



03/15/12

Technical Report for

XTO Energy

FRU 297-32A

1108-12A

Accutest Job Number: D32609

Sampling Date: 03/07/12


Report to:

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Total number of pages in report: 134



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)

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Test results relate only to samples analyzed.

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Sample Summary

XTO Energy

Job No: D32609

FRU 297-32A

Project No: 1108-12A

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
D32609-1	03/07/12	14:45 DS	03/12/12	SO	Soil	CUT 2 SUBLINER
D32609-1A	03/07/12	14:45 DS	03/12/12	SO	Soil	CUT 2 SUBLINER

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: XTO Energy

Job No D32609

Site: FRU 297-32A

Report Date 3/15/2012 4:32:42 PM

On 03/12/2012, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3.6 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D32609 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: V5V1203
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- Sample(s) D32550-1MS, D32550-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- The matrix spike duplicate (MSD) recovery(s) of Xylene (total) are outside control limits. Probable cause due to matrix interference.
- Sample(s) D32550-1MSD have surrogates outside control limits. Probable cause due to matrix interference.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO	Batch ID: OP5528
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D32609-1MS, D32609-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- The RPD(s) for the MS and MSD recoveries of Acenaphthene, Chrysene, Dibenzo(a,h)anthracene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene are outside control limits for sample OP5528-MSD. Variability of recovery may be due to sample matrix/homogeneity.

Volatiles by GC By Method SW846 8015B

Matrix SO	Batch ID: GGB858
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D32609-1MS, D32609-1MSD were used as the QC samples indicated.

Extractables by GC By Method SW846-8015B

Matrix SO	Batch ID: OP5519
------------------	-------------------------

- All samples were extracted D32554-1A within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D32595-1MSD, D32595-1MS, D32595-1MSD were used as the QC samples indicated.
- The matrix spike (MS) recovery(s) of TPH-DRO (C10-C28) are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- Sample(s) OP5519-MS, OP5519-MSD have surrogates outside control limits. Probable cause due to matrix interference.
- OP5519-MS/MSD for o-Terphenyl: Outside control limits due to dilution.

Metals By Method SW846 6010C

Matrix AQ

Batch ID: MP7061

- All samples were digested D32554-1A within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D32609-1AMS, D32609-1AMSD were used as the QC samples for the metals analysis.

Matrix SO

Batch ID: MP7055

- All samples were digested D32554-1A within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D32609-1MS, D32609-1MSD, D32609-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Barium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The serial dilution RPD(s) for Cadmium, Selenium, Silver, Chromium, Lead, Nickel, Zinc are outside control limits for sample MP7055-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP7055-SD1 for Chromium, Lead, Nickel, and Zinc: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix SO

Batch ID: MP7056

- All samples were digested D32554-1A within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D32609-1MS, D32609-1MSD, D32609-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Arsenic are outside control limits for sample MP7056-SD1. Probable cause due to sample homogeneity.
- MP7056-SD1 for Arsenic: Serial dilution indicates possible matrix interference.

Metals By Method SW846 7471B

Matrix SO

Batch ID: MP7050

- All samples were digested D32554-1A within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D32609-1MS, D32609-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO

Batch ID: GN14069

- Sample(s) D32609-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN14053

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO

Batch ID: R12120

- The data for SW846 3060/7196A M meets quality control requirements.
- D32609-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO

Batch ID: GP6713

- All samples were prepared D32554-1A within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D32493-1DUP, D32493-1MS, D32493-1MSD were used as the QC samples for the Chromium, Hexavalent analysis.
- The matrix spike duplicate (MSD) recovery(s) of Chromium, Hexavalent are outside control limits. Probable cause due to matrix interference.
- GP6713-S2 for Chromium, Hexavalent: High RPD due to possible sample nonhomogeneity.

Wet Chemistry By Method SW846 9045C

Matrix SO

Batch ID: GN14060

- The following samples were run outside of holding time for method SW846 9045C: D32609-1

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO

Batch ID: MP7061

- D32609-1A for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	CUT 2 SUBLINER	Date Sampled:	03/07/12
Lab Sample ID:	D32609-1	Date Received:	03/12/12
Matrix:	SO - Soil	Percent Solids:	94.4
Method:	SW846 8260B		
Project:	FRU 297-32A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V19972.D	1	03/13/12	KV	n/a	n/a	V5V1203
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.04 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0469	0.056	0.024	mg/kg	J
108-88-3	Toluene	0.105	0.11	0.056	mg/kg	J
100-41-4	Ethylbenzene	ND	0.11	0.028	mg/kg	
1330-20-7	Xylene (total)	0.144	0.22	0.11	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	97%		61-130%
460-00-4	4-Bromofluorobenzene	104%		53-131%
17060-07-0	1,2-Dichloroethane-D4	107%		62-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CUT 2 SUBLINER	
Lab Sample ID:	D32609-1	Date Sampled: 03/07/12
Matrix:	SO - Soil	Date Received: 03/12/12
Method:	SW846 8270C BY SIM SW846 3546	Percent Solids: 94.4
Project:	FRU 297-32A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G08526.D	1	03/14/12	DC	03/13/12	OP5528	E3G348
Run #2							

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

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.0088	0.0046	mg/kg	
120-12-7	Anthracene	ND	0.0088	0.0046	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.0088	0.0046	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.0088	0.0046	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.0088	0.0046	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.0088	0.0046	mg/kg	
218-01-9	Chrysene	ND	0.0088	0.0046	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0088	0.0046	mg/kg	
206-44-0	Fluoranthene	ND	0.0088	0.0046	mg/kg	
86-73-7	Fluorene	ND	0.0088	0.0046	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.0088	0.0046	mg/kg	
91-20-3	Naphthalene	0.0327	0.012	0.011	mg/kg	
129-00-0	Pyrene	ND	0.0088	0.0046	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	53%		10-145%
321-60-8	2-Fluorobiphenyl	48%		10-130%
1718-51-0	Terphenyl-d14	76%		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:	CUT 2 SUBLINER	
Lab Sample ID:	D32609-1	Date Sampled: 03/07/12
Matrix:	SO - Soil	Date Received: 03/12/12
Method:	SW846 8015B	Percent Solids: 94.4
Project:	FRU 297-32A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB15297.D	1	03/13/12	SK	n/a	n/a	GGB858
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	8.20	11	5.6	mg/kg	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	107%		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:	CUT 2 SUBLINER	
Lab Sample ID:	D32609-1	Date Sampled: 03/07/12
Matrix:	SO - Soil	Date Received: 03/12/12
Method:	SW846-8015B SW846 3546	Percent Solids: 94.4
Project:	FRU 297-32A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FH002202.D	1	03/13/12	TR	03/12/12	OP5519	GFH113
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	115	14	9.2	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	65%		43-136%		

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

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

Report of Analysis

Client Sample ID: CUT 2 SUBLINER

Lab Sample ID: D32609-1

Matrix: SO - Soil

Project: FRU 297-32A

Date Sampled: 03/07/12

Date Received: 03/12/12

Percent Solids: 94.4

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	3.6	0.43	mg/kg	5	03/14/12	03/15/12 GJ	SW846 6020A ³	SW846 3050B ⁶
Barium	2100	1.1	mg/kg	1	03/14/12	03/14/12 JB	SW846 6010C ²	SW846 3050B ⁵
Cadmium	< 1.1	1.1	mg/kg	1	03/14/12	03/14/12 JB	SW846 6010C ²	SW846 3050B ⁵
Chromium	42.6	1.1	mg/kg	1	03/14/12	03/14/12 JB	SW846 6010C ²	SW846 3050B ⁵
Copper	13.5	1.1	mg/kg	1	03/14/12	03/14/12 JB	SW846 6010C ²	SW846 3050B ⁵
Lead	11.1	5.4	mg/kg	1	03/14/12	03/14/12 JB	SW846 6010C ²	SW846 3050B ⁵
Mercury	< 0.11	0.11	mg/kg	1	03/13/12	03/13/12 JM	SW846 7471B ¹	SW846 7471B ⁴
Nickel	19.8	3.2	mg/kg	1	03/14/12	03/14/12 JB	SW846 6010C ²	SW846 3050B ⁵
Selenium	< 5.4	5.4	mg/kg	1	03/14/12	03/14/12 JB	SW846 6010C ²	SW846 3050B ⁵
Silver	< 3.2	3.2	mg/kg	1	03/14/12	03/14/12 JB	SW846 6010C ²	SW846 3050B ⁵
Zinc	43.1	3.2	mg/kg	1	03/14/12	03/14/12 JB	SW846 6010C ²	SW846 3050B ⁵

(1) Instrument QC Batch: MA2256

(2) Instrument QC Batch: MA2258

(3) Instrument QC Batch: MA2262

(4) Prep QC Batch: MP7050

(5) Prep QC Batch: MP7055

(6) Prep QC Batch: MP7056

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUT 2 SUBLINER**Lab Sample ID:** D32609-1**Matrix:** SO - Soil**Project:** FRU 297-32A**Date Sampled:** 03/07/12**Date Received:** 03/12/12**Percent Solids:** 94.4**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	03/14/12	CJ	SW846 3060A/7196A
Chromium, Trivalent ^a	42.6	2.1	mg/kg	1	03/14/12 22:54	JB	SW846 3060/7196A M
Redox Potential Vs H2	391		mv	1	03/13/12	JD	ASTM D1498-76M
Solids, Percent	94.4		%	1	03/13/12	SWT	SM19 2540B M
Specific Conductivity	1340	1.0	umhos/cm	1	03/14/12	JD	DEPT.OF AG, BOOK N9
pH	9.89		su	1	03/13/12 10:30	CT	SW846 9045C

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

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUT 2 SUBLINER	Date Sampled:	03/07/12
Lab Sample ID:	D32609-1A	Date Received:	03/12/12
Matrix:	SO - Soil	Percent Solids:	94.4
Project:	FRU 297-32A		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	18.0	2.0	mg/l	1	03/14/12	03/14/12 JB	SW846 6010C ¹	EPA 200.7 ²
Magnesium	14.9	1.0	mg/l	1	03/14/12	03/14/12 JB	SW846 6010C ¹	EPA 200.7 ²
Sodium	248	2.0	mg/l	1	03/14/12	03/14/12 JB	SW846 6010C ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA2258
(2) Prep QC Batch: MP7061

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUT 2 SUBLINER	Date Sampled:	03/07/12
Lab Sample ID:	D32609-1A	Date Received:	03/12/12
Matrix:	SO - Soil	Percent Solids:	94.4
Project:	FRU 297-32A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	10.5		ratio	1	03/14/12 14:14	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

FED-EX Tracking #
Accutest Quote #
Bottle Order Control #
Accutest Job # **D32609**

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)												Matrix Codes																
Company Name KRW CONSULTING		Project Name XTO FRU 297-32A		<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold; margin-right: 10px;">TABLE 910</div> <div style="flex-grow: 1;"> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Billing Information (if different from Report to)</div> <div style="display: flex; justify-content: space-between;"> <div>Company Name XTO ENERGY</div> <div>Street Address 21459 CR5</div> </div> <div style="display: flex; justify-content: space-between;"> <div>City RIFLE</div> <div>State CO</div> <div>Zip 81650</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Project Contact DWAYNE KNUDSON</div> <div>Project # 1109-12A</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Client PO# JOE HESS</div> <div>Attention: JESSICA DOOLING</div> </div> </div> </div>												DW - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SL - Sludge SED - Sediment OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank																
Street Address 8000 W 14TH AVE STE 200		City LAKEWOOD CO																														
State 80214		Zip 80214																														
Project Contact DWAYNE KNUDSON		Project # 1109-12A																														
Client PO# JOE HESS		Attention: JESSICA DOOLING																														
Sample(s) Name(s) DAVID SANDERS 970 4881098		Project Manager JOE HESS																														
Field ID / Point of Collection CUT 2 SUBURNER		MECH/ID Vial #		Collection Date 3-7-12		Time 14:45		Sampled by DIS		Matrix SO		# of bottles 5		HCl		NOH		HNO3		H2SO4		NONE		DI Water		MEOH		EMCORE		Blank/In		LAB USE ONLY 01
								</																								

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D32609

Client: KRW CONSULTING

Immediate Client Services Action Required: No

Date / Time Received: 3/12/2012 1:30:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XTO FRU 297-32A

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

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: D32609
Account: XTOKRWR XTO Energy
Project: FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1203-MB	5V19961.D	1	03/13/12	KV	n/a	n/a	V5V1203

The QC reported here applies to the following samples:

Method: SW846 8260B

D32609-1

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	104% 61-130%
460-00-4	4-Bromofluorobenzene	99% 53-131%
17060-07-0	1,2-Dichloroethane-D4	115% 62-130%

Blank Spike Summary

Page 1 of 1

Job Number: D32609
Account: XTOKRWR XTO Energy
Project: FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1203-BS	5V19962.D	1	03/13/12	KV	n/a	n/a	V5V1203

The QC reported here applies to the following samples:

Method: SW846 8260B

D32609-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	49.4	99	70-130
100-41-4	Ethylbenzene	50	49.1	98	70-130
108-88-3	Toluene	50	47.5	95	70-130
1330-20-7	Xylene (total)	150	144	96	70-130

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

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D32609
Account: XTOKRWR XTO Energy
Project: FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D32550-1MS	5V19964.D	1	03/13/12	KV	n/a	n/a	V5V1203
D32550-1MSD	5V19965.D	1	03/13/12	KV	n/a	n/a	V5V1203
D32550-1	5V19963.D	1	03/13/12	KV	n/a	n/a	V5V1203

The QC reported here applies to the following samples:

Method: SW846 8260B

D32609-1

CAS No.	Compound	D32550-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	384		5830	6590	106	7520	122	13	70-134/30
100-41-4	Ethylbenzene	1470		5830	7400	102	8300	117	11	70-137/30
108-88-3	Toluene	5170		5830	11000	100	12300	122	11	70-130/30
1330-20-7	Xylene (total)	28000		17500	46200	104	51400	134* a	11	61-131/30

CAS No.	Surrogate Recoveries	MS	MSD	D32550-1	Limits
2037-26-5	Toluene-D8	99%	109%	89%	61-130%
460-00-4	4-Bromofluorobenzene	126%	138% *	101%	53-131%
17060-07-0	1,2-Dichloroethane-D4	95%	105%	87%	62-130%

(a) Outside control limits due to possible matrix interference.



GC/MS Volatiles

Raw Data



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5031312.S\
 Data File : 5V19972.D
 Acq On : 13 Mar 2012 4:23 pm
 Operator : KOROUSHV
 Sample : D32609-1
 Misc : MS3551,V5V1203,5.038,,100,5,1
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Mar 14 10:06:32 2012
 Quant Method : C:\msdchem\1\METHODS\V5AP1186TVH1186.M
 Quant Title : 8260
 QLast Update : Fri Mar 02 14:22:16 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	189646	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	342727	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	522117	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	372229	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.035	102	43611	53.42	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	106.84%
61) Toluene-d8	13.850	98	816665	48.38	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	96.76%
69) 4-Bromofluorobenzene	16.043	95	363474	52.13	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	104.26%

Target Compounds

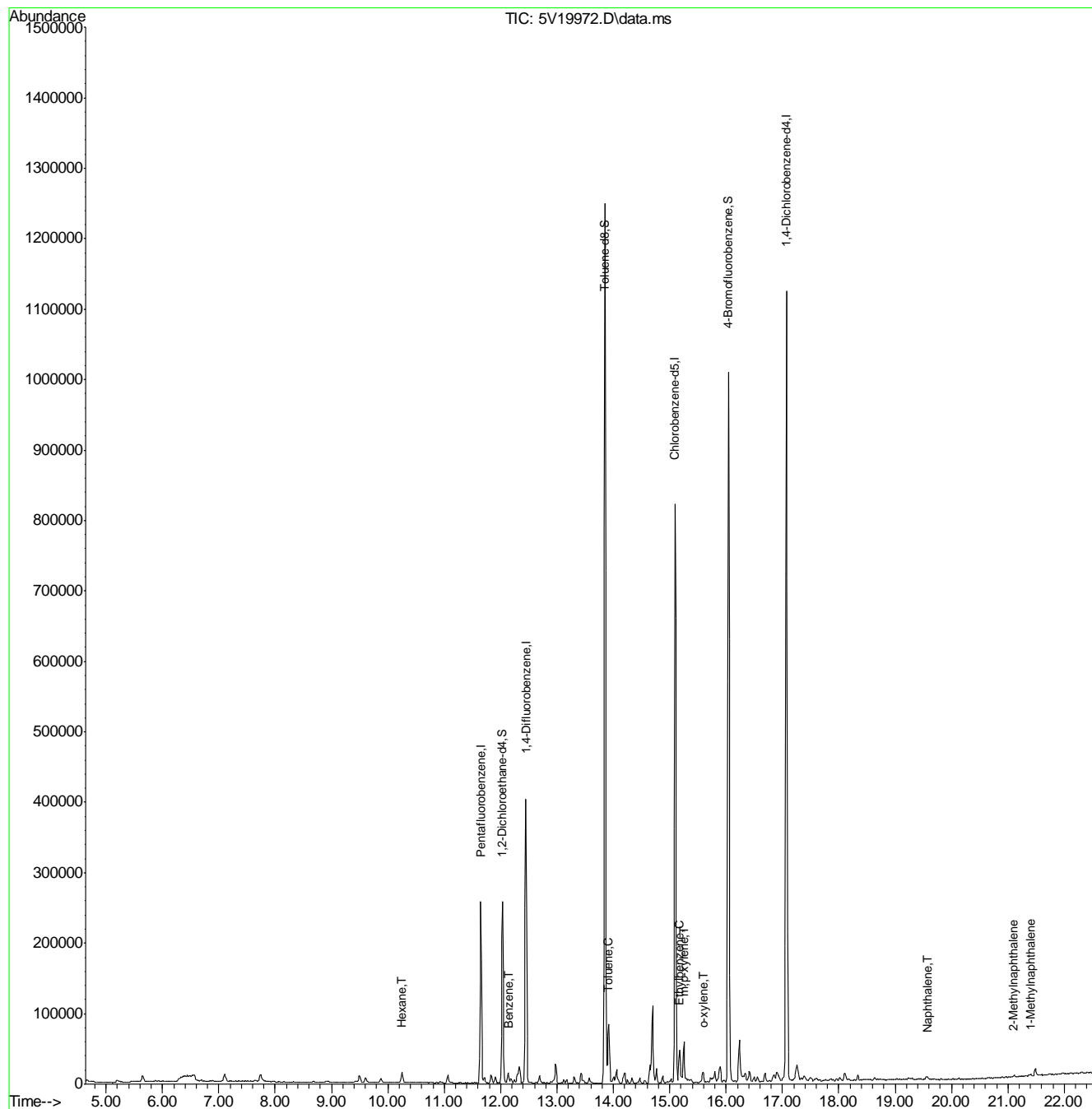
					Qvalue
41) Hexane	10.243	57	8080	2.29 ug/l	100
50) Benzene	12.138	78	14222	0.84 ug/l	100
62) Toluene	13.908	92	24261	1.89 ug/l	96
66) Ethylbenzene	15.175	91	9917	0.41 ug/l	100
72) m,p-xylene	15.255	106	18700	1.91 ug/l	98
73) o-xylene	15.597	106	2176	0.68 ug/l	84
91) Naphthalene	19.570	128	4594	1.49 ug/l	100
94) 2-Methylnaphthalene	21.100	142	1706	2.15 ug/l	97
95) 1-Methylnaphthalene	21.408	142	1092	1.99 ug/l #	85

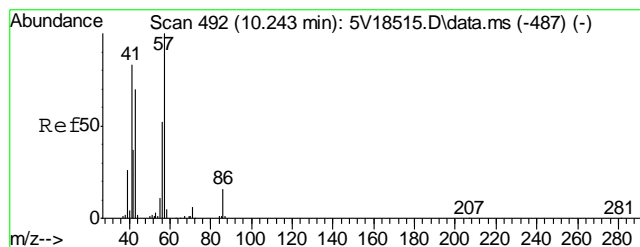
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5031312.S\
Data File : 5V19972.D
Acq On : 13 Mar 2012 4:23 pm
Operator : KOROUSHV
Sample : D32609-1
Misc : MS3551,V5V1203,5.038,,100,5,1
ALS Vial : 14 Sample Multiplier: 1

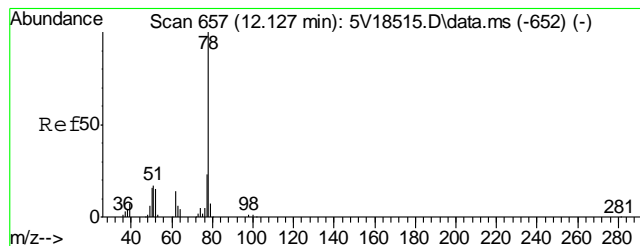
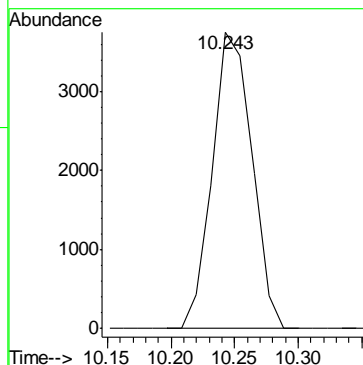
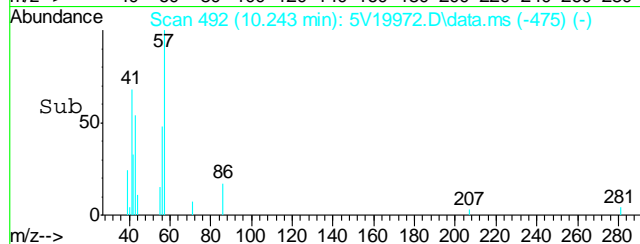
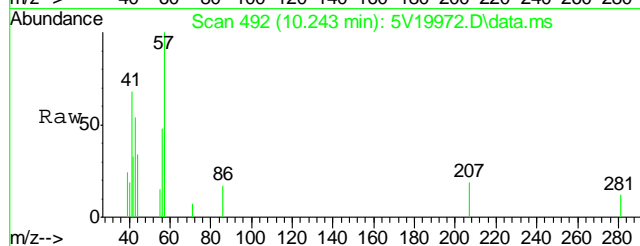
Quant Time: Mar 14 10:06:32 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1186TVH1186.M
Quant Title : 8260
QLast Update : Fri Mar 02 14:22:16 2012
Response via : Initial Calibration





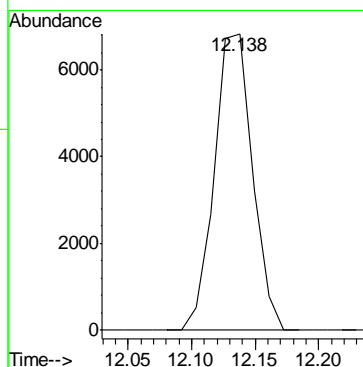
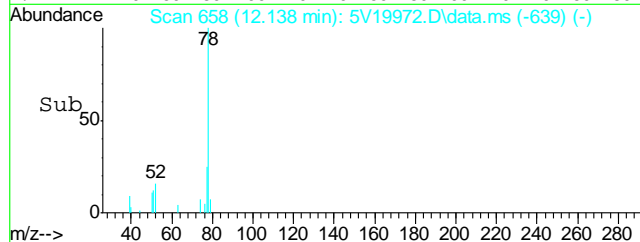
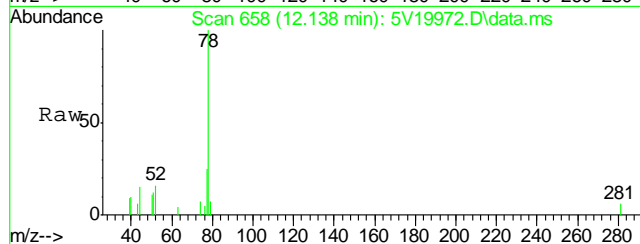
#41
Hexane
Concen: 2.29 ug/l
RT: 10.243 min Scan# 492
Delta R.T. -0.011 min
Lab File: 5V19972.D
Acq: 13 Mar 2012 4:23 pm

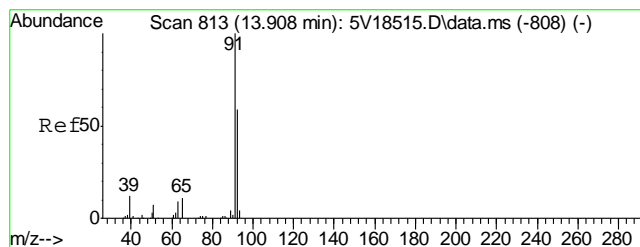
Tgt Ion: 57 Resp: 8080



#50
Benzene
Concen: 0.84 ug/l
RT: 12.138 min Scan# 658
Delta R.T. 0.012 min
Lab File: 5V19972.D
Acq: 13 Mar 2012 4:23 pm

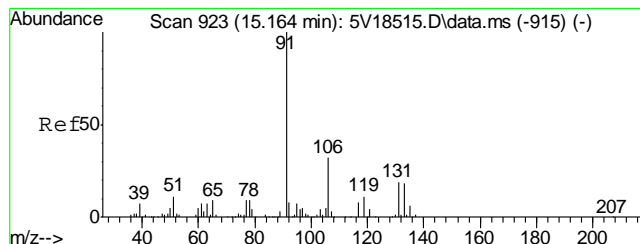
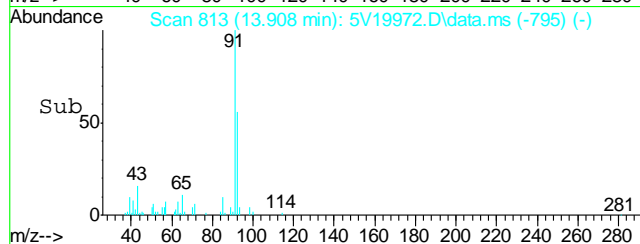
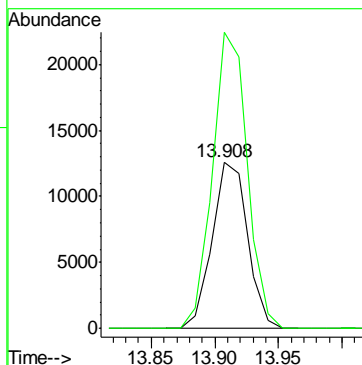
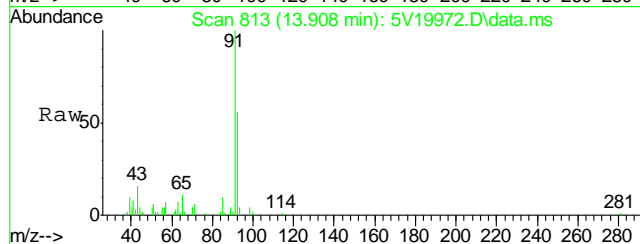
Tgt Ion: 78 Resp: 14222





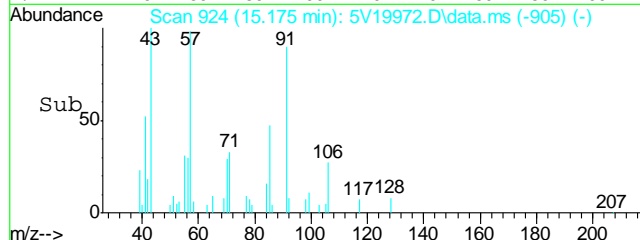
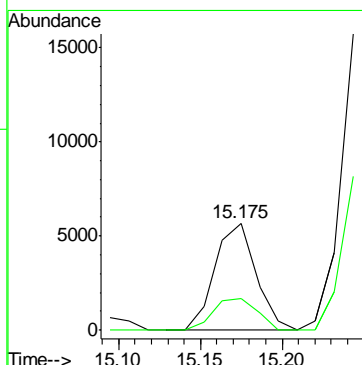
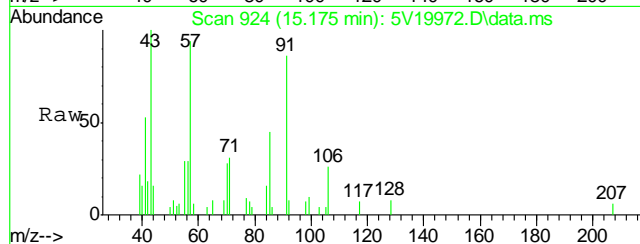
#62
Toluene
Concen: 1.89 ug/l
RT: 13.908 min Scan# 813
Delta R.T. 0.000 min
Lab File: 5V19972.D
Acq: 13 Mar 2012 4:23 pm

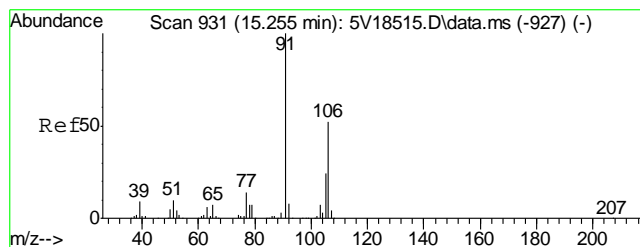
Tgt Ion	Resp	Lower	Upper
92	24261		
91	100		
91	174.7	149.8	189.8



#66
Ethylbenzene
Concen: 0.41 ug/l
RT: 15.175 min Scan# 924
Delta R.T. 0.011 min
Lab File: 5V19972.D
Acq: 13 Mar 2012 4:23 pm

