



09/26/12

Technical Report for

XTO Energy

PCU 197-36A

1203-02

Accutest Job Number: D38897

Sampling Date: 09/17/12

Report to:

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Total number of pages in report: 135



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

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

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Test results relate only to samples analyzed.

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Sample Summary

XTO Energy

Job No: D38897

PCU 197-36A
Project No: 1203-02

Sample Number	Collected		Time By	Received	Matrix		Client Sample ID
	Date				Code	Type	
D38897-1	09/17/12	11:30	DS	09/19/12	SO	Soil	CUTTINGS SPOIL PILE
D38897-1A	09/17/12	11:30	DS	09/19/12	SO	Soil	CUTTINGS SPOIL PILE

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



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: XTO Energy

Job No D38897

Site: PCU 197-36A

Report Date 9/26/2012 2:44:21 PM

On 09/19/2012, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2.2 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D38897 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: V3V1201

- All samples were analyzed within the recommended method holding time.
- Sample(s) D38896-1MS, D38896-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO

Batch ID: OP6672

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D38897-1MS, D38897-1MSD were used as the QC samples indicated.

Volatiles by GC By Method SW846 8015B

Matrix SO

Batch ID: GGB967

- All samples were analyzed within the recommended method holding time.
- Sample(s) D38896-1MS, D38896-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GC By Method SW846-8015B

Matrix SO

Batch ID: OP6671

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D38897-1MS, D38897-1MSD were used as the QC samples indicated.

Metals By Method SW846 6010C

Matrix AQ

Batch ID: MP8480

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D38940-1AMS, D38940-1AMSD, D38940-1ASDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Calcium, Sodium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Matrix SO

Batch ID: MP8469

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D38897-1MS, D38897-1MSD, D38897-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Cadmium, Silver, Chromium, Nickel, Zinc are outside control limits for sample MP8469-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP8469-SD1 for Chromium: Serial dilution indicates possible matrix interference.
- MP8469-SD1 for Zinc: Serial dilution indicates possible matrix interference.
- MP8469-SD1 for Nickel: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix SO

Batch ID: MP8470

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D38897-1MS, D38897-1MSD, D38897-1SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471B

Matrix SO

Batch ID: MP8444

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D38854-1MS, D38854-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO

Batch ID: GN16882

- Sample(s) D38940-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN16835

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO

Batch ID: R14526

- The data for SW846 3060/7196A M meets quality control requirements.
- D38897-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO

Batch ID: GP8246

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D38939-1MS, D38939-1MSD, D38939-1DUP were used as the QC samples for the Chromium, Hexavalent analysis.
- The duplicate RPD(s) for Chromium, Hexavalent are outside control limits for sample GP8246-D1. RPD acceptable due to low duplicate and sample concentrations.

Wet Chemistry By Method SW846 9045D

Matrix SO

Batch ID: GN16844

- The following samples were run outside of holding time for method SW846 9045D: D38897-1

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO

Batch ID: MP8480

- D38897-1A 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.

Summary of Hits

Page 1 of 1

Job Number: D38897
Account: XTO Energy
Project: PCU 197-36A
Collected: 09/17/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

D38897-1 CUTTINGS SPOIL PILE

TPH-DRO (C10-C28)	21.4	15	9.9	mg/kg	SW846-8015B
Arsenic	6.7	0.11		mg/kg	SW846 6020A
Barium	480	1.1		mg/kg	SW846 6010C
Chromium	68.9	1.1		mg/kg	SW846 6010C
Copper	12.1	1.1		mg/kg	SW846 6010C
Lead	9.6	5.7		mg/kg	SW846 6010C
Nickel	22.5	3.4		mg/kg	SW846 6010C
Zinc	41.1	3.4		mg/kg	SW846 6010C
Specific Conductivity	663	1.0		umhos/cm	SM2510B-1997 MOD
Chromium, Trivalent ^a	68.9	2.1		mg/kg	SW846 3060/7196A M
Redox Potential Vs H2	181			mv	ASTM D1498-76M
pH	9.76			su	SW846 9045D

D38897-1A CUTTINGS SPOIL PILE

Calcium	31.2	2.0		mg/l	SW846 6010C
Magnesium	5.32	1.0		mg/l	SW846 6010C
Sodium	115	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^b	5.00			ratio	USDA HANDBOOK 60

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

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

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	CUTTINGS SPOIL PILE	Date Sampled:	09/17/12
Lab Sample ID:	D38897-1	Date Received:	09/19/12
Matrix:	SO - Soil	Percent Solids:	87.5
Method:	SW846 8260B		
Project:	PCU 197-36A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V20599.D	1	09/20/12	BD	n/a	n/a	V3V1201
Run #2							

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.064	0.032	mg/kg	
108-88-3	Toluene	ND	0.13	0.064	mg/kg	
100-41-4	Ethylbenzene	ND	0.13	0.024	mg/kg	
1330-20-7	Xylene (total)	ND	0.25	0.13	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	88%		64-130%
460-00-4	4-Bromofluorobenzene	106%		62-131%
17060-07-0	1,2-Dichloroethane-D4	88%		70-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	CUTTINGS SPOIL PILE	
Lab Sample ID:	D38897-1	Date Sampled: 09/17/12
Matrix:	SO - Soil	Date Received: 09/19/12
Method:	SW846 8270C BY SIM SW846 3546	Percent Solids: 87.5
Project:	PCU 197-36A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G11324.D	1	09/20/12	DC	09/20/12	OP6672	E3G528
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 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	0.0095	0.0049	mg/kg	
120-12-7	Anthracene	ND	0.0095	0.0049	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.0095	0.0049	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.0095	0.0049	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.0095	0.0049	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.0095	0.0049	mg/kg	
218-01-9	Chrysene	ND	0.0095	0.0049	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0095	0.0049	mg/kg	
206-44-0	Fluoranthene	ND	0.0095	0.0049	mg/kg	
86-73-7	Fluorene	ND	0.0095	0.0049	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.0095	0.0049	mg/kg	
91-20-3	Naphthalene	ND	0.013	0.012	mg/kg	
129-00-0	Pyrene	ND	0.0095	0.0049	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	73%		10-145%
321-60-8	2-Fluorobiphenyl	76%		10-130%
1718-51-0	Terphenyl-d14	84%		22-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	CUTTINGS SPOIL PILE	
Lab Sample ID:	D38897-1	Date Sampled: 09/17/12
Matrix:	SO - Soil	Date Received: 09/19/12
Method:	SW846 8015B	Percent Solids: 87.5
Project:	PCU 197-36A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB17631.D	1	09/19/12	SK	n/a	n/a	GGB967
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	13	6.4	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	92%		60-140%		

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

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

Accutest Laboratories

Report of Analysis

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Client Sample ID:	CUTTINGS SPOIL PILE	Date Sampled:	09/17/12
Lab Sample ID:	D38897-1	Date Received:	09/19/12
Matrix:	SO - Soil	Percent Solids:	87.5
Method:	SW846-8015B SW846 3546		
Project:	PCU 197-36A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD17653.D	1	09/20/12	AV	09/20/12	OP6671	GFD902
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)	21.4	15	9.9	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	127%		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: CUTTINGS SPOIL PILE

Lab Sample ID: D38897-1

Matrix: SO - Soil

Project: PCU 197-36A

Date Sampled: 09/17/12

Date Received: 09/19/12

Percent Solids: 87.5

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	6.7	0.11	mg/kg	5	09/24/12	09/26/12 JB	SW846 6020A ⁴	SW846 3050B ⁷
Barium	480	1.1	mg/kg	1	09/24/12	09/24/12 JB	SW846 6010C ²	SW846 3050B ⁶
Cadmium	< 1.1	1.1	mg/kg	1	09/24/12	09/24/12 JB	SW846 6010C ²	SW846 3050B ⁶
Chromium	68.9	1.1	mg/kg	1	09/24/12	09/24/12 JB	SW846 6010C ²	SW846 3050B ⁶
Copper	12.1	1.1	mg/kg	1	09/24/12	09/24/12 JB	SW846 6010C ²	SW846 3050B ⁶
Lead	9.6	5.7	mg/kg	1	09/24/12	09/24/12 JB	SW846 6010C ²	SW846 3050B ⁶
Mercury	< 0.11	0.11	mg/kg	1	09/20/12	09/20/12 JB	SW846 7471B ¹	SW846 7471B ⁵
Nickel	22.5	3.4	mg/kg	1	09/24/12	09/24/12 JB	SW846 6010C ²	SW846 3050B ⁶
Selenium	< 5.7	5.7	mg/kg	1	09/24/12	09/24/12 JB	SW846 6010C ²	SW846 3050B ⁶
Silver	< 3.4	3.4	mg/kg	1	09/24/12	09/24/12 JB	SW846 6010C ²	SW846 3050B ⁶
Zinc	41.1	3.4	mg/kg	1	09/24/12	09/25/12 JM	SW846 6010C ³	SW846 3050B ⁶

(1) Instrument QC Batch: MA2826

(2) Instrument QC Batch: MA2837

(3) Instrument QC Batch: MA2842

(4) Instrument QC Batch: MA2844

(5) Prep QC Batch: MP8444

(6) Prep QC Batch: MP8469

(7) Prep QC Batch: MP8470

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUTTINGS SPOIL PILE	Date Sampled:	09/17/12
Lab Sample ID:	D38897-1	Date Received:	09/19/12
Matrix:	SO - Soil	Percent Solids:	87.5
Project:	PCU 197-36A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	663	1.0	umhos/cm	1	09/26/12	CJ	SM2510B-1997 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	09/25/12	CJ	SW846 3060A/7196A
Chromium, Trivalent ^a	68.9	2.1	mg/kg	1	09/25/12	CJ	SW846 3060/7196A M
Redox Potential Vs H2	181		mv	1	09/21/12	JD	ASTM D1498-76M
Solids, Percent	87.5		%	1	09/20/12	SWT	SM19 2540B M
pH	9.76		su	1	09/20/12 10:00	CT	SW846 9045D

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

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUTTINGS SPOIL PILE	Date Sampled:	09/17/12
Lab Sample ID:	D38897-1A	Date Received:	09/19/12
Matrix:	SO - Soil	Percent Solids:	87.5
Project:	PCU 197-36A		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	31.2	2.0	mg/l	1	09/24/12	09/25/12 JM	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	5.32	1.0	mg/l	1	09/24/12	09/25/12 JM	SW846 6010C ¹	SW846 3010A/M ²
Sodium	115	2.0	mg/l	1	09/24/12	09/25/12 JM	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA2842
(2) Prep QC Batch: MP8480

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUTTINGS SPOIL PILE	Date Sampled:	09/17/12
Lab Sample ID:	D38897-1A	Date Received:	09/19/12
Matrix:	SO - Soil	Percent Solids:	87.5
Project:	PCU 197-36A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	5.00		ratio	1	09/25/12 20:43	JM	USDA HANDBOOK 60

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

RL = Reporting Limit

Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D38897

Client: KRW CONSULTING

Immediate Client Services Action Required: No

Date / Time Received: 9/19/2012 12:30:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XTO PCU 197-36A

Airbill #'s: HDCO

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/>		<input type="checkbox"/>

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

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input type="checkbox"/>	
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input type="checkbox"/>	
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

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

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

Comments

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 Wheat Ridge, CO
 www.accutest.com

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

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Job Number: D38897
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1201-MB	3V20593.D	1	09/20/12	BD	n/a	n/a	V3V1201

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

D38897-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	25	ug/kg	
100-41-4	Ethylbenzene	ND	100	19	ug/kg	
108-88-3	Toluene	ND	100	50	ug/kg	
1330-20-7	Xylene (total)	ND	200	100	ug/kg	

CAS No.	Surrogate Recoveries	Limits
2037-26-5	Toluene-D8	92% 64-130%
460-00-4	4-Bromofluorobenzene	101% 62-131%
17060-07-0	1,2-Dichloroethane-D4	90% 70-130%

Blank Spike Summary

Page 1 of 1

Job Number: D38897
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1201-BS	3V20594.D	1	09/20/12	BD	n/a	n/a	V3V1201

The QC reported here applies to the following samples:

Method: SW846 8260B

D38897-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	44.8	90	70-130
100-41-4	Ethylbenzene	50	48.9	98	70-130
108-88-3	Toluene	50	45.5	91	70-130
1330-20-7	Xylene (total)	150	153	102	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	92%	64-130%
460-00-4	4-Bromofluorobenzene	105%	62-131%
17060-07-0	1,2-Dichloroethane-D4	90%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D38897
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D38896-1MS	3V20596.D	1	09/20/12	BD	n/a	n/a	V3V1201
D38896-1MSD	3V20597.D	1	09/20/12	BD	n/a	n/a	V3V1201
D38896-1	3V20595.D	1	09/20/12	BD	n/a	n/a	V3V1201

The QC reported here applies to the following samples:

Method: SW846 8260B

D38897-1

CAS No.	Compound	D38896-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	60.1	J	3070	2870	92	2780	89	3	64-139/30
100-41-4	Ethylbenzene	57.7	J	3070	3070	98	2950	94	4	68-136/30
108-88-3	Toluene	262		3070	2980	89	2910	86	2	60-130/30
1330-20-7	Xylene (total)	446		9200	9860	102	9530	99	3	58-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D38896-1	Limits
2037-26-5	Toluene-D8	87%	86%	87%	64-130%
460-00-4	4-Bromofluorobenzene	112%	111%	109%	62-131%
17060-07-0	1,2-Dichloroethane-D4	86%	87%	87%	70-130%

* = Outside of Control Limits.

GC/MS Volatiles

Raw Data

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3092012.S\
Data File : 3V20599.D
Acq On : 20 Sep 2012 6:46 pm
Operator : BRETD
Sample : D38897-1
Misc : MS4689,V3V1201,5.064,,100,5,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Sep 21 09:34:56 2012
Quant Method : C:\msdchem\1\METHODS\V3AP1160TVH1160SOIL.M
Quant Title : 8260
QLast Update : Fri Aug 24 10:57:50 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.864	168	274504	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.659	114	418673	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.297	117	425940	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.287	152	255611	50.00	ug/l	0.00

System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.252	102	27120	43.88	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	87.76%
61) Toluene-d8	14.055	98	487991	43.89	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	87.78%
69) 4-Bromofluorobenzene	16.247	95	230457	52.96	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	105.92%

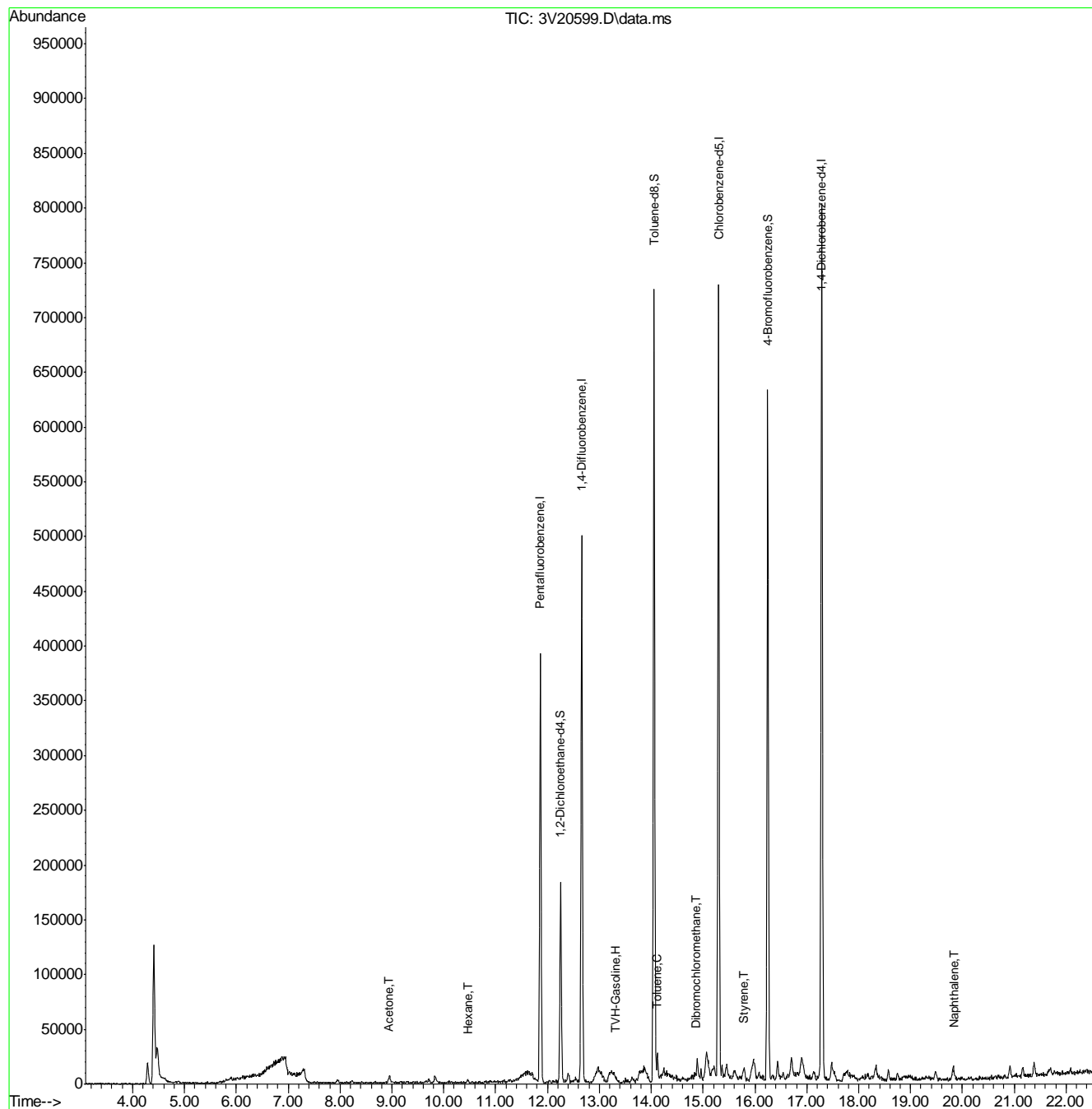
Target Compounds					Qvalue
1) TVH-Gasoline	13.329	TIC	1052226m	36.96	ug/l
15) Acetone	8.944	58	2890	0.77	ug/l # 53
41) Hexane	10.465	57	1378	0.21	ug/l 100
51) Dibromochloromethane	14.851	129	63	0.42	ug/l 77
62) Toluene	14.116	92	5968	0.55	ug/l 88
71) Styrene	15.798	104	569	0.26	ug/l 99
91) Naphthalene	19.850	128	7129	0.54	ug/l 100

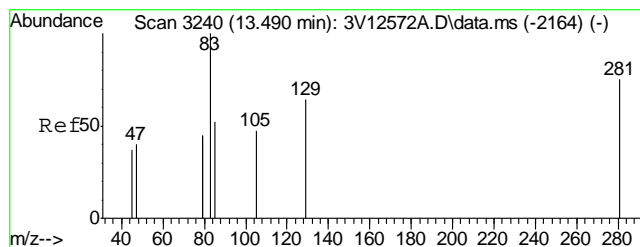
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3092012.S\
Data File : 3V20599.D
Acq On : 20 Sep 2012 6:46 pm
Operator : BRETD
Sample : D38897-1
Misc : MS4689,V3V1201,5.064,,100,5,1
ALS Vial : 19 Sample Multiplier: 1

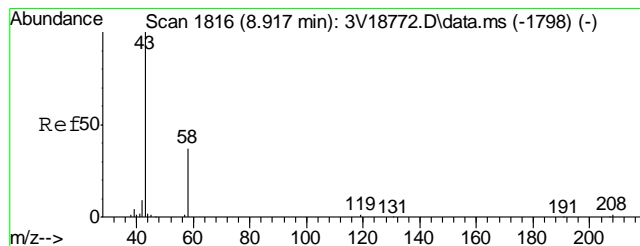
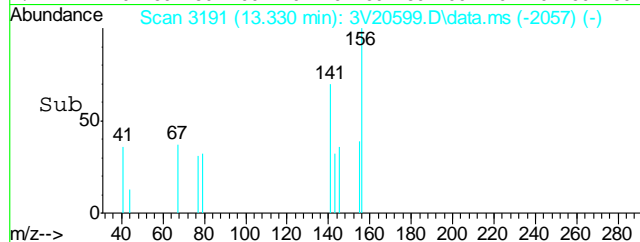
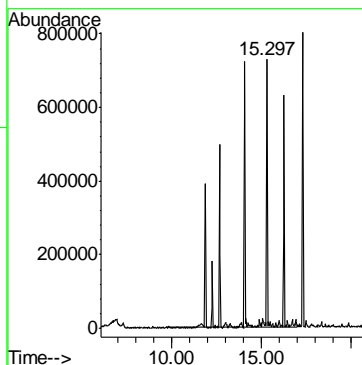
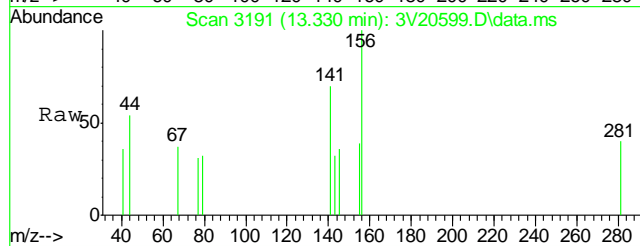
Quant Time: Sep 21 09:34:56 2012
Quant Method : C:\msdchem\1\METHODS\V3AP1160TVH1160SOIL.M
Quant Title : 8260
QLast Update : Fri Aug 24 10:57:50 2012
Response via : Initial Calibration





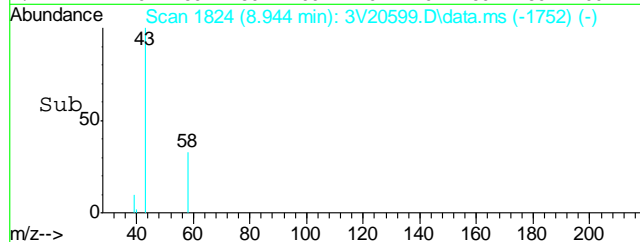
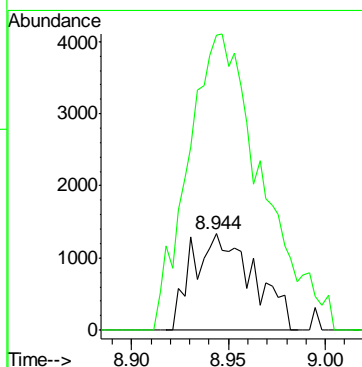
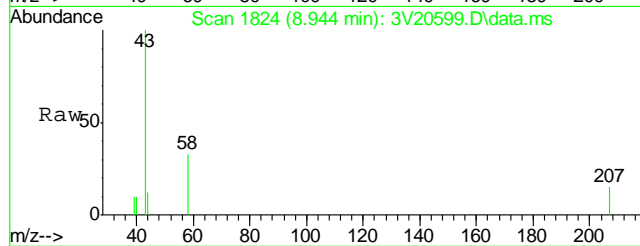
#1
TVH-Gasoline
Concen: 36.96 ug/l m
RT: 13.329 min Scan# 3191
Delta R.T. 0.000 min
Lab File: 3V20599.D
Acq: 20 Sep 2012 6:46 pm

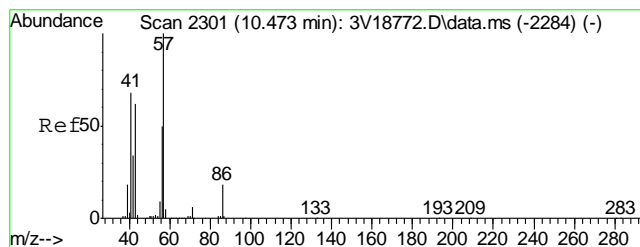
Tgt Ion:TIC Resp: 1052226



#15
Acetone
Concen: 0.77 ug/l
RT: 8.944 min Scan# 1824
Delta R.T. 0.030 min
Lab File: 3V20599.D
Acq: 20 Sep 2012 6:46 pm

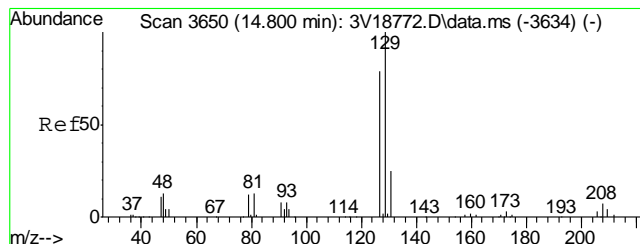
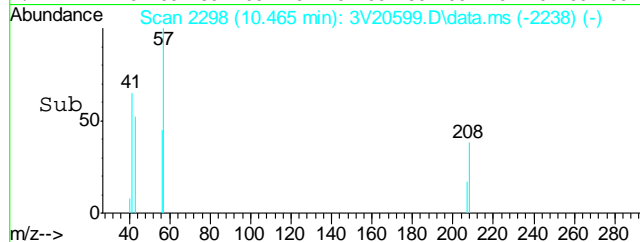
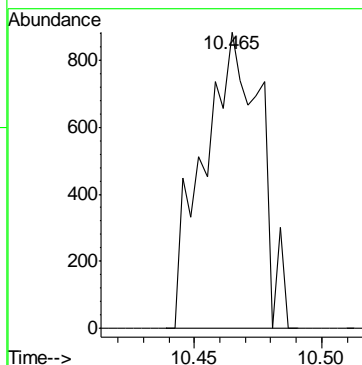
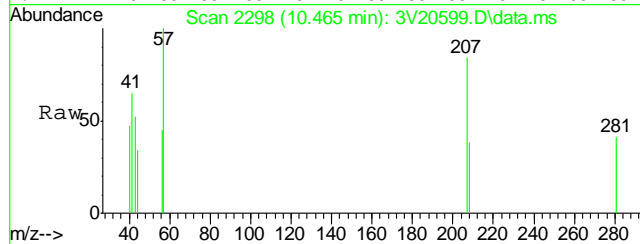
Tgt Ion: 58 Resp: 2890
Ion Ratio Lower Upper
58 100
43 376.6 267.0 307.0#





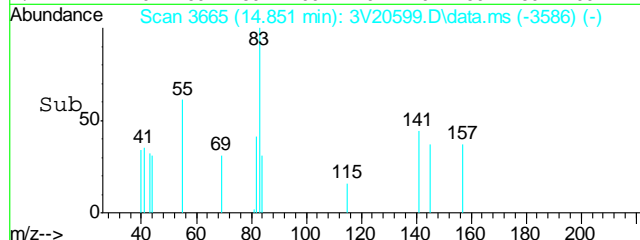
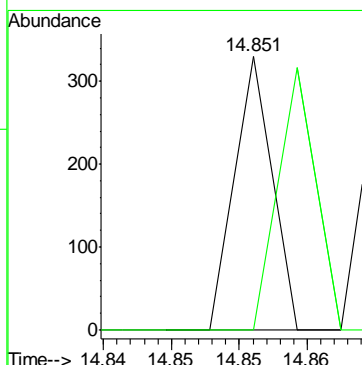
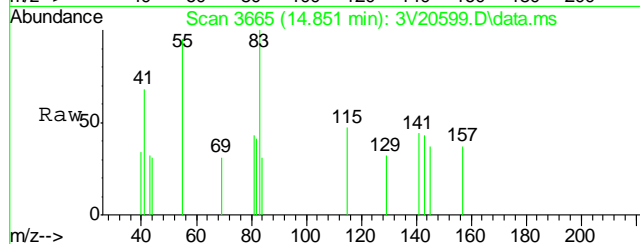
#41
Hexane
Concen: 0.21 ug/l
RT: 10.465 min Scan# 2298
Delta R.T. -0.006 min
Lab File: 3V20599.D
Acq: 20 Sep 2012 6:46 pm

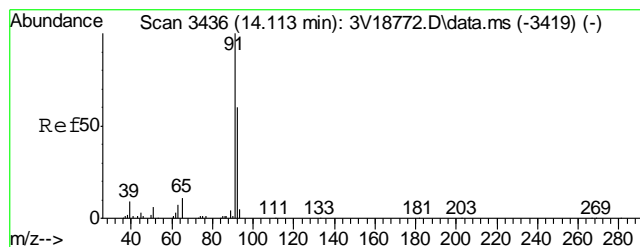
Tgt Ion: 57 Resp: 1378



#51
Dibromochloromethane
Concen: 0.42 ug/l
RT: 14.851 min Scan# 3665
Delta R.T. 0.055 min
Lab File: 3V20599.D
Acq: 20 Sep 2012 6:46 pm

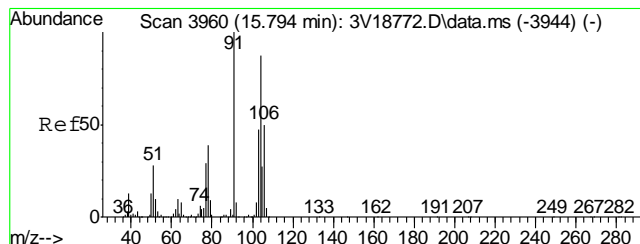
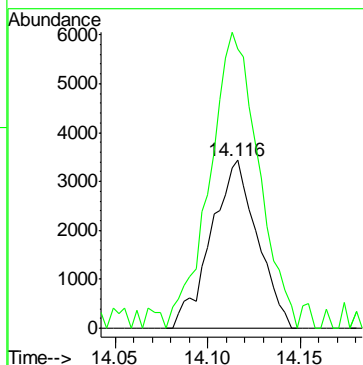
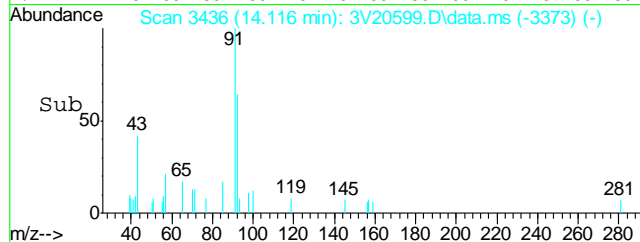
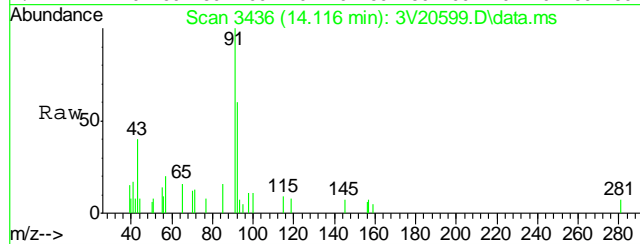
Tgt Ion: 129 Resp: 63
Ion Ratio Lower Upper
129 100
127 96.8 56.9 96.9





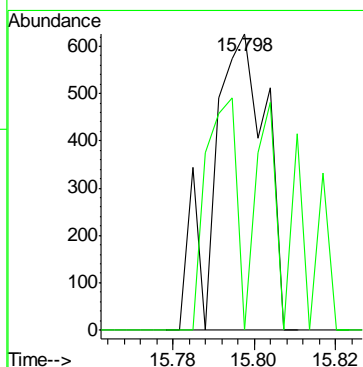
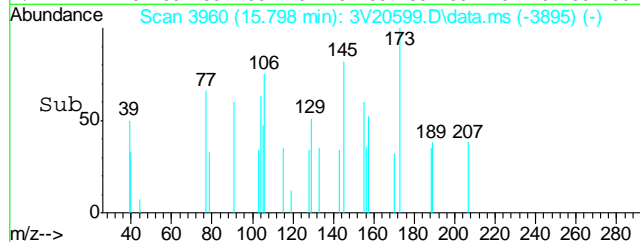
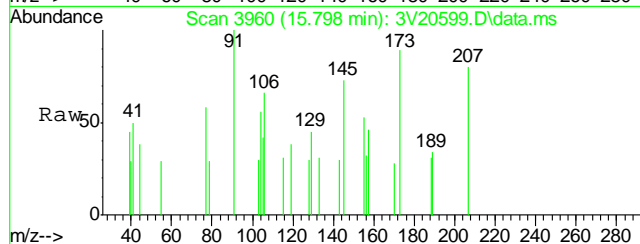
#62
Toluene
Concen: 0.55 ug/l
RT: 14.116 min Scan# 3436
Delta R.T. 0.004 min
Lab File: 3V20599.D
Acq: 20 Sep 2012 6:46 pm

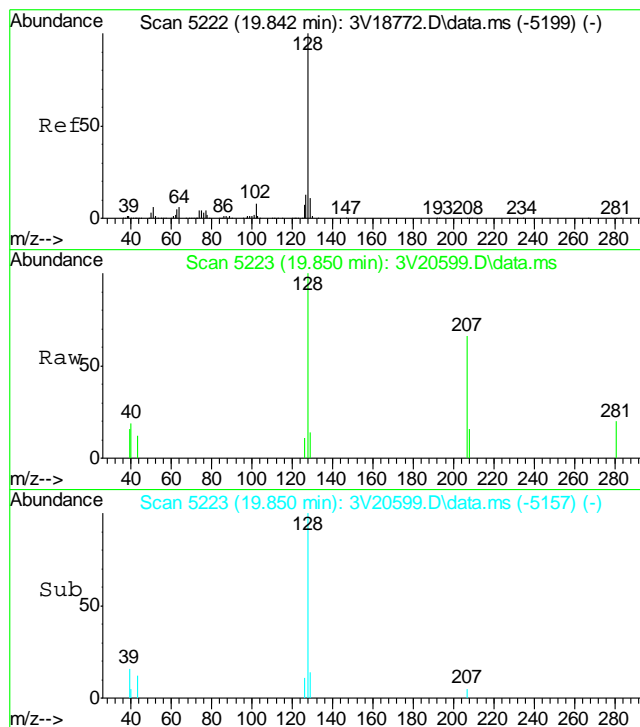
Tgt Ion: 92 Resp: 5968
Ion Ratio Lower Upper
92 100
91 186.0 150.2 190.2



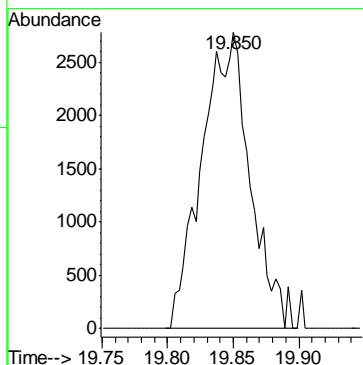
#71
Styrene
Concen: 0.26 ug/l
RT: 15.798 min Scan# 3960
Delta R.T. 0.008 min
Lab File: 3V20599.D
Acq: 20 Sep 2012 6:46 pm

Tgt Ion: 104 Resp: 569
Ion Ratio Lower Upper
104 100
78 44.6 25.4 65.4





#91
 Naphthalene
 Concen: 0.54 ug/l
 RT: 19.850 min Scan# 5223
 Delta R.T. 0.013 min
 Lab File: 3V20599.D
 Acq: 20 Sep 2012 6:46 pm
 Tgt Ion:128 Resp: 7129



7.1.1
 7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3092012.S\
Data File : 3V20593.D
Acq On : 20 Sep 2012 3:38 pm
Operator : BRETD
Sample : MB
Misc : MS4689,V3V1201,5.00,,100,5,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Sep 21 09:24:58 2012
Quant Method : C:\msdchem\1\METHODS\V3AP1160TVH1160SOIL.M
Quant Title : 8260
QLast Update : Fri Aug 24 10:57:50 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.864	168	275617	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.656	114	417502	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.294	117	403962	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.287	152	229478	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.252	102	28052	45.20	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	90.40%
61) Toluene-d8	14.052	98	483141	45.81	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	91.62%
69) 4-Bromofluorobenzene	16.247	95	208827	50.60	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	101.20%

Target Compounds

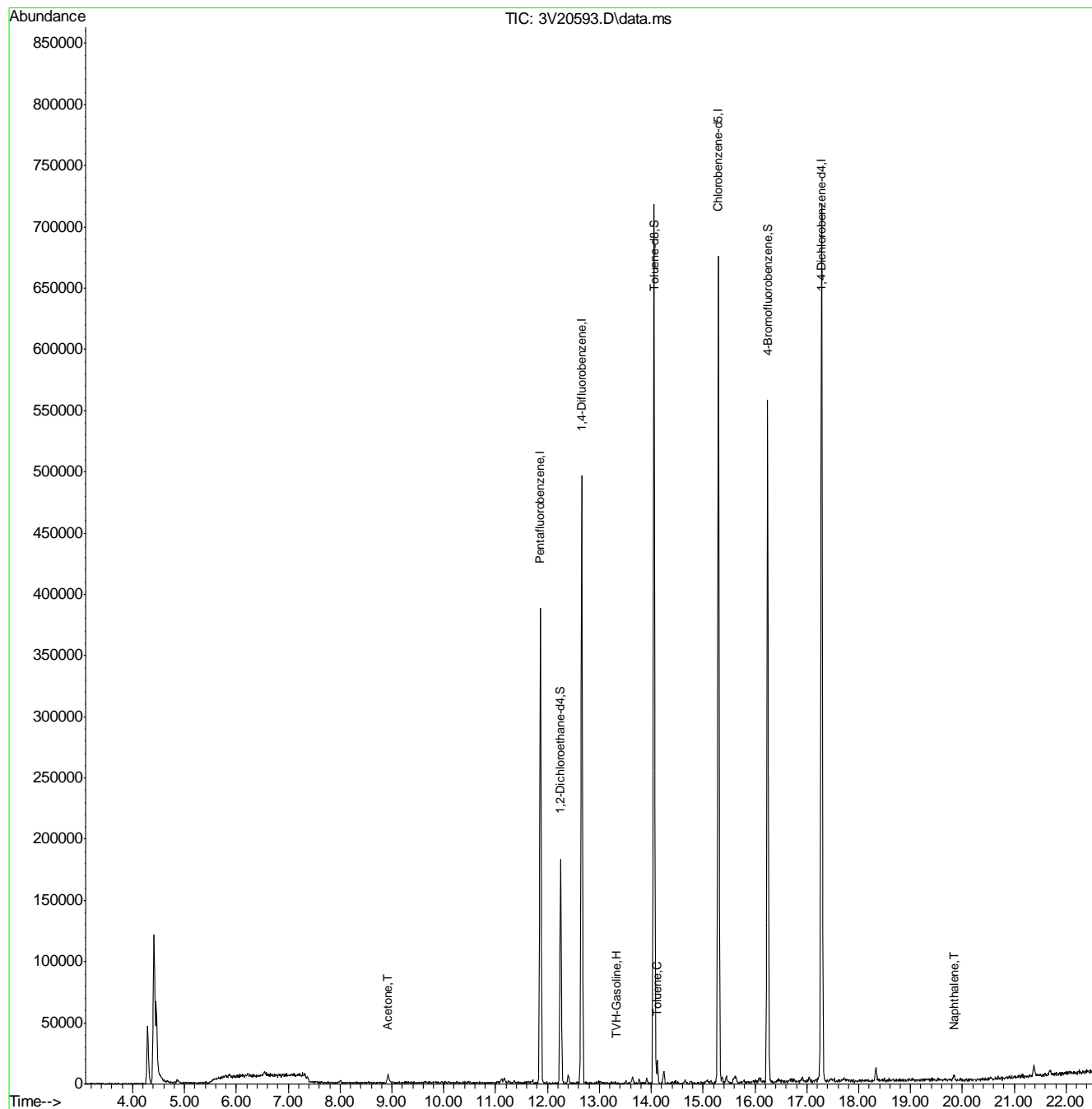
					Qvalue
1) TVH-Gasoline	13.329	TIC	79562m	2.79	ug/l
15) Acetone	8.924	58	3064	1.21	ug/l # 51
62) Toluene	14.116	92	4702	0.46	ug/l 97
91) Naphthalene	19.841	128	6227	0.53	ug/l 100

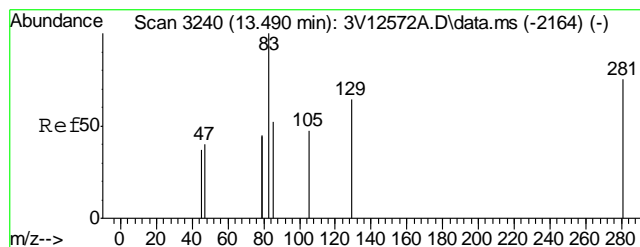
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3092012.S\
Data File : 3V20593.D
Acq On : 20 Sep 2012 3:38 pm
Operator : BRETD
Sample : MB
Misc : MS4689,V3V1201,5.00,,100,5,1
ALS Vial : 13 Sample Multiplier: 1

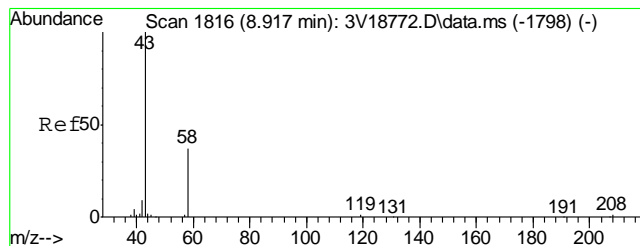
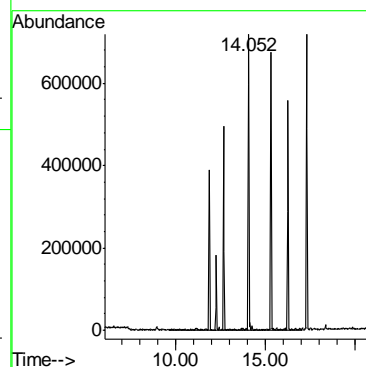
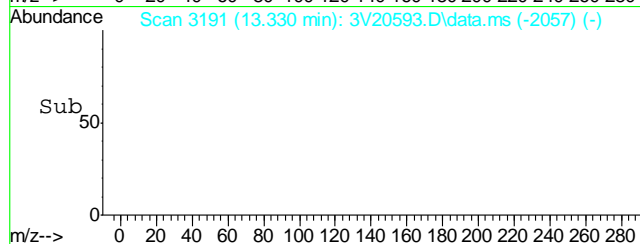
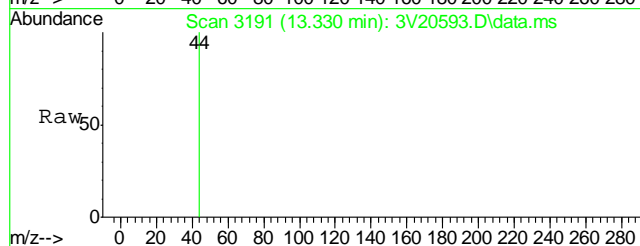
Quant Time: Sep 21 09:24:58 2012
Quant Method : C:\msdchem\1\METHODS\V3AP1160TVH1160SOIL.M
Quant Title : 8260
QLast Update : Fri Aug 24 10:57:50 2012
Response via : Initial Calibration





#1
TVH-Gasoline
Concen: 2.79 ug/l m
RT: 13.329 min Scan# 3191
Delta R.T. 0.000 min
Lab File: 3V20593.D
Acq: 20 Sep 2012 3:38 pm

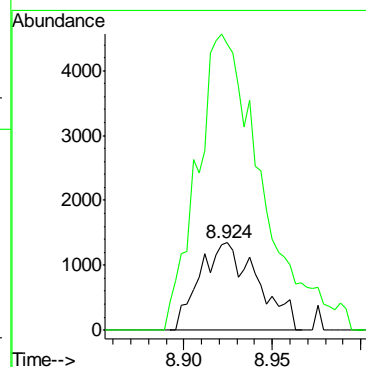
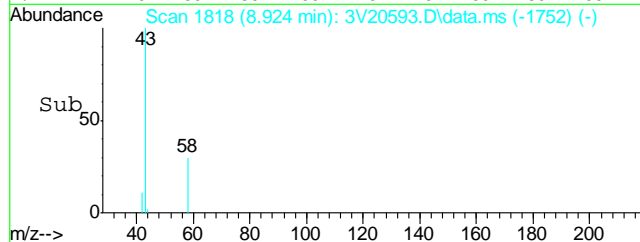
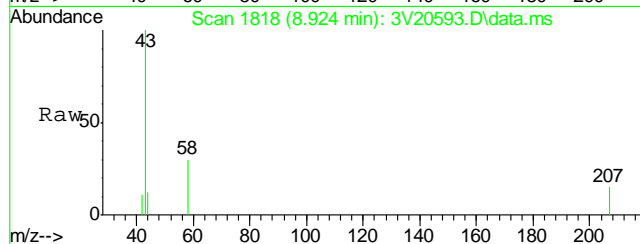
Tgt Ion:TIC Resp: 79562

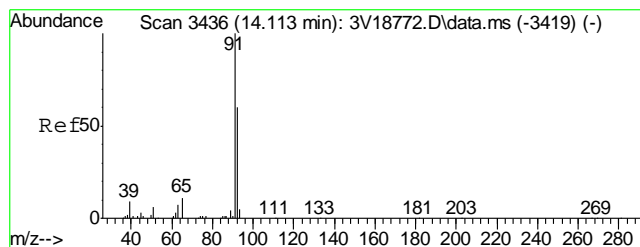


#15
Acetone
Concen: 1.21 ug/l
RT: 8.924 min Scan# 1818
Delta R.T. 0.010 min
Lab File: 3V20593.D
Acq: 20 Sep 2012 3:38 pm

Tgt Ion: 58 Resp: 3064

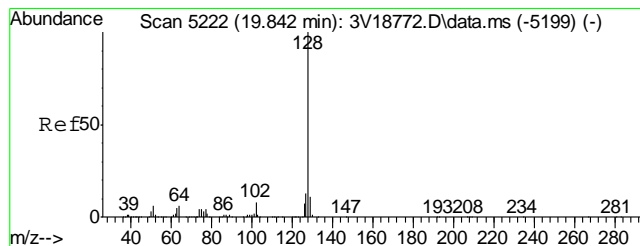
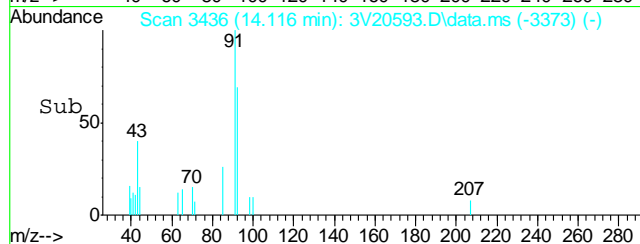
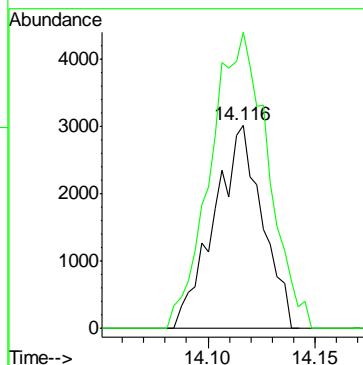
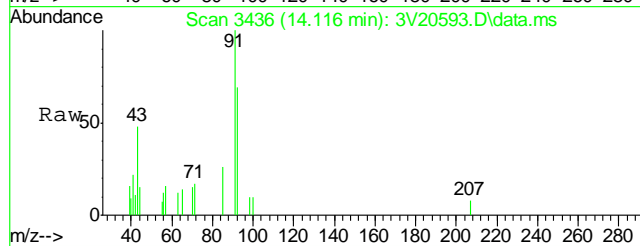
Ion	Ratio	Lower	Upper
58	100		
43	381.3	267.0	307.0#





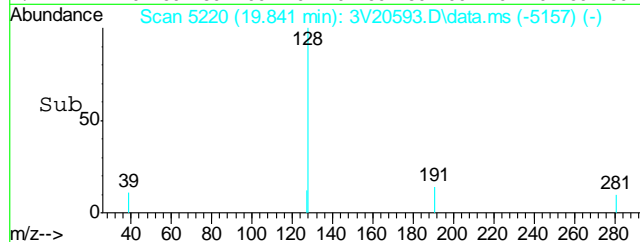
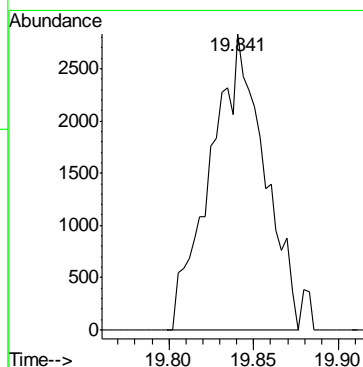
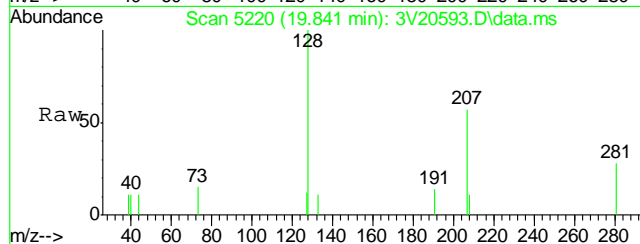
#62
Toluene
Concen: 0.46 ug/l
RT: 14.116 min Scan# 3436
Delta R.T. 0.004 min
Lab File: 3V20593.D
Acq: 20 Sep 2012 3:38 pm

Tgt Ion: 92 Resp: 4702
Ion Ratio Lower Upper
92 100
91 173.8 150.2 190.2



#91
Naphthalene
Concen: 0.53 ug/l
RT: 19.841 min Scan# 5220
Delta R.T. 0.004 min
Lab File: 3V20593.D
Acq: 20 Sep 2012 3:38 pm

Tgt Ion: 128 Resp: 6227



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: D38897
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6672-MB	3G11322.D	1	09/20/12	DC	09/20/12	OP6672	E3G528

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

D38897-1

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	82% 10-145%
321-60-8	2-Fluorobiphenyl	82% 10-130%
1718-51-0	Terphenyl-d14	98% 22-130%

8.1.1

8

Blank Spike Summary

Page 1 of 1

Job Number: D38897
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6672-BS	3G11323.D	1	09/20/12	DC	09/20/12	OP6672	E3G528

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D38897-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	73.9	89	34-130
120-12-7	Anthracene	83.3	77.5	93	35-130
56-55-3	Benzo(a)anthracene	83.3	57.5	69	36-130
50-32-8	Benzo(a)pyrene	83.3	71.0	85	36-130
205-99-2	Benzo(b)fluoranthene	83.3	57.9	69	35-130
207-08-9	Benzo(k)fluoranthene	83.3	88.3	106	37-130
218-01-9	Chrysene	83.3	83.0	100	40-130
53-70-3	Dibenzo(a,h)anthracene	83.3	73.7	88	32-130
206-44-0	Fluoranthene	83.3	70.7	85	38-130
86-73-7	Fluorene	83.3	70.8	85	35-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	72.4	87	28-130
91-20-3	Naphthalene	83.3	78.1	94	35-130
129-00-0	Pyrene	83.3	73.8	89	37-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	85%	10-145%
321-60-8	2-Fluorobiphenyl	83%	10-130%
1718-51-0	Terphenyl-d14	92%	22-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D38897
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6672-MS	3G11325.D	1	09/20/12	DC	09/20/12	OP6672	E3G528
OP6672-MSD	3G11326.D	1	09/20/12	DC	09/20/12	OP6672	E3G528
D38897-1	3G11324.D	1	09/20/12	DC	09/20/12	OP6672	E3G528

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D38897-1

CAS No.	Compound	D38897-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		95.2	84.1	88	84.6	89	1	10-155/30
120-12-7	Anthracene	ND		95.2	90.6	95	89.7	94	1	10-155/30
56-55-3	Benzo(a)anthracene	ND		95.2	77.6	81	85.5	90	10	10-175/30
50-32-8	Benzo(a)pyrene	ND		95.2	80.4	84	80.4	84	0	10-164/30
205-99-2	Benzo(b)fluoranthene	ND		95.2	71.5	75	71.5	75	0	10-165/30
207-08-9	Benzo(k)fluoranthene	ND		95.2	91.5	96	91.7	96	0	10-178/30
218-01-9	Chrysene	ND		95.2	90.0	95	85.3	90	5	10-147/30
53-70-3	Dibenzo(a,h)anthracene	ND		95.2	82.7	87	82.5	87	0	10-144/30
206-44-0	Fluoranthene	ND		95.2	86.6	91	86.4	91	0	10-207/30
86-73-7	Fluorene	ND		95.2	89.0	93	87.6	92	2	10-163/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		95.2	81.0	85	81.9	86	1	10-180/30
91-20-3	Naphthalene	ND		95.2	87.9	92	90.5	95	3	10-198/30
129-00-0	Pyrene	ND		95.2	88.8	93	90.3	95	2	10-189/30

CAS No.	Surrogate Recoveries	MS	MSD	D38897-1	Limits
4165-60-0	Nitrobenzene-d5	76%	77%	73%	10-145%
321-60-8	2-Fluorobiphenyl	79%	80%	76%	10-130%
1718-51-0	Terphenyl-d14	83%	84%	84%	22-130%

* = Outside of Control Limits.

GC/MS Semi-volatiles

Raw Data

6

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\092012\
 Data File : 3g11324.D
 Acq On : 20 Sep 2012 4:27 pm
 Operator : DONC
 Sample : D38897-1
 Misc : OP6672,E3G528,30.04,,,1,1
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 21 11:38:19 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G511.M
 Quant Title : PAHSIM BASE
 QLast Update : Thu Sep 06 09:42:23 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.922	136	218556	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.640	164	131127	4.0000	ug/mL	0.00
15) Phenanthrene-d10	9.121	188	226027	4.0000	ug/mL	0.00
19) Chrysene-d12	11.753	240	198741	4.0000	ug/mL	0.00
24) Perylene-d12	13.188	264	118528	4.0000	ug/mL	0.01

System Monitoring Compounds

2) Nitrobenzene-d5	5.223	82	786158	36.5601	ug/mL	0.00
Spiked Amount	50.000	Range	25 - 135	Recovery	=	73.12%
7) 2-Fluorobiphenyl	6.966	172	2074330	38.0293	ug/mL	0.00
Spiked Amount	50.000	Range	25 - 135	Recovery	=	76.06%
21) Terphenyl-d14	10.704	244	1254458	41.8917	ug/mL	0.00
Spiked Amount	50.000	Range	25 - 135	Recovery	=	83.78%

Target Compounds

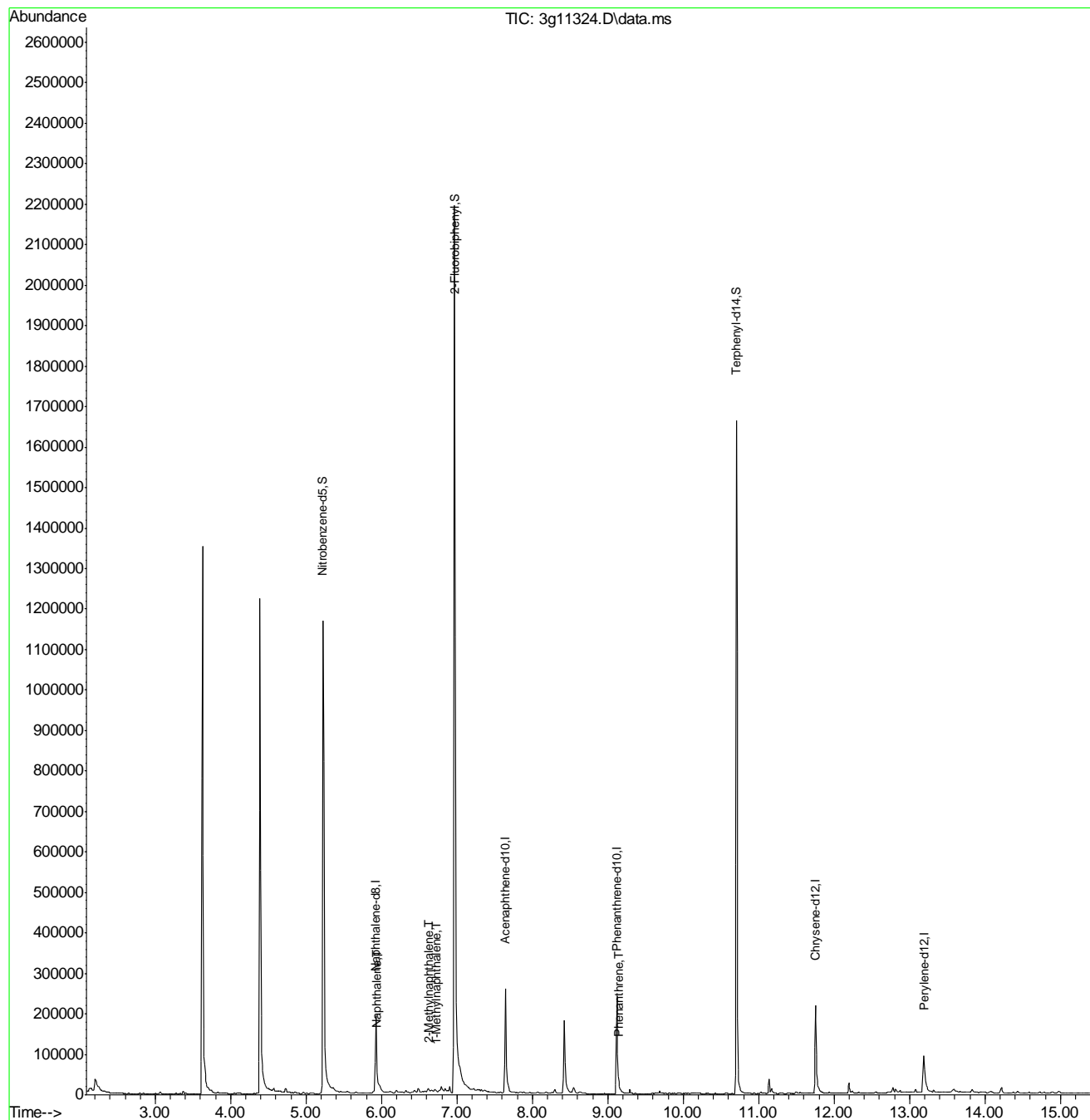
					Qvalue
3) N-Nitrosodimethylamine	2.777	74	102	N.D.	
4) N-Nitrosodi-propylamine	0.000	70	0	N.D. d	
5) Naphthalene	5.934	128	6838	0.1124	ug/mL 90
8) 2-Methylnaphthalene	6.620	142	7544	0.1946	ug/mL 95
9) 1-Methylnaphthalene	6.719	142	4823	0.1202	ug/mL 95
10) Acenaphthylene	7.498	152	262	N.D.	
11) Acenaphthene	7.840	154	553	N.D.	
12) Dibenzofuran	7.852	168	1350	N.D.	
13) Fluorene	0.000	166	0	N.D. d	
14) Diphenylamine	0.000	169	0	N.D. d	
16) Phenanthrene	9.145	178	7024	0.0886	ug/mL# 67
17) Anthracene	0.000	178	0	N.D. d	
18) Fluoranthene	10.332	202	1092	N.D.	
20) Pyrene	10.553	202	1725	N.D.	
22) Benzo(a)anthracene	11.779	228	2963	N.D.	
23) Chrysene	11.779	228	3001	N.D.	
25) Benzo(b)fluoranthene	12.778	252	1684	N.D.	
26) Benzo(k)fluoranthene	12.778	252	1684	N.D.	
27) Benzo(a)pyrene	13.125	252	365	N.D.	
28) Indeno(1,2,3-cd)pyrene	14.514	276	335	N.D.	
29) Dibenz(a,h)anthracene	14.524	278	220	N.D.	
30) Benzo(g,h,i)perylene	14.892	276	1136	N.D.	

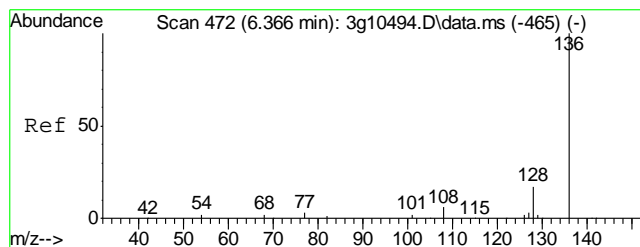
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\092012\
Data File : 3g11324.D
Acq On : 20 Sep 2012 4:27 pm
Operator : DONC
Sample : D38897-1
Misc : OP6672,E3G528,30.04,,,1,1
ALS Vial : 8 Sample Multiplier: 1

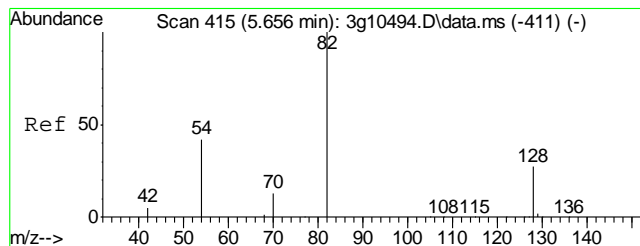
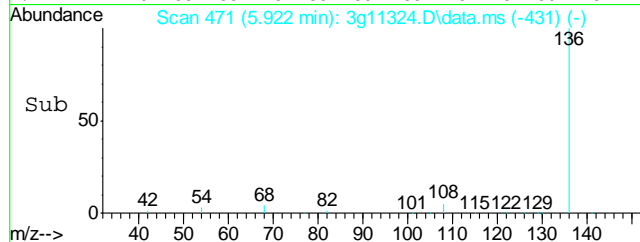
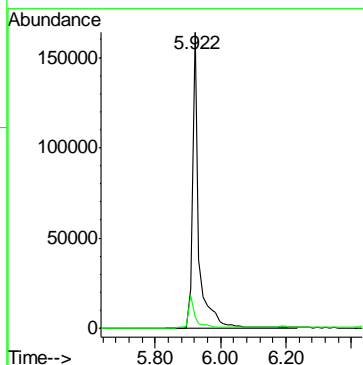
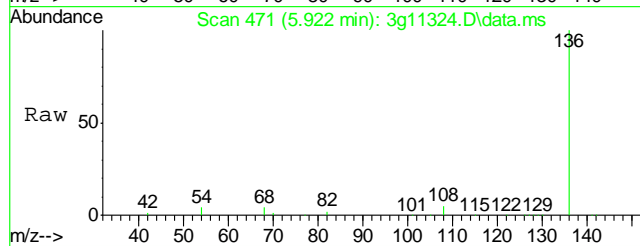
Quant Time: Sep 21 11:38:19 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G511.M
Quant Title : PAHSIM BASE
QLast Update : Thu Sep 06 09:42:23 2012
Response via : Initial Calibration





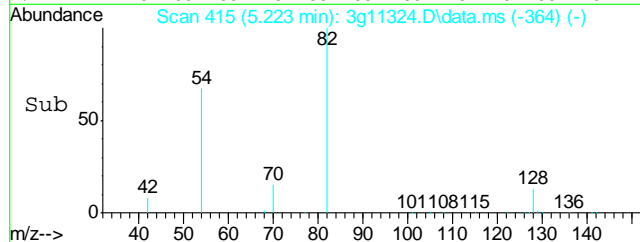
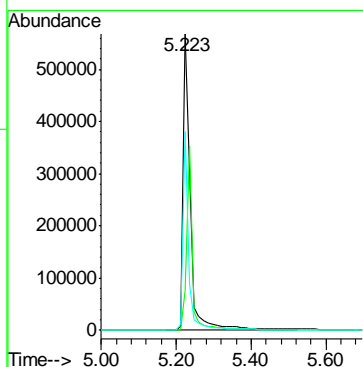
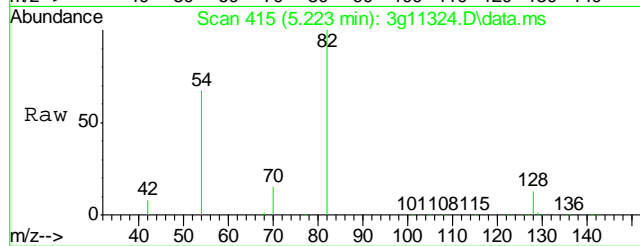
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.922 min Scan# 471
Delta R.T. -0.000 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

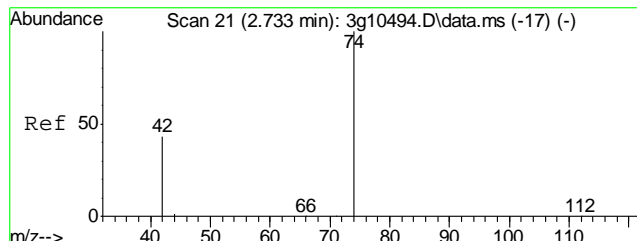
Tgt Ion	Ratio	Lower	Upper
136	100		
68	11.5	0.0	30.4



#2
Nitrobenzene-d5
Concen: 36.5601 ug/mL
RT: 5.223 min Scan# 415
Delta R.T. 0.000 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

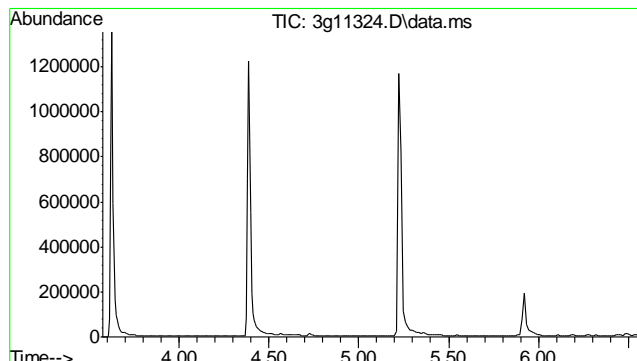
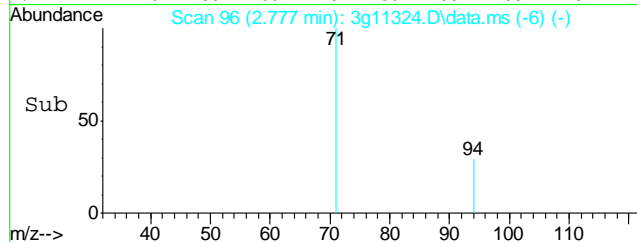
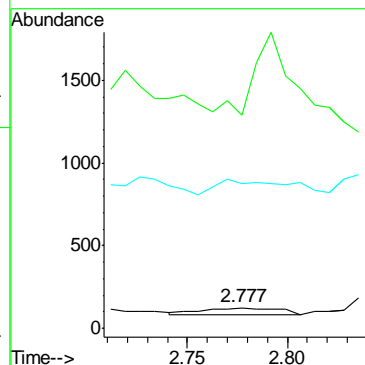
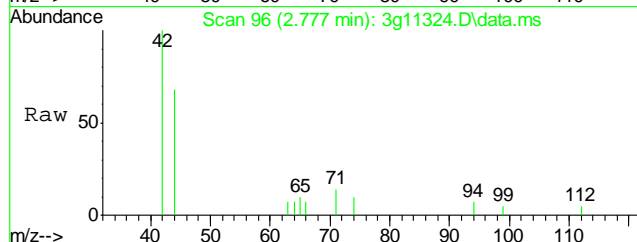
Tgt Ion	Ratio	Lower	Upper
82	100		
128	51.2	19.7	59.7
54	53.4	28.6	68.6





#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.777 min Scan# 96
Delta R.T. 0.152 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

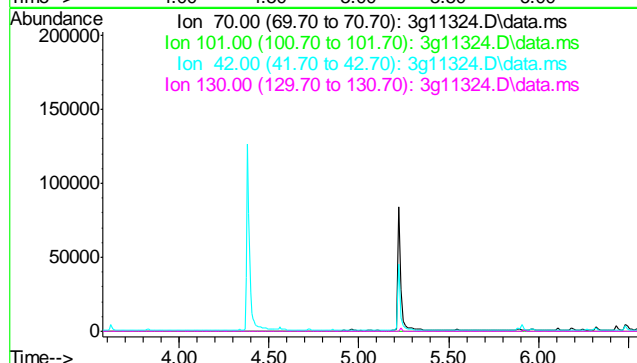
Tgt Ion:	74	Resp:	102
Ion	Ratio	Lower	Upper
74	100		
42	0.0	33.3	73.3#
44	248.0	0.0	23.5#

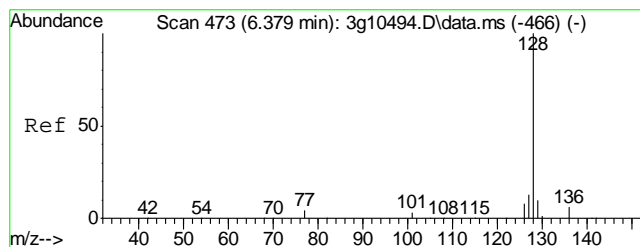


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.07 min

Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

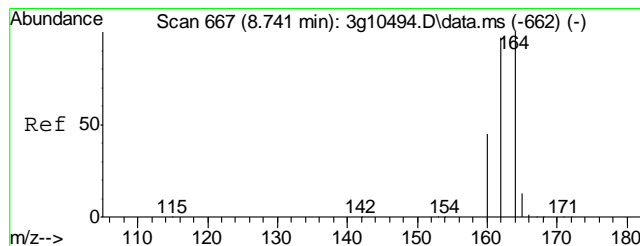
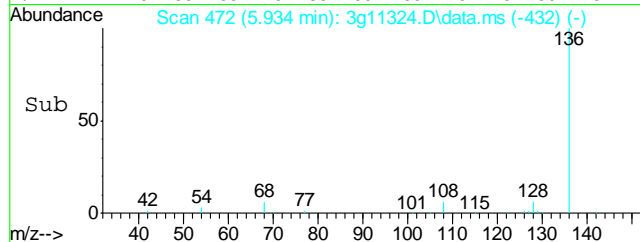
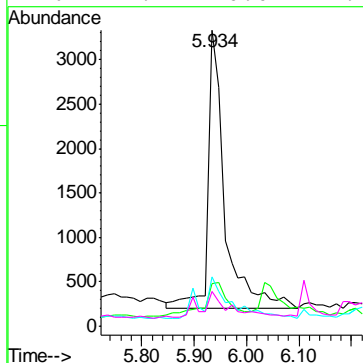
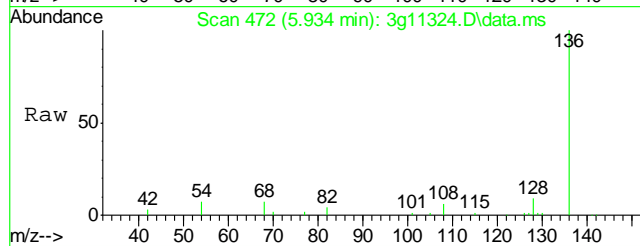
Tgt Ion:	70
Sig	Exp Ratio
70	100
101	10.3
42	47.6
130	20.0





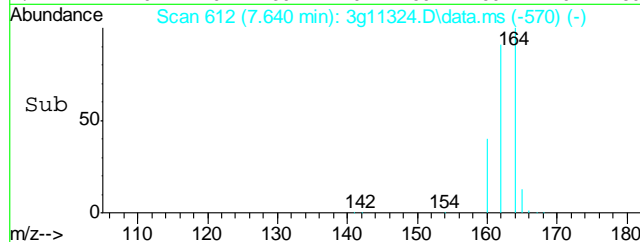
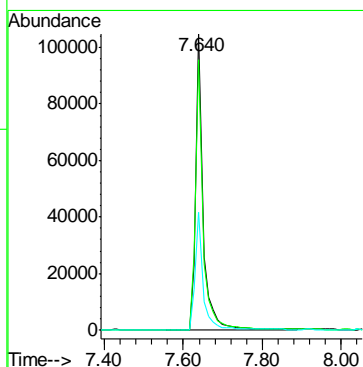
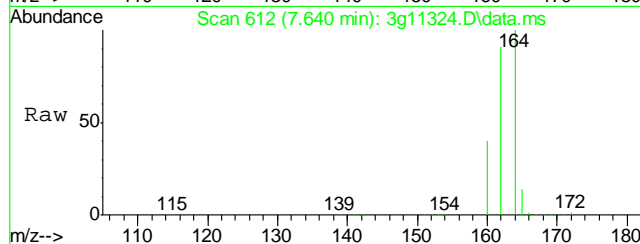
#5
Naphthalene
Concen: 0.1124 ug/mL
RT: 5.934 min Scan# 472
Delta R.T. -0.000 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

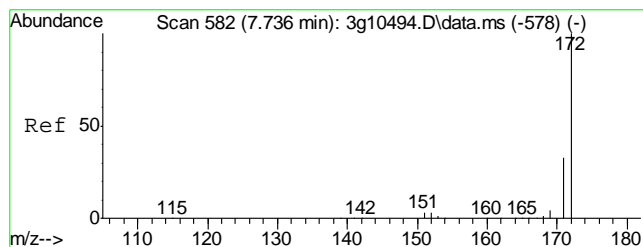
Tgt Ion	Ratio	Lower	Upper
128	100		
129	19.7	0.0	30.8
127	15.4	0.0	33.4
126	7.1	0.0	27.7



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.640 min Scan# 612
Delta R.T. -0.000 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

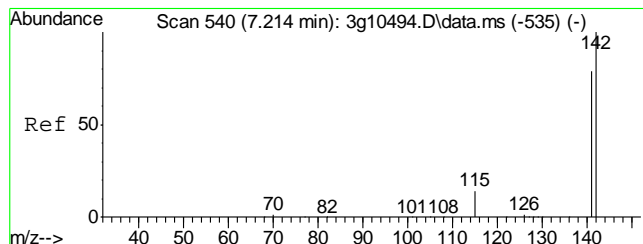
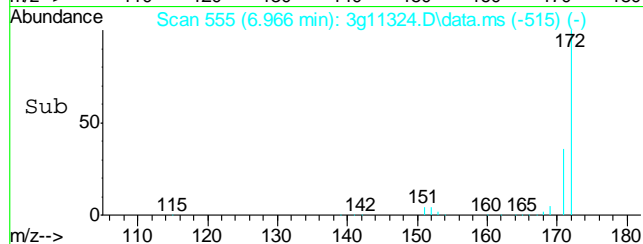
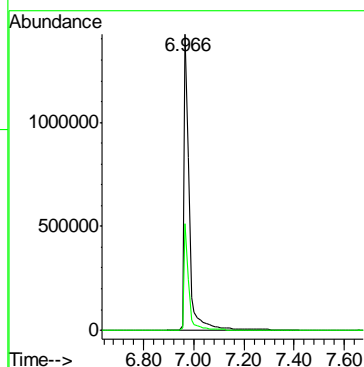
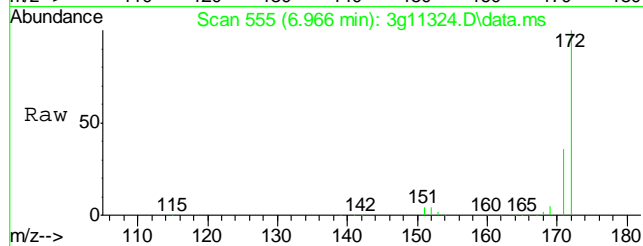
Tgt Ion	Ratio	Lower	Upper
164	100		
162	95.9	73.5	113.5
160	42.2	21.8	61.8





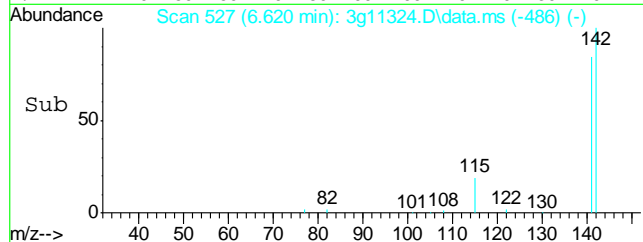
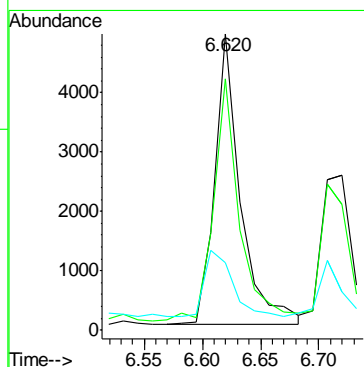
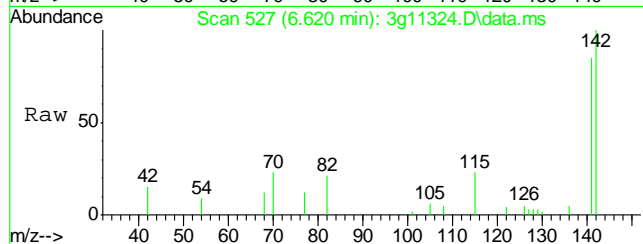
#7
2-Fluorobiphenyl
Concen: 38.0293 ug/mL
RT: 6.966 min Scan# 555
Delta R.T. -0.000 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

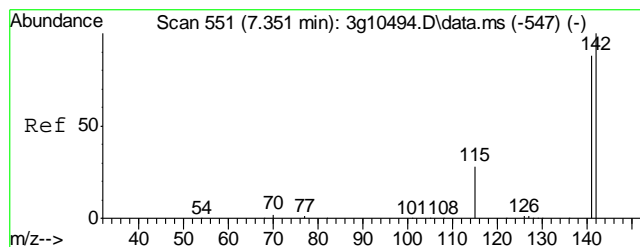
Tgt Ion	Ratio	Lower	Upper
172	100		
171	33.7	13.6	53.6



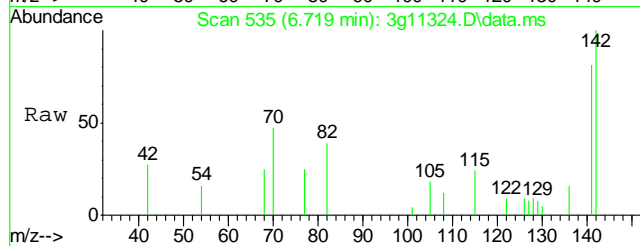
#8
2-Methylnaphthalene
Concen: 0.1946 ug/mL
RT: 6.620 min Scan# 527
Delta R.T. 0.012 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

Tgt Ion	Ratio	Lower	Upper
142	100		
141	83.1	64.5	104.5
115	25.1	13.6	53.6

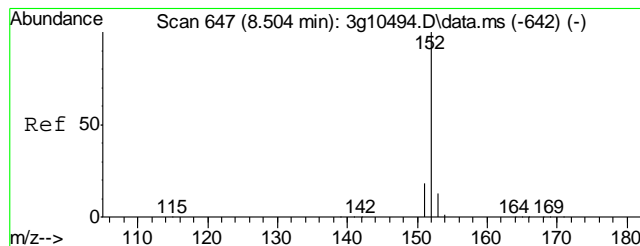
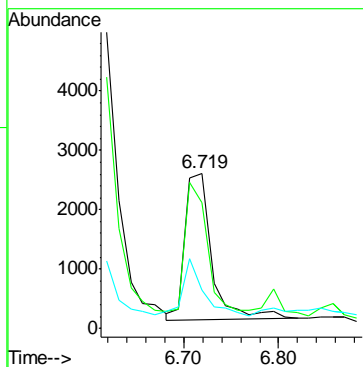
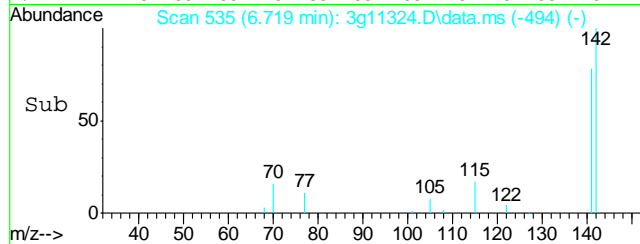




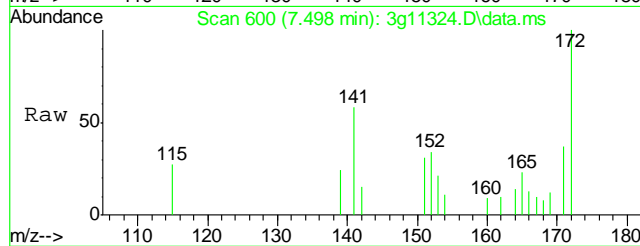
#9
1-Methylnaphthalene
Concen: 0.1202 ug/mL
RT: 6.719 min Scan# 535
Delta R.T. 0.012 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm



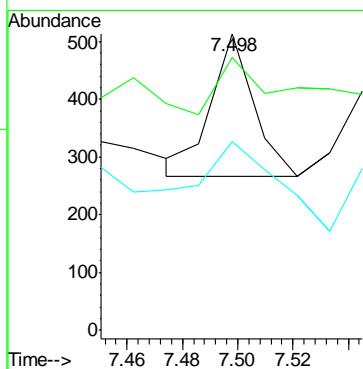
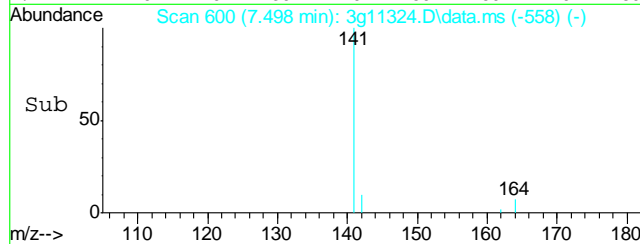
Tgt Ion: 142 Resp: 4823
Ion Ratio Lower Upper
142 100
141 82.3 67.8 107.8
115 30.1 11.0 51.0

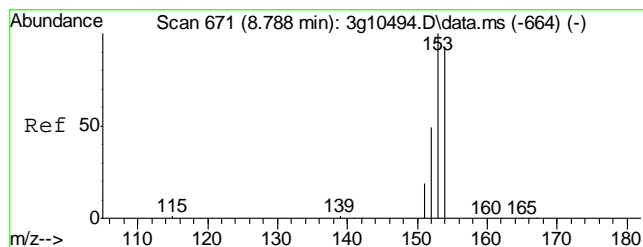


#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.498 min Scan# 600
Delta R.T. -0.000 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm



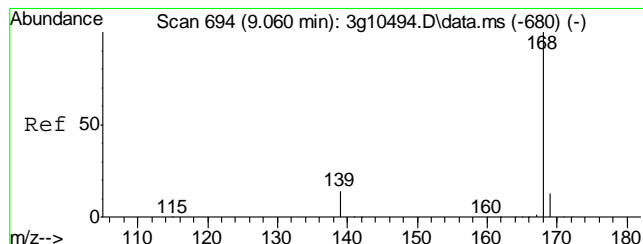
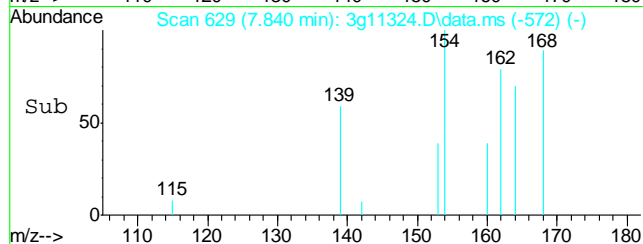
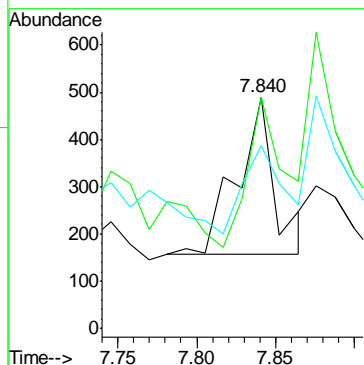
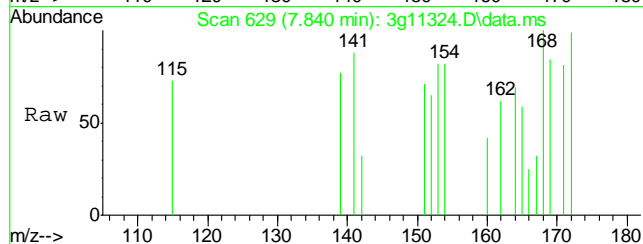
Tgt Ion: 152 Resp: 262
Ion Ratio Lower Upper
152 100
151 121.8 0.0 39.2#
153 109.9 0.0 33.2#





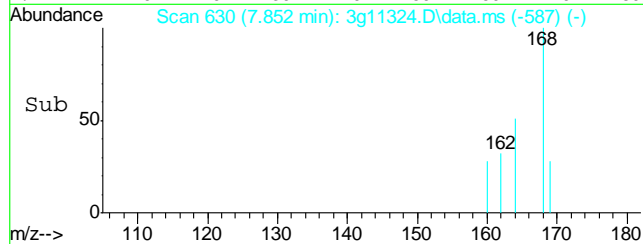
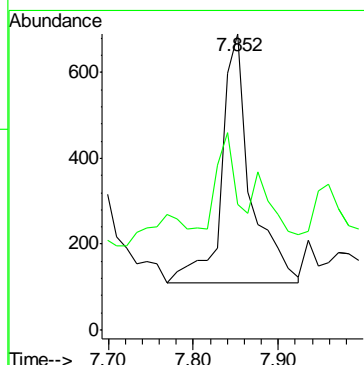
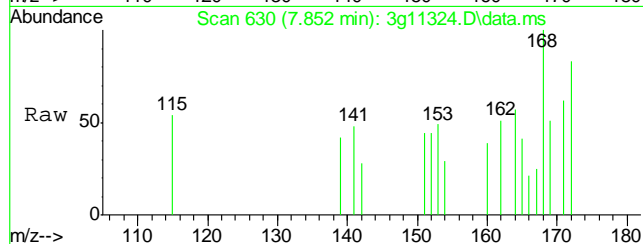
#11
Acenaphthene
Concen: Below ug/mL
RT: 7.840 min Scan# 629
Delta R.T. 0.177 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

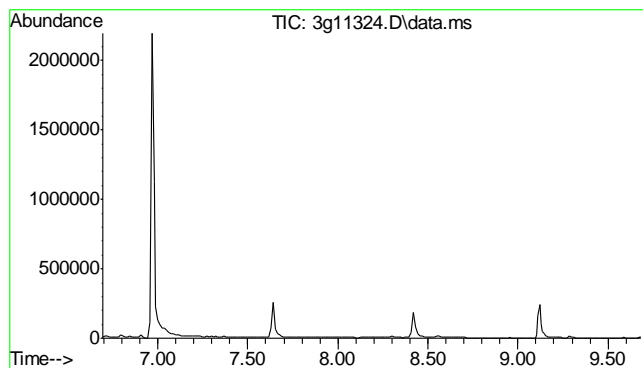
Tgt Ion:	154	Resp:	553
Ion Ratio	Lower	Upper	
154	100		
153	93.3	84.8	124.8
152	59.7	29.9	69.9



#12
Dibenzofuran
Concen: Below ug/mL
RT: 7.852 min Scan# 630
Delta R.T. 0.012 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

Tgt Ion:	168	Resp:	1350
Ion Ratio	Lower	Upper	
168	100		
139	36.7	7.6	47.6

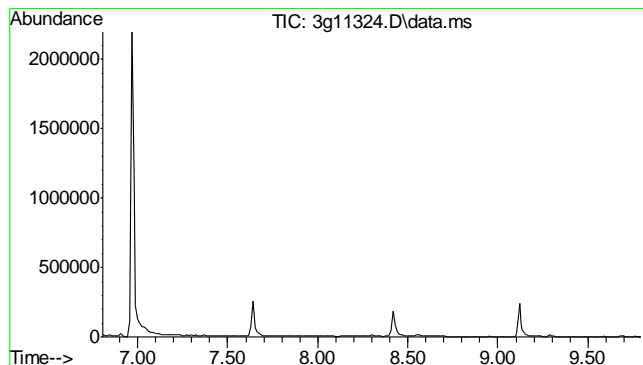
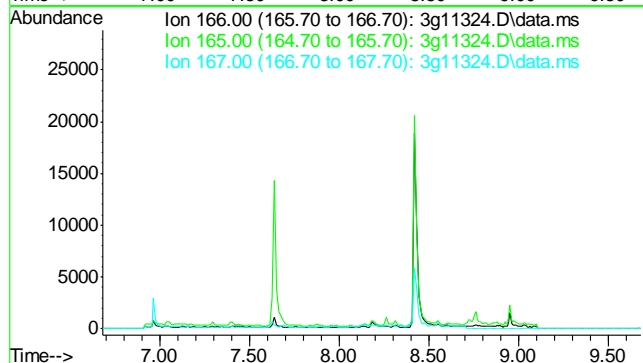




#13
 Fluorene
 Concen: N.D. ug/mL
 Expected RT: 8.18 min

 Lab File: 3g11324.D
 Acq: 20 Sep 12 4:27 pm

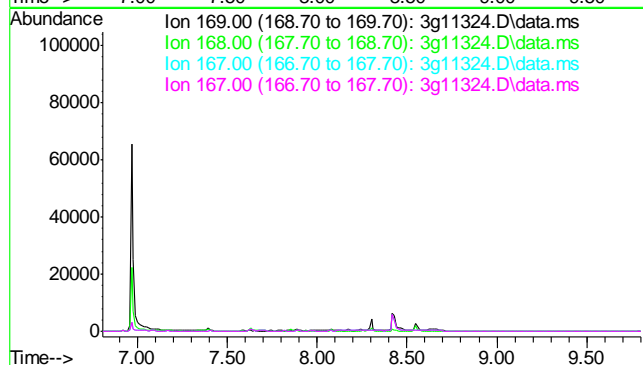
Tgt Ion	Sig	Exp Ratio
166	100	
165	91.1	
167	13.3	

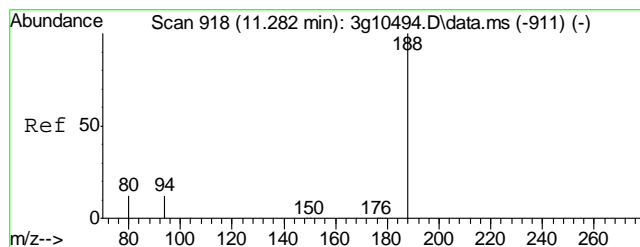


#14
 Diphenylamine
 Concen: N.D. ug/mL
 Expected RT: 8.30 min

 Lab File: 3g11324.D
 Acq: 20 Sep 12 4:27 pm

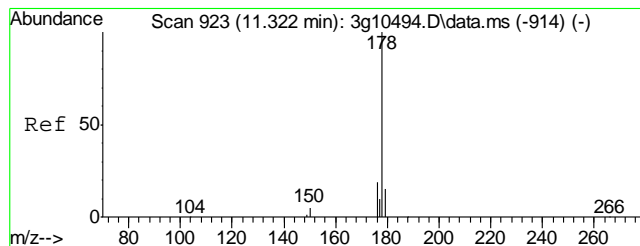
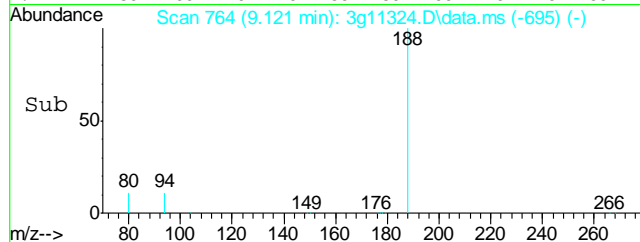
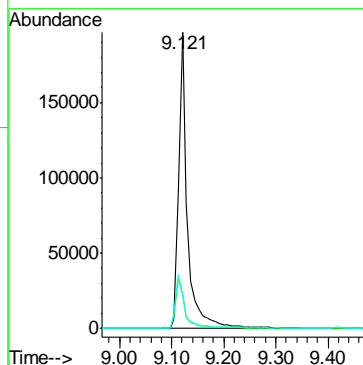
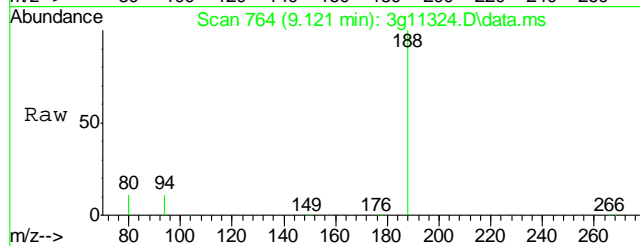
Tgt Ion	Sig	Exp Ratio
169	100	
168	61.0	
167	32.9	
167	32.9	





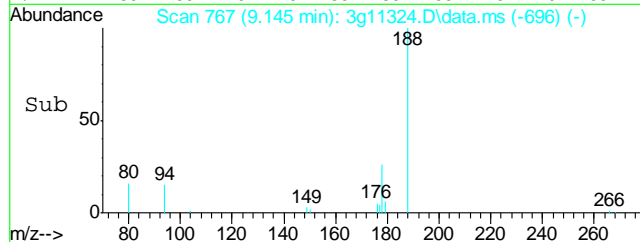
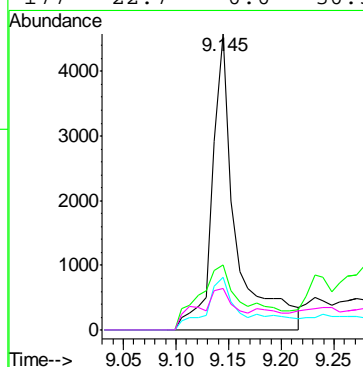
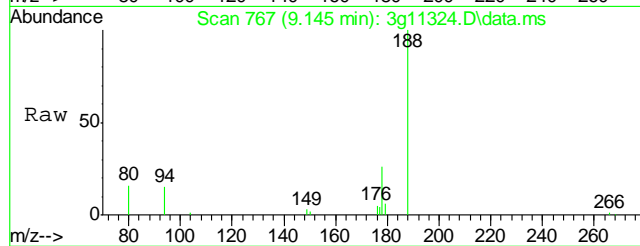
#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 9.121 min Scan# 764
Delta R.T. -0.000 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

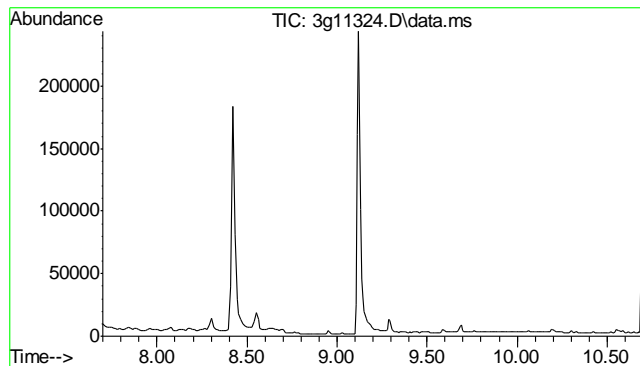
Tgt Ion:188	Resp: 226027
Ion Ratio	Lower Upper
188 100	
94 17.0	0.0 33.9
80 19.6	0.0 35.5



#16
Phenanthrene
Concen: 0.0886 ug/mL
RT: 9.145 min Scan# 767
Delta R.T. 0.008 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

Tgt Ion:178	Resp: 7024
Ion Ratio	Lower Upper
178 100	
179 43.7	0.0 35.3#
176 20.5	0.0 38.5
177 22.7	0.0 30.5

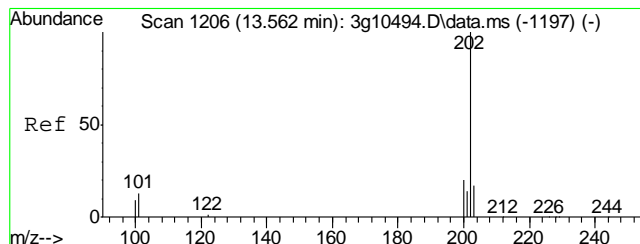
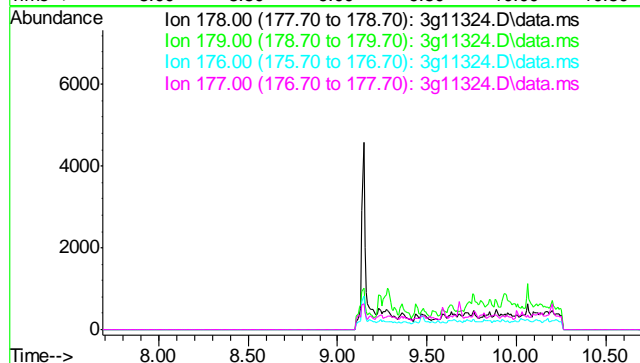




#17
 Anthracene
 Concen: N.D. ug/mL
 Expected RT: 9.19 min

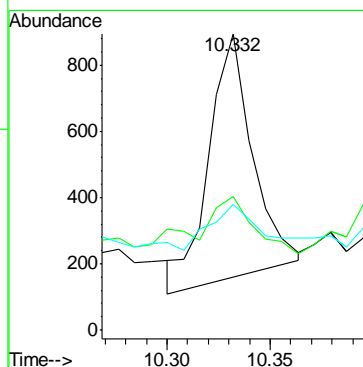
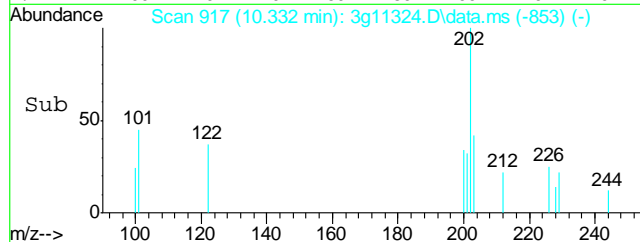
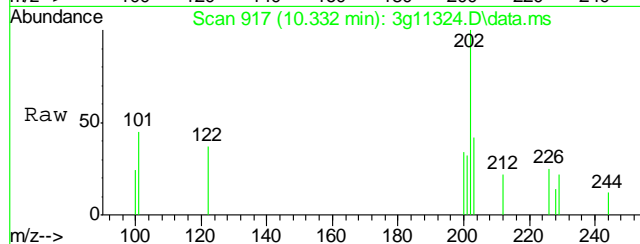
 Lab File: 3g11324.D
 Acq: 20 Sep 12 4:27 pm

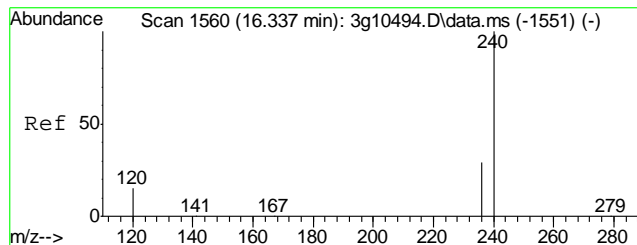
Tgt Ion	Exp Ratio
178	100
179	15.2
176	17.7
177	9.0



#18
 Fluoranthene
 Concen: Below ug/mL
 RT: 10.332 min Scan# 917
 Delta R.T. 0.008 min
 Lab File: 3g11324.D
 Acq: 20 Sep 12 4:27 pm

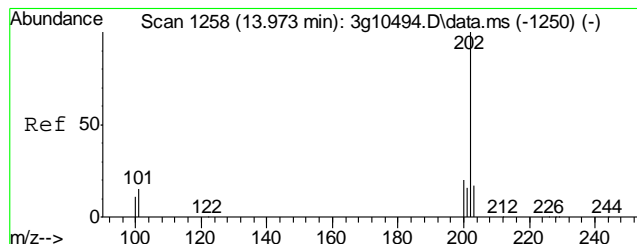
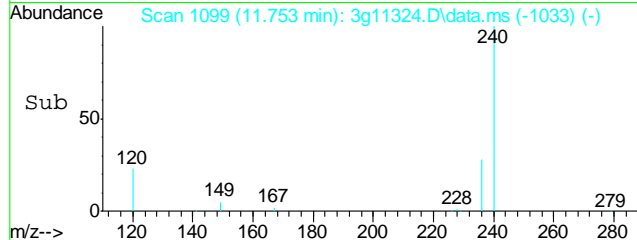
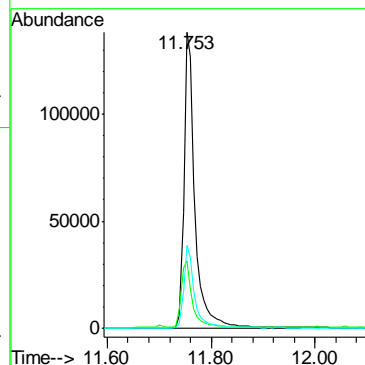
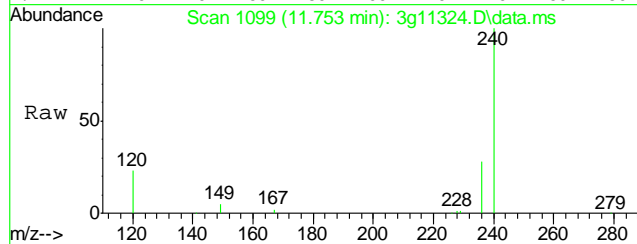
Tgt Ion	Ratio	Lower	Upper
202	100		
101	67.9	0.0	33.0#
203	40.8	0.0	37.4#





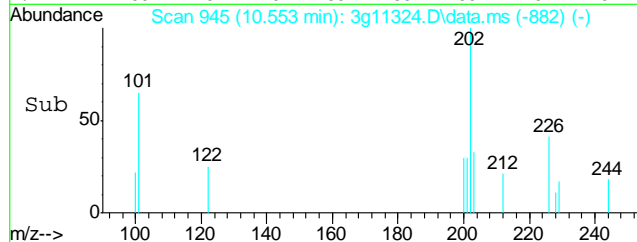
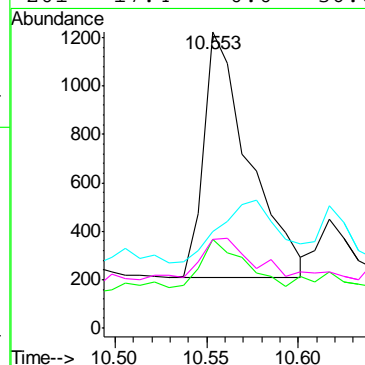
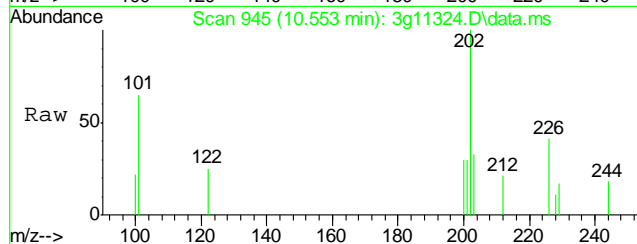
#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.753 min Scan# 1099
Delta R.T. -0.000 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

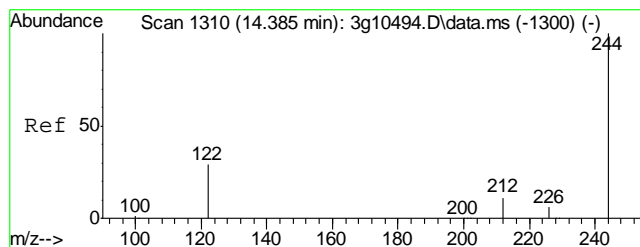
Tgt Ion:	240	Resp:	198741
Ion Ratio	Lower	Upper	
240	100		
120	22.3	0.0	36.2
236	27.1	8.8	48.8



#20
Pyrene
Concen: Below ug/mL
RT: 10.553 min Scan# 945
Delta R.T. 0.000 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

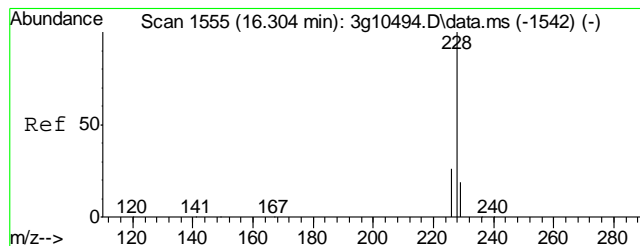
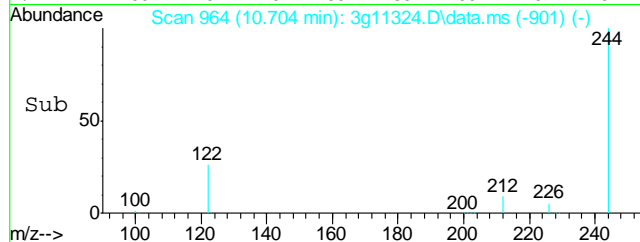
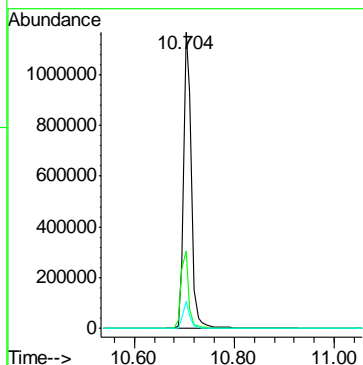
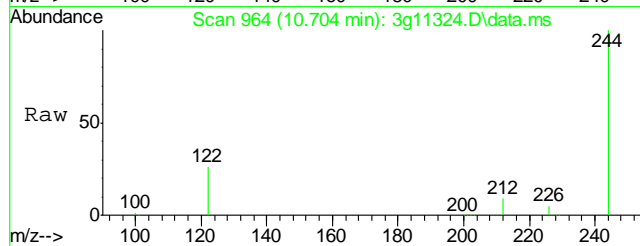
Tgt Ion:	202	Resp:	1725
Ion Ratio	Lower	Upper	
202	100		
200	18.0	0.1	40.1
203	31.7	0.0	37.8
201	17.4	0.0	36.6





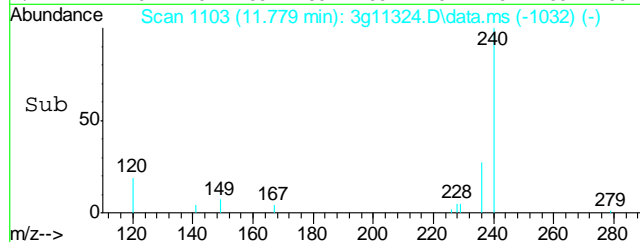
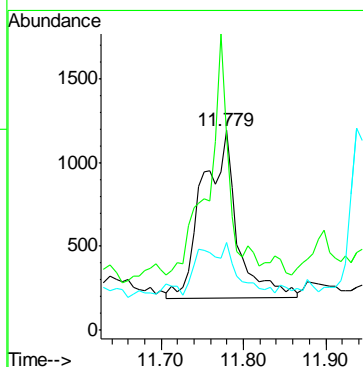
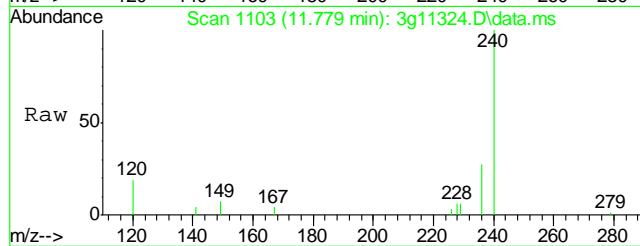
#21
Terphenyl-d14
Concen: 41.8917 ug/mL
RT: 10.704 min Scan# 964
Delta R.T. -0.000 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

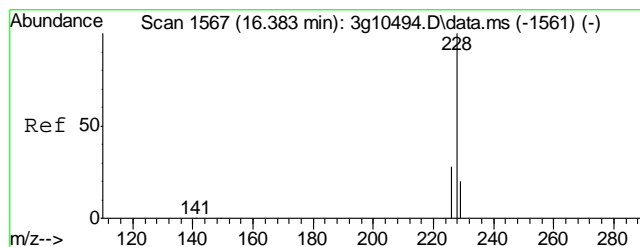
Tgt Ion: 244 Resp: 1254458
Ion Ratio Lower Upper
244 100
122 26.0 1.3 41.3
212 8.0 0.0 28.8



#22
Benzo(a)anthracene
Concen: Below ug/mL
RT: 11.779 min Scan# 1103
Delta R.T. 0.040 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

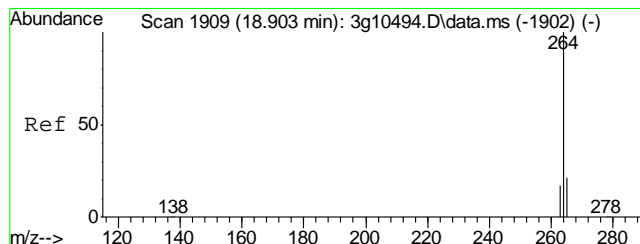
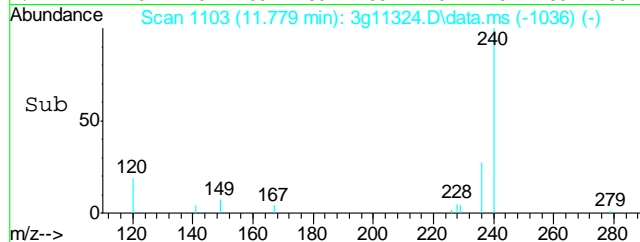
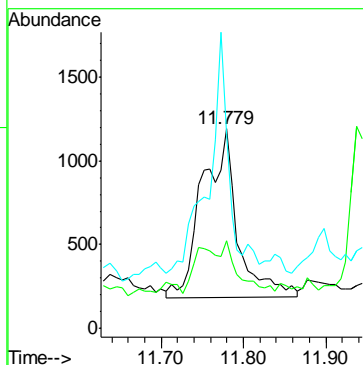
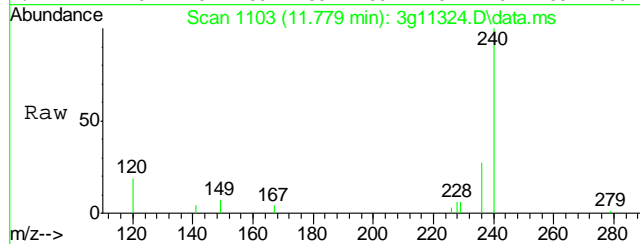
Tgt Ion: 228 Resp: 2963
Ion Ratio Lower Upper
228 100
229 78.7 0.0 39.6#
226 20.1 6.6 46.6





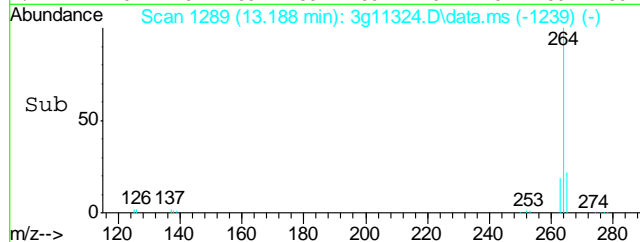
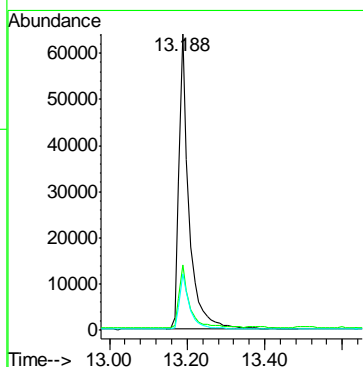
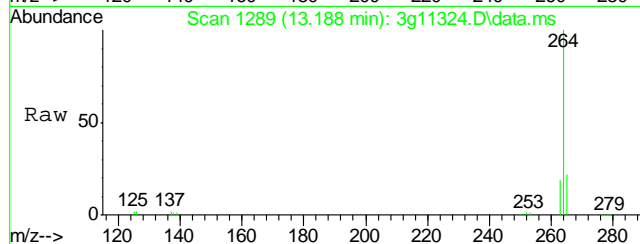
#23
Chrysene
Concen: Below ug/mL
RT: 11.779 min Scan# 1103
Delta R.T. 0.007 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

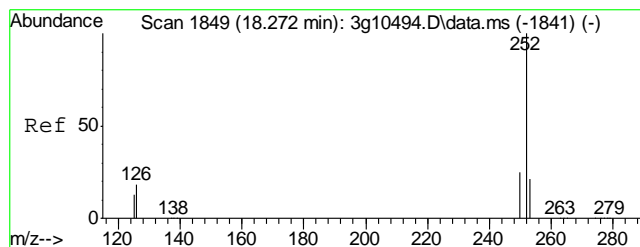
Tgt Ion	Ratio	Lower	Upper
228	100		
226	19.9	8.6	48.6
229	77.7	0.0	39.4



#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 13.188 min Scan# 1289
Delta R.T. 0.010 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

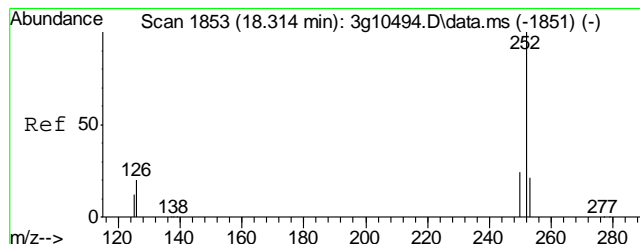
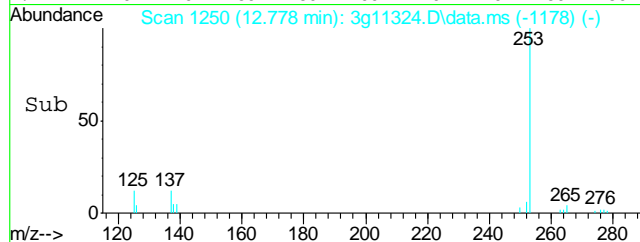
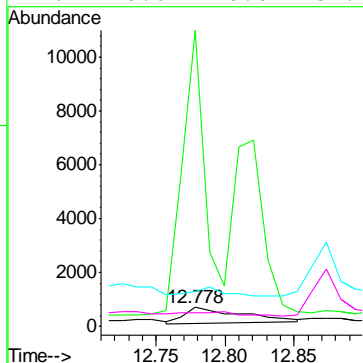
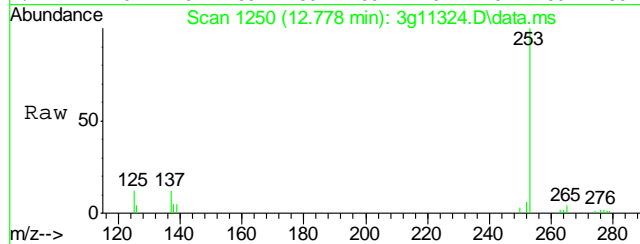
Tgt Ion	Ratio	Lower	Upper
264	100		
265	21.0	1.0	41.0
263	19.2	0.0	39.0





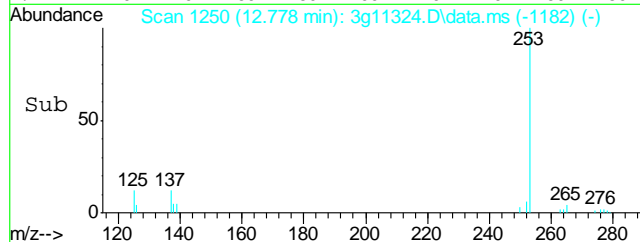
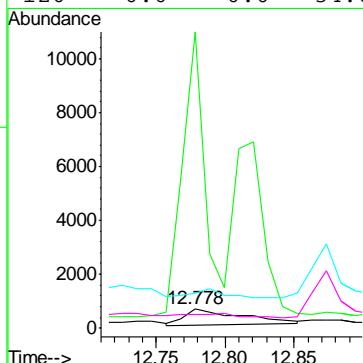
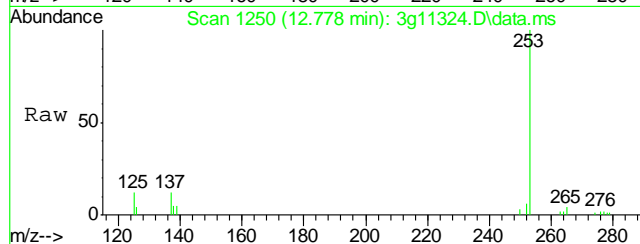
#25
Benzo(b)fluoranthene
Concen: Below ug/mL
RT: 12.778 min Scan# 1250
Delta R.T. 0.000 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

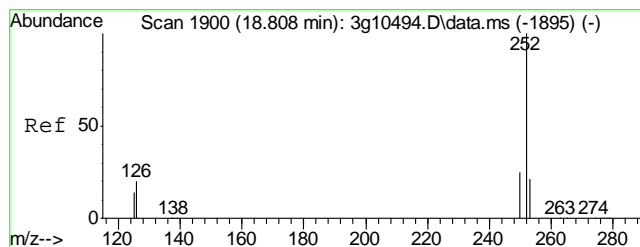
Tgt Ion	Ratio	Lower	Upper
252	100		
253	819.6	2.9	42.9#
125	0.0	0.0	31.5
126	0.0	0.0	34.7



#26
Benzo(k)fluoranthene
Concen: Below ug/mL
RT: 12.778 min Scan# 1250
Delta R.T. -0.021 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

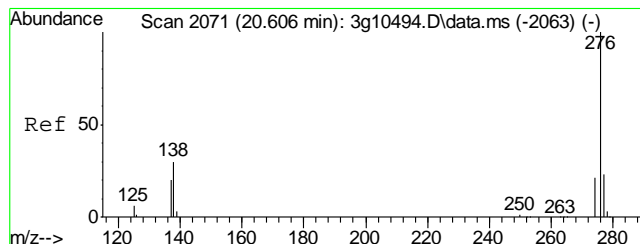
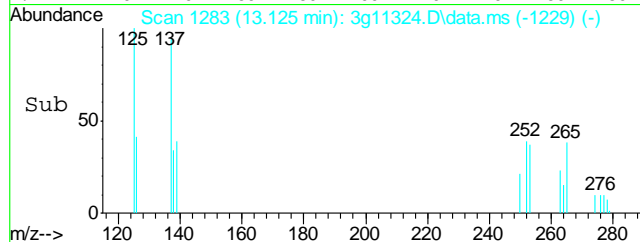
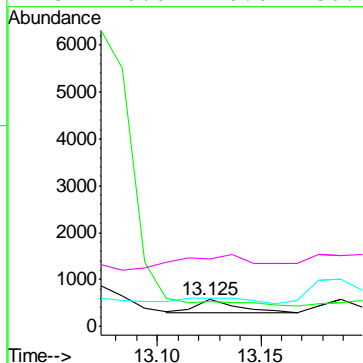
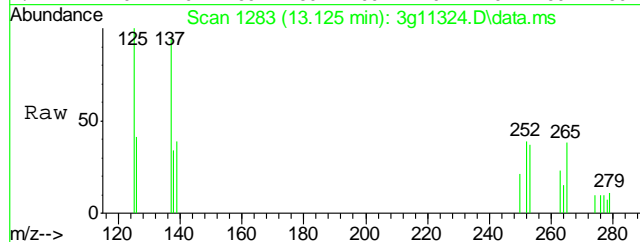
Tgt Ion	Ratio	Lower	Upper
252	100		
253	819.6	1.8	41.8#
125	0.0	0.0	31.0
126	0.0	0.0	34.0





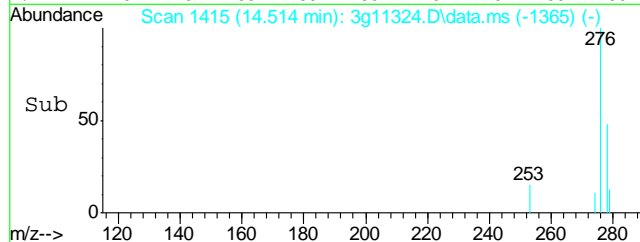
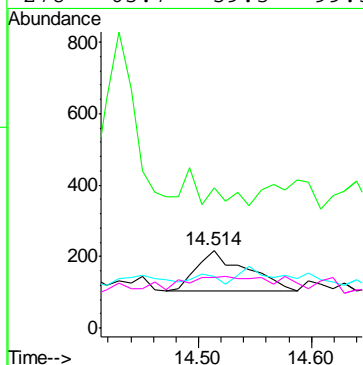
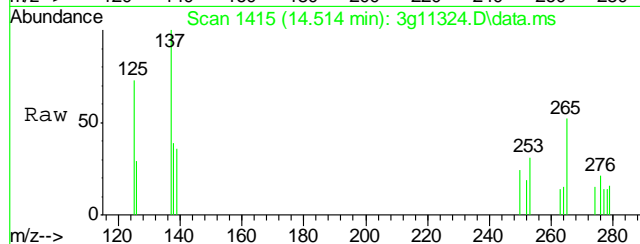
#27
Benzo(a)pyrene
Concen: Below ug/mL
RT: 13.125 min Scan# 1283
Delta R.T. 0.011 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

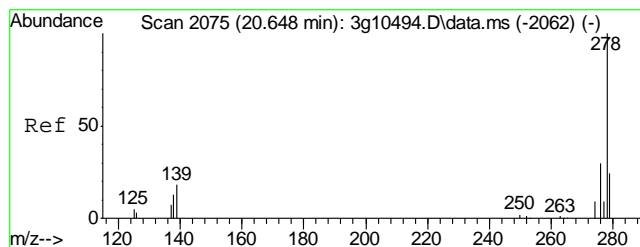
Tgt Ion:	252	Resp:	365
Ion Ratio	Lower	Upper	
252	100		
253	0.0	1.4	41.4#
126	0.0	0.0	33.6
125	0.0	0.0	30.7



#28
Indeno(1,2,3-cd)pyrene
Concen: Below ug/mL
RT: 14.514 min Scan# 1415
Delta R.T. 0.022 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

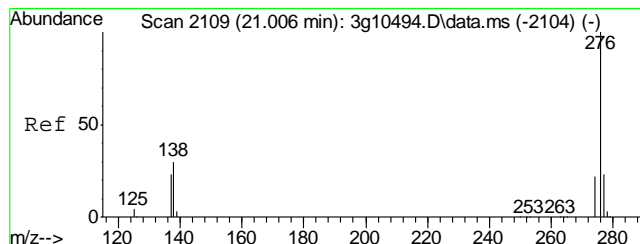
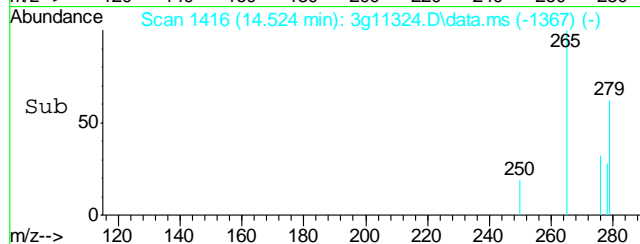
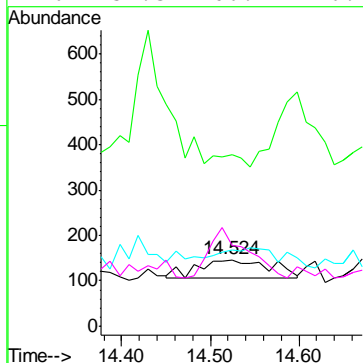
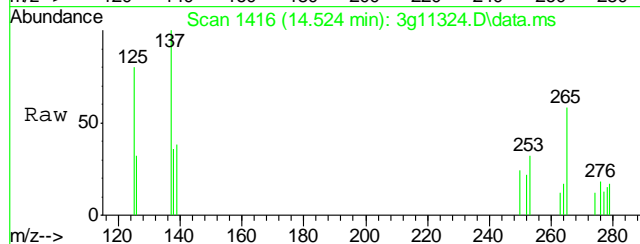
Tgt Ion:	276	Resp:	335
Ion Ratio	Lower	Upper	
276	100		
138	38.8	5.3	45.3
277	11.6	5.0	45.0
278	65.7	59.3	99.3





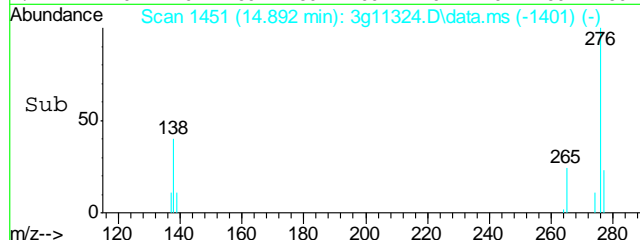
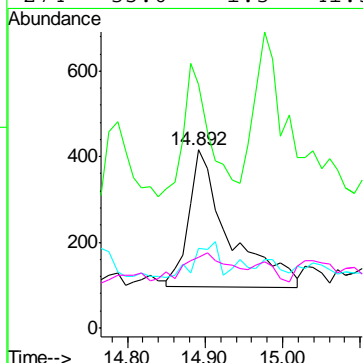
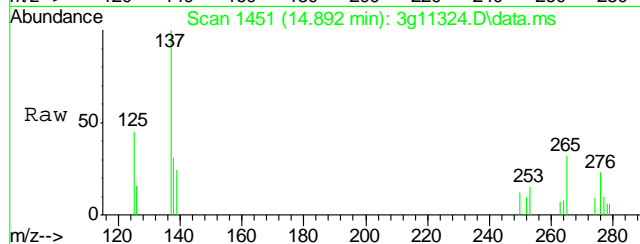
#29
Dibenz(a,h)anthracene
Concen: Below ug/mL
RT: 14.524 min Scan# 1416
Delta R.T. 0.011 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

Tgt Ion: 278 Resp: 220
Ion Ratio Lower Upper
278 100
139 0.0 0.0 38.4
279 109.1 3.1 43.1#
276 152.3 106.1 146.1#



#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.892 min Scan# 1451
Delta R.T. 0.021 min
Lab File: 3g11324.D
Acq: 20 Sep 12 4:27 pm

Tgt Ion: 276 Resp: 1136
Ion Ratio Lower Upper
276 100
138 71.0 1.3 41.3#
277 15.7 3.4 43.4
274 35.0 1.3 41.3



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\092012\
 Data File : 3g11322.D
 Acq On : 20 Sep 2012 3:39 pm
 Operator : DONC
 Sample : OP6672-MB
 Misc : OP6672,E3G528,30.00,,,1,1
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 21 11:36:17 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G511.M
 Quant Title : PAHSIM BASE
 QLast Update : Thu Sep 06 09:42:23 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.922	136	218616	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.640	164	127346	4.0000	ug/mL	0.00
15) Phenanthrene-d10	9.121	188	189451	4.0000	ug/mL	0.00
19) Chrysene-d12	11.759	240	173486	4.0000	ug/mL	0.00
24) Perylene-d12	13.199	264	97481	4.0000	ug/mL	0.02

System Monitoring Compounds

2) Nitrobenzene-d5	5.236	82	882442	41.0265	ug/mL	0.01
Spiked Amount 50.000	Range 25 - 135		Recovery =	82.06%		
7) 2-Fluorobiphenyl	6.978	172	2162509	40.8231	ug/mL	0.01
Spiked Amount 50.000	Range 25 - 135		Recovery =	81.64%		
21) Terphenyl-d14	10.712	244	1287297	49.2463	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	98.50%		

Target Compounds

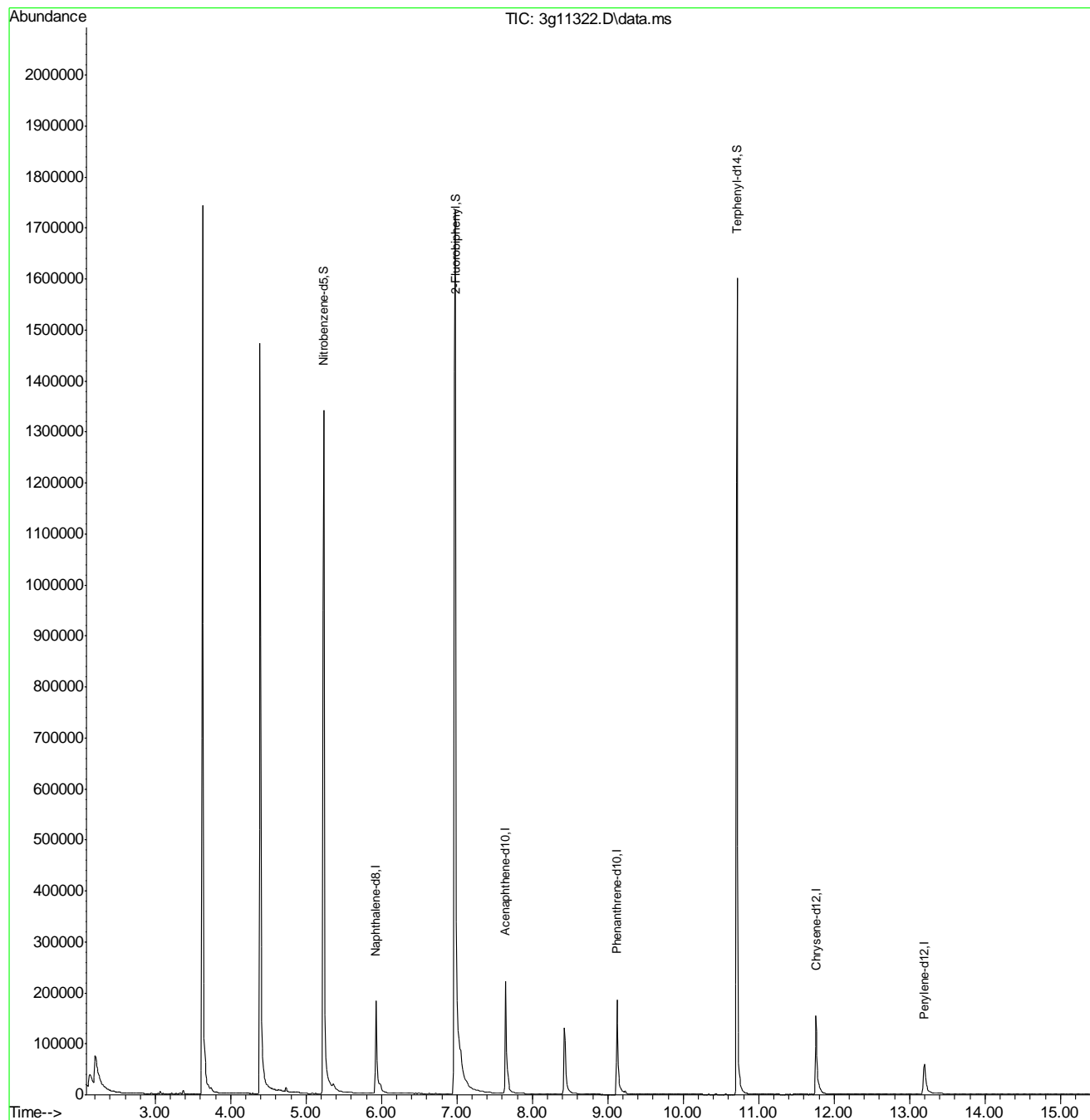
					Qvalue
3) N-Nitrosodimethylamine	0.000	74	0	N.D.	d
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d
5) Naphthalene	5.947	128	443	N.D.	
8) 2-Methylnaphthalene	6.632	142	245	N.D.	
9) 1-Methylnaphthalene	6.720	142	200	N.D.	
10) Acenaphthylene	7.498	152	201	N.D.	
11) Acenaphthene	7.640	154	641	N.D.	
12) Dibenzofuran	7.852	168	354	N.D.	
13) Fluorene	0.000	166	0	N.D.	d
14) Diphenylamine	0.000	169	0	N.D.	d
16) Phenanthrene	9.145	178	1003	N.D.	
17) Anthracene	9.192	178	407	N.D.	
18) Fluoranthene	10.340	202	350	N.D.	
20) Pyrene	10.561	202	216	N.D.	
22) Benzo(a)anthracene	11.759	228	700	N.D.	
23) Chrysene	11.759	228	700	N.D.	
25) Benzo(b)fluoranthene	12.789	252	73	N.D.	
26) Benzo(k)fluoranthene	12.789	252	73	N.D.	
27) Benzo(a)pyrene	13.199	252	466	N.D.	
28) Indeno(1,2,3-cd)pyrene	14.514	276	81	N.D.	
29) Dibenz(a,h)anthracene	14.535	278	80	N.D.	
30) Benzo(g,h,i)perylene	14.903	276	49	N.D.	

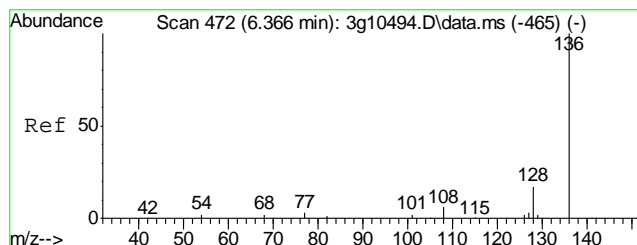
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\092012\
Data File : 3g11322.D
Acq On : 20 Sep 2012 3:39 pm
Operator : DONC
Sample : OP6672-MB
Misc : OP6672,E3G528,30.00,,,1,1
ALS Vial : 6 Sample Multiplier: 1

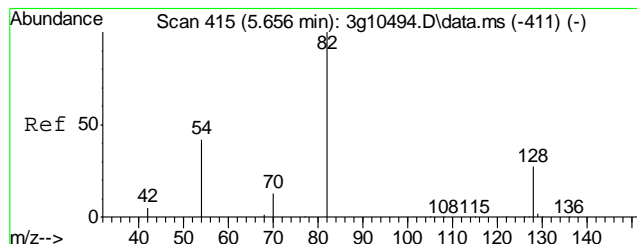
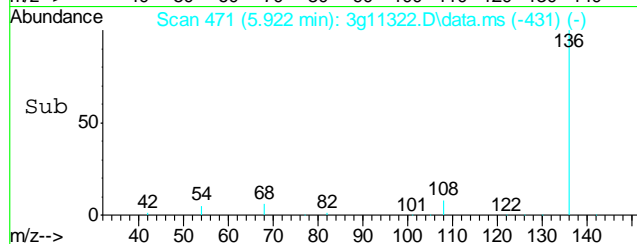
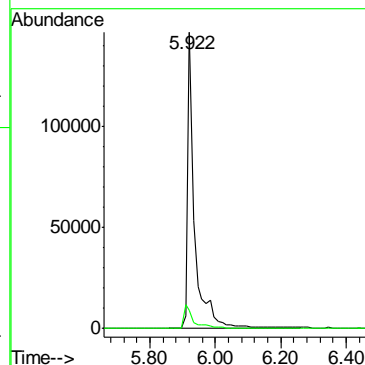
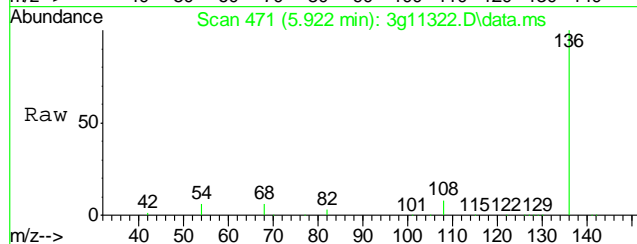
Quant Time: Sep 21 11:36:17 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G511.M
Quant Title : PAHSIM BASE
QLast Update : Thu Sep 06 09:42:23 2012
Response via : Initial Calibration





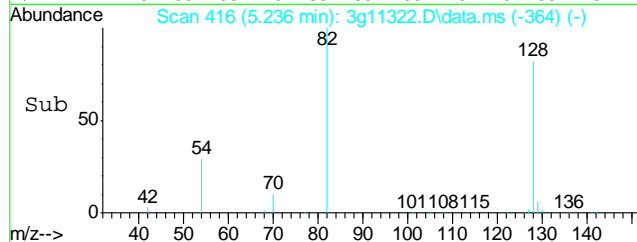
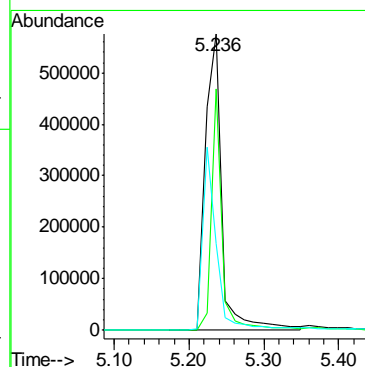
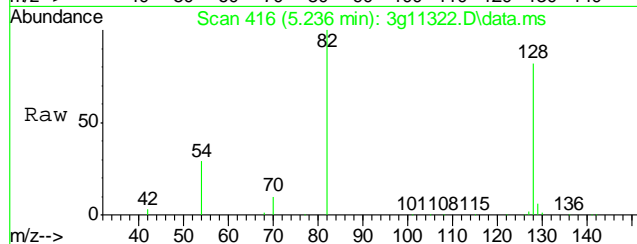
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.922 min Scan# 471
Delta R.T. 0.000 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

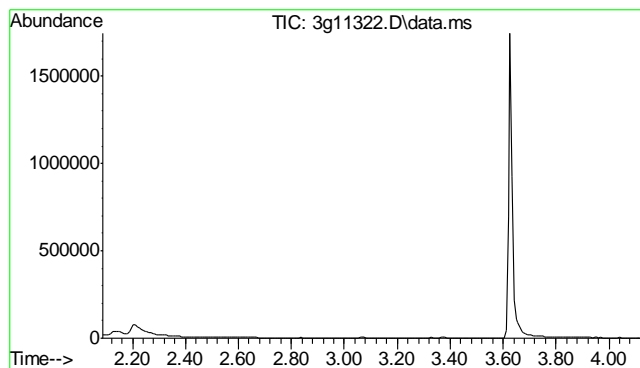
Tgt Ion: 136 Resp: 218616
Ion Ratio Lower Upper
136 100
68 10.7 0.0 30.4



#2
Nitrobenzene-d5
Concen: 41.0265 ug/mL
RT: 5.236 min Scan# 416
Delta R.T. 0.013 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

Tgt Ion: 82 Resp: 882442
Ion Ratio Lower Upper
82 100
128 52.3 19.7 59.7
54 50.9 28.6 68.6

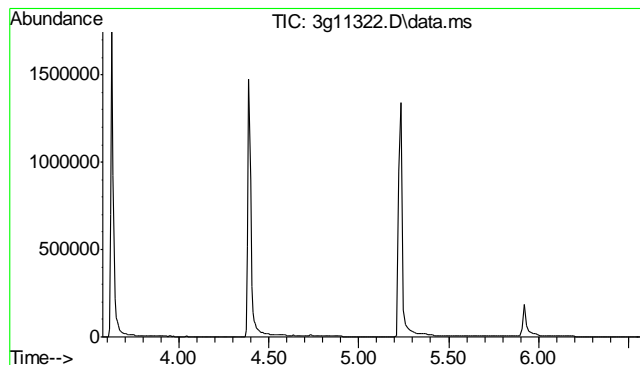
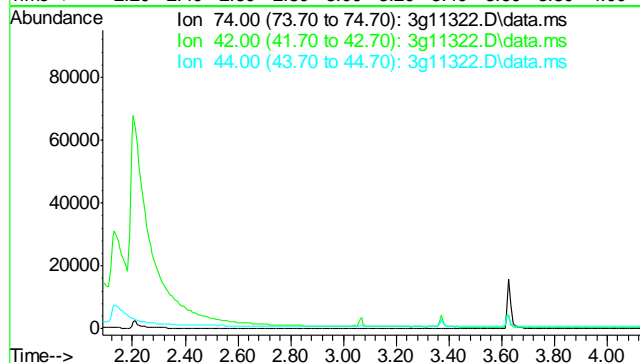




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.62 min

Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

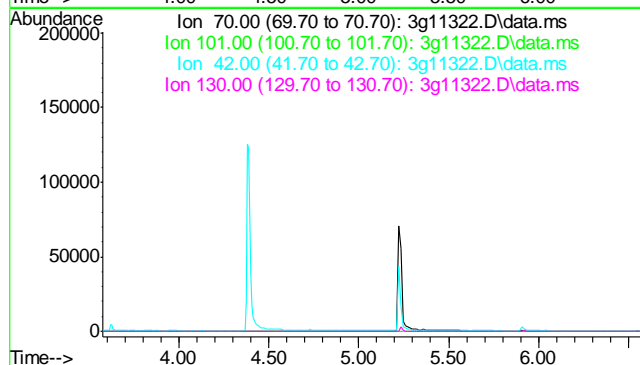
Tgt Ion:	74
Sig	Exp Ratio
74	100
42	53.3
44	3.5

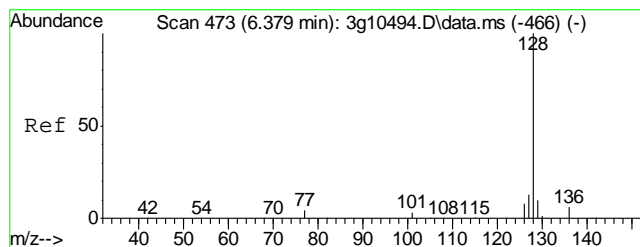


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.07 min

Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

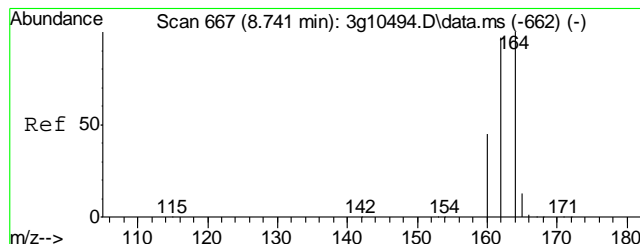
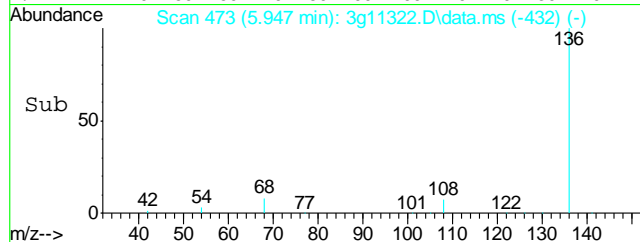
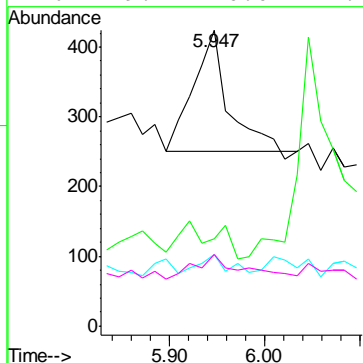
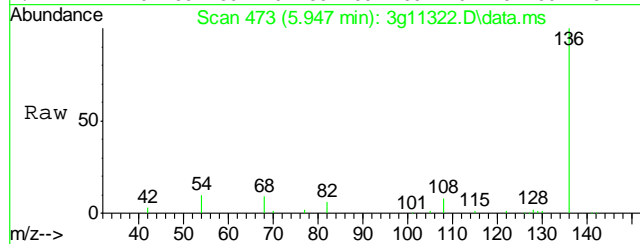
Tgt Ion:	70
Sig	Exp Ratio
70	100
101	10.3
42	47.6
130	20.0





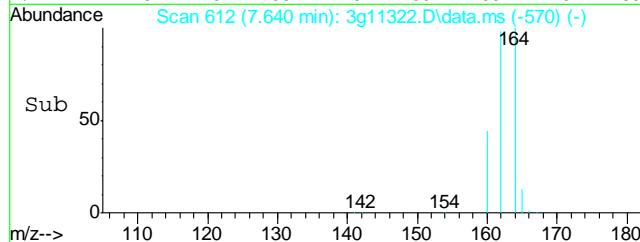
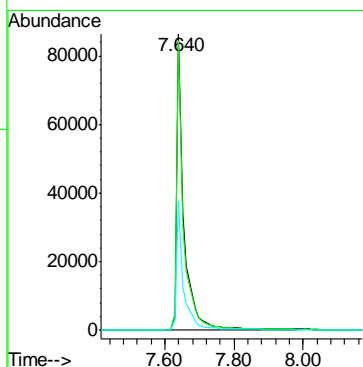
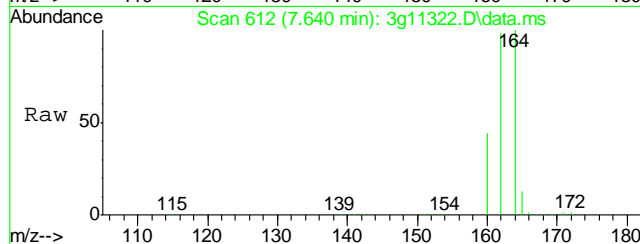
#5
Naphthalene
Concen: Below ug/mL
RT: 5.947 min Scan# 473
Delta R.T. 0.012 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

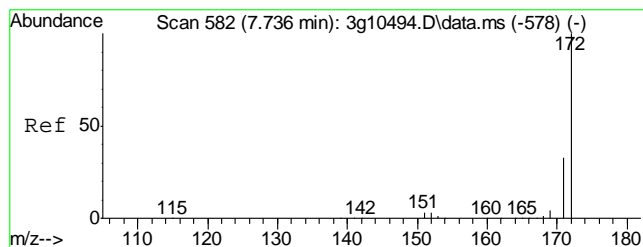
Tgt Ion:128 Resp: 443
Ion Ratio Lower Upper
128 100
129 28.9 0.0 30.8
127 15.8 0.0 33.4
126 29.1 0.0 27.7#



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.640 min Scan# 612
Delta R.T. 0.000 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

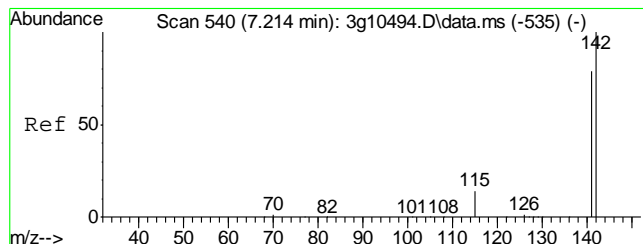
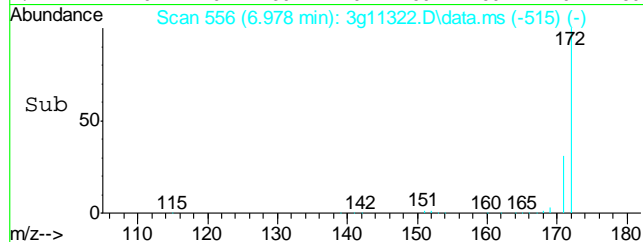
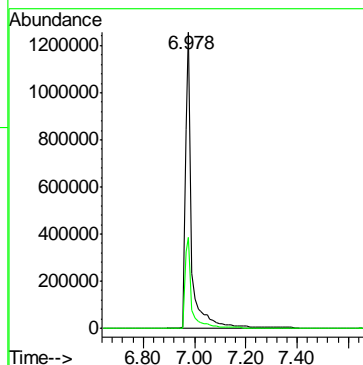
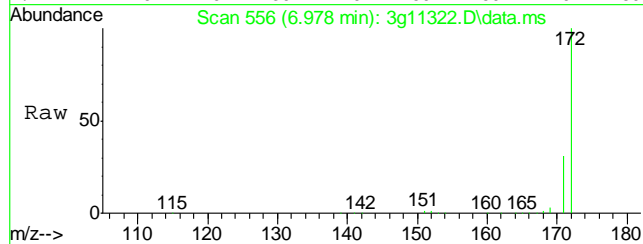
Tgt Ion:164 Resp: 127346
Ion Ratio Lower Upper
164 100
162 95.2 73.5 113.5
160 41.8 21.8 61.8





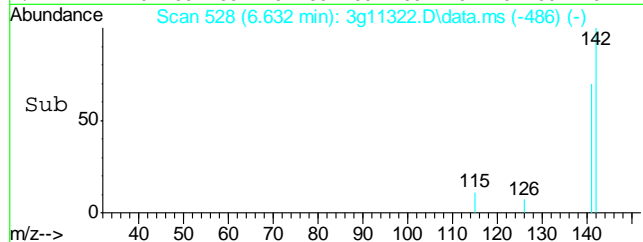
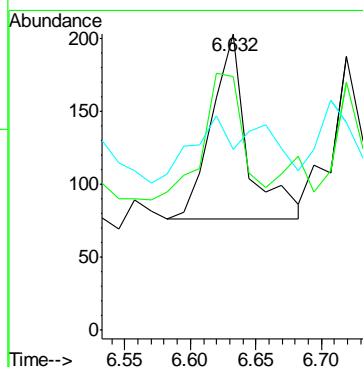
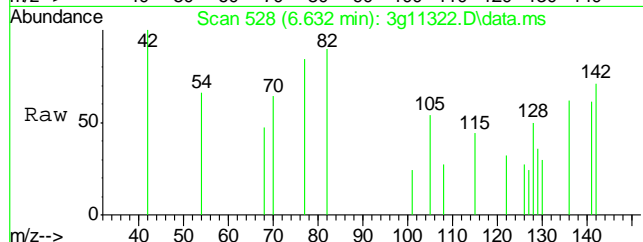
#7
2-Fluorobiphenyl
Concen: 40.8231 ug/mL
RT: 6.978 min Scan# 556
Delta R.T. 0.012 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

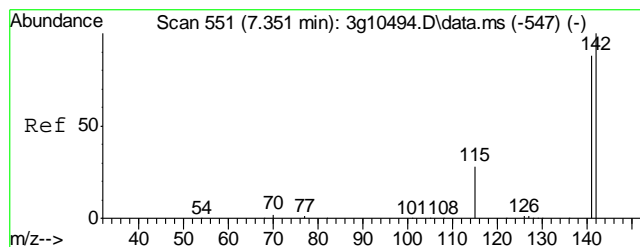
Tgt Ion:172 Resp: 2162509
Ion Ratio Lower Upper
172 100
171 33.5 13.6 53.6



#8
2-Methylnaphthalene
Concen: Below ug/mL
RT: 6.632 min Scan# 528
Delta R.T. 0.025 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

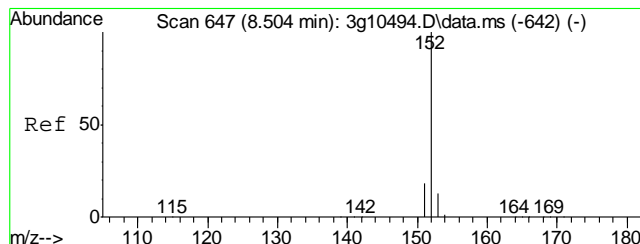
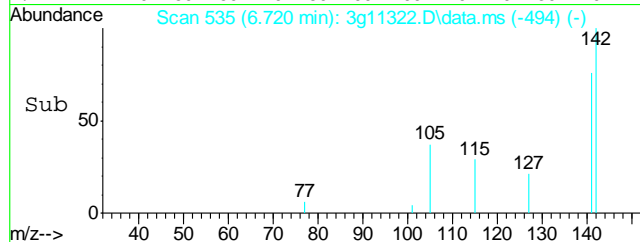
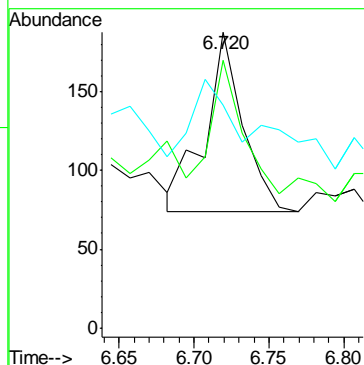
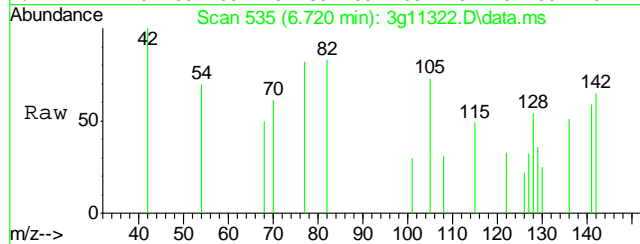
Tgt Ion:142 Resp: 245
Ion Ratio Lower Upper
142 100
141 93.1 64.5 104.5
115 0.0 13.6 53.6#





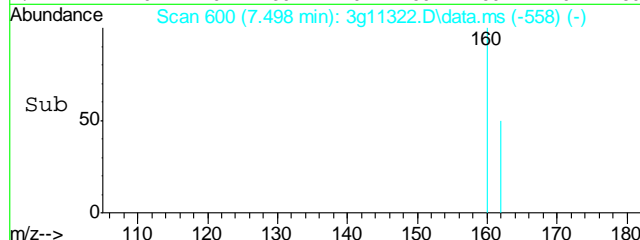
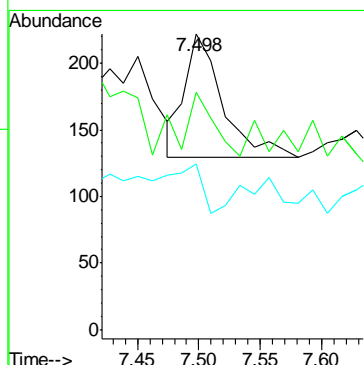
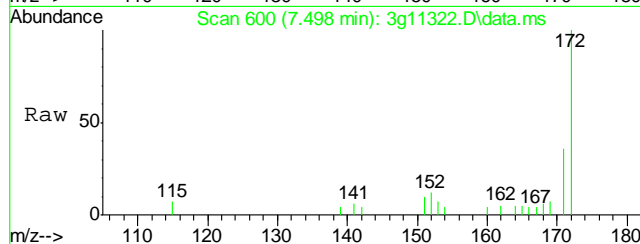
#9
1-Methylnaphthalene
Concen: Below ug/mL
RT: 6.720 min Scan# 535
Delta R.T. 0.012 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

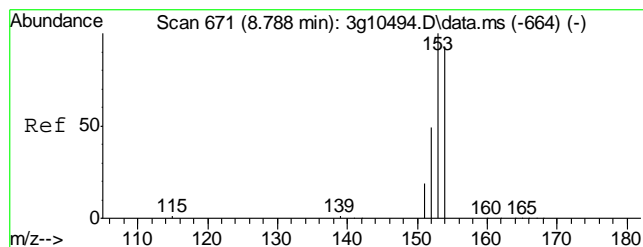
Tgt Ion:	142	Resp:	200
Ion Ratio	Lower	Upper	
142	100		
141	113.0	67.8	107.8#
115	0.0	11.0	51.0#



#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.498 min Scan# 600
Delta R.T. 0.000 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

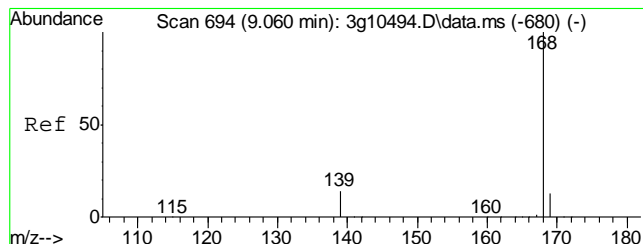
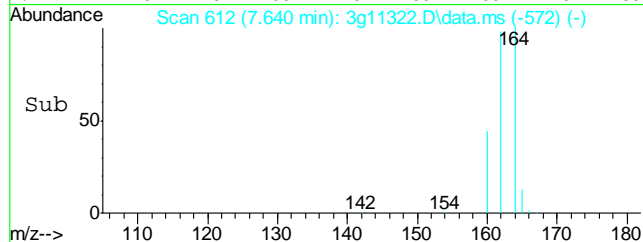
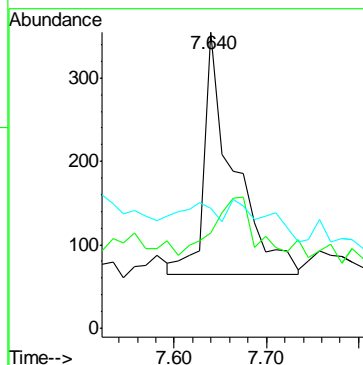
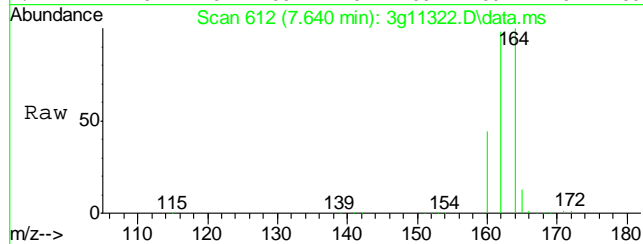
Tgt Ion:	152	Resp:	201
Ion Ratio	Lower	Upper	
152	100		
151	0.0	0.0	39.2
153	0.0	0.0	33.2





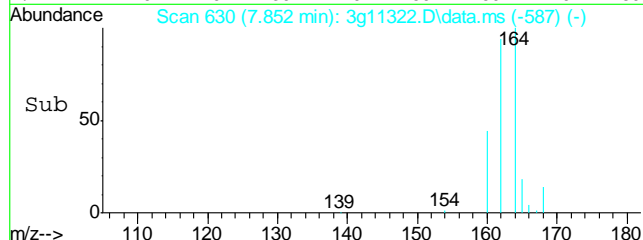
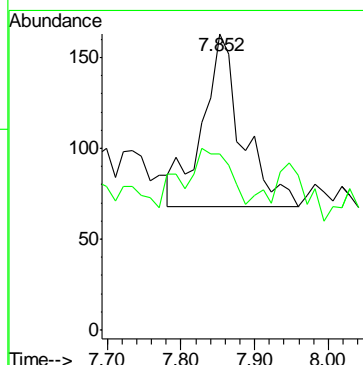
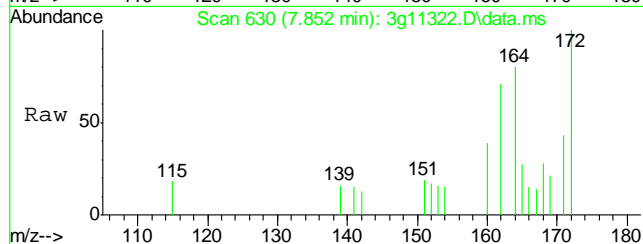
#11
Acenaphthene
Concen: Below ug/mL
RT: 7.640 min Scan# 612
Delta R.T. -0.024 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

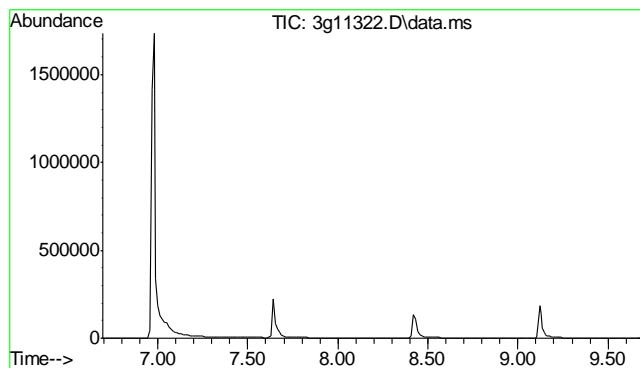
Tgt Ion:154	Resp:	641
Ion Ratio	Lower	Upper
154	100	
153	32.8	84.8 124.8#
152	7.6	29.9 69.9#



#12
Dibenzofuran
Concen: Below ug/mL
RT: 7.852 min Scan# 630
Delta R.T. 0.012 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

Tgt Ion:168	Resp:	354
Ion Ratio	Lower	Upper
168	100	
139	40.1	7.6 47.6

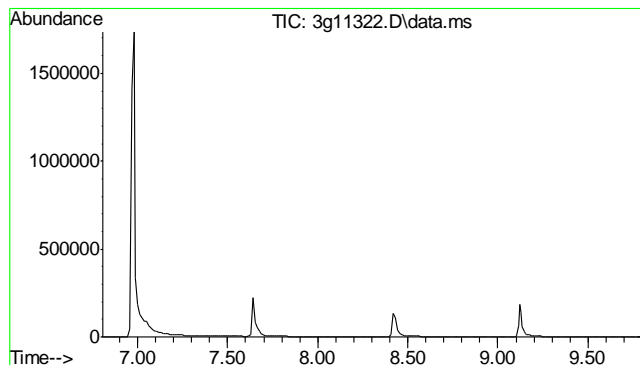
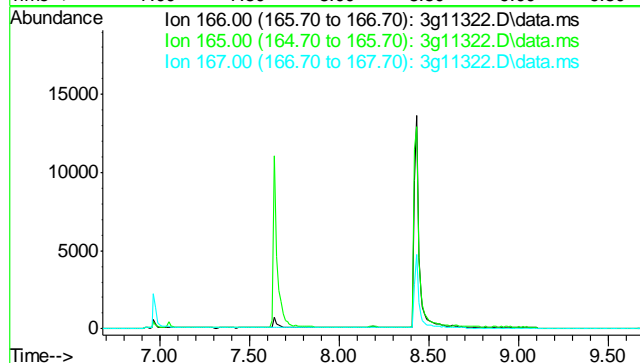




#13
Fluorene
Concen: N.D. ug/mL
Expected RT: 8.18 min

Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

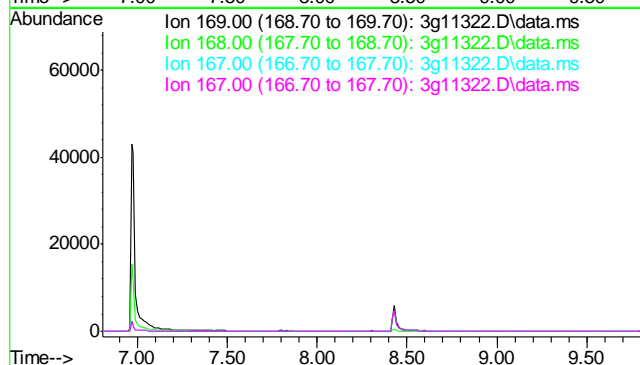
Tgt Ion:	166
Sig	Exp Ratio
166	100
165	91.1
167	13.3

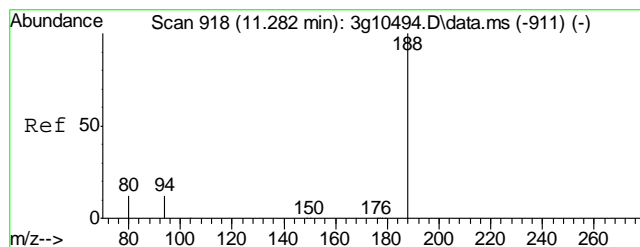


#14
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 8.30 min

Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

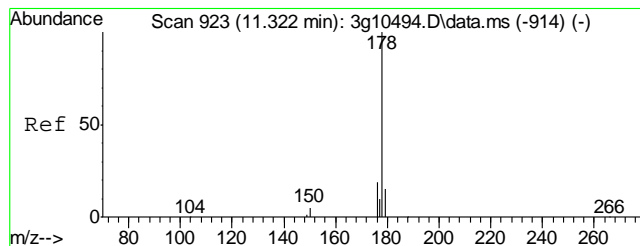
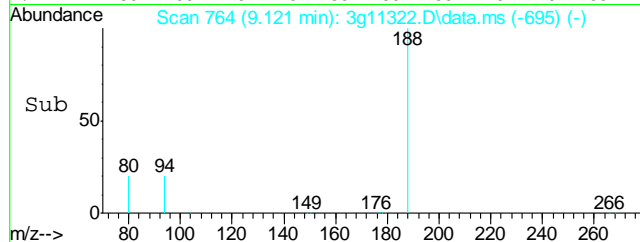
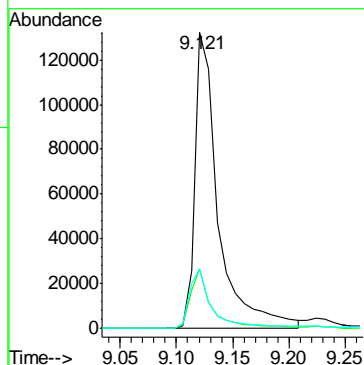
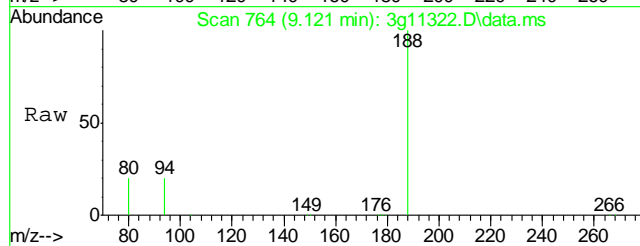
Tgt Ion:	169
Sig	Exp Ratio
169	100
168	61.0
167	32.9
167	32.9





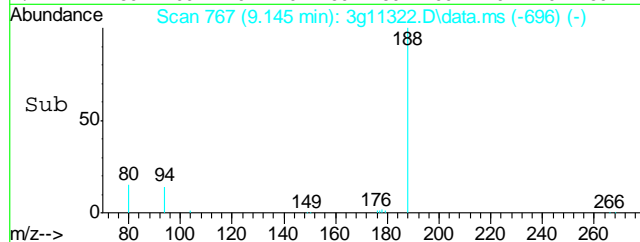
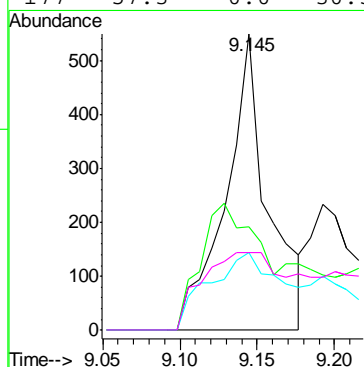
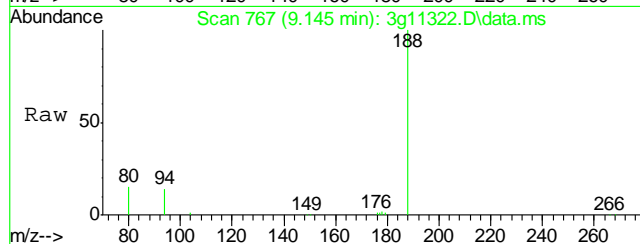
#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 9.121 min Scan# 764
Delta R.T. 0.000 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

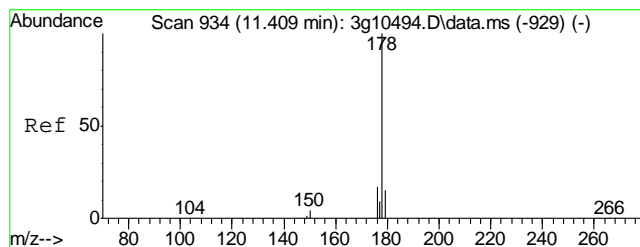
Tgt Ion	Ratio	Lower	Upper
188	100		
94	18.1	0.0	33.9
80	19.6	0.0	35.5



#16
Phenanthrene
Concen: Below ug/mL
RT: 9.145 min Scan# 767
Delta R.T. 0.008 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

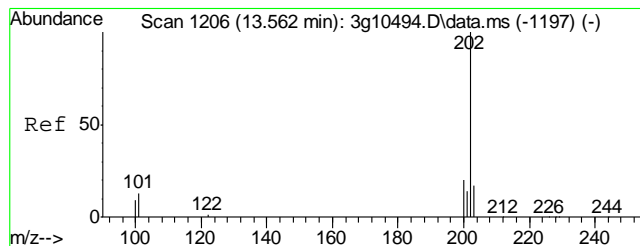
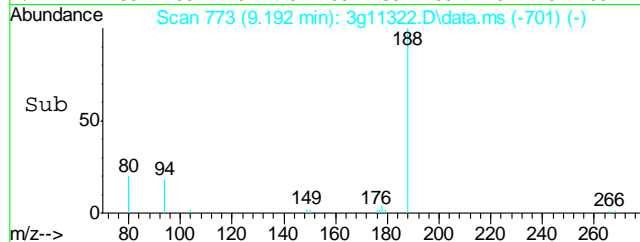
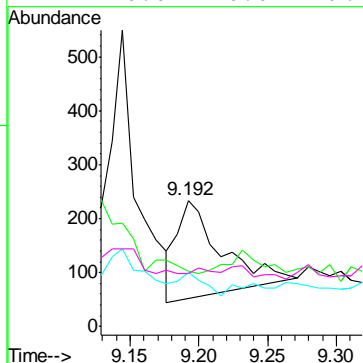
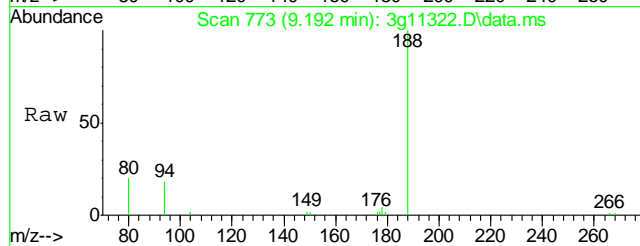
Tgt Ion	Ratio	Lower	Upper
178	100		
179	85.9	0.0	35.3#
176	45.1	0.0	38.5#
177	57.3	0.0	30.5#





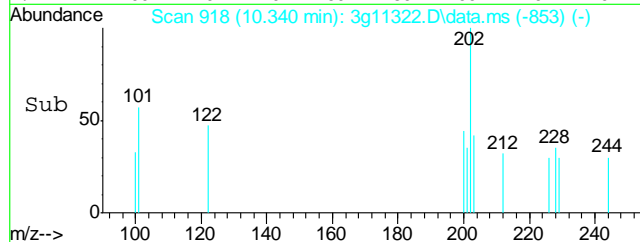
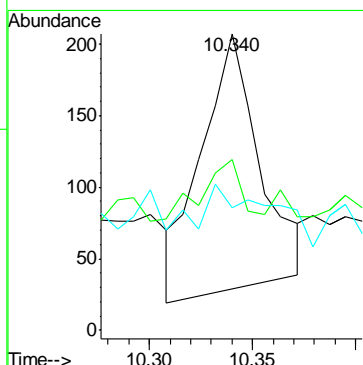
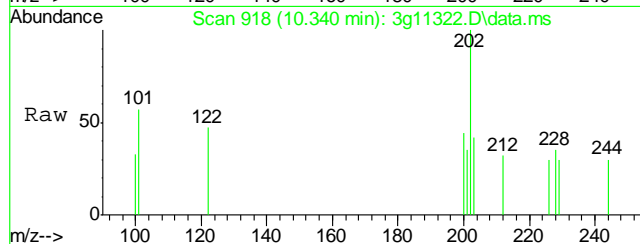
#17
 Anthracene
 Concen: Below ug/mL
 RT: 9.192 min Scan# 773
 Delta R.T. 0.000 min
 Lab File: 3g11322.D
 Acq: 20 Sep 12 3:39 pm

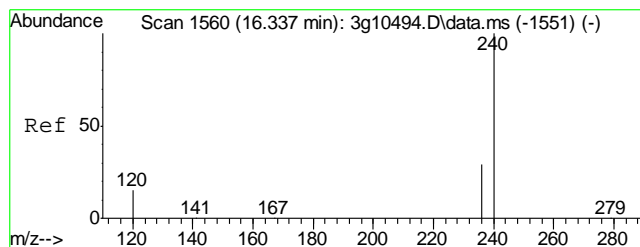
Tgt Ion	Ratio	Lower	Upper
178	100		
179	27.0	0.0	35.2
176	0.0	0.0	37.7
177	0.0	0.0	29.0



#18
 Fluoranthene
 Concen: Below ug/mL
 RT: 10.340 min Scan# 918
 Delta R.T. 0.016 min
 Lab File: 3g11322.D
 Acq: 20 Sep 12 3:39 pm

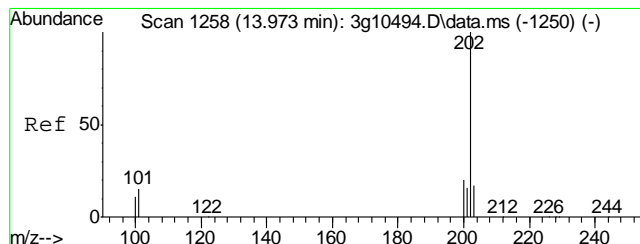
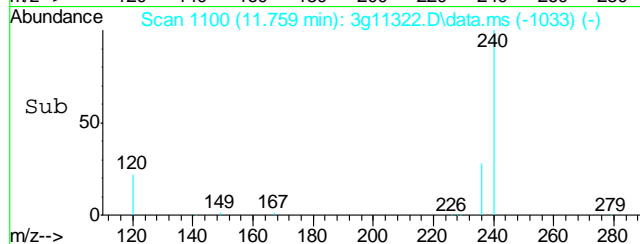
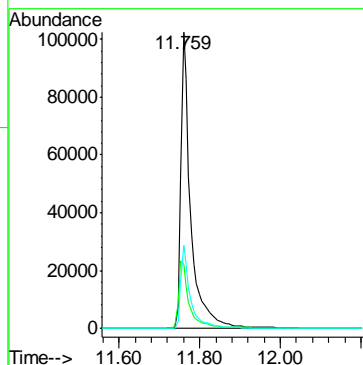
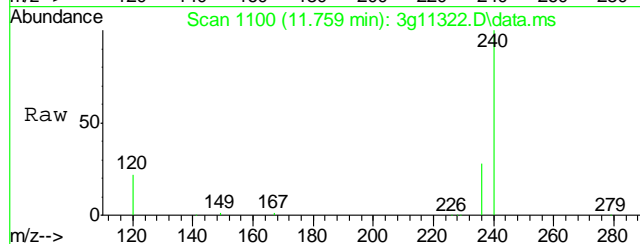
Tgt Ion	Ratio	Lower	Upper
202	100		
101	0.0	0.0	33.0
203	0.0	0.0	37.4





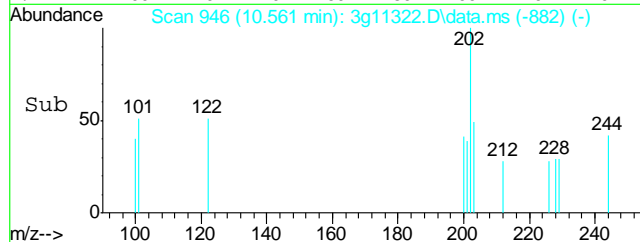
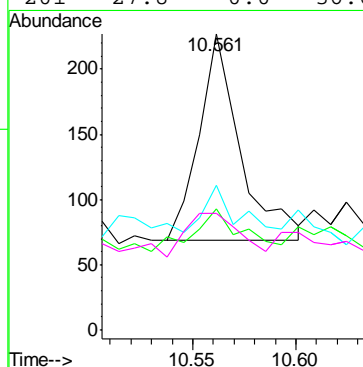
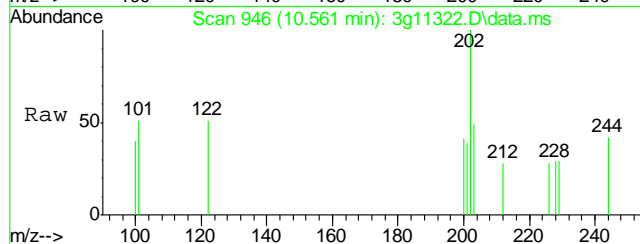
#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.759 min Scan# 1100
Delta R.T. 0.007 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

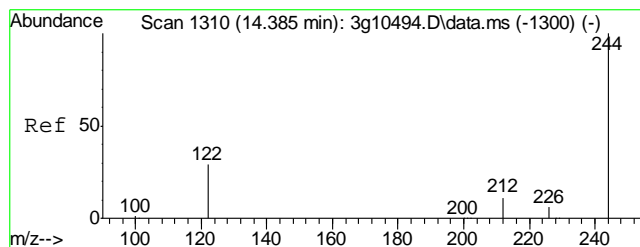
Tgt Ion	Ratio	Lower	Upper
240	100		
120	23.8	0.0	36.2
236	26.9	8.8	48.8



#20
Pyrene
Concen: Below ug/mL
RT: 10.561 min Scan# 946
Delta R.T. 0.008 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

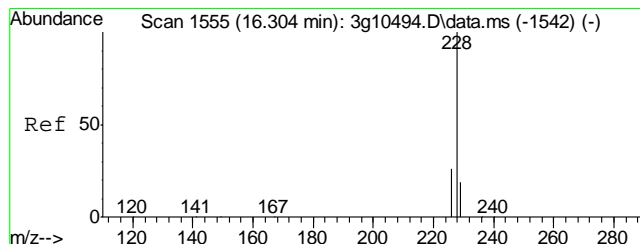
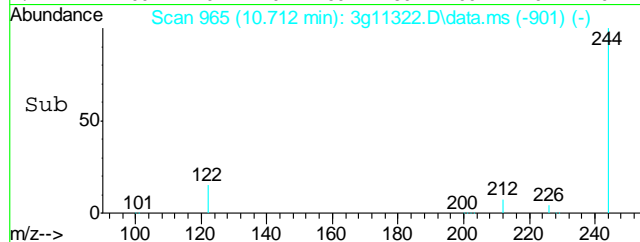
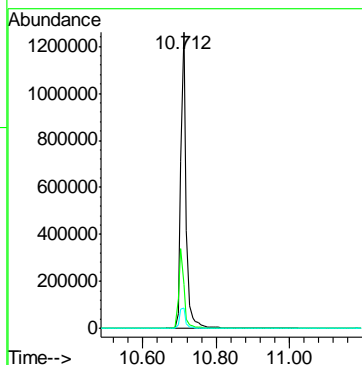
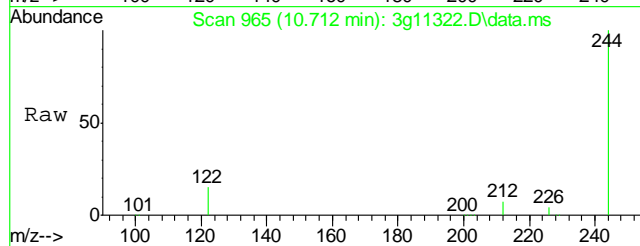
Tgt Ion	Ratio	Lower	Upper
202	100		
200	0.0	0.1	40.1#
203	17.6	0.0	37.8
201	27.8	0.0	36.6





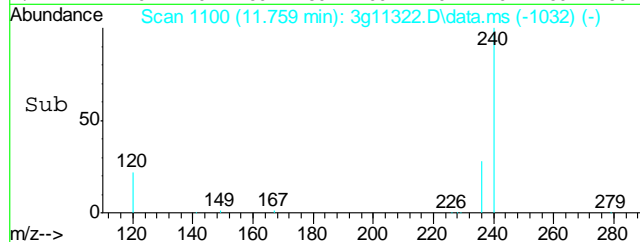
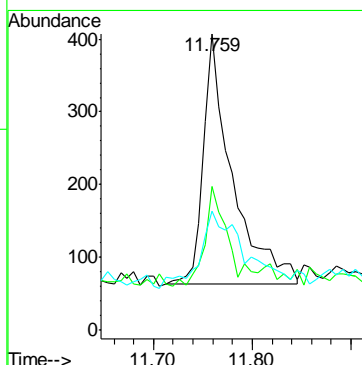
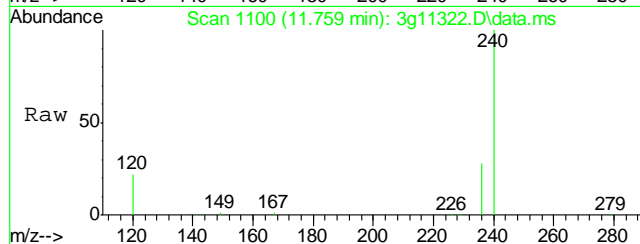
#21
Terphenyl-d14
Concen: 49.2463 ug/mL
RT: 10.712 min Scan# 965
Delta R.T. 0.008 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

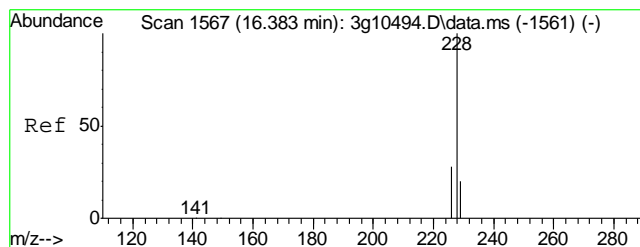
Tgt Ion: 244 Resp: 1287297
Ion Ratio Lower Upper
244 100
122 27.5 1.3 41.3
212 8.1 0.0 28.8



#22
Benzo(a)anthracene
Concen: Below ug/mL
RT: 11.759 min Scan# 1100
Delta R.T. 0.020 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

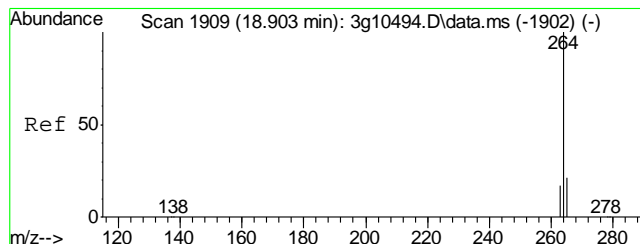
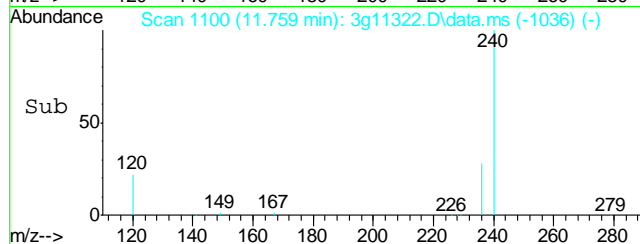
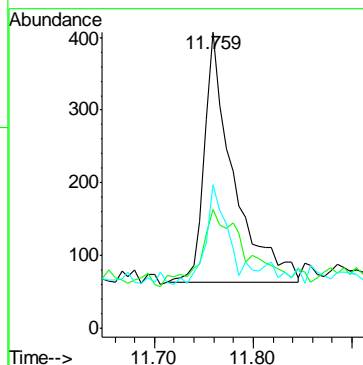
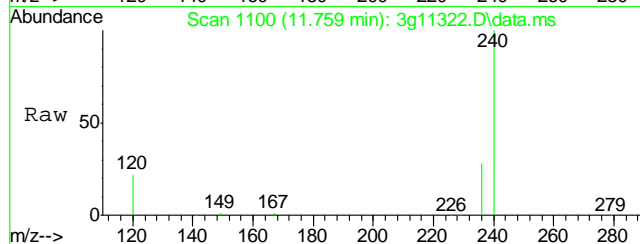
Tgt Ion: 228 Resp: 700
Ion Ratio Lower Upper
228 100
229 31.7 0.0 39.6
226 49.0 6.6 46.6#





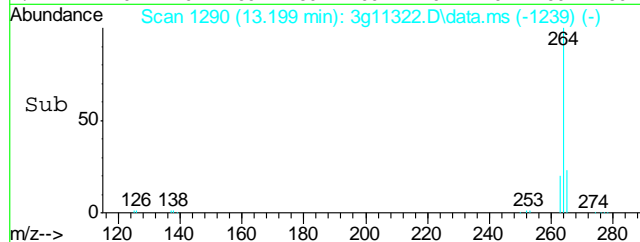
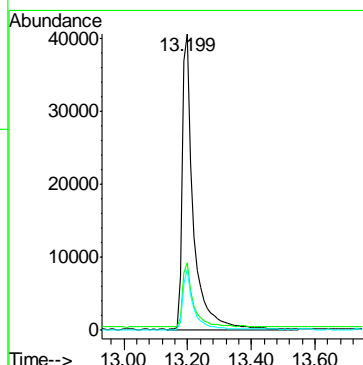
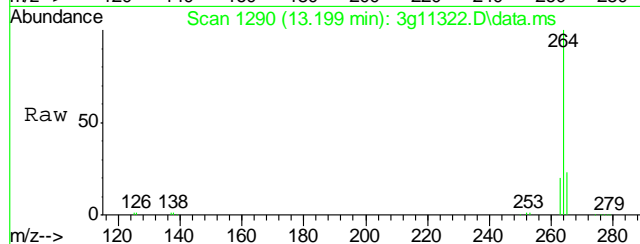
#23
Chrysene
Concen: Below ug/mL
RT: 11.759 min Scan# 1100
Delta R.T. -0.013 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

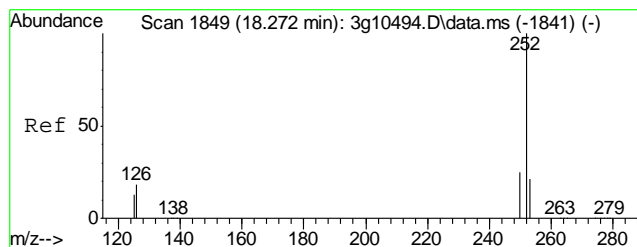
Tgt Ion: 228	Resp: 700
Ion Ratio	Lower Upper
228	100
226	49.0 8.6 48.6#
229	31.7 0.0 39.4



#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 13.199 min Scan# 1290
Delta R.T. 0.021 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

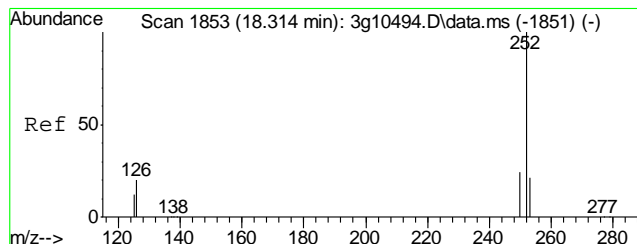
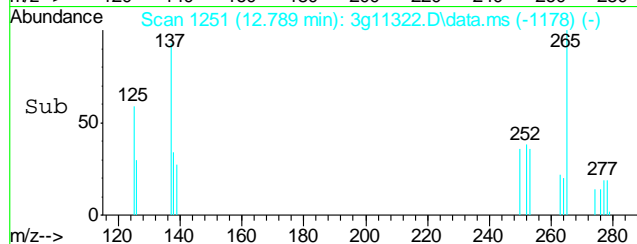
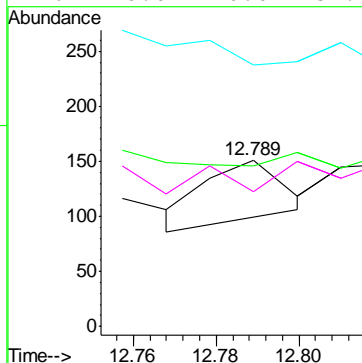
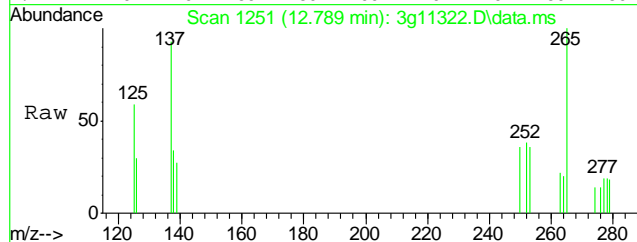
Tgt Ion: 264	Resp: 97481
Ion Ratio	Lower Upper
264	100
265	20.9 1.0 41.0
263	19.3 0.0 39.0





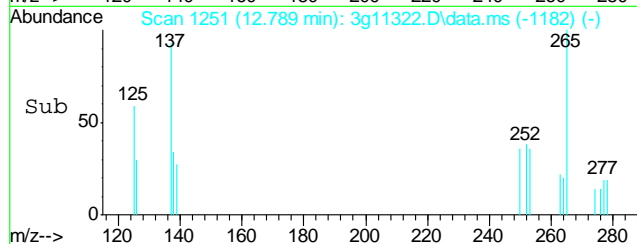
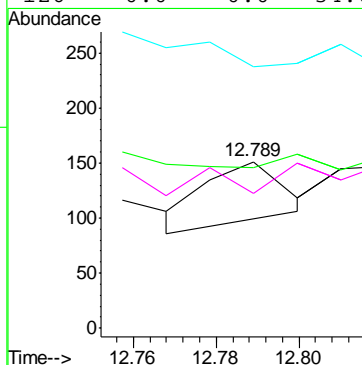
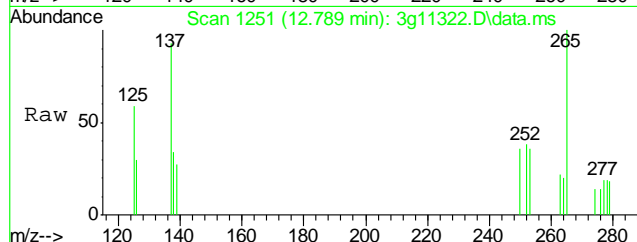
#25
Benzo(b)fluoranthene
Concen: Below ug/mL
RT: 12.789 min Scan# 1251
Delta R.T. 0.011 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

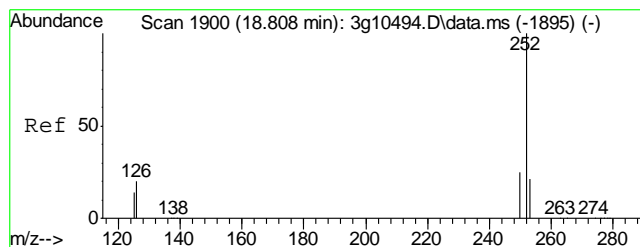
Tgt Ion	Ratio	Lower	Upper
252	100		
253	1046.6	2.9	42.9#
125	376.7	0.0	31.5#
126	0.0	0.0	34.7



#26
Benzo(k)fluoranthene
Concen: Below ug/mL
RT: 12.789 min Scan# 1251
Delta R.T. -0.010 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

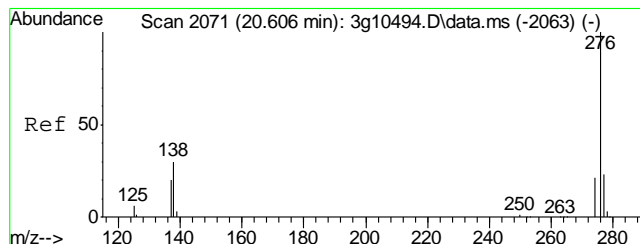
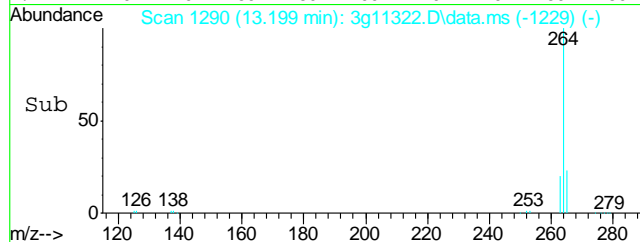
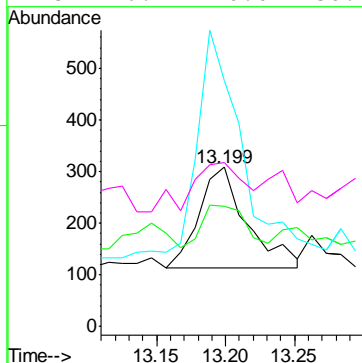
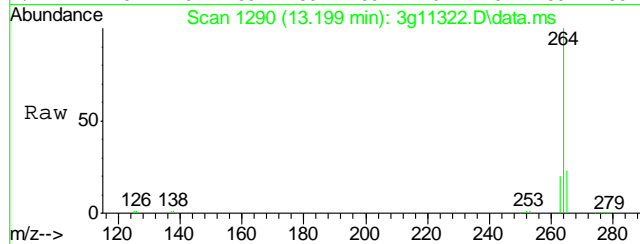
Tgt Ion	Ratio	Lower	Upper
252	100		
253	1046.6	1.8	41.8#
125	376.7	0.0	31.0#
126	0.0	0.0	34.0





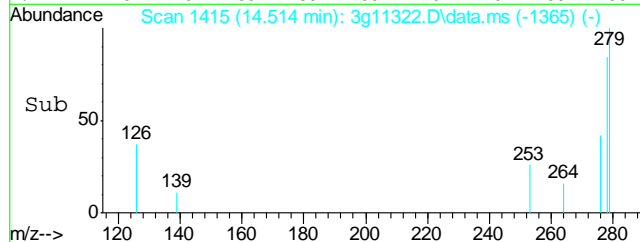
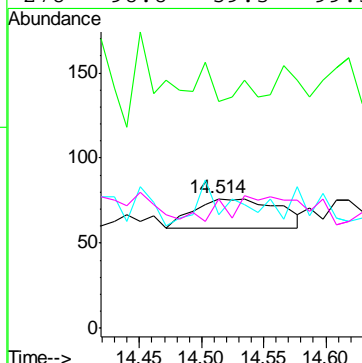
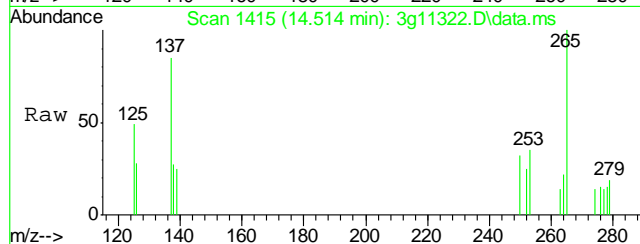
#27
Benzo(a)pyrene
Concen: Below ug/mL
RT: 13.199 min Scan# 1290
Delta R.T. 0.085 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

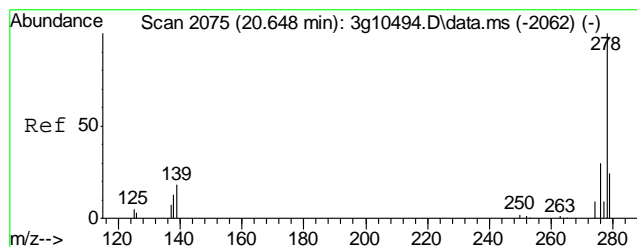
Tgt Ion:	252	Resp:	466
Ion Ratio	Lower	Upper	
252	100		
253	38.4	1.4	41.4
126	194.8	0.0	33.6#
125	46.1	0.0	30.7#



#28
Indeno(1,2,3-cd)pyrene
Concen: Below ug/mL
RT: 14.514 min Scan# 1415
Delta R.T. 0.022 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

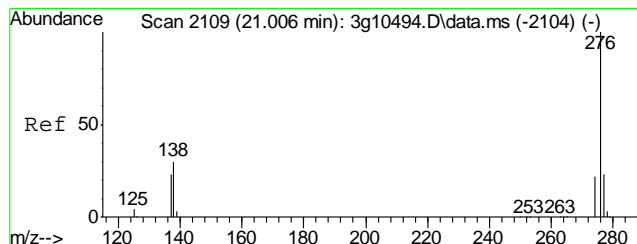
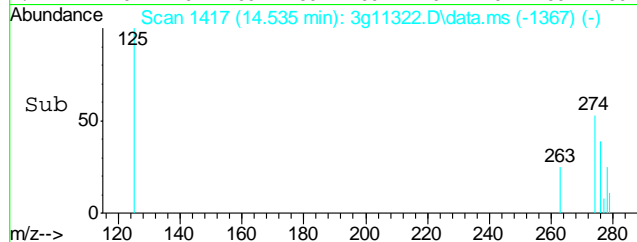
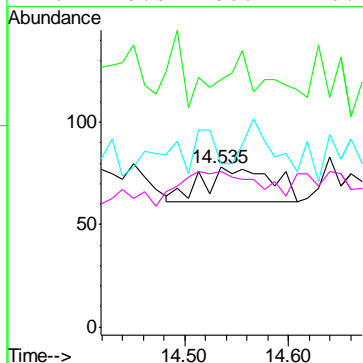
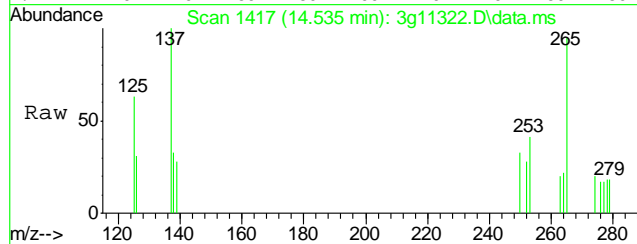
Tgt Ion:	276	Resp:	81
Ion Ratio	Lower	Upper	
276	100		
138	18.5	5.3	45.3
277	81.5	5.0	45.0#
278	98.8	59.3	99.3





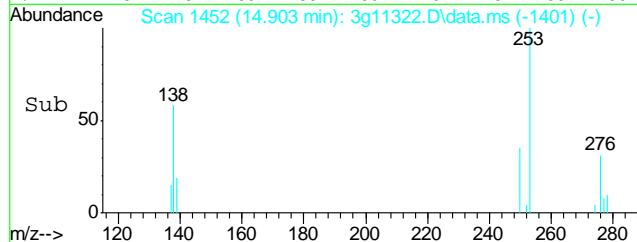
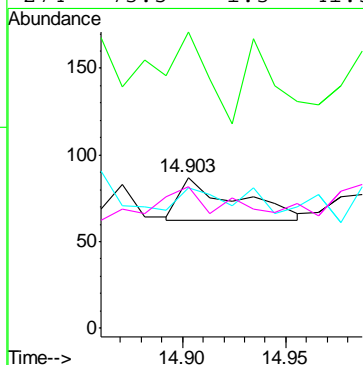
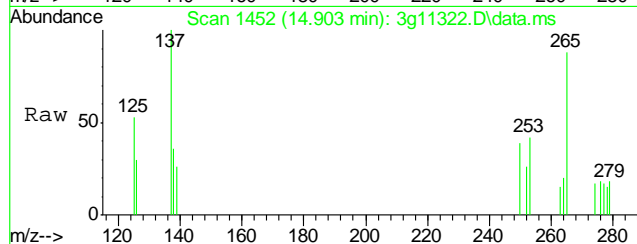
#29
Dibenzo(a,h)anthracene
Concen: Below ug/mL
RT: 14.535 min Scan# 1417
Delta R.T. 0.022 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

Tgt Ion: 278 Resp: 80
Ion Ratio Lower Upper
278 100
139 76.3 0.0 38.4#
279 55.0 3.1 43.1#
276 0.0 106.1 146.1#



#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.903 min Scan# 1452
Delta R.T. 0.032 min
Lab File: 3g11322.D
Acq: 20 Sep 12 3:39 pm

Tgt Ion: 276 Resp: 49
Ion Ratio Lower Upper
276 100
138 102.0 1.3 41.3#
277 67.3 3.4 43.4#
274 73.5 1.3 41.3#



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: D38897
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB967-MB	GB17625.D	1	09/19/12	SK	n/a	n/a	GGB967

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

D38897-1

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	95% 60-140%

10.1.1
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Blank Spike Summary

Job Number: D38897
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB967-BS	GB17626.D	1	09/19/12	SK	n/a	n/a	GGB967

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

D38897-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	127	115	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	104%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D38897
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D38896-1MS	GB17628.D	1	09/19/12	SK	n/a	n/a	GGB967
D38896-1MSD	GB17629.D	1	09/19/12	SK	n/a	n/a	GGB967
D38896-1	GB17627.D	1	09/19/12	SK	n/a	n/a	GGB967

The QC reported here applies to the following samples:

Method: SW846 8015B

D38897-1

CAS No.	Compound	D38896-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	9.50	J	135	162	113	160	111	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D38896-1	Limits
120-82-1	1,2,4-Trichlorobenzene	97%	98%	92%	60-140%

* = Outside of Control Limits.

GC Volatiles

Raw Data

11

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\091912\GB17631.D\FID1A.CH Vial: 9
 Signal #2 : Y:\1\DATA\091912\GB17631.D\FID2B.CH
 Acq On : 19 Sep 2012 9:52 pm Operator: StephK
 Sample : D38897-1, 50X Inst : GC/MS Ins
 Misc : GC3122,GGB967,5.064,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Sep 20 08:14:39 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Sep 20 08:13:55 2012
 Response via : Initial Calibration
 DataAcq Meth : TVB4.M

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

	Compound	R.T.	Response	Conc	Units

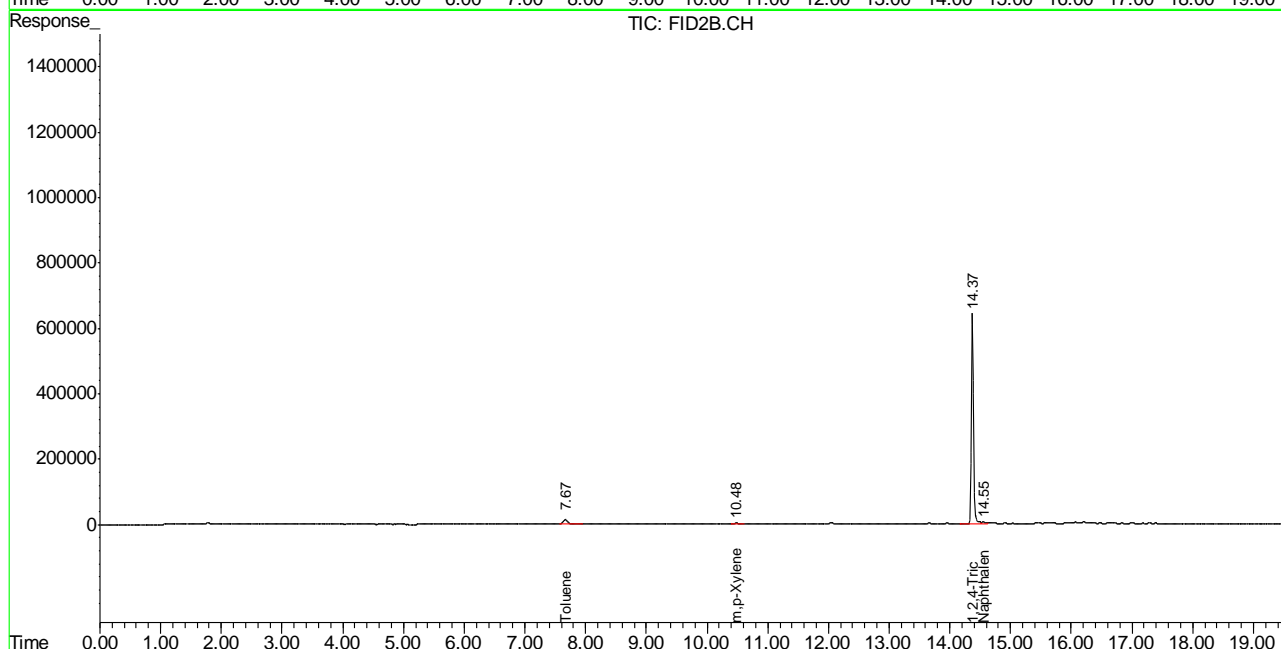
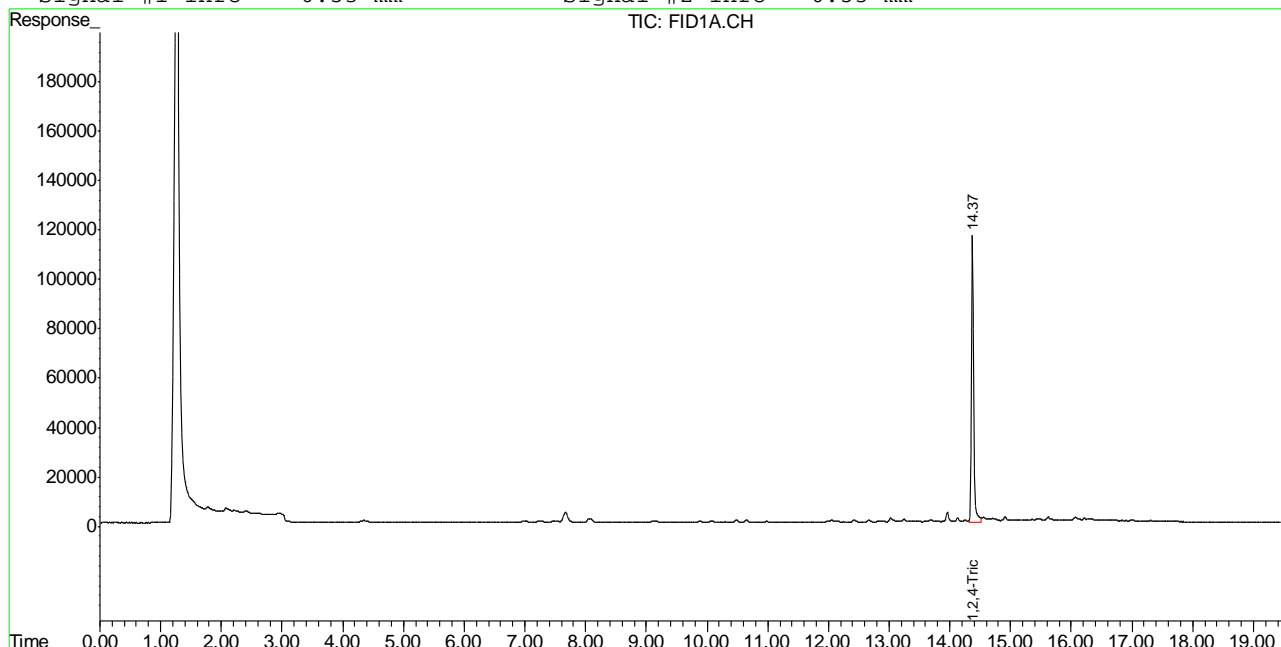
System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.37	2877443	91.831	%
10) S	1,2,4-Trichlorobenzene (P)	14.37	15493660	95.329	%
Target Compounds					
1) H	TVH-Gasoline	7.23	4552627	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	7.67	811306	2.047	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	10.48	184500	0.132	ug/L
9) T	o-Xylene	0.00	0	N.D.	ug/L d
11) T	Naphthalene	14.55	248246	1.258	ug/L

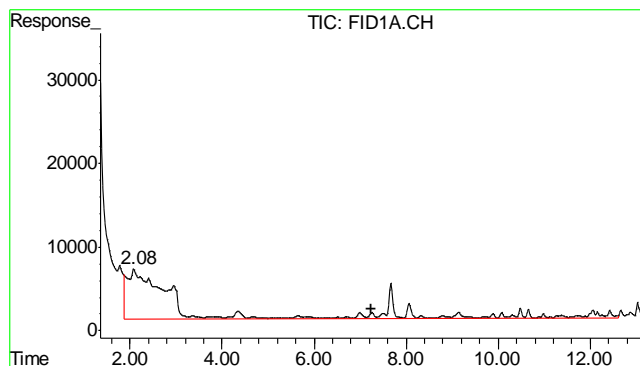
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\091912\GB17631.D\FID1A.CH Vial: 9
 Signal #2 : Y:\1\DATA\091912\GB17631.D\FID2B.CH
 Acq On : 19 Sep 2012 9:52 pm Operator: StephK
 Sample : D38897-1, 50X Inst : GC/MS Ins
 Misc : GC3122,GGB967,5.064,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Sep 20 7:24 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Sep 20 08:13:55 2012
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

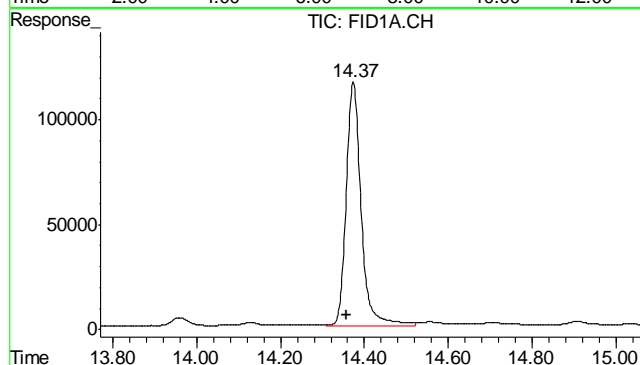
Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





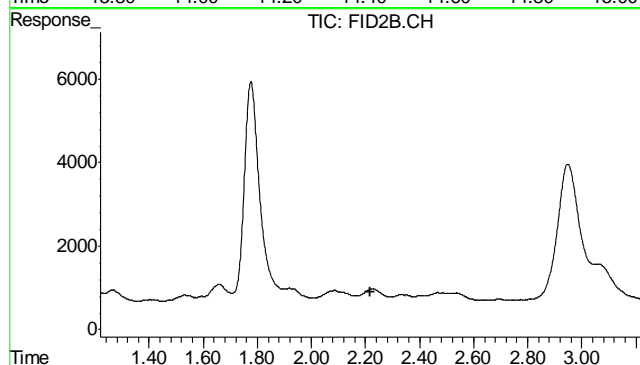
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 4552627
Conc: N.D.



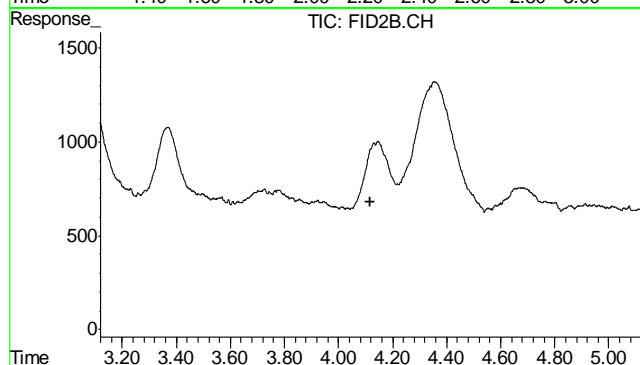
#2 1,2,4-Trichlorobenzene

R.T.: 14.374 min
Delta R.T.: 0.015 min
Response: 2877443
Conc: 91.83 %



#4 Methyl-t-butyl-ether

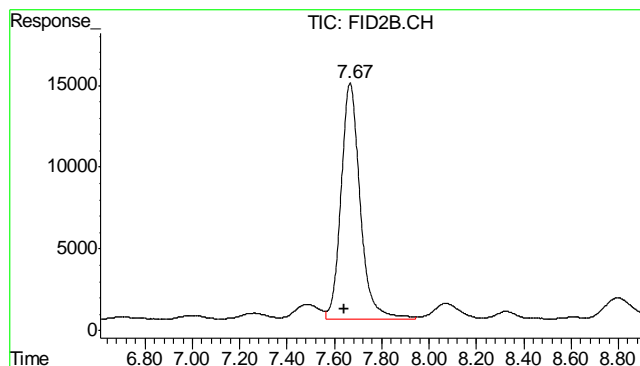
R.T.: 0.000 min
Exp R.T.: 2.219 min
Response: 0
Conc: N.D.



#5 Benzene

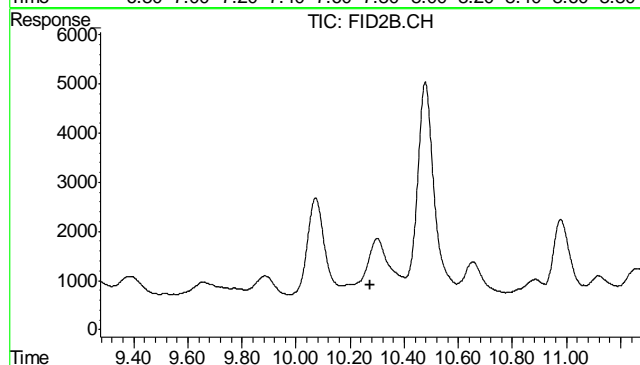
R.T.: 0.000 min
Exp R.T.: 4.119 min
Response: 0
Conc: N.D.

11.11
11



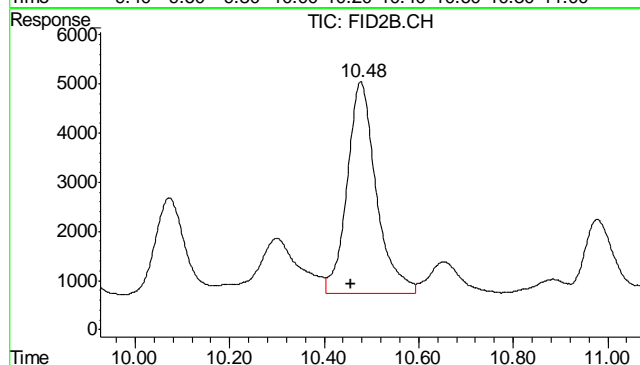
#6 Toluene

R.T.: 7.666 min
Delta R.T.: 0.022 min
Response: 811306
Conc: 2.05 ug/L



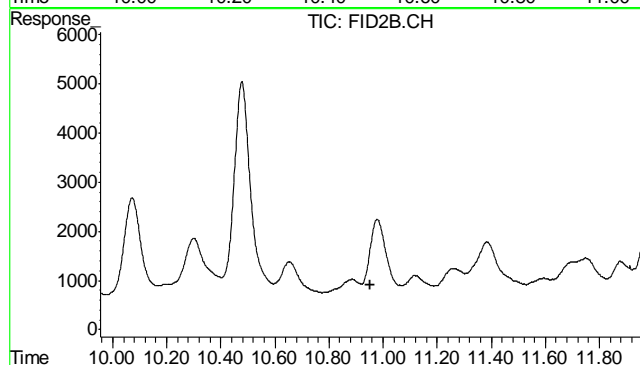
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T.: 10.276 min
Response: 0
Conc: N.D.



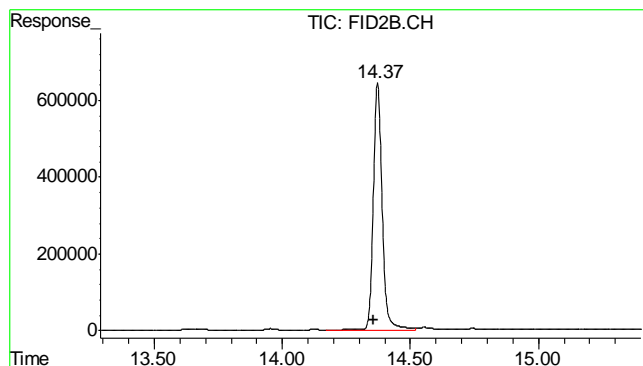
#8 m,p-Xylene

R.T.: 10.478 min
Delta R.T.: 0.021 min
Response: 184500
Conc: 0.13 ug/L



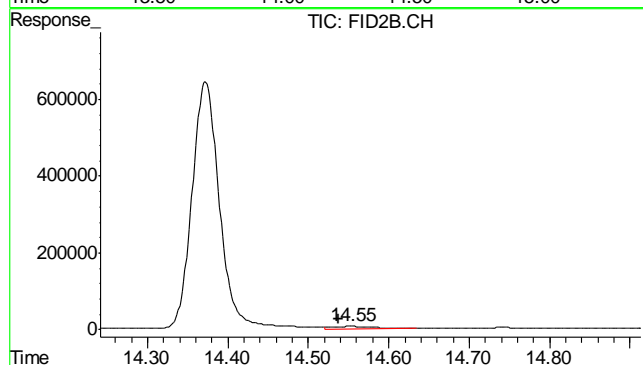
#9 o-Xylene

R.T.: 0.000 min
Exp R.T.: 10.953 min
Response: 0
Conc: N.D.



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

R.T.: 14.372 min
Delta R.T.: 0.016 min
Response: 15493660
Conc: 95.33 %



#11 Naphthalene

R.T.: 14.553 min
Delta R.T.: 0.015 min
Response: 248246
Conc: 1.26 ug/L

11.1.1

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\091912\GB17625.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\091912\GB17625.D\FID2B.CH
Acq On : 19 Sep 2012 6:18 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3122,GGB967,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Sep 20 08:14:15 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Sep 20 08:13:55 2012
Response via : Initial Calibration
DataAcq Meth : TVB4.M

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

Compound		R.T.	Response	Conc	Units

System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.36	2964130	94.598	%
10) S	1,2,4-Trichlorobenzene (P)	14.36	15906210	97.868	%
Target Compounds					
1) H	TVH-Gasoline	7.23	4314986	<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	7.65	625707	1.579	ug/L
7) T	Ethylbenzene	10.28	84840	0.251	ug/L
8) T	m,p-Xylene	10.46	183621	0.130	ug/L
9) T	o-Xylene	0.00	0	N.D.	ug/L d
11) T	Naphthalene	14.54	216531	1.097	ug/L

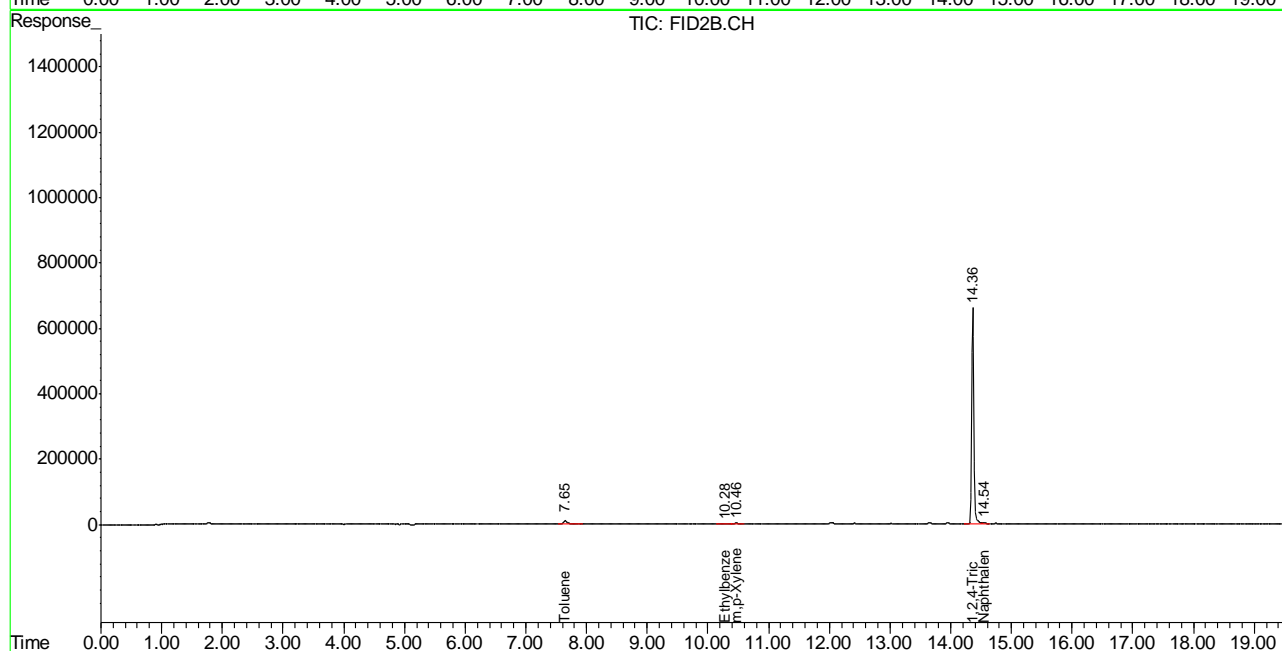
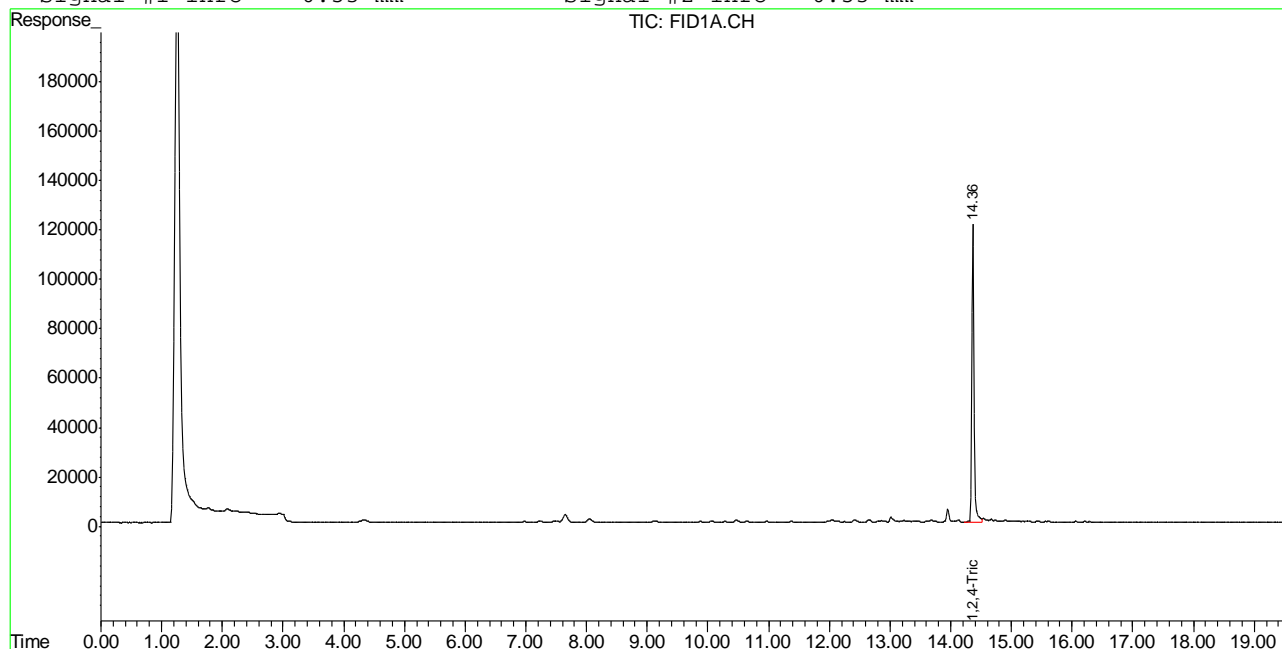
(f)=RT Delta > 1/2 Window (m)=manual int.
GB17625.D TB868GB868SOIL.M Thu Sep 20 08:18:03 2012 GC

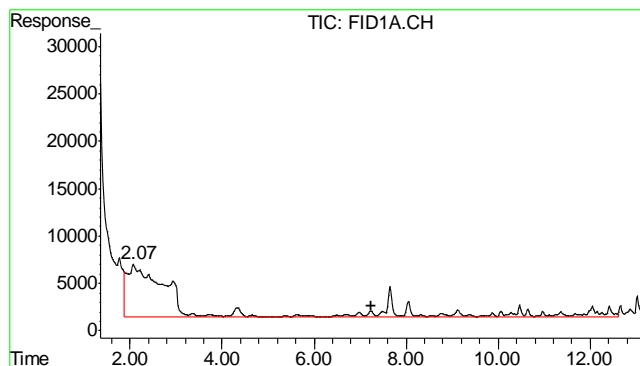
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\091912\GB17625.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\091912\GB17625.D\FID2B.CH
Acq On : 19 Sep 2012 6:18 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3122,GGB967,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Sep 20 7:22 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Sep 20 08:13:55 2012
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

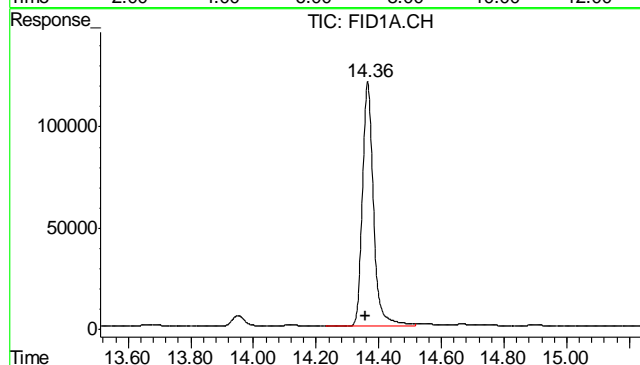
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





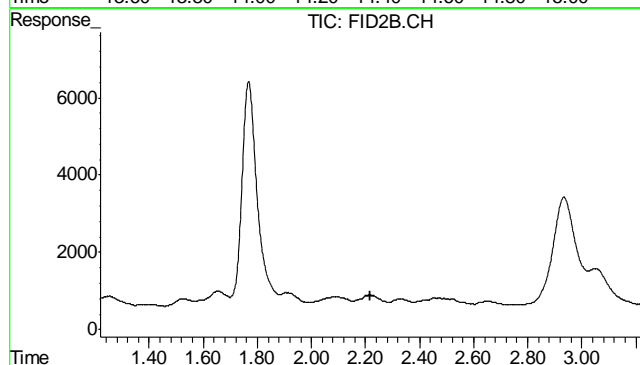
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 4314986
Conc: N.D.



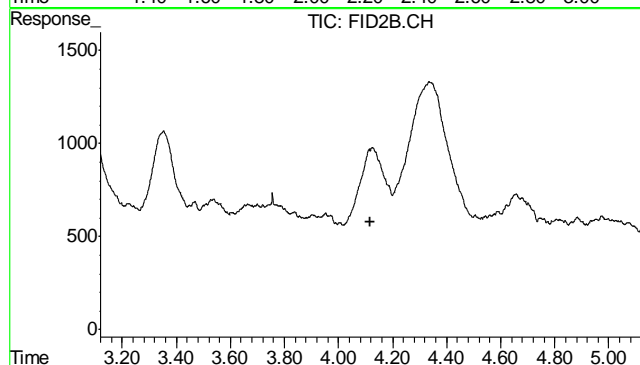
#2 1,2,4-Trichlorobenzene

R.T.: 14.365 min
Delta R.T.: 0.007 min
Response: 2964130
Conc: 94.60 %



#4 Methyl-t-butyl-ether

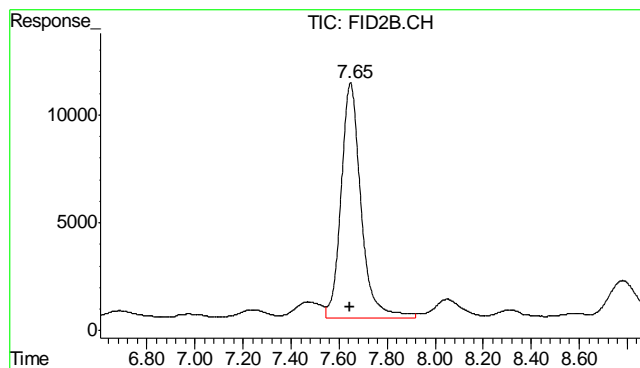
R.T.: 0.000 min
Exp R.T.: 2.219 min
Response: 0
Conc: N.D.



#5 Benzene

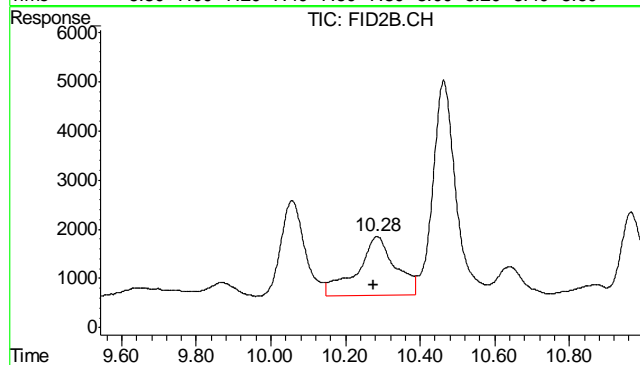
R.T.: 0.000 min
Exp R.T.: 4.119 min
Response: 0
Conc: N.D.

11.21
11



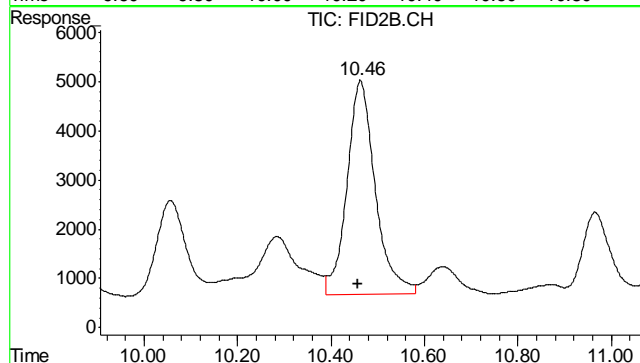
#6 Toluene

R.T.: 7.647 min
Delta R.T.: 0.004 min
Response: 625707
Conc: 1.58 ug/L



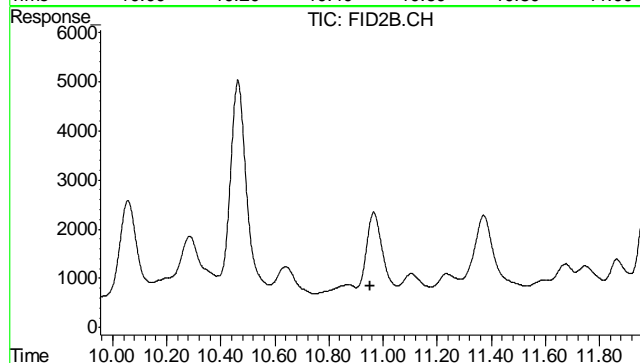
#7 Ethylbenzene

R.T.: 10.285 min
Delta R.T.: 0.009 min
Response: 84840
Conc: 0.25 ug/L



#8 m,p-Xylene

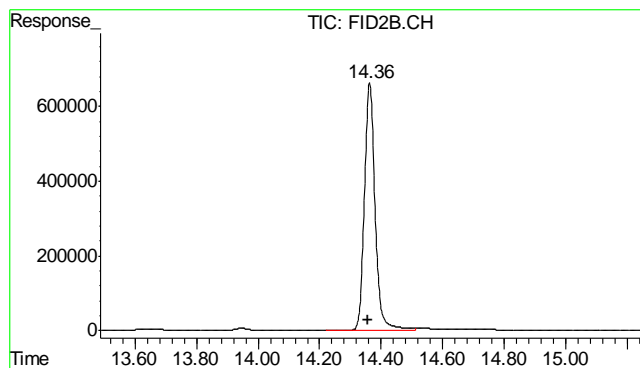
R.T.: 10.463 min
Delta R.T.: 0.007 min
Response: 183621
Conc: 0.13 ug/L



#9 o-Xylene

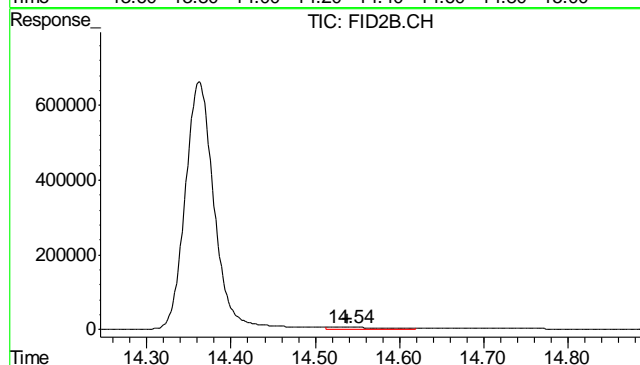
R.T.: 0.000 min
Exp R.T.: 10.953 min
Response: 0
Conc: N.D.

11.21
11



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

R.T.: 14.363 min
Delta R.T.: 0.007 min
Response: 15906210
Conc: 97.87 %



#11 Naphthalene

R.T.: 14.541 min
Delta R.T.: 0.003 min
Response: 216531
Conc: 1.10 ug/L

11.2.1
11

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: D38897
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6671-MB	FD17645.D	1	09/20/12	AV	09/20/12	OP6671	GFD902

The QC reported here applies to the following samples: Method: SW846-8015B
D38897-1

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	118% 43-136%

12.1.1
12

Blank Spike Summary

Page 1 of 1

Job Number: D38897
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6671-BS	FD17647.D	1	09/20/12	AV	09/20/12	OP6671	GFD902

The QC reported here applies to the following samples:

Method: SW846-8015B

D38897-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	577	87	58-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	91%	43-136%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D38897
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6671-MS	FD17649.D	1	09/20/12	AV	09/20/12	OP6671	GFD902
OP6671-MSD	FD17651.D	1	09/20/12	AV	09/20/12	OP6671	GFD902
D38897-1	FD17653.D	1	09/20/12	AV	09/20/12	OP6671	GFD902

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

D38897-1

CAS No.	Compound	D38897-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	21.4		761	778	99	609	77	24	20-183/43

CAS No.	Surrogate Recoveries	MS	MSD	D38897-1	Limits
84-15-1	o-Terphenyl	109%	98%	127%	43-136%

* = Outside of Control Limits.

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\SEPTEMBER\FD092012\FD17653.D Vial: 18
Acq On : 20 Sep 2012 11:26 pm Operator: ashleyv
Sample : D38897-1 Inst : FID5
Misc : OP6671,GFD902,30.03,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Sep 21 09:14:05 2012 Quant Results File: DRO-GFD823F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD823F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Thu Sep 20 09:45:06 2012
Response via : Initial Calibration
DataAcq Meth : DRODUAL.M

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

Compound	R.T.	Response	Conc Units

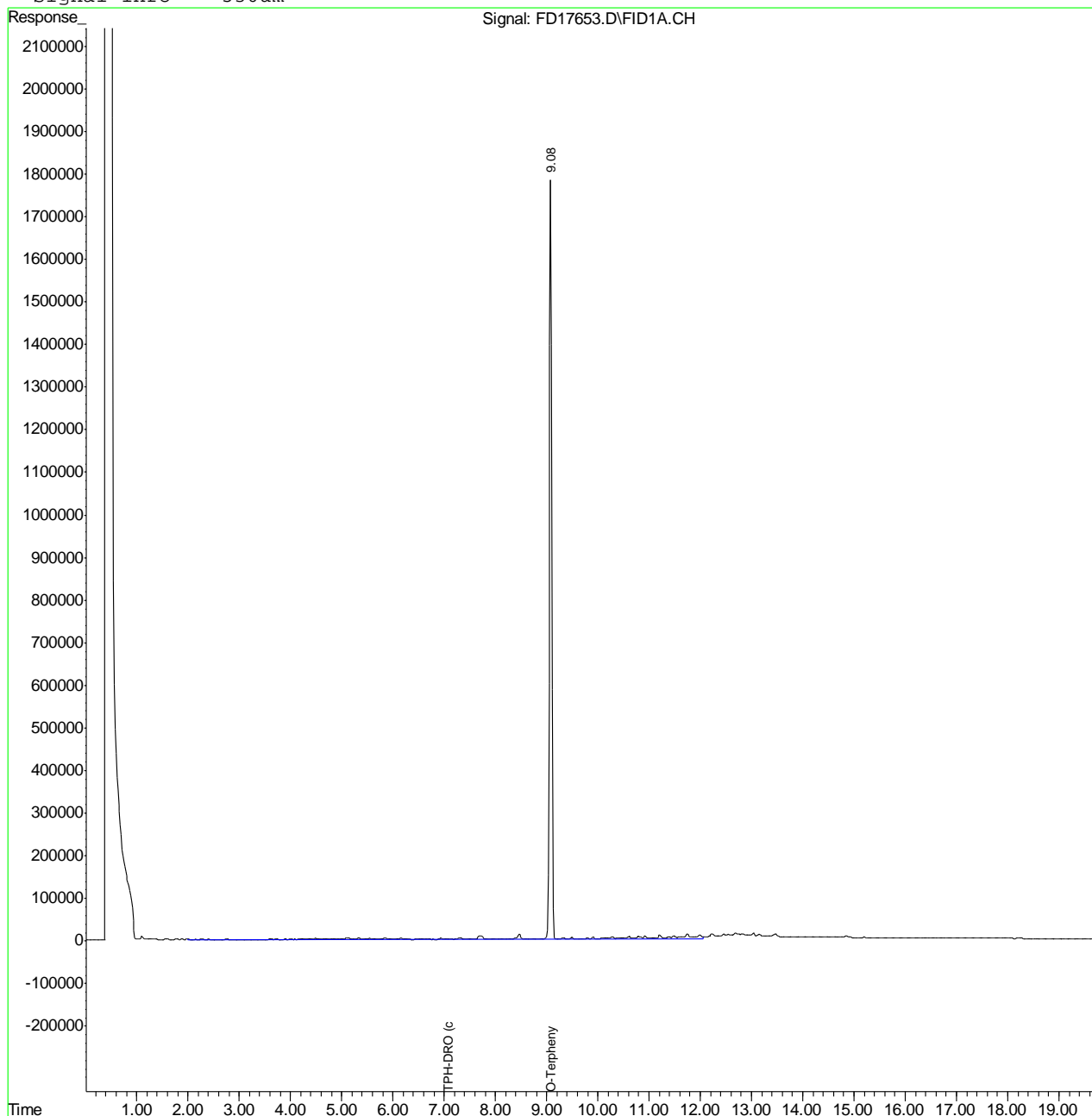
System Monitoring Compounds			
1) S O-Terphenyl	9.09	60042327	1271.046 mg/L
Target Compounds			
2) H TPH-DRO (c10-c28)	7.08	10813520	280.832 mg/L

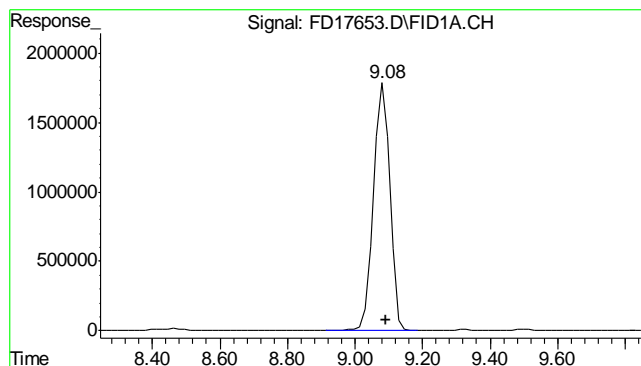
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\SEPTEMBER\FD092012\FD17653.D Vial: 18
 Acq On : 20 Sep 2012 11:26 pm Operator: ashleyv
 Sample : D38897-1 Inst : FID5
 Misc : OP6671,GFD902,30.03,,,2,1 Multiplr: 1.00
 IntFile : autoint1.e
 Quant Time: Sep 21 9:40 2012 Quant Results File: DRO-GFD823F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD823F.M (Chemstation Integrator)
 Title : 8015B TEH
 Last Update : Thu Sep 20 09:45:06 2012
 Response via : Multiple Level Calibration
 DataAcq Meth : DRODUAL.M

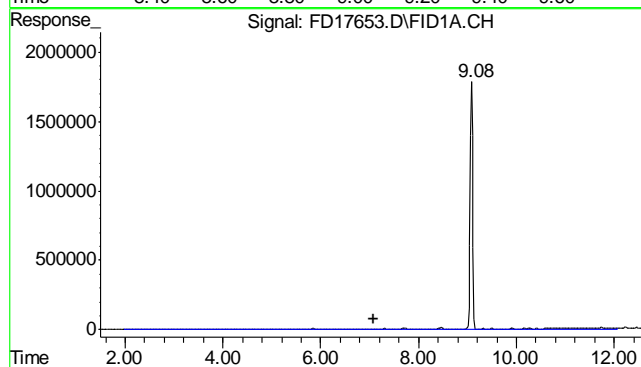
Volume Inj. : 1ul
 Signal Phase : RTX-5
 Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.087 min
 Delta R.T.: -0.003 min
 Response: 60042327
 Conc: 1271.05 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 7.075 min
 Delta R.T.: 0.000 min
 Response: 10813520
 Conc: 280.83 mg/L m

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\SEPTEMBER\FD092012\FD17645.D Vial: 14
Acq On : 9-20-2012 09:42:54 PM Operator: ashleyv
Sample : OP6671-MB Inst : FID5
Misc : OP6671,GFD902,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Sep 21 09:14:01 2012 Quant Results File: DRO-GFD823F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD823F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Thu Sep 20 09:45:06 2012
Response via : Initial Calibration
DataAcq Meth : DRODUAL.M

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

Compound	R.T.	Response	Conc Units

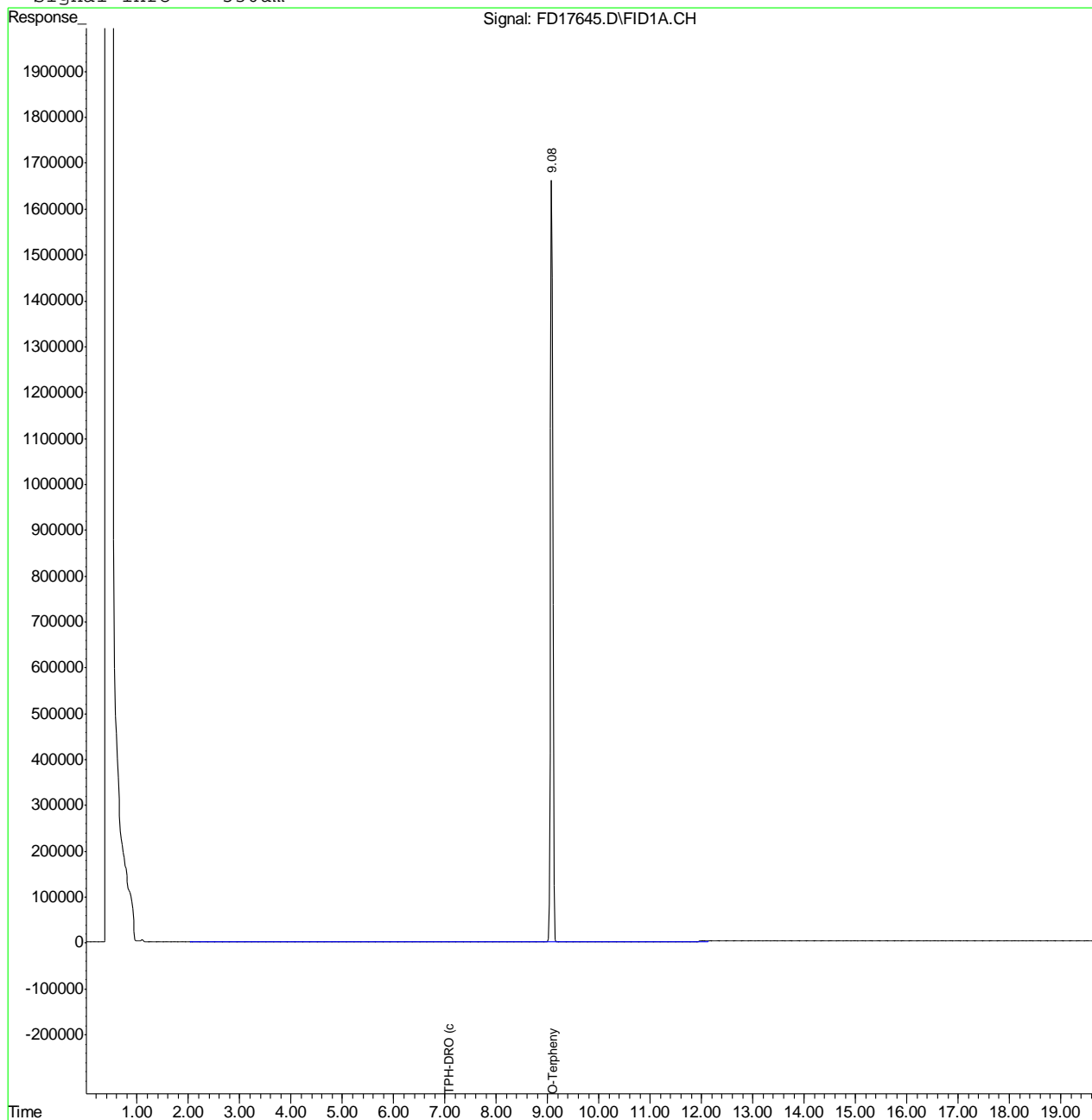
System Monitoring Compounds			
1) S O-Terphenyl	9.09	55868531	1182.690 mg/L
Target Compounds			
2) H TPH-DRO (c10-c28)	7.08	727765	18.900 mg/L

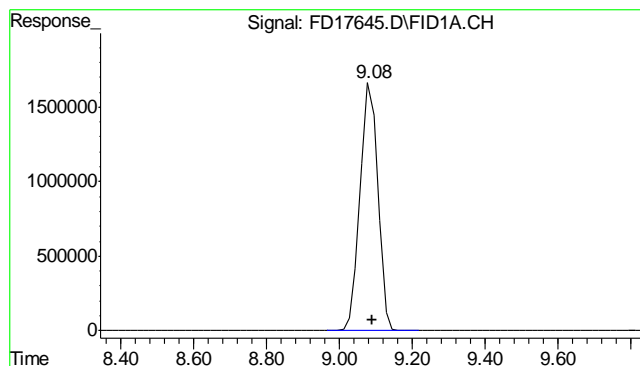
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\SEPTEMBER\FD092012\FD17645.D Vial: 14
Acq On : 9-20-2012 09:42:54 PM Operator: ashleyv
Sample : OP6671-MB Inst : FID5
Misc : OP6671,GFD902,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Sep 21 9:14 2012 Quant Results File: DRO-GFD823F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD823F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Thu Sep 20 09:45:06 2012
Response via : Multiple Level Calibration
DataAcq Meth : DRODUAL.M

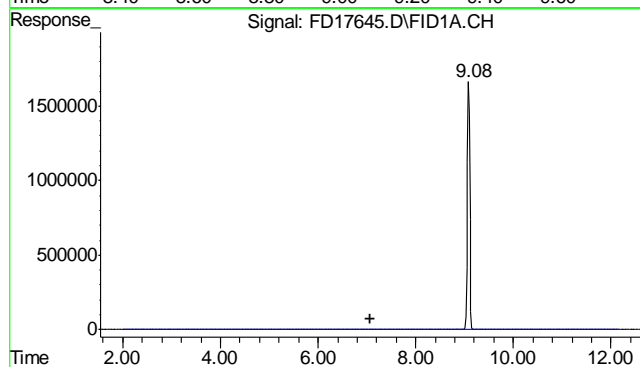
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.088 min
Delta R.T.: -0.002 min
Response: 55868531
Conc: 1182.69 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 7.075 min
Delta R.T.: 0.000 min
Response: 727765
Conc: 18.90 mg/L m

13.2.1
13

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: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8444
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 09/20/12

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.10	.0011	.0009	0.0014	<0.10

Associated samples MP8444: D38897-1

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: D38897
 Account: XTOKRWR - XTO Energy
 Project: PCU 197-36A

QC Batch ID: MP8444
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 09/20/12

Metal	D38854-1		SpikeLot		QC
	Original	MS	HGWSR1	% Rec	Limits
Mercury	0.017	0.42	0.421	95.6	75-125

Associated samples MP8444: D38897-1

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: D38897
 Account: XTOKRWR - XTO Energy
 Project: PCU 197-36A

QC Batch ID: MP8444
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 09/20/12

Metal	D38854-1 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.017	0.41	0.413	95.1	2.4	

Associated samples MP8444: D38897-1

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: D38897
 Account: XTOKRWR - XTO Energy
 Project: PCU 197-36A

QC Batch ID: MP8444
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 09/20/12

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

Associated samples MP8444: D38897-1

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: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8469
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 09/24/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.96	.57		
Antimony	3.0	.17	.12		
Arsenic	2.5	.44	.56		
Barium	1.0	.01	.11	0.090	<1.0
Beryllium	1.0	.13	.15		
Boron	5.0	.1	.06		
Cadmium	1.0	.06	.036	0.0	<1.0
Calcium	40	.54	9		
Chromium	1.0	.03	.03	0.020	<1.0
Cobalt	0.50	.04	.07		
Copper	1.0	.12	.15	-0.080	<1.0
Iron	7.0	.12	.87		
Lead	5.0	.19	.24	0.10	<5.0
Lithium	0.20	.05	.054		
Magnesium	20	.65	.98		
Manganese	0.50	.12	.022		
Molybdenum	1.0	.21	.08		
Nickel	3.0	.05	.026	-0.020	<3.0
Phosphorus	10	1.4	1.9		
Potassium	200	6.1	7		
Selenium	5.0	.48	.36	-0.41	<5.0
Silicon	5.0	.29	.37		
Silver	3.0	.04	.06	-0.13	<3.0
Sodium	40	.59	1.9		
Strontium	5.0	.004	.017		
Thallium	1.0	.29	.53		
Tin	5.0	1.2	2		
Titanium	1.0	.01	.038		
Uranium	5.0	.22	.26		
Vanadium	1.0	.02	.036		
Zinc	3.0	.05	.37	0.090	<3.0

Associated samples MP8469: D38897-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8469
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8469
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 09/24/12

Metal	D38897-1 Original MS		Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium	500	692	233	90.9	75-125
Beryllium					
Boron					
Cadmium	0.18	52.9	58.3	90.4	75-125
Calcium	anr				
Chromium	65.2	121	58.3	89.4	75-125
Cobalt					
Copper	12.1	67.4	58.3	94.8	75-125
Iron					
Lead	9.6	117	117	92.1	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	22.5	71.6	58.3	84.2	75-125
Phosphorus					
Potassium					
Selenium	0.0	104	117	89.2	75-125
Silicon					
Silver	0.069	22.5	23.3	96.2	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	41.1	89.9	58.3	83.7	75-125

Associated samples MP8469: D38897-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8469
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8469
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 09/24/12

Metal	D38897-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium	500	738	233	110.6	6.4	20
Beryllium						
Boron						
Cadmium	0.18	53.2	58.3	91.0	0.6	20
Calcium	anr					
Chromium	65.2	124	58.3	94.5	2.4	20
Cobalt						
Copper	12.1	65.9	58.3	92.3	2.3	20
Iron						
Lead	9.6	115	117	90.4	1.7	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	22.5	71.3	58.3	83.7	0.4	20
Phosphorus						
Potassium						
Selenium	0.0	105	117	90.0	1.0	20
Silicon						
Silver	0.069	22.7	23.3	97.0	0.9	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	41.1	89.4	58.3	82.8	0.6	20

Associated samples MP8469: D38897-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8469
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8469
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 09/24/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	182	200	91.0	80-120
Beryllium				
Boron				
Cadmium	47.3	50	94.6	80-120
Calcium	anr			
Chromium	50.3	50	100.6	80-120
Cobalt				
Copper	44.4	50	88.8	80-120
Iron				
Lead	98.4	100	98.4	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	47.5	50	95.0	80-120
Phosphorus				
Potassium				
Selenium	93.7	100	93.7	80-120
Silicon				
Silver	19.7	20	98.5	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	45.6	50	91.2	80-120

Associated samples MP8469: D38897-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8469
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8469
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 09/24/12

	D38897-1			QC
Metal	Original	SDL 1:5	%DIF	Limits
Aluminum				
Antimony				
Arsenic				
Barium	4370	4600	9.4	0-10
Beryllium				
Boron				
Cadmium	1.60	0.00	100.0(a)	0-10
Calcium	anr			
Chromium	570	671	11.1*(b)	0-10
Cobalt				
Copper	106	102	4.5	0-10
Iron				
Lead	84.3	89.0	5.6	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	197	229	16.1*(b)	0-10
Phosphorus				
Potassium				
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver	0.600	0.00	100.0(a)	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	400	418	16.2*(b)	0-10

Associated samples MP8469: D38897-1

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

14.2.4
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8469
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.

14.2.4
14

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8470
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 09/24/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.006	.06	0.0024	<0.10
Barium	1.0	.0065	.037		
Beryllium	0.10	.016	.09		
Boron	20	1.2	1.2		
Cadmium	0.050	.014	.021		
Calcium	200	7.9	8		
Chromium	1.0	.033	.19		
Cobalt	0.10	.0012	.015		
Copper	1.0	.017	.065		
Iron	20	.8	5		
Lead	0.25	.0011	.024		
Magnesium	50	.44	.85		
Manganese	0.50	.0043	.02		
Molybdenum	0.50	.018	.018		
Nickel	1.0	.0049	.011		
Phosphorus	30	1.4	3.6		
Potassium	100	9.8	10		
Selenium	0.20	.029	.14		
Silver	0.050	.0009	.0065		
Sodium	250	1.5	2.3		
Strontium	10	.036	.036		
Thallium	0.10	.00095	.0095		
Tin	5.0	.023	.34		
Titanium	1.0	.044	.1		
Uranium	0.25	.00085	.001		
Vanadium	2.0	.12	.21		
Zinc	5.0	.033	.35		

Associated samples MP8470: D38897-1

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: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8470
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 09/24/12

Metal	D38897-1 Original MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	6.7	124	117	100.6
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 MP8470: D38897-1

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

14.3.2
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8470
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 09/24/12

Metal	D38897-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	6.7	123	117	99.7	0.8	20
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP8470: D38897-1

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

14.3.2
14

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8470
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 09/24/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	103	100	103.0	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 MP8470: D38897-1

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

14.3.3
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D38897
 Account: XTOKRWR - XTO Energy
 Project: PCU 197-36A

QC Batch ID: MP8470
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: ug/l

Prep Date: 09/24/12

Metal	D38897-1			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic	58.3	56.1	3.7	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 MP8470: D38897-1

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

14.3.4
14

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8480
Matrix Type: AQUEOUS

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

Prep Date: 09/24/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	48	130		
Antimony	150	8.5	18		
Arsenic	130	22	42		
Barium	50	.5	9		
Beryllium	50	6.5	16		
Boron	250	5	22		
Cadmium	50	3	3		
Calcium	2000	27	80	24.0	<2000
Chromium	50	1.5	2.8		
Cobalt	25	2	2.1		
Copper	50	6	15		
Iron	350	6	100		
Lead	250	9.5	15		
Lithium	10	2.5			
Magnesium	1000	33	110	2.5	<1000
Manganese	25	6	6		
Molybdenum	50	11	11		
Nickel	150	2.5	2.9		
Phosphorus	500	70	300		
Potassium	5000	310	750		
Selenium	250	24	55		
Silicon	250	15			
Silver	150	2	4.9		
Sodium	2000	30	490	585	<2000
Strontium	25	.2	7.5		
Thallium	50	15	43		
Tin	250	60			
Titanium	50	.5			
Uranium	250	11	23		
Vanadium	50	1	2.4		
Zinc	150	2.5	12		

Associated samples MP8480: D38897-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8480
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: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8480
Matrix Type: AQUEOUS

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

Prep Date: 09/24/12

Metal	D38940-1A Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	1050000	1270000	125000	176.0(a)	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	0.00	125000	125000	100.0	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	818000	1000000	125000	145.6(a)	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP8480: D38897-1A

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

14.4.2
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8480
Matrix Type: AQUEOUS

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

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8480
Matrix Type: AQUEOUS

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

Prep Date: 09/24/12

Metal	D38940-1A Original	MSD	SpikeLot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	1050000	1310000	125000	208.0(a)	3.1	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	0.00	127000	125000	101.6	1.6	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	818000	1040000	125000	177.6(a)	3.9	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP8480: D38897-1A

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

14.4.2
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8480
Matrix Type: AQUEOUS

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

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8480
Matrix Type: AQUEOUS

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

Prep Date: 09/24/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	137000	125000	109.6	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	127000	125000	101.6	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	132000	125000	105.6	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8480: D38897-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8480
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8480
Matrix Type: AQUEOUS

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

Prep Date: 09/24/12

Metal	D38940-1A Original SDL 1:5		%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	210000	216000	2.6	0-10
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	0.00	0.00	NC	0-10
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	164000	167000	2.4	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8480: D38897-1A

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

14.4.4
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8480
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

14.4.4
14

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: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP8246/GN16921	1.0	0.0	mg/kg	60.7	66.4	109.0	80-120%
Specific Conductivity	GP8271/GN16934			umhos/cm	99.9	9980	99.9	90-110%
pH	GN16844			su	8.00	7.96	99.5	99.3-100.7%

Associated Samples:
Batch GP8246: D38897-1
Batch GP8271: D38897-1
Batch GN16844: D38897-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP8246/GN16921	D38939-1	mg/kg	0.0	0.0	31.4(a)	0-20%
Redox Potential Vs H2	GN16882	D38940-1	mv	13.5	13.0	3.8	0-20%

Associated Samples:

Batch GP8246: D38897-1

Batch GN16882: D38897-1

(*) Outside of QC limits

(a) RPD acceptable due to low duplicate and sample concentrations.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP8246/GN16921	D38939-1	mg/kg	0.0	40	39.5	98.8	75-125%

Associated Samples:

Batch GP8246: D38897-1

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D38897
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chromium, Hexavalent	GP8246/GN16921	D38939-1	mg/kg	0.0	40	40.4	2.2	

Associated Samples:
Batch GP8246: D38897-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits