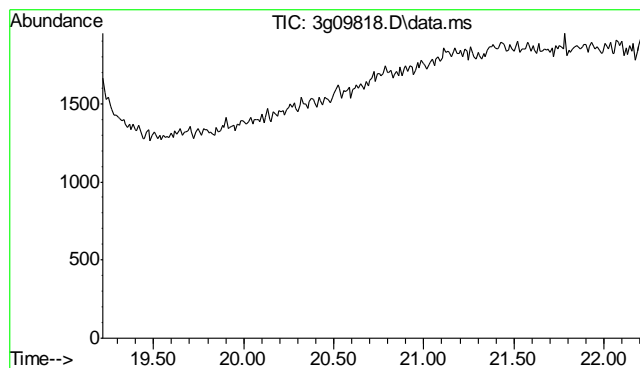


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 18.90 min

Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.6
126	19.7
125	14.8

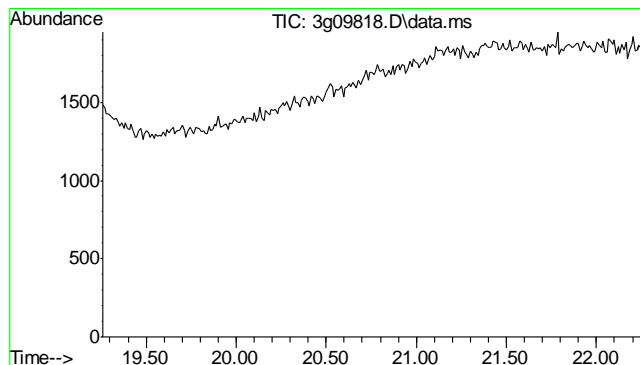
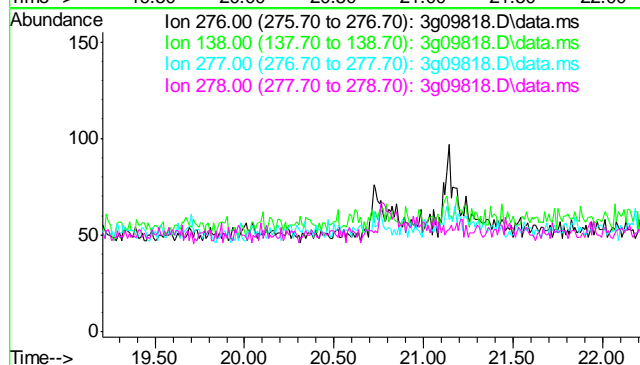




#27
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 20.71 min

Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

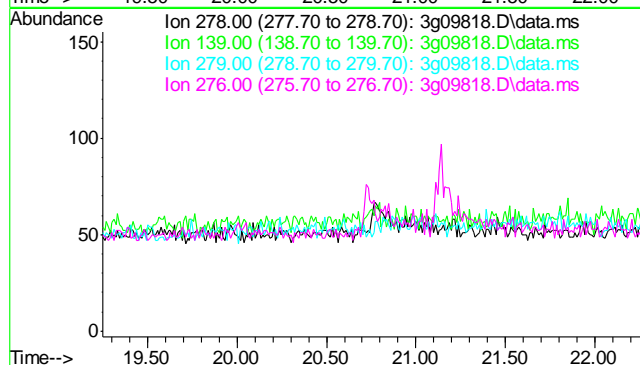
Tgt Ion:	276
Sig	Exp Ratio
276	100
138	31.5
277	25.0
278	81.3

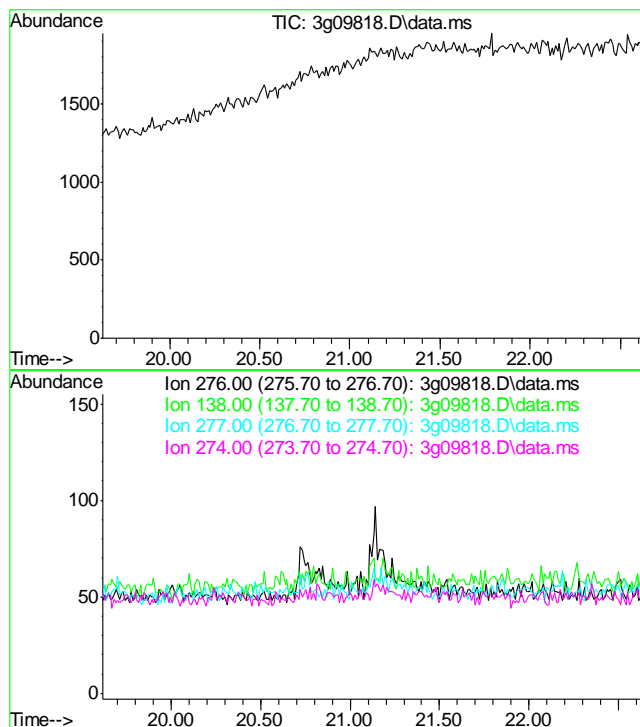


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 20.75 min

Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

Tgt Ion:	278
Sig	Exp Ratio
278	100
139	21.3
279	23.4
276	123.0





#29
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 21.12 min

Lab File: 3g09818.D
Acq: 22 Jun 12 4:19 pm

Tgt Ion: 276
Sig Exp Ratio
276 100
138 27.1
277 23.7
274 21.6

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: D35708
Account: XTOKRWR XTO Energy
Project: FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB910-MB	GB16414.D	1	06/21/12	SK	n/a	n/a	GGB910

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

D35708-1

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	100% 60-140%

9.1.1
9

Blank Spike Summary

Page 1 of 1

Job Number: D35708
Account: XTOKRWR XTO Energy
Project: FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB910-BS	GB16415.D	1	06/21/12	SK	n/a	n/a	GGB910

The QC reported here applies to the following samples:

Method: SW846 8015B

D35708-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	111	101	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	113%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D35708
Account: XTOKRWR XTO Energy
Project: FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D35708-1MS	GB16417.D	1	06/21/12	SK	n/a	n/a	GGB910
D35708-1MSD	GB16418.D	1	06/21/12	SK	n/a	n/a	GGB910
D35708-1	GB16416.D	1	06/21/12	SK	n/a	n/a	GGB910

The QC reported here applies to the following samples:

Method: SW846 8015B

D35708-1

CAS No.	Compound	D35708-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		121	125	103	124	102	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D35708-1	Limits
120-82-1	1,2,4-Trichlorobenzene	106%	105%	98%	60-140%

* = Outside of Control Limits.

GC Volatiles

Raw Data

Judy Melson
06/22/12 09:43

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\062112\GB16416.D\FID1A.CH Vial: 5
 Signal #2 : Y:\1\DATA\062112\GB16416.D\FID2B.CH
 Acq On : 21 Jun 2012 4:43 pm Operator: StephK
 Sample : D35708-1, 50X Inst : GC/MS Ins
 Misc : GC2928,GGB910,5.025,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Jun 22 08:08:54 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Jun 21 15:17:12 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	3084250	98.431 %	m
10) S 1,2,4-Trichlorobenzene (P)	14.35	17727140	109.072 %	
Target Compounds				
1) H TVH-Gasoline	7.23	6156282	<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	7.62	305540	0.771	ug/L
7) T Ethylbenzene	10.26	115411	0.341	ug/L
8) T m,p-Xylene	10.44	509975	1.024	ug/L
9) T o-Xylene	10.95	83938	0.256	ug/L
11) T Naphthalene	14.54	1606511	8.142	ug/L

