



02/07/12

Technical Report for

XTO Energy

FRU 297-20A

1108-10A

Accutest Job Number: D31467

Sampling Date: 01/30/12

Report to:

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Total number of pages in report: 138



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


Brad Madadian
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

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

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.
Test results relate only to samples analyzed.

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Sample Summary

XTO Energy

Job No: D31467

FRU 297-20A
Project No: 1108-10A

Sample Number	Collected		Time By	Received	Matrix		Client Sample ID
	Date				Code	Type	
D31467-1	01/30/12	11:00	CB	01/31/12	SO	Soil	RESERVE PIT SUBLINER
D31467-1A	01/30/12	11:00	CB	01/31/12	SO	Soil	RESERVE PIT SUBLINER

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: XTO Energy

Job No D31467

Site: FRU 297-20A

Report Dat 2/7/2012 8:56:23 AM

On 01/31/2012, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3.5 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D31467 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: V5V1144
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D31493-3MS, D31493-3MSD were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO	Batch ID: OP5294
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D31568-1MS, D31568-1MSD 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: GGB832
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- Sample(s) D31465-1MS, D31465-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GC By Method SW846-8015B

Matrix SO	Batch ID: OP5285
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D31467-1MS, D31467-1MSD 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: MP6768

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D31467-1AMS, D31467-1AMSD were used as the QC samples for the metals analysis.

Matrix SO

Batch ID: MP6755

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D31412-1SDL, D31412-1MS, D31412-1MSD, D31412-1SDL were used as the QC samples for the metals analysis.
- The matrix spike duplicate (MSD) recovery(s) of Nickel, Zinc are outside control limits. Probable cause due to matrix interference.
- The matrix spike (MS) recovery(s) of Barium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The serial dilution RPD(s) for Silver are outside control limits for sample MP6755-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- The serial dilution RPD(s) for Chromium, Nickel, Zinc are outside control limits for sample MP6755-SD1. Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix SO

Batch ID: MP6756

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D31412-1MS, D31412-1MSD, D31412-1SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471B

Matrix SO

Batch ID: MP6773

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D31467-1MS, D31467-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO

Batch ID: GN13496

- Sample(s) D31467-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method DEPT.OF AG, BOOK N9

Matrix SO

Batch ID: GP6431

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN13488

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO

Batch ID: R11639

- The data for SW846 3060/7196A M meets quality control requirements.
- D31467-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO

Batch ID: M:GP14117

- The data for SW846 3060A/7196A meets quality control requirements.
- D31467-1 for Chromium, Hexavalent: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO

Batch ID: MP6768

- D31467-1A 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 DELIVERY GROUP CASE NARRATIVE

Client: Accutest Mountain States

Job No D31467

Site: XTOKRWR: FRU 297-20A

Report Date 2/3/2012 4:21:49 PM

1 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 01/30/2012 and were received at Accutest on 01/31/2012 properly preserved, at 0.7 Deg. C and intact. These Samples received an Accutest job number of D31467. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO

Batch ID: GP14117

- All samples were distilled within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D31467-1DUP, D31467-1MS were used as the QC samples for Chromium, Hexavalent.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety. The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(D31467).

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	RESERVE PIT SUBLINER	Date Sampled:	01/30/12
Lab Sample ID:	D31467-1	Date Received:	01/31/12
Matrix:	SO - Soil	Percent Solids:	86.5
Method:	SW846 8260B		
Project:	FRU 297-20A		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V19172.D	1	02/03/12	DC	n/a	n/a	V5V1144
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.12 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.064	0.028	mg/kg	
108-88-3	Toluene	ND	0.13	0.064	mg/kg	
100-41-4	Ethylbenzene	ND	0.13	0.032	mg/kg	
1330-20-7	Xylene (total)	ND	0.26	0.13	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	82%		61-130%
460-00-4	4-Bromofluorobenzene	90%		53-131%
17060-07-0	1,2-Dichloroethane-D4	87%		62-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	RESERVE PIT SUBLINER	Date Sampled:	01/30/12
Lab Sample ID:	D31467-1	Date Received:	01/31/12
Matrix:	SO - Soil	Percent Solids:	86.5
Method:	SW846 8270C BY SIM SW846 3546		
Project:	FRU 297-20A		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G07792.D	1	02/03/12	DC	02/03/12	OP5294	E3G303
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.2 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	0.0077	0.0061	mg/kg	
120-12-7	Anthracene	ND	0.0077	0.0069	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.019	0.010	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.019	0.014	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.019	0.014	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.019	0.0084	mg/kg	
218-01-9	Chrysene	ND	0.019	0.0084	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.019	0.014	mg/kg	
206-44-0	Fluoranthene	ND	0.0077	0.0077	mg/kg	
86-73-7	Fluorene	ND	0.0077	0.0065	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.023	0.021	mg/kg	
91-20-3	Naphthalene	ND	0.0077	0.0073	mg/kg	
129-00-0	Pyrene	ND	0.0077	0.0073	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	40%		10-145%
321-60-8	2-Fluorobiphenyl	46%		10-130%
1718-51-0	Terphenyl-d14	89%		22-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	RESERVE PIT SUBLINER					Date Sampled:	01/30/12
Lab Sample ID:	D31467-1					Date Received:	01/31/12
Matrix:	SO - Soil					Percent Solids:	86.5
Method:	SW846 8015B						
Project:	FRU 297-20A						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB14715.D	1	02/01/12	SK	n/a	n/a	GGB832
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	13	6.4	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	106%		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

Page 1 of 1

Client Sample ID:	RESERVE PIT SUBLINER					Date Sampled:	01/30/12
Lab Sample ID:	D31467-1					Date Received:	01/31/12
Matrix:	SO - Soil					Percent Solids:	86.5
Method:	SW846-8015B SW846 3546						
Project:	FRU 297-20A						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FH000967.D	1	02/02/12	TR	02/02/12	OP5285	GFH38
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	22.1	15	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	77%		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: RESERVE PIT SUBLINER
 Lab Sample ID: D31467-1
 Matrix: SO - Soil
 Project: FRU 297-20A

Date Sampled: 01/30/12
 Date Received: 01/31/12
 Percent Solids: 86.5

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	6.9	0.46	mg/kg	5	01/31/12	01/31/12 GJ	SW846 6020A ²	SW846 3050B ⁵
Barium	2540	1.2	mg/kg	1	01/31/12	01/31/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Cadmium	< 1.2	1.2	mg/kg	1	01/31/12	01/31/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Chromium	24.6	1.2	mg/kg	1	01/31/12	01/31/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Copper	16.1	1.2	mg/kg	1	01/31/12	01/31/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Lead	12.0	5.8	mg/kg	1	01/31/12	01/31/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Mercury	< 0.11	0.11	mg/kg	1	02/02/12	02/02/12 JB	SW846 7471B ³	SW846 7471B ⁶
Nickel	14.6	3.5	mg/kg	1	01/31/12	01/31/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Selenium	< 5.8	5.8	mg/kg	1	01/31/12	01/31/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Silver	< 3.5	3.5	mg/kg	1	01/31/12	01/31/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Zinc	42.0	3.5	mg/kg	1	01/31/12	01/31/12 JB	SW846 6010C ¹	SW846 3050B ⁴

- (1) Instrument QC Batch: MA2152
 (2) Instrument QC Batch: MA2153
 (3) Instrument QC Batch: MA2159
 (4) Prep QC Batch: MP6755
 (5) Prep QC Batch: MP6756
 (6) Prep QC Batch: MP6773

RL = Reporting Limit

Report of Analysis

Client Sample ID: RESERVE PIT SUBLINER

Lab Sample ID: D31467-1

Matrix: SO - Soil

Project: FRU 297-20A

Date Sampled: 01/30/12

Date Received: 01/31/12

Percent Solids: 86.5

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent ^a	< 0.45	0.45	mg/kg	1	02/03/12 13:00	AMA	SW846 3060A/7196A
Chromium, Trivalent ^b	24.2	1.7	mg/kg	1	02/03/12 13:00	AMA	SW846 3060/7196A M
Redox Potential Vs H2	352		mv	1	01/31/12	CT	ASTM D1498-76M
Solids, Percent	86.5		%	1	01/31/12	SWT	SM19 2540B M
Specific Conductivity	2100	1.0	umhos/cm	1	02/02/12	JK	DEPT.OF AG, BOOK N9
pH	10.45		su	1	01/31/12 14:20	JD	SW846 9045C

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: RESERVE PIT SUBLINER

Lab Sample ID: D31467-1A

Matrix: SO - Soil

Project: FRU 297-20A

Date Sampled: 01/30/12

Date Received: 01/31/12

Percent Solids: 86.5

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	33.8	2.0	mg/l	1	02/02/12	02/02/12 JB	SW846 6010C ¹	EPA 200.7 ²
Magnesium	5.01	1.0	mg/l	1	02/02/12	02/02/12 JB	SW846 6010C ¹	EPA 200.7 ²
Sodium	390	2.0	mg/l	1	02/02/12	02/02/12 JB	SW846 6010C ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA2158

(2) Prep QC Batch: MP6768

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RESERVE PIT SUBLINER	Date Sampled:	01/30/12
Lab Sample ID:	D31467-1A	Date Received:	01/31/12
Matrix:	SO - Soil	Percent Solids:	86.5
Project:	FRU 297-20A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	16.5		ratio	1	02/02/12 16:54	JB	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 Mountain States
4036 Youngfield Street Wheat Ridge, Co 80033
TEL 303-425-6021 877-737-4521
FAX 303-425-6021

Client / Reporting Information Company Name: KRW Consulting Inc Street Address: 8000 W. 14th Ave Ste 200 City: Lakewood CO State: 80214 Zip: 80214 Project Contact: Dwayne Knowlton E-mail: Phone #: 303 234 9811 Fax #: Sampler(s) Name(s): Craig Burger Phone #: 970 319 4520		Project Information Project Name: XTO FRU 297-20A Street: Billing Information (If different from Report to): Company Name: XTO Energy Street Address: 21459 CR 5 City: Rifle CO State: 81650 Zip: Project#: 1108-10A Client PO#: Project Manager: Joe Herr Attention: Jessica Pooling PO#: 		Requested Analysis (see TEST CODE sheet) Matrix Codes: DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank	
Accutest Sample # Field ID / Point of Collection: Reserve Pit Sublimar MEQ/DI Vid # Date: 1-30-12 Time: 11:00 Sampled by: CAB Matrix: SO # of bottles: 5 Number of preserved bottles: HCl NOH HNO3 H2SO4 NONE DI Water MEQ DI Water ENCORE		Table 910-1 X		LAB USE ONLY 01 1/31/12	
Turnaround Time (Business days) <input type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> Std. 5 Business Days (By Contract only) <input type="checkbox"/> 5 Day FR SH <input checked="" type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY Emergency & Rush T/A data available VIA Lablink		Approved By (Accutest PM): / Date: <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> Commercial "B" + Narrative <input type="checkbox"/> FULLT1 (Level 3+4) Commercial "A" = Results Only Commercial "B" = Results + QC Summary		Comments / Special Instructions Please email results to KRW Please see Cr Team	
Sample Custody - Please See Section 1.0 for details on how and when samples change possession, including courier delivery.					
Relinquished by: 1 Date Time: 1/30/12 17:40 Relinquished by: 3 Date Time: Relinquished by: 5 Date Time: 		Received By: 1 Date Time: Received By: 3 Date Time: Received By: 5 Date Time: 		Relinquished by: 2 Date Time: 1/30/12 Relinquished by: 4 Date Time: Relinquished by: Date Time: 	
Custody Seal # 40110 Intact <input checked="" type="checkbox"/> Not Intact <input type="checkbox"/>		Preserved where applicable <input checked="" type="checkbox"/>		On ice <input checked="" type="checkbox"/> Cooler Temp. 3.5	

D31467: Chain of Custody

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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D31467

Client: KRW CONSULTING INC.

Immediate Client Services Action Required: No

Date / Time Received: 1/31/2012 12:45:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XTO FRU 297-20A

Airbill #'s: HD/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

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www.accutest.com

GC/MS Volatiles

5

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: D31467
Account: XTOKRWR XTO Energy
Project: FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1144-MB	5V19162.D	1	02/02/12	DC	n/a	n/a	V5V1144

The QC reported here applies to the following samples:

Method: SW846 8260B

D31467-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	22	ug/kg	
100-41-4	Ethylbenzene	ND	100	25	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	87% 61-130%
460-00-4	4-Bromofluorobenzene	86% 53-131%
17060-07-0	1,2-Dichloroethane-D4	92% 62-130%

Blank Spike Summary

Page 1 of 1

Job Number: D31467
Account: XTOKRWR XTO Energy
Project: FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1144-BS	5V19163.D	1	02/02/12	DC	n/a	n/a	V5V1144

The QC reported here applies to the following samples:

Method: SW846 8260B

D31467-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	50.2	100	70-130
100-41-4	Ethylbenzene	50	48.3	97	70-130
108-88-3	Toluene	50	46.7	93	70-130
1330-20-7	Xylene (total)	150	149	99	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	79%	61-130%
460-00-4	4-Bromofluorobenzene	88%	53-131%
17060-07-0	1,2-Dichloroethane-D4	84%	62-130%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D31467
Account: XTOKRWR XTO Energy
Project: FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D31493-3MS	5V19167.D	1	02/03/12	DC	n/a	n/a	V5V1144
D31493-3MSD	5V19168.D	1	02/03/12	DC	n/a	n/a	V5V1144
D31493-3	5V19166.D	1	02/03/12	DC	n/a	n/a	V5V1144

The QC reported here applies to the following samples:

Method: SW846 8260B

D31467-1

CAS No.	Compound	D31493-3 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		4860	5760	118	5890	121	2	70-134/30
100-41-4	Ethylbenzene	ND		4860	5610	115	5680	117	1	70-137/30
108-88-3	Toluene	ND		4860	5340	110	5380	111	1	70-130/30
1330-20-7	Xylene (total)	571		14600	18300	122	18600	124	2	61-131/30

CAS No.	Surrogate Recoveries	MS	MSD	D31493-3	Limits
2037-26-5	Toluene-D8	83%	84%	76%	61-130%
460-00-4	4-Bromofluorobenzene	105%	106%	84%	53-131%
17060-07-0	1,2-Dichloroethane-D4	92%	94%	82%	62-130%

GC/MS Volatiles

Raw Data



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5020212.S\
Data File : 5V19172.D
Acq On : 3 Feb 2012 4:45 am
Operator : DONC
Sample : D31467-1
Misc : MS3335,V5V1144,5.120,,100,5,1
ALS Vial : 37 Sample Multiplier: 1

Quant Time: Feb 03 14:39:30 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1131TVH1131.M
Quant Title : 8260
QLast Update : Sat Jan 21 11:35:36 2012
Response via : Initial Calibration

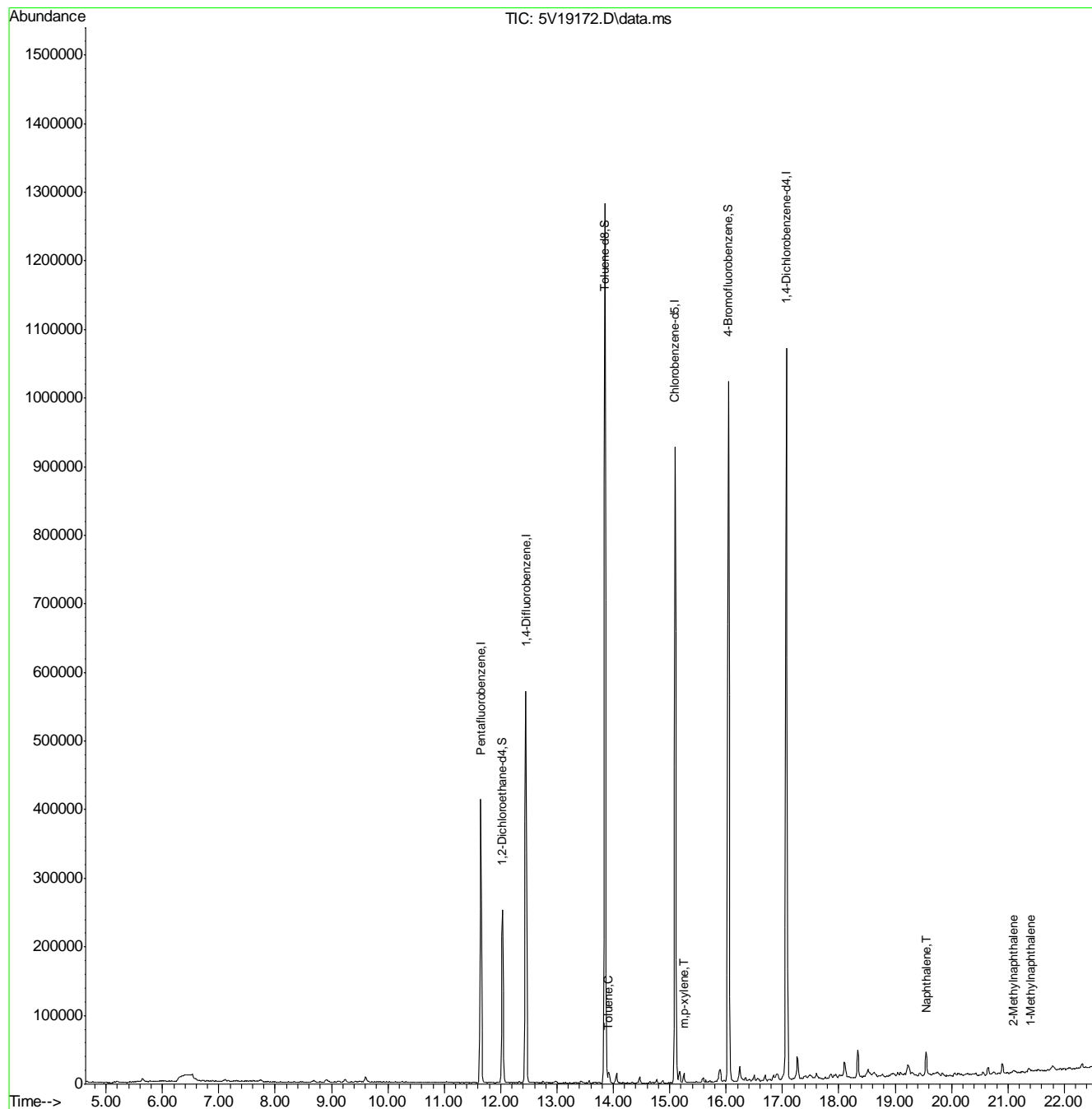
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	292205	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	474556	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	556976	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	341044	50.00	ug/l	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.035	102	41601	43.74	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	87.48%
61) Toluene-d8	13.850	98	838511	40.77	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	81.54%
69) 4-Bromofluorobenzene	16.042	95	380210	44.91	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	89.82%
Target Compounds						
62) Toluene	13.907	92	3650	0.25	ug/l	Qvalue 88
72) m,p-xylene	15.255	106	4512	0.43	ug/l	99
91) Naphthalene	19.559	128	3964	0.21	ug/l	100
94) 2-Methylnaphthalene	21.100	142	3158	0.58	ug/l	# 93
95) 1-Methylnaphthalene	21.408	142	1708	0.29	ug/l	# 70

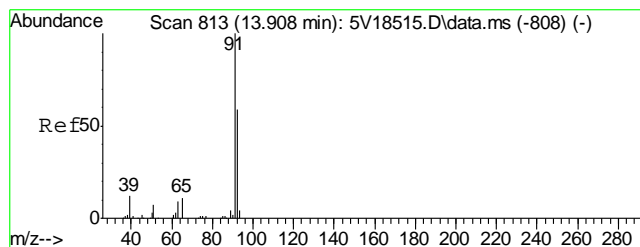
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5020212.S\
Data File : 5V19172.D
Acq On : 3 Feb 2012 4:45 am
Operator : DONC
Sample : D31467-1
Misc : MS3335,V5V1144,5.120,,100,5,1
ALS Vial : 37 Sample Multiplier: 1

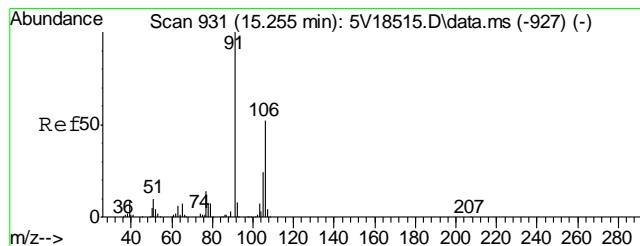
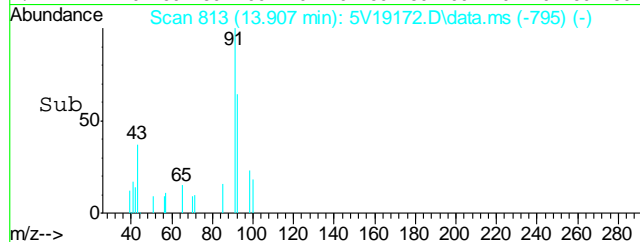
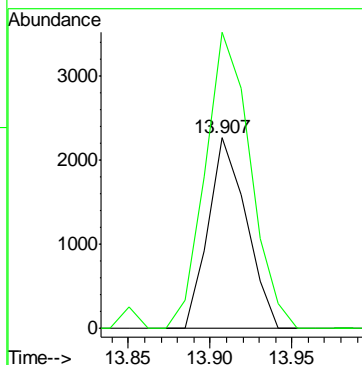
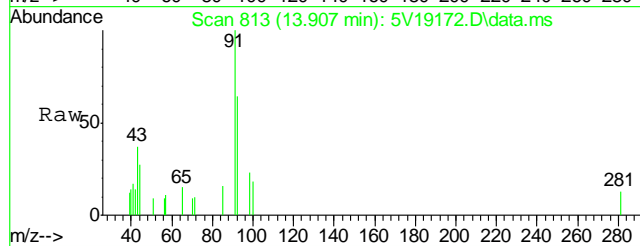
Quant Time: Feb 03 14:39:30 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1131TVH1131.M
Quant Title : 8260
QLast Update : Sat Jan 21 11:35:36 2012
Response via : Initial Calibration





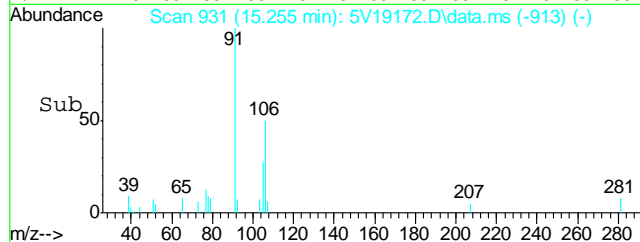
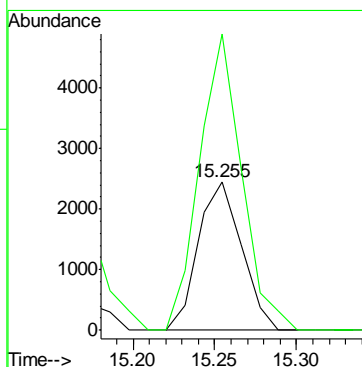
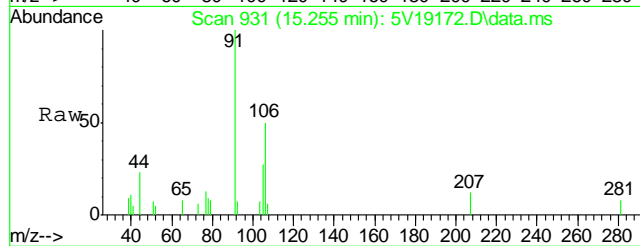
#62
Toluene
Concen: 0.25 ug/l
RT: 13.907 min Scan# 813
Delta R.T. -0.000 min
Lab File: 5V19172.D
Acq: 3 Feb 2012 4:45 am

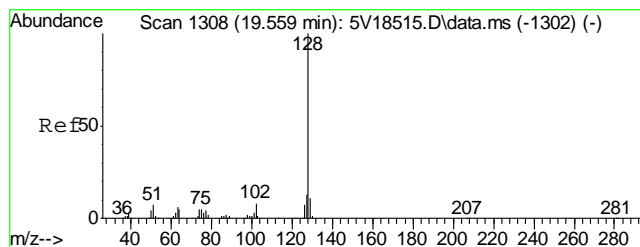
Tgt Ion	Ratio	Lower	Upper
92	100		
91	185.6	149.8	189.8



#72
m,p-xylene
Concen: 0.43 ug/l
RT: 15.255 min Scan# 931
Delta R.T. -0.000 min
Lab File: 5V19172.D
Acq: 3 Feb 2012 4:45 am

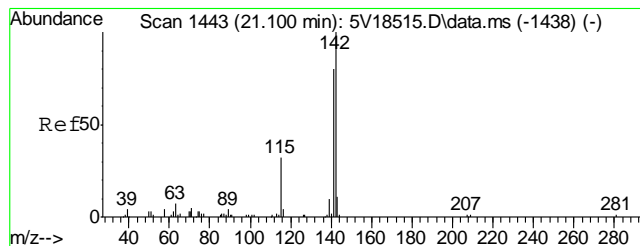
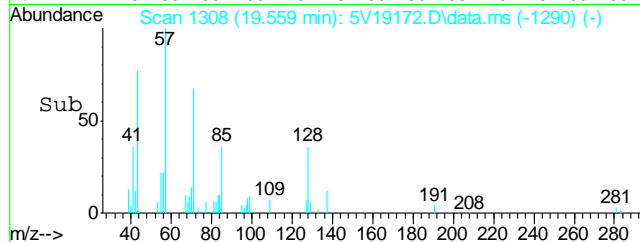
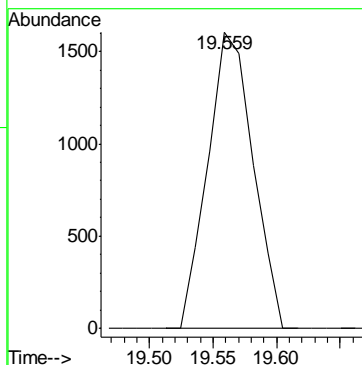
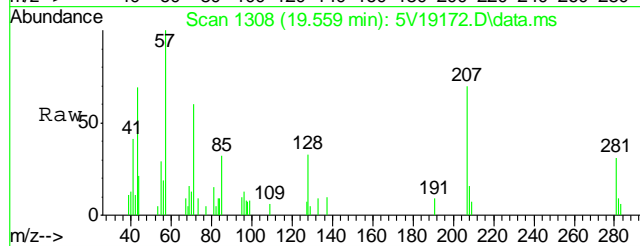
Tgt Ion	Ratio	Lower	Upper
106	100		
91	194.9	177.1	217.1





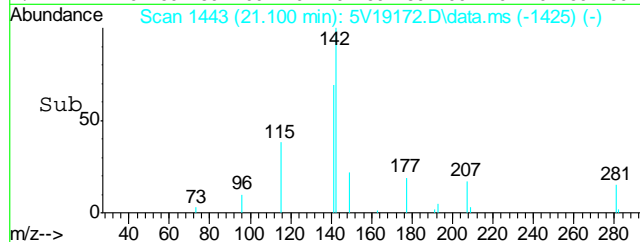
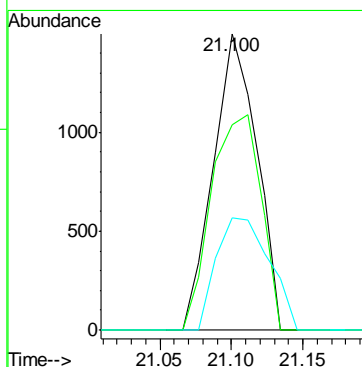
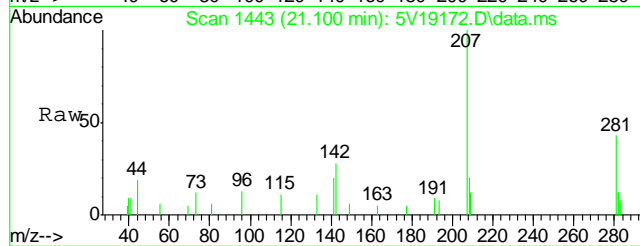
#91
Naphthalene
Concen: 0.21 ug/l
RT: 19.559 min Scan# 1308
Delta R.T. 0.001 min
Lab File: 5V19172.D
Acq: 3 Feb 2012 4:45 am

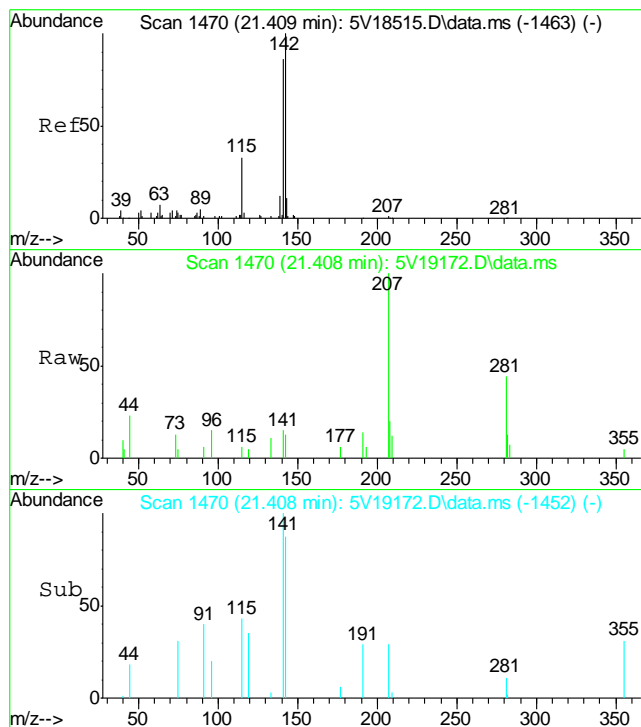
Tgt Ion:128 Resp: 3964



#94
2-Methylnaphthalene
Concen: 0.58 ug/l
RT: 21.100 min Scan# 1443
Delta R.T. 0.000 min
Lab File: 5V19172.D
Acq: 3 Feb 2012 4:45 am

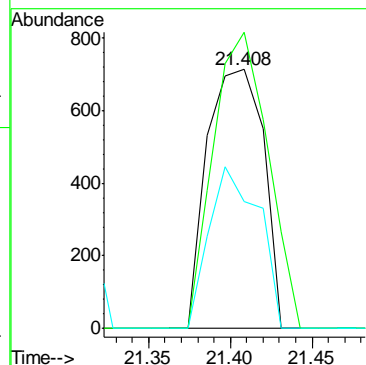
Tgt Ion:142 Resp: 3158
Ion Ratio Lower Upper
142 100
141 83.0 66.2 99.4
115 46.1 25.9 38.9#





#95
 1-Methylnaphthalene
 Concen: 0.29 ug/l
 RT: 21.408 min Scan# 1470
 Delta R.T. 0.000 min
 Lab File: 5V19172.D
 Acq: 3 Feb 2012 4:45 am