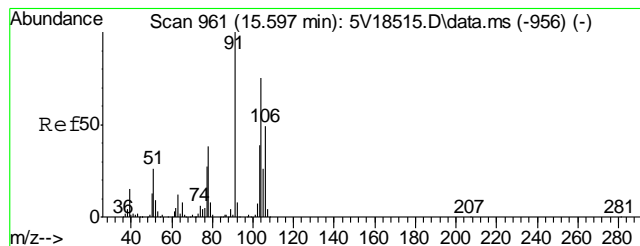
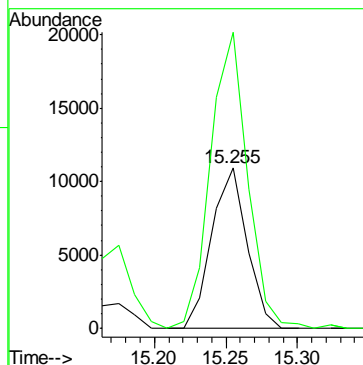
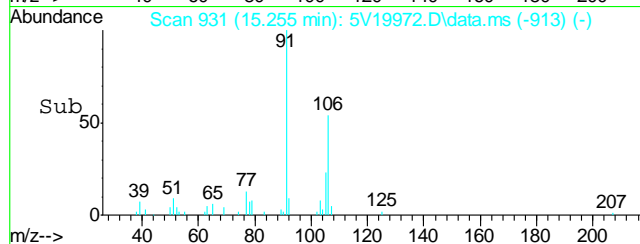
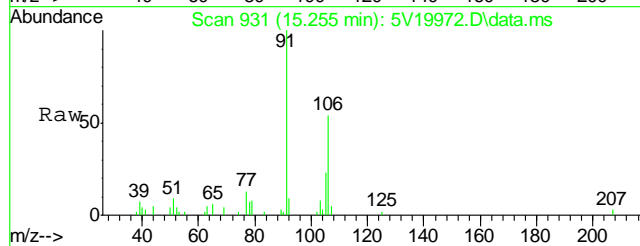
Tgt Ion	Resp	Lower	Upper
91	9917		
91	100		
106	31.7	11.7	51.7





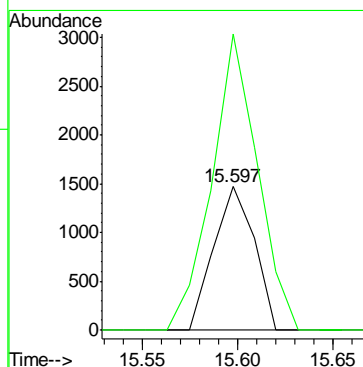
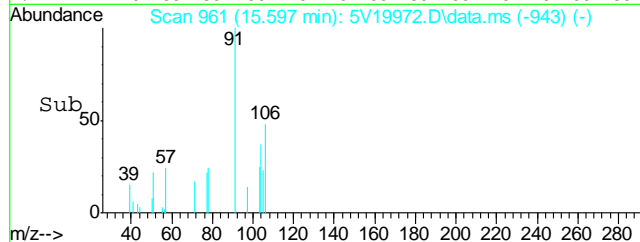
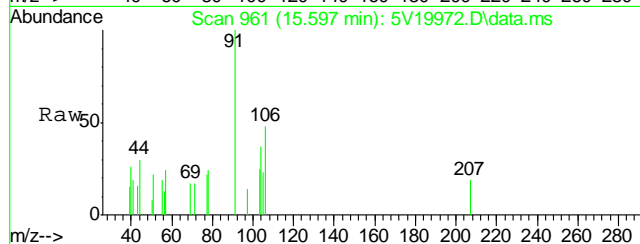
#72
m,p-xylene
Concen: 1.91 ug/l
RT: 15.255 min Scan# 931
Delta R.T. 0.000 min
Lab File: 5V19972.D
Acq: 13 Mar 2012 4:23 pm

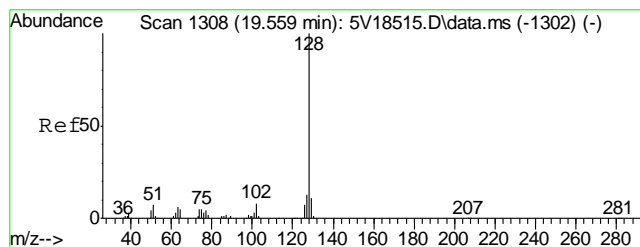
Tgt Ion	Ratio	Lower	Upper
106	100		
91	193.4	177.1	217.1



#73
o-xylene
Concen: 0.68 ug/l
RT: 15.597 min Scan# 961
Delta R.T. 0.000 min
Lab File: 5V19972.D
Acq: 13 Mar 2012 4:23 pm

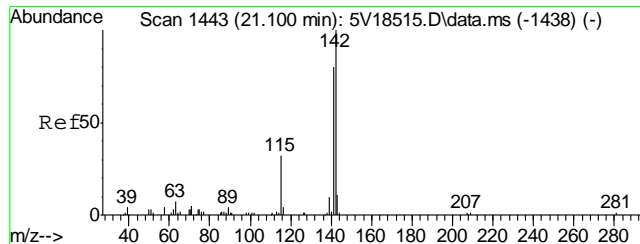
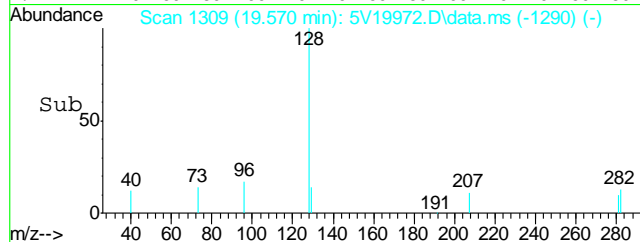
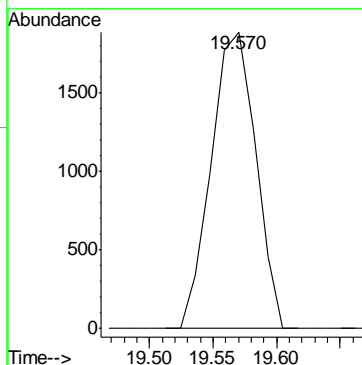
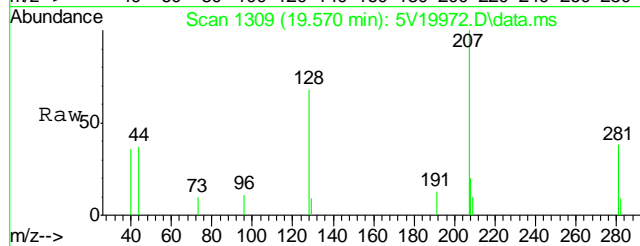
Tgt Ion	Ratio	Lower	Upper
106	100		
91	232.7	166.6	249.8





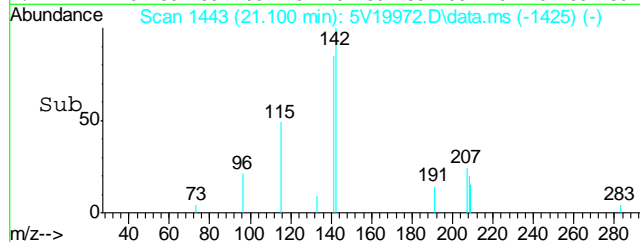
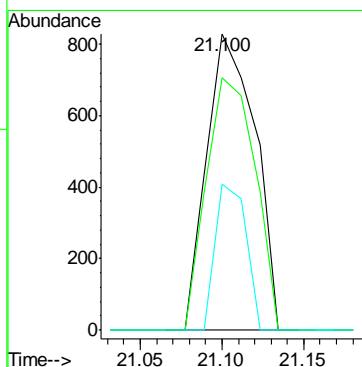
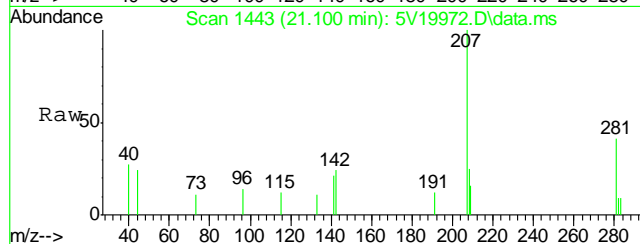
#91
Naphthalene
Concen: 1.49 ug/l
RT: 19.570 min Scan# 1309
Delta R.T. 0.012 min
Lab File: 5V19972.D
Acq: 13 Mar 2012 4:23 pm

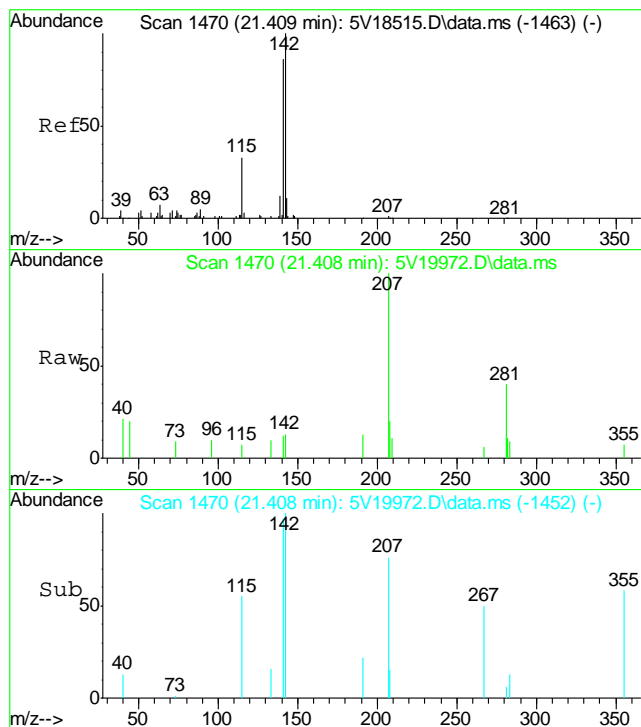
Tgt Ion:128 Resp: 4594



#94
2-Methylnaphthalene
Concen: 2.15 ug/l
RT: 21.100 min Scan# 1443
Delta R.T. 0.000 min
Lab File: 5V19972.D
Acq: 13 Mar 2012 4:23 pm

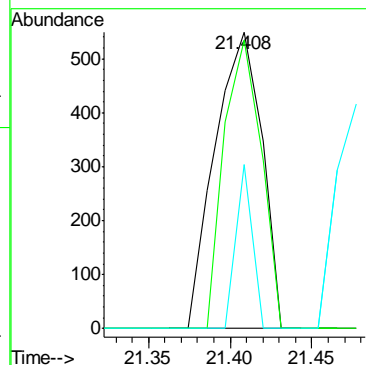
Tgt Ion:142 Resp: 1706
Ion Ratio Lower Upper
142 100
141 85.7 66.2 99.4
115 31.1 25.9 38.9





#95
 1-Methylnaphthalene
 Concen: 1.99 ug/l
 RT: 21.408 min Scan# 1470
 Delta R.T. 0.000 min
 Lab File: 5V19972.D
 Acq: 13 Mar 2012 4:23 pm

Tgt Ion:	142	Resp:	1092
Ion Ratio	Lower	Upper	
142	100		
141	77.0	68.9	103.3
115	19.0	27.3	40.9#



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5031312.S\
Data File : 5V19961.D
Acq On : 13 Mar 2012 10:14 am
Operator : KOROUSHV
Sample : MB
Misc : MS3551,V5V1203,5.00,,100,5,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 14 09:51:19 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1186TVH1186.M
Quant Title : 8260
QLast Update : Fri Mar 02 14:22:16 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	192012	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	342802	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	507384	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	334611	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.035	102	47123	57.25	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	114.50%
61) Toluene-d8	13.850	98	857074	52.25	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	104.50%
69) 4-Bromofluorobenzene	16.043	95	335704	49.54	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	99.08%

Target Compounds

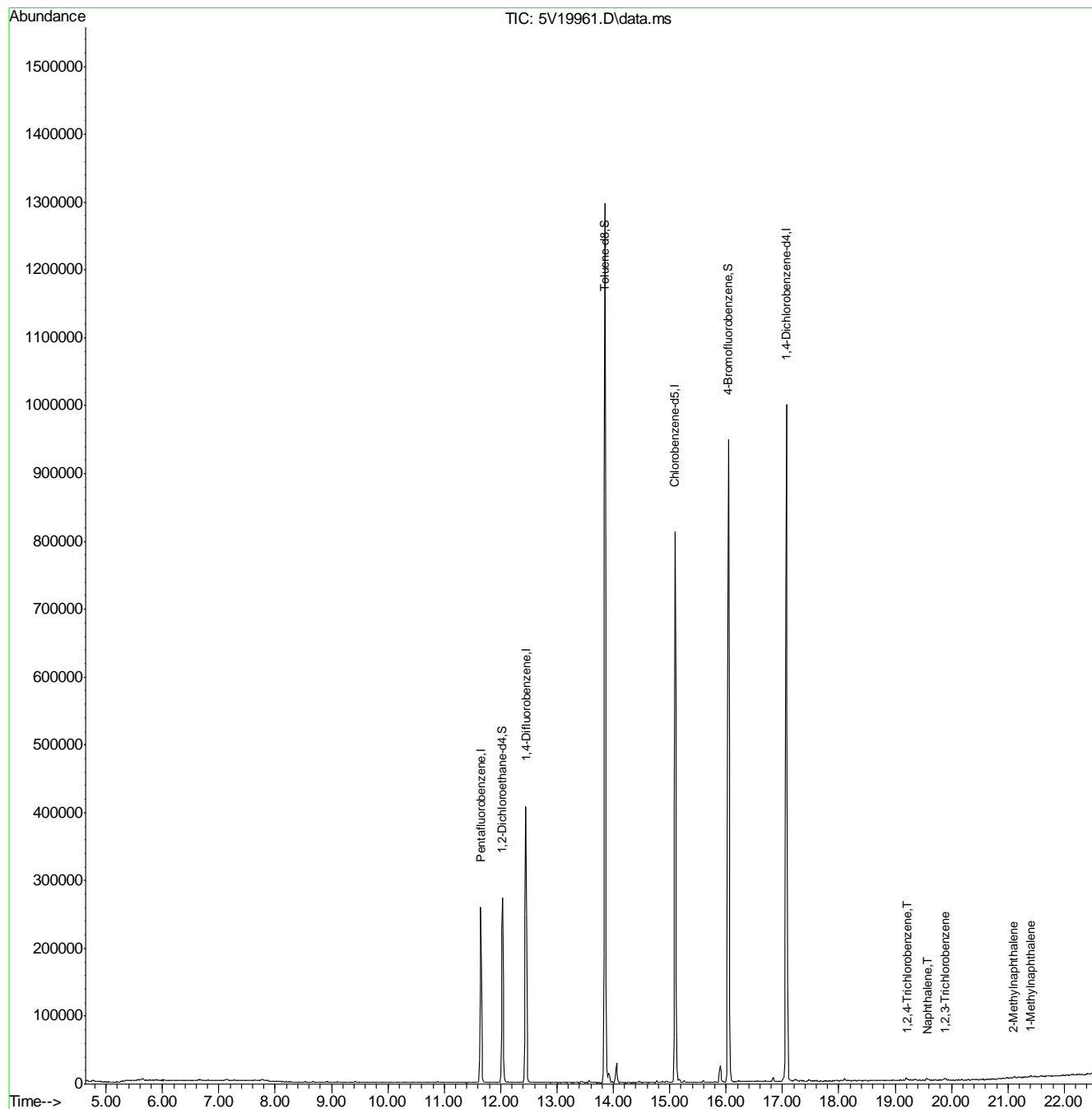
						Qvalue
90) 1,2,4-Trichlorobenzene	19.205	180	1996	0.83	ug/l #	80
91) Naphthalene	19.570	128	5625	1.59	ug/l	100
93) 1,2,3-Trichlorobenzene	19.879	180	2428	0.86	ug/l #	89
94) 2-Methylnaphthalene	21.100	142	1211	2.05	ug/l #	84
95) 1-Methylnaphthalene	21.397	142	1655	2.14	ug/l #	85

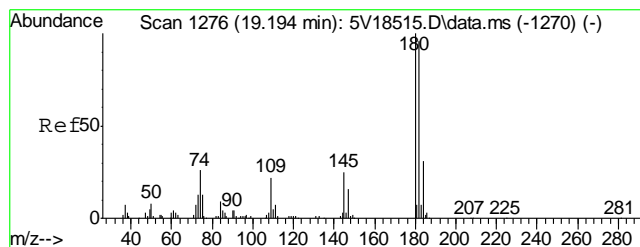
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5031312.S\
Data File : 5V19961.D
Acq On : 13 Mar 2012 10:14 am
Operator : KOROUHV
Sample : MB
Misc : MS3551,V5V1203,5.00,,100,5,1
ALS Vial : 3 Sample Multiplier: 1

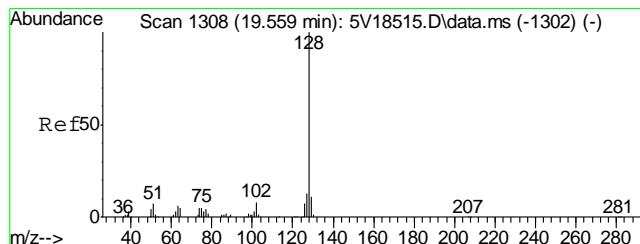
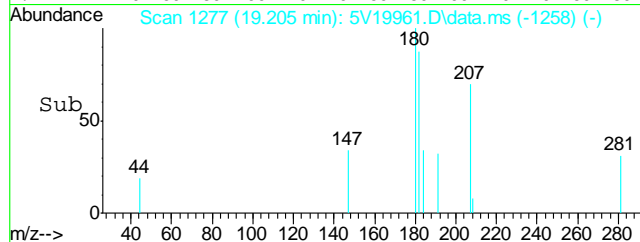
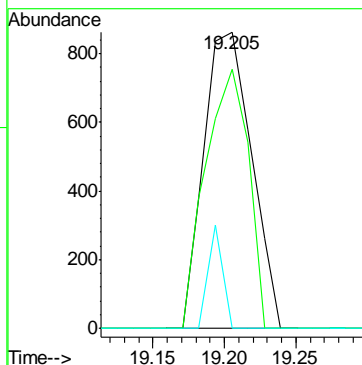
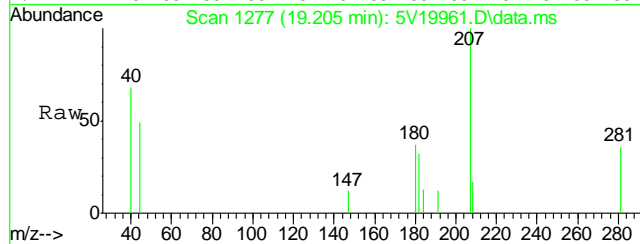
Quant Time: Mar 14 09:51:19 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1186TVH1186.M
Quant Title : 8260
QLast Update : Fri Mar 02 14:22:16 2012
Response via : Initial Calibration





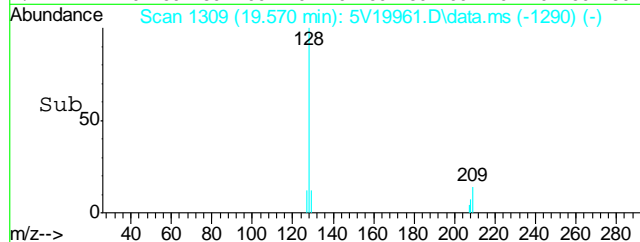
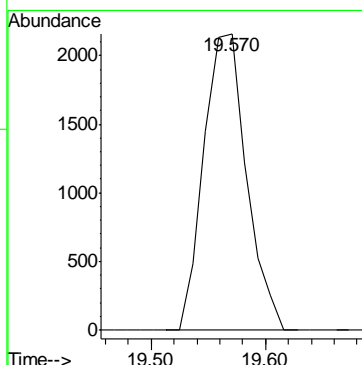
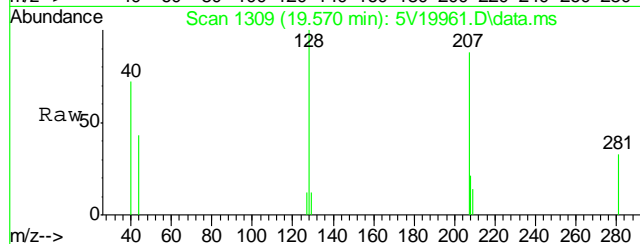
#90
1,2,4-Trichlorobenzene
Concen: 0.83 ug/l
RT: 19.205 min Scan# 1277
Delta R.T. 0.012 min
Lab File: 5V19961.D
Acq: 13 Mar 2012 10:14 am

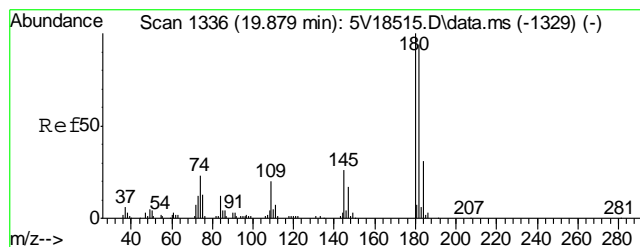
Tgt Ion	Ratio	Lower	Upper
180	100		
182	78.4	76.2	114.4
145	10.3	20.1	30.1#



#91
Naphthalene
Concen: 1.59 ug/l
RT: 19.570 min Scan# 1309
Delta R.T. 0.012 min
Lab File: 5V19961.D
Acq: 13 Mar 2012 10:14 am

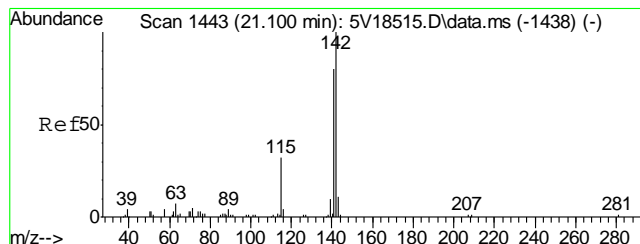
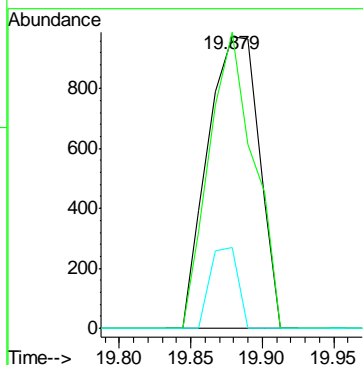
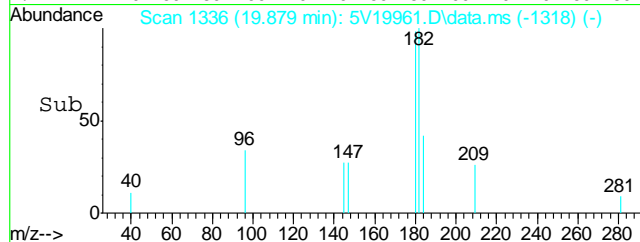
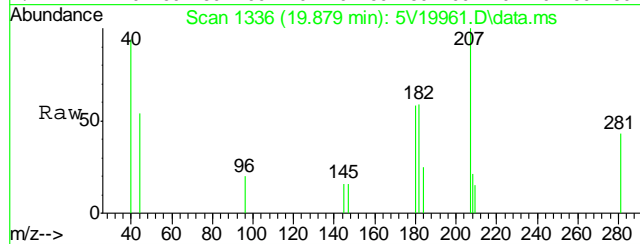
Tgt Ion:128 Resp: 5625





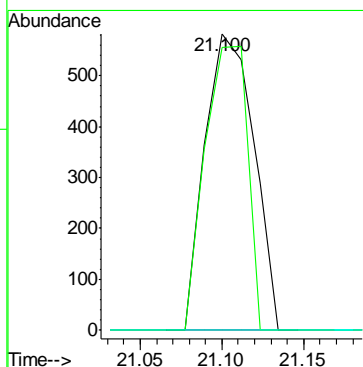
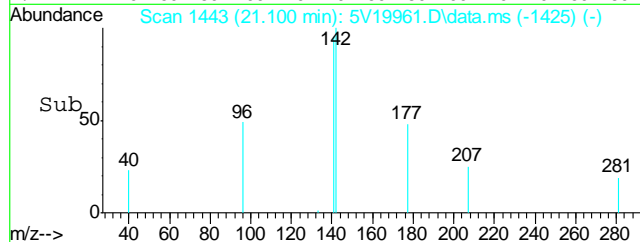
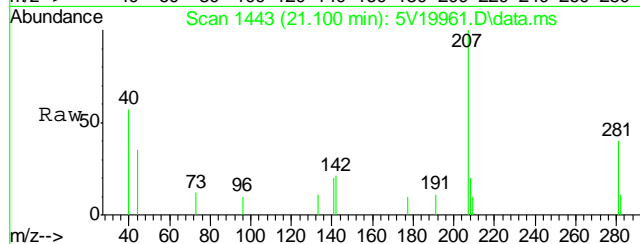
#93
1,2,3-Trichlorobenzene
Concen: 0.86 ug/l
RT: 19.879 min Scan# 1336
Delta R.T. 0.001 min
Lab File: 5V19961.D
Acq: 13 Mar 2012 10:14 am

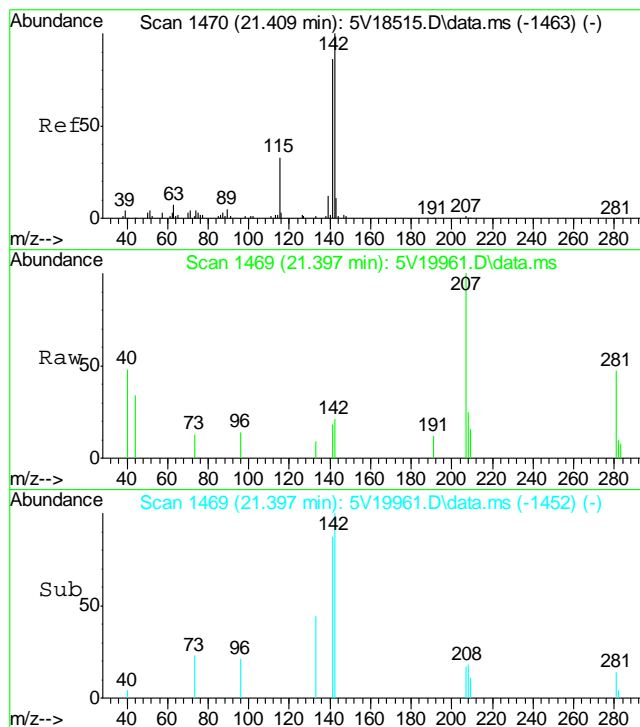
Tgt Ion:180	Resp:	2428
Ion Ratio	Lower	Upper
180	100	
182	88.0	76.0 114.0
145	14.9	21.4 32.0#



#94
2-Methylnaphthalene
Concen: 2.05 ug/l
RT: 21.100 min Scan# 1443
Delta R.T. 0.000 min
Lab File: 5V19961.D
Acq: 13 Mar 2012 10:14 am

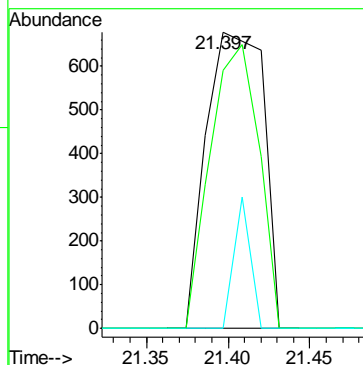
Tgt Ion:142	Resp:	1211
Ion Ratio	Lower	Upper
142	100	
141	83.0	66.2 99.4
115	0.0	25.9 38.9#





#95
1-Methylnaphthalene
Concen: 2.14 ug/l
RT: 21.397 min Scan# 1469
Delta R.T. -0.011 min
Lab File: 5V19961.D
Acq: 13 Mar 2012 10:14 am

Tgt Ion	Ratio	Lower	Upper
142	100		
141	81.1	68.9	103.3
115	12.5	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: D32609
Account: XTOKRWR XTO Energy
Project: FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5528-MB	3G08524.D	1	03/14/12	DC	03/13/12	OP5528	E3G348

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

D32609-1

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

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	78% 10-145%
321-60-8	2-Fluorobiphenyl	67% 10-130%
1718-51-0	Terphenyl-d14	79% 22-130%

Blank Spike Summary

Page 1 of 1

Job Number: D32609
Account: XTOKRWR XTO Energy
Project: FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5528-BS	3G08525.D	1	03/14/12	DC	03/13/12	OP5528	E3G348

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D32609-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	66.1	79	34-130
120-12-7	Anthracene	83.3	76.1	91	35-130
56-55-3	Benzo(a)anthracene	83.3	73.1	88	36-130
50-32-8	Benzo(a)pyrene	83.3	69.6	84	36-130
205-99-2	Benzo(b)fluoranthene	83.3	71.1	85	35-130
207-08-9	Benzo(k)fluoranthene	83.3	67.8	81	37-130
218-01-9	Chrysene	83.3	76.8	92	40-130
53-70-3	Dibenzo(a,h)anthracene	83.3	74.9	90	32-130
206-44-0	Fluoranthene	83.3	80.2	96	38-130
86-73-7	Fluorene	83.3	69.8	84	35-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	80.9	97	28-130
91-20-3	Naphthalene	83.3	64.5	77	35-130
129-00-0	Pyrene	83.3	72.7	87	37-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	76%	10-145%
321-60-8	2-Fluorobiphenyl	66%	10-130%
1718-51-0	Terphenyl-d14	78%	22-130%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D32609
Account: XTOKRWR XTO Energy
Project: FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5528-MS	3G08527.D	1	03/14/12	DC	03/13/12	OP5528	E3G348
OP5528-MSD	3G08528.D	1	03/14/12	DC	03/13/12	OP5528	E3G348
D32609-1	3G08526.D	1	03/14/12	DC	03/13/12	OP5528	E3G348

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D32609-1

CAS No.	Compound	D32609-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		88	43.1	49	61.7	70	35* a	10-155/30
120-12-7	Anthracene	ND		88	53.4	61	70.2	80	27	10-155/30
56-55-3	Benzo(a)anthracene	ND		88	52.8	60	70.4	80	29	10-175/30
50-32-8	Benzo(a)pyrene	ND		88	45.2	51	60.2	68	28	10-164/30
205-99-2	Benzo(b)fluoranthene	ND		88	48.8	55	62.7	71	25	10-165/30
207-08-9	Benzo(k)fluoranthene	ND		88	40.6	46	50.3	57	21	10-178/30
218-01-9	Chrysene	ND		88	51.8	59	71.4	81	32* a	10-147/30
53-70-3	Dibenzo(a,h)anthracene	ND		88	74.1	84	108	123	37* a	10-144/30
206-44-0	Fluoranthene	ND		88	50.5	57	65.2	74	25	10-207/30
86-73-7	Fluorene	ND		88	56.7	64	79.0	90	33* a	10-163/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		88	83.3	95	119	135	35* a	10-180/30
91-20-3	Naphthalene	32.7		88	84.7	59	125	105	38* a	10-198/30
129-00-0	Pyrene	ND		88	60.4	69	81.5	93	30	10-189/30

CAS No.	Surrogate Recoveries	MS	MSD	D32609-1	Limits
4165-60-0	Nitrobenzene-d5	49%	70%	53%	10-145%
321-60-8	2-Fluorobiphenyl	40%	59%	48%	10-130%
1718-51-0	Terphenyl-d14	57%	77%	76%	22-130%

(a) Variability of recovery may be due to sample matrix/homogeneity.

GC/MS Semi-volatiles

Raw Data

∞

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\031412\
 Data File : 3g08526.D
 Acq On : 14 Mar 2012 10:49 am
 Operator : DONC
 Sample : D32609-1
 Misc : OP5528,E3G348,30.11,,,1,1
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 15 08:02:09 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G344.M
 Quant Title : PAHSIM BASE
 QLast Update : Mon Mar 12 09:19:25 2012
 Response via : Initial Calibration

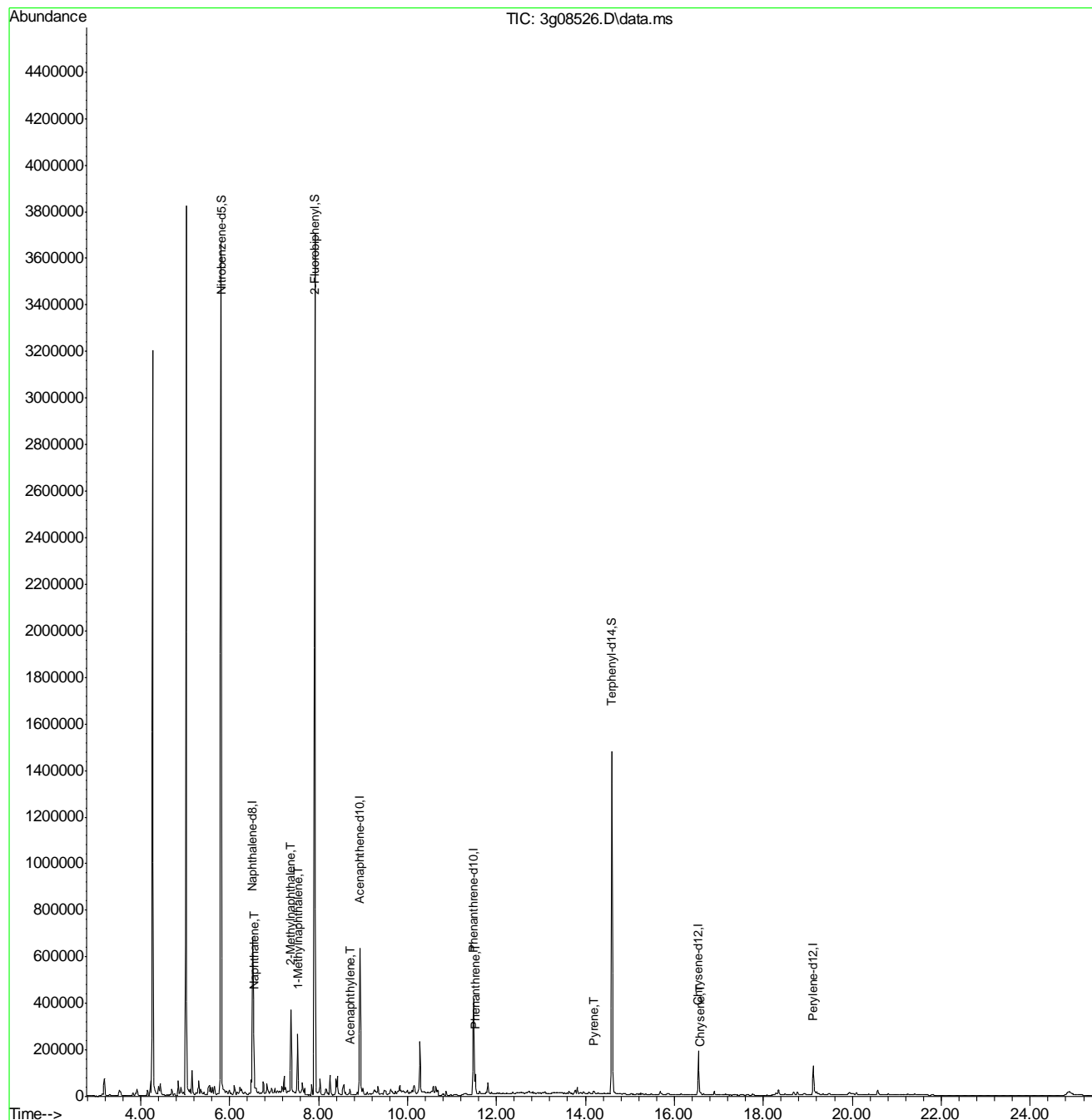
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.520	136	626276	4.00	ug/mL	-0.01
6) Acenaphthene-d10	8.933	164	326715	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.485	188	411909	4.00	ug/mL	0.00
18) Chrysene-d12	16.540	240	210352	4.00	ug/mL	-0.01
23) Perylene-d12	19.122	264	172963	4.00	ug/mL	-0.01
System Monitoring Compounds						
2) Nitrobenzene-d5	5.809	82	2244963	26.30	ug/mL	0.00
Spiked Amount	50.000	Range	25 - 135	Recovery	=	52.60%
7) 2-Fluorobiphenyl	7.917	172	3155296	24.07	ug/mL	-0.01
Spiked Amount	50.000	Range	25 - 135	Recovery	=	48.14%
20) Terphenyl-d14	14.595	244	1726107	37.96	ug/mL	-0.02
Spiked Amount	50.000	Range	25 - 135	Recovery	=	75.92%
Target Compounds						
					Qvalue	
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	6.545	128	195653	0.93	ug/mL	98
8) 2-Methylnaphthalene	7.380	142	196965	1.66	ug/mL	99
9) 1-Methylnaphthalene	7.530	142	102075	0.90	ug/mL	99
10) Acenaphthylene	8.708	152	3313	0.02	ug/mL#	1
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	11.524	178	95917	0.67	ug/mL	96
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	14.184	202	6974	0.07	ug/mL#	1
21) Benzo(a)anthracene	0.000		0	N.D.	d	
22) Chrysene	16.587	228	8504	0.12	ug/mL	92
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	

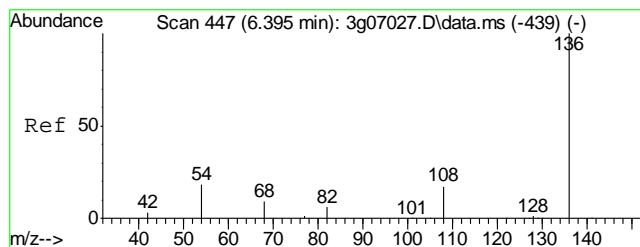
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\031412\
Data File : 3g08526.D
Acq On : 14 Mar 2012 10:49 am
Operator : DONC
Sample : D32609-1
Misc : OP5528,E3G348,30.11,,,1,1
ALS Vial : 6 Sample Multiplier: 1

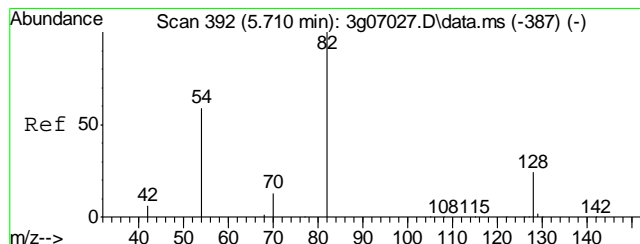
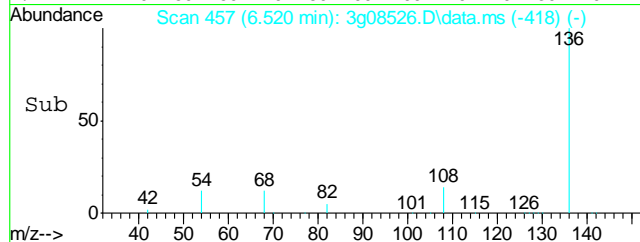
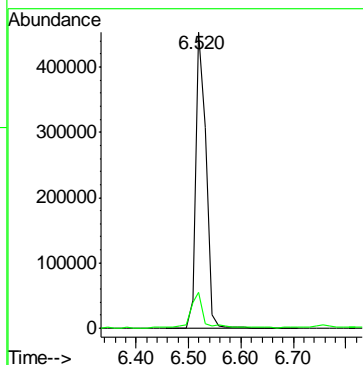
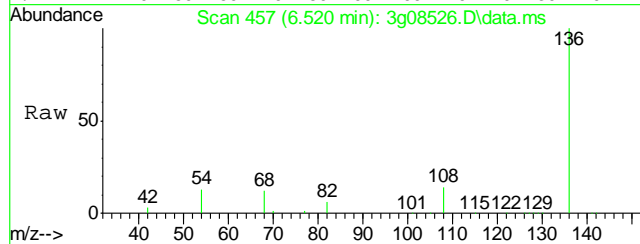
Quant Time: Mar 15 08:02:09 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G344.M
Quant Title : PAHSIM BASE
QLast Update : Mon Mar 12 09:19:25 2012
Response via : Initial Calibration





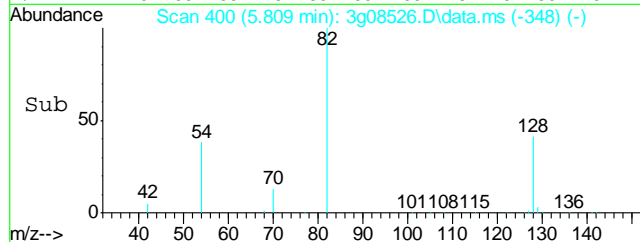
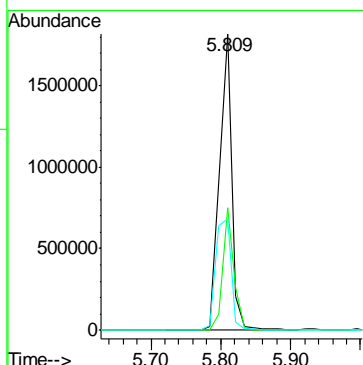
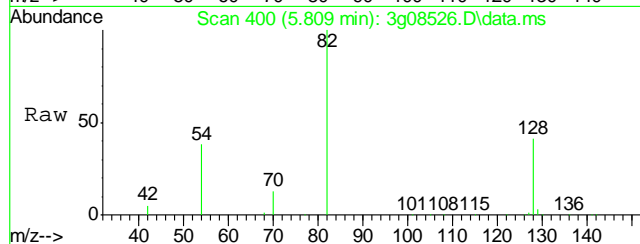
#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.520 min Scan# 457
Delta R.T. -0.013 min
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

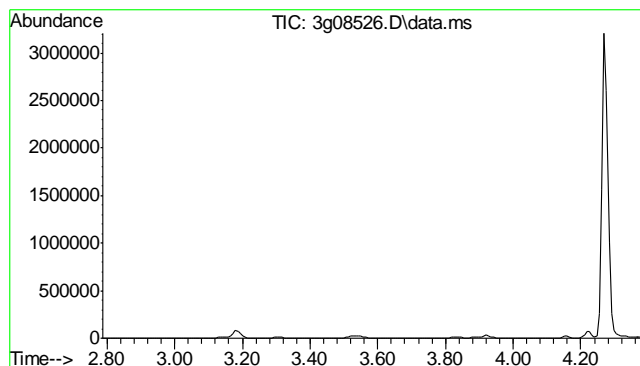
Tgt Ion: 136 Resp: 626276
Ion Ratio Lower Upper
136 100
68 14.4 0.0 32.2



#2
Nitrobenzene-d5
Concen: 26.30 ug/mL
RT: 5.809 min Scan# 400
Delta R.T. -0.000 min
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

Tgt Ion: 82 Resp: 2244963
Ion Ratio Lower Upper
82 100
128 38.0 16.8 56.8
54 47.3 27.0 67.0

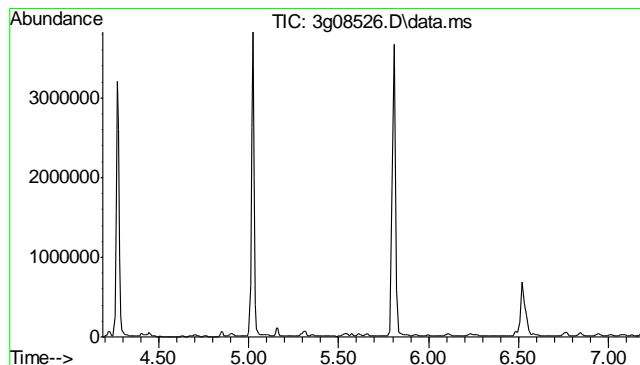
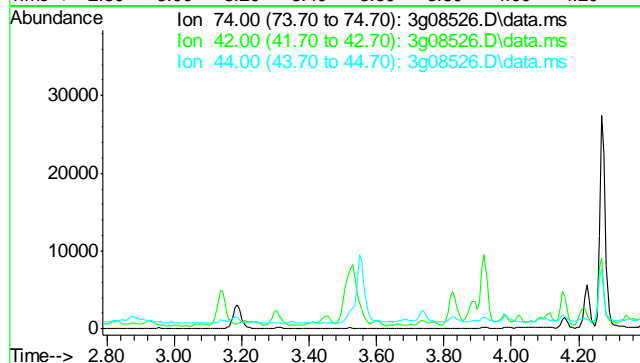




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.88 min

Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

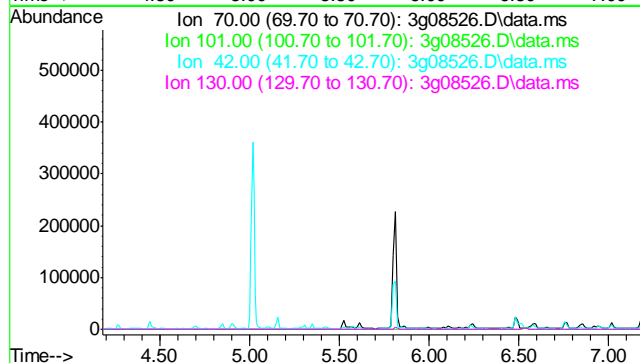
Tgt Ion	Exp Ratio
74	100
42	58.8
44	4.0

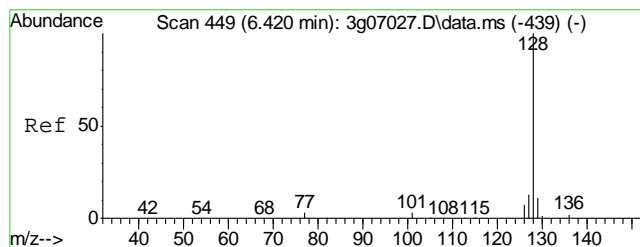


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.68 min

Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

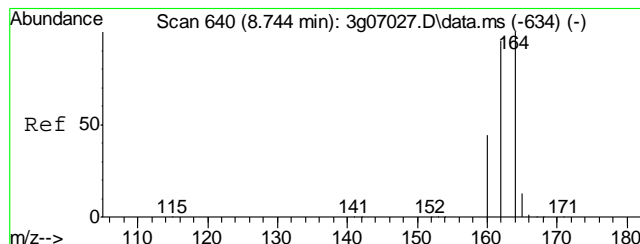
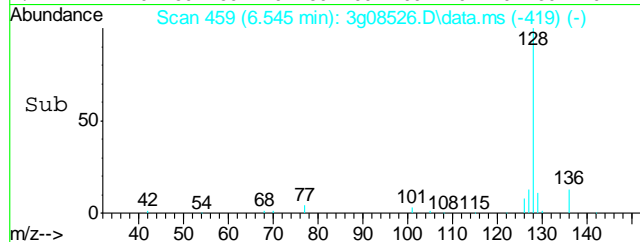
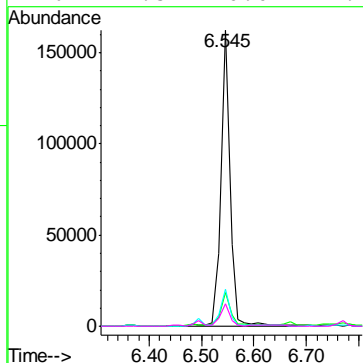
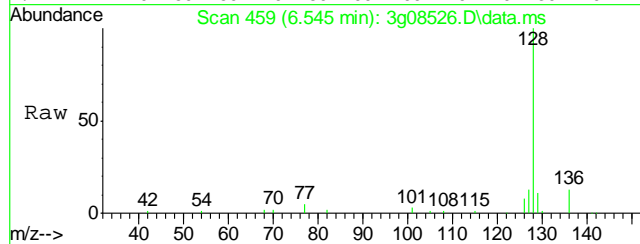
Tgt Ion	Exp Ratio
70	100
101	11.0
42	49.0
130	18.8





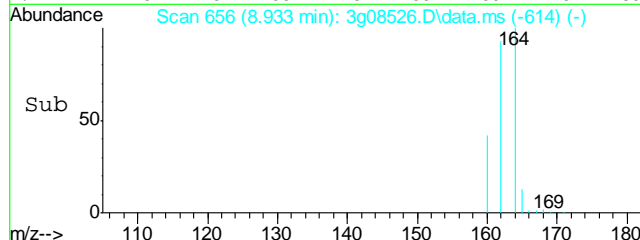
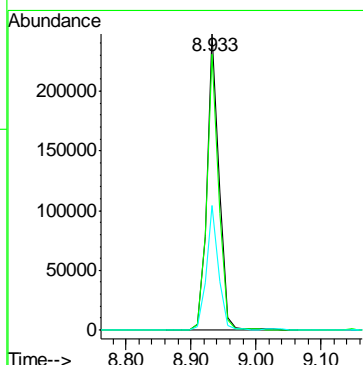
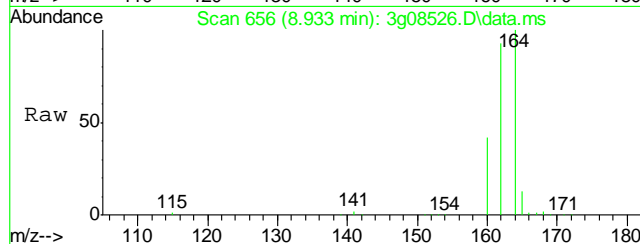
#5
Naphthalene
Concen: 0.93 ug/mL
RT: 6.545 min Scan# 459
Delta R.T. -0.000 min
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

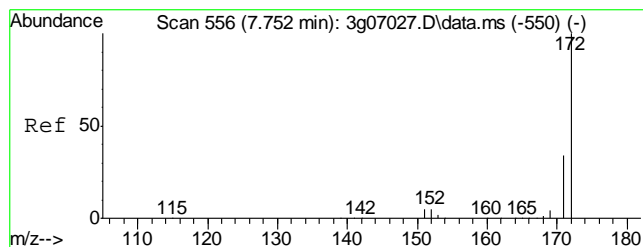
Tgt Ion:	128	Resp:	195653
Ion Ratio	Lower	Upper	
128	100		
129	12.1	0.0	30.9
127	11.6	0.0	32.4
126	7.5	0.0	27.6



#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 8.933 min Scan# 656
Delta R.T. -0.000 min
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

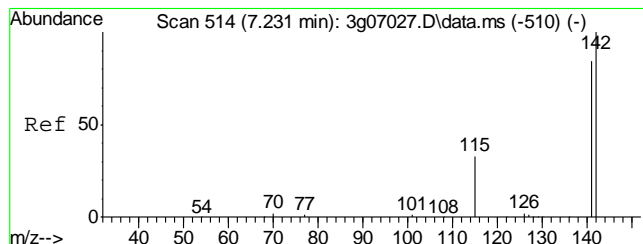
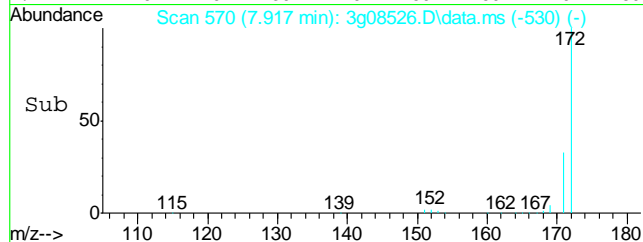
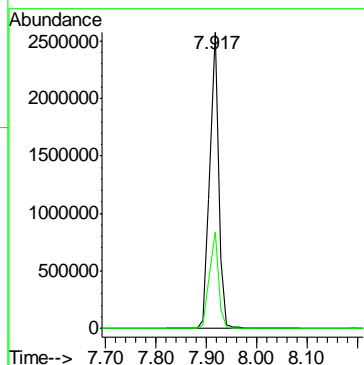
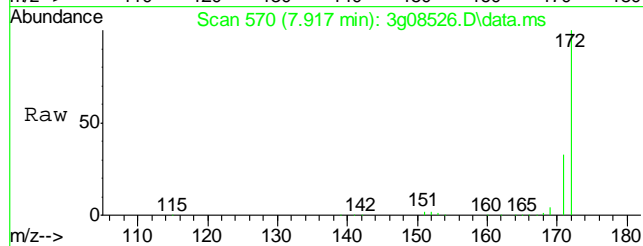
Tgt Ion:	164	Resp:	326715
Ion Ratio	Lower	Upper	
164	100		
162	92.1	72.9	112.9
160	41.4	22.1	62.1





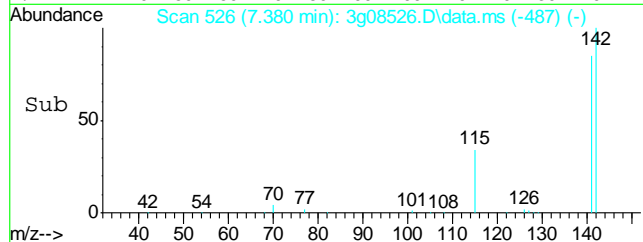
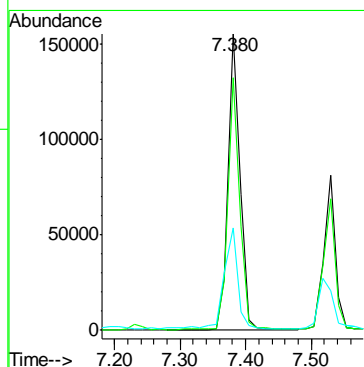
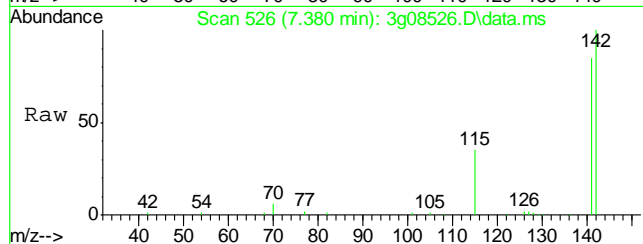
#7
2-Fluorobiphenyl
Concen: 24.07 ug/mL
RT: 7.917 min Scan# 570
Delta R.T. -0.012 min
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

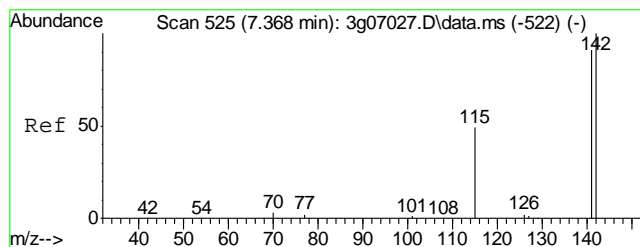
Tgt Ion: 172 Resp: 3155296
Ion Ratio Lower Upper
172 100
171 33.3 12.9 52.9



#8
2-Methylnaphthalene
Concen: 1.66 ug/mL
RT: 7.380 min Scan# 526
Delta R.T. -0.013 min
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

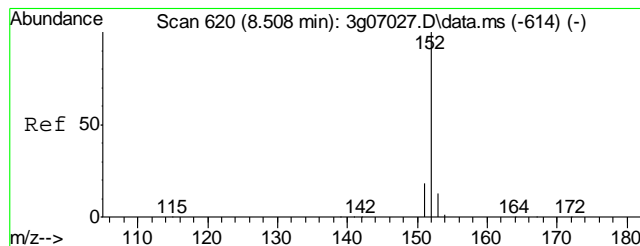
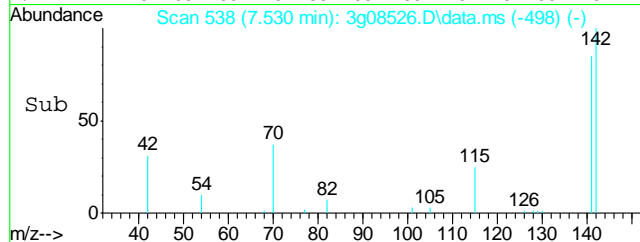
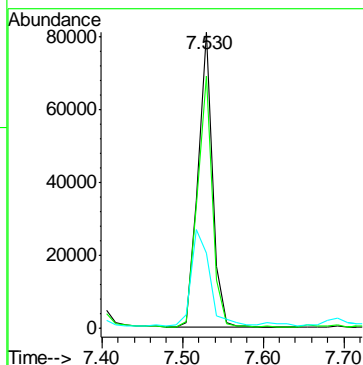
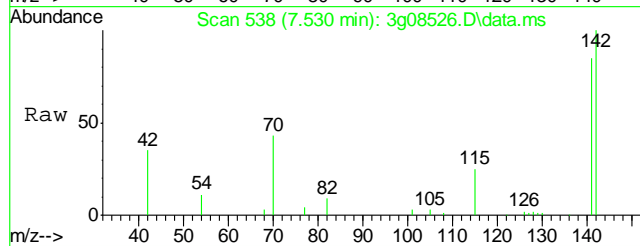
Tgt Ion: 142 Resp: 196965
Ion Ratio Lower Upper
142 100
141 83.9 63.6 103.6
115 38.1 17.0 57.0





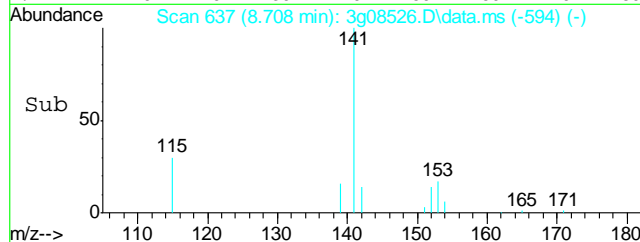
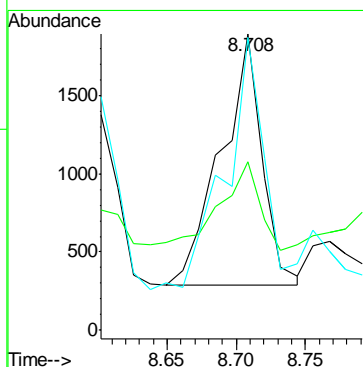
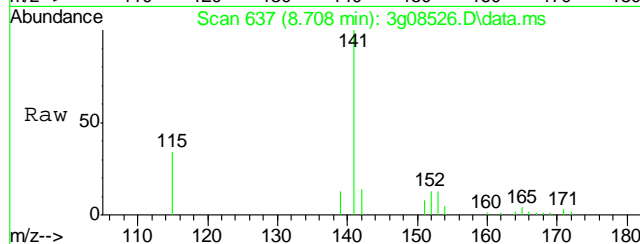
#9
1-Methylnaphthalene
Concen: 0.90 ug/mL
RT: 7.530 min Scan# 538
Delta R.T. -0.000 min
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

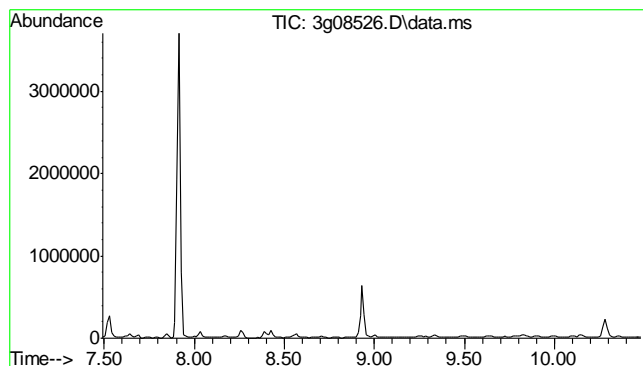
Tgt Ion	Ratio	Lower	Upper
142	100		
141	86.4	66.9	106.9
115	41.1	19.7	59.7



#10
Acenaphthylene
Concen: 0.02 ug/mL
RT: 8.708 min Scan# 637
Delta R.T. 0.012 min
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

Tgt Ion	Ratio	Lower	Upper
152	100		
151	33.8	0.0	38.9
153	97.6	0.0	32.9#

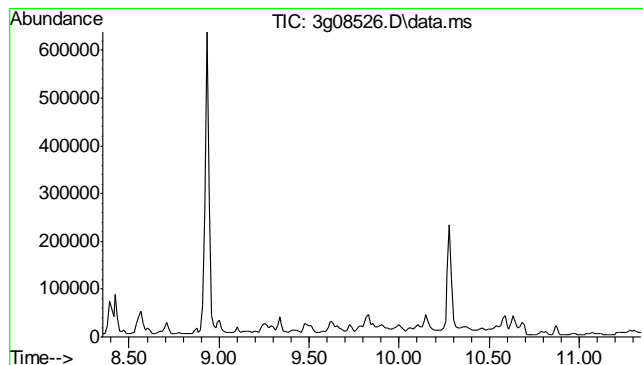
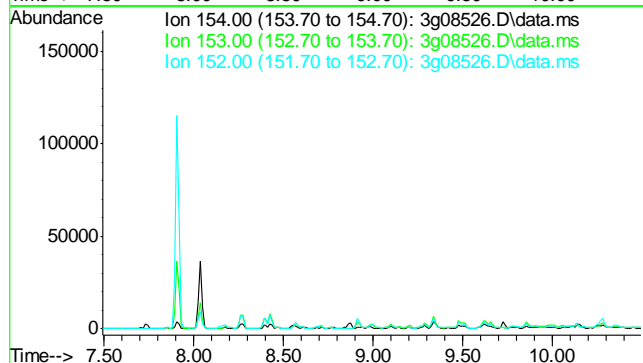