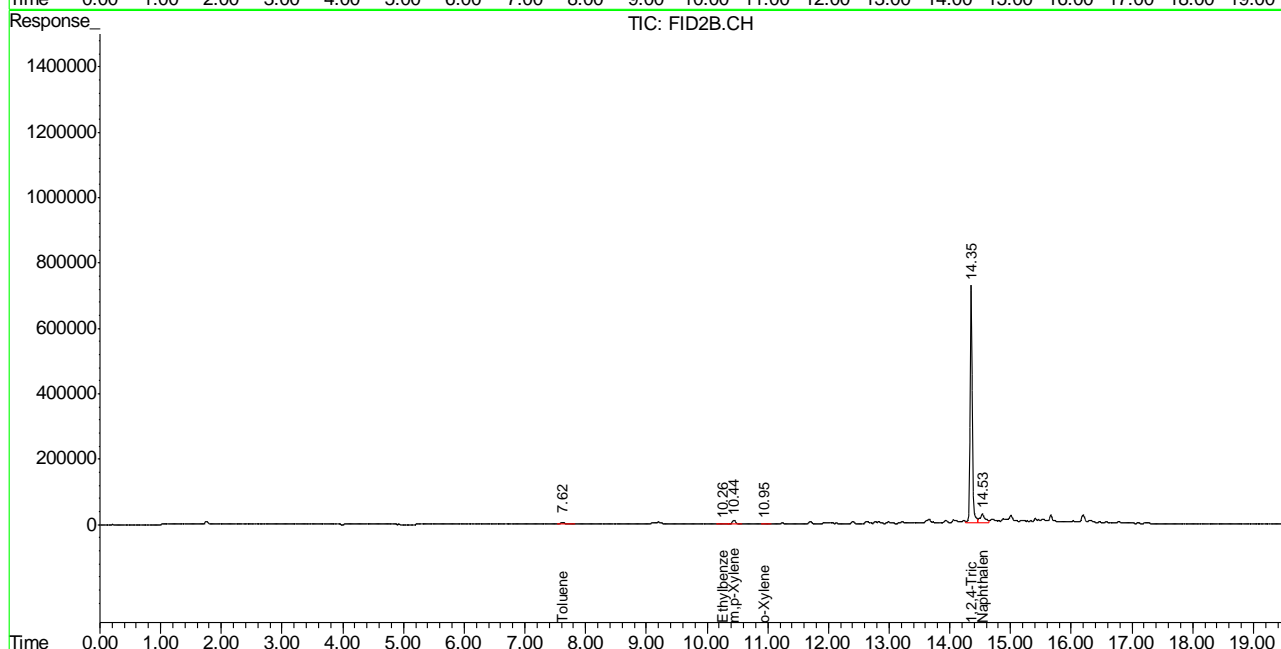
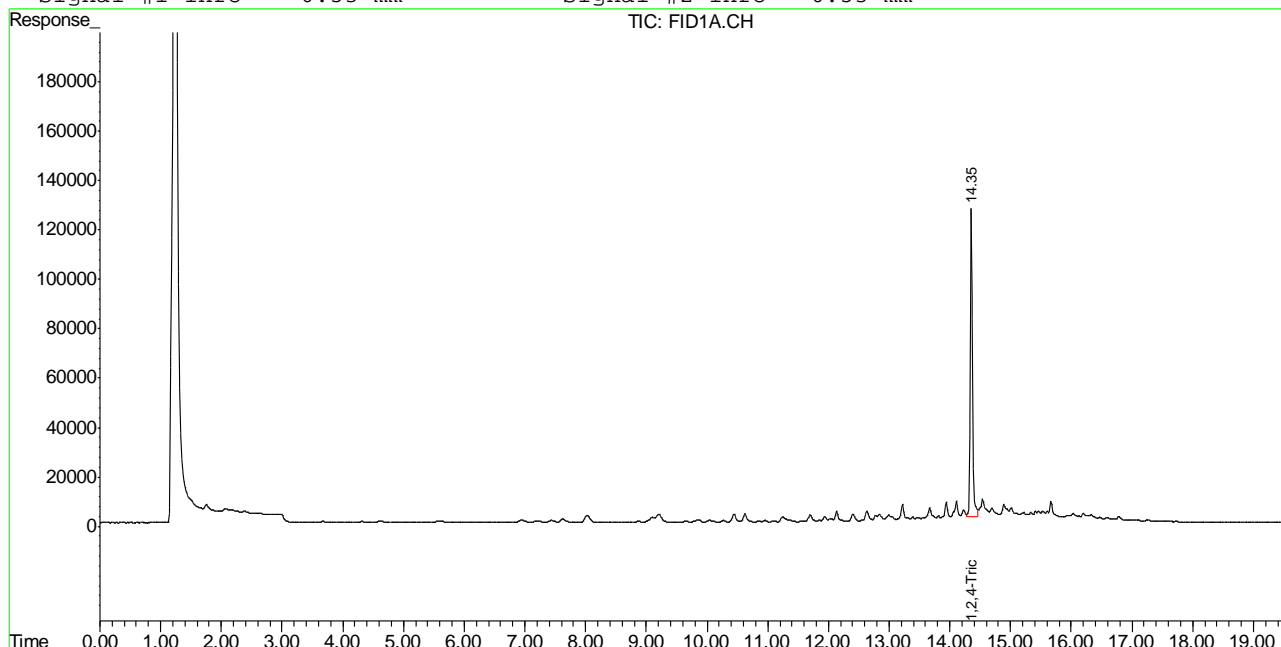
(f)=RT Delta > 1/2 Window (m)=manual int.
 GB16416.D TB868GB868SOIL.M Fri Jun 22 08:12:46 2012 GC

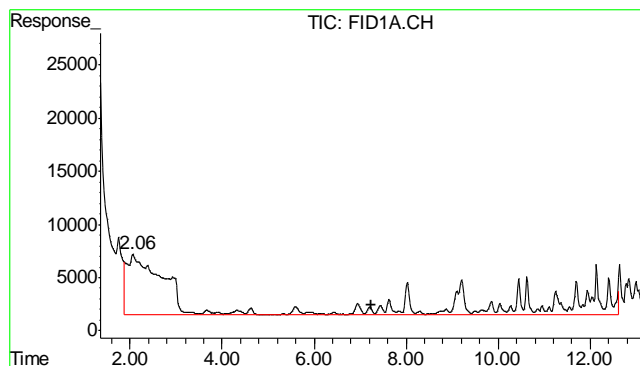
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\062112\GB16416.D\FID1A.CH Vial: 5
 Signal #2 : Y:\1\DATA\062112\GB16416.D\FID2B.CH
 Acq On : 21 Jun 2012 4:43 pm Operator: StephK
 Sample : D35708-1, 50X Inst : GC/MS Ins
 Misc : GC2928,GGB910,5.025,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Jun 22 7:12 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Jun 21 15:17:12 2012
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

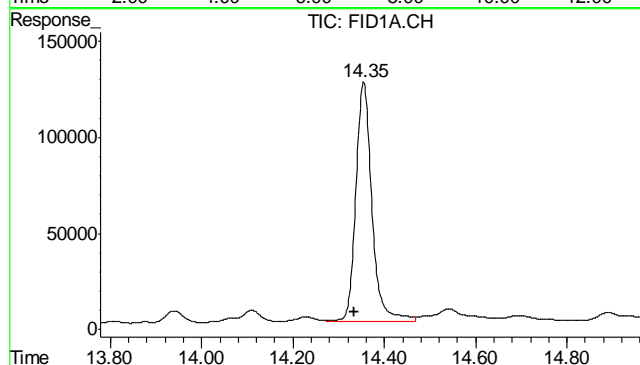
Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





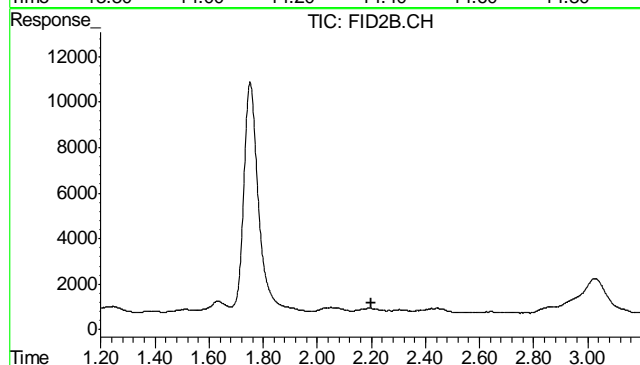
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 6156282
Conc: N.D.



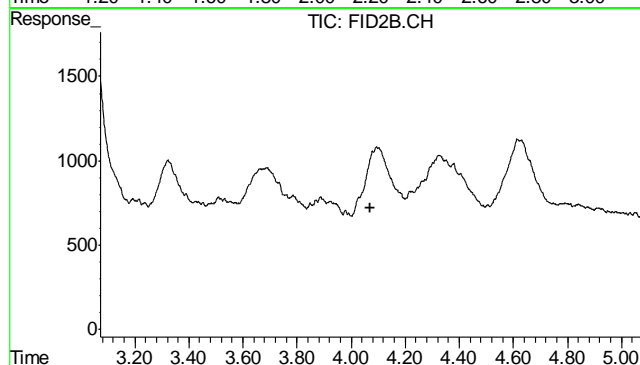
#2 1,2,4-Trichlorobenzene

R.T.: 14.354 min
Delta R.T.: 0.020 min
Response: 3084250
Conc: 98.43 % m



#4 Methyl-t-butyl-ether

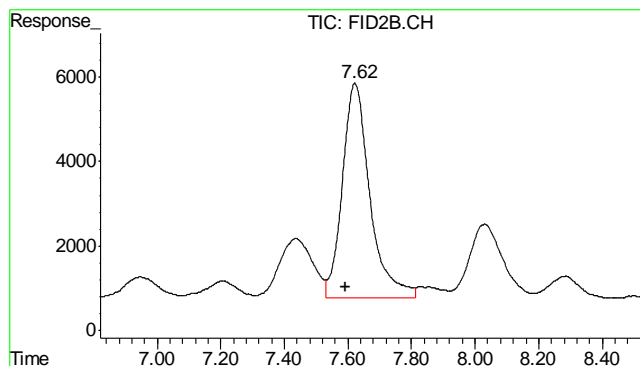
R.T.: 0.000 min
Exp R.T.: 2.198 min
Response: 0
Conc: N.D.



#5 Benzene

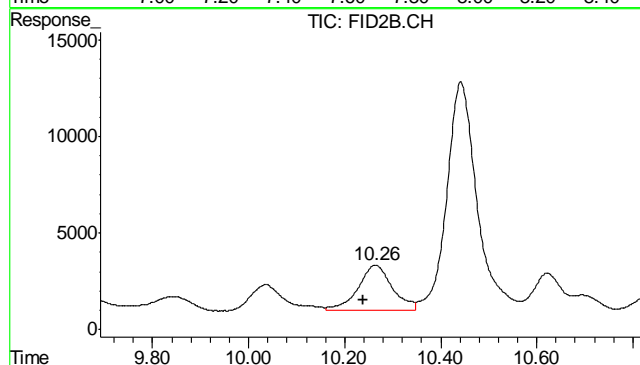
R.T.: 0.000 min
Exp R.T.: 4.072 min
Response: 0
Conc: N.D.

10.1.1
10



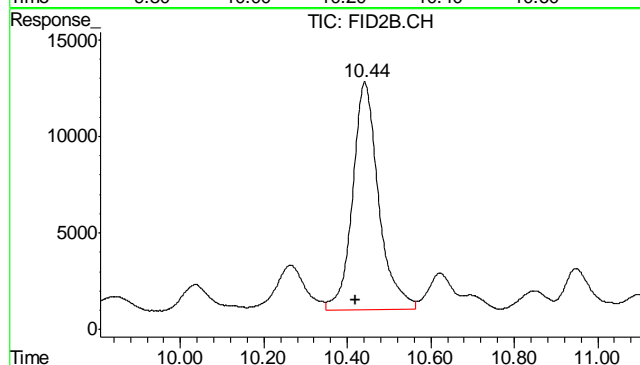
#6 Toluene

R.T.: 7.622 min
Delta R.T.: 0.028 min
Response: 305540
Conc: 0.77 ug/L



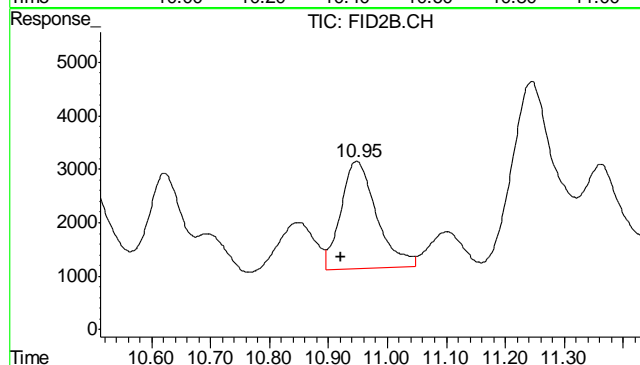
#7 Ethylbenzene

R.T.: 10.264 min
Delta R.T.: 0.026 min
Response: 115411
Conc: 0.34 ug/L



#8 m,p-Xylene

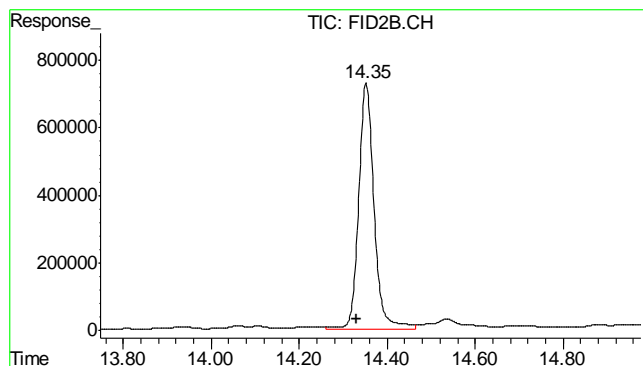
R.T.: 10.442 min
Delta R.T.: 0.021 min
Response: 509975
Conc: 1.02 ug/L



#9 o-Xylene

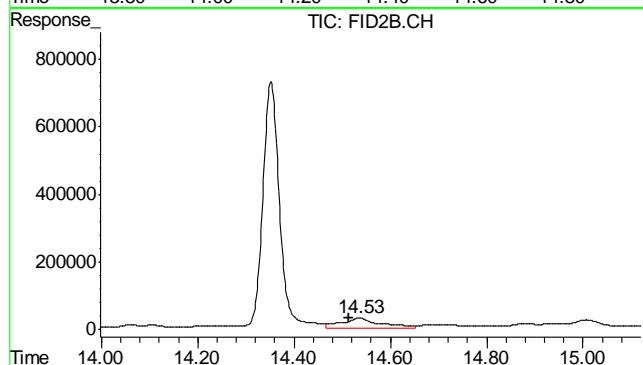
R.T.: 10.948 min
Delta R.T.: 0.026 min
Response: 83938
Conc: 0.26 ug/L

10.1.1
10



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

R.T.: 14.352 min
Delta R.T.: 0.021 min
Response: 17727140
Conc: 109.07 %



#11 Naphthalene

R.T.: 14.535 min
Delta R.T.: 0.022 min
Response: 1606511
Conc: 8.14 ug/L

10.1.1
10

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\062112\GB16414.D\FID1A.CH Vial: 3
 Signal #2 : Y:\1\DATA\062112\GB16414.D\FID2B.CH
 Acq On : 21 Jun 2012 3:32 pm Operator: StephK
 Sample : MB Inst : GC/MS Ins
 Misc : GC2928,GGB910,5.000,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Jun 21 15:56:52 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Jun 21 15:17:12 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	3123776	99.693	%
10) S	1,2,4-Trichlorobenzene (P)	14.35	17660046	108.659	%
Target Compounds					
1) H	TVH-Gasoline	7.23	4200171	<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	7.62	142182	0.359	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	0.00	0	N.D.	ug/L d
9) T	o-Xylene	0.00	0	N.D.	ug/L d
11) T	Naphthalene	14.52	245477	1.244	ug/L

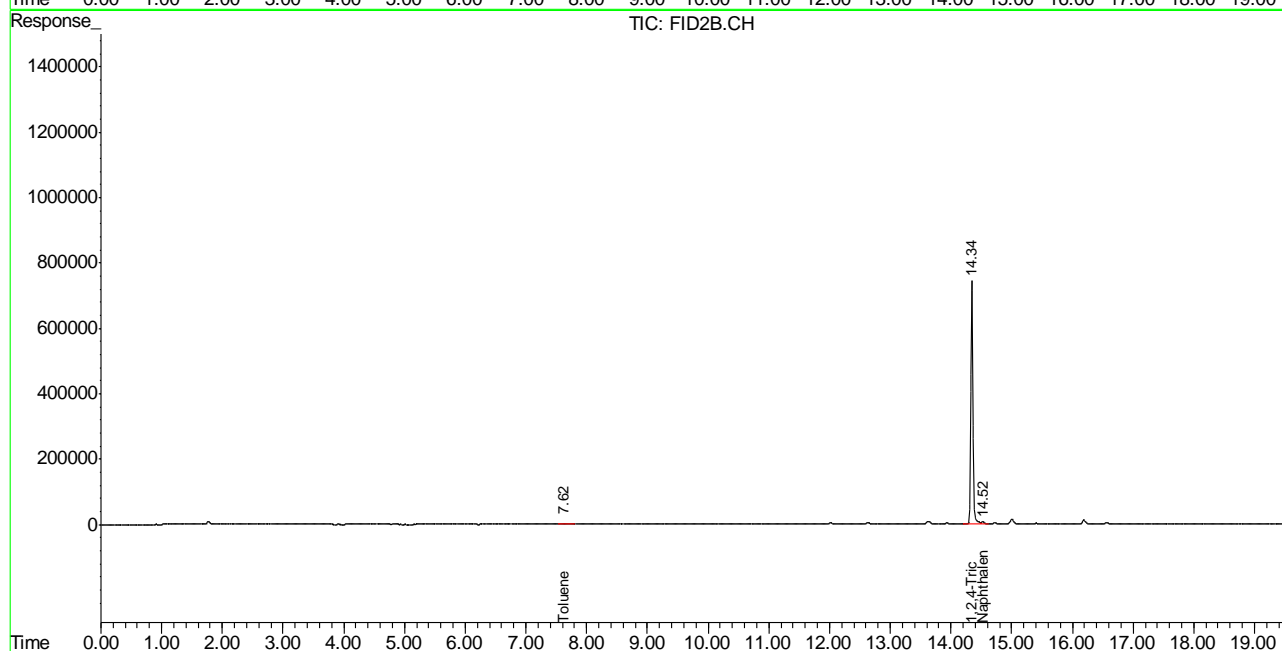
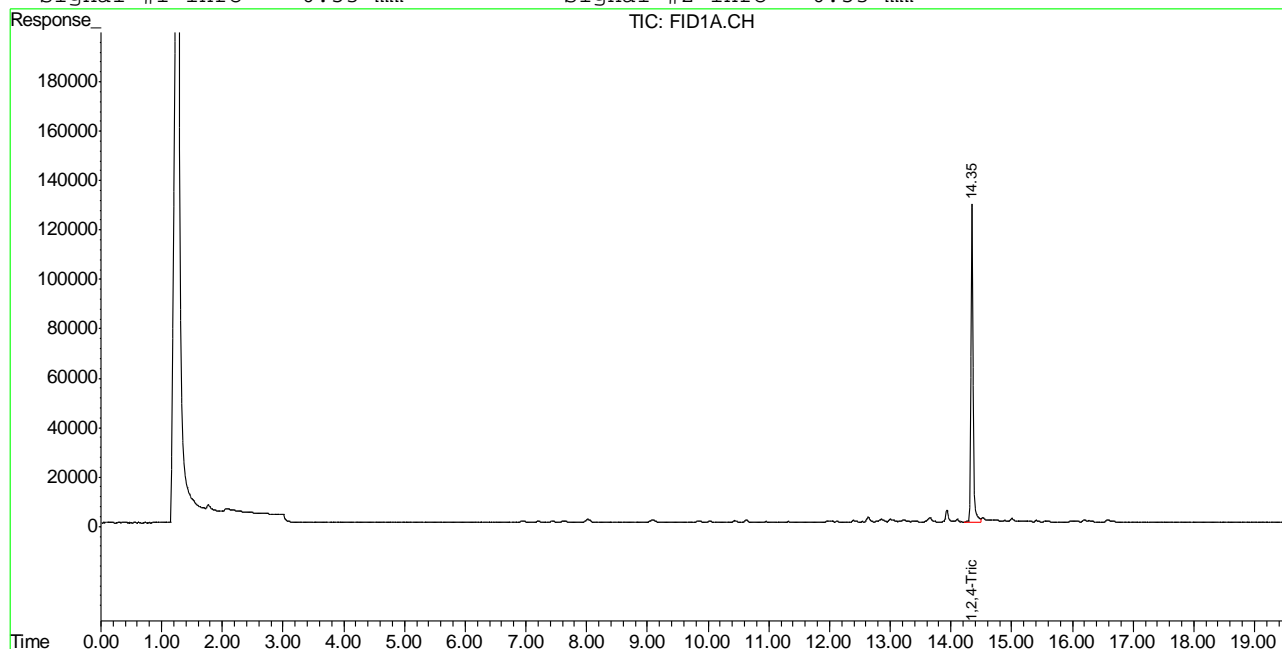
 (f)=RT Delta > 1/2 Window (m)=manual int.
 GB16414.D TB868GB868SOIL.M Fri Jun 22 08:12:40 2012 GC

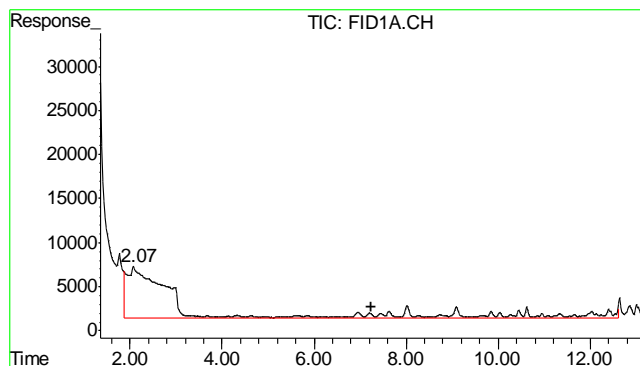
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\062112\GB16414.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\062112\GB16414.D\FID2B.CH
Acq On : 21 Jun 2012 3:32 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC2928,GGB910,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jun 21 14:59 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Jun 21 15:17:12 2012
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

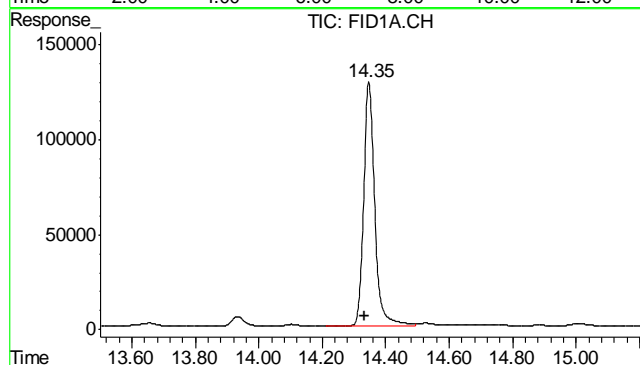
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





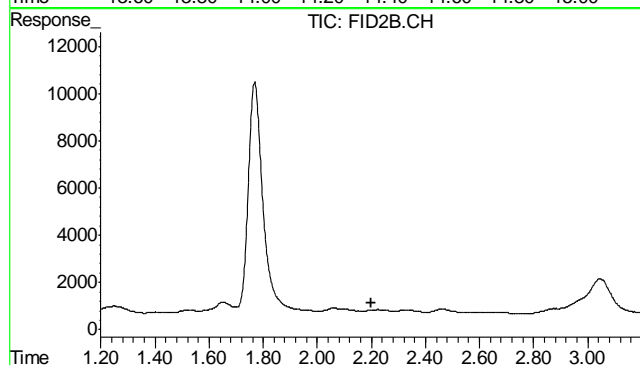
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 4200171
Conc: N.D.



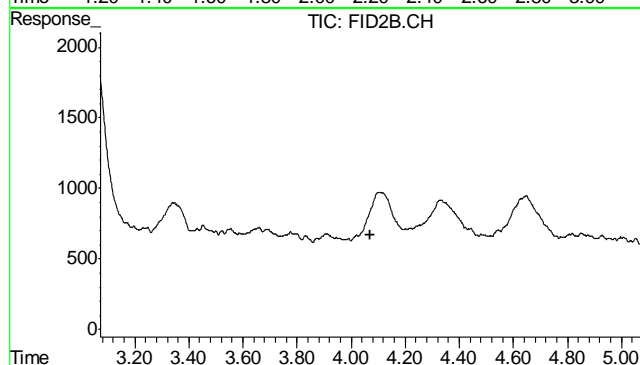
#2 1,2,4-Trichlorobenzene

R.T.: 14.347 min
Delta R.T.: 0.013 min
Response: 3123776
Conc: 99.69 %



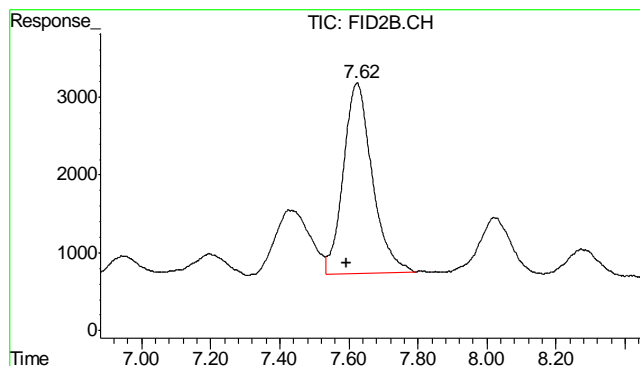
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T.: 2.198 min
Response: 0
Conc: N.D.



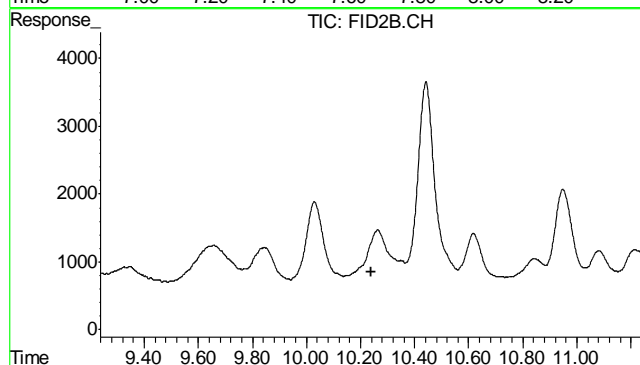
#5 Benzene

R.T.: 0.000 min
Exp R.T.: 4.072 min
Response: 0
Conc: N.D.



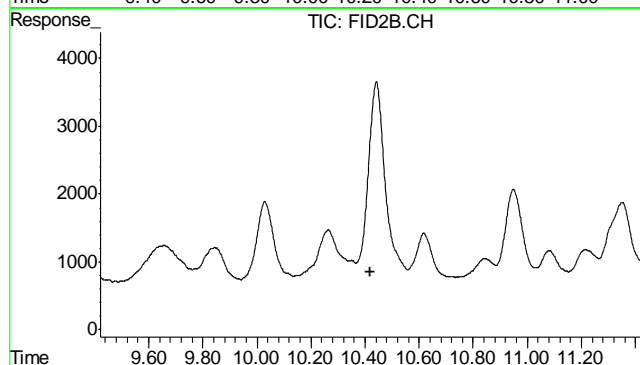
#6 Toluene

R.T.: 7.624 min
Delta R.T.: 0.030 min
Response: 142182
Conc: 0.36 ug/L



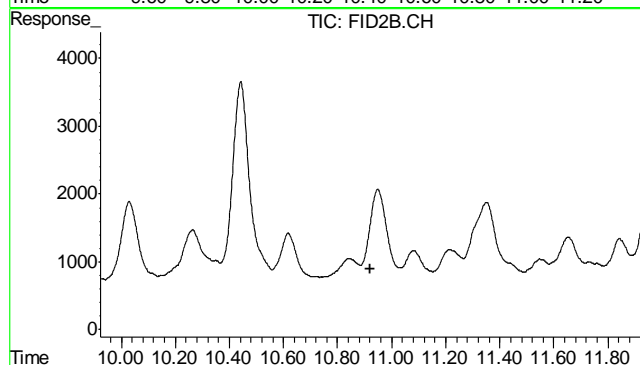
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T.: 10.238 min
Response: 0
Conc: N.D.



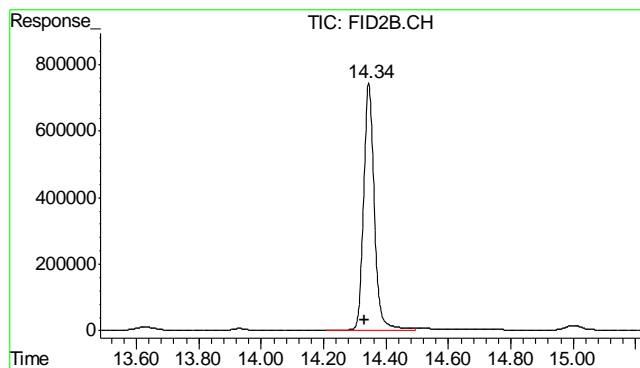
#8 m,p-Xylene

R.T.: 0.000 min
Exp R.T.: 10.421 min
Response: 0
Conc: N.D.



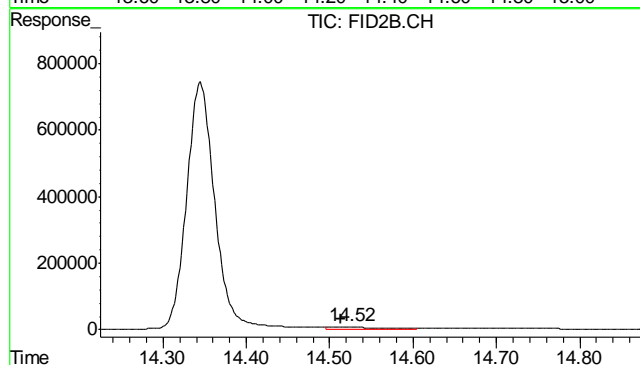
#9 o-Xylene

R.T.: 0.000 min
Exp R.T.: 10.922 min
Response: 0
Conc: N.D.



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

R.T.: 14.345 min
Delta R.T.: 0.013 min
Response: 17660046
Conc: 108.66 %



#11 Naphthalene

R.T.: 14.524 min
Delta R.T.: 0.011 min
Response: 245477
Conc: 1.24 ug/L

10.2.1
10

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

Page 1 of 1

Job Number: D35708
Account: XTOKRWR XTO Energy
Project: FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6112-MB	FD14698.D	1	06/23/12	AW	06/22/12	OP6112	GFD764

The QC reported here applies to the following samples:

Method: SW846-8015B

D35708-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	13	8.7	mg/kg	

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

Blank Spike Summary

Page 1 of 1

Job Number: D35708
Account: XTOKRWR XTO Energy
Project: FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6112-BS	FD14700.D	1	06/23/12	AW	06/22/12	OP6112	GFD764

The QC reported here applies to the following samples:

Method: SW846-8015B

D35708-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	500	75	58-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	89%	43-136%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D35708
Account: XTOKRWR XTO Energy
Project: FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6112-MS	FD14702.D	1	06/23/12	AW	06/22/12	OP6112	GFD764
OP6112-MSD	FD14704.D	1	06/23/12	AW	06/22/12	OP6112	GFD764
D35708-1	FD14706.D	1	06/23/12	AW	06/22/12	OP6112	GFD764

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

D35708-1

CAS No.	Compound	D35708-1 mg/kg	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	107	702	513	58	496	56	3	20-183/43

CAS No.	Surrogate Recoveries	MS	MSD	D35708-1	Limits
84-15-1	o-Terphenyl	77%	90%	96%	43-136%

* = Outside of Control Limits.

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\JUNE\FD062312.SEC\FD14706.D Vial: 5
Acq On : 6-23-2012 02:15:47 PM Operator: alexwl
Sample : D35708-1 Inst : FID5
Misc : OP6112,GFD764,30.01,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Jun 25 09:36:17 2012 Quant Results File: DRO-GFD743R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD743R.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Jun 12 11:16:41 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	9.62	41511584	956.128 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	7.40	63411334	1527.046 mg/L

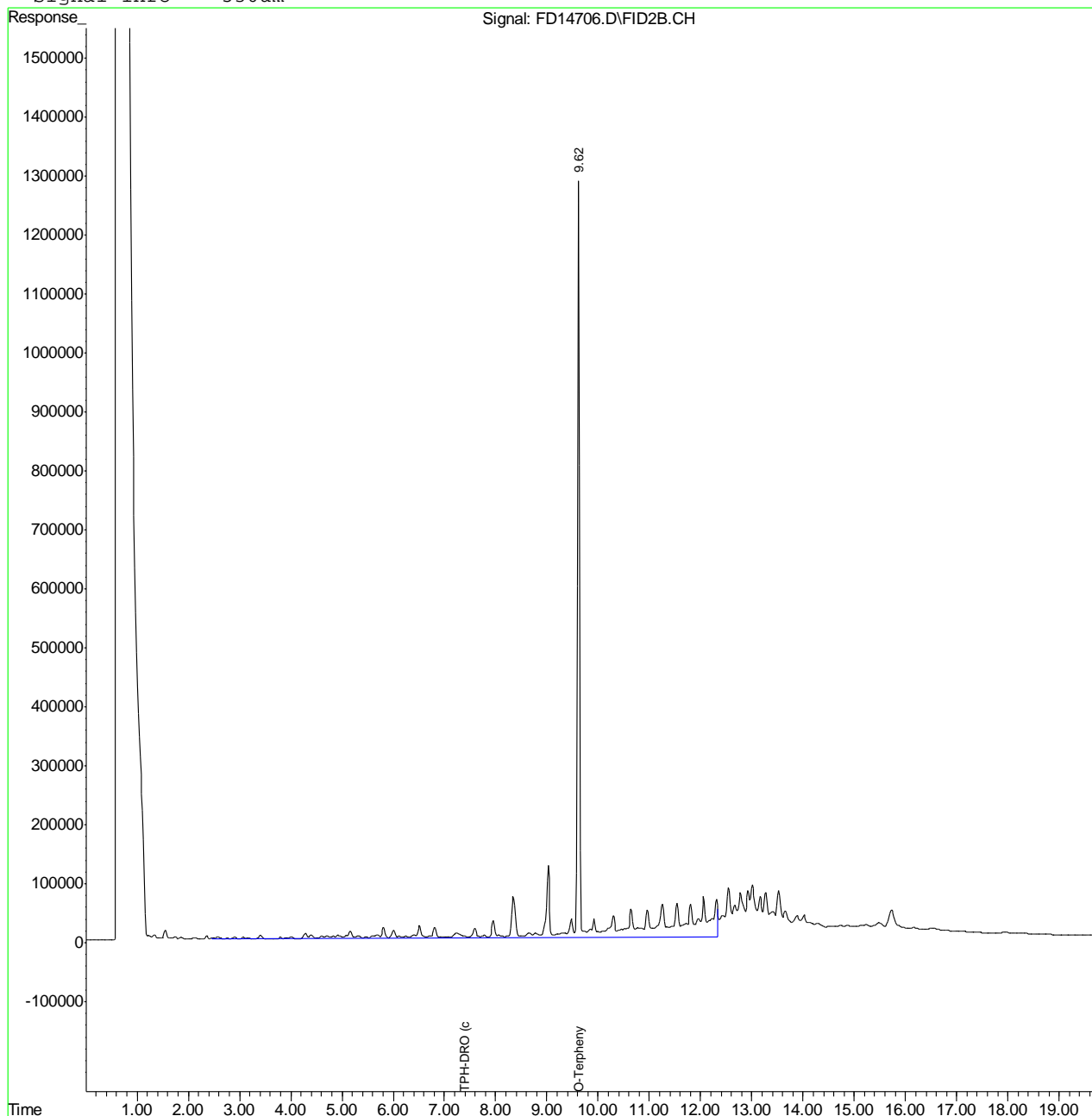
12.1.1
12

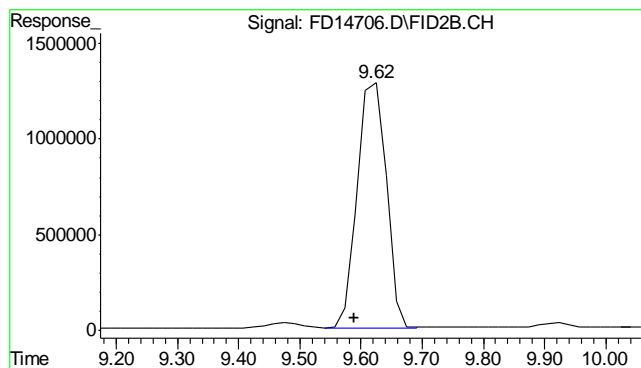
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\JUNE\FD062312.SEC\FD14706.D Vial: 57
 Acq On : 6-23-2012 02:15:47 PM Operator: alexwl
 Sample : D35708-1 Inst : FID5
 Misc : OP6112,GFD764,30.01,,,2,1 Multiplr: 1.00
 IntFile : autoint1.e
 Quant Time: Jun 25 9:36 2012 Quant Results File: DRO-GFD743R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD743R.M (Chemstation Integrator)
 Title : 8015B TEH
 Last Update : Tue Jun 12 11:16:41 2012
 Response via : Multiple Level Calibration
 DataAcq Meth : DRODUAL.M

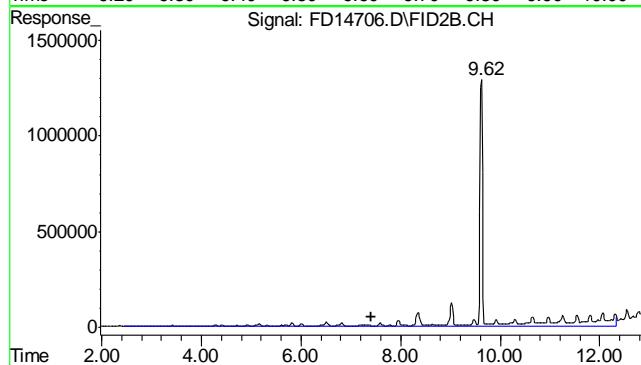
Volume Inj. : 1ul
 Signal Phase : RTX-5
 Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.617 min
 Delta R.T.: 0.027 min
 Response: 41511584
 Conc: 956.13 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 7.400 min
 Delta R.T.: 0.000 min
 Response: 63411334
 Conc: 1527.05 mg/L m

12.1.1
12

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\JUNE\FD062312.SEC\FD14698.D Vial: 53
Acq On : 23 Jun 2012 12:31 pm Operator: alexwl
Sample : OP6112-MB Inst : FID5
Misc : OP6112,GFD764,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Jun 25 09:33:29 2012 Quant Results File: DRO-GFD743R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD743R.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Jun 12 11:16:41 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

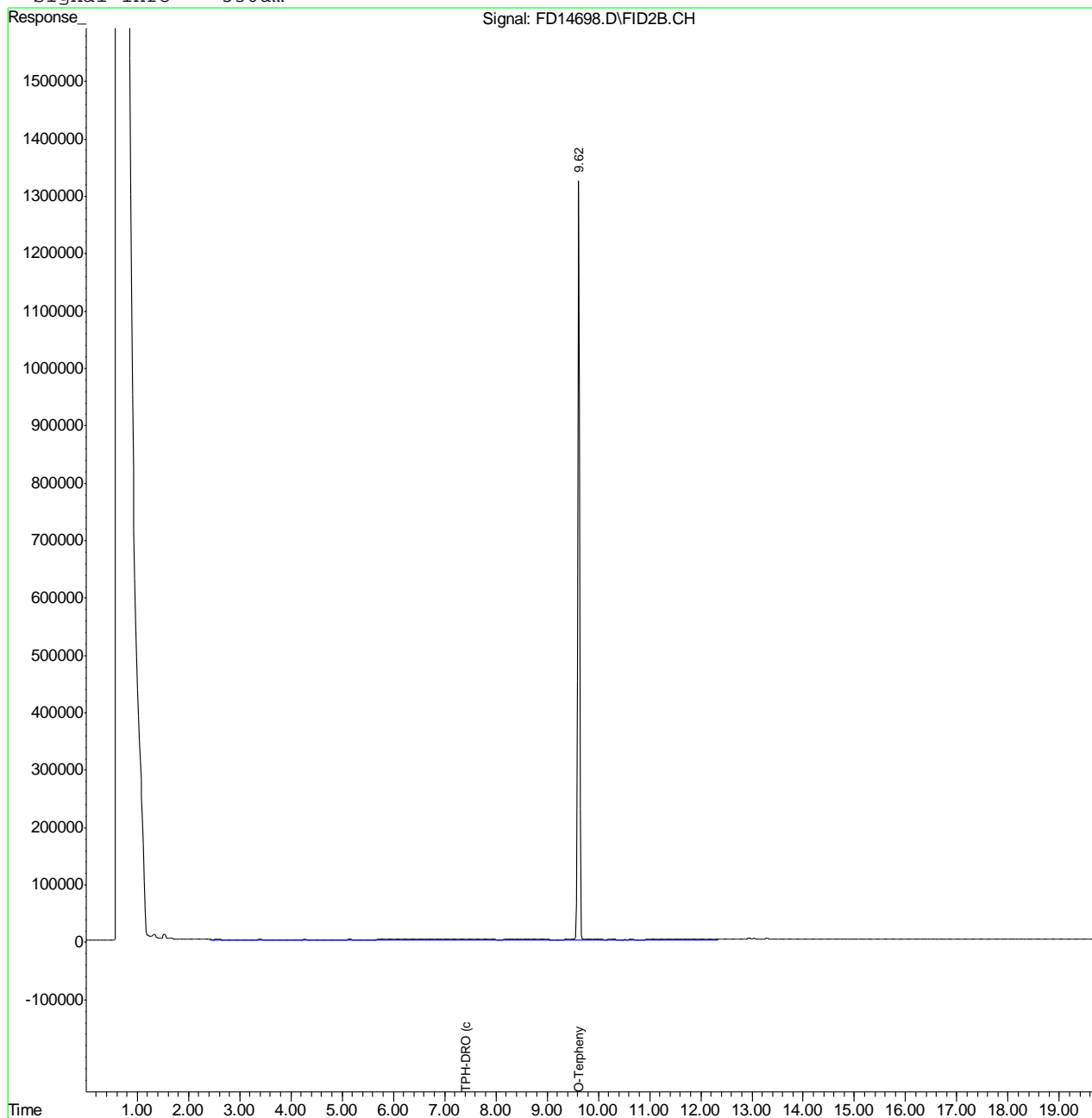
System Monitoring Compounds			
1) S O-Terphenyl	9.62	41812248	963.054 mg/L
Target Compounds			
2) H TPH-DRO (c10-c28)	7.40	2168150	52.213 mg/L

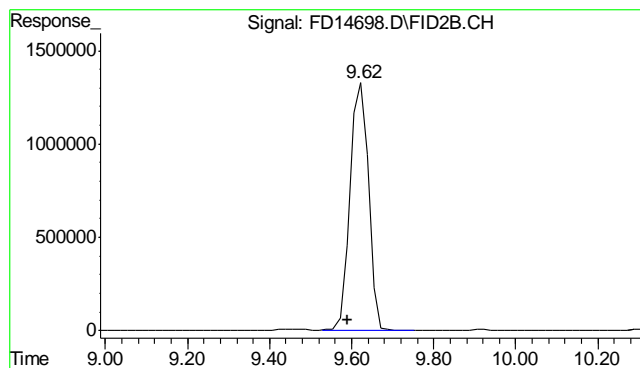
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\JUNE\FD062312.SEC\FD14698.D Vial: 53
Acq On : 23 Jun 2012 12:31 pm Operator: alexwl
Sample : OP6112-MB Inst : FID5
Misc : OP6112,GFD764,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Jun 25 9:34 2012 Quant Results File: DRO-GFD743R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD743R.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Jun 12 11:16:41 2012
Response via : Multiple Level Calibration
DataAcq Meth : DRODUAL.M

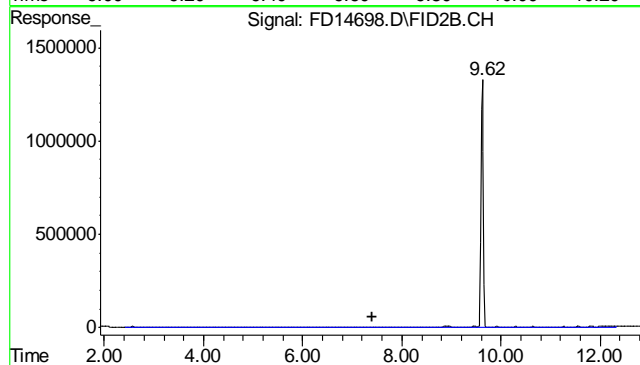
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.625 min
Delta R.T.: 0.035 min
Response: 41812248
Conc: 963.05 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 7.400 min
Delta R.T.: 0.000 min
Response: 2168150
Conc: 52.21 mg/L m

12.2.1
12

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: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7737
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 06/22/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.96	.57		
Antimony	3.0	.17	.12		
Arsenic	2.5	.44	.56		
Barium	1.0	.01	.11	0.060	<1.0
Beryllium	1.0	.13	.15		
Boron	5.0	.1	.06		
Cadmium	1.0	.06	.036	0.040	<1.0
Calcium	40	.54	9		
Chromium	1.0	.03	.03	0.070	<1.0
Cobalt	0.50	.04	.07		
Copper	1.0	.12	.15	0.15	<1.0
Iron	7.0	.12	.87		
Lead	5.0	.19	.24	-0.070	<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	0.0	<5.0
Silicon	5.0	.29	.37		
Silver	3.0	.04	.06	-0.060	<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	-0.31	<3.0

Associated samples MP7737: D35708-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7737
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7737
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 06/22/12

Metal	D35708-1 Original MS		Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium	807	954	213	69.1N(a)	75-125
Beryllium					
Boron					
Cadmium	0.40	47.6	53.2	88.8	75-125
Calcium					
Chromium	36.5	83.6	53.2	88.6	75-125
Cobalt					
Copper	11.3	61.2	53.2	93.9	75-125
Iron					
Lead	11.5	103	106	86.1	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	15.4	60.2	53.2	84.3	75-125
Phosphorus					
Potassium					
Selenium	1.4	95.4	106	88.4	75-125
Silicon					
Silver	0.0	17.6	21.3	82.8	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	44.2	89.3	53.2	84.8	75-125

Associated samples MP7737: D35708-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7737
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: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7737
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 06/22/12

Metal	D35708-1 Original	MSD	Spikelot ICPAL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium	807	996	215	88.0	4.3	20
Beryllium						
Boron						
Cadmium	0.40	47.7	53.7	88.1	0.2	20
Calcium						
Chromium	36.5	83.6	53.7	87.7	0.0	20
Cobalt						
Copper	11.3	61.5	53.7	93.5	0.5	20
Iron						
Lead	11.5	102	107	84.3	1.0	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	15.4	60.2	53.7	83.4	0.0	20
Phosphorus						
Potassium						
Selenium	1.4	95.8	107	87.9	0.4	20
Silicon						
Silver	0.0	17.8	21.5	82.9	1.1	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	44.2	88.4	53.7	82.3	1.0	20

Associated samples MP7737: D35708-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7737
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D35708
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-8B

QC Batch ID: MP7737
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 06/22/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	207	200	103.5	80-120
Beryllium				
Boron				
Cadmium	49.5	50	99.0	80-120
Calcium				
Chromium	52.7	50	105.4	80-120
Cobalt				
Copper	49.1	50	98.2	80-120
Iron				
Lead	99.3	100	99.3	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	50.2	50	100.4	80-120
Phosphorus				
Potassium				
Selenium	98.6	100	98.6	80-120
Silicon				
Silver	20.3	20	101.5	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	50.6	50	101.2	80-120

Associated samples MP7737: D35708-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7737
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

13.1.3

13

SERIAL DILUTION RESULTS SUMMARY

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7737
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 06/22/12

Metal	D35708-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	7890	8870	12.4*(a)	0-10
Beryllium				
Boron				
Cadmium	3.90	0.00	100.0(b)	0-10
Calcium				
Chromium	358	407	13.8*(a)	0-10
Cobalt				
Copper	111	117	5.0	0-10
Iron				
Lead	113	114	0.4	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	150	172	14.4*(a)	0-10
Phosphorus				
Potassium				
Selenium	13.9	39.0	180.6(b)	0-10
Silicon				
Silver	0.00	0.00	NC	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	432	499	15.5*(a)	0-10

Associated samples MP7737: D35708-1

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

13.14
13

SERIAL DILUTION RESULTS SUMMARY

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7737
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: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7738
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 06/22/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.042	.06	0.0034	<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 MP7738: D35708-1

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: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7738
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 06/22/12

Metal	D35708-1 Original MS		Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	8.9	131	106	114.8	75-125
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP7738: D35708-1

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: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7738
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 06/22/12

Metal	D35708-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	8.9	113	107	96.9	14.8	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 MP7738: D35708-1

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: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7738
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 06/22/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	106	100	106.0	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 MP7738: D35708-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D35708
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-8B

QC Batch ID: MP7738
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: ug/l

Prep Date: 06/22/12

Metal	D35708-1			QC
	Original	SDL 5:25	%DIF	Limits
Aluminum				
Antimony				
Arsenic	86.6	87.1	0.5	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 MP7738: D35708-1

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

13.2.4
13

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7743
Matrix Type: AQUEOUS

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

Prep Date: 06/22/12

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	414	<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	31.5	<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	-270	<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 MP7743: D35708-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7743
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

13.3.1

13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7743
Matrix Type: AQUEOUS

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

Prep Date: 06/22/12

Metal	D35708-1A Original MS		Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	139000	281000	125000	113.6	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	16000	140000	125000	99.2	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	1620000	1780000	125000	128.0(a)	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP7743: D35708-1A

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

13.3.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7743
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.

13.3.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7743
Matrix Type: AQUEOUS

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

Prep Date: 06/22/12

Metal	D35708-1A Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	139000	294000	125000	124.0	4.5	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	16000	142000	125000	100.8	1.4	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	1620000	1960000	125000	272.0(a)	9.6	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP7743: D35708-1A

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

13.32
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7743
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.

13.3.2
13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7743
Matrix Type: AQUEOUS

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

Prep Date: 06/22/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	139000	125000	111.2	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	124000	125000	99.2	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	124000	125000	99.2	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP7743: D35708-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7743
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7743
Matrix Type: AQUEOUS

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

Prep Date: 06/22/12

D35708-1A		QC		
Metal	Original	SDL 1:5	%DIF	Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	27800	27700	0.4	0-10
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	3200	3340	4.4	0-10
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	323000	337000	4.3	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP7743: D35708-1A

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

13.3.4
13

SERIAL DILUTION RESULTS SUMMARY

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7743
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

13.3.4

13

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

QC Batch ID: MP7755
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 06/26/12

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.10	.0011	.0009	0.00037	<0.10

Associated samples MP7755: D35708-1

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: D35708
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-8B

QC Batch ID: MP7755
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 06/26/12

Metal	D35710-1		Spikelot		QC	
	Original	MS	HGWSR1	% Rec	Limits	
Mercury	0.016	0.43	0.434	95.3	75-125	

Associated samples MP7755: D35708-1

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: D35708
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-8B

QC Batch ID: MP7755
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 06/26/12

Metal	D35710-1 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.016	0.42	0.426	94.9	2.4	

Associated samples MP7755: D35708-1

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: D35708
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-8B

QC Batch ID: MP7755
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 06/26/12

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.34	0.4	85.0	80-120

Associated samples MP7755: D35708-1

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

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: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP7549/GN15579	1.0	0.0	mg/kg	261	252	96.6	80-120%
Specific Conductivity	GP7560/GN15563			umhos/cm	10009	9870	98.6	90-110%
pH	GN15564			su	8.00	8.00	100.0	99.3-100.7%

Associated Samples:
Batch GN15564: D35708-1
Batch GP7549: D35708-1
Batch GP7560: D35708-1
(*) Outside of QC limits

14.1
14

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP7549/GN15579	D35573-1	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN15599	D35794-1	mv	273	266	2.6	0-20%

Associated Samples:
Batch GN15599: D35708-1
Batch GP7549: D35708-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP7549/GN15579	D35573-1	mg/kg	0.0	40	36.8	92.0	75-125%

Associated Samples:

Batch GP7549: D35708-1

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

14.3
14

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D35708
Account: XTOKRWR - XTO Energy
Project: FRU 297-8B

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chromium, Hexavalent	GP7549/GN15579	D35573-1	mg/kg	0.0	40	37.3	1.4	

Associated Samples:
Batch GP7549: D35708-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

14.4
14