Tgt Ion:	142	Resp:	1708
Ion Ratio	Lower	Upper	
142	100		
141	110.9	68.9	103.3#
115	55.3	27.3	40.9#



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5020212.S\
 Data File : 5V19162.D
 Acq On : 2 Feb 2012 11:24 pm
 Operator : DONC
 Sample : MB
 Misc : MS3335,V5V1144,5.00,,100,5,1
 ALS Vial : 27 Sample Multiplier: 1

Quant Time: Feb 03 14:27:50 2012
 Quant Method : C:\msdchem\1\METHODS\V5AP1131TVH1131.M
 Quant Title : 8260
 QLast Update : Sat Jan 21 11:35:36 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	320374	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	521805	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	583240	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	339410	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.035	102	48132	46.15	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	92.30%
61) Toluene-d8	13.851	98	941928	43.73	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	87.46%
69) 4-Bromofluorobenzene	16.043	95	382385	43.13	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	86.26%

Target Compounds

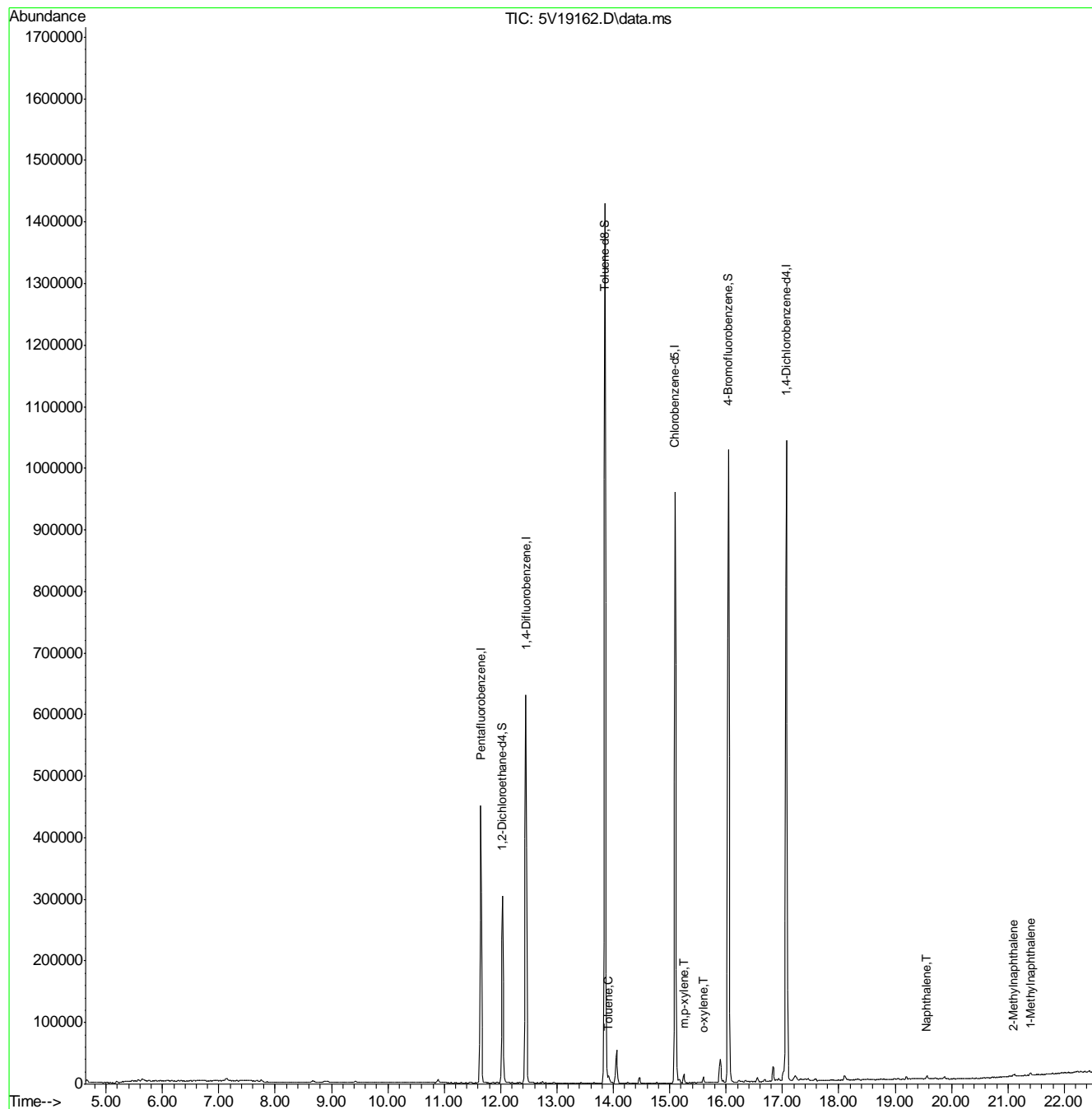
						Qvalue
62) Toluene	13.908	92	3727	0.24	ug/l	# 78
72) m,p-xylene	15.255	106	5134	0.47	ug/l	99
73) o-xylene	15.597	106	2545	0.24	ug/l	89
91) Naphthalene	19.559	128	7991	0.43	ug/l	100
94) 2-Methylnaphthalene	21.100	142	3097	0.57	ug/l	# 82
95) 1-Methylnaphthalene	21.409	142	3087	0.53	ug/l	92

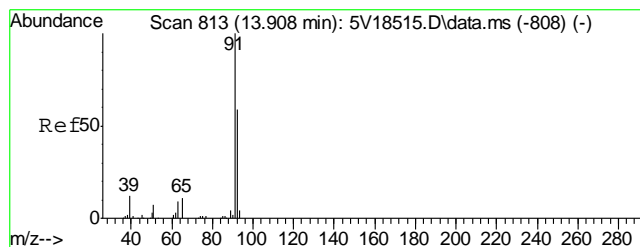
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5020212.S\
Data File : 5V19162.D
Acq On : 2 Feb 2012 11:24 pm
Operator : DONC
Sample : MB
Misc : MS3335,V5V1144,5.00,,100,5,1
ALS Vial : 27 Sample Multiplier: 1

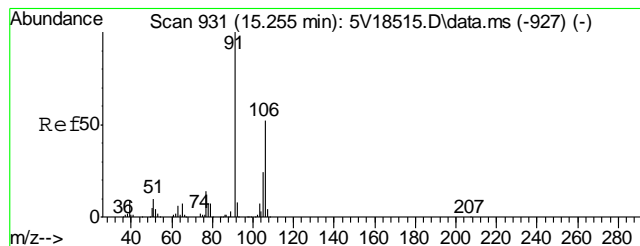
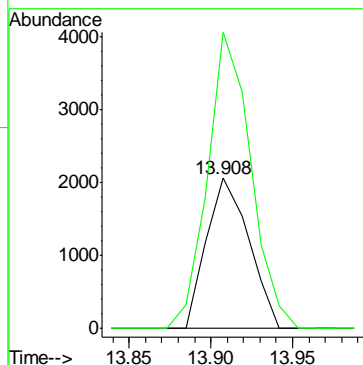
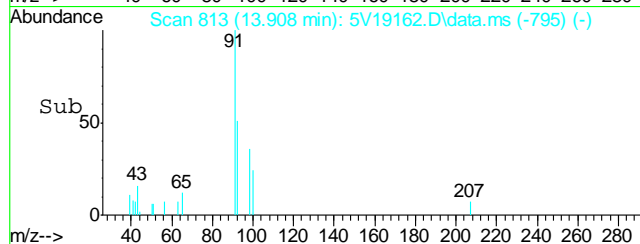
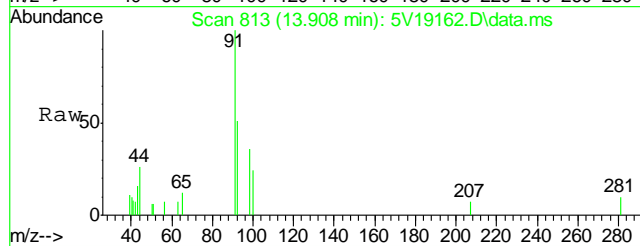
Quant Time: Feb 03 14:27:50 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1131TVH1131.M
Quant Title : 8260
QLast Update : Sat Jan 21 11:35:36 2012
Response via : Initial Calibration





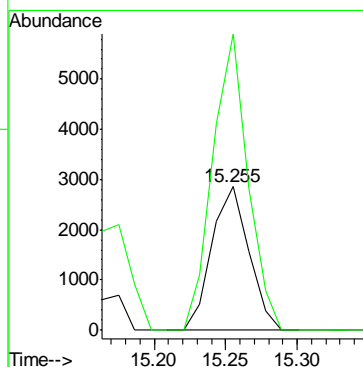
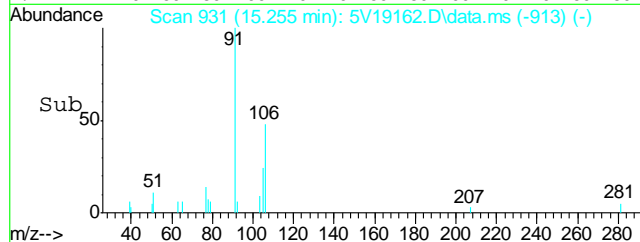
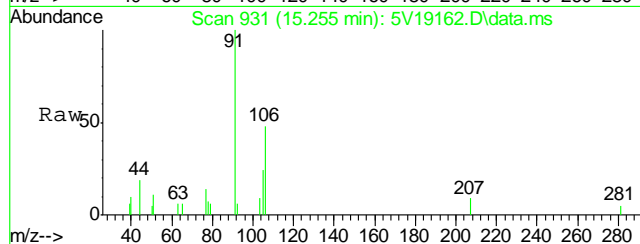
#62
Toluene
Concen: 0.24 ug/l
RT: 13.908 min Scan# 813
Delta R.T. 0.000 min
Lab File: 5V19162.D
Acq: 2 Feb 2012 11:24 pm

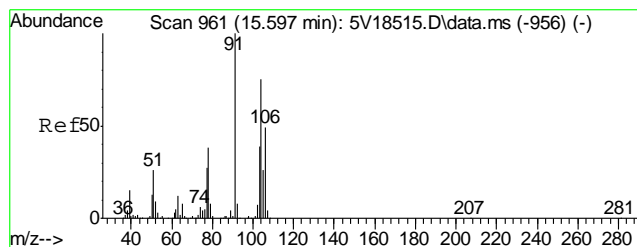
Tgt Ion: 92 Resp: 3727
Ion Ratio Lower Upper
92 100
91 200.1 149.8 189.8#



#72
m,p-xylene
Concen: 0.47 ug/l
RT: 15.255 min Scan# 931
Delta R.T. 0.000 min
Lab File: 5V19162.D
Acq: 2 Feb 2012 11:24 pm

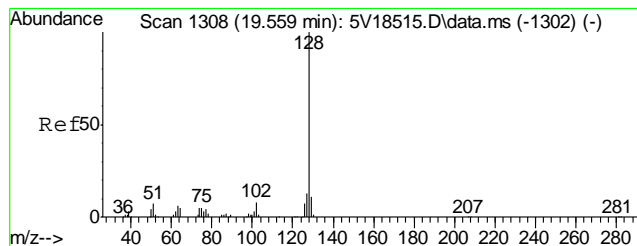
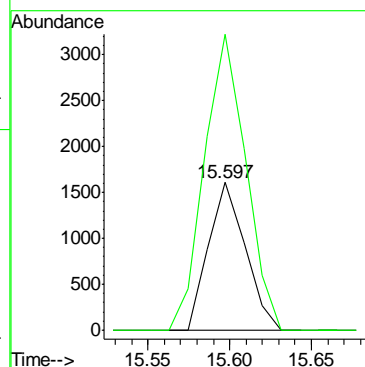
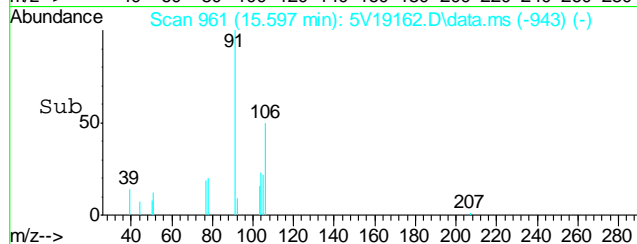
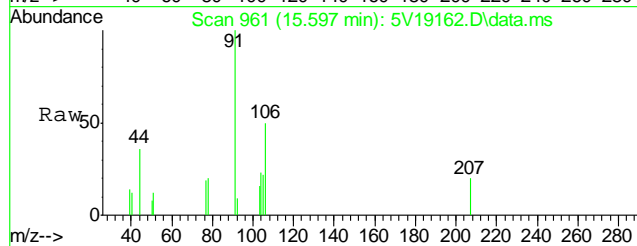
Tgt Ion: 106 Resp: 5134
Ion Ratio Lower Upper
106 100
91 196.1 177.1 217.1





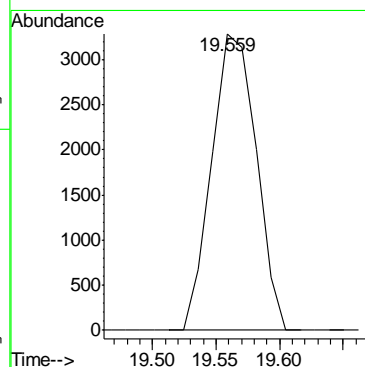
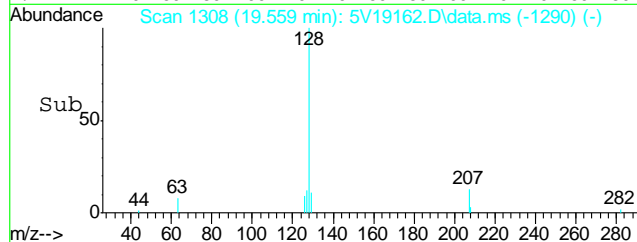
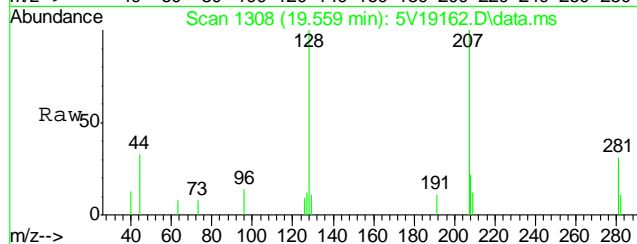
#73
o-xylene
Concen: 0.24 ug/l
RT: 15.597 min Scan# 961
Delta R.T. 0.000 min
Lab File: 5V19162.D
Acq: 2 Feb 2012 11:24 pm

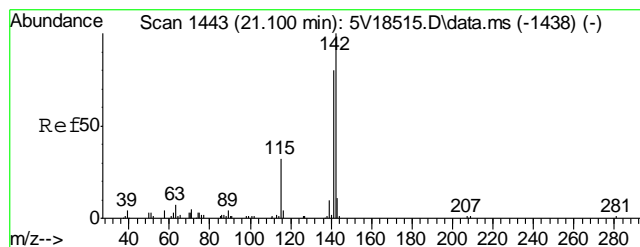
Tgt Ion:106 Resp: 2545
Ion Ratio Lower Upper
106 100
91 225.2 166.6 249.8



#91
Naphthalene
Concen: 0.43 ug/l
RT: 19.559 min Scan# 1308
Delta R.T. 0.001 min
Lab File: 5V19162.D
Acq: 2 Feb 2012 11:24 pm

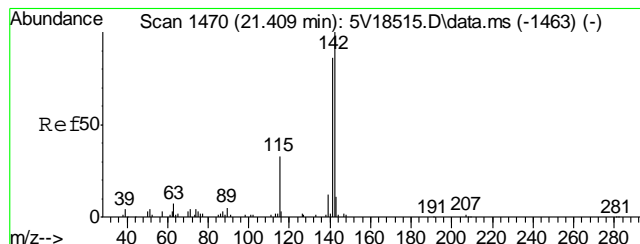
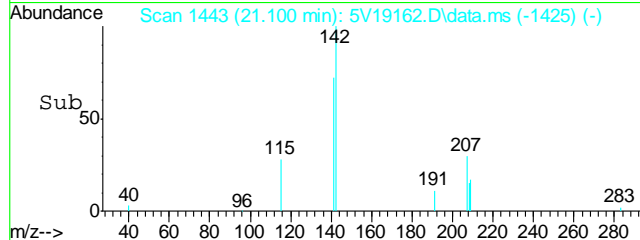
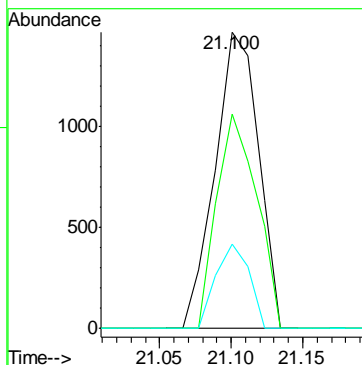
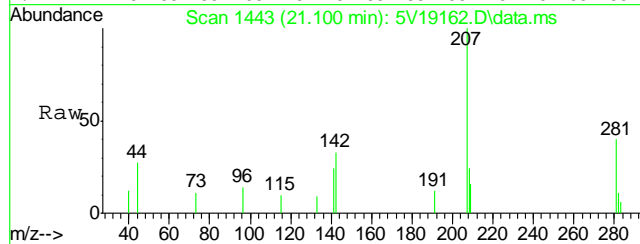
Tgt Ion:128 Resp: 7991





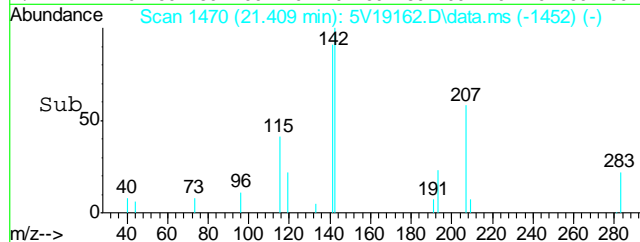
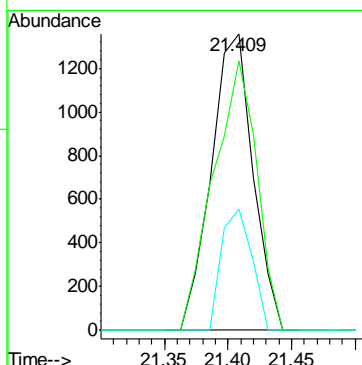
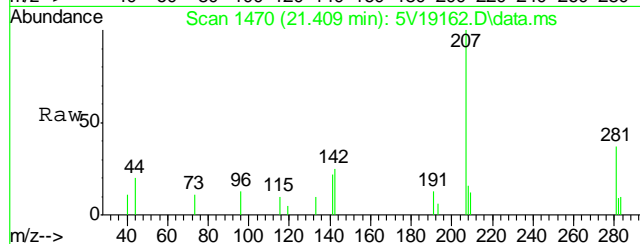
#94
2-Methylnaphthalene
Concen: 0.57 ug/l
RT: 21.100 min Scan# 1443
Delta R.T. 0.000 min
Lab File: 5V19162.D
Acq: 2 Feb 2012 11:24 pm

Tgt Ion:142	Resp:	3097
Ion Ratio	Lower	Upper
142	100	
141	66.7	66.2 99.4
115	21.8	25.9 38.9#



#95
1-Methylnaphthalene
Concen: 0.53 ug/l
RT: 21.409 min Scan# 1470
Delta R.T. 0.000 min
Lab File: 5V19162.D
Acq: 2 Feb 2012 11:24 pm

Tgt Ion:142	Resp:	3087
Ion Ratio	Lower	Upper
142	100	
141	94.1	68.9 103.3
115	29.7	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: D31467
Account: XTOKRWR XTO Energy
Project: FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5294-MB	3G07786.D	1	02/03/12	DC	02/03/12	OP5294	E3G303

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D31467-1

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	6.7	5.3	ug/kg	
120-12-7	Anthracene	ND	6.7	6.0	ug/kg	
56-55-3	Benzo(a)anthracene	ND	17	8.7	ug/kg	
50-32-8	Benzo(a)pyrene	ND	17	12	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	17	12	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	17	7.3	ug/kg	
218-01-9	Chrysene	ND	17	7.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	17	12	ug/kg	
206-44-0	Fluoranthene	ND	6.7	6.7	ug/kg	
86-73-7	Fluorene	ND	6.7	5.7	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	20	18	ug/kg	
91-20-3	Naphthalene	ND	6.7	6.3	ug/kg	
129-00-0	Pyrene	ND	6.7	6.3	ug/kg	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	68% 10-145%
321-60-8	2-Fluorobiphenyl	84% 10-130%
1718-51-0	Terphenyl-d14	83% 22-130%

Blank Spike Summary

Page 1 of 1

Job Number: D31467
Account: XTOKRWR XTO Energy
Project: FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5294-BS	3G07787.D	1	02/03/12	DC	02/03/12	OP5294	E3G303

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D31467-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	73.6	88	34-130
120-12-7	Anthracene	83.3	76.7	92	35-130
56-55-3	Benzo(a)anthracene	83.3	68.8	83	36-130
50-32-8	Benzo(a)pyrene	83.3	70.9	85	36-130
205-99-2	Benzo(b)fluoranthene	83.3	64.0	77	35-130
207-08-9	Benzo(k)fluoranthene	83.3	81.9	98	37-130
218-01-9	Chrysene	83.3	78.3	94	40-130
53-70-3	Dibenzo(a,h)anthracene	83.3	73.1	88	32-130
206-44-0	Fluoranthene	83.3	69.0	83	38-130
86-73-7	Fluorene	83.3	72.0	86	35-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	68.5	82	28-130
91-20-3	Naphthalene	83.3	77.6	93	35-130
129-00-0	Pyrene	83.3	73.9	89	37-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	73%	10-145%
321-60-8	2-Fluorobiphenyl	90%	10-130%
1718-51-0	Terphenyl-d14	86%	22-130%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D31467
Account: XTOKRWR XTO Energy
Project: FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5294-MS	3G07789.D	4	02/03/12	DC	02/03/12	OP5294	E3G303
OP5294-MSD	3G07790.D	4	02/03/12	DC	02/03/12	OP5294	E3G303
D31568-1	3G07795.D	1	02/03/12	DC	02/03/12	OP5294	E3G303

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D31467-1

CAS No.	Compound	D31568-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		92.8	68.4	74	70.3	76	3	10-155/30
120-12-7	Anthracene	ND		92.8	74.5	80	76.5	83	3	10-155/30
56-55-3	Benzo(a)anthracene	ND		92.8	74.5	80	77.0	83	3	10-175/30
50-32-8	Benzo(a)pyrene	ND		92.8	68.2	73	69.3	75	2	10-164/30
205-99-2	Benzo(b)fluoranthene	ND		92.8	68.7	74	69.8	75	2	10-165/30
207-08-9	Benzo(k)fluoranthene	ND		92.8	64.8	70	64.2	69	1	10-178/30
218-01-9	Chrysene	13.0	J	92.8	81.6	74	85.0	78	4	10-147/30
53-70-3	Dibenzo(a,h)anthracene	ND		92.8	83.2	90	88.0	95	6	10-144/30
206-44-0	Fluoranthene	ND		92.8	63.6	69	63.0	68	1	10-207/30
86-73-7	Fluorene	21.2		92.8	86.1	70	86.8	71	1	10-163/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		92.8	88.9	96	91.7	99	3	10-180/30
91-20-3	Naphthalene	92.6		92.8	174	88	172	86	1	10-198/30
129-00-0	Pyrene	8.2		92.8	90.0	88	92.2	91	2	10-189/30

CAS No.	Surrogate Recoveries	MS	MSD	D31568-1	Limits
4165-60-0	Nitrobenzene-d5	57%	58%	43%	10-145%
321-60-8	2-Fluorobiphenyl	65%	66%	59%	10-130%
1718-51-0	Terphenyl-d14	98%	100%	87%	22-130%

GC/MS Semi-volatiles

Raw Data



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\020312\
 Data File : 3g07792.D
 Acq On : 3 Feb 2012 4:45 pm
 Operator : DONC
 Sample : D31467-1
 Misc : OP5294,E3G303,30.16,,,1,1
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Feb 05 07:22:39 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G292.M
 Quant Title : PAHSIM BASE
 QLast Update : Mon Jan 23 10:56:40 2012
 Response via : Initial Calibration

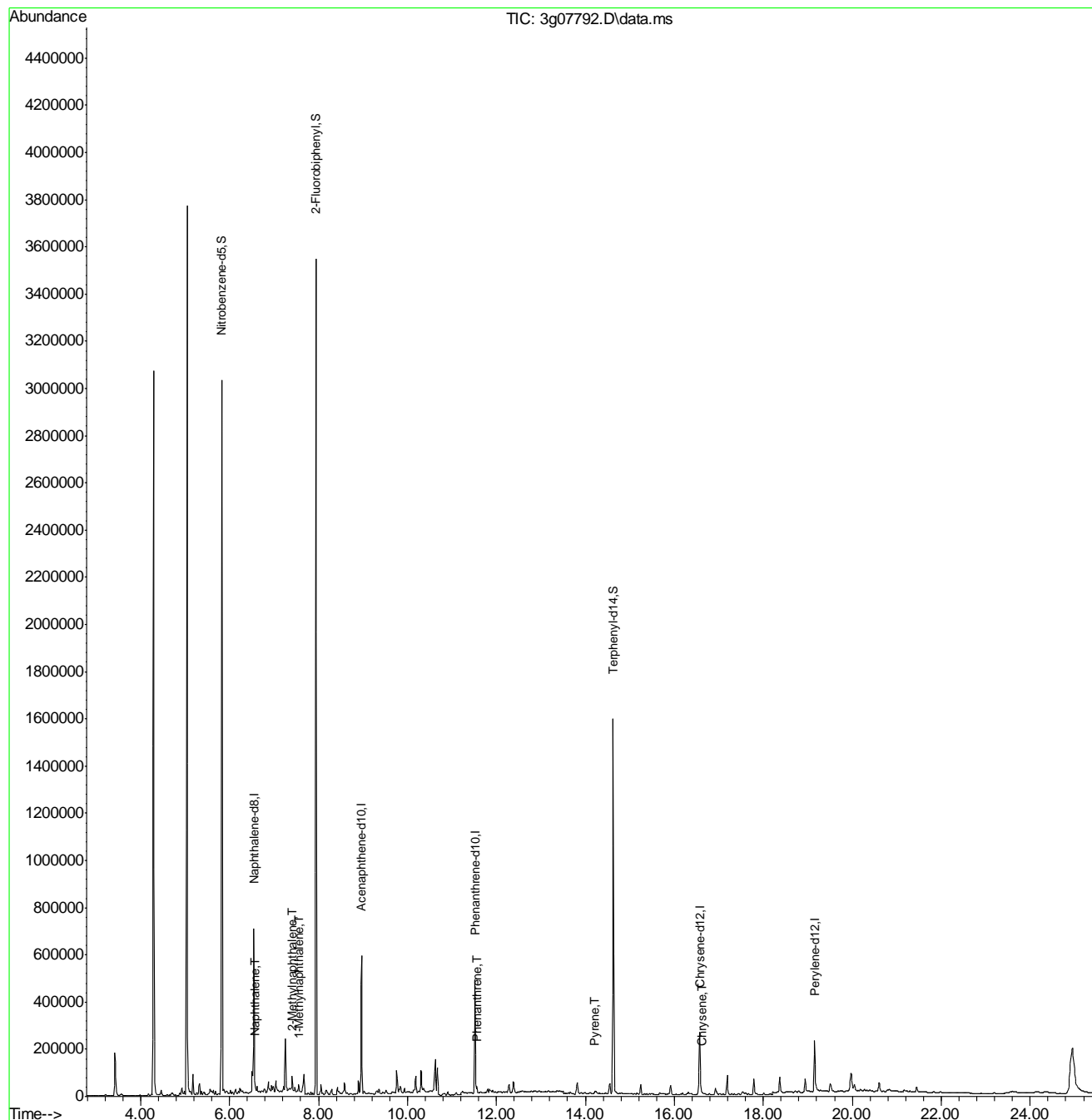
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.545	136	605047	4.00	ug/mL	-0.02
6) Acenaphthene-d10	8.968	164	354902	4.00	ug/mL	-0.02
14) Phenanthrene-d10	11.516	188	479400	4.00	ug/mL	-0.03
18) Chrysene-d12	16.573	240	237923	4.00	ug/mL	-0.03
23) Perylene-d12	19.153	264	277002	4.00	ug/mL	-0.03
System Monitoring Compounds						
2) Nitrobenzene-d5	5.822	82	2917594	19.95	ug/mL	-0.02
7) 2-Fluorobiphenyl	7.940	172	3125163	22.89	ug/mL	-0.02
20) Terphenyl-d14	14.627	244	1972171	44.29	ug/mL	-0.03
Target Compounds						
						Qvalue
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	6.570	128	28027	0.16	ug/mL	96
8) 2-Methylnaphthalene	7.405	142	28320	0.25	ug/mL	88
9) 1-Methylnaphthalene	7.555	142	12515	0.12	ug/mL#	74
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	0.000		0	N.D.	d	
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	11.556	178	24853	0.16	ug/mL	89
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	14.215	202	10120	0.10	ug/mL#	17
21) Benzo(a)anthracene	0.000		0	N.D.	d	
22) Chrysene	16.613	228	7797	0.10	ug/mL	89
24) Benzo(b)fluoranthene	0.000		0	N.D.	d	
25) Benzo(k)fluoranthene	0.000		0	N.D.	d	
26) Benzo(a)pyrene	0.000		0	N.D.	d	
27) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
28) Dibenz(a,h)anthracene	0.000		0	N.D.	d	
29) Benzo(g,h,i)perylene	0.000		0	N.D.	d	

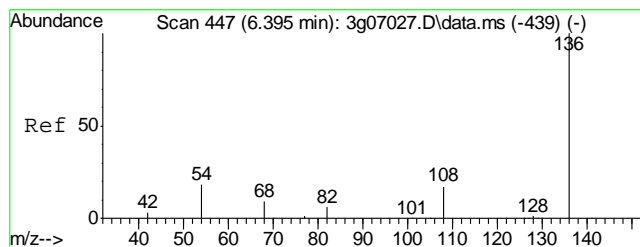
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\020312\
Data File : 3g07792.D
Acq On : 3 Feb 2012 4:45 pm
Operator : DONC
Sample : D31467-1
Misc : OP5294,E3G303,30.16,,,1,1
ALS Vial : 10 Sample Multiplier: 1

