



10/24/12

Technical Report for

XTO Energy

PCU 197-36A

1203-02

Accutest Job Number: D40002

Sampling Date: 10/16/12

Report to:

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Total number of pages in report: 145



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


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Laboratory Director

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Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP C000049), 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: D40002

PCU 197-36A
Project No: 1203-02

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D40002-1	10/16/12	10:45 DK	10/18/12	SO	