#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 8.99 min

Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

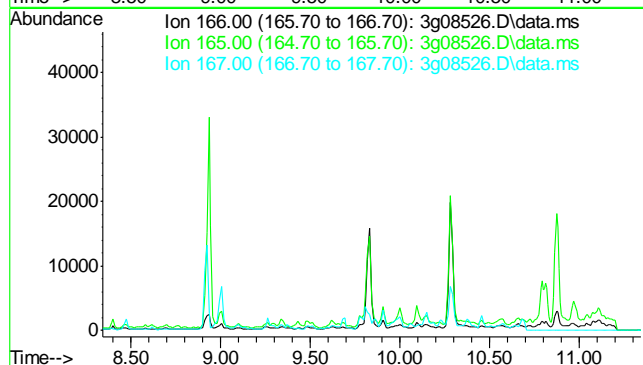
Tgt Ion	Exp Ratio
154	100
153	104.5
152	50.0

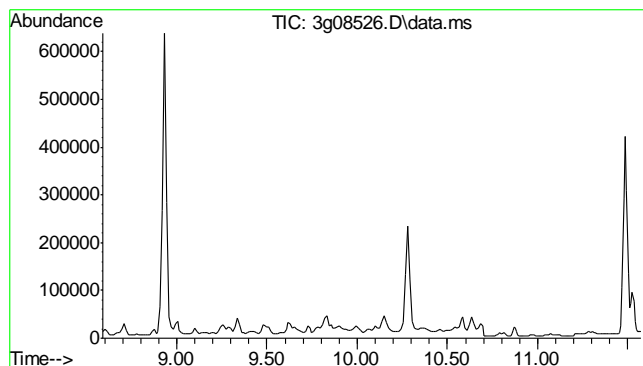


#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 9.84 min

Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

Tgt Ion	Exp Ratio
166	100
165	91.4
167	13.2

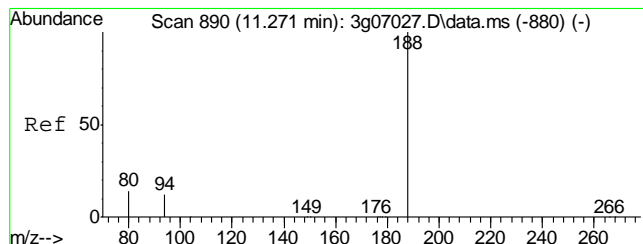
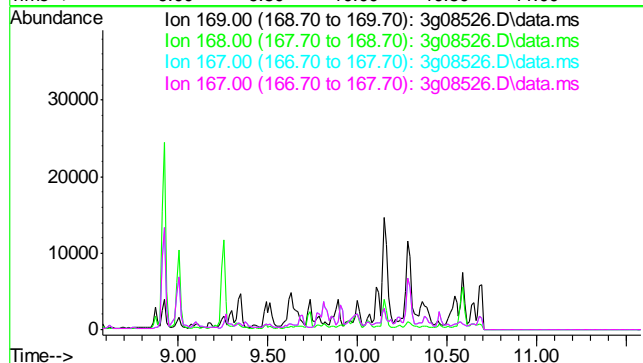




#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.08 min

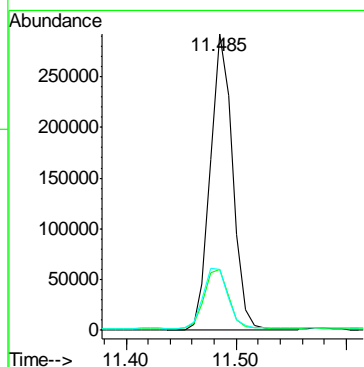
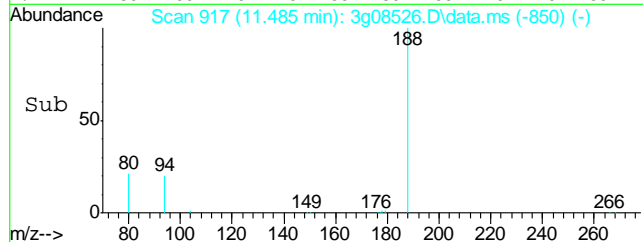
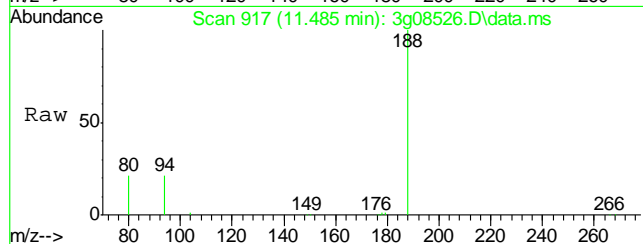
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

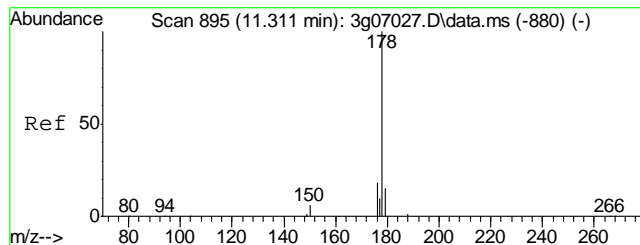
Tgt Ion	Exp Ratio
169	100
168	61.3
167	33.2
167	33.2



#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.485 min Scan# 917
Delta R.T. -0.008 min
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

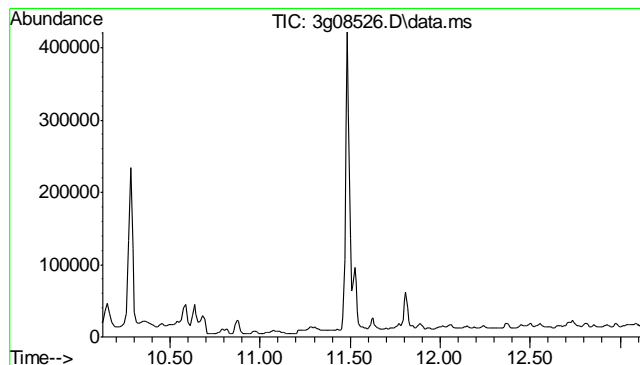
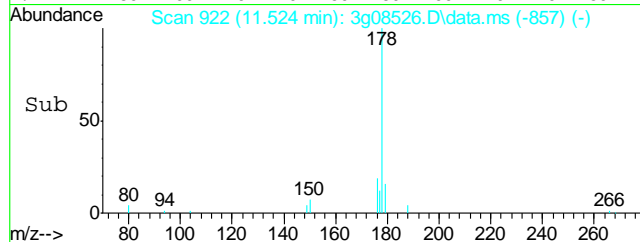
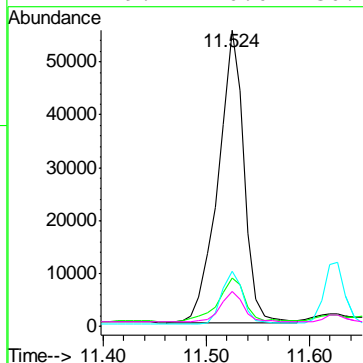
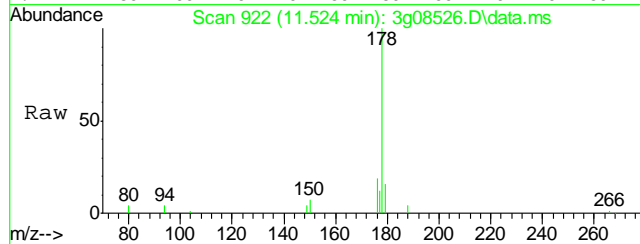
Tgt Ion	Ratio	Lower	Upper
188	100		
94	21.7	1.7	41.7
80	22.5	2.2	42.2





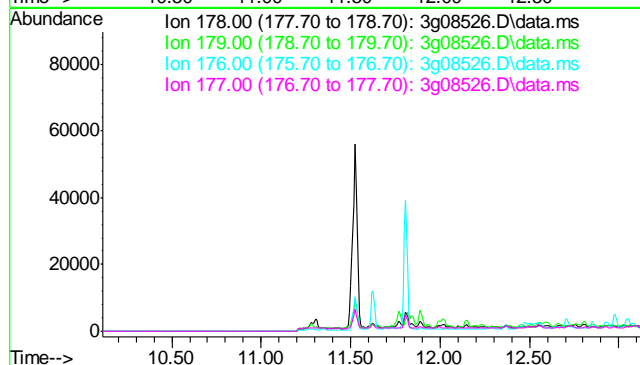
#15
Phenanthrene
Concen: 0.67 ug/mL
RT: 11.524 min Scan# 922
Delta R.T. -0.016 min
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

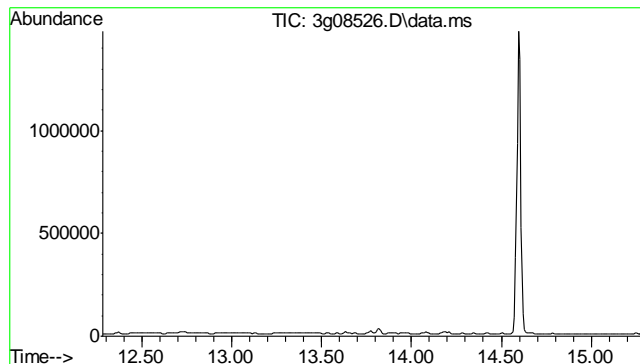
Tgt Ion:	178	Resp:	95917
Ion Ratio	Lower	Upper	
178	100		
179	15.7	0.0	35.1
176	15.4	0.0	38.5
177	9.4	0.0	30.2



#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.62 min
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

Tgt Ion:	178
Sig	Exp Ratio
178	100
179	15.0
176	17.7
177	8.7

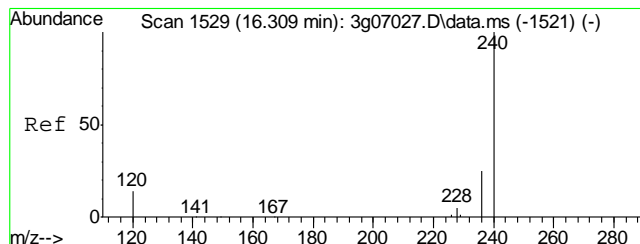
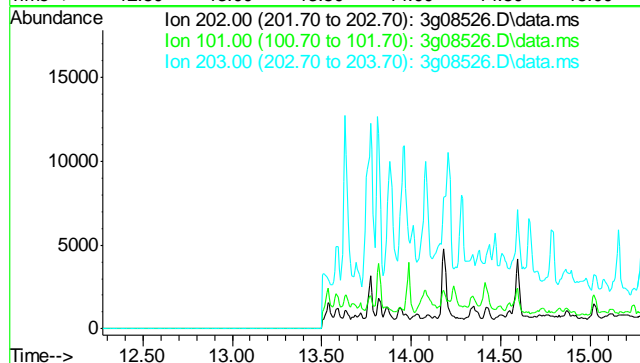




#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 13.78 min

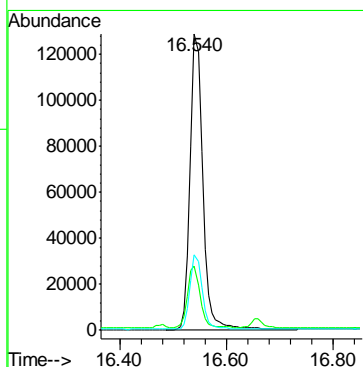
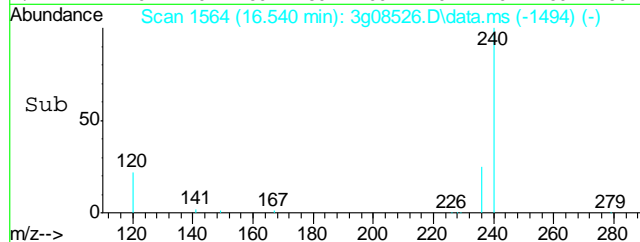
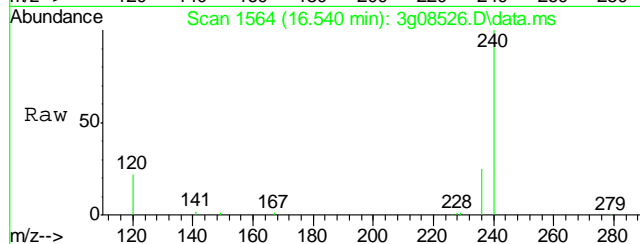
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

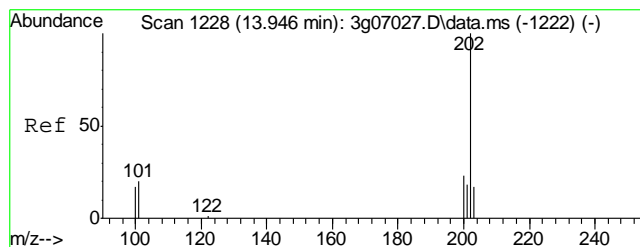
Tgt Ion: 202
Sig Exp Ratio
202 100
101 23.2
203 17.2



#18
Chrysene-d12
Concen: 4.00 ug/mL
RT: 16.540 min Scan# 1564
Delta R.T. -0.013 min
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

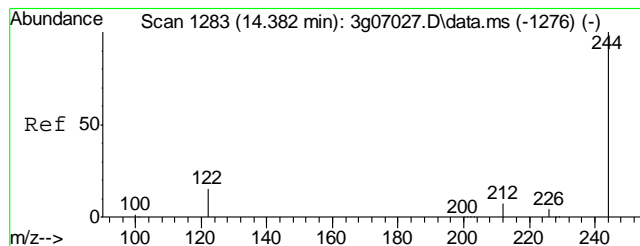
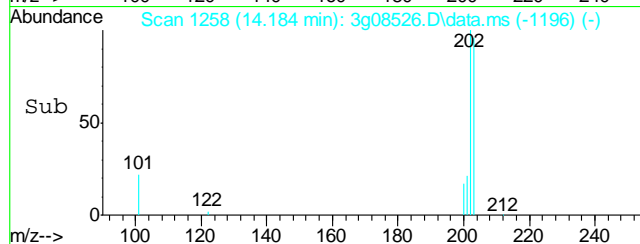
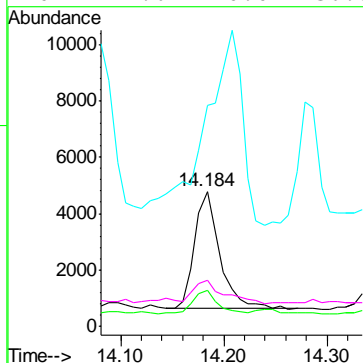
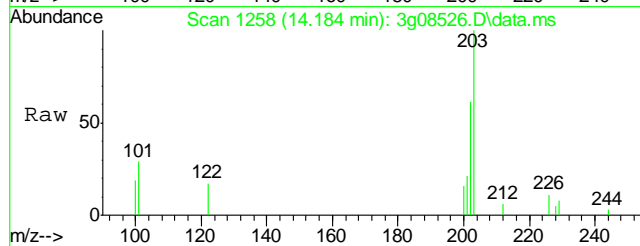
Tgt Ion: 240 Resp: 210352
Ion Ratio Lower Upper
240 100
120 20.3 4.4 44.4
236 24.8 5.0 45.0





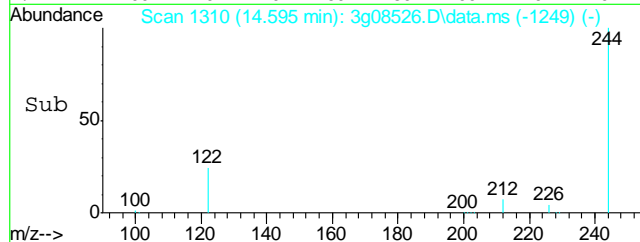
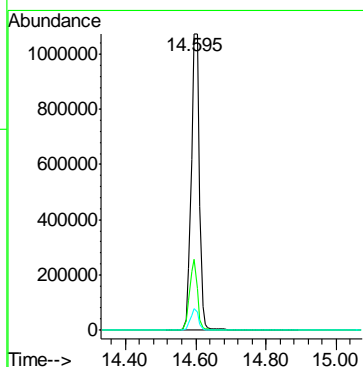
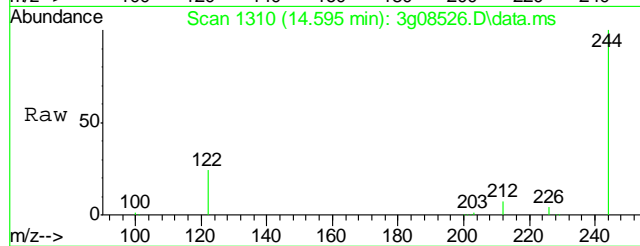
#19
Pyrene
Concen: 0.07 ug/mL
RT: 14.184 min Scan# 1258
Delta R.T. -0.008 min
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

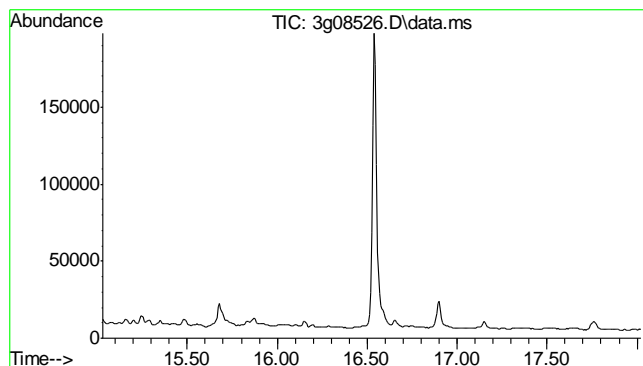
Tgt Ion: 202 Resp: 6974
Ion Ratio Lower Upper
202 100
200 20.1 0.1 40.1
203 263.5 0.0 37.8#
201 24.6 0.0 36.5



#20
Terphenyl-d14
Concen: 37.96 ug/mL
RT: 14.595 min Scan# 1310
Delta R.T. -0.016 min
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

Tgt Ion: 244 Resp: 1726107
Ion Ratio Lower Upper
244 100
122 22.2 4.9 44.9
212 6.9 0.0 27.3

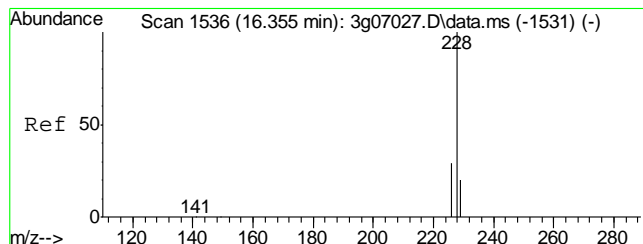
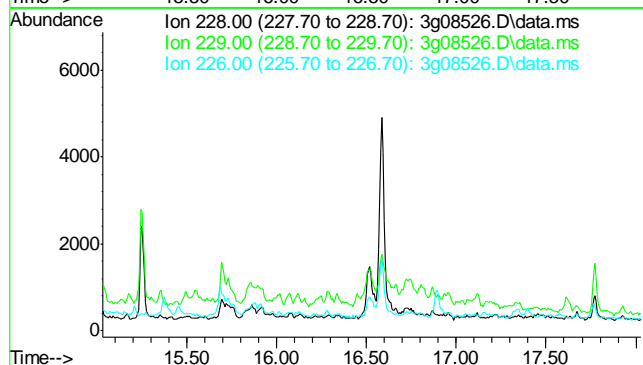




#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.53 min

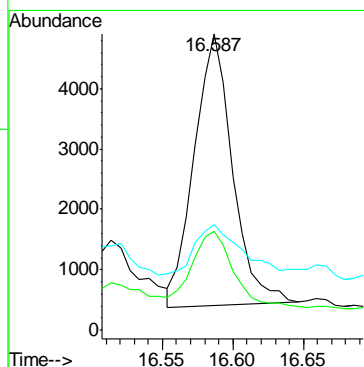
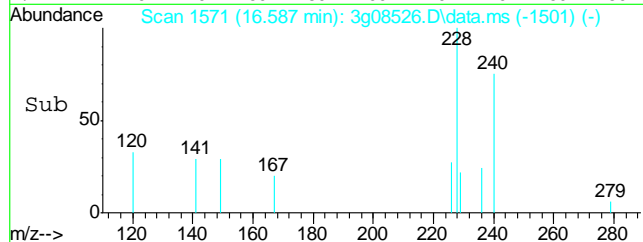
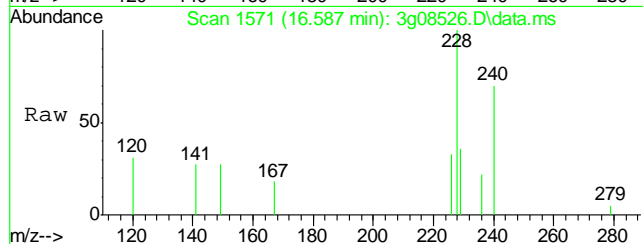
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

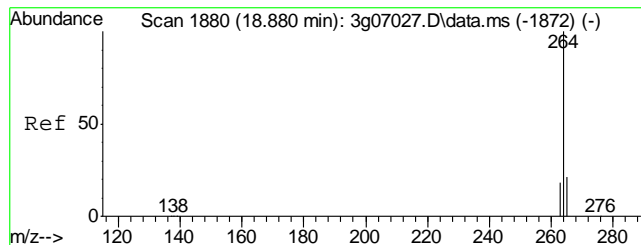
Tgt Ion: 228
Sig Exp Ratio
228 100
229 19.6
226 25.7



#22
Chrysene
Concen: 0.12 ug/mL
RT: 16.587 min Scan# 1571
Delta R.T. -0.020 min
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

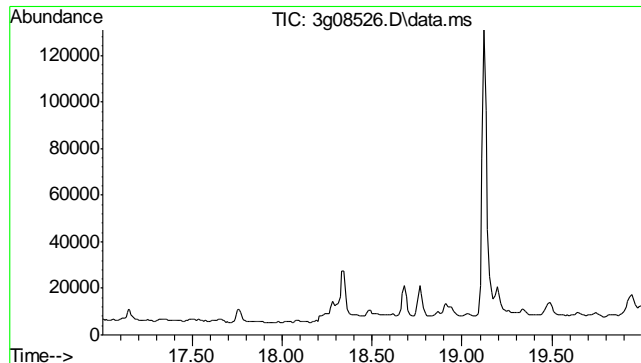
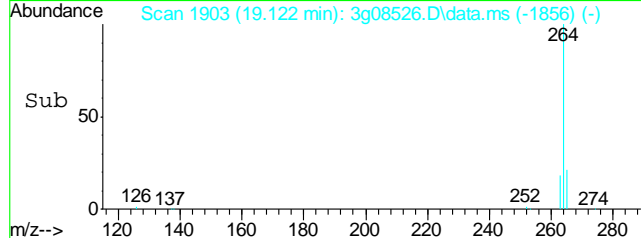
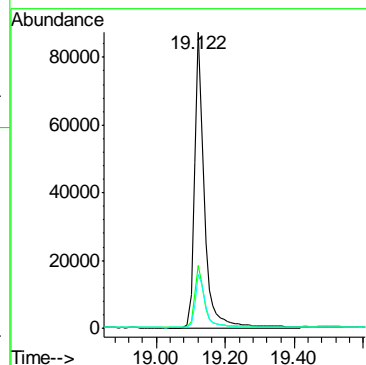
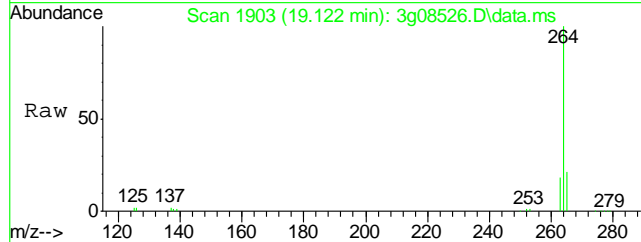
Tgt Ion: 228 Resp: 8504
Ion Ratio Lower Upper
228 100
226 31.2 8.7 48.7
229 25.5 0.0 39.4





#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 19.122 min Scan# 1903
Delta R.T. -0.011 min
Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

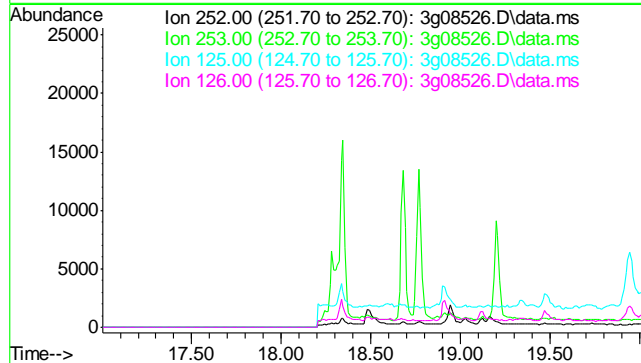
Tgt Ion:	264	Resp:	172963
Ion Ratio	Lower	Upper	
264	100		
265	20.6	1.1	41.1
263	19.2	0.0	39.1

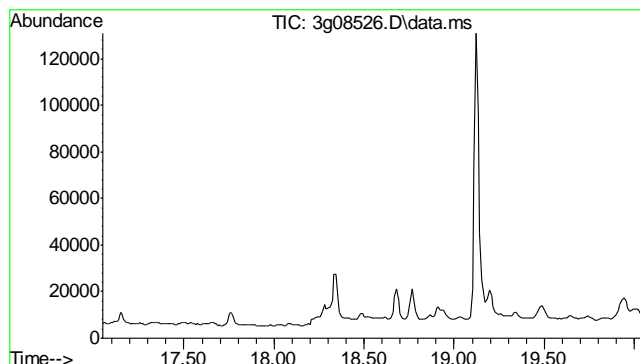


#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.50 min

Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.5
125	18.6
126	26.2

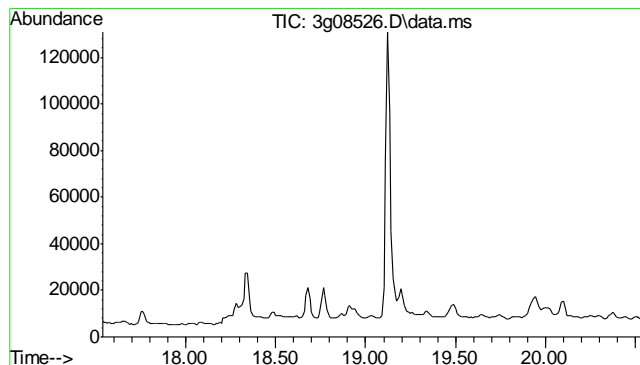
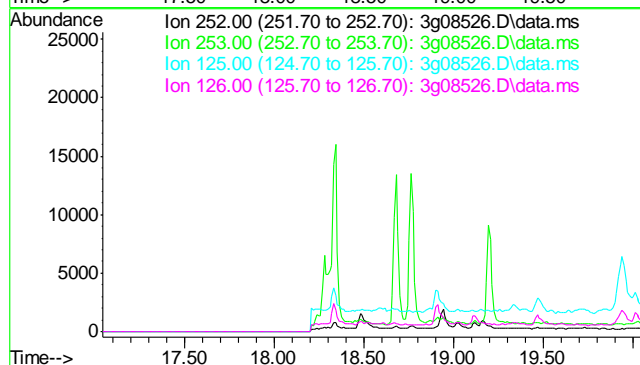




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.54 min

Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

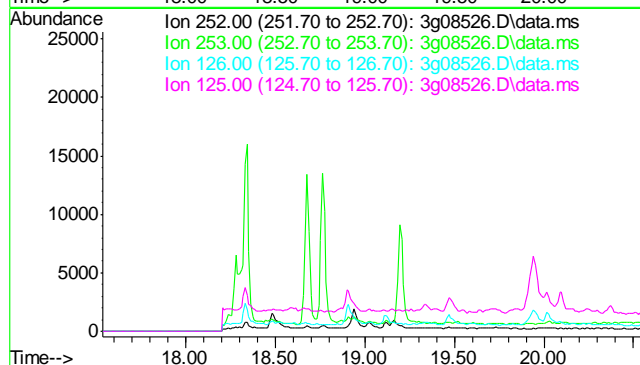
Tgt Ion	Exp Ratio
252	100
253	21.7
125	16.4
126	25.4

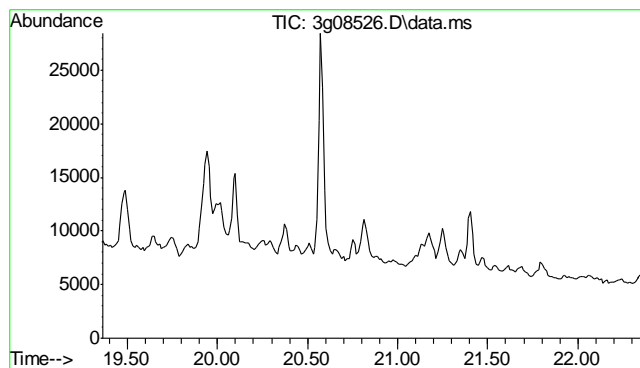


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 19.04 min

Lab File: 3g08526.D
Acq: 14 Mar 12 10:49 am

Tgt Ion	Exp Ratio
252	100
253	21.3
126	23.6
125	17.1

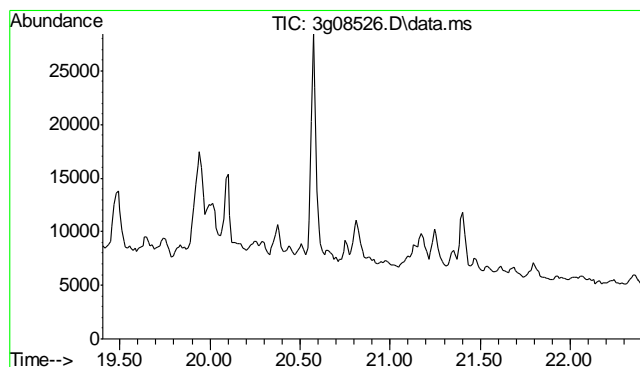
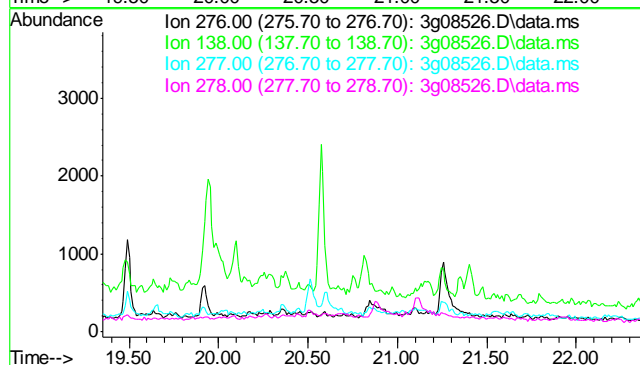




#27
 Indeno(1,2,3-cd)pyrene
 Concen: N.D. ug/mL
 Expected RT: 20.86 min

Lab File: 3g08526.D
 Acq: 14 Mar 12 10:49 am

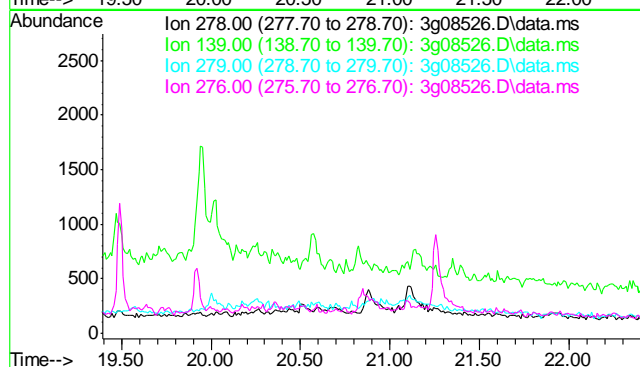
Tgt Ion	Exp Ratio
276	100
138	80.3
277	51.9
278	157.2

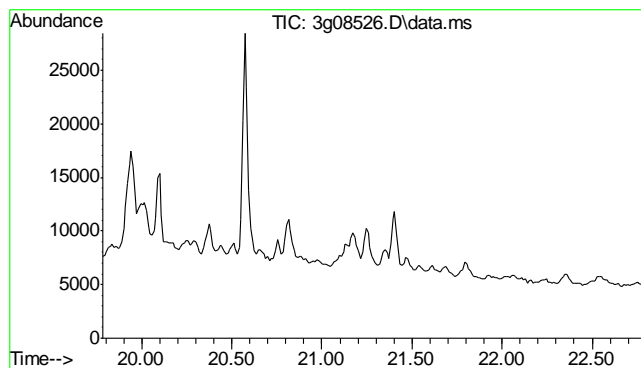


#28
 Dibenzo(a,h)anthracene
 Concen: N.D. ug/mL
 Expected RT: 20.90 min

Lab File: 3g08526.D
 Acq: 14 Mar 12 10:49 am

Tgt Ion	Exp Ratio
278	100
139	26.0
279	23.2
276	133.1

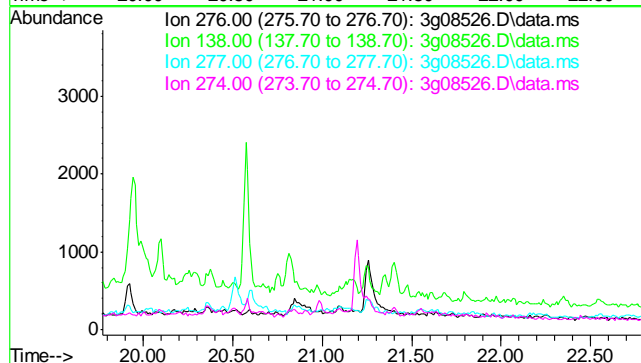




#29
 Benzo(g,h,i)perylene
 Concen: N.D. ug/mL
 Expected RT: 21.28 min

 Lab File: 3g08526.D
 Acq: 14 Mar 12 10:49 am

Tgt Ion	Sig	Exp Ratio
276	100	
138	32.2	
277	23.3	
274	20.9	



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\031412\
 Data File : 3g08524.D
 Acq On : 14 Mar 2012 9:39 am
 Operator : DONC
 Sample : OP5528-MB
 Misc : OP5528,E3G348,30.00,,,1,1
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 15 07:59:40 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G344.M
 Quant Title : PAHSIM BASE
 QLast Update : Mon Mar 12 09:19:25 2012
 Response via : Initial Calibration

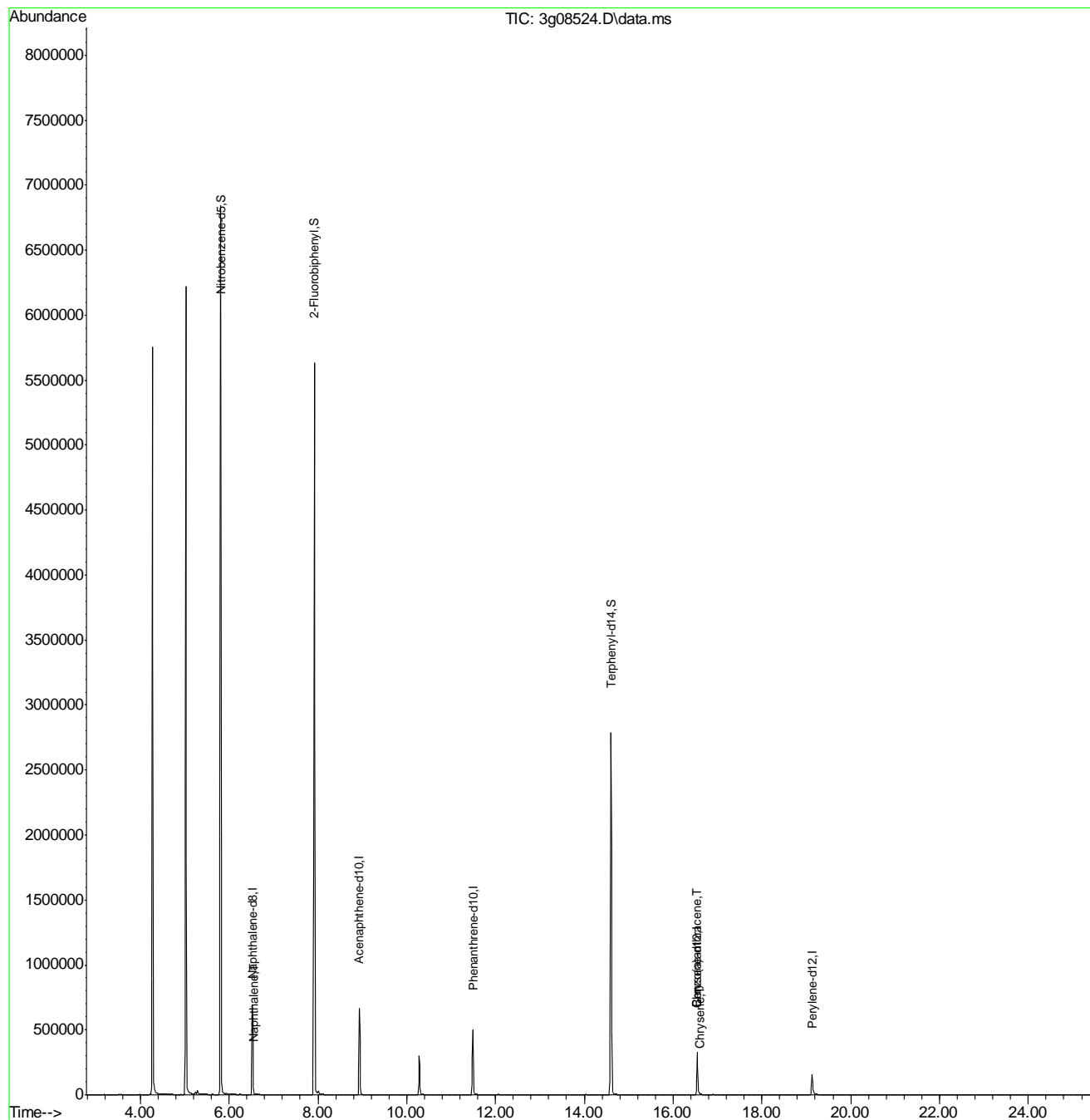
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.532	136	745037	4.00	ug/mL	0.00
6) Acenaphthene-d10	8.933	164	381870	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.493	188	534122	4.00	ug/mL	0.00
18) Chrysene-d12	16.547	240	397538	4.00	ug/mL	0.00
23) Perylene-d12	19.132	264	263103	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.809	82	3959513	39.00	ug/mL	0.00
Spiked Amount	50.000	Range	25 - 135	Recovery	=	78.00%
7) 2-Fluorobiphenyl	7.917	172	5119221	33.41	ug/mL	-0.01
Spiked Amount	50.000	Range	25 - 135	Recovery	=	66.82%
20) Terphenyl-d14	14.603	244	3392724	39.48	ug/mL	0.00
Spiked Amount	50.000	Range	25 - 135	Recovery	=	78.96%
Target Compounds						
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	6.545	128	2724	0.01	ug/mL	93
8) 2-Methylnaphthalene	0.000		0	N.D.	d	
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	0.000		0	N.D.	d	
19) Pyrene	0.000		0	N.D.	d	
21) Benzo(a)anthracene	16.540	228	1664	0.01	ug/mL	70
22) Chrysene	16.593	228	1201	0.01	ug/mL	82
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	

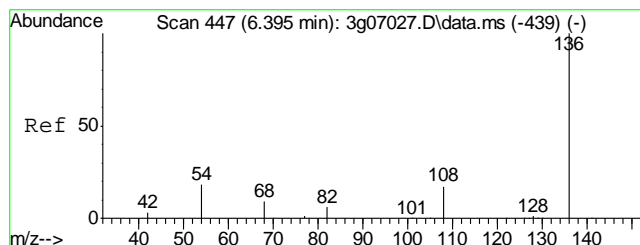
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\031412\
Data File : 3g08524.D
Acq On : 14 Mar 2012 9:39 am
Operator : DONC
Sample : OP5528-MB
Misc : OP5528,E3G348,30.00,,,1,1
ALS Vial : 4 Sample Multiplier: 1

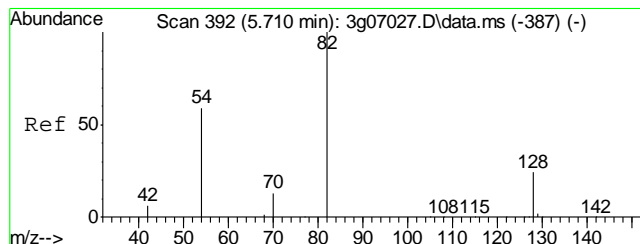
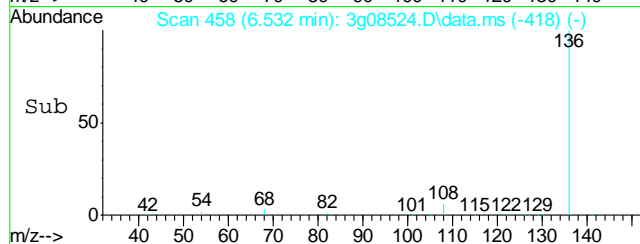
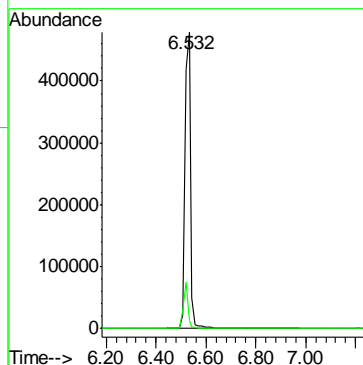
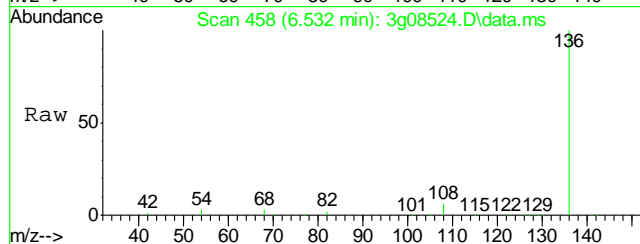
Quant Time: Mar 15 07:59:40 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G344.M
Quant Title : PAHSIM BASE
QLast Update : Mon Mar 12 09:19:25 2012
Response via : Initial Calibration





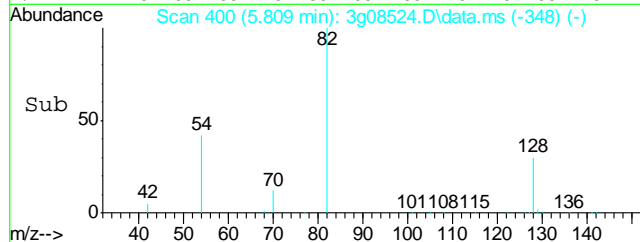
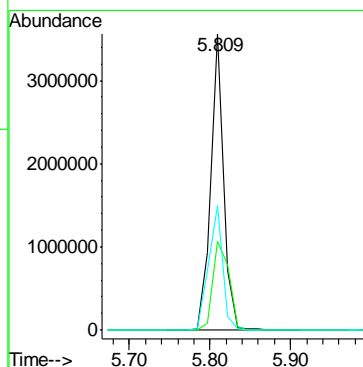
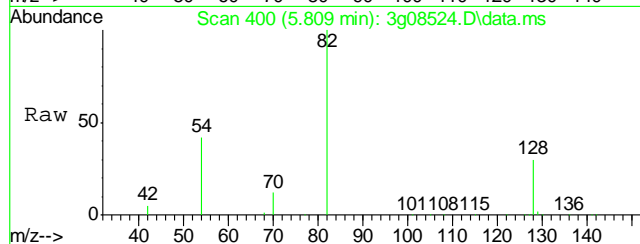
#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.532 min Scan# 458
Delta R.T. -0.000 min
Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

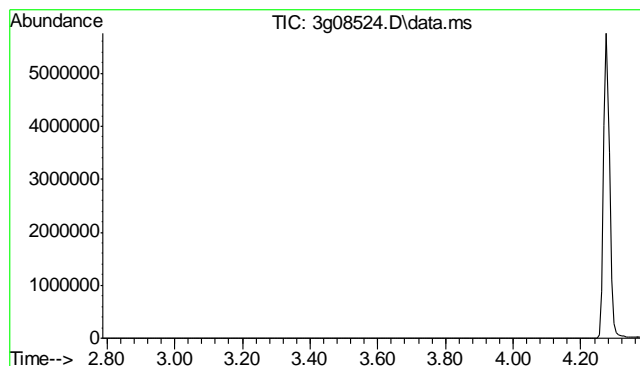
Tgt Ion: 136 Resp: 745037
Ion Ratio Lower Upper
136 100
68 12.2 0.0 32.2



#2
Nitrobenzene-d5
Concen: 39.00 ug/mL
RT: 5.809 min Scan# 400
Delta R.T. -0.000 min
Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

Tgt Ion: 82 Resp: 3959513
Ion Ratio Lower Upper
82 100
128 37.6 16.8 56.8
54 46.0 27.0 67.0

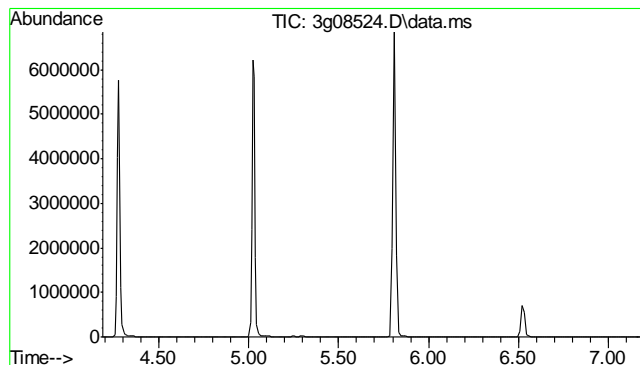
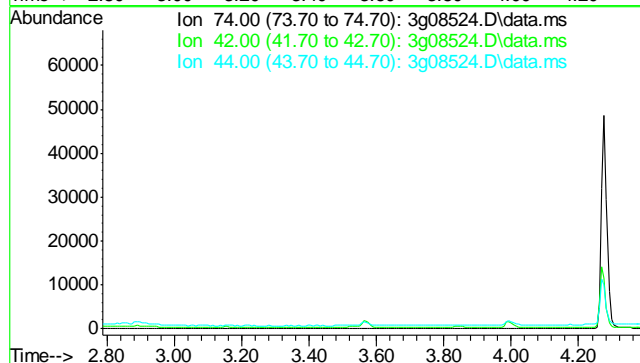




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.88 min

Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

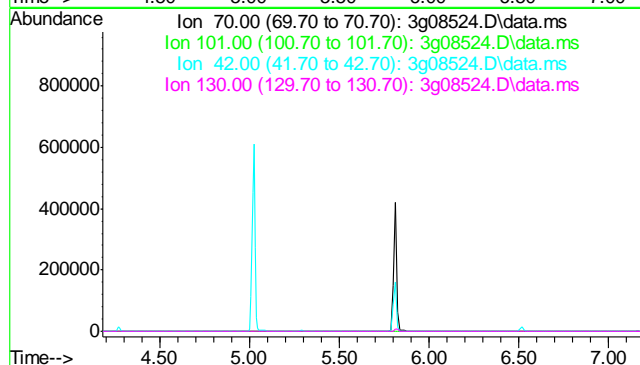
Tgt Ion:	74
Sig	Exp Ratio
74	100
42	58.8
44	4.0

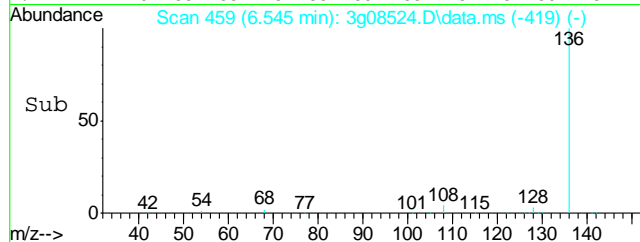
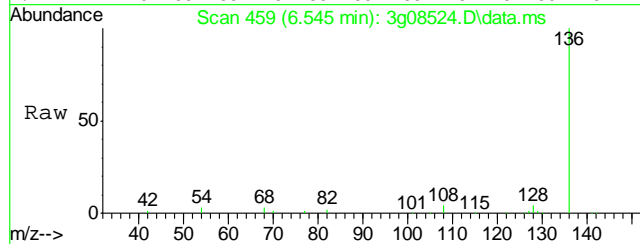
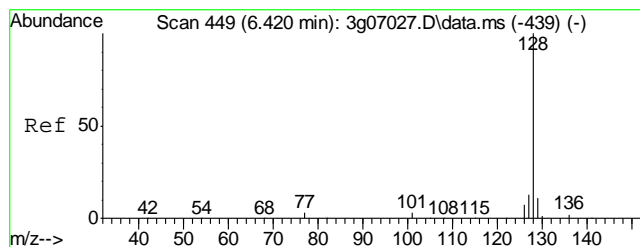


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.68 min

Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

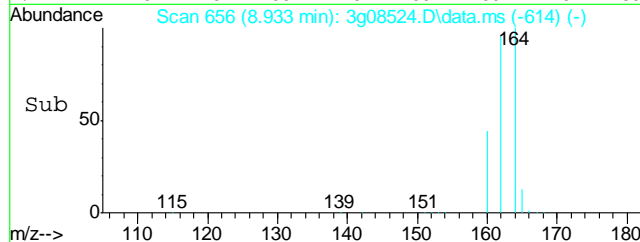
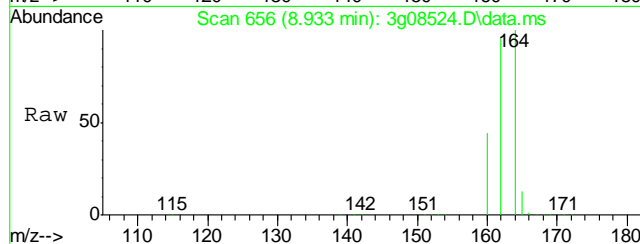
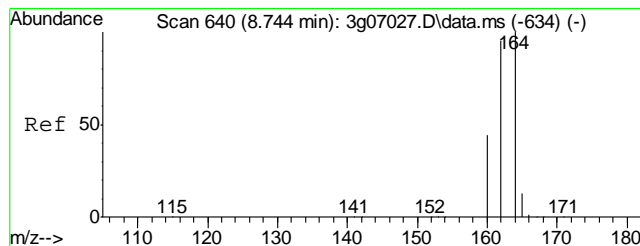
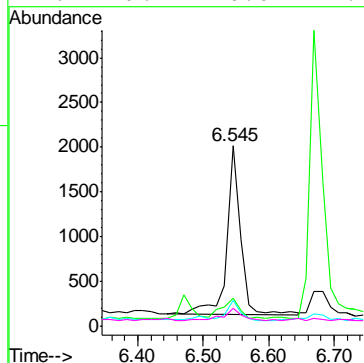
Tgt Ion:	70
Sig	Exp Ratio
70	100
101	11.0
42	49.0
130	18.8





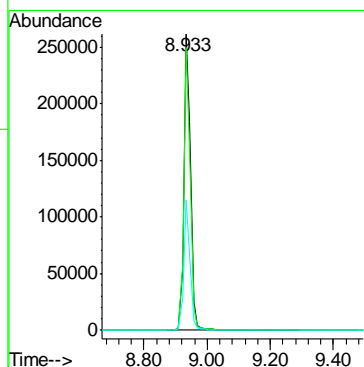
#5
Naphthalene
Concen: 0.01 ug/mL
RT: 6.545 min Scan# 459
Delta R.T. -0.000 min
Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

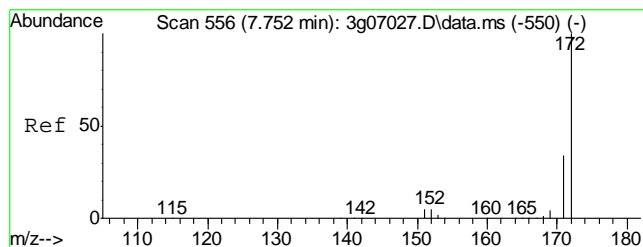
Tgt Ion	128	Ratio	100	Resp	2724
Lower	0.0				
Upper	30.9				
129	15.3				
127	10.6				
126	9.7				



#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 8.933 min Scan# 656
Delta R.T. -0.000 min
Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

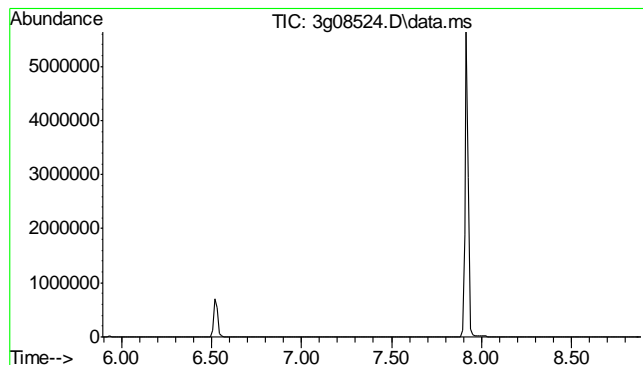
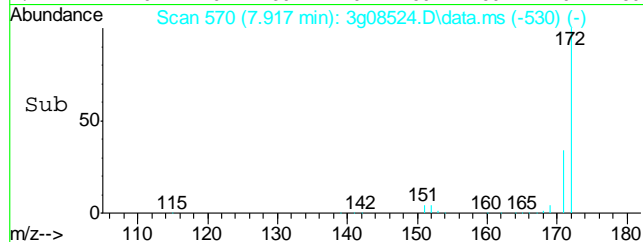
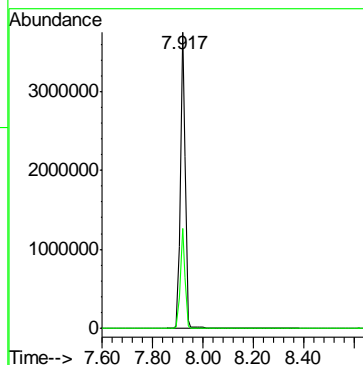
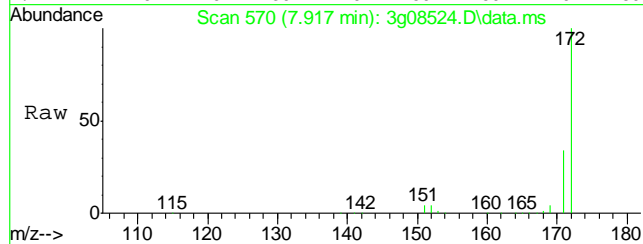
Tgt Ion	164	Ratio	100	Resp	381870
Lower	72.9				
Upper	112.9				
162	93.0				
160	42.0				





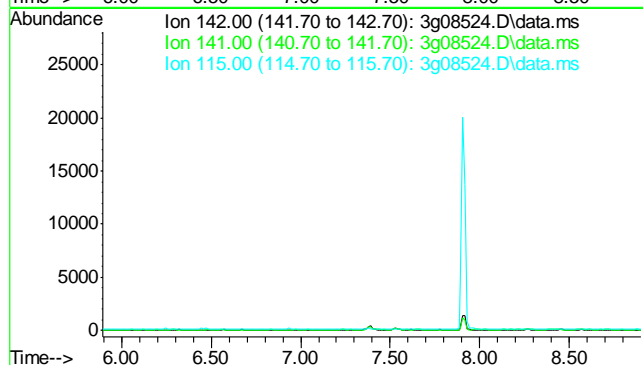
#7
2-Fluorobiphenyl
Concen: 33.41 ug/mL
RT: 7.917 min Scan# 570
Delta R.T. -0.012 min
Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

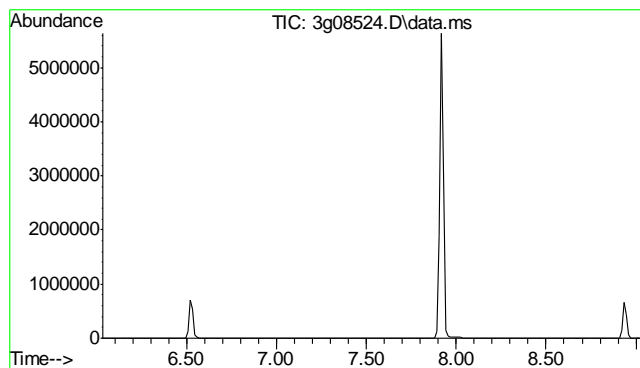
Tgt Ion: 172 Resp: 5119221
Ion Ratio Lower Upper
172 100
171 33.0 12.9 52.9



#8
2-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.39 min
Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

Tgt Ion: 142
Sig Exp Ratio
142 100
141 83.6
115 37.0

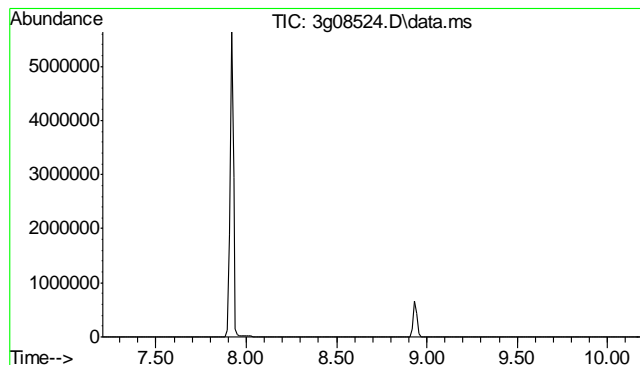
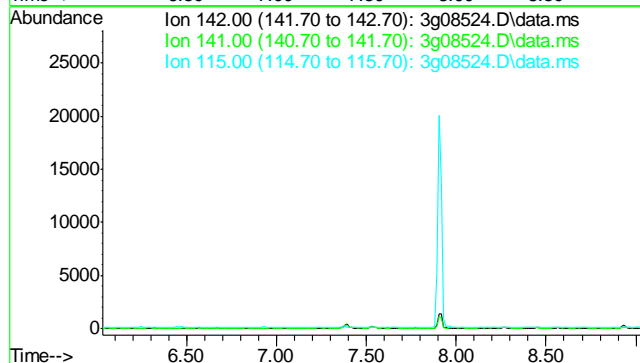




#9
1-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.53 min

Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

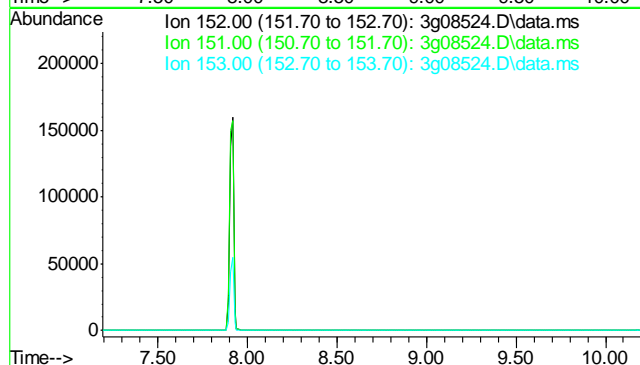
Tgt Ion:	142
Sig	Exp Ratio
142	100
141	86.9
115	39.7

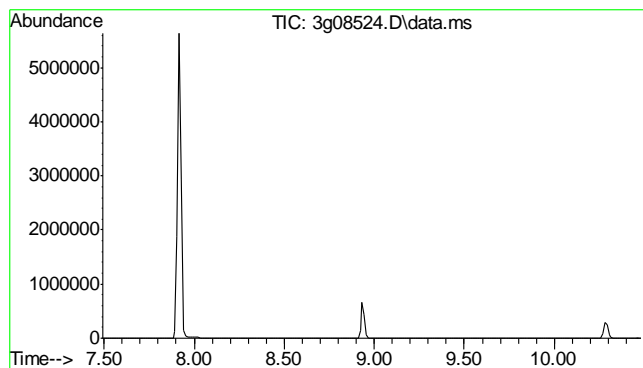


#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.70 min

Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

Tgt Ion:	152
Sig	Exp Ratio
152	100
151	18.9
153	12.9

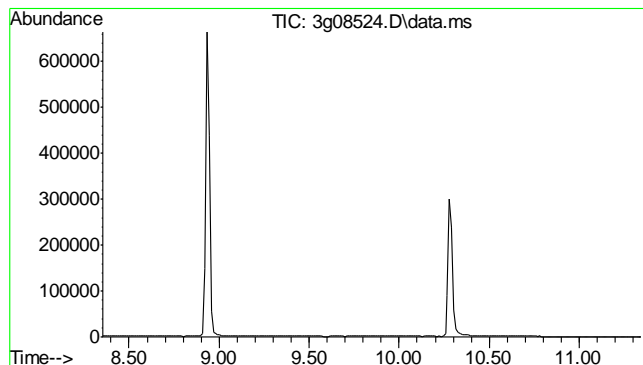
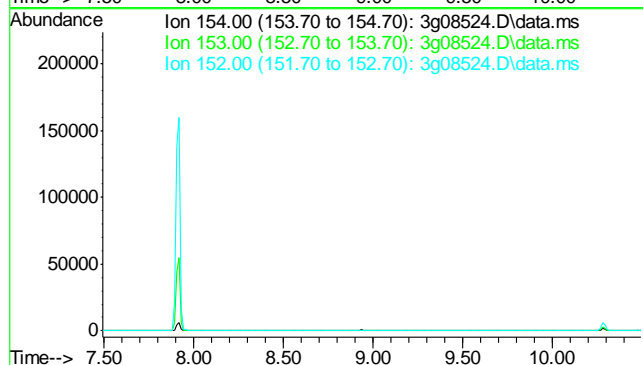




#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 8.99 min

Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

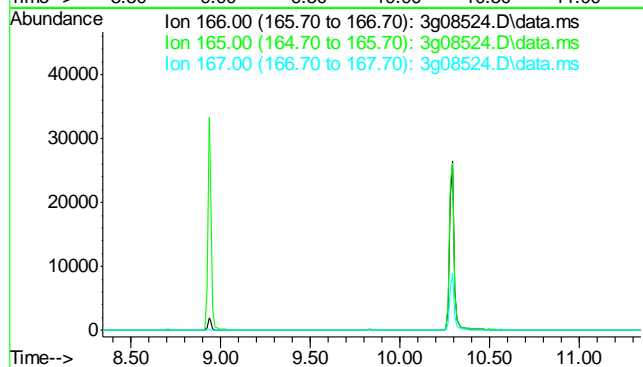
Tgt Ion: 154
Sig Exp Ratio
154 100
153 104.5
152 50.0

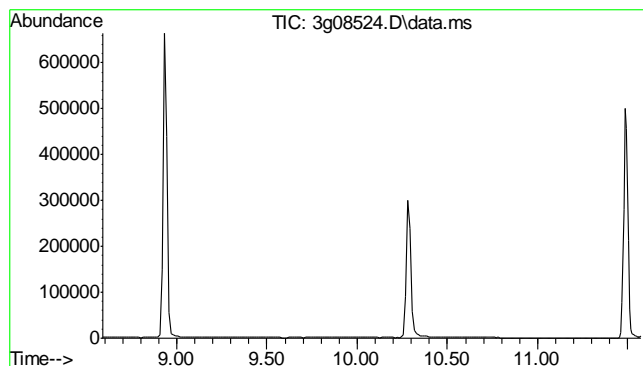


#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 9.84 min

Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

Tgt Ion: 166
Sig Exp Ratio
166 100
165 91.4
167 13.2

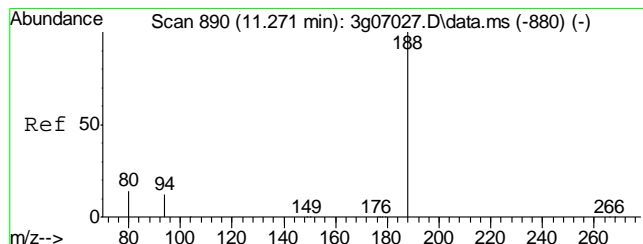
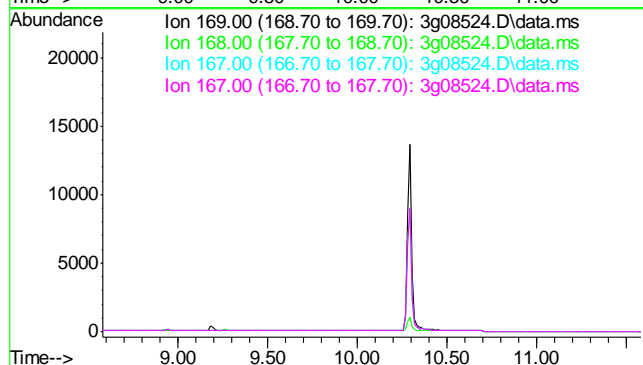




#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.08 min

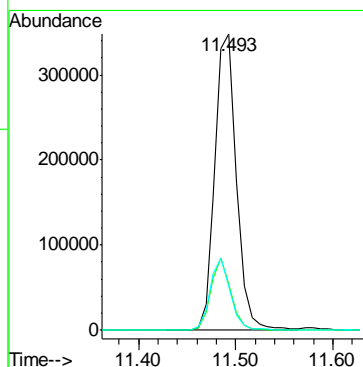
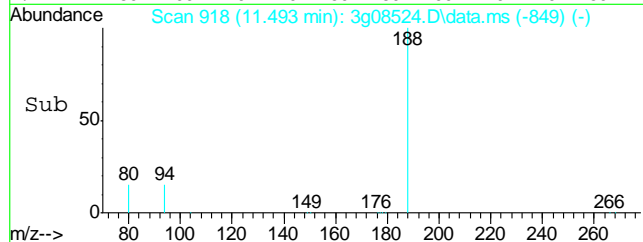
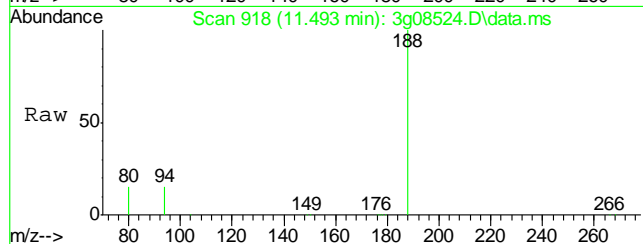
Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

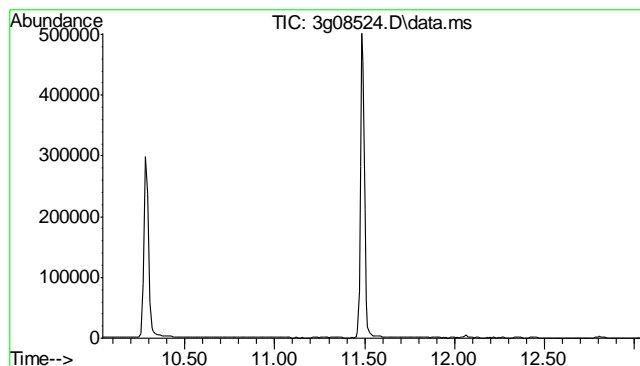
Tgt Ion: 169	
Sig	Exp Ratio
169	100
168	61.3
167	33.2
167	33.2



#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.493 min Scan# 918
Delta R.T. -0.000 min
Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

Tgt Ion: 188	Resp: 534122		
Ion	Ratio	Lower	Upper
188	100		
94	22.4	1.7	41.7
80	22.9	2.2	42.2

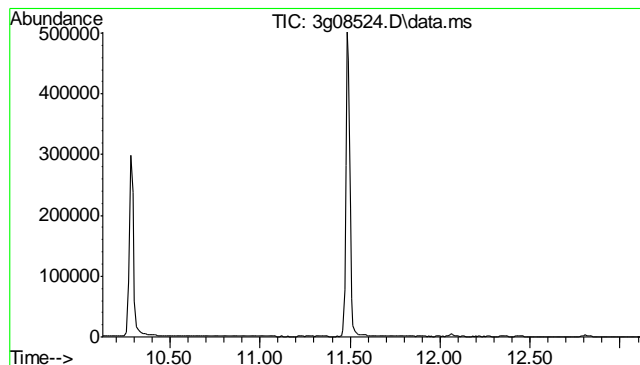
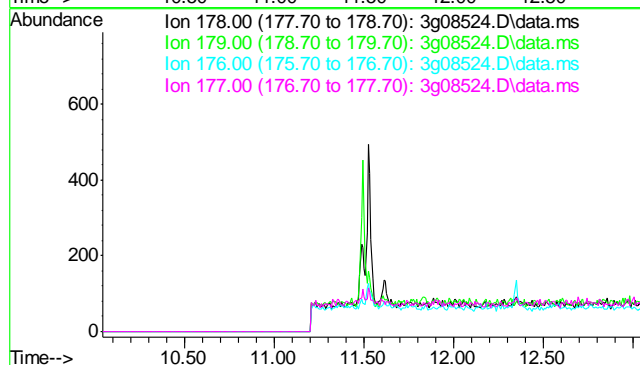




#15
Phenanthrene
Concen: N.D. ug/mL
Expected RT: 11.54 min

Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

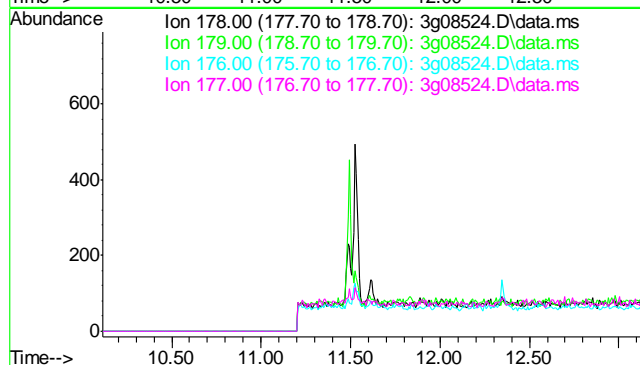
Tgt Ion:	178
Sig	Exp Ratio
178	100
179	15.1
176	18.5
177	10.2

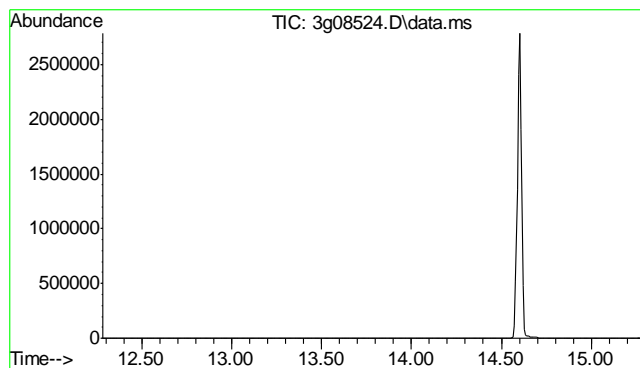


#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.62 min

Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

Tgt Ion:	178
Sig	Exp Ratio
178	100
179	15.0
176	17.7
177	8.7

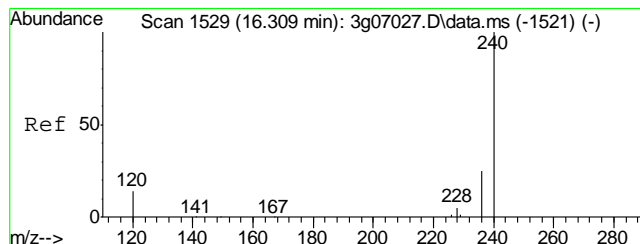
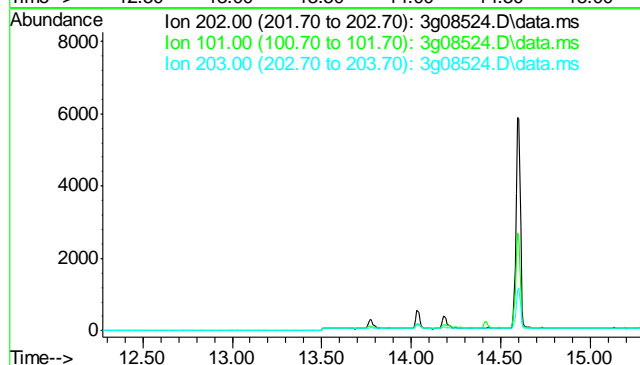




#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 13.78 min

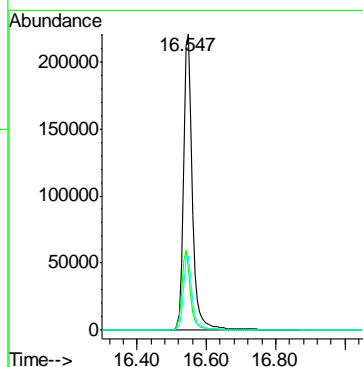
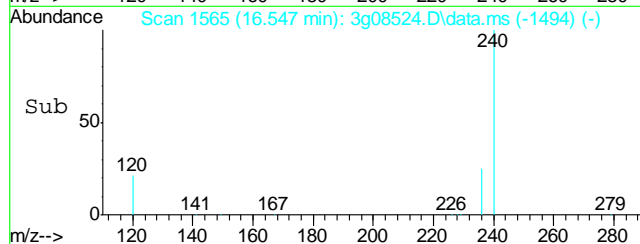
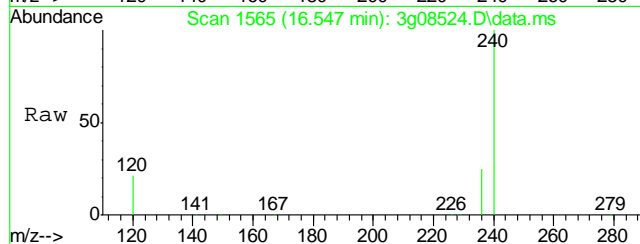
Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

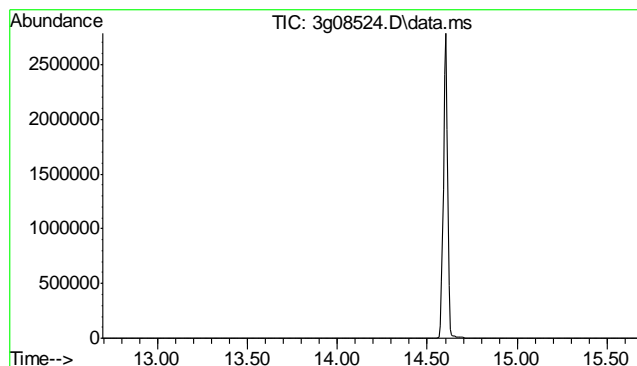
Tgt Ion:	202
Sig	Exp Ratio
202	100
101	23.2
203	17.2



#18
Chrysene-d12
Concen: 4.00 ug/mL
RT: 16.547 min Scan# 1565
Delta R.T. -0.007 min
Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

Tgt Ion:	240	Resp:	397538
Ion	Ratio	Lower	Upper
240	100		
120	26.1	4.4	44.4
236	25.0	5.0	45.0

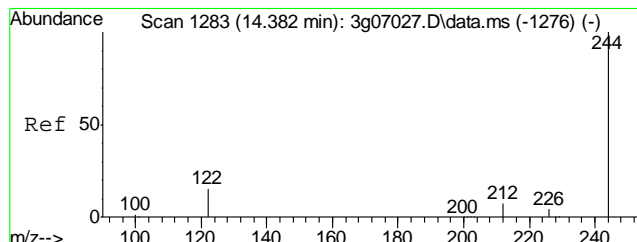
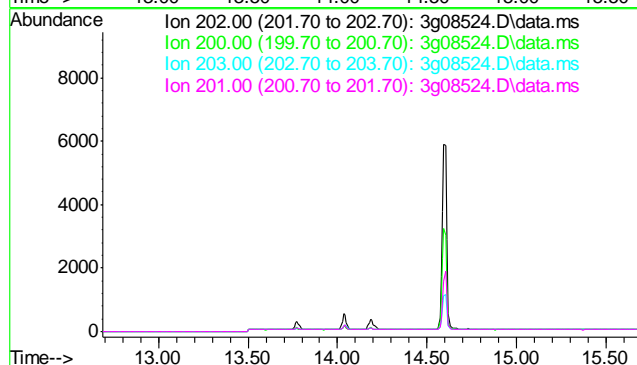




#19
Pyrene
Concen: N.D. ug/mL
Expected RT: 14.19 min

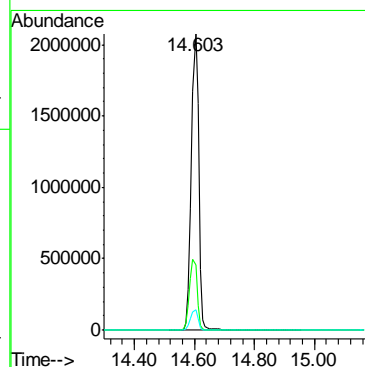
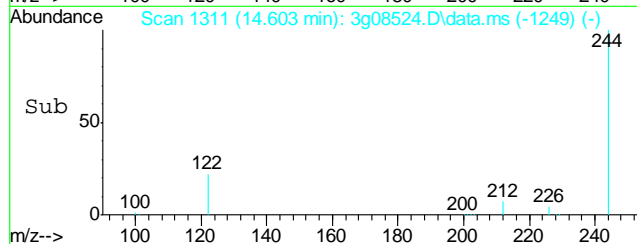
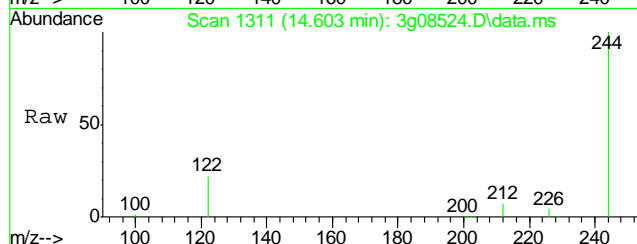
Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

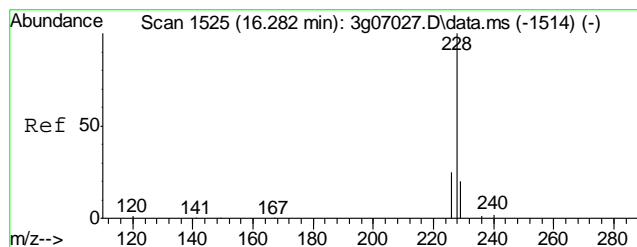
Tgt Ion:	202
Sig	Exp Ratio
202	100
200	20.1
203	17.8
201	16.5



#20
Terphenyl-d14
Concen: 39.48 ug/mL
RT: 14.603 min Scan# 1311
Delta R.T. -0.008 min
Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

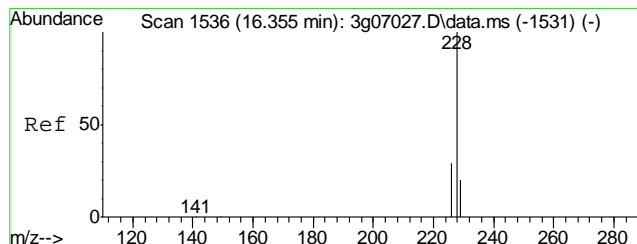
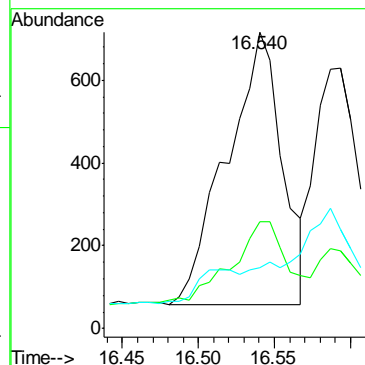
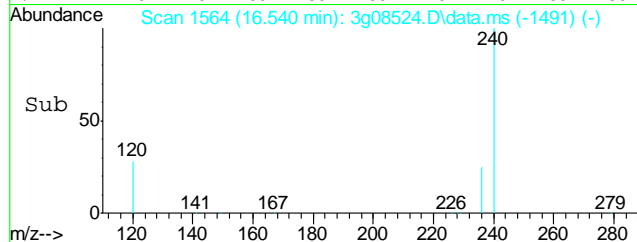
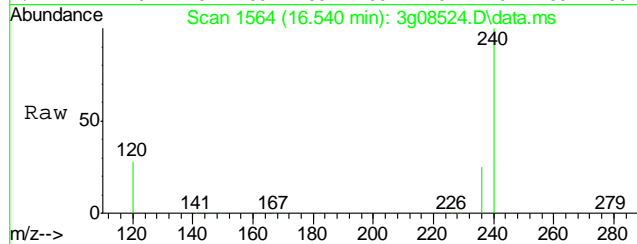
Tgt Ion:	244	Resp:	3392724
Ion	Ratio	Lower	Upper
244	100		
122	24.9	4.9	44.9
212	6.9	0.0	27.3





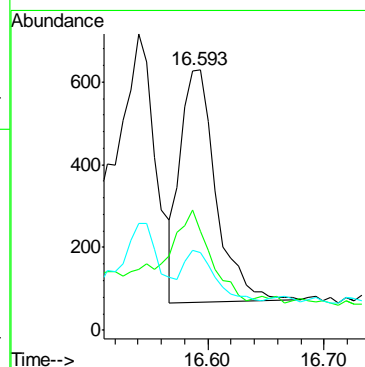
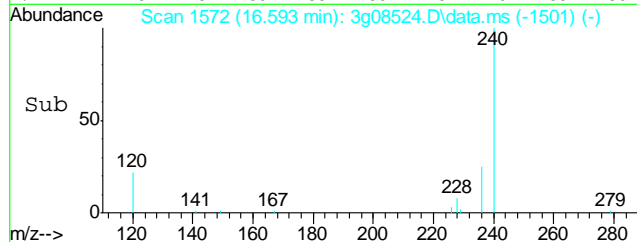
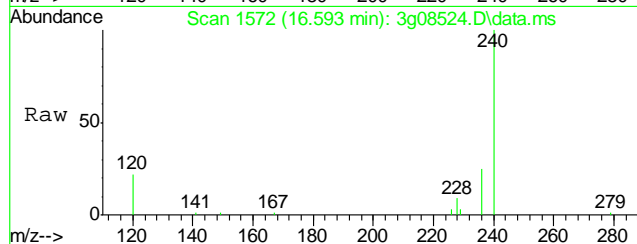
#21
Benzo(a)anthracene
Concen: 0.01 ug/mL
RT: 16.540 min Scan# 1564
Delta R.T. 0.013 min
Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

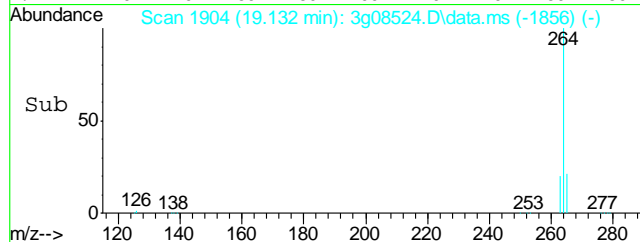
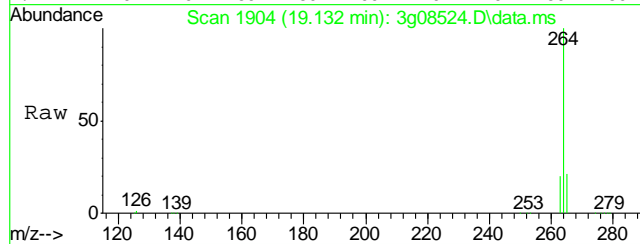
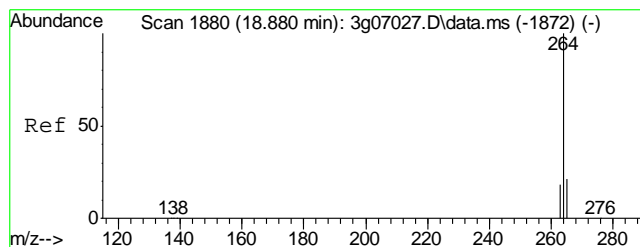
Tgt Ion:	228	Resp:	1664
Ion Ratio	Lower	Upper	
228	100		
229	31.9	0.0	39.6
226	9.6	5.7	45.7



#22
Chrysene
Concen: 0.01 ug/mL
RT: 16.593 min Scan# 1572
Delta R.T. -0.013 min
Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

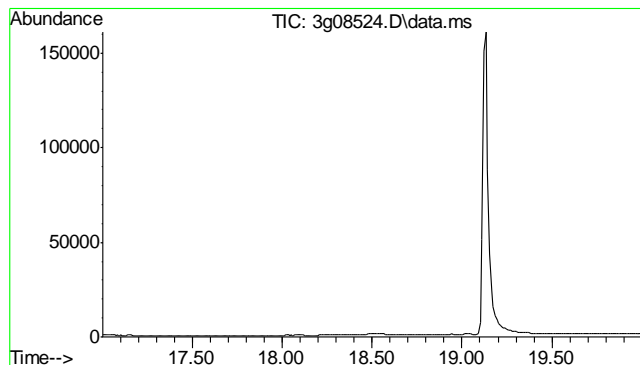
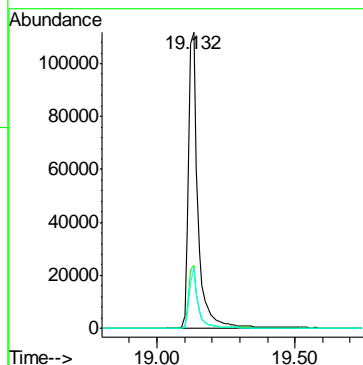
Tgt Ion:	228	Resp:	1201
Ion Ratio	Lower	Upper	
228	100		
226	43.5	8.7	48.7
229	20.5	0.0	39.4





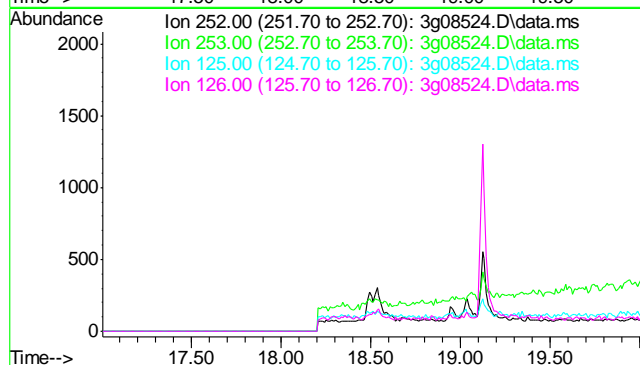
#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 19.132 min Scan# 1904
Delta R.T. -0.000 min
Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

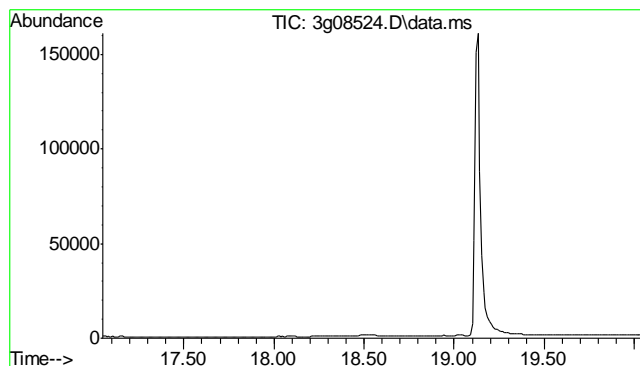
Tgt Ion:	264	Resp:	263103
Ion Ratio	Lower	Upper	
264	100		
265	21.1	1.1	41.1
263	18.9	0.0	39.1



#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.50 min
Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.5
125	18.6
126	26.2

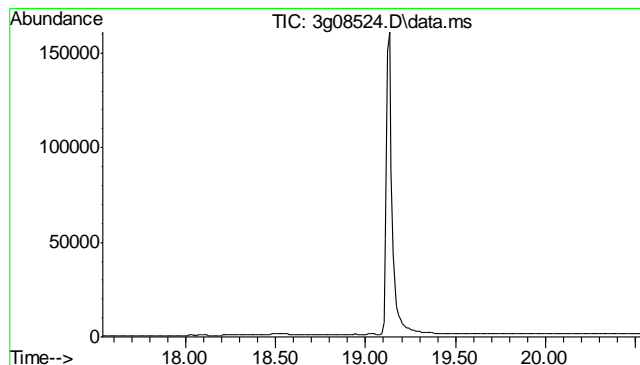
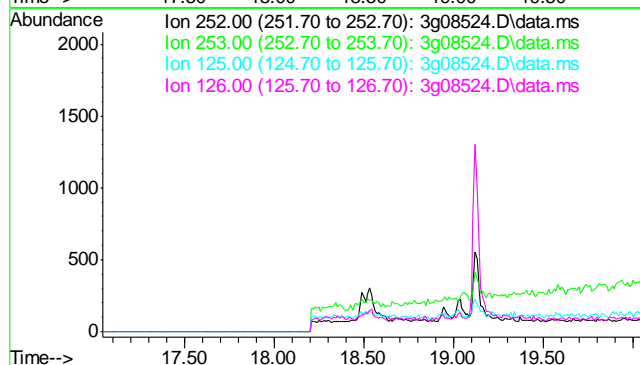




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.54 min

Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

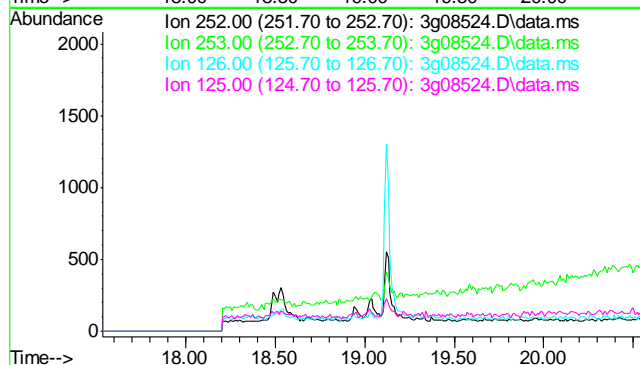
Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.7
125	16.4
126	25.4

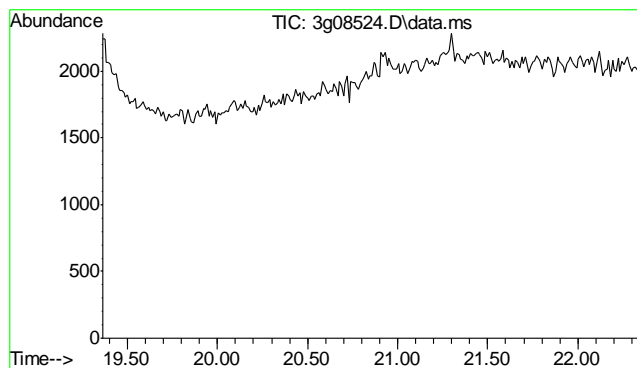


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 19.04 min

Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.3
126	23.6
125	17.1

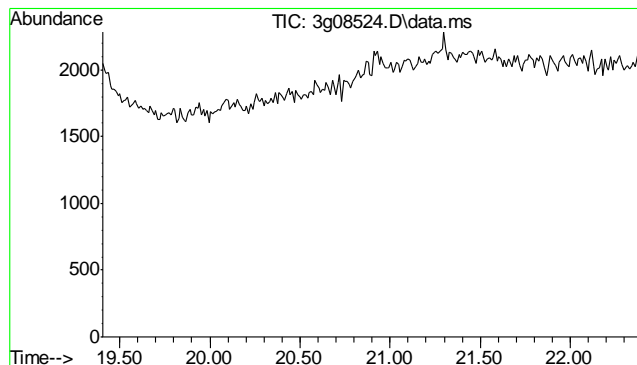
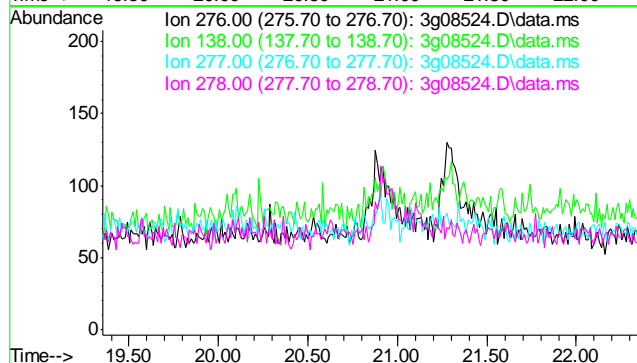




#27
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 20.86 min

Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

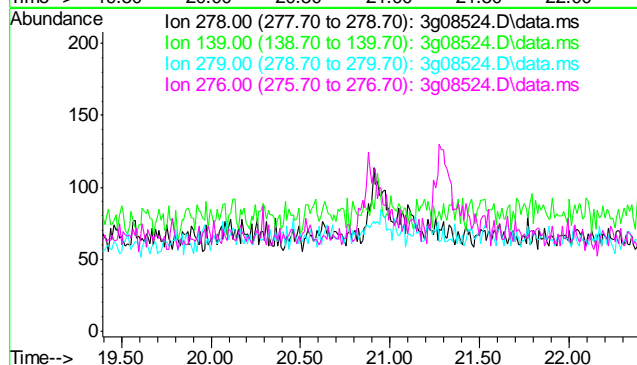
Tgt Ion:	276
Sig	Exp Ratio
276	100
138	80.3
277	51.9
278	157.2

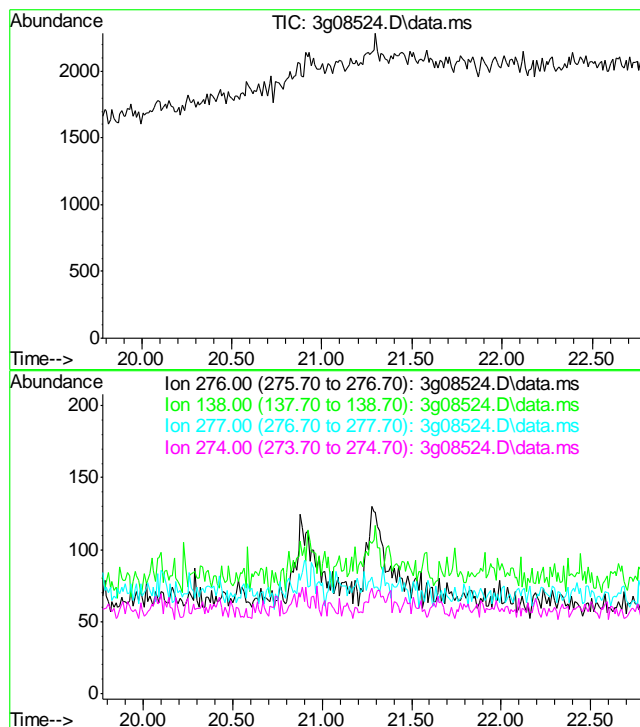


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 20.90 min

Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

Tgt Ion:	278
Sig	Exp Ratio
278	100
139	26.0
279	23.2
276	133.1





#29
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 21.28 min

Lab File: 3g08524.D
Acq: 14 Mar 12 9:39 am

Tgt Ion: 276
Sig Exp Ratio
276 100
138 32.2
277 23.3
274 20.9

GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D32609
Account: XTOKRWR XTO Energy
Project: FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB858-MB	GB15295.D	1	03/13/12	SK	n/a	n/a	GGB858

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

D32609-1

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	109% 60-140%

9.1.1
9

Blank Spike Summary

Job Number: D32609
Account: XTOKRWR XTO Energy
Project: FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB858-BS	GB15296.D	1	03/13/12	SK	n/a	n/a	GGB858

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

D32609-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	112	102	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	117%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D32609
Account: XTOKRWR XTO Energy
Project: FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D32609-1MS	GB15298.D	1	03/13/12	SK	n/a	n/a	GGB858
D32609-1MSD	GB15299.D	1	03/13/12	SK	n/a	n/a	GGB858
D32609-1	GB15297.D	1	03/13/12	SK	n/a	n/a	GGB858

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

D32609-1

CAS No.	Compound	D32609-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	8.20	J	122	122	93	128	98	5	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D32609-1	Limits
120-82-1	1,2,4-Trichlorobenzene	108%	111%	107%	60-140%

9.3.1
6

GC Volatiles

Raw Data

Judy Melson
03/14/12 09:45

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\031312\GB15297.D\FID1A.CH Vial: 5
 Signal #2 : Y:\1\DATA\031312\GB15297.D\FID2B.CH
 Acq On : 13 Mar 2012 6:42 pm Operator: StephK
 Sample : D32609-1, 50X Inst : GC/MS Ins
 Misc : GC2671,GGB858,5.038,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Mar 14 08:40:28 2012 Quant Results File: TB851GB851SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB851GB851SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Wed Mar 14 08:40:04 2012
 Response via : Initial Calibration
 DataAcq Meth : TVB4.M

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

	Compound	R.T.	Response	Conc	Units	

System Monitoring Compounds						
2) S	1,2,4-Trichlorobenzene	14.34	3221074	106.774 %	m	
10) S	1,2,4-Trichlorobenzene (P)	14.34	25943932	111.481 %		
Target Compounds						
1) H	TVH-Gasoline	7.26	10666507	0.148 mg/L		
4) T	Methyl-t-butyl-ether	0.00	0	N.D. ug/L	d	
5) T	Benzene	4.09	504716	0.912 ug/L		
6) T	Toluene	7.60	1338355	2.445 ug/L		
7) T	Ethylbenzene	10.24	287853	0.629 ug/L		
8) T	m,p-Xylene	10.42	1527112	2.727 ug/L		
9) T	o-Xylene	10.94	295336	0.644 ug/L		
11) T	Naphthalene	14.52	1455364	5.570 ug/L		

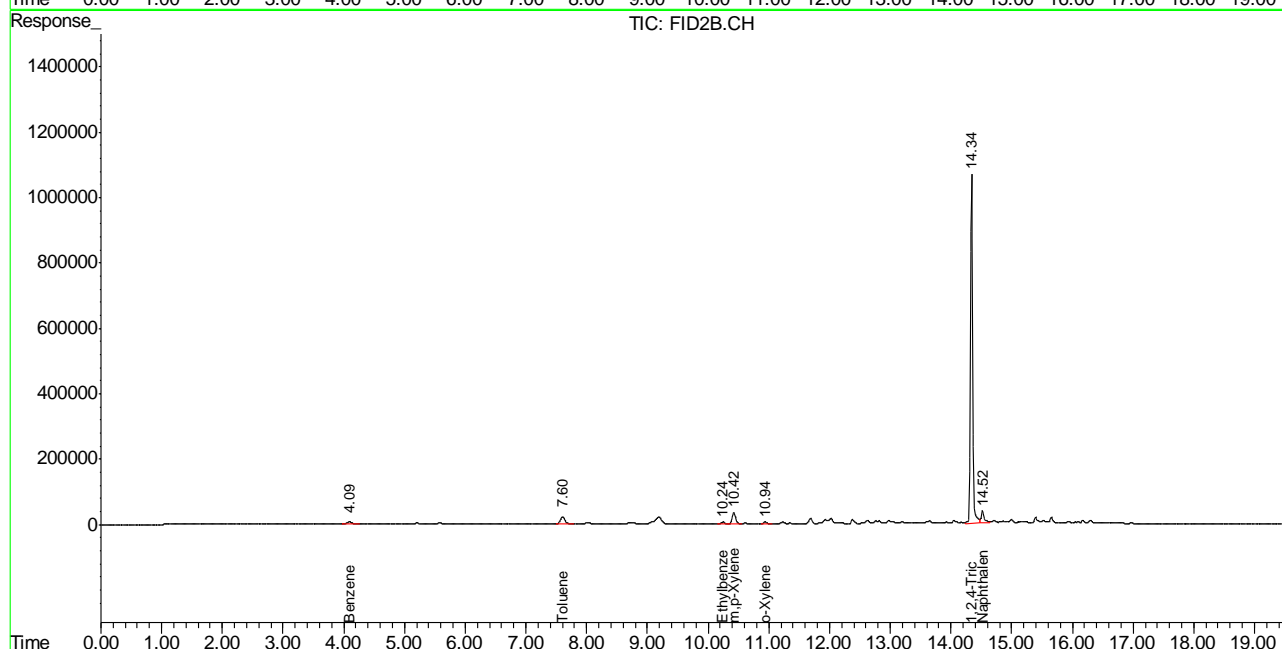
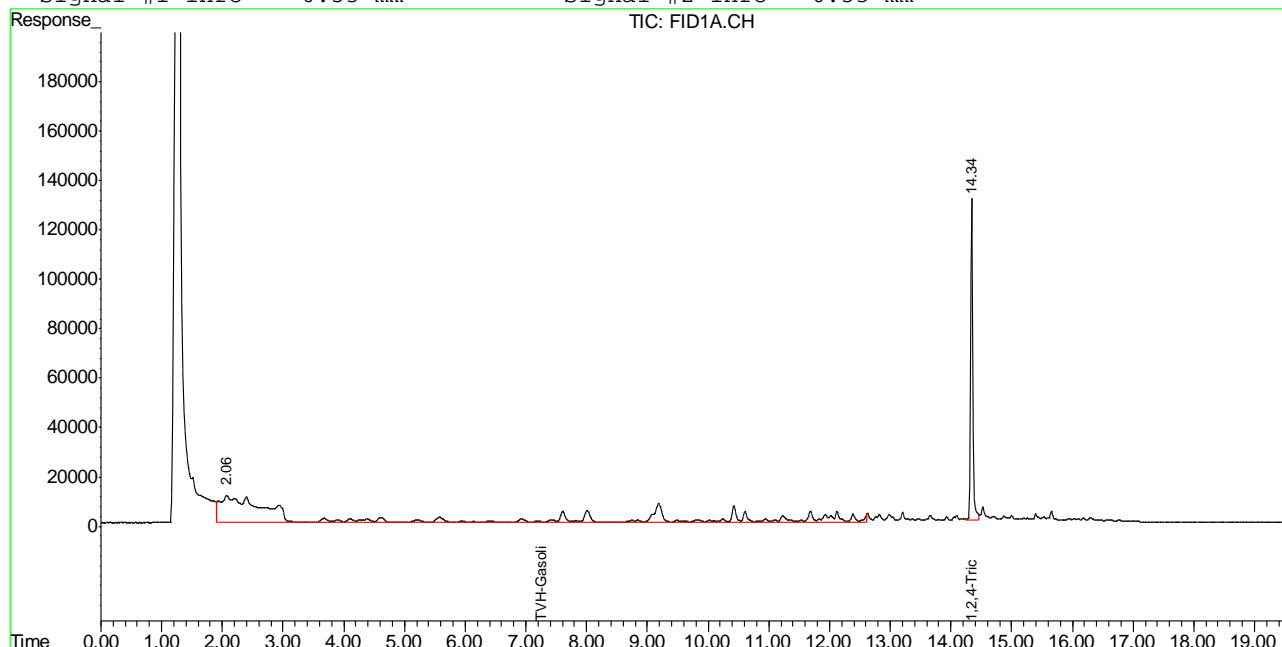
(f)=RT Delta > 1/2 Window (m)=manual int.
 GB15297.D TB851GB851SOIL.M Wed Mar 14 08:46:34 2012 GC

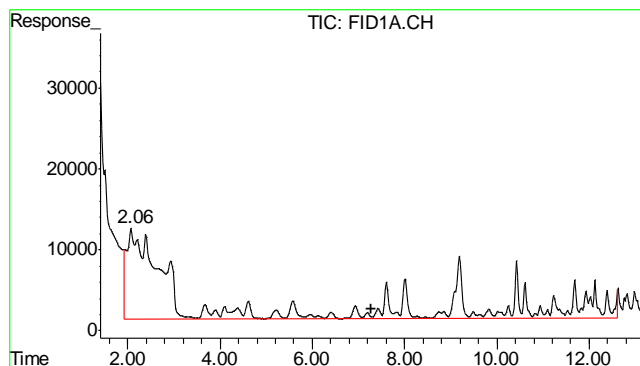
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\031312\GB15297.D\FID1A.CH Vial: 5
 Signal #2 : Y:\1\DATA\031312\GB15297.D\FID2B.CH
 Acq On : 13 Mar 2012 6:42 pm Operator: StephK
 Sample : D32609-1, 50X Inst : GC/MS Ins
 Misc : GC2671,GGB858,5.038,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Mar 14 8:43 2012 Quant Results File: TB851GB851SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB851GB851SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Wed Mar 14 08:40:04 2012
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

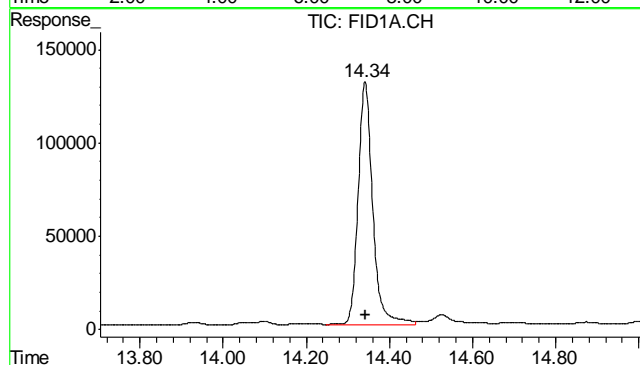
Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





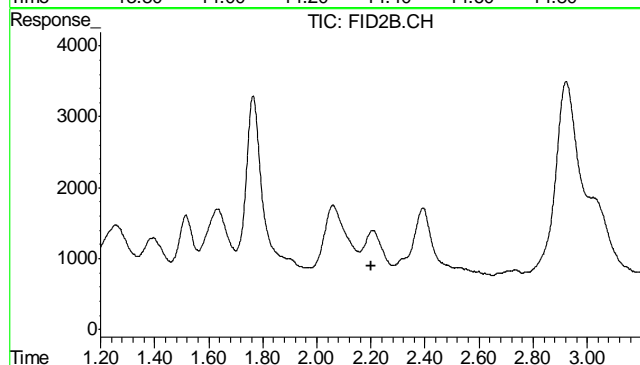
#1 TVH-Gasoline

R.T.: 7.265 min
Delta R.T.: 0.000 min
Response: 10666507
Conc: 0.15 mg/L m



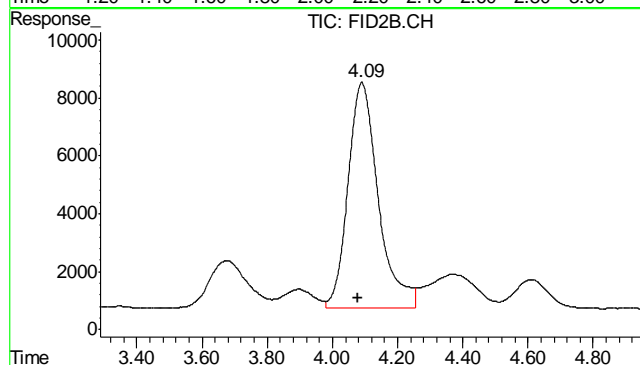
#2 1,2,4-Trichlorobenzene

R.T.: 14.341 min
Delta R.T.: 0.000 min
Response: 3221074
Conc: 106.77 % m



#4 Methyl-t-butyl-ether

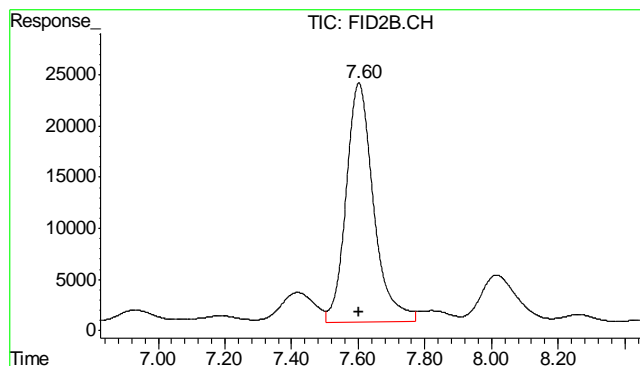
R.T.: 0.000 min
Exp R.T.: 2.199 min
Response: 0
Conc: N.D.



#5 Benzene

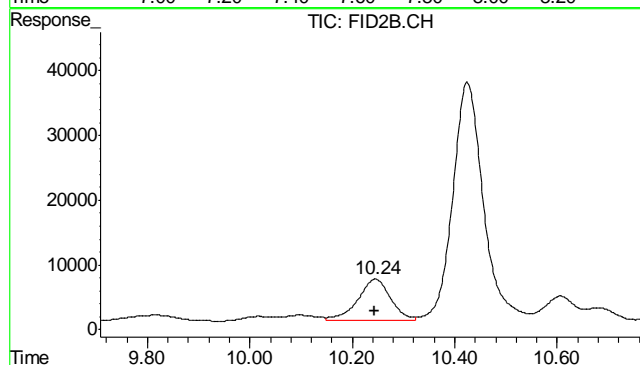
R.T.: 4.090 min
Delta R.T.: 0.012 min
Response: 504716
Conc: 0.91 ug/L

10.1.1
10



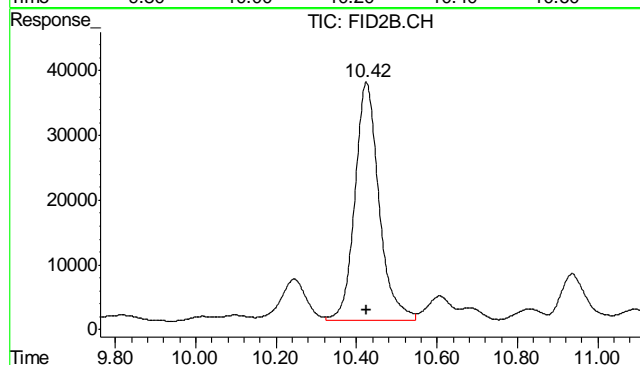
#6 Toluene

R.T.: 7.603 min
Delta R.T.: 0.002 min
Response: 1338355
Conc: 2.44 ug/L



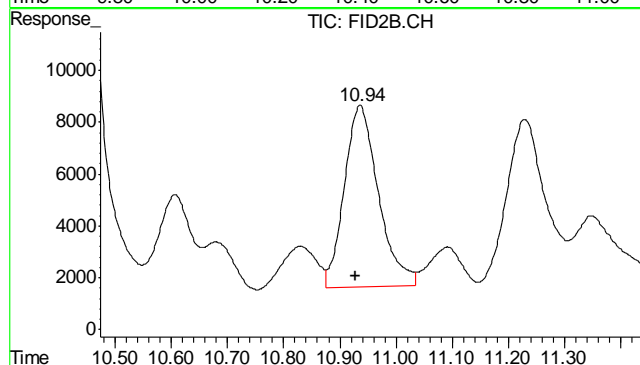
#7 Ethylbenzene

R.T.: 10.245 min
Delta R.T.: 0.000 min
Response: 287853
Conc: 0.63 ug/L



#8 m,p-Xylene

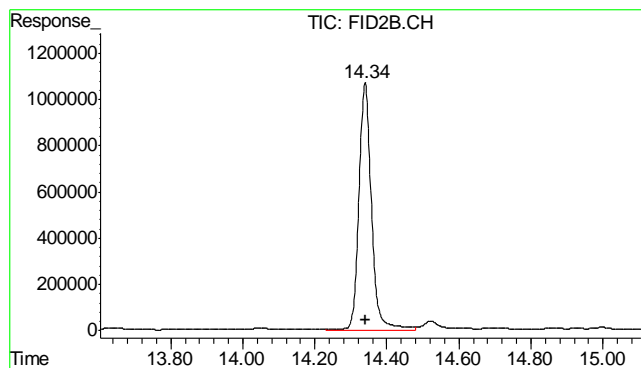
R.T.: 10.425 min
Delta R.T.: -0.002 min
Response: 1527112
Conc: 2.73 ug/L



#9 o-Xylene

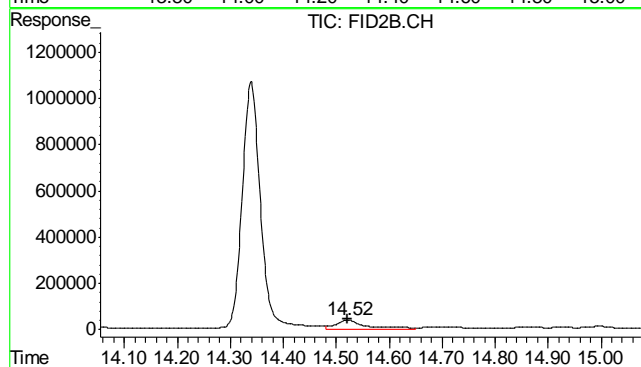
R.T.: 10.936 min
Delta R.T.: 0.009 min
Response: 295336
Conc: 0.64 ug/L

10.1.1
10



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

R.T.: 14.340 min
Delta R.T.: 0.000 min
Response: 25943932
Conc: 111.48 %



#11 Naphthalene

R.T.: 14.522 min
Delta R.T.: 0.000 min
Response: 1455364
Conc: 5.57 ug/L

10.1.1
10

Judy Melson
03/14/12 09:45

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\031312\GB15295.D\FID1A.CH Vial: 3
 Signal #2 : Y:\1\DATA\031312\GB15295.D\FID2B.CH
 Acq On : 13 Mar 2012 5:30 pm Operator: StephK
 Sample : MB Inst : GC/MS Ins
 Misc : GC2671,GGB858,5.000,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Mar 14 08:40:20 2012 Quant Results File: TB851GB851SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB851GB851SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Wed Mar 14 08:40:04 2012
 Response via : Initial Calibration
 DataAcq Meth : TVB4.M

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

Compound	R.T.	Response	Conc	Units

System Monitoring Compounds				
2) S 1,2,4-Trichlorobenzene	14.34	3279322	108.705 %	m
10) S 1,2,4-Trichlorobenzene (P)	14.34	26080780	112.069 %	
Target Compounds				
1) H TVH-Gasoline	7.26	5696664	<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	7.60	218482	0.399	ug/L
7) T Ethylbenzene	0.00	0	N.D.	ug/L d
8) T m,p-Xylene	10.42	220790	0.394	ug/L
9) T o-Xylene	10.93	88601	0.193	ug/L
11) T Naphthalene	14.52	378695	1.449	ug/L

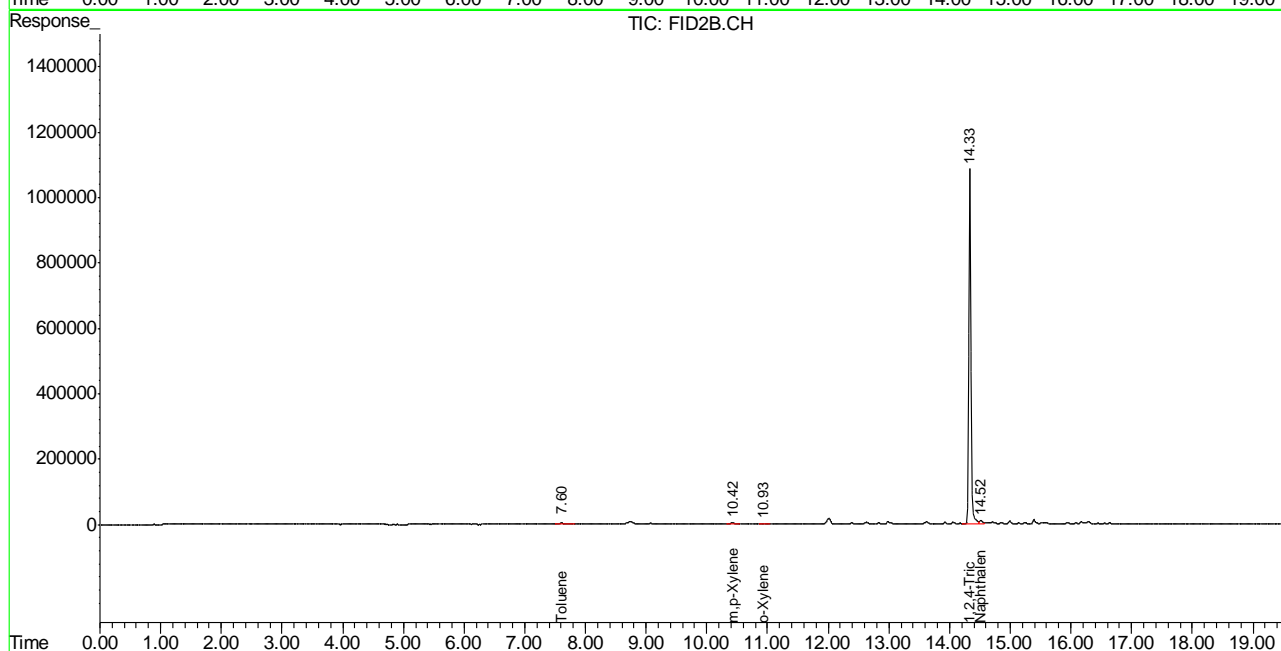
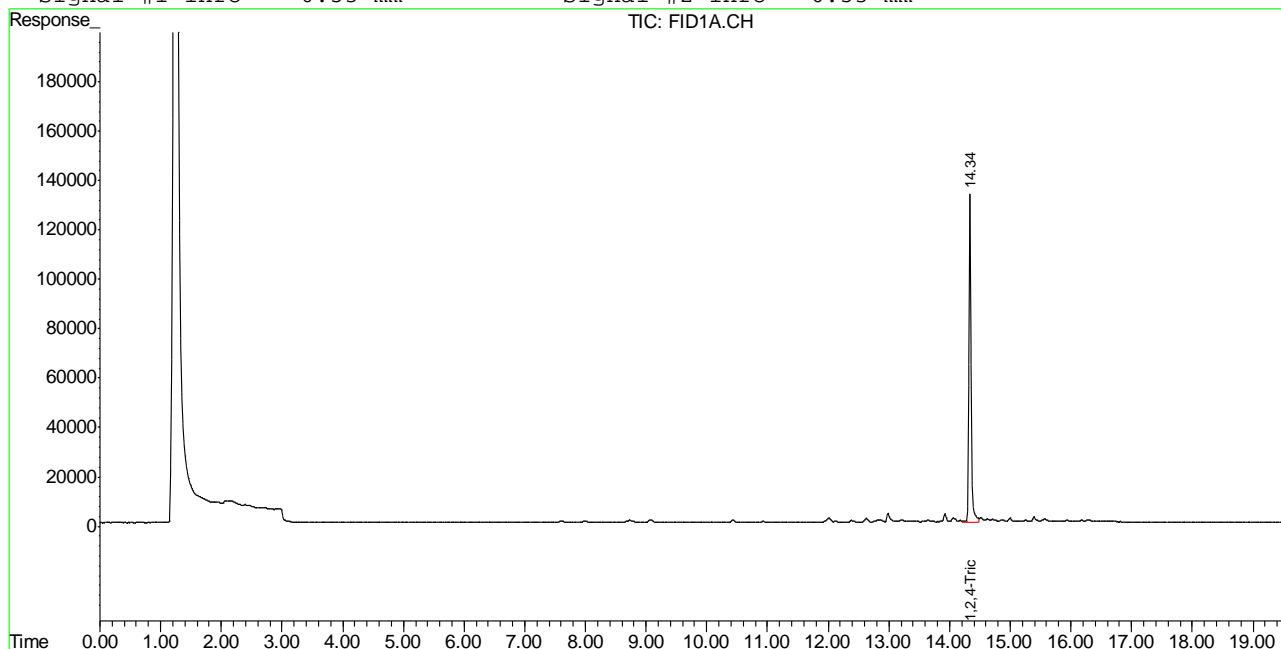
(f)=RT Delta > 1/2 Window (m)=manual int.
 GB15295.D TB851GB851SOIL.M Wed Mar 14 08:44:49 2012 GC

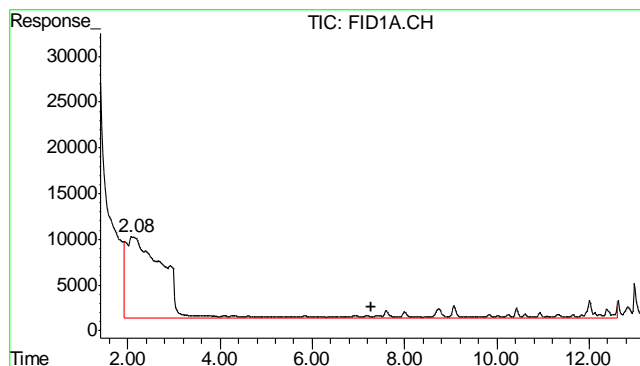
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\031312\GB15295.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\031312\GB15295.D\FID2B.CH
Acq On : 13 Mar 2012 5:30 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC2671,GGB858,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Mar 14 8:43 2012 Quant Results File: TB851GB851SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB851GB851SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Wed Mar 14 08:40:04 2012
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

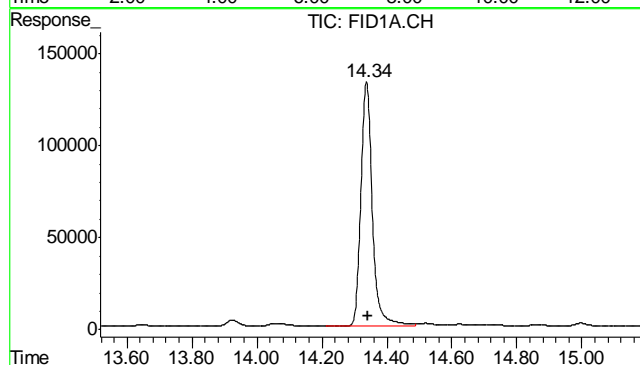
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





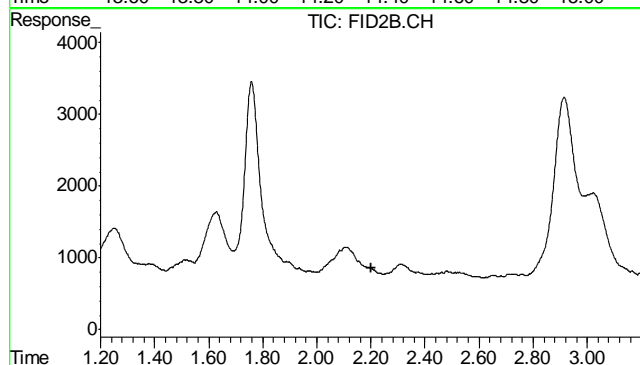
#1 TVH-Gasoline

R.T.: 7.265 min
Delta R.T.: 0.000 min
Response: 5696664
Conc: N.D.



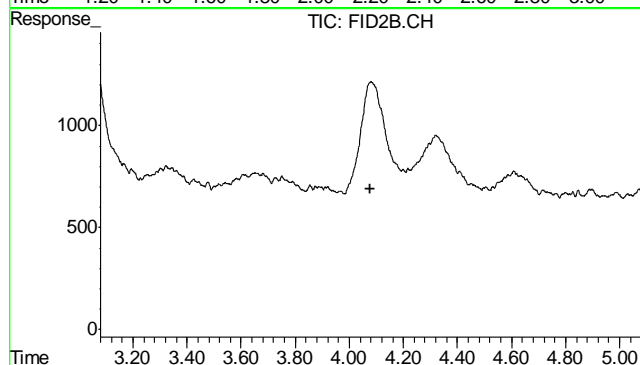
#2 1,2,4-Trichlorobenzene

R.T.: 14.336 min
Delta R.T.: -0.006 min
Response: 3279322
Conc: 108.71 % m



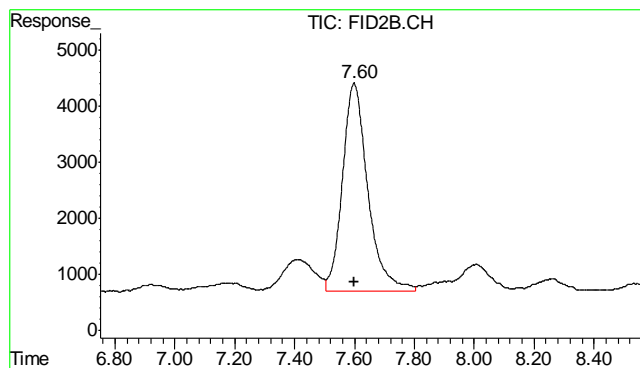
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T.: 2.199 min
Response: 0
Conc: N.D.



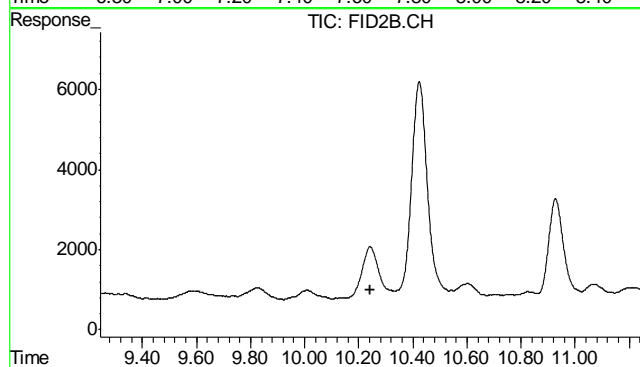
#5 Benzene

R.T.: 0.000 min
Exp R.T.: 4.079 min
Response: 0
Conc: N.D.



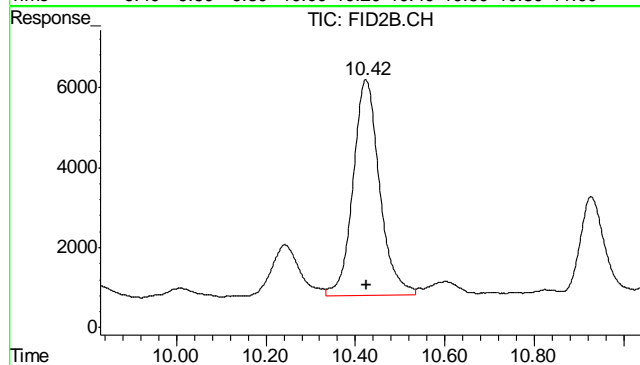
#6 Toluene

R.T.: 7.599 min
Delta R.T.: -0.002 min
Response: 218482
Conc: 0.40 ug/L



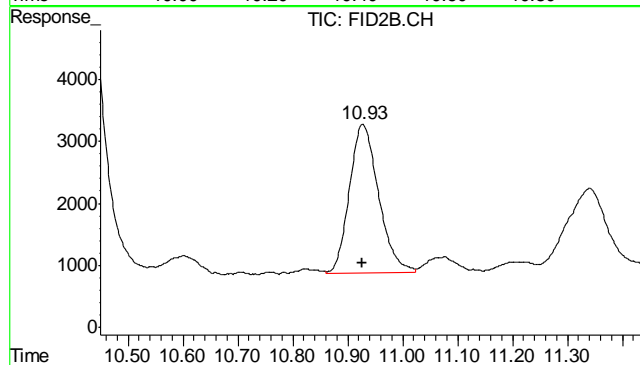
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T.: 10.244 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

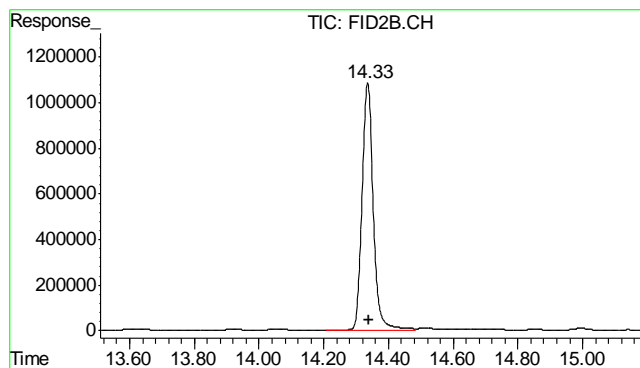
R.T.: 10.424 min
Delta R.T.: -0.003 min
Response: 220790
Conc: 0.39 ug/L



#9 o-Xylene

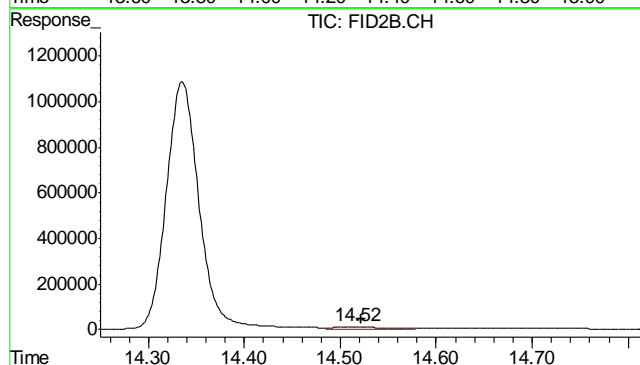
R.T.: 10.928 min
Delta R.T.: 0.000 min
Response: 88601
Conc: 0.19 ug/L

10.2.1 10



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

R.T.: 14.336 min
Delta R.T.: -0.004 min
Response: 26080780
Conc: 112.07 %



#11 Naphthalene

R.T.: 14.517 min
Delta R.T.: -0.005 min
Response: 378695
Conc: 1.45 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

Job Number: D32609
Account: XTOKRWR XTO Energy
Project: FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5519-MB	FH002184.D	1	03/13/12	TR	03/12/12	OP5519	GFH113

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

D32609-1

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%

11.1.1
11

Blank Spike Summary

Job Number: D32609
Account: XTOKRWR XTO Energy
Project: FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5519-BS	FH002186.D	1	03/13/12	TR	03/12/12	OP5519	GFH113

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

D32609-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	536	80	58-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	86%	43-136%

11.2.1
11

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D32609
Account: XTOKRWR XTO Energy
Project: FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5519-MS	FH002216.D	50	03/14/12	TR	03/12/12	OP5519	GFH115
OP5519-MSD	FH002218.D	50	03/14/12	TR	03/12/12	OP5519	GFH115
D32595-1	FH002222.D	50	03/14/12	TR	03/12/12	OP5519	GFH115

The QC reported here applies to the following samples:

Method: SW846-8015B

D32609-1

CAS No.	Compound	D32595-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	43300		869	50300	805* a	41000	-264* a	20	20-183/43

CAS No.	Surrogate Recoveries	MS	MSD	D32595-1	Limits
84-15-1	o-Terphenyl	0% * b	0% * b	0% * b	43-136%

(a) Outside control limits due to high level in sample relative to spike amount.

(b) Outside control limits due to dilution.

11.3.1
11

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH031312.SEC\
 Data File : FH002202.D
 Signal(s) : FID2B.ch
 Acq On : 13 Mar 2012 9:20 pm
 Operator : tedr
 Sample : D32609-1
 Misc : OP5519,GFH113,30.01,,,2,1
 ALS Vial : 62 Sample Multiplier: 1

Integration File: events.e
 Quant Time: Mar 14 08:24:53 2012
 Quant Method : C:\msdchem\1\METHODS\DRO-GFH95R.M
 Quant Title : DRO-ORO REAR
 QLast Update : Sun Mar 04 19:15:40 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	12.350	1106478169	646.171 ug/ml
Target Compounds			
1) H TPH-DRO (C10-C28)	9.832	2519189305	1632.408 ug/ml

(f)=RT Delta > 1/2 Window

(m)=manual int.

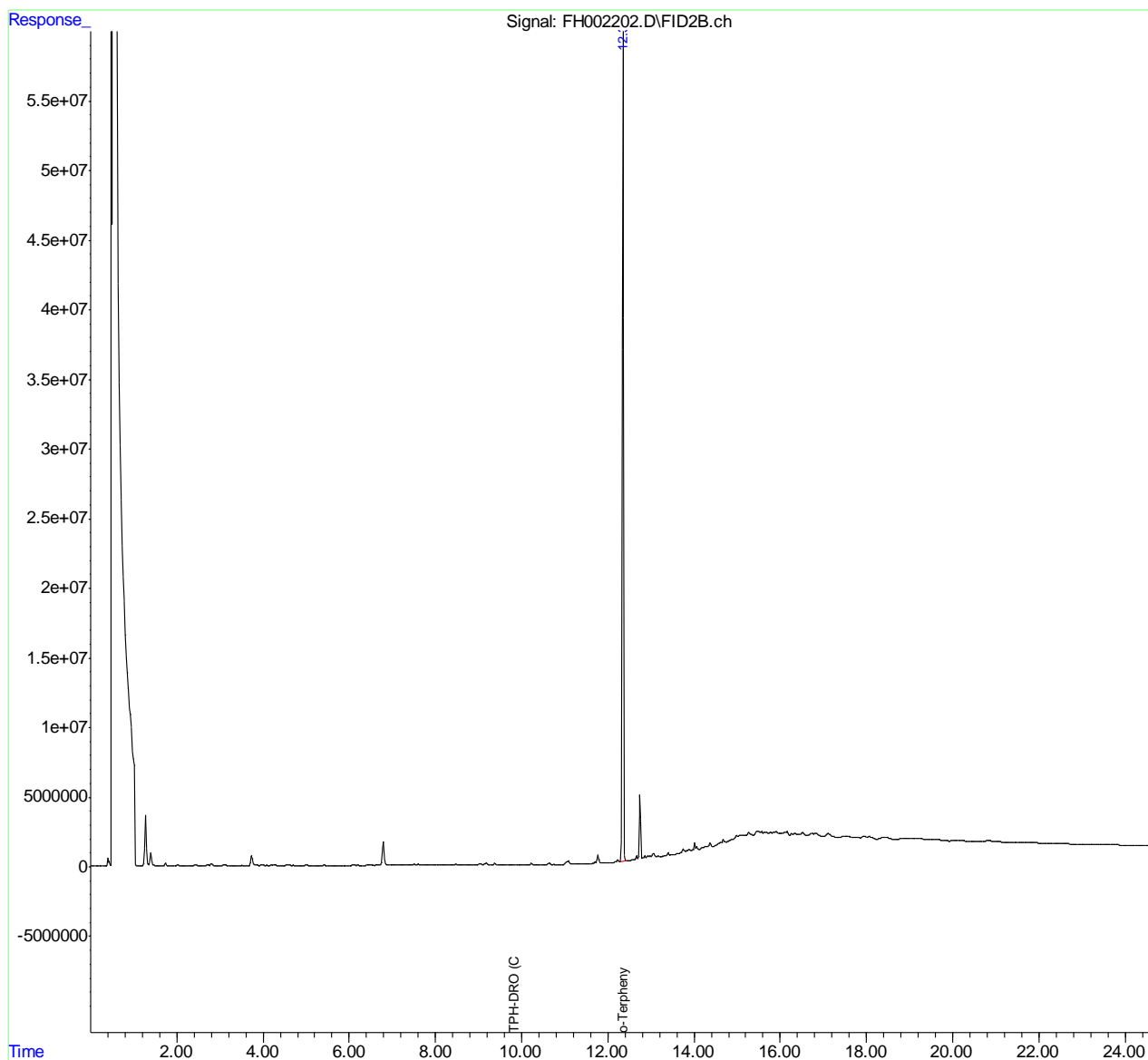
12.1.1
12

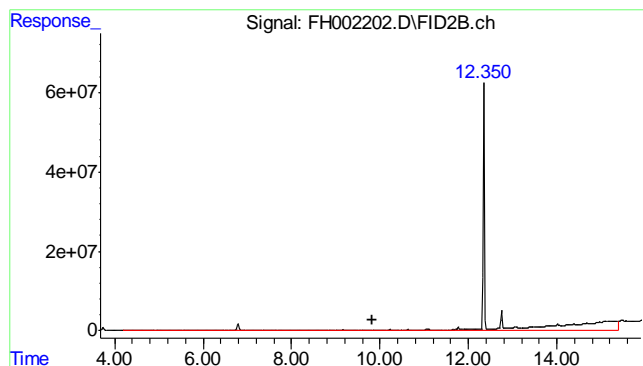
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH031312.SEC\
Data File : FH002202.D
Signal(s) : FID2B.ch
Acq On : 13 Mar 2012 9:20 pm
Operator : tedr
Sample : D32609-1
Misc : OP5519,GFH113,30.01,,,2,1
ALS Vial : 62 Sample Multiplier: 1

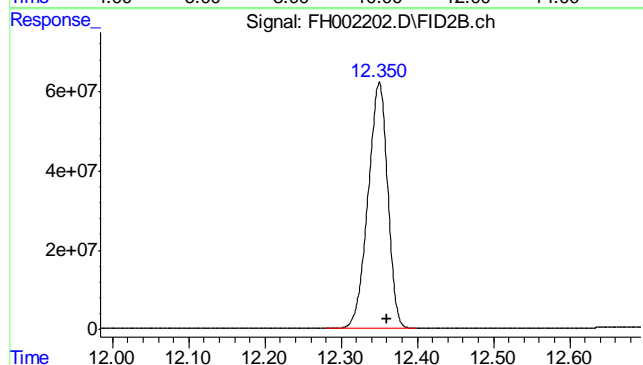
Integration File: events.e
Quant Time: Mar 14 08:24:53 2012
Quant Method : C:\msdchem\1\METHODS\DRO-GFH95R.M
Quant Title : DRO-ORO REAR
QLast Update : Sun Mar 04 19:15:40 2012
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :





#1 TPH-DRO (C10-C28)
 R.T.: 9.832 min
 Delta R.T.: 0.000 min
 Response: 2519189305
 Conc: 1632.41 ug/ml m



#2 o-Terphenyl
 R.T.: 12.350 min
 Delta R.T.: -0.010 min
 Response: 1106478169
 Conc: 646.17 ug/ml

12.1.1
 12

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH031312.SEC\
Data File : FH002184.D
Signal(s) : FID2B.ch
Acq On : 13 Mar 2012 3:56 pm
Operator : tedr
Sample : OP5519-MB
Misc : OP5519,GFH113,30.00,,,2,1
ALS Vial : 53 Sample Multiplier: 1

Integration File: events.e
Quant Time: Mar 13 17:12:48 2012
Quant Method : C:\msdchem\1\METHODS\DRO-GFH95R.M
Quant Title : DRO-ORO REAR
QLast Update : Sun Mar 04 19:15:40 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	12.356	1505589486	879.248 ug/ml
Target Compounds			
1) H TPH-DRO (C10-C28)	9.832	75794120	49.114 ug/ml

(f)=RT Delta > 1/2 Window

(m)=manual int.

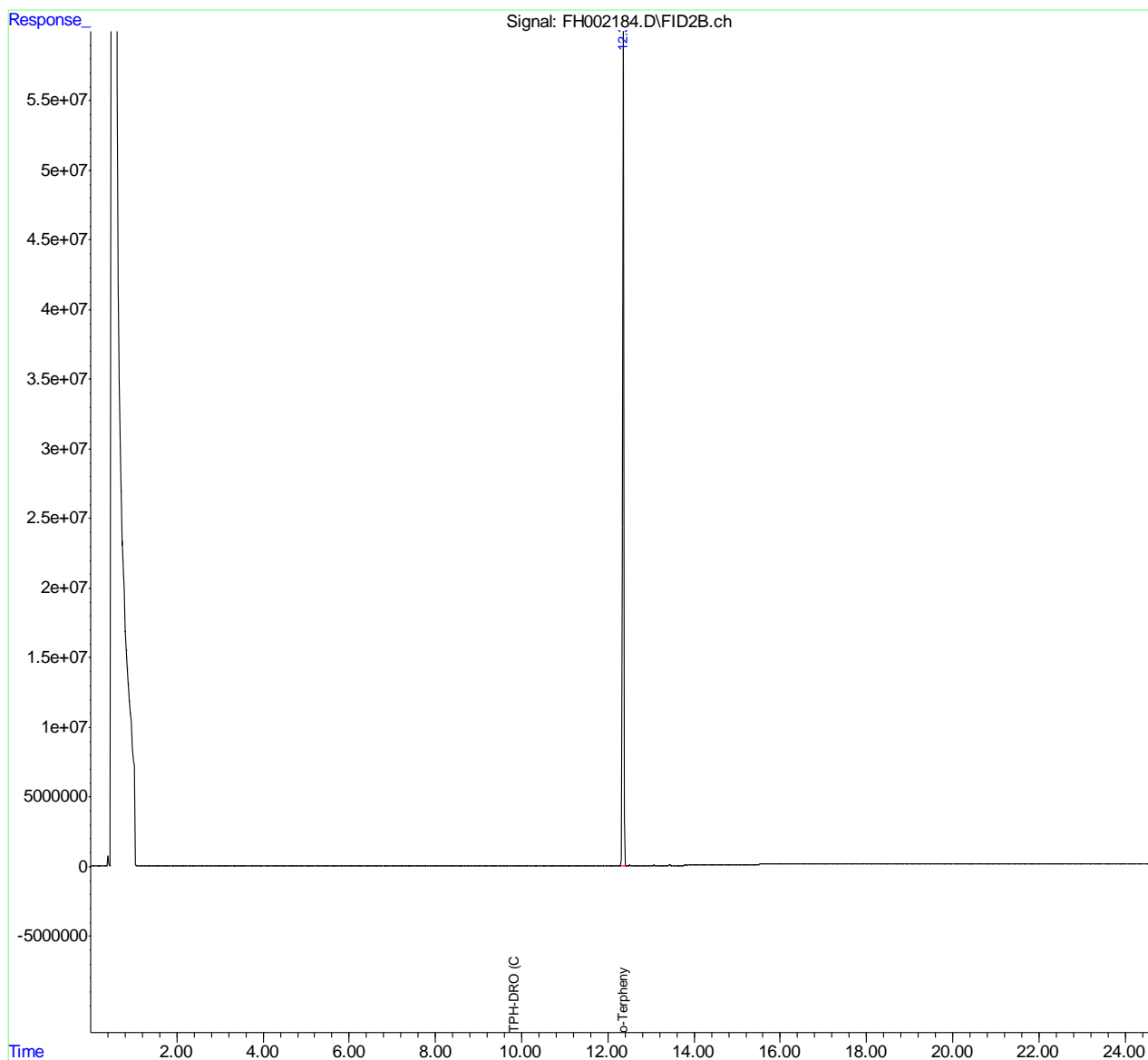
12.2.1
12

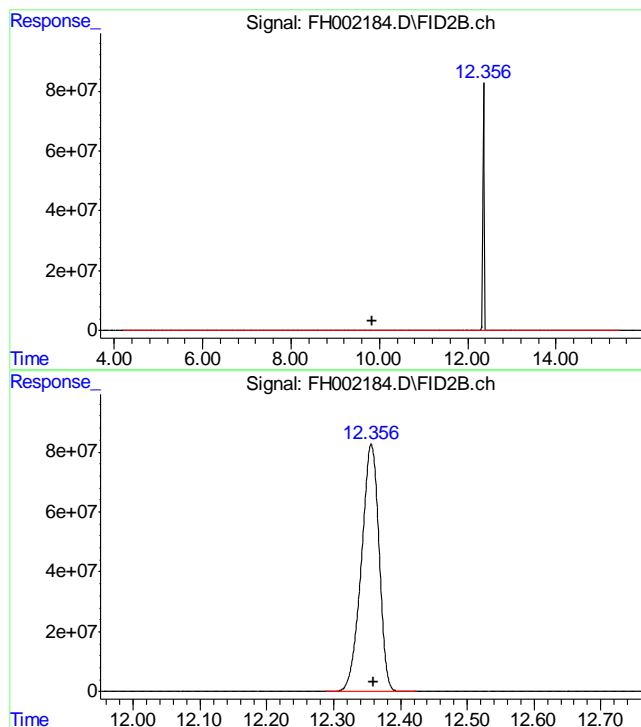
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH031312.SEC\
Data File : FH002184.D
Signal(s) : FID2B.ch
Acq On : 13 Mar 2012 3:56 pm
Operator : tedr
Sample : OP5519-MB
Misc : OP5519,GFH113,30.00,,,2,1
ALS Vial : 53 Sample Multiplier: 1

Integration File: events.e
Quant Time: Mar 13 17:12:48 2012
Quant Method : C:\msdchem\1\METHODS\DRO-GFH95R.M
Quant Title : DRO-ORO REAR
QLast Update : Sun Mar 04 19:15:40 2012
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :





#1 TPH-DRO (C10-C28)

R.T.: 9.832 min
Delta R.T.: 0.000 min
Response: 75794120
Conc: 49.11 ug/ml m

#2 o-Terphenyl

R.T.: 12.356 min
Delta R.T.: -0.004 min
Response: 1505589486
Conc: 879.25 ug/ml

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: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7050
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 03/13/12

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.10	.0011	.013	0.0020	<0.10

Associated samples MP7050: D32609-1

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: D32609
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-32A

QC Batch ID: MP7050
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 03/13/12

Metal	D32609-1		Spike lot		QC
	Original	MS	HGWSR1	% Rec	Limits
Mercury	0.010	0.36	0.407	85.9	75-125

Associated samples MP7050: D32609-1

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: D32609
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-32A

QC Batch ID: MP7050
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 03/13/12

Metal	D32609-1 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.010	0.37	0.407	88.4	2.7	

Associated samples MP7050: D32609-1

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: D32609
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-32A

QC Batch ID: MP7050
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 03/13/12

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.40	0.4	100.0	80-120

Associated samples MP7050: D32609-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7055
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 03/14/12

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	0.090	<1.0
Beryllium	1.0	.044	.1		
Boron	5.0	.48	.48		
Cadmium	1.0	.027	.27	0.010	<1.0
Calcium	40	.96	1.1		
Chromium	1.0	.018	.031	0.060	<1.0
Cobalt	0.50	.035	.035		
Copper	1.0	.085	.16	-0.18	<1.0
Iron	7.0	.34	2		
Lead	5.0	.16	.21	0.21	<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	0.0	<3.0
Phosphorus	10	1.1	1.2		
Potassium	200	5.5	9.2		
Selenium	5.0	.38	.5	-0.60	<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	0.50	<3.0

Associated samples MP7055: D32609-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7055
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

13.2.1

13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D32609
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-32A

QC Batch ID: MP7055
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 03/14/12

Metal	D32609-1 Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	2100	2570	212	221.8(a)	75-125
Beryllium	anr				
Boron					
Cadmium	0.032	45.4	53	85.7	75-125
Calcium					
Chromium	42.6	82.3	53	75.0	75-125
Cobalt					
Copper	13.5	65.2	53	97.6	75-125
Iron	anr				
Lead	11.1	99.5	106	83.4	75-125
Lithium					
Magnesium	anr				
Manganese	anr				
Molybdenum	anr				
Nickel	19.8	61.7	53	79.1	75-125
Phosphorus	anr				
Potassium					
Selenium	0.52	90.0	106	84.5	75-125
Silicon					
Silver	0.13	19.7	21.2	92.4	75-125
Sodium					
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium	anr				
Vanadium					
Zinc	43.1	83.5	53	76.3	75-125

Associated samples MP7055: D32609-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7055
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.

13.2.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7055
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 03/14/12

Metal	D32609-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	2100	2690	216	272.9(a)	4.6	20
Beryllium	anr					
Boron						
Cadmium	0.032	46.6	54	86.2	2.6	20
Calcium						
Chromium	42.6	85.4	54	79.2	3.7	20
Cobalt						
Copper	13.5	66.5	54	98.1	2.0	20
Iron	anr					
Lead	11.1	99.9	108	82.2	0.4	20
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum	anr					
Nickel	19.8	60.7	54	75.7	1.6	20
Phosphorus	anr					
Potassium						
Selenium	0.52	92.5	108	85.1	2.7	20
Silicon						
Silver	0.13	20.2	21.6	92.8	2.5	20
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium	anr					
Vanadium						
Zinc	43.1	110	54	101.2	4.2	20

Associated samples MP7055: D32609-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7055
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.

13.2.2
13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D32609
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-32A

QC Batch ID: MP7055
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 03/14/12

Metal	BSP Result	Spikelot MPICPAL	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	189	200	94.5	80-120
Beryllium	anr			
Boron				
Cadmium	47.2	50	94.4	80-120
Calcium				
Chromium	49.5	50	99.0	80-120
Cobalt				
Copper	47.5	50	95.0	80-120
Iron	anr			
Lead	96.9	100	96.9	80-120
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	47.3	50	94.6	80-120
Phosphorus	anr			
Potassium				
Selenium	95.0	100	95.0	80-120
Silicon				
Silver	20.4	20	102.0	80-120
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium	anr			
Vanadium				
Zinc	47.6	50	95.2	80-120

Associated samples MP7055: D32609-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7055
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7055
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/14/12

Metal	D32609-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	22100	21300	9.0	0-10
Beryllium	anr			
Boron				
Cadmium	0.00	0.00	NC (a)	0-10
Calcium				
Chromium	458	462	16.0*(b)	0-10
Cobalt				
Copper	98.0	119	5.5	0-10
Iron	anr			
Lead	98.0	119	14.5*(b)	0-10
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	234	224	20.8*(b)	0-10
Phosphorus	anr			
Potassium				
Selenium	0.00	0.00	NC (a)	0-10
Silicon				
Silver	4.00	3.00	150.0(a)	0-10
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium	anr			
Vanadium				
Zinc	517	506	25.4*(b)	0-10

Associated samples MP7055: D32609-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7055
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

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

13.2.4
13

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7056
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 03/14/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.3		
Antimony	0.20	.001	.012		
Arsenic	0.40	.049		0.036	<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			
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 MP7056: D32609-1

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: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7056
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 03/14/12

Metal	D32609-1 Original MS		Spikelot MPICPALL % Rec	QC Limits
Aluminum				
Antimony				
Arsenic	3.6	112	106	102.3 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 MP7056: D32609-1

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: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7056
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 03/14/12

Metal	D32609-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	3.6	119	108	106.8	6.1	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 MP7056: D32609-1

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: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7056
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 03/14/12

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	101	100	101.0	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP7056: D32609-1

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

13.3.3
13

SERIAL DILUTION RESULTS SUMMARY

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7056
Matrix Type: SOLID

Methods: SW846 6020A
Units: ug/l

Prep Date: 03/14/12

Metal	D32609-1		QC	
	Original	SDL 5:25	%DIF	Limits
Aluminum				
Antimony				
Arsenic	34.0	29.3	13.8*(a)	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 MP7056: D32609-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.

13.34
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BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7061
Matrix Type: AQUEOUS

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

Prep Date: 03/14/12

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	34.5	<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	3.0	<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	-240	<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 MP7061: D32609-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7061
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7061
Matrix Type: AQUEOUS

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

Prep Date: 03/14/12

Metal	D32609-1A Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	18000	154000	125000	108.8	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	14900	149000	125000	107.3	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	248000	392000	125000	115.2	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP7061: D32609-1A

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

13.4.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7061
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

13.4.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7061
Matrix Type: AQUEOUS

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

Prep Date: 03/14/12

Metal	D32609-1A Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	18000	156000	125000	110.4	1.3	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	14900	150000	125000	108.1	0.7	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	248000	396000	125000	118.4	1.0	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP7061: D32609-1A

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

13.4.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7061
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

13.4.2
13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7061
Matrix Type: AQUEOUS

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

Prep Date: 03/14/12

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	136000	125000	108.8	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	131000	125000	104.8	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	134000	125000	107.2	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP7061: D32609-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

QC Batch ID: MP7061
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(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: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP6713/GN14085	1.0	0.0	mg/kg	185	197	106.0	80-120%
Specific Conductivity	GP6711/GN14080			umhos/cm	9967	9850	98.8	90-110%
pH	GN14060			su	8.00	7.99	99.9	99.3-100.7%

Associated Samples:
Batch GN14060: D32609-1
Batch GP6711: D32609-1
Batch GP6713: D32609-1
(*) Outside of QC limits

14.1
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DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP6713/GN14085	D32493-1	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN14069	D32609-1	mv	391	398	1.8	0-20%

Associated Samples:
Batch GN14069: D32609-1
Batch GP6713: D32609-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP6713/GN14085	D32493-1	mg/kg	0.0	40	30.3	76.0	75-125%

Associated Samples:
Batch GP6713: D32609-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D32609
Account: XTOKRWR - XTO Energy
Project: FRU 297-32A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chromium, Hexavalent	GP6713/GN14085	D32493-1	mg/kg	0.0	40	22.1	31.3(a)	

Associated Samples:

Batch GP6713: D32609-1

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity. Post digestion spike was run with a recovery of 117%.