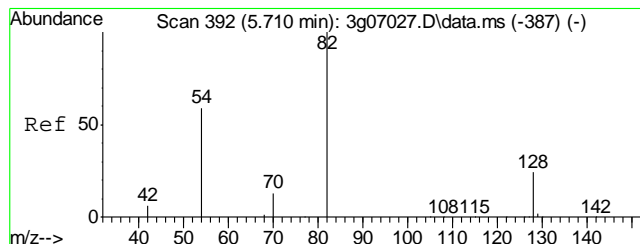
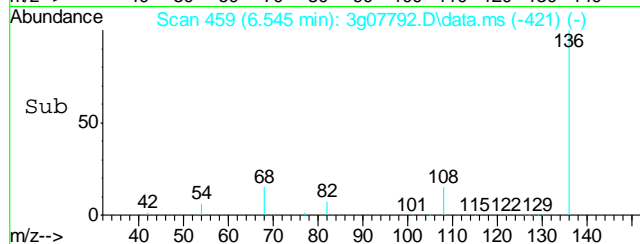
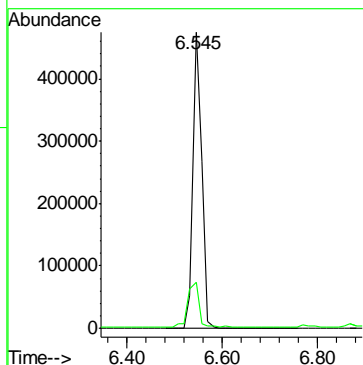
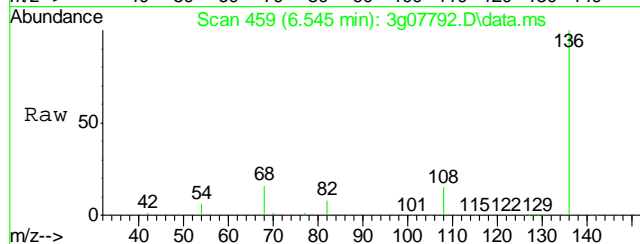
Quant Time: Feb 05 07:22:39 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G292.M
Quant Title : PAHSIM BASE
QLast Update : Mon Jan 23 10:56:40 2012
Response via : Initial Calibration





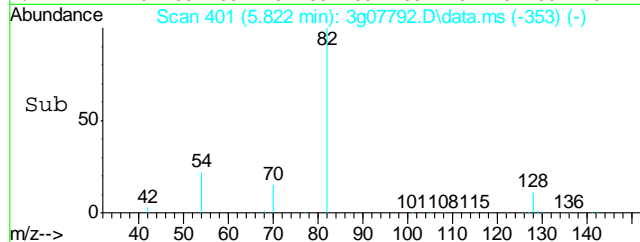
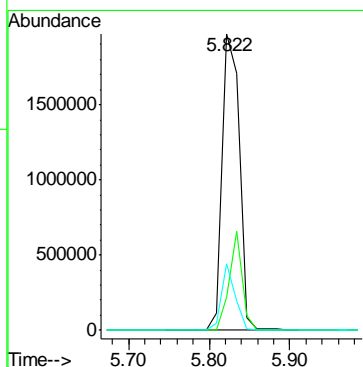
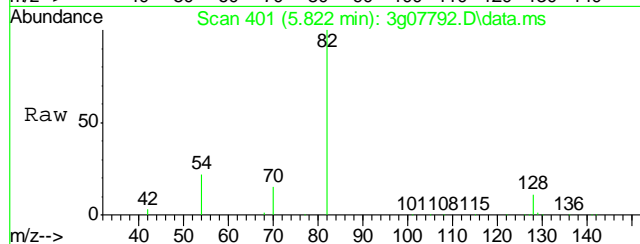
#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.545 min Scan# 459
Delta R.T. -0.025 min
Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

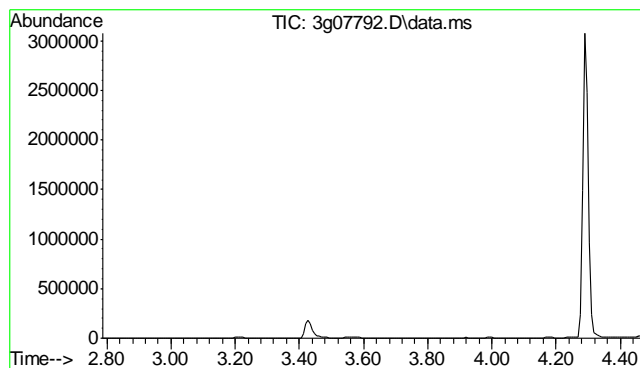
Tgt Ion	Ratio	Lower	Upper
136	100		
68	20.2	0.5	40.5



#2
Nitrobenzene-d5
Concen: 19.95 ug/mL
RT: 5.822 min Scan# 401
Delta R.T. -0.025 min
Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

Tgt Ion	Ratio	Lower	Upper
82	100		
128	25.2	0.4	40.4
54	17.7	0.0	35.4

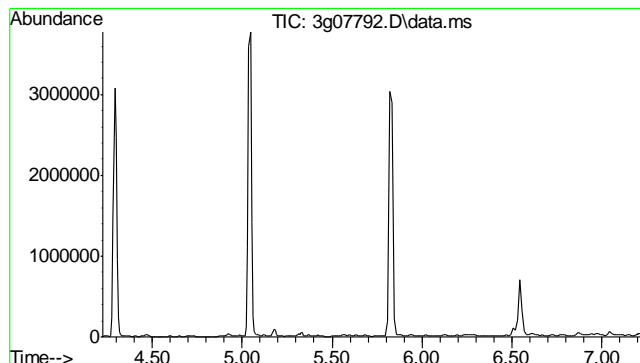
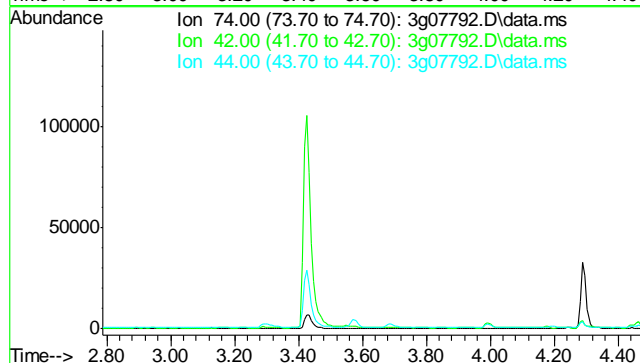




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.97 min

Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

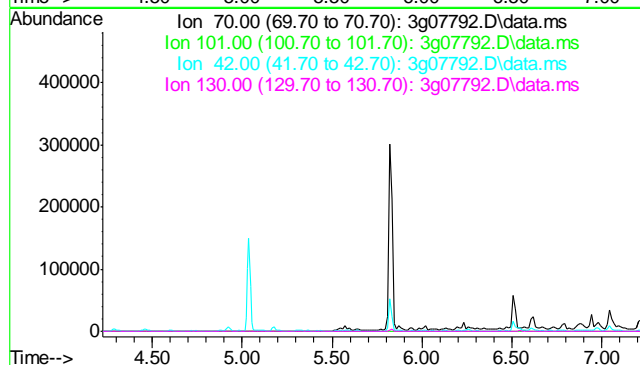
Tgt Ion	Exp Ratio
74	100
42	16.7
44	1.1

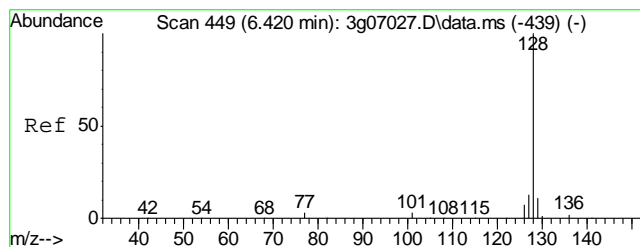


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.72 min

Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

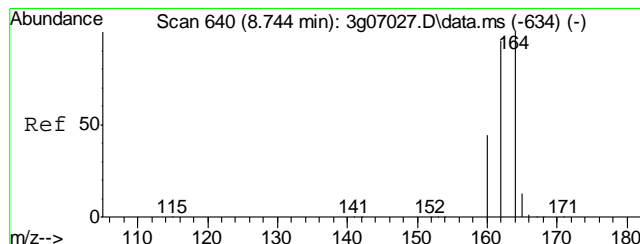
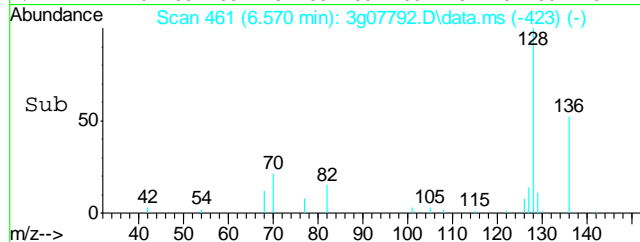
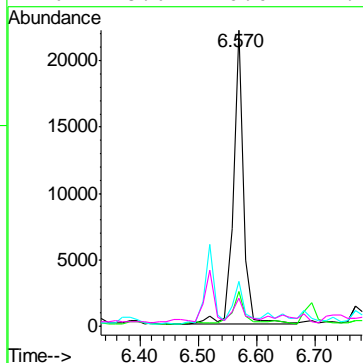
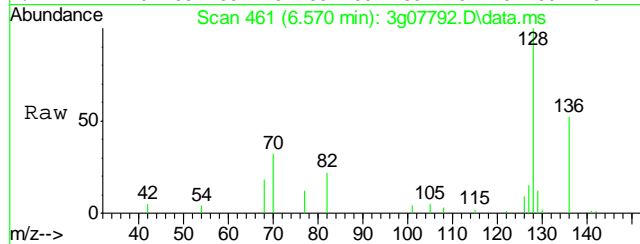
Tgt Ion	Exp Ratio
70	100
101	9.2
42	14.5
130	10.6





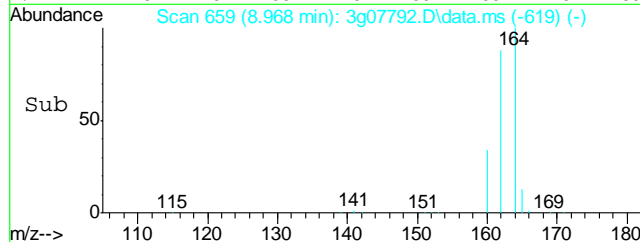
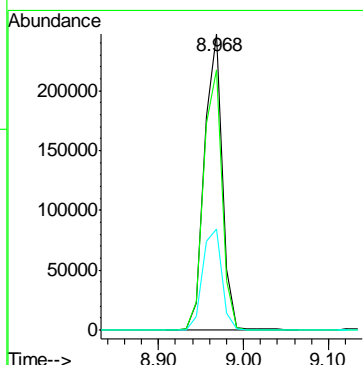
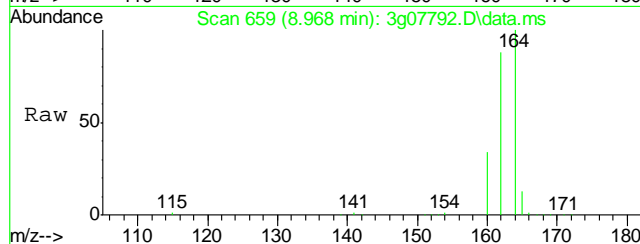
#5
Naphthalene
Concen: 0.16 ug/mL
RT: 6.570 min Scan# 461
Delta R.T. -0.024 min
Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

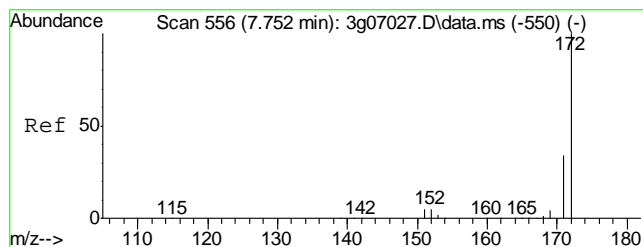
Tgt Ion:128	Resp:	28027
Ion Ratio	Lower	Upper
128	100	
129	13.1	0.0 30.8
127	14.6	0.0 33.6
126	8.6	0.0 27.7



#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 8.968 min Scan# 659
Delta R.T. -0.024 min
Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

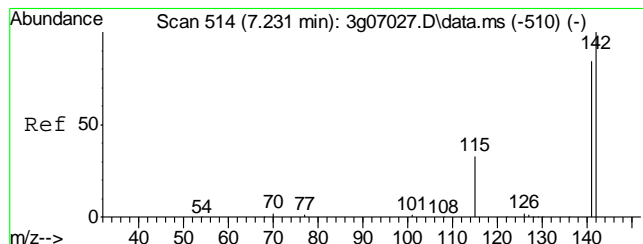
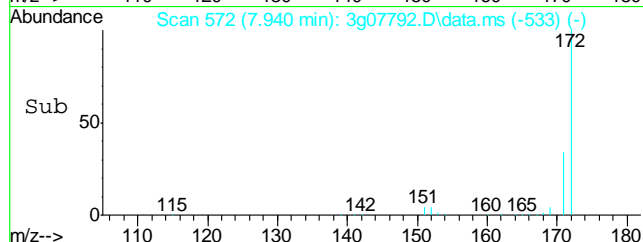
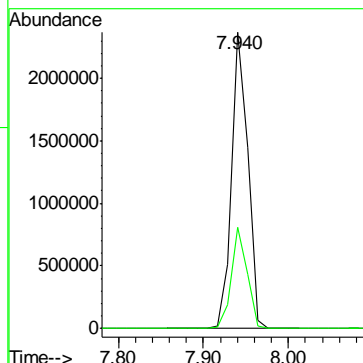
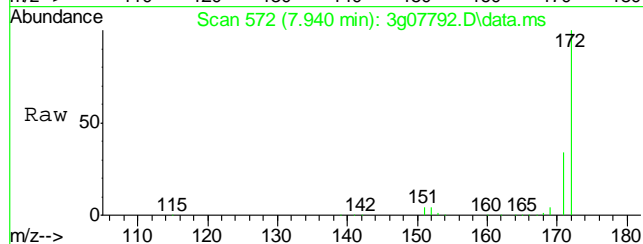
Tgt Ion:164	Resp:	354902
Ion Ratio	Lower	Upper
164	100	
162	91.1	73.9 113.9
160	36.9	18.1 58.1





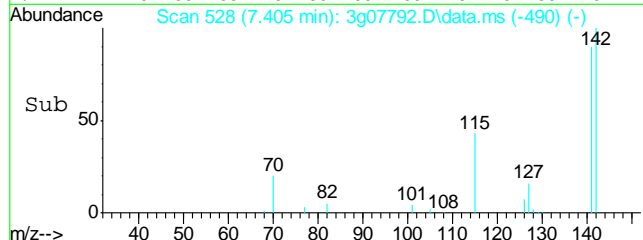
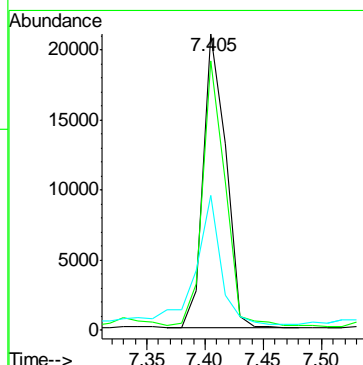
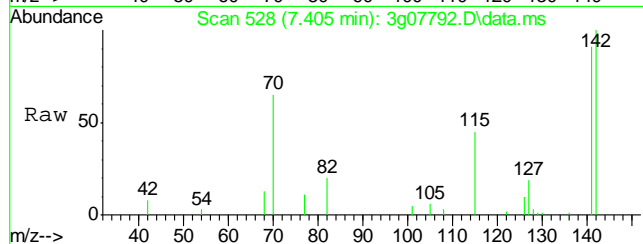
#7
2-Fluorobiphenyl
Concen: 22.89 ug/mL
RT: 7.940 min Scan# 572
Delta R.T. -0.024 min
Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

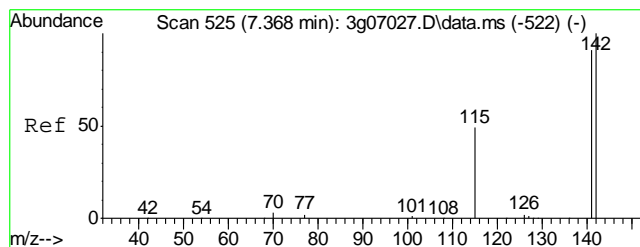
Tgt Ion:172 Resp: 3125163
Ion Ratio Lower Upper
172 100
171 33.0 12.9 52.9



#8
2-Methylnaphthalene
Concen: 0.25 ug/mL
RT: 7.405 min Scan# 528
Delta R.T. -0.025 min
Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

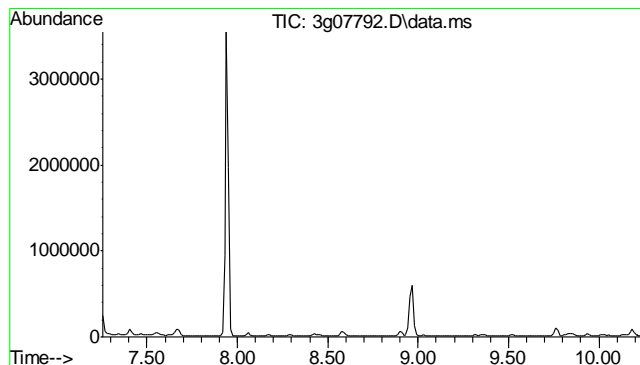
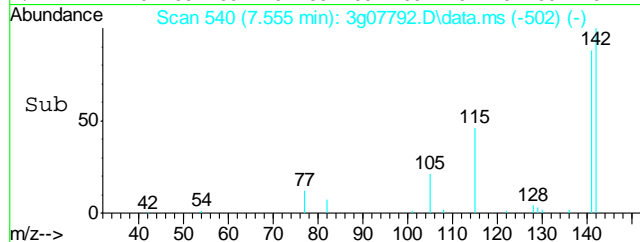
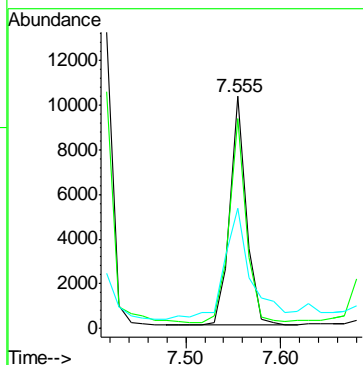
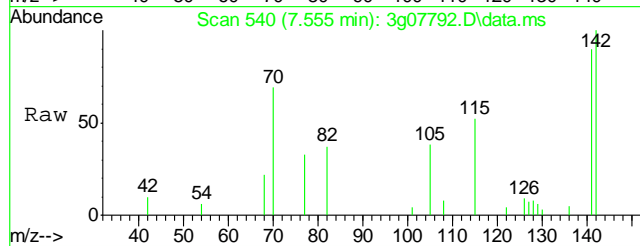
Tgt Ion:142 Resp: 28320
Ion Ratio Lower Upper
142 100
141 90.0 62.7 102.7
115 51.7 18.5 58.5





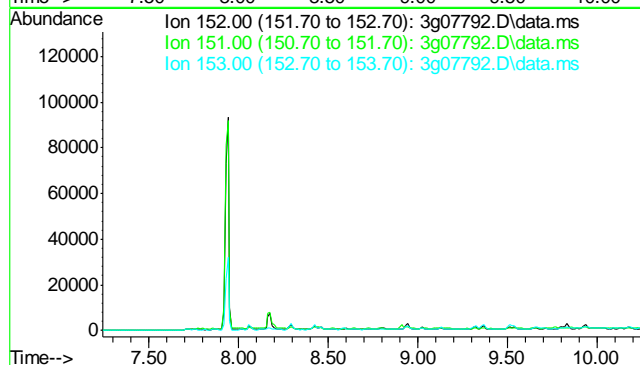
#9
1-Methylnaphthalene
Concen: 0.12 ug/mL
RT: 7.555 min Scan# 540
Delta R.T. -0.025 min
Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

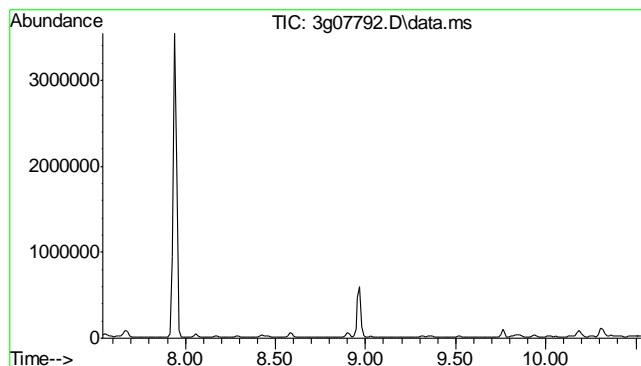
Tgt Ion	Ratio	Lower	Upper
142	100		
141	93.0	67.6	101.4
115	78.7	32.4	48.6



#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.74 min
Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

Tgt Ion	Sig	Exp Ratio
152	100	
151	18.7	
153	13.0	

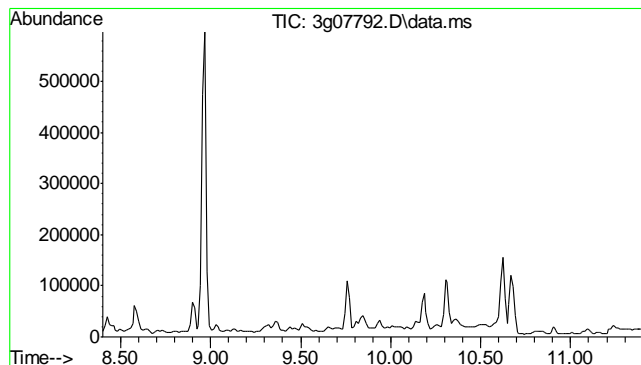
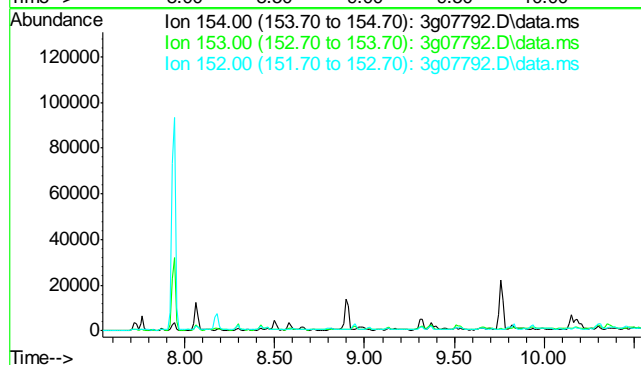




#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 9.04 min

Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

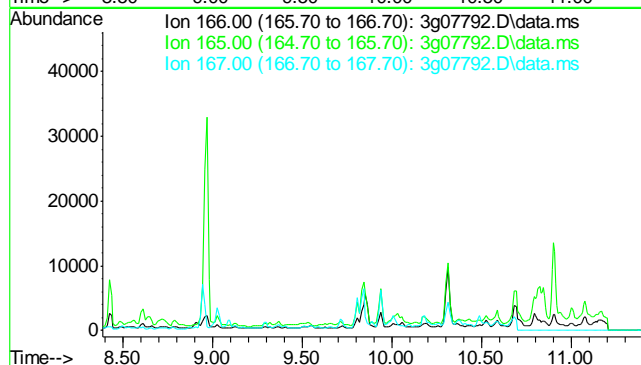
Tgt Ion	Exp Ratio
154	100
153	103.4
152	48.7

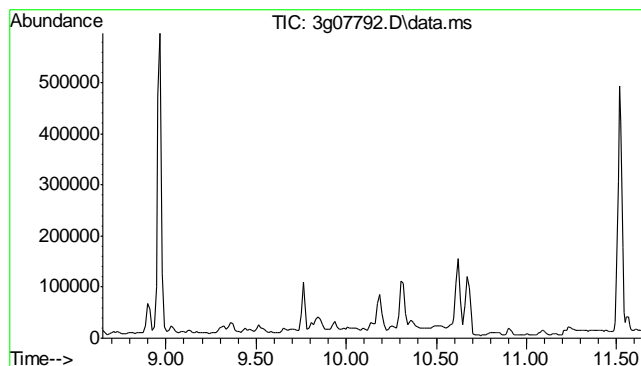


#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 9.89 min

Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

Tgt Ion	Exp Ratio
166	100
165	90.6
167	13.3

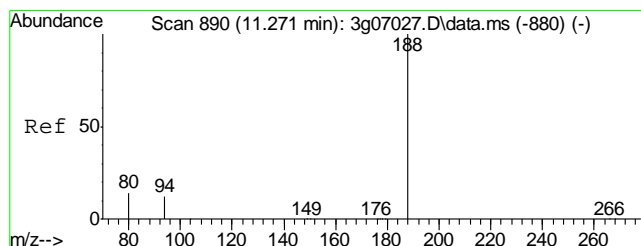
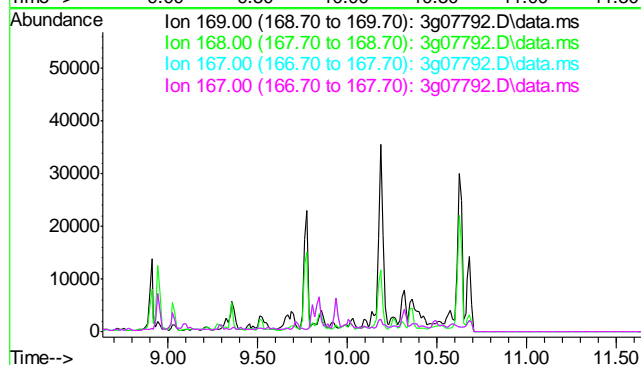




#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.14 min

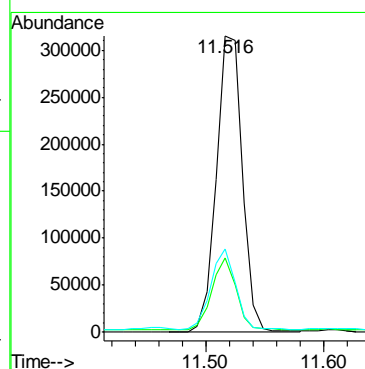
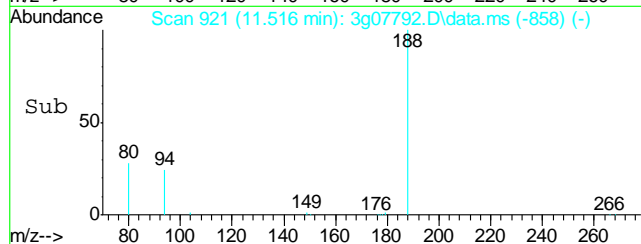
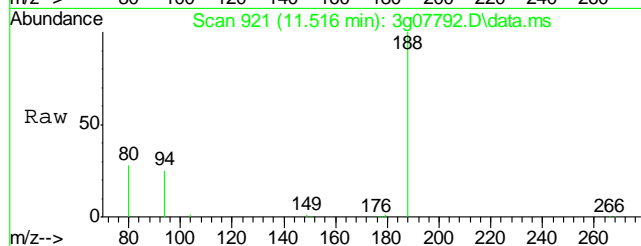
Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

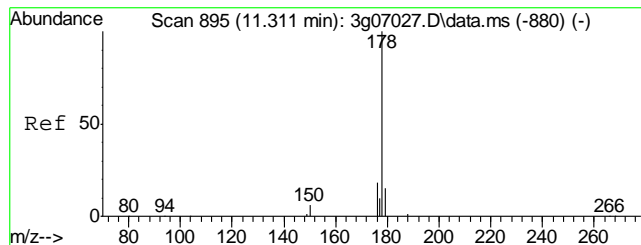
Tgt Ion	Exp Ratio
169	100
168	60.8
167	33.1
167	33.1



#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.516 min Scan# 921
Delta R.T. -0.032 min
Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

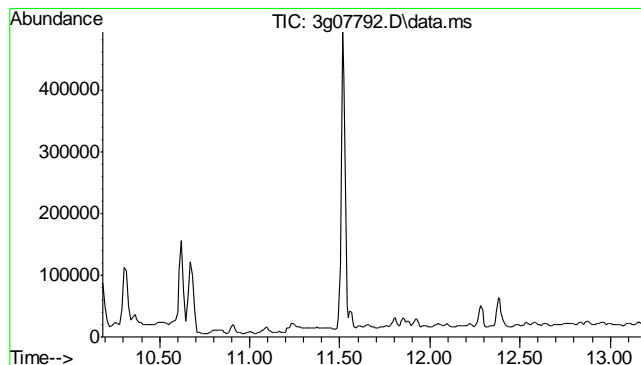
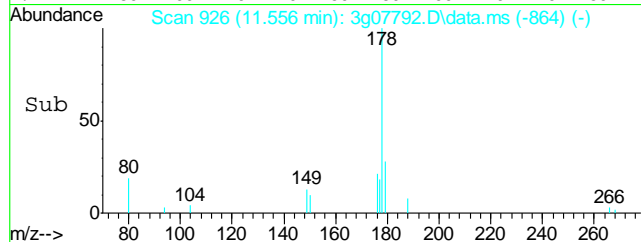
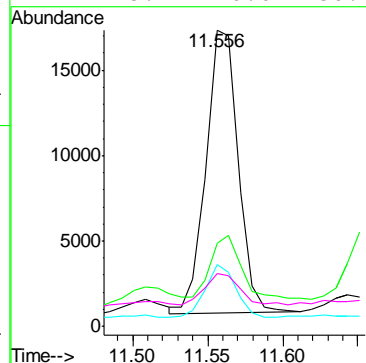
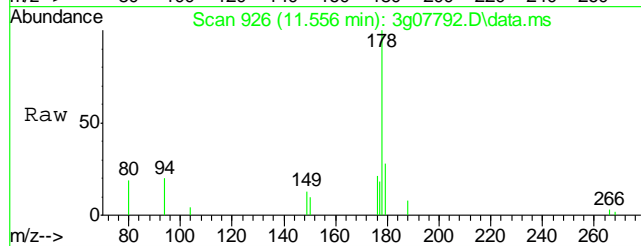
Tgt Ion	Ratio	Lower	Upper
188	100		
94	23.3	9.5	49.5
80	25.8	12.6	52.6





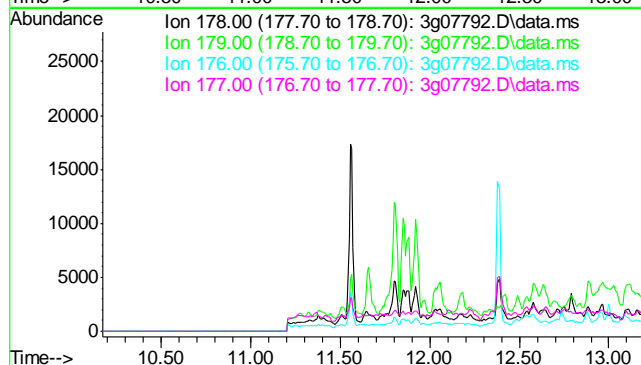
#15
Phenanthrene
Concen: 0.16 ug/mL
RT: 11.556 min Scan# 926
Delta R.T. -0.032 min
Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

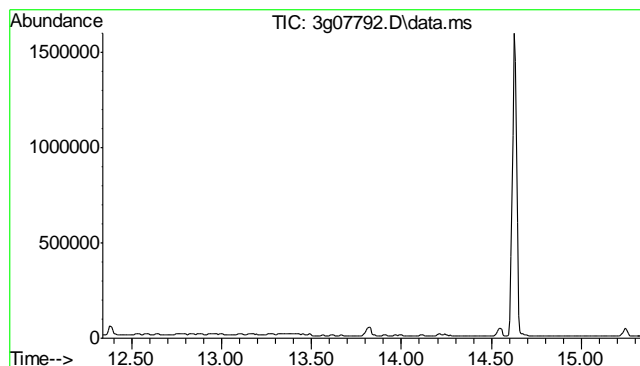
Tgt Ion: 178	Resp: 24853
Ion Ratio	Lower Upper
178 100	
179 26.1	0.0 35.2
176 18.1	0.0 38.4
177 13.1	0.0 30.0



#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.67 min
Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

Tgt Ion: 178	
Sig	Exp Ratio
178 100	
179 15.1	
176 17.6	
177 8.5	

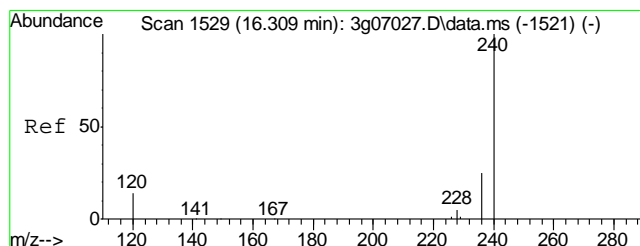
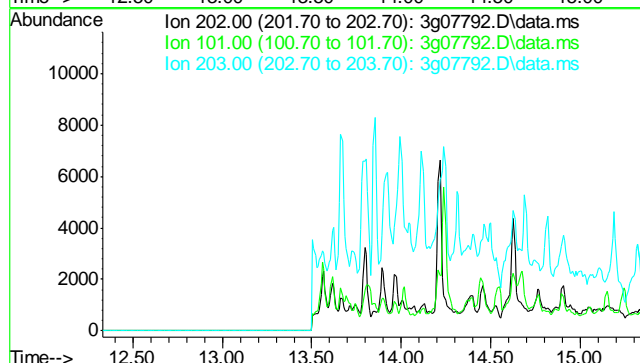




#17
 Fluoranthene
 Concen: N.D. ug/mL
 Expected RT: 13.84 min

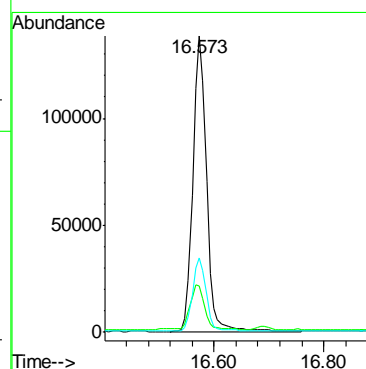
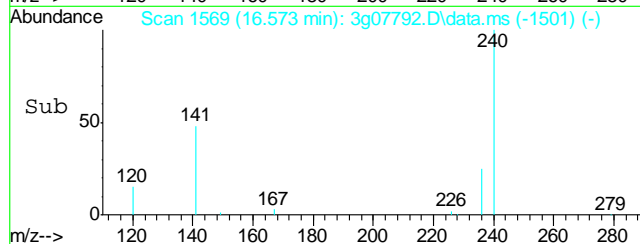
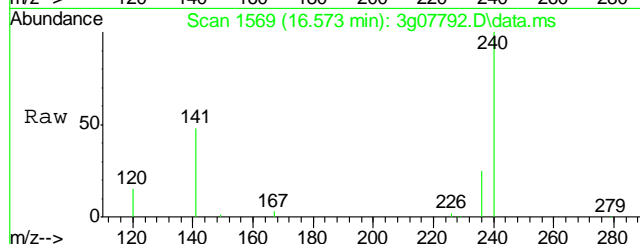
 Lab File: 3g07792.D
 Acq: 3 Feb 12 4:45 pm

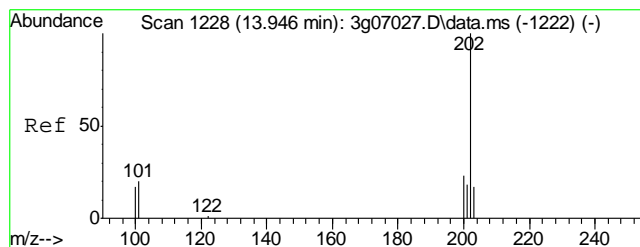
Tgt Ion	Exp Ratio
202	100
101	24.9
203	17.2



#18
 Chrysene-d12
 Concen: 4.00 ug/mL
 RT: 16.573 min Scan# 1569
 Delta R.T. -0.033 min
 Lab File: 3g07792.D
 Acq: 3 Feb 12 4:45 pm

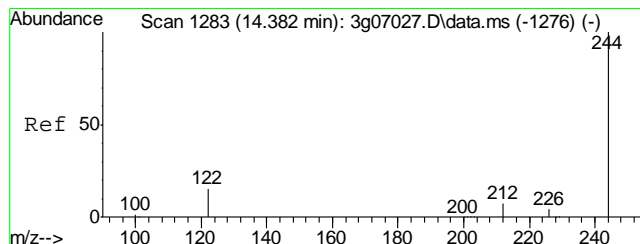
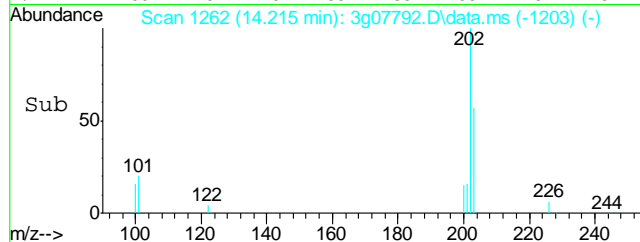
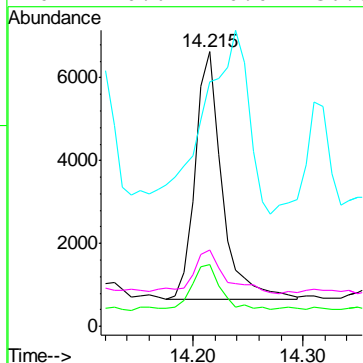
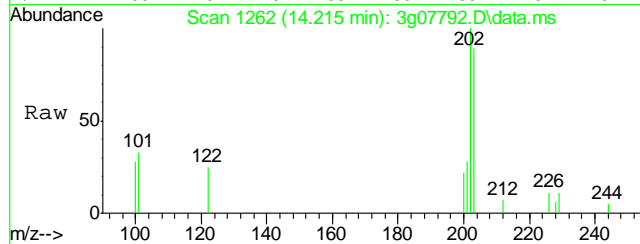
Tgt Ion	Ratio	Lower	Upper
240	100		
120	15.8	0.3	40.3
236	24.6	5.5	45.5





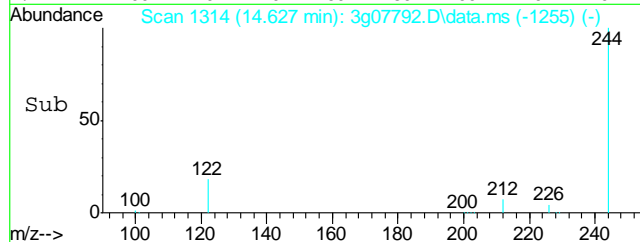
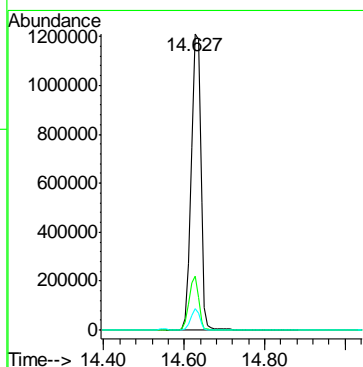
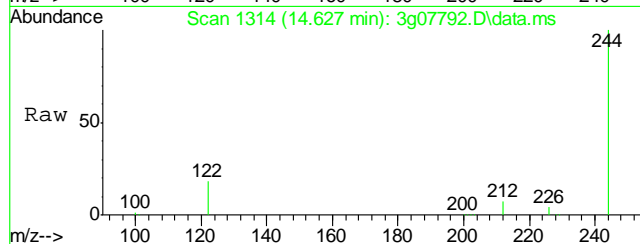
#19
Pyrene
Concen: 0.10 ug/mL
RT: 14.215 min Scan# 1262
Delta R.T. -0.032 min
Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

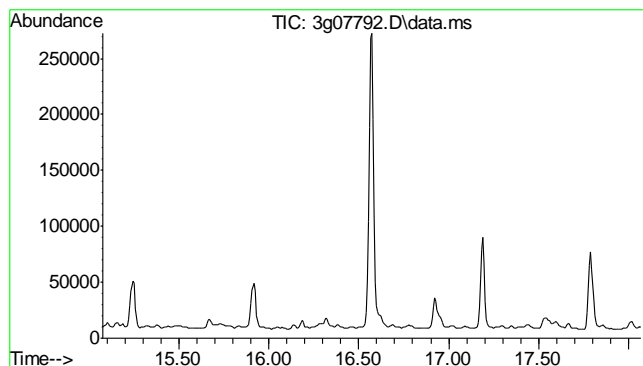
Tgt Ion:	202	Resp:	10120
Ion Ratio	Lower	Upper	
202	100		
200	19.6	0.0	39.9
203	124.0	0.0	37.8#
201	20.6	0.0	36.3



#20
Terphenyl-d14
Concen: 44.29 ug/mL
RT: 14.627 min Scan# 1314
Delta R.T. -0.032 min
Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

Tgt Ion:	244	Resp:	1972171
Ion Ratio	Lower	Upper	
244	100		
122	17.7	0.1	40.1
212	6.7	0.0	27.0

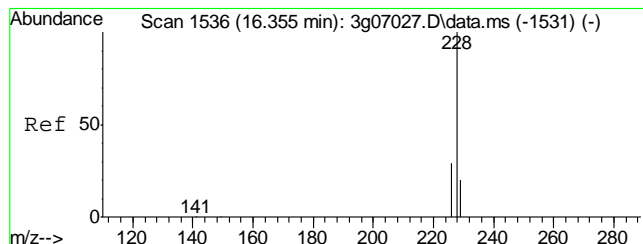
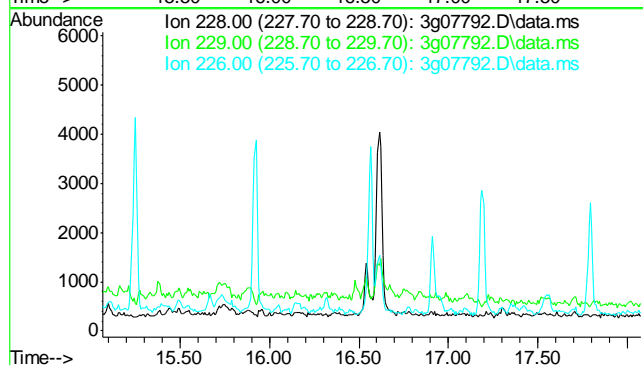




#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.57 min

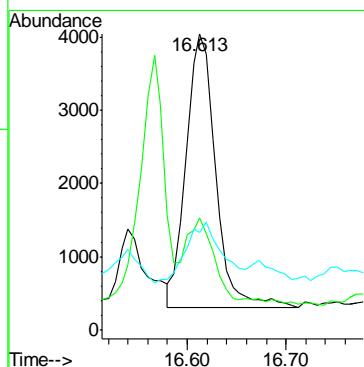
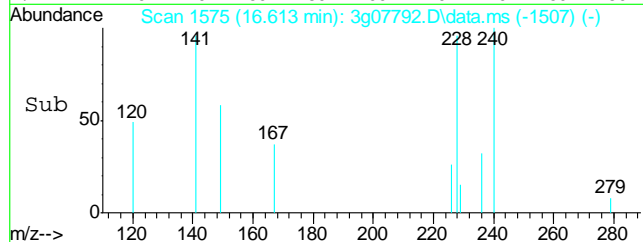
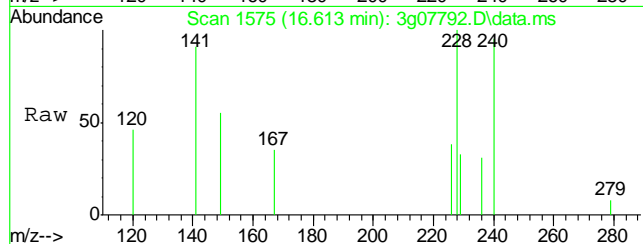
Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

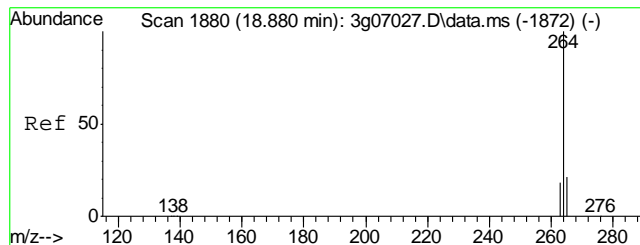
Tgt Ion: 228
Sig Exp Ratio
228 100
229 19.5
226 26.1



#22
Chrysene
Concen: 0.10 ug/mL
RT: 16.613 min Scan# 1575
Delta R.T. -0.040 min
Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

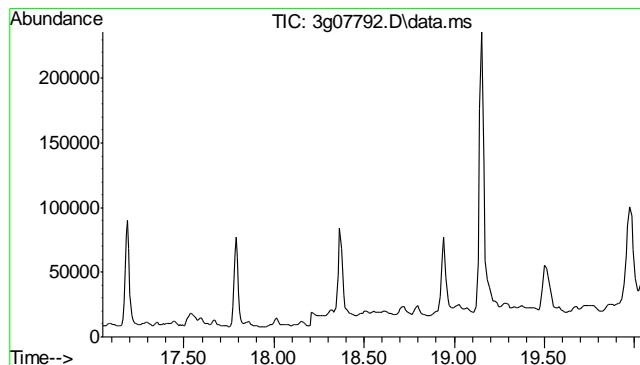
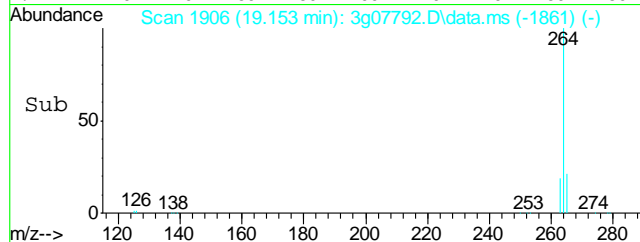
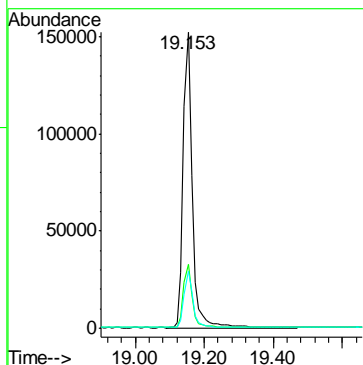
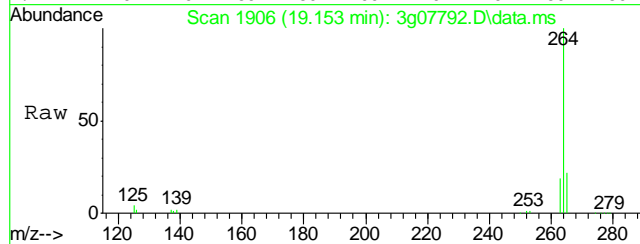
Tgt Ion: 228 Resp: 7797
Ion Ratio Lower Upper
228 100
226 30.8 8.4 48.4
229 28.3 0.0 39.4





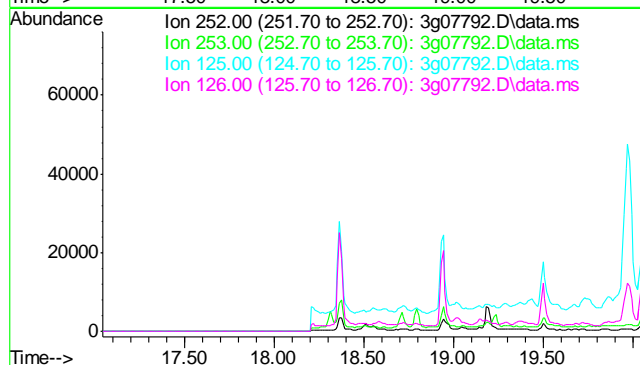
#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 19.153 min Scan# 1906
Delta R.T. -0.032 min
Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

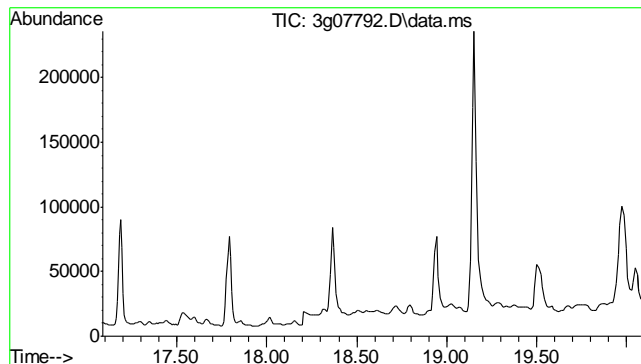
Tgt Ion:	264	Resp:	277002
Ion Ratio	Lower	Upper	
264	100		
265	21.3	1.1	41.1
263	19.1	0.0	38.7



#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.54 min
Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.4
125	12.8
126	18.0

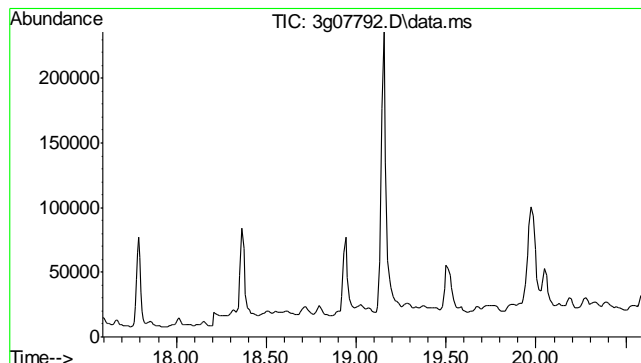
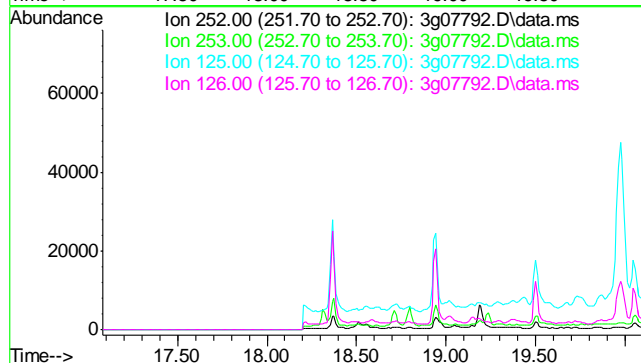




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.59 min

Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

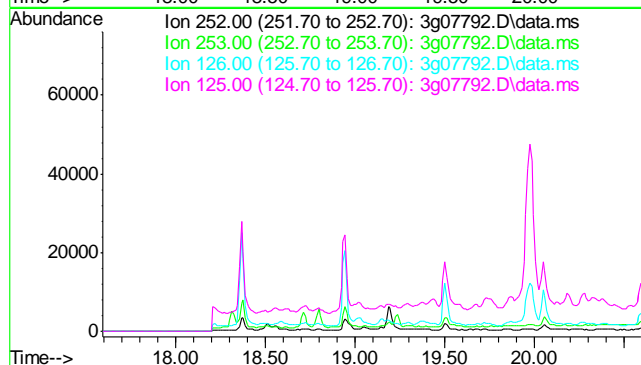
Tgt Ion: 252	
Sig	Exp Ratio
252	100
253	21.6
125	11.1
126	17.3

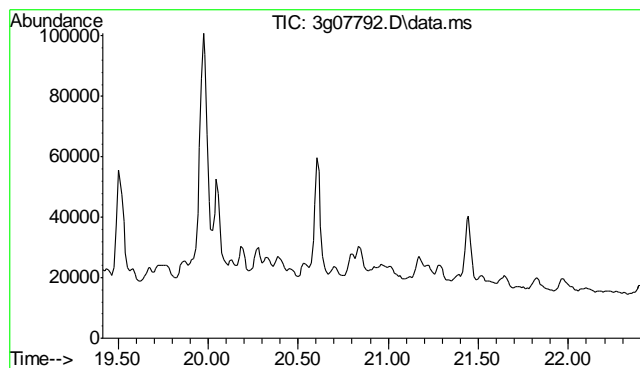


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 19.09 min

Lab File: 3g07792.D
Acq: 3 Feb 12 4:45 pm

Tgt Ion: 252	
Sig	Exp Ratio
252	100
253	21.0
126	17.4
125	13.1

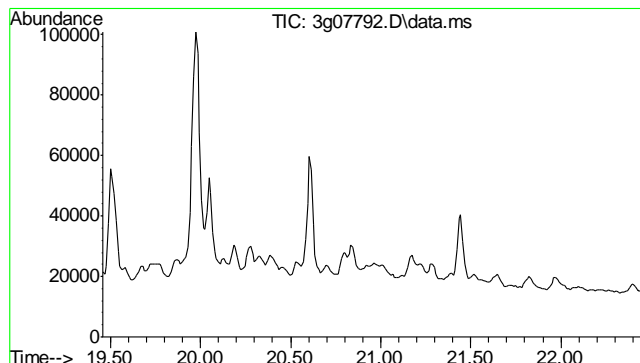
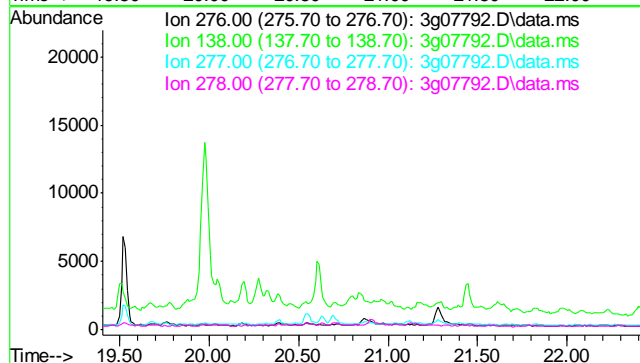




#27
 Indeno(1,2,3-cd)pyrene
 Concen: N.D. ug/mL
 Expected RT: 20.91 min

Lab File: 3g07792.D
 Acq: 3 Feb 12 4:45 pm

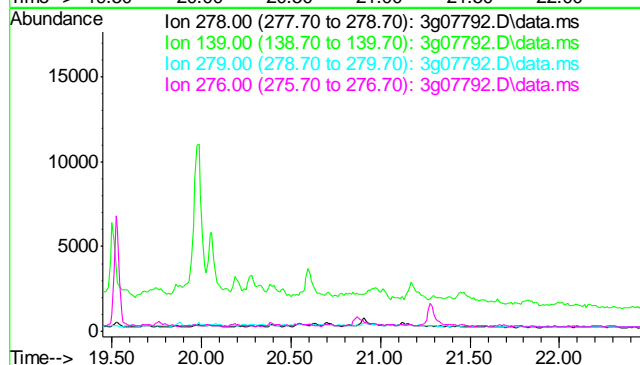
Tgt Ion	Exp Ratio
276	100
138	25.2
277	35.5
278	114.3

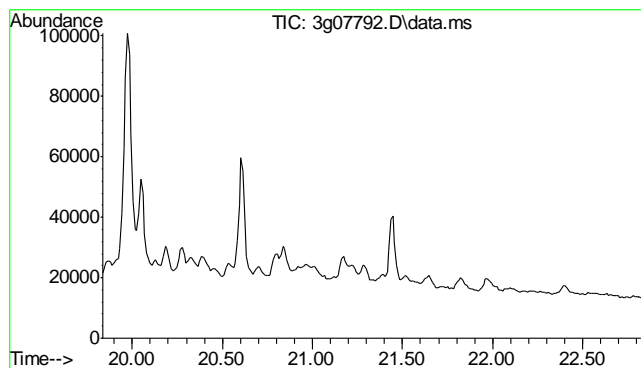


#28
 Dibenzo(a,h)anthracene
 Concen: N.D. ug/mL
 Expected RT: 20.95 min

Lab File: 3g07792.D
 Acq: 3 Feb 12 4:45 pm

Tgt Ion	Exp Ratio
278	100
139	19.4
279	23.5
276	124.8

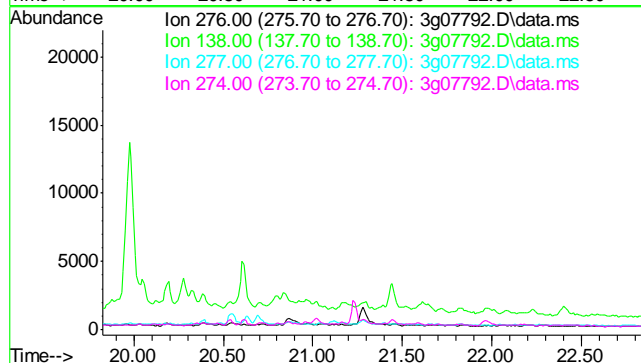




#29
 Benzo(g,h,i)perylene
 Concen: N.D. ug/mL
 Expected RT: 21.33 min

 Lab File: 3g07792.D
 Acq: 3 Feb 12 4:45 pm

Tgt Ion	Exp Ratio
276	100
138	23.8
277	23.3
274	21.0



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\020312\
 Data File : 3g07786.D
 Acq On : 3 Feb 2012 12:48 pm
 Operator : DONC
 Sample : OP5294-MB
 Misc : OP5294,E3G303,30,,,1,1
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Feb 05 07:11:55 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G292.M
 Quant Title : PAHSIM BASE
 QLast Update : Mon Jan 23 10:56:40 2012
 Response via : Initial Calibration

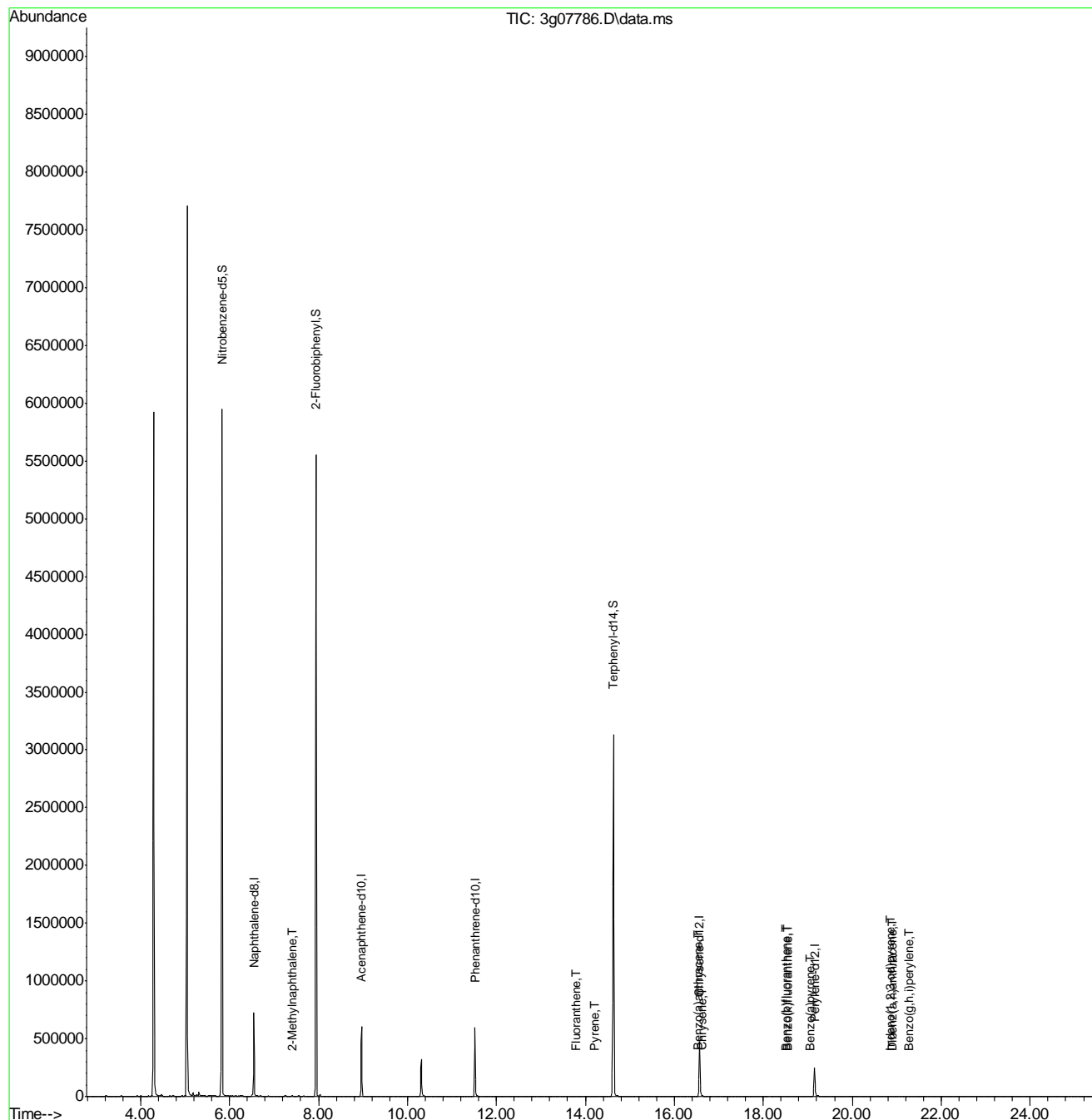
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.545	136	628156	4.00	ug/mL	-0.02
6) Acenaphthene-d10	8.968	164	365651	4.00	ug/mL	-0.02
14) Phenanthrene-d10	11.516	188	555851	4.00	ug/mL	-0.03
18) Chrysene-d12	16.567	240	499072	4.00	ug/mL	-0.04
23) Perylene-d12	19.153	264	334887	4.00	ug/mL	-0.03
System Monitoring Compounds						
2) Nitrobenzene-d5	5.834	82	5199333	34.25	ug/mL	-0.01
7) 2-Fluorobiphenyl	7.940	172	5454831	42.22	ug/mL	-0.02
20) Terphenyl-d14	14.635	244	3895164	41.70	ug/mL	-0.02
Target Compounds						
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	0.000		0	N.D.	d	
8) 2-Methylnaphthalene	7.405	142	3967	0.03	ug/mL	92
9) 1-Methylnaphthalene	0.000		0	N.D.	d	
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	0.000		0	N.D.	d	
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	0.000		0	N.D.	d	
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	13.796	202	1828	0.01	ug/mL	98
19) Pyrene	14.207	202	2218	0.01	ug/mL	93
21) Benzo(a)anthracene	16.540	228	2285	0.01	ug/mL	93
22) Chrysene	16.613	228	3477	0.02	ug/mL	94
24) Benzo(b)fluoranthene	18.501	252	2147	0.02	ug/mL	97
25) Benzo(k)fluoranthene	18.543	252	2138	0.02	ug/mL	83
26) Benzo(a)pyrene	19.048	252	1831	0.02	ug/mL	88
27) Indeno(1,2,3-cd)pyrene	20.857	276	1405m	0.03	ug/mL	
28) Dibenz(a,h)anthracene	20.909	278	1285	0.02	ug/mL#	72
29) Benzo(g,h,i)perylene	21.277	276	1896	0.03	ug/mL	94

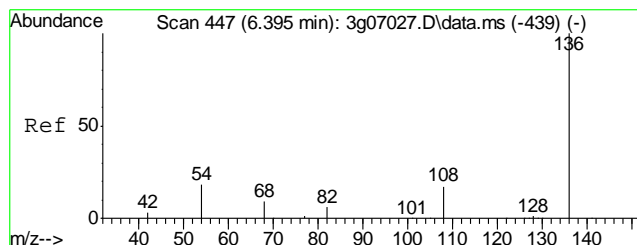
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\020312\
Data File : 3g07786.D
Acq On : 3 Feb 2012 12:48 pm
Operator : DONC
Sample : OP5294-MB
Misc : OP5294,E3G303,30,,,1,1
ALS Vial : 4 Sample Multiplier: 1

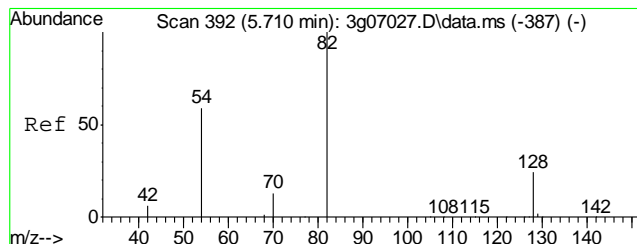
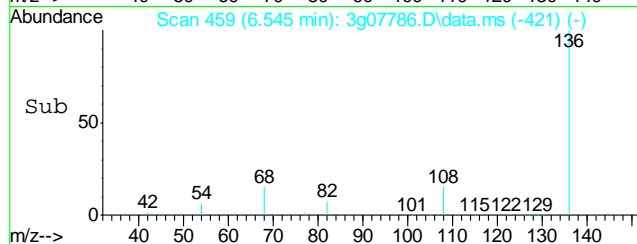
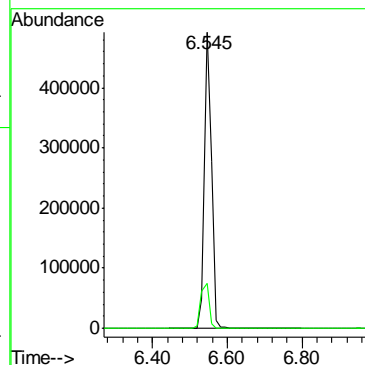
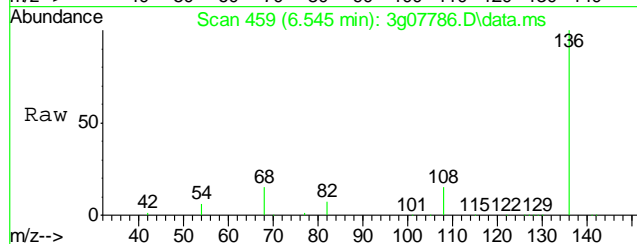
Quant Time: Feb 05 07:11:55 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G292.M
Quant Title : PAHSIM BASE
QLast Update : Mon Jan 23 10:56:40 2012
Response via : Initial Calibration





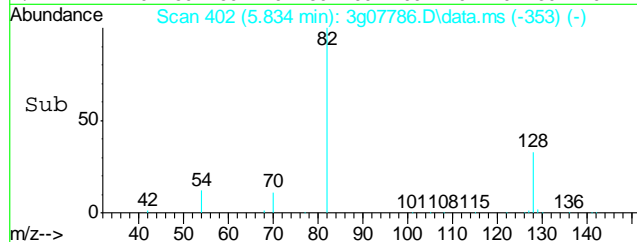
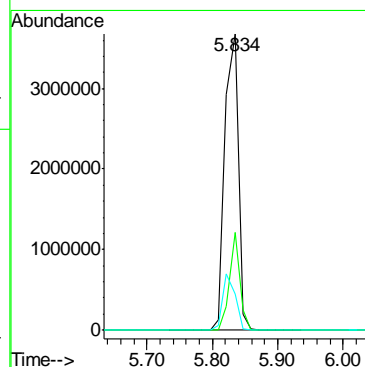
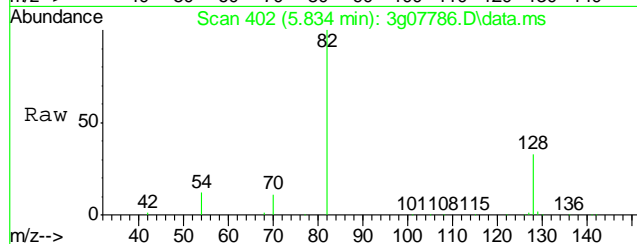
#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.545 min Scan# 459
Delta R.T. -0.025 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

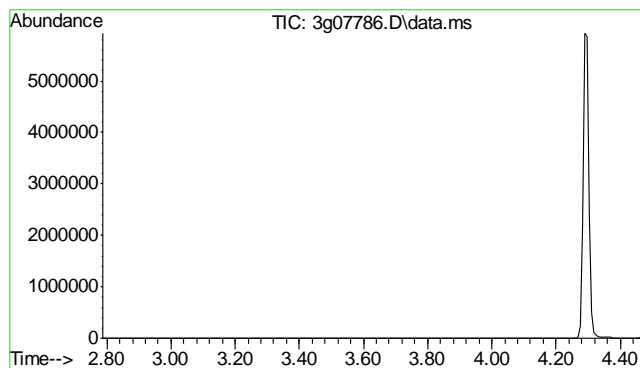
Tgt Ion:	136	Resp:	628156
Ion Ratio	Lower	Upper	
136	100		
68	17.7	0.5	40.5



#2
Nitrobenzene-d5
Concen: 34.25 ug/mL
RT: 5.834 min Scan# 402
Delta R.T. -0.012 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

Tgt Ion:	82	Resp:	5199333
Ion Ratio	Lower	Upper	
82	100		
128	25.3	0.4	40.4
54	17.5	0.0	35.4

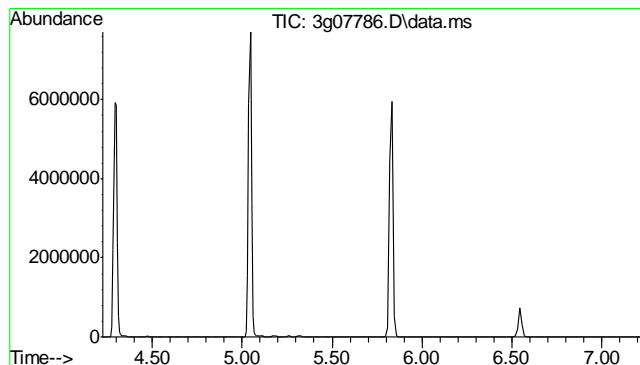
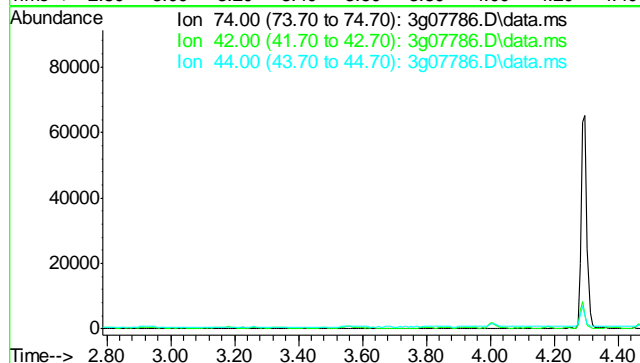




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.97 min

Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

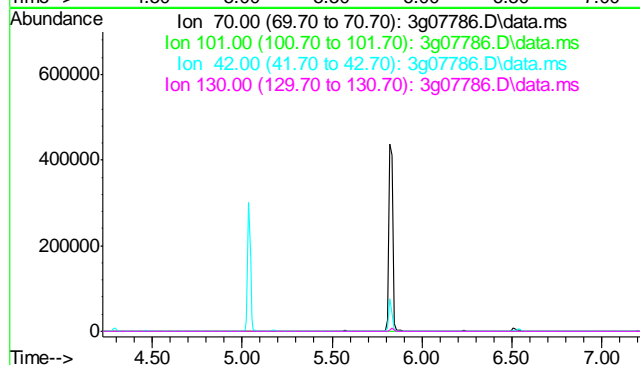
Tgt Ion:	74
Sig	Exp Ratio
74	100
42	16.7
44	1.1

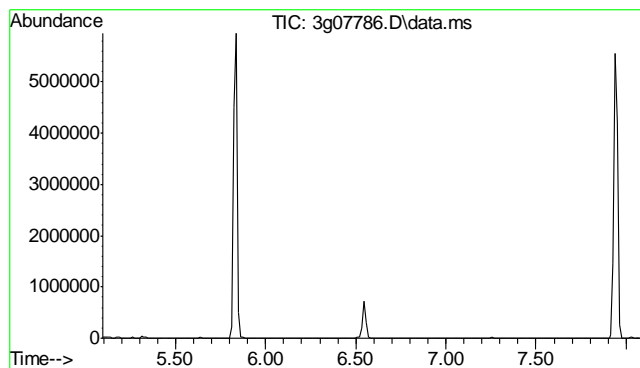


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.72 min

Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

Tgt Ion:	70
Sig	Exp Ratio
70	100
101	9.2
42	14.5
130	10.6

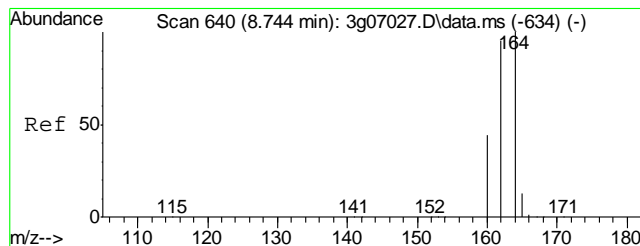
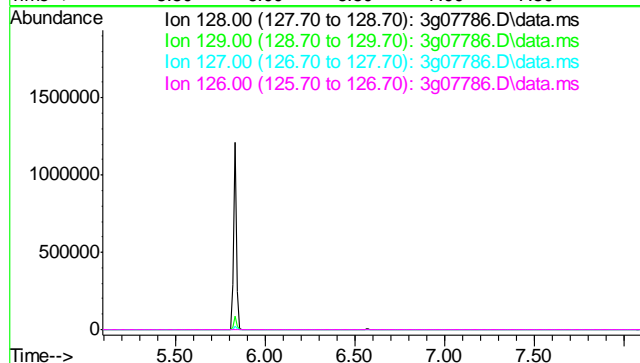




#5
Naphthalene
Concen: N.D. ug/mL
Expected RT: 6.59 min

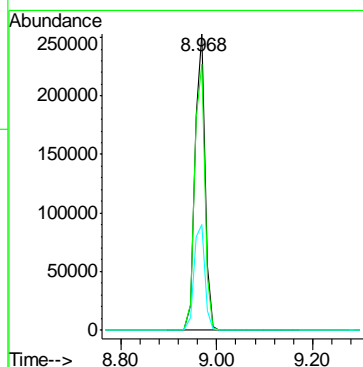
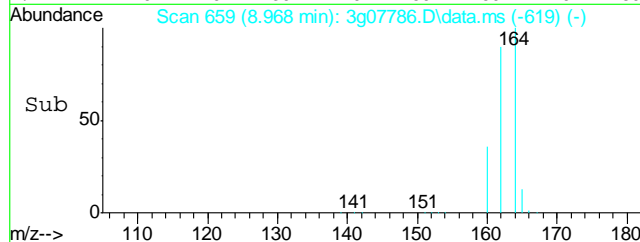
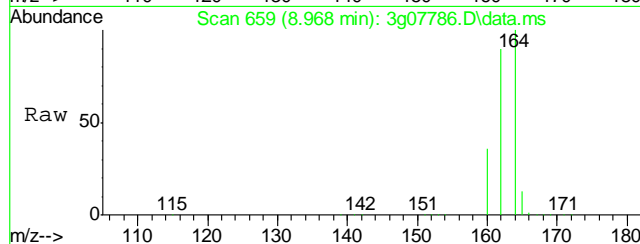
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

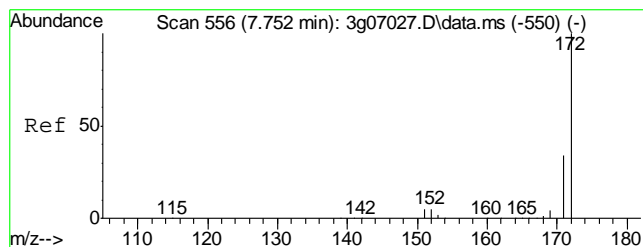
Tgt Ion: 128
Sig Exp Ratio
128 100
129 10.8
127 13.6
126 7.7



#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 8.968 min Scan# 659
Delta R.T. -0.024 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

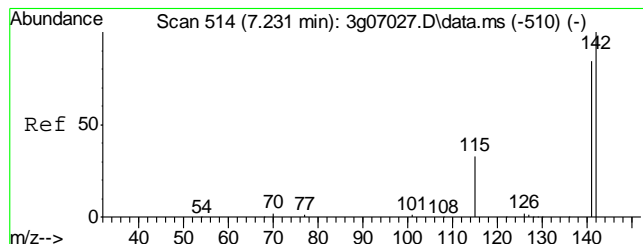
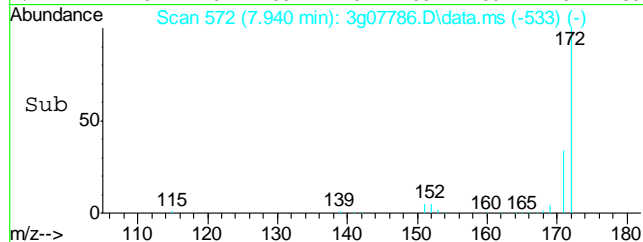
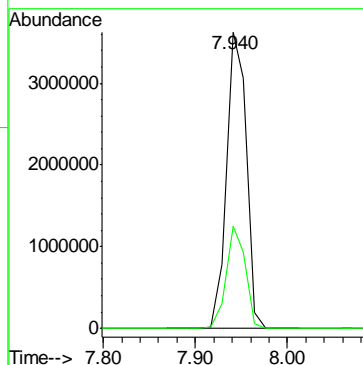
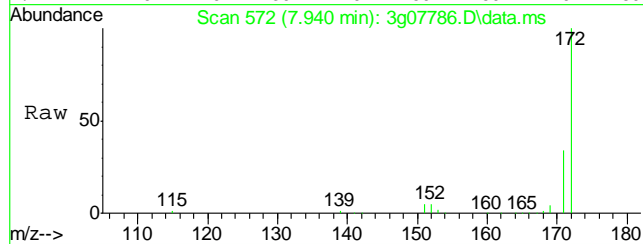
Tgt Ion: 164 Resp: 365651
Ion Ratio Lower Upper
164 100
162 92.8 73.9 113.9
160 38.5 18.1 58.1





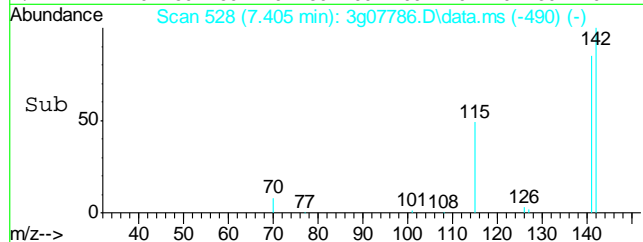
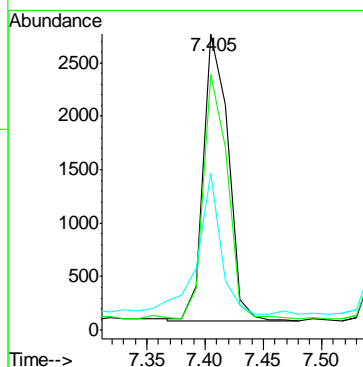
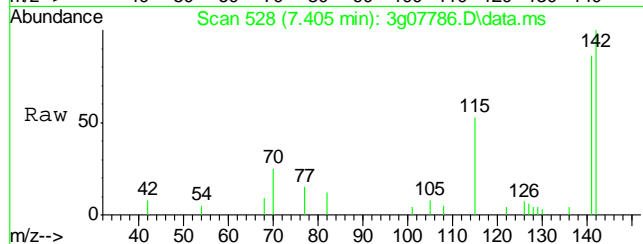
#7
2-Fluorobiphenyl
Concen: 42.22 ug/mL
RT: 7.940 min Scan# 572
Delta R.T. -0.024 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

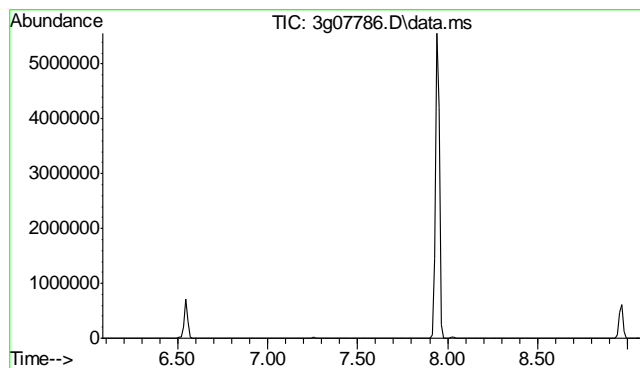
Tgt Ion:172 Resp: 5454831
Ion Ratio Lower Upper
172 100
171 33.1 12.9 52.9



#8
2-Methylnaphthalene
Concen: 0.03 ug/mL
RT: 7.405 min Scan# 528
Delta R.T. -0.025 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

Tgt Ion:142 Resp: 3967
Ion Ratio Lower Upper
142 100
141 85.8 62.7 102.7
115 49.0 18.5 58.5

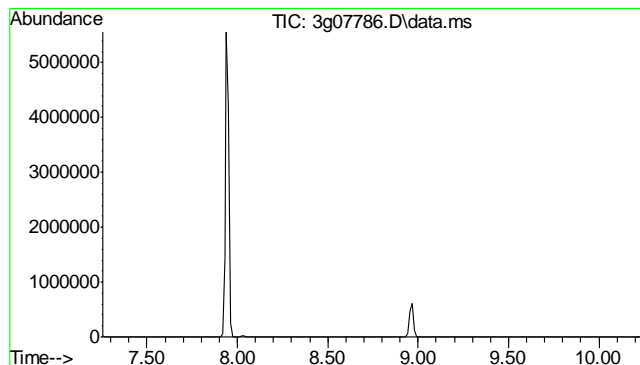
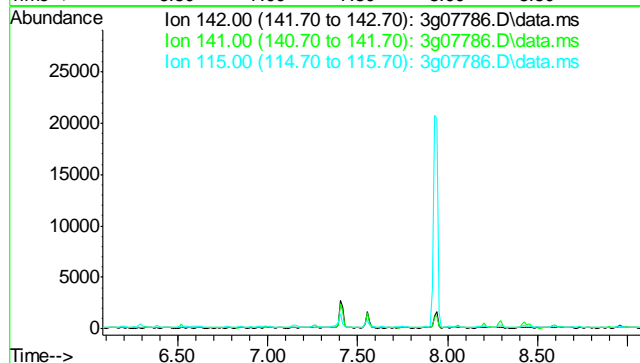




#9
1-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.58 min

Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

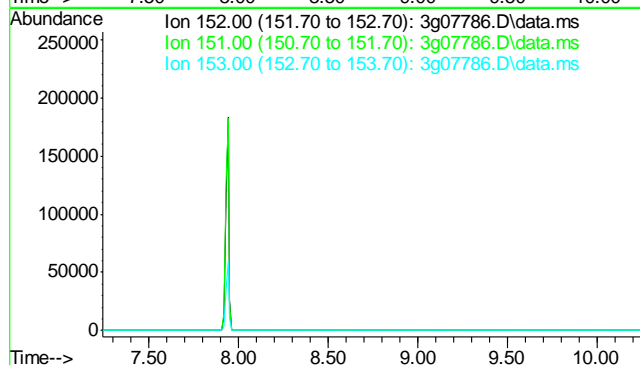
Tgt Ion: 142
Sig Exp Ratio
142 100
141 84.5
115 40.5

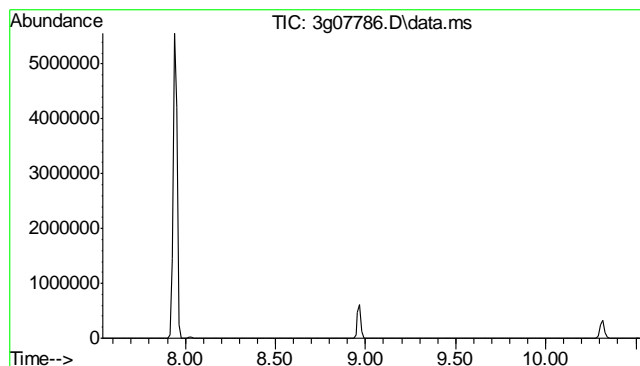


#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.74 min

Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

Tgt Ion: 152
Sig Exp Ratio
152 100
151 18.7
153 13.0

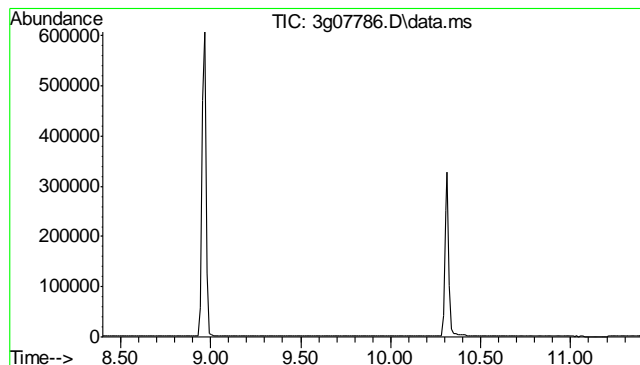
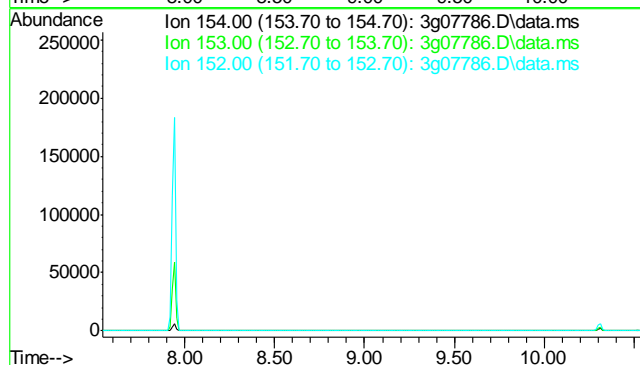




#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 9.04 min

Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

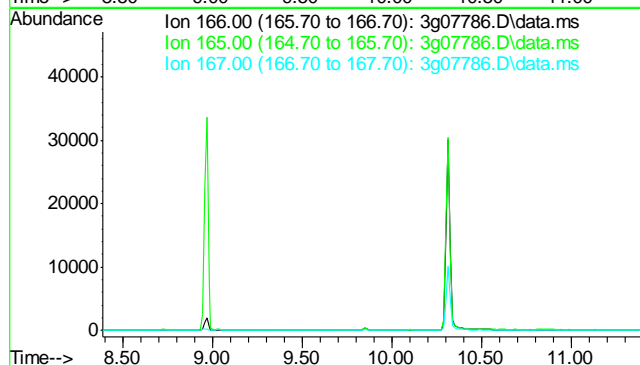
Tgt Ion:	154
Sig	Exp Ratio
154	100
153	103.4
152	48.7

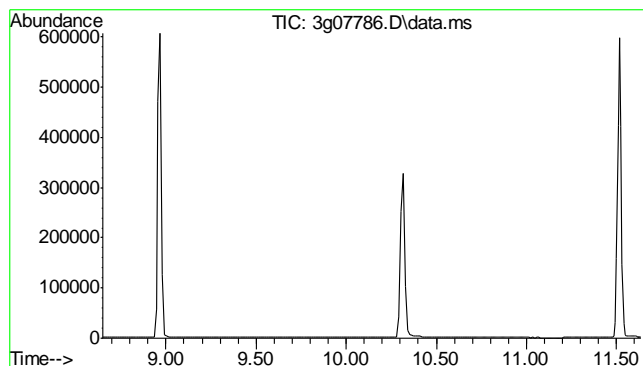


#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 9.89 min

Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

Tgt Ion:	166
Sig	Exp Ratio
166	100
165	90.6
167	13.3

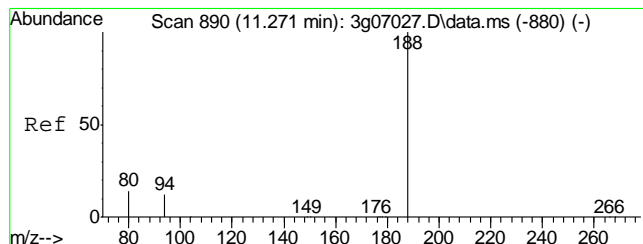
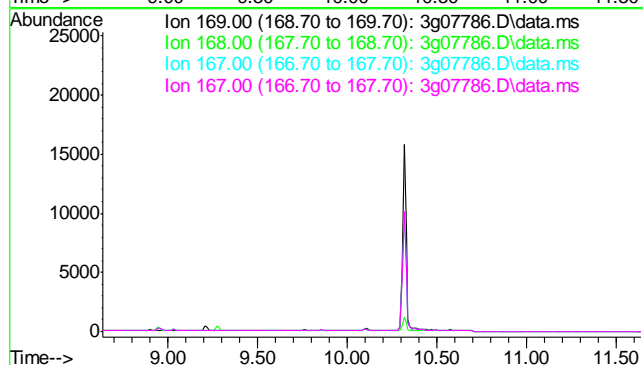




#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.14 min

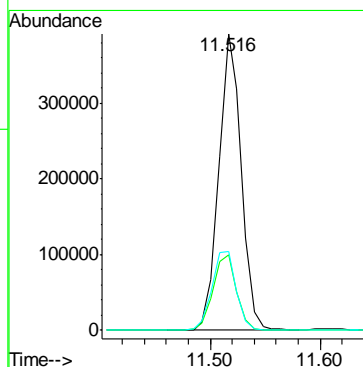
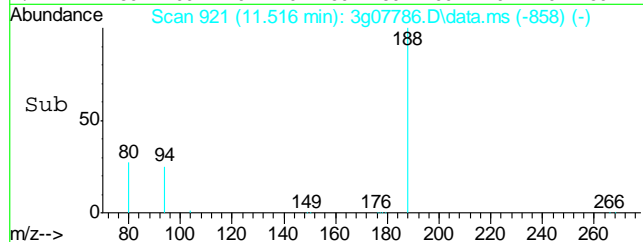
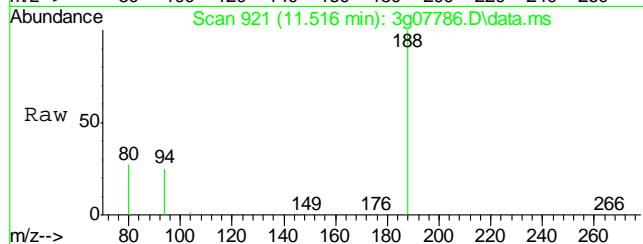
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

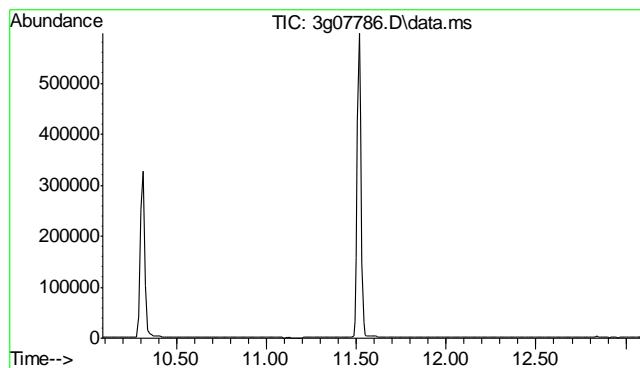
Tgt Ion:	169
Sig	Exp Ratio
169	100
168	60.8
167	33.1
167	33.1



#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.516 min Scan# 921
Delta R.T. -0.032 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

Tgt Ion:	188	Resp:	555851
Ion	Ratio	Lower	Upper
188	100		
94	26.2	9.5	49.5
80	28.4	12.6	52.6

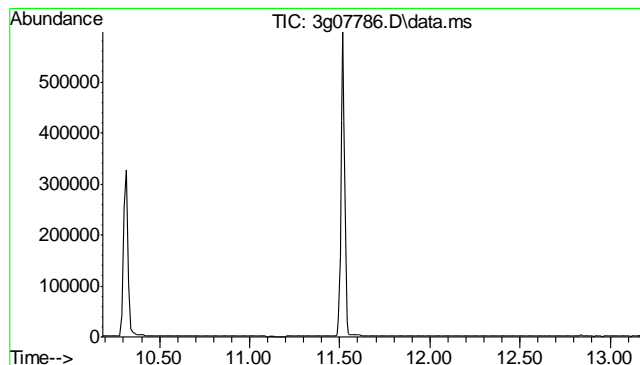
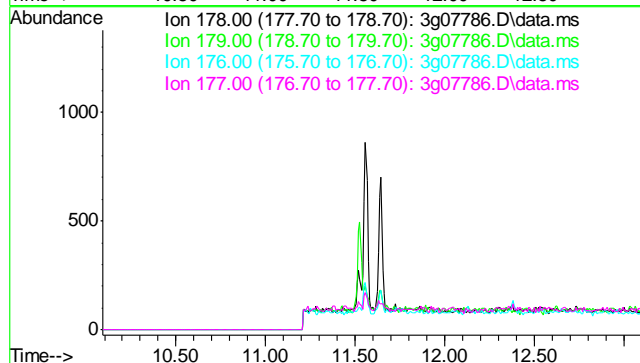




#15
Phenanthrene
Concen: N.D. ug/mL
Expected RT: 11.59 min

Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

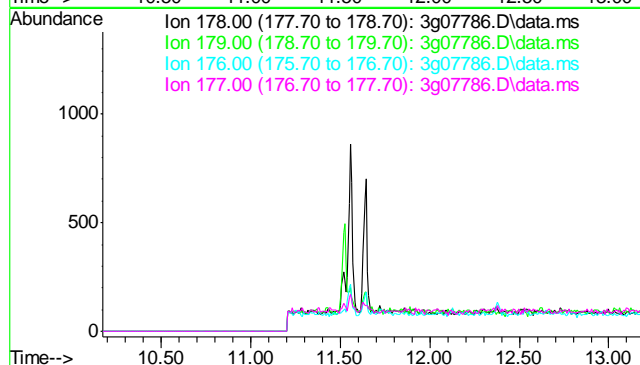
Tgt Ion:	178
Sig	Exp Ratio
178	100
179	15.2
176	18.4
177	10.0

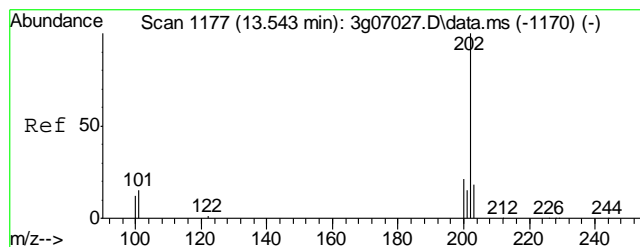


#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.67 min

Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

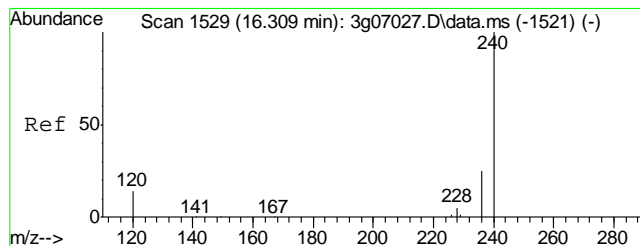
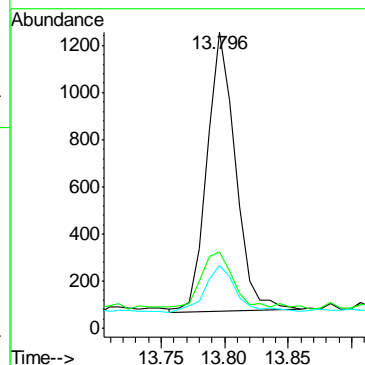
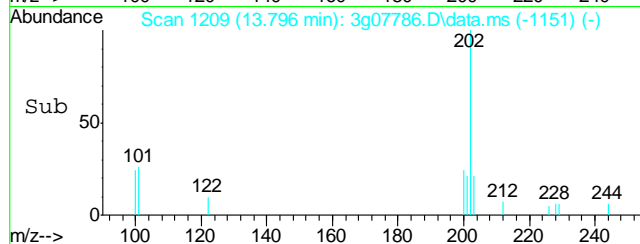
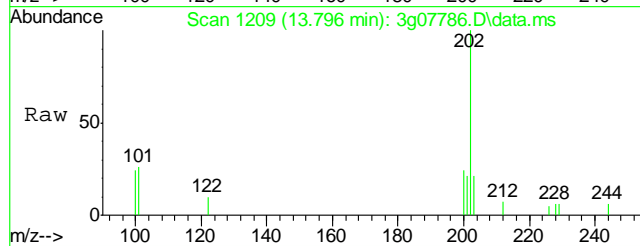
Tgt Ion:	178
Sig	Exp Ratio
178	100
179	15.1
176	17.6
177	8.5





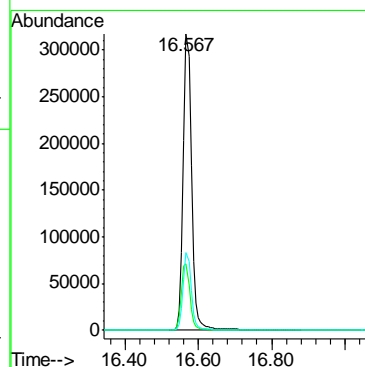
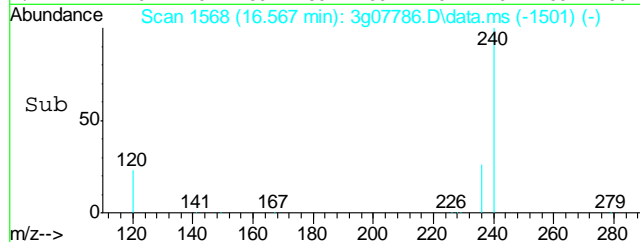
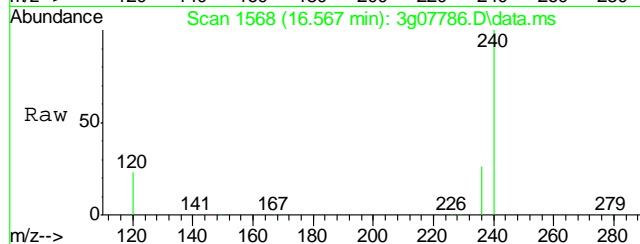
#17
Fluoranthene
Concen: 0.01 ug/mL
RT: 13.796 min Scan# 1209
Delta R.T. -0.040 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

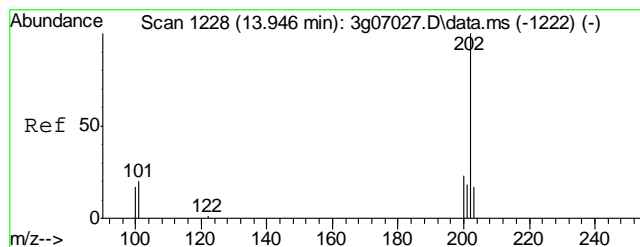
Tgt Ion: 202	Resp: 1828
Ion Ratio	Lower Upper
202 100	
101 24.4	4.9 44.9
203 19.0	0.0 37.2



#18
Chrysene-d12
Concen: 4.00 ug/mL
RT: 16.567 min Scan# 1568
Delta R.T. -0.040 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

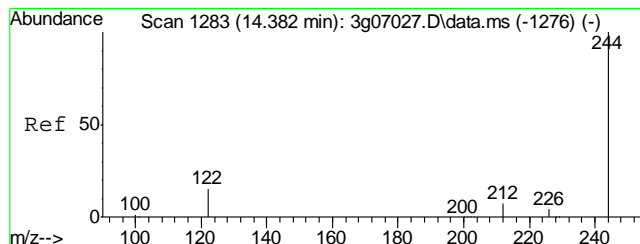
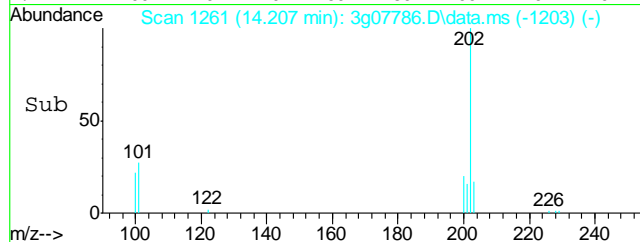
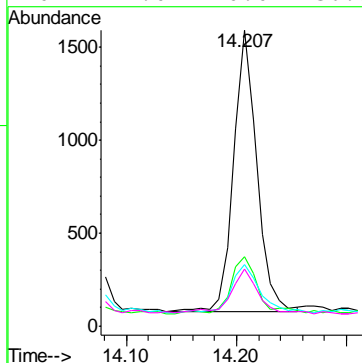
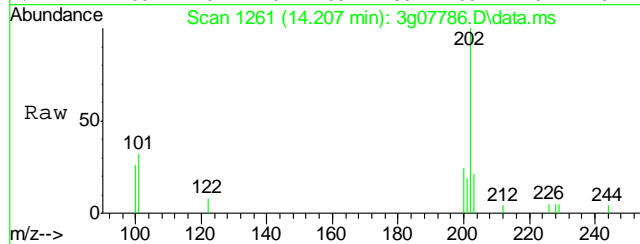
Tgt Ion: 240	Resp: 499072
Ion Ratio	Lower Upper
240 100	
120 22.9	0.3 40.3
236 25.6	5.5 45.5





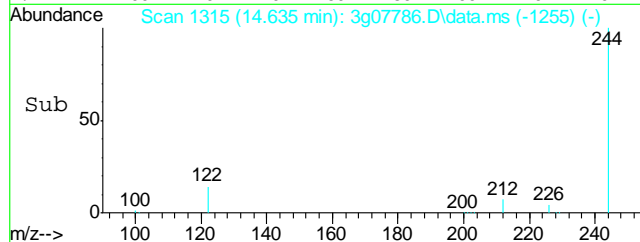
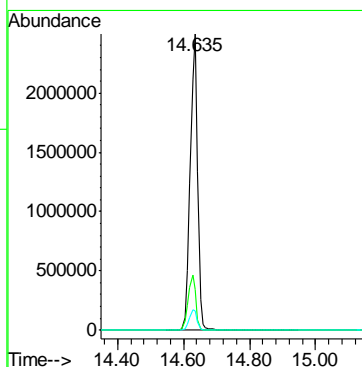
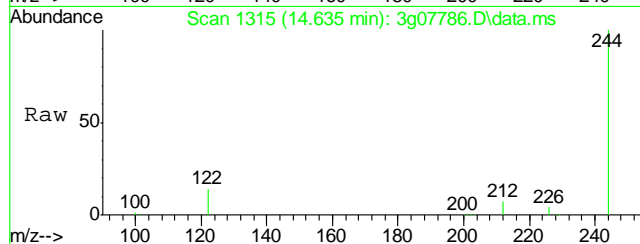
#19
Pyrene
Concen: 0.01 ug/mL
RT: 14.207 min Scan# 1261
Delta R.T. -0.040 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

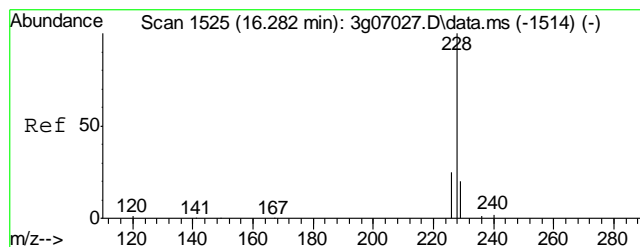
Tgt Ion:	202	Resp:	2218
Ion Ratio	Lower	Upper	
202	100		
200	21.5	0.0	39.9
203	21.0	0.0	37.8
201	21.0	0.0	36.3



#20
Terphenyl-d14
Concen: 41.70 ug/mL
RT: 14.635 min Scan# 1315
Delta R.T. -0.024 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

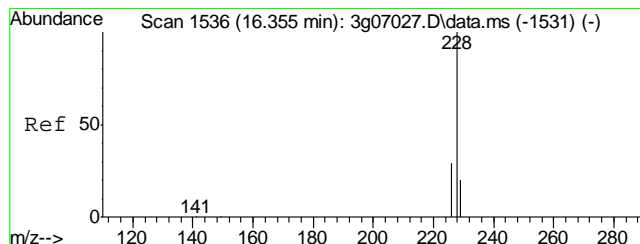
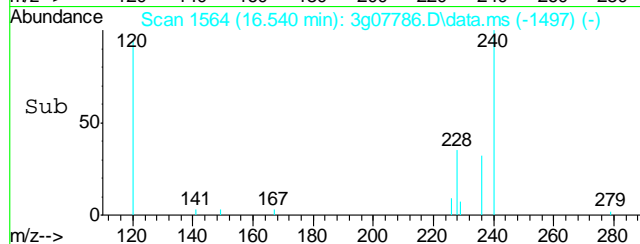
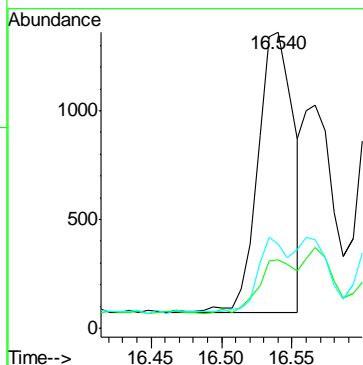
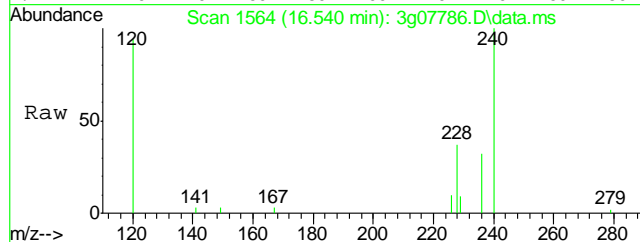
Tgt Ion:	244	Resp:	3895164
Ion Ratio	Lower	Upper	
244	100		
122	19.3	0.1	40.1
212	7.2	0.0	27.0





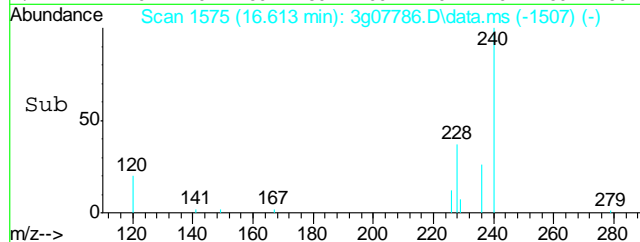
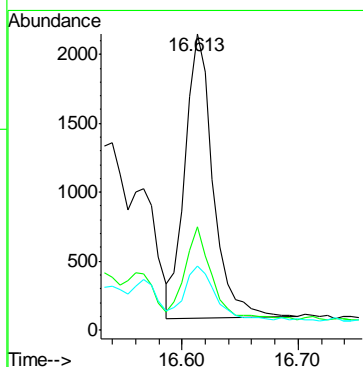
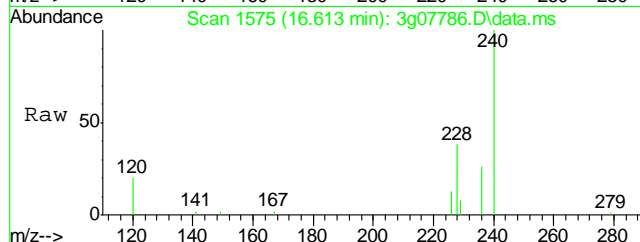
#21
Benzo(a)anthracene
Concen: 0.01 ug/mL
RT: 16.540 min Scan# 1564
Delta R.T. -0.033 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

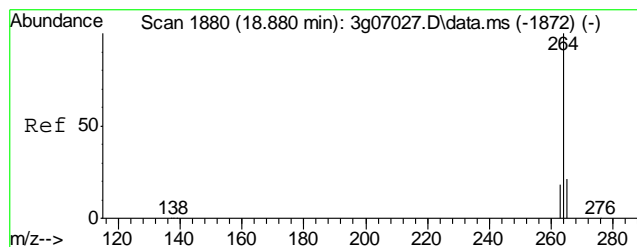
Tgt Ion:	228	Resp:	2285
Ion Ratio	Lower	Upper	
228	100		
229	20.7	0.0	39.5
226	20.9	6.1	46.1



#22
Chrysene
Concen: 0.02 ug/mL
RT: 16.613 min Scan# 1575
Delta R.T. -0.040 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

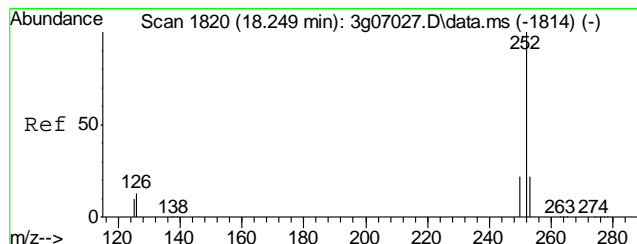
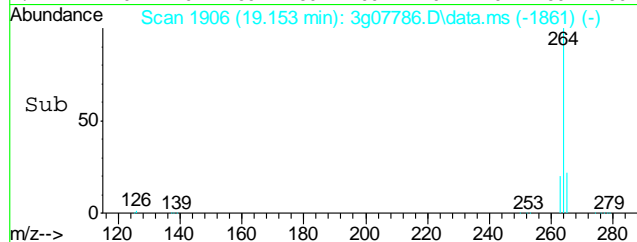
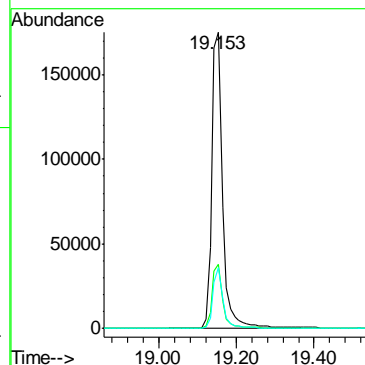
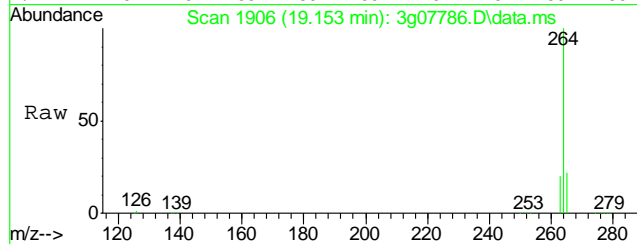
Tgt Ion:	228	Resp:	3477
Ion Ratio	Lower	Upper	
228	100		
226	32.0	8.4	48.4
229	21.1	0.0	39.4





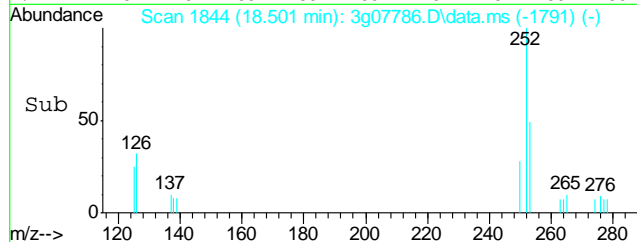
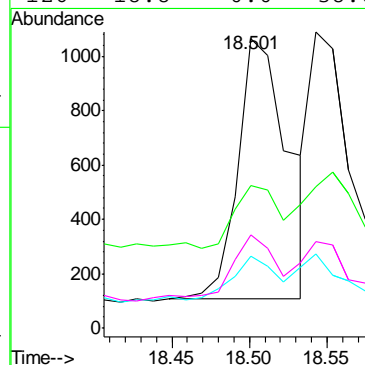
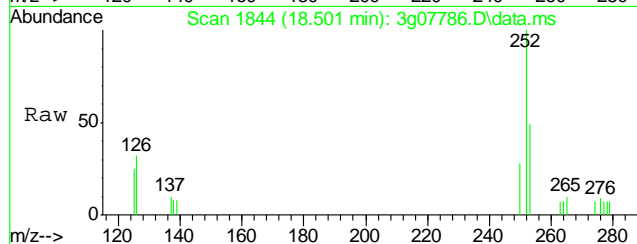
#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 19.153 min Scan# 1906
Delta R.T. -0.032 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

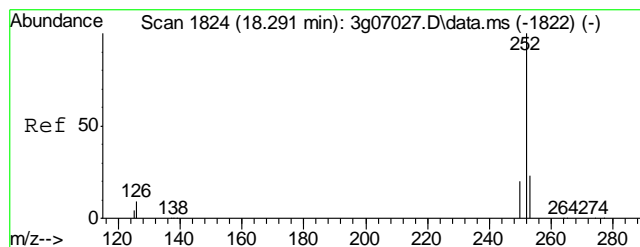
Tgt Ion:	264	Resp:	334887
Ion Ratio	Lower	Upper	
264	100		
265	21.1	1.1	41.1
263	19.4	0.0	38.7



#24
Benzo(b)fluoranthene
Concen: 0.02 ug/mL
RT: 18.501 min Scan# 1844
Delta R.T. -0.042 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

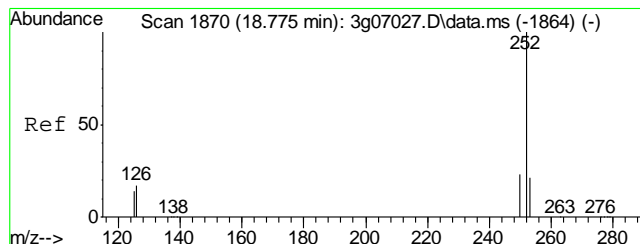
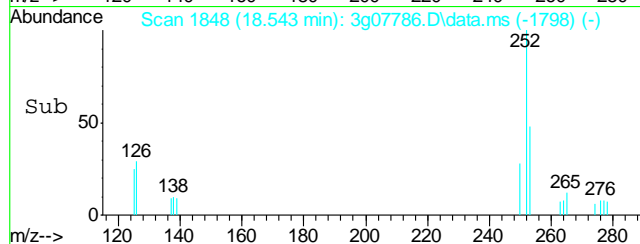
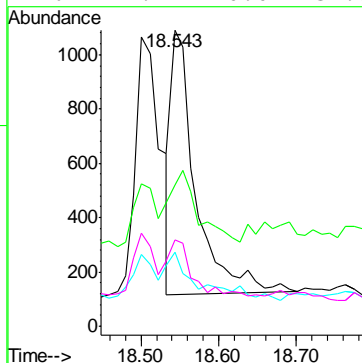
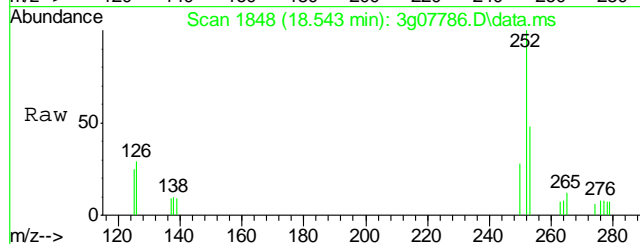
Tgt Ion:	252	Resp:	2147
Ion Ratio	Lower	Upper	
252	100		
253	20.8	1.4	41.4
125	15.6	0.0	32.8
126	18.8	0.0	38.0





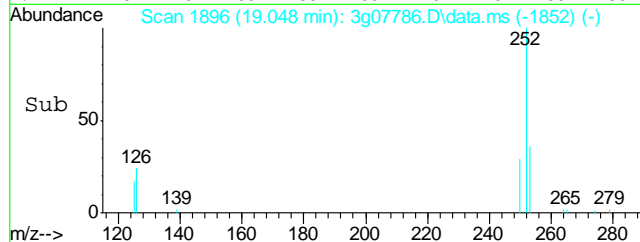
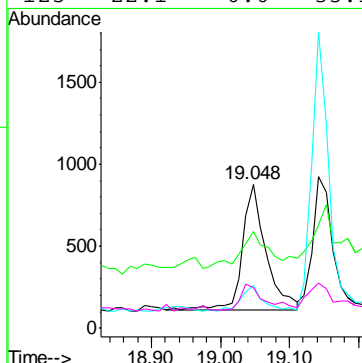
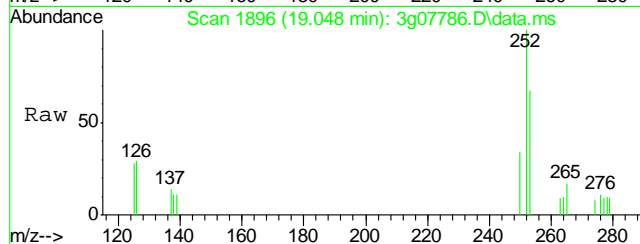
#25
Benzo(k)fluoranthene
Concen: 0.02 ug/mL
RT: 18.543 min Scan# 1848
Delta R.T. -0.042 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

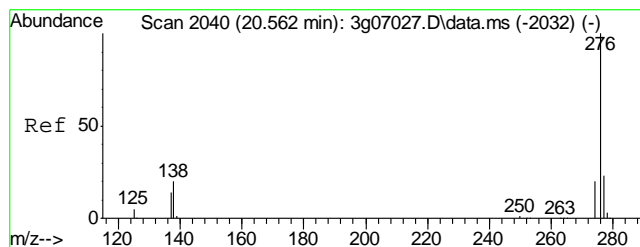
Tgt Ion:	252	Resp:	2138
Ion Ratio	100	Lower	Upper
252	100		
253	28.1	1.6	41.6
125	24.3	0.0	31.1
126	21.7	0.0	37.3



#26
Benzo(a)pyrene
Concen: 0.02 ug/mL
RT: 19.048 min Scan# 1896
Delta R.T. -0.042 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

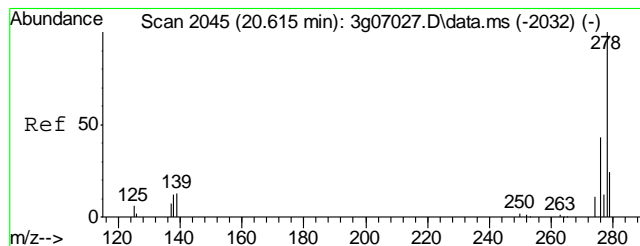
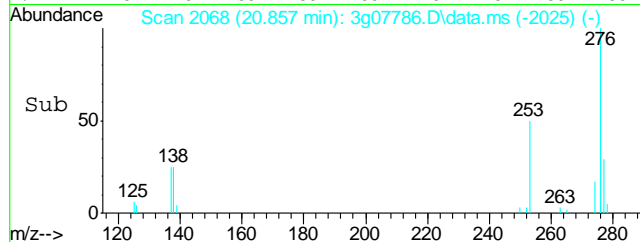
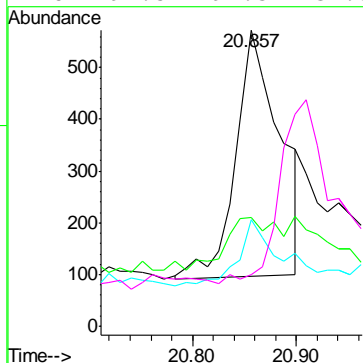
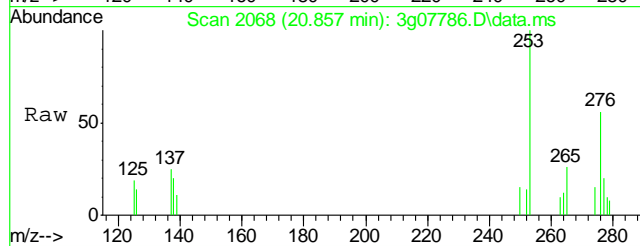
Tgt Ion:	252	Resp:	1831
Ion Ratio	100	Lower	Upper
252	100		
253	27.9	1.0	41.0
126	18.1	0.0	37.4
125	22.1	0.0	33.1





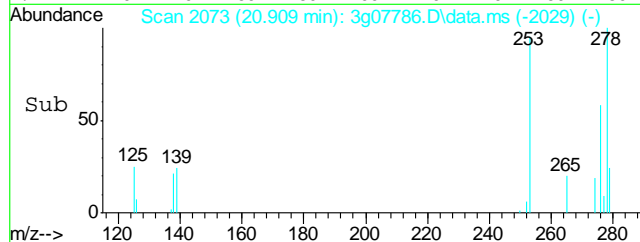
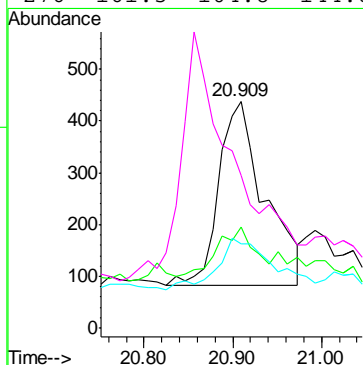
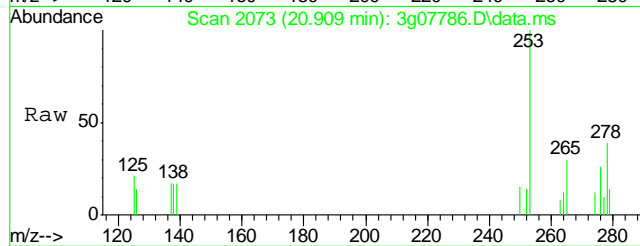
#27
Indeno(1,2,3-cd)pyrene
Concen: 0.03 ug/mL m
RT: 20.857 min Scan# 2068
Delta R.T. -0.052 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

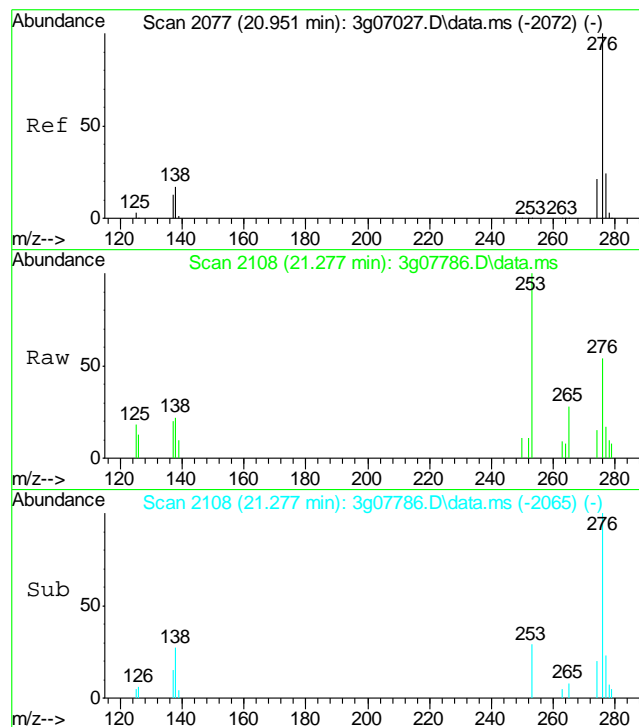
Tgt Ion	276	Resp	1405
Ion Ratio	100		
Lower			
Upper			
276	100		
138	26.3	5.2	45.2
277	26.8	15.5	55.5
278	91.5	94.3	134.3#



#28
Dibenz(a,h)anthracene
Concen: 0.02 ug/mL
RT: 20.909 min Scan# 2073
Delta R.T. -0.042 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

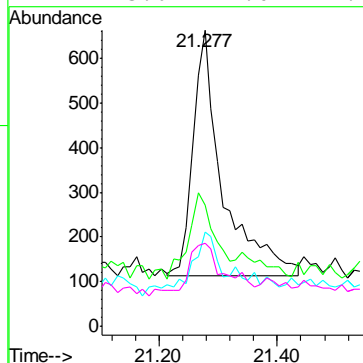
Tgt Ion	278	Resp	1285
Ion Ratio <td>100</td> <td></td> <td></td>	100		
Lower <td></td> <td></td> <td></td>			
Upper <td></td> <td></td> <td></td>			
278	100		
139	22.0	0.0	39.4
279	34.2	3.5	43.5
276	161.5	104.8	144.8#





#29
Benzo(g,h,i)perylene
Concen: 0.03 ug/mL
RT: 21.277 min Scan# 2108
Delta R.T. -0.052 min
Lab File: 3g07786.D
Acq: 3 Feb 12 12:48 pm

Tgt Ion	276	Resp	1896
Ion Ratio	100		
276	100		
138	23.8	3.8	43.8
277	17.1	3.3	43.3
274	23.6	1.0	41.0



GC 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: D31467
Account: XTOKRWR XTO Energy
Project: FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB832-MB	GB14710.D	1	02/01/12	SK	n/a	n/a	GGB832

The QC reported here applies to the following samples:

Method: SW846 8015B

D31467-1

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	121% 60-140%

9.1.1

9

Blank Spike Summary

Job Number: D31467
Account: XTOKRWR XTO Energy
Project: FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB832-BS	GB14711.D	1	02/01/12	SK	n/a	n/a	GGB832

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

D31467-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	108	98	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	125%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D31467
Account: XTOKRWR XTO Energy
Project: FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D31465-1MS	GB14713.D	1	02/01/12	SK	n/a	n/a	GGB832
D31465-1MSD	GB14714.D	1	02/01/12	SK	n/a	n/a	GGB832
D31465-1	GB14712.D	1	02/01/12	SK	n/a	n/a	GGB832

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

D31467-1

CAS No.	Compound	D31465-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		142	137	96	135	95	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D31465-1	Limits
120-82-1	1,2,4-Trichlorobenzene	116%	122%	117%	60-140%

GC Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\020112\GB14715.D\FID1A.CH Vial: 10
Signal #2 : Y:\1\DATA\020112\GB14715.D\FID2B.CH
Acq On : 1 Feb 2012 7:25 pm Operator: StephK
Sample : D31467-1, 50X Inst : GC/MS Ins
Misc : GC2580,GGB832,5.120,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Feb 02 11:09:45 2012 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Feb 02 11:09:30 2012
Response via : Initial Calibration
DataAcq Meth : TVB4.M

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

Compound		R.T.	Response	Conc	Units

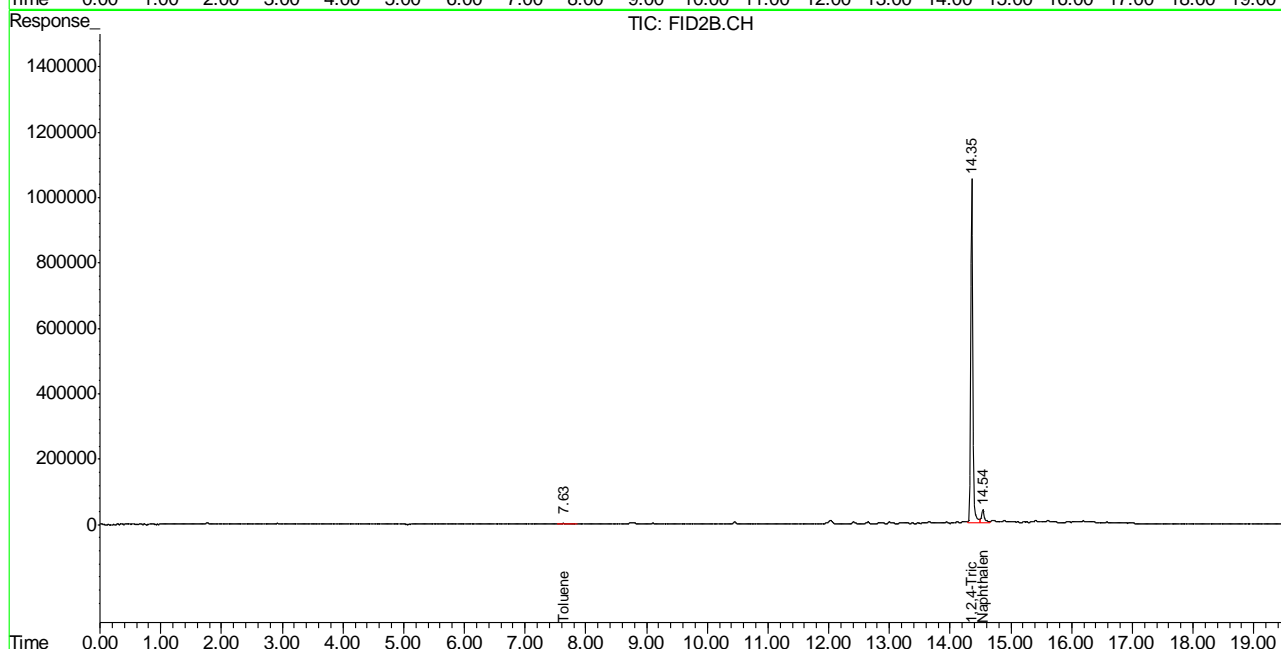
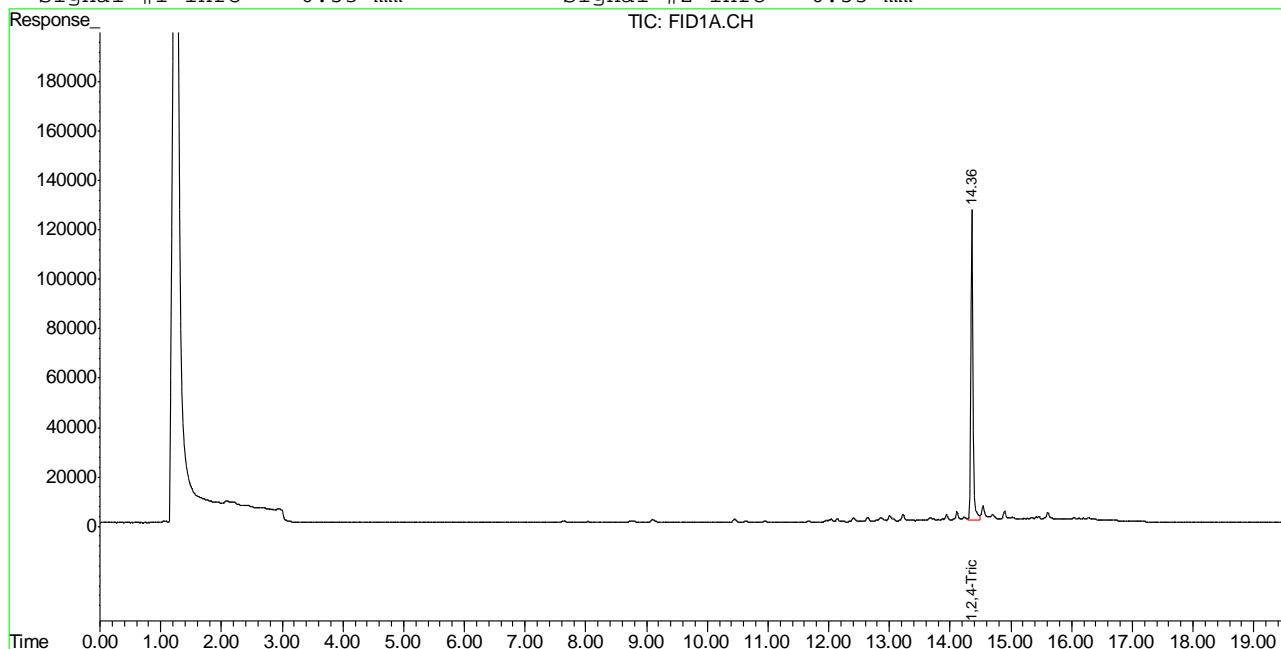
System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.36	3093139	105.730	%
10) S	1,2,4-Trichlorobenzene (P)	14.36	25034130	108.920	%
Target Compounds					
1) H	TVH-Gasoline	7.32	5689406	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	7.63	198122	0.350	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	0.00	0	N.D.	ug/L d
9) T	o-Xylene	0.00	0	N.D.	ug/L d
11) T	Naphthalene	14.54	1306216	5.075	ug/L

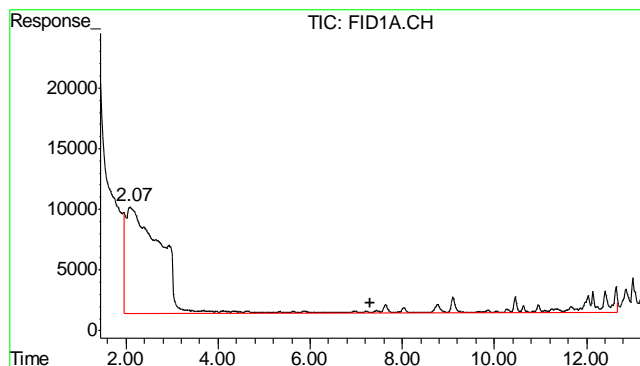
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\020112\GB14715.D\FID1A.CH Vial: 10
Signal #2 : Y:\1\DATA\020112\GB14715.D\FID2B.CH
Acq On : 1 Feb 2012 7:25 pm Operator: StephK
Sample : D31467-1, 50X Inst : GC/MS Ins
Misc : GC2580,GGB832,5.120,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Feb 2 10:11 2012 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Feb 02 11:09:30 2012
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

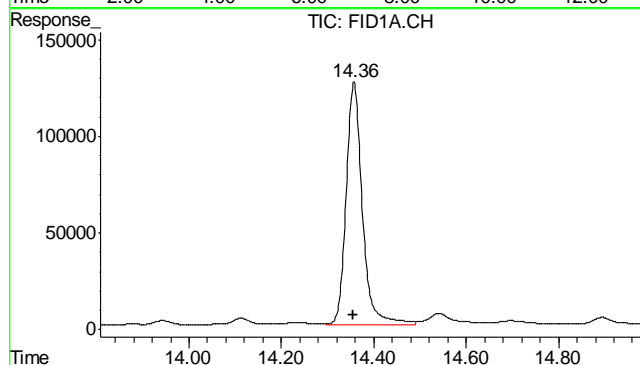
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





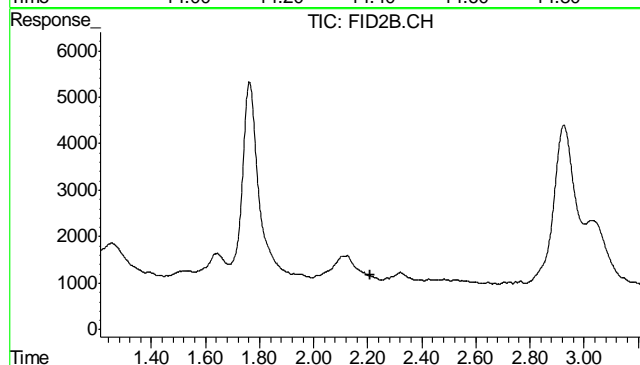
#1 TVH-Gasoline

R.T.: 7.315 min
Delta R.T.: 0.000 min
Response: 5689406
Conc: N.D.



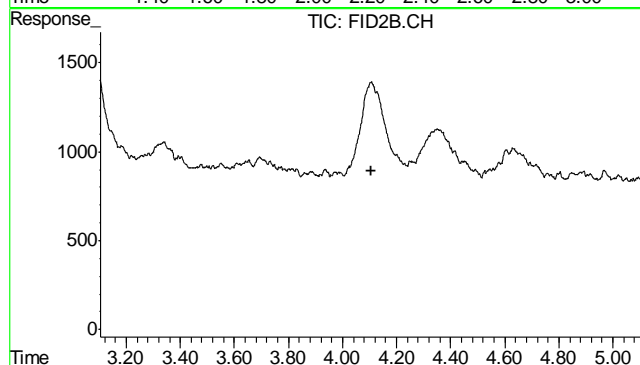
#2 1,2,4-Trichlorobenzene

R.T.: 14.357 min
Delta R.T.: 0.000 min
Response: 3093139
Conc: 105.73 %



#4 Methyl-t-butyl-ether

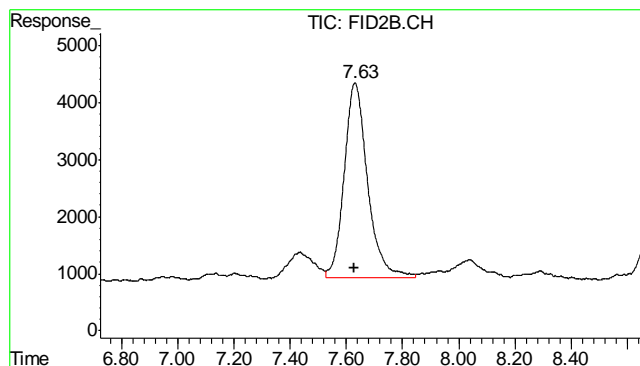
R.T.: 0.000 min
Exp R.T.: 2.211 min
Response: 0
Conc: N.D.



#5 Benzene

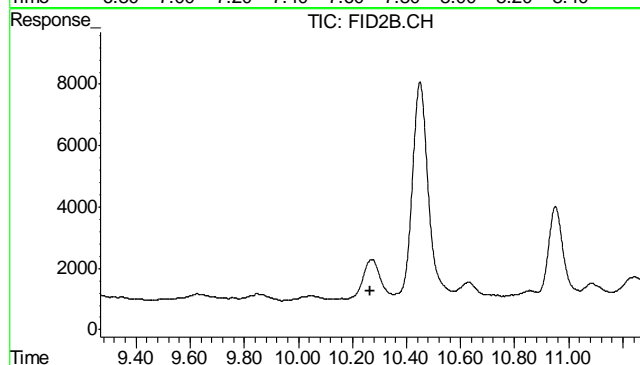
R.T.: 0.000 min
Exp R.T.: 4.104 min
Response: 0
Conc: N.D.

10.1.1
10



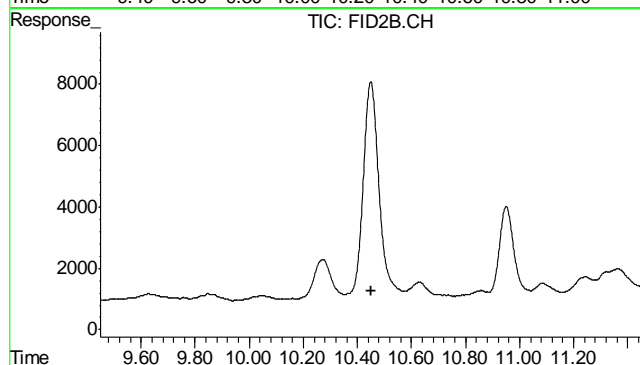
#6 Toluene

R.T.: 7.631 min
Delta R.T.: 0.002 min
Response: 198122
Conc: 0.35 ug/L



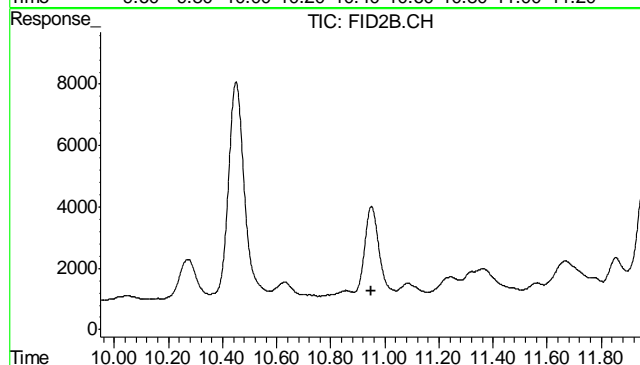
#7 Ethylbenzene

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



#8 m,p-Xylene

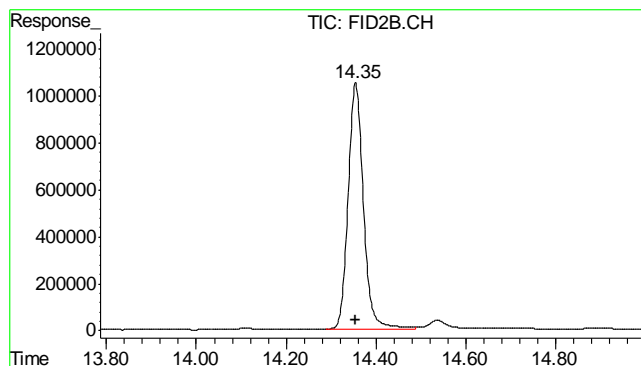
R.T.: 0.000 min
Exp R.T.: 10.449 min
Response: 0
Conc: N.D.



#9 o-Xylene

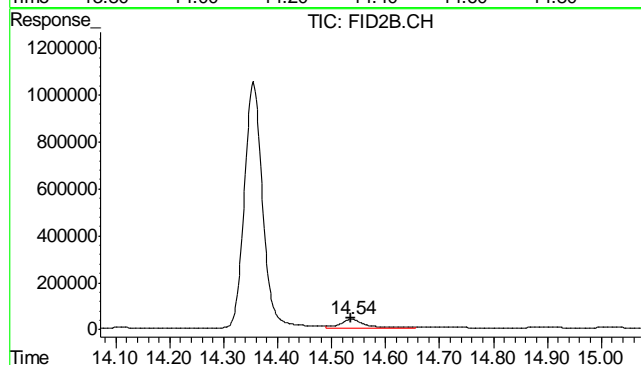
R.T.: 0.000 min
Exp R.T.: 10.948 min
Response: 0
Conc: N.D.

10.1.1
10



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

R.T.: 14.355 min
 Delta R.T.: 0.000 min
 Response: 25034130
 Conc: 108.92 %



#11 Naphthalene

R.T.: 14.537 min
 Delta R.T.: 0.001 min
 Response: 1306216
 Conc: 5.07 ug/L

10.1.1
10

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\020112\GB14710.D\FID1A.CH Vial: 5
 Signal #2 : Y:\1\DATA\020112\GB14710.D\FID2B.CH
 Acq On : 1 Feb 2012 4:26 pm Operator: StephK
 Sample : MB, S Inst : GC/MS Ins
 Misc : GC2580,GGB832,5.000,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Feb 02 11:08:55 2012 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Wed Feb 01 16:34:55 2012
 Response via : Initial Calibration
 DataAcq Meth : TVB4.M

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

	Compound	R.T.	Response	Conc	Units

System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.35	3552038	121.416	%
10) S	1,2,4-Trichlorobenzene (P)	14.35	28736768	125.030	%
Target Compounds					
1) H	TVH-Gasoline	7.32	5339412	<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	7.61	154371	0.272	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	14.53	341614	1.327	ug/L

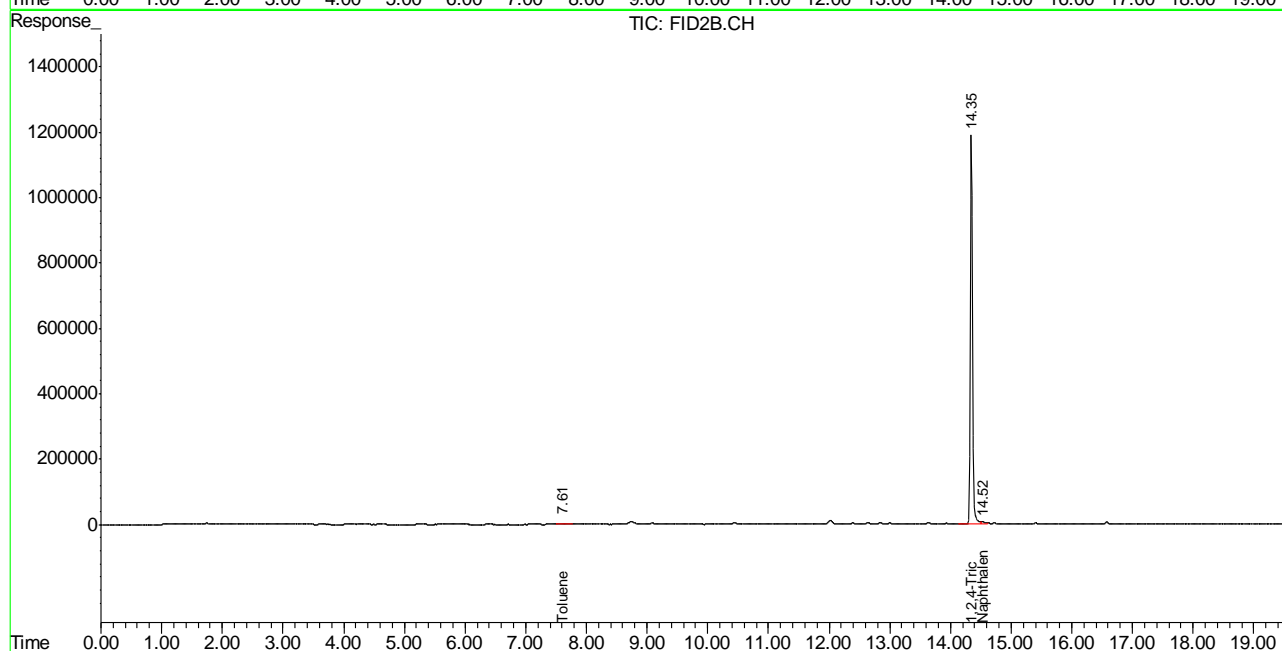
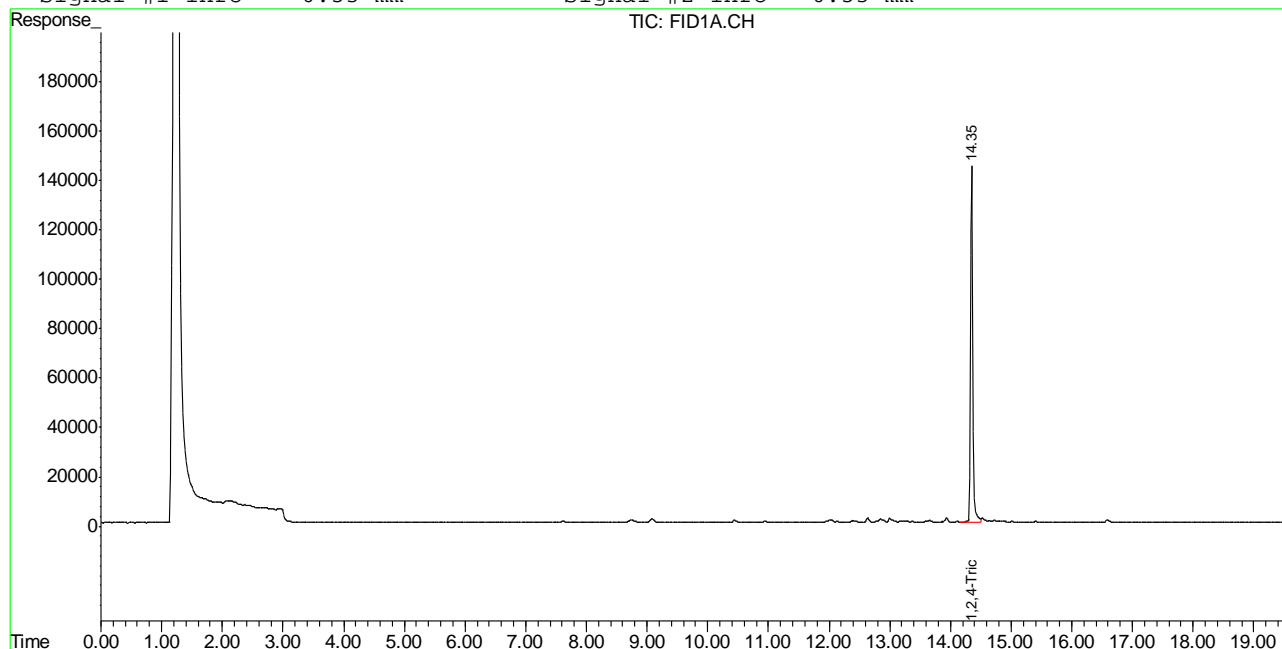
 (f)=RT Delta > 1/2 Window (m)=manual int.
 GB14710.D TB791GB791SOIL.M Thu Feb 02 11:14:34 2012 GC

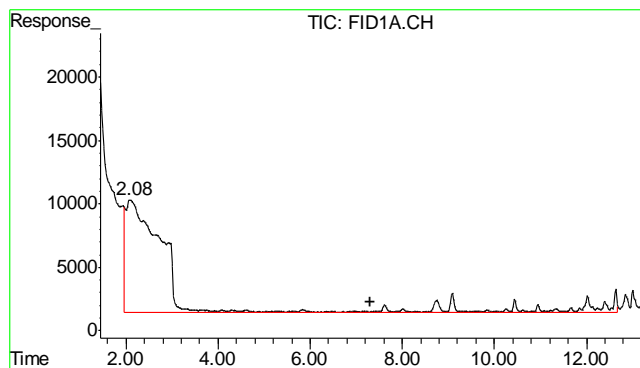
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\020112\GB14710.D\FID1A.CH Vial: 5
Signal #2 : Y:\1\DATA\020112\GB14710.D\FID2B.CH
Acq On : 1 Feb 2012 4:26 pm Operator: StephK
Sample : MB, S Inst : GC/MS Ins
Misc : GC2580,GGB832,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Feb 2 10:10 2012 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Wed Feb 01 16:34:55 2012
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

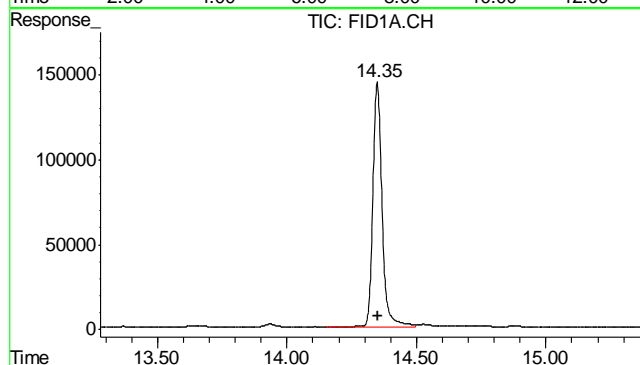
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





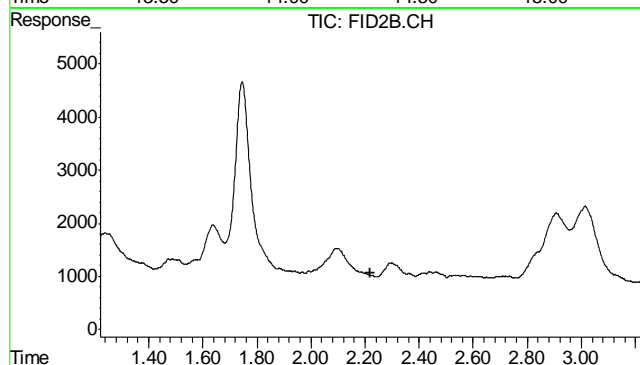
#1 TVH-Gasoline

R.T.: 7.315 min
Delta R.T.: 0.000 min
Response: 5339412
Conc: N.D.



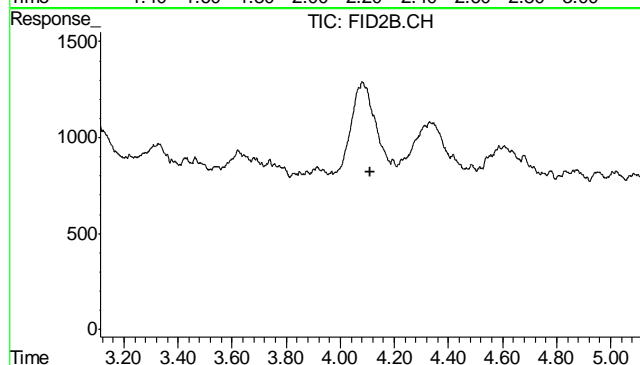
#2 1,2,4-Trichlorobenzene

R.T.: 14.349 min
Delta R.T.: -0.003 min
Response: 3552038
Conc: 121.42 %



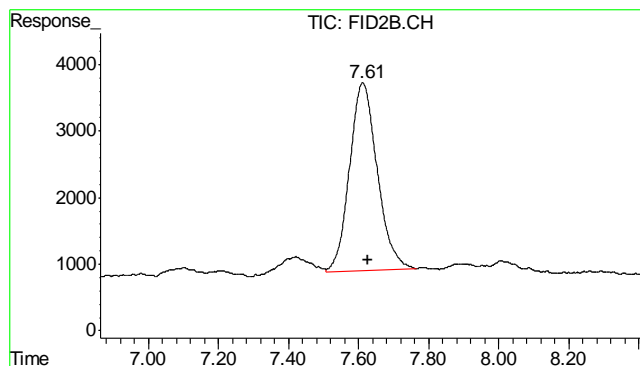
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T.: 2.220 min
Response: 0
Conc: N.D.



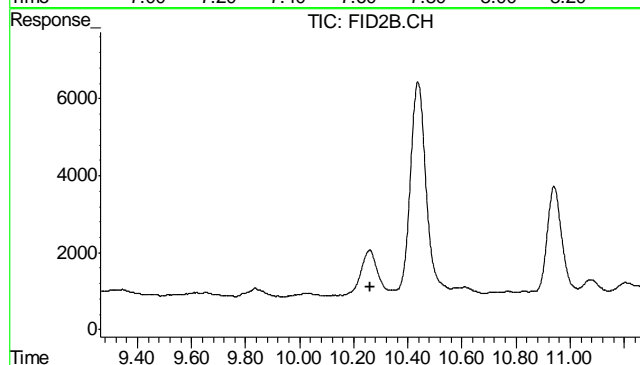
#5 Benzene

R.T.: 0.000 min
Exp R.T.: 4.112 min
Response: 0
Conc: N.D.



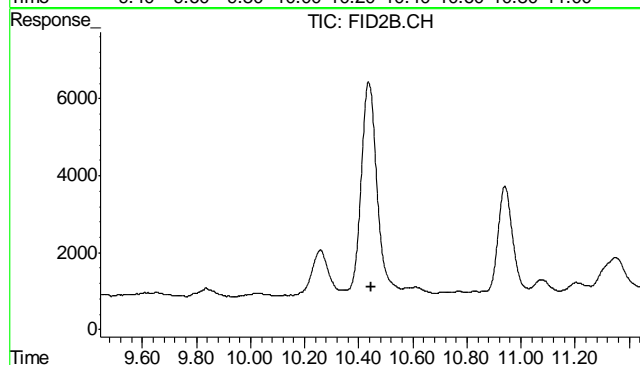
#6 Toluene

R.T.: 7.611 min
Delta R.T.: -0.016 min
Response: 154371
Conc: 0.27 ug/L



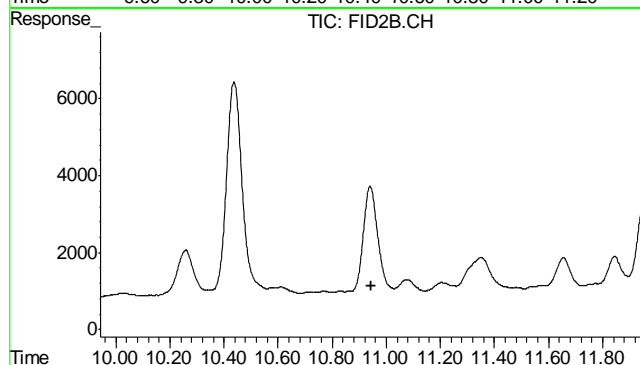
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T.: 10.262 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

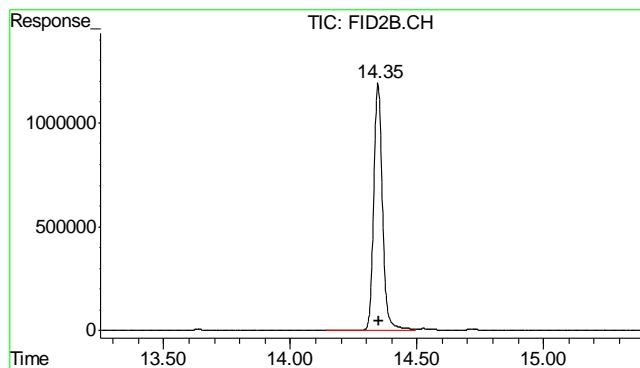
R.T.: 0.000 min
Exp R.T.: 10.444 min
Response: 0
Conc: N.D.



#9 o-Xylene

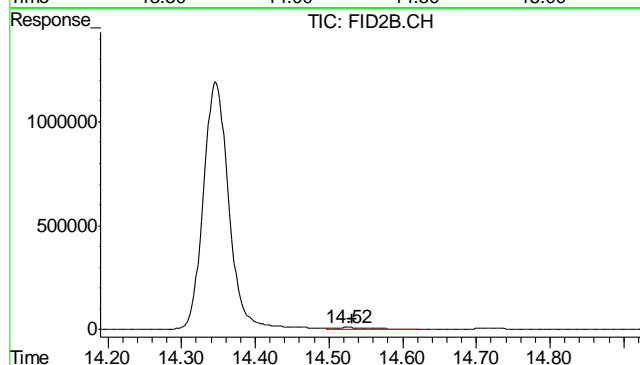
R.T.: 0.000 min
Exp R.T.: 10.943 min
Response: 0
Conc: N.D.

10.2.1 10



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

R.T.: 14.347 min
Delta R.T.: -0.003 min
Response: 28736768
Conc: 125.03 %



#11 Naphthalene

R.T.: 14.525 min
Delta R.T.: -0.006 min
Response: 341614
Conc: 1.33 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: D31467
Account: XTOKRWR XTO Energy
Project: FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5285-MB	FH000957.D	1	02/02/12	TR	02/02/12	OP5285	GFH38

The QC reported here applies to the following samples:

Method: SW846-8015B

D31467-1

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

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

Blank Spike Summary

Page 1 of 1

Job Number: D31467
Account: XTOKRWR XTO Energy
Project: FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5285-BS	FH000959.D	1	02/02/12	TR	02/02/12	OP5285	GFH38

The QC reported here applies to the following samples:

Method: SW846-8015B

D31467-1

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

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	93%	43-136%

11.2.1

11

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D31467
Account: XTOKRWR XTO Energy
Project: FRU 297-20A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5285-MS	FH000961.D	1	02/02/12	TR	02/02/12	OP5285	GFH38
OP5285-MSD	FH000963.D	1	02/02/12	TR	02/02/12	OP5285	GFH38
D31467-1	FH000967.D	1	02/02/12	TR	02/02/12	OP5285	GFH38

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

D31467-1

CAS No.	Compound	D31467-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	22.1		766	455	56	481	60	6	20-183/43

CAS No.	Surrogate Recoveries	MS	MSD	D31467-1	Limits
84-15-1	o-Terphenyl	62%	60%	77%	43-136%

11.3.1
11

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH020212\
 Data File : FH000967.D
 Signal(s) : FID1A.ch
 Acq On : 2 Feb 2012 8:32 pm
 Operator : tedr
 Sample : D31467-1
 Misc : OP5285,GFH38,30.15,,,2,1
 ALS Vial : 58 Sample Multiplier: 1

Integration File: events.e
 Quant Time: Feb 03 10:37:02 2012
 Quant Method : C:\msdchem\1\METHODS\DRO-GFH34F.M
 Quant Title : DRO-ORO FRONT
 QLast Update : Tue Jan 31 13:20:35 2012
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
2) s o-Terphenyl	12.494	1129597990	768.392 ug/ml
Target Compounds			
1) H TPH-DRO (C10-C28)	10.011	351138990	288.046 ug/ml

(f)=RT Delta > 1/2 Window

(m)=manual int.

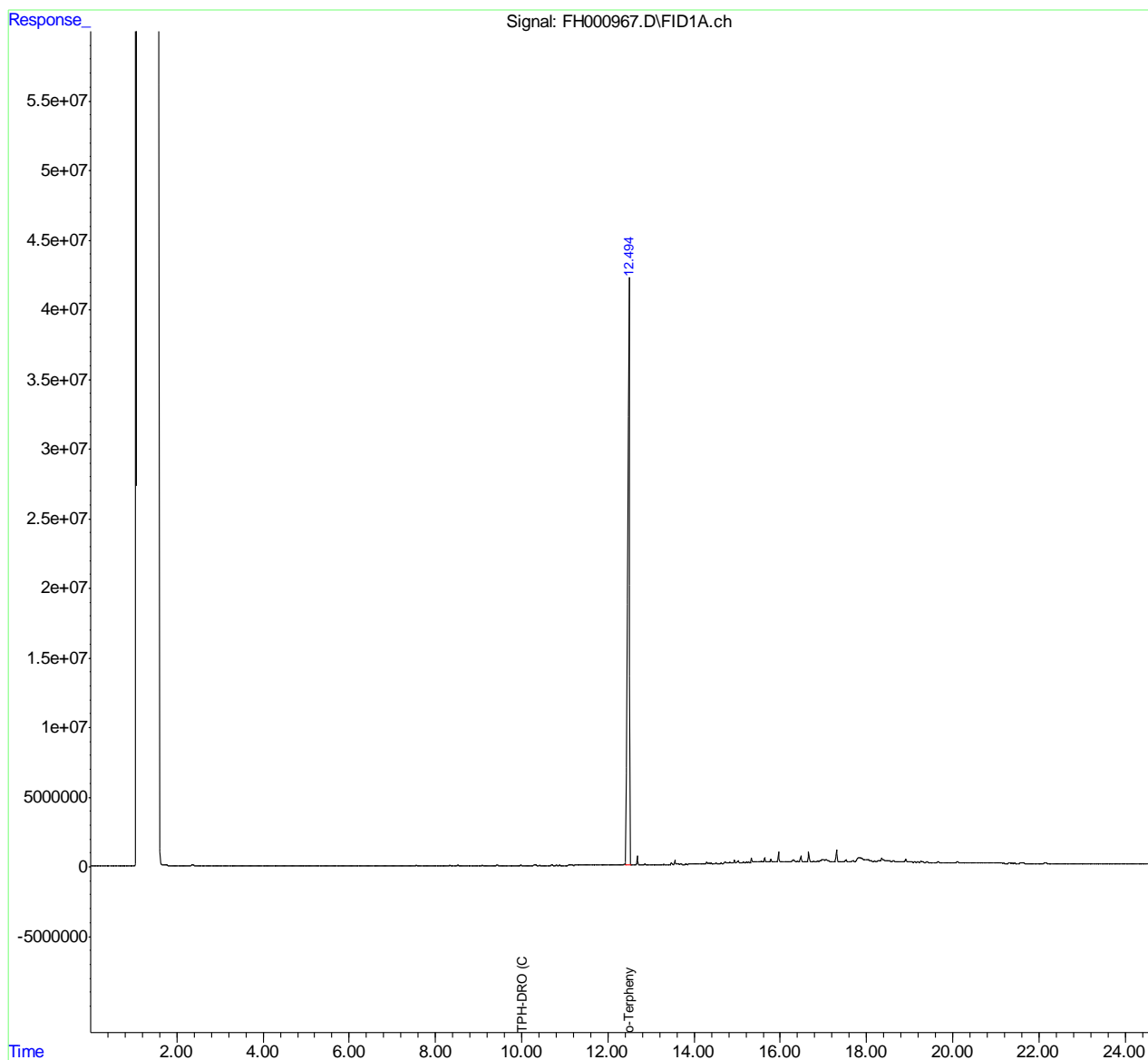
12.1.1
12

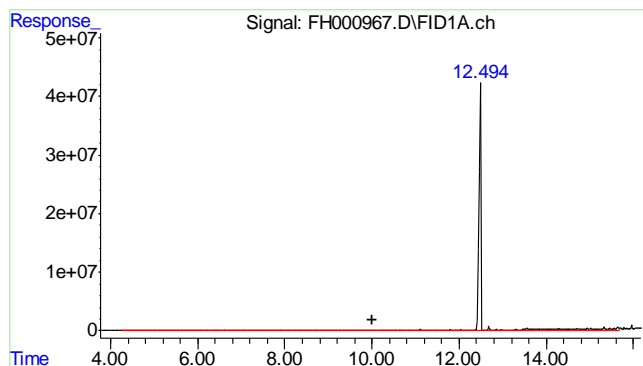
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH020212\
Data File : FH000967.D
Signal(s) : FID1A.ch
Acq On : 2 Feb 2012 8:32 pm
Operator : tedr
Sample : D31467-1
Misc : OP5285,GFH38,30.15,,,2,1
ALS Vial : 58 Sample Multiplier: 1

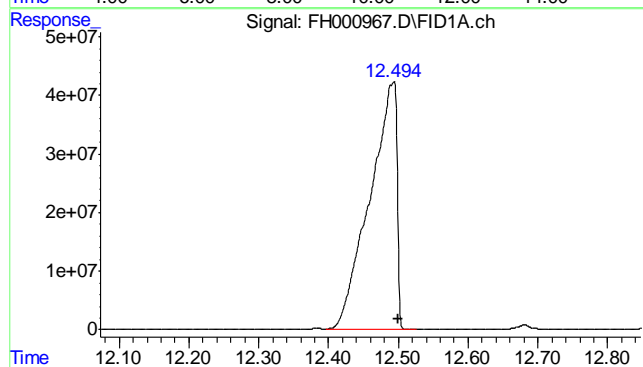
Integration File: events.e
Quant Time: Feb 03 10:37:02 2012
Quant Method : C:\msdchem\1\METHODS\DRO-GFH34F.M
Quant Title : DRO-ORO FRONT
QLast Update : Tue Jan 31 13:20:35 2012
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :





#1 TPH-DRO (C10-C28)
 R.T.: 10.011 min
 Delta R.T.: 0.000 min
 Response: 351138990
 Conc: 288.05 ug/ml m



#2 o-Terphenyl
 R.T.: 12.494 min
 Delta R.T.: -0.006 min
 Response: 1129597990
 Conc: 768.39 ug/ml

12.1.1
 12

Doug Yargeau
02/03/12 17:49

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH020212\
Data File : FH000957.D
Signal(s) : FID1A.ch
Acq On : 2 Feb 2012 5:35 pm
Operator : tedr
Sample : OP5285-MB
Misc : OP5285,GFH38,30.00,,,2,1
ALS Vial : 53 Sample Multiplier: 1

Integration File: events.e
Quant Time: Feb 03 10:33:52 2012
Quant Method : C:\msdchem\1\METHODS\DRO-GFH34F.M
Quant Title : DRO-ORO FRONT
QLast Update : Tue Jan 31 13:20:35 2012
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
2) s o-Terphenyl	12.499	1298029172	882.965 ug/mlm
Target Compounds			
1) H TPH-DRO (C10-C28)	10.011	26231283	21.518 ug/ml

(f)=RT Delta > 1/2 Window

(m)=manual int.

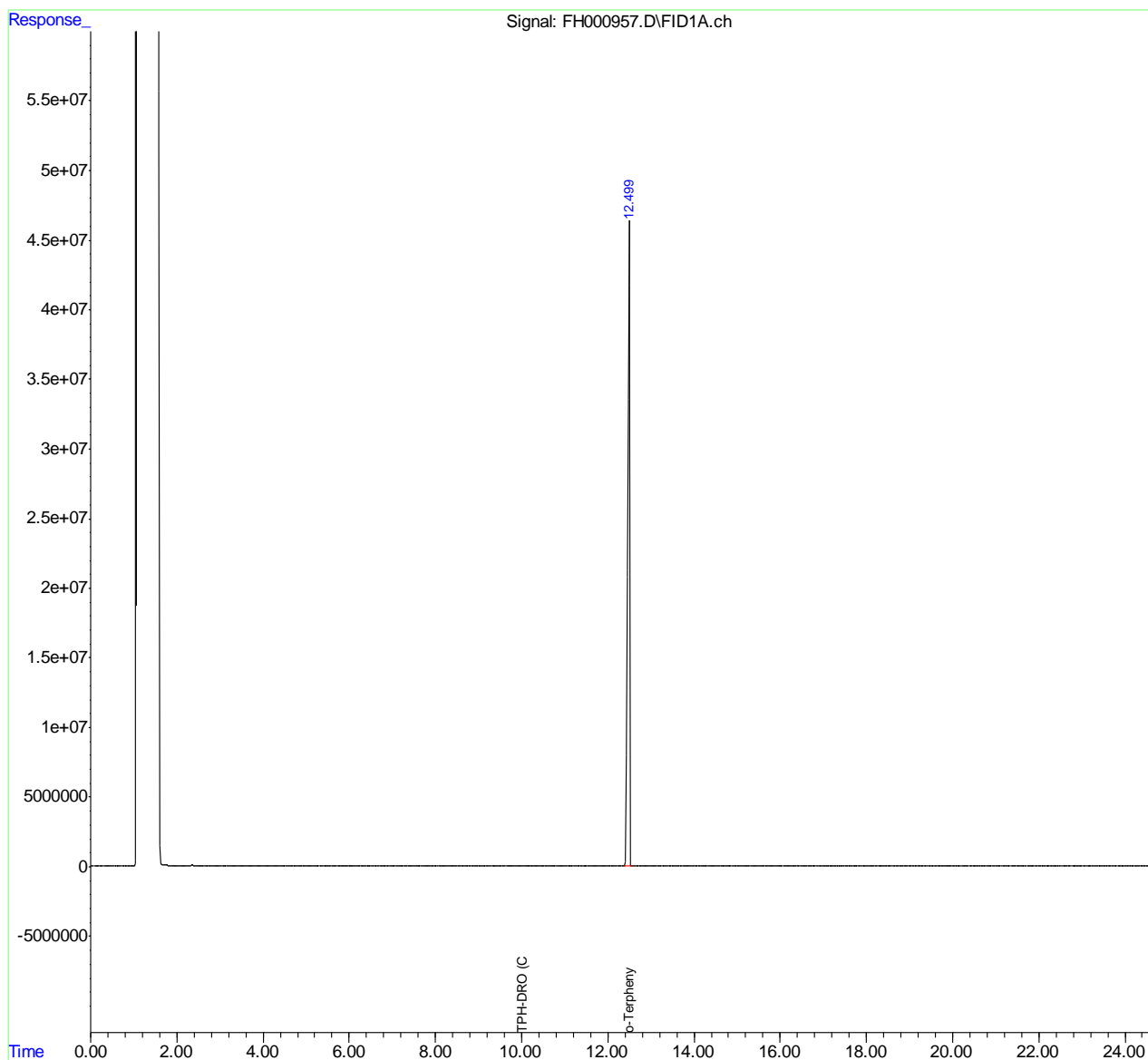
12.2.1
12

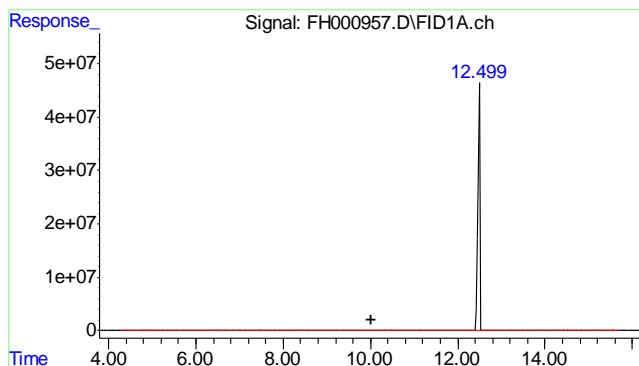
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH020212\
Data File : FH000957.D
Signal(s) : FID1A.ch
Acq On : 2 Feb 2012 5:35 pm
Operator : tedr
Sample : OP5285-MB
Misc : OP5285,GFH38,30.00,,,2,1
ALS Vial : 53 Sample Multiplier: 1

Integration File: events.e
Quant Time: Feb 03 10:33:52 2012
Quant Method : C:\msdchem\1\METHODS\DRO-GFH34F.M
Quant Title : DRO-ORO FRONT
QLast Update : Tue Jan 31 13:20:35 2012
Response via : Initial Calibration
Integrator: ChemStation

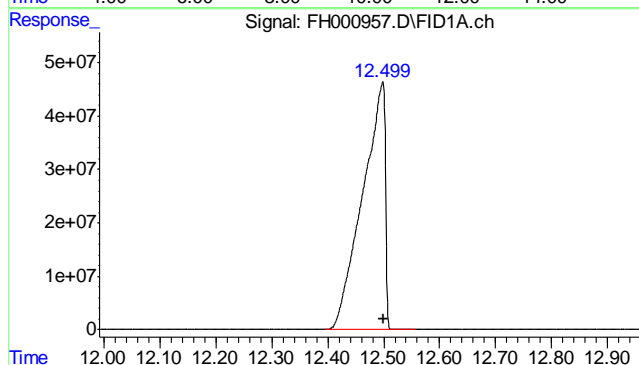
Volume Inj. :
Signal Phase :
Signal Info :





#1 TPH-DRO (C10-C28)

R.T.: 10.011 min
Delta R.T.: 0.000 min
Response: 26231283
Conc: 21.52 ug/ml m



#2 o-Terphenyl

R.T.: 12.499 min
Delta R.T.: -0.001 min
Response: 1298029172
Conc: 882.96 ug/ml 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: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6755
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 01/31/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.59	.59		
Antimony	3.0	.31	.31		
Arsenic	2.5	.59	.59		
Barium	1.0	.11	.11	0.18	<1.0
Beryllium	1.0	.044	.1		
Boron	5.0	.48	.48		
Cadmium	1.0	.027	.27	0.050	<1.0
Calcium	40	.96	1.1		
Chromium	1.0	.018	.031	0.070	<1.0
Cobalt	0.50	.035	.035		
Copper	1.0	.085	.16	0.0	<1.0
Iron	7.0	.34	2		
Lead	5.0	.16	.21	0.16	<5.0
Lithium	0.20	.028	.031		
Magnesium	20	.58	1.4		
Manganese	0.50	.0053	.012		
Molybdenum	1.0	.045	.054		
Nickel	3.0	.043	.099	-0.010	<3.0
Phosphorus	10	1.1	1.2		
Potassium	200	5.5	9.2		
Selenium	5.0	.38	.5	-0.29	<5.0
Silicon	5.0	.38	.51		
Silver	3.0	.018	.051	-0.010	<3.0
Sodium	40	11	11		
Strontium	5.0		.017		
Thallium	1.0	.29	.34		
Tin	5.0	.55	1.3		
Titanium	1.0	.011	.1		
Uranium	5.0	.15	.2		
Vanadium	1.0	.016	.025		
Zinc	3.0	.028	.06	0.42	<3.0

Associated samples MP6755: D31467-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6755
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6755
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 01/31/12

Metal	D31412-1 Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium	5510	6620	263	421.5(a)	75-125
Beryllium					
Boron					
Cadmium	0.0	53.9	65.8	81.9	75-125
Calcium					
Chromium	24.8	78.7	65.8	84.2	75-125
Cobalt					
Copper	7.7	69.1	65.8	91.7	75-125
Iron					
Lead	8.8	119	132	83.3	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	11.4	62.4	65.8	79.1	75-125
Phosphorus					
Potassium					
Selenium	0.0	110	132	83.5	75-125
Silicon					
Silver	0.49	23.9	26.3	90.6	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	42.3	88.7	65.8	81.1	75-125

Associated samples MP6755: D31467-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6755
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

13.1.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6755
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 01/31/12

Metal	D31412-1 Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium	5510	6340	246	337.7(a)	4.3	20
Beryllium						
Boron						
Cadmium	0.0	48.2	61.4	78.4	11.2	20
Calcium						
Chromium	24.8	72.4	61.4	79.9	8.3	20
Cobalt						
Copper	7.7	61.8	61.4	86.4	11.2	20
Iron						
Lead	8.8	106	123	78.7	11.6	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	11.4	56.0	61.4	74.4N(b)	10.8	20
Phosphorus						
Potassium						
Selenium	0.0	98.4	123	80.1	11.1	20
Silicon						
Silver	0.49	21.6	24.6	87.7	10.1	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	42.3	78.4	61.4	70.1N(b)	12.3	20

Associated samples MP6755: D31467-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6755
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

13.1.2
13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D31467
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-20A

QC Batch ID: MP6755
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 01/31/12

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	208	200	104.0	80-120
Beryllium				
Boron				
Cadmium	46.8	50	93.6	80-120
Calcium				
Chromium	49.5	50	99.0	80-120
Cobalt				
Copper	49.1	50	98.2	80-120
Iron				
Lead	97.4	100	97.4	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	47.2	50	94.4	80-120
Phosphorus				
Potassium				
Selenium	95.2	100	95.2	80-120
Silicon				
Silver	20.4	20	102.0	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	46.7	50	93.4	80-120

Associated samples MP6755: D31467-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6755
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6755
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/31/12

Metal	D31412-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	44800	49100	9.5	0-10
Beryllium				
Boron				
Cadmium	0.00	0.00	NC	0-10
Calcium				
Chromium	202	218	14.5*(a)	0-10
Cobalt				
Copper	63.0	70.0	1.5	0-10
Iron				
Lead	71.5	77.5	2.0	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	93.0	100	19.5*(a)	0-10
Phosphorus				
Potassium				
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver	4.00	4.50	1025.0(b)	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	344	362	25.7*(a)	0-10

Associated samples MP6755: D31467-1

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

13.1.4
13

SERIAL DILUTION RESULTS SUMMARY

Login Number: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6755
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: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6756
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 01/31/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.3		
Antimony	0.20	.001	.012		
Arsenic	0.40	.049	.1	0.18	<0.40
Barium	1.0	.0035	.025		
Beryllium	0.10	.0075	.055		
Boron	20	.97	.6		
Cadmium	0.050	.023	.034		
Calcium	200	1.8	9.5		
Chromium	1.0	.021	.041		
Cobalt	0.10	.0033	.0085		
Copper	1.0	.011	.055		
Iron	20	.81	18		
Lead	0.25	.0012	.023		
Magnesium	50	.067	.6		
Manganese	0.50	.007	.039		
Molybdenum	0.50	.0044	.025		
Nickel	1.0	.0029	.031		
Phosphorus	30	1.8	3.5		
Potassium	100	2	6		
Selenium	0.20	.075	.19		
Silver	0.050	.0008	.022		
Sodium	250	.8	3		
Strontium	10	.004	.024		
Thallium	0.10	.015	.013		
Tin	5.0	.006	.15		
Titanium	1.0	.035	.12		
Uranium	0.25	.00038	.008		
Vanadium	2.0	.052	.19		
Zinc	5.0	.039	.23		

Associated samples MP6756: D31467-1

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: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6756
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 01/31/12

Metal	D31412-1 Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	3.4	128	132	94.6	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 MP6756: D31467-1

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: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6756
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 01/31/12

Metal	D31412-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	3.4	122	123	96.5	4.8	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 MP6756: D31467-1

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: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6756
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 01/31/12

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	93.7	100	93.7	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 MP6756: D31467-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D31467
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-20A

QC Batch ID: MP6756
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: ug/l

Prep Date: 01/31/12

Metal	D31412-1 Original SDL 5:25 %DIF			QC Limits
Aluminum				
Antimony				
Arsenic	28.0	30.5	8.9	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 MP6756: D31467-1

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: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6768
Matrix Type: AQUEOUS

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

Prep Date: 02/02/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	30	30		
Antimony	150	16	16		
Arsenic	130	30	30		
Barium	50	5.5	5.5		
Beryllium	50	2.2	2.5		
Boron	250	24	24		
Cadmium	50	1.4	1.4		
Calcium	2000	48	75	10.0	<2000
Chromium	50	.9	4		
Cobalt	25	1.8	1.8		
Copper	50	4.3	14		
Iron	350	17	65		
Lead	250	8	11		
Lithium	10	1.4	6		
Magnesium	1000	29	50	-17	<1000
Manganese	25	.27	1.6		
Molybdenum	50	2.3	4.4		
Nickel	150	2.2	5		
Phosphorus	500	55	100		
Potassium	5000	280	280		
Selenium	250	19	19		
Silicon	250	19	19		
Silver	150	.9	1.6		
Sodium	2000	570	570	345	<2000
Strontium	25		1.3		
Thallium	50	15	15		
Tin	250	28	50		
Titanium	50	.55	1.6		
Uranium	250	7.5	18		
Vanadium	50	.8	1.1		
Zinc	150	1.4	9		

Associated samples MP6768: D31467-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6768
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: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6768
Matrix Type: AQUEOUS

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

Prep Date: 02/02/12

Metal	D31467-1A Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	33800	162000	125000	102.6	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	5010	128000	125000	98.4	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	390000	528000	125000	110.4	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6768: D31467-1A

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: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6768
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

13.3.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6768
Matrix Type: AQUEOUS

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

Prep Date: 02/02/12

Metal	D31467-1A Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	33800	163000	125000	103.4	0.6	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	5010	129000	125000	99.2	0.8	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	390000	522000	125000	105.6	1.1	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP6768: D31467-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6768
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

13.3.2
13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6768
Matrix Type: AQUEOUS

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

Prep Date: 02/02/12

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	125000	125000	100.0	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	122000	125000	97.6	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	125000	125000	100.0	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP6768: D31467-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6768
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6773
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 02/02/12

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.10	.0011	.013	0.00043	<0.10

Associated samples MP6773: D31467-1

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: D31467
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-20A

QC Batch ID: MP6773
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 02/02/12

Metal	D31467-1		Spike lot		QC
	Original	MS	HGWSR1	% Rec	Limits
Mercury	0.070	0.44	0.445	83.2	75-125

Associated samples MP6773: D31467-1

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: D31467
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-20A

QC Batch ID: MP6773
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 02/02/12

Metal	D31467-1 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.070	0.47	0.462	86.5	6.6	

Associated samples MP6773: D31467-1

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: D31467
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-20A

QC Batch ID: MP6773
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 02/02/12

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.42	0.4	105.0	80-120

Associated samples MP6773: D31467-1

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: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP6431/GN13524	1.0	<1.0	umhos/cm	9967	9960	99.9	90-110%
pH	GN13494			su	8.00	7.98	99.8	99.3-100.7%

Associated Samples:
Batch GN13494: D31467-1
Batch GP6431: D31467-1
(*) Outside of QC limits

14.1
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DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D31467
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Redox Potential Vs H2	GN13496	D31467-1	mv	352	352	0.0	0-20%

Associated Samples:
Batch GN13496: D31467-1
(*) Outside of QC limits

Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Chain of Custody



CHAIN OF CUSTODY

4036 Youngfield St., Wheat Ridge, CO 80033
303-425-6021 FAX: 303-425-6854

Accutest Job #:	D31467
Accutest Quote #:	0
AMS P.O. #:	
Project No.:	

Client Information			Subcontract Laboratory Information										Analytical Information									
Name Accutest Mountain States (AMS)			Name Accutest - New England																			
Address 4036 Youngfield St.			Address 495 Technology Center West, BLDG C																			
City Wheat Ridge,	State CO	Zip 80033	City Marlborough			State MA			Zip 01752													
Send Report to: Tiffany Pham			Contact: Sample Management																			
Any questions contact: Shea Greiner			Phone: (508) 481-6200																			
Phone/Fax #: (303) 425-6021; (303) 425-6854																						
Field ID / Point of Collection		Collection		Matrix	# of bottles	Preservation						XCRA					Comments					
Date	Time					HCl	NaOH	HNO3	H2SO4	None												
D31467 -1	1/30/12	11:00 AM		Soil	1							X										
Turnaround Information			Data Deliverable Information										Comments / Remarks									
<input checked="" type="checkbox"/> 1 - 2 Business Day Rush <input type="checkbox"/> Other (Days) RUSH! 10 Day Turnaround Hardcopy, RUSH is FAX Data unless previously approved.			Approved By: _____		<input type="checkbox"/> Commercial "A" <input type="checkbox"/> Commercial "B" <input type="checkbox"/> Commercial "BN" <input type="checkbox"/> Reduced Tier 1 <input type="checkbox"/> Full Tier 1		<input type="checkbox"/> PDF <input type="checkbox"/> Compact Disk Deliverable <input type="checkbox"/> Electronic Delivery: _____ <input type="checkbox"/> State Forms <input type="checkbox"/> Other (Specify) _____						Please use Colorado regulations and RLs. 11D									
Sample Custody must be documented below each time samples change possession, including courier delivery.																		For Subcontract Laboratory Use Only				
Relinquished by: 1		Date & Time: 1/31/12		Received By: FOCET		Date & Time: 1		Seal #: <input checked="" type="checkbox"/>		Headspace: Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>		Preserved where applicable: <input type="checkbox"/> Temperature °C 27 On Ice <input checked="" type="checkbox"/>										
Relinquished by: 2		Date & Time: 2/1/12 09:30		Received By: 2		Date & Time: 2																
Relinquished by: 3		Date & Time: 2/1/12		Received By: 3		Date & Time: 3																

D31467: Chain of Custody

Page 1 of 2

Accutest Labs of New England, Inc.

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D31467

Client: AMS

Immediate Client Services Action Required: No

Date / Time Received: 2/1/2012

Delivery Method:
Client Service Action Required at Login: No

Project:
No. Coolers: 0

Airbill #'s:
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"/> |

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 recvd for analysis: <input checked="" type="checkbox"/> <input type="checkbox"/> | 4. Compositing instructions clear: <input type="checkbox"/> <input type="checkbox"/> |
| 5. Filtering instructions clear: <input type="checkbox"/> <input type="checkbox"/> | |

Comments

General Chemistry

QC Data Summaries

(Accutest Labs of New England, Inc.)

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: D31467
Account: ALMS - Accutest Mountain States
Project: XTOKRWR: FRU 297-20A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP14117/GN37751	0.40	0.22	mg/kg	40	35.4	88.5	80-120%
Chromium, Hexavalent	GP14117/GN37751			mg/kg	889	912	102.6	80-120%

Associated Samples:
Batch GP14117: D31467-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D31467
Account: ALMS - Accutest Mountain States
Project: XTOKRWR: FRU 297-20A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP14117/GN37751	D31467-1	mg/kg	0.44	0.45	2.2	0-20%

Associated Samples:
Batch GP14117: D31467-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D31467
Account: ALMS - Accutest Mountain States
Project: XTOKRWR: FRU 297-20A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP14117/GN37751	D31467-1	mg/kg	0.44	45.5	37.0	80.3	75-125%
Chromium, Hexavalent	GP14117/GN37751	D31467-1	mg/kg	0.44	1540	1490	96.9	75-125%

Associated Samples:
Batch GP14117: D31467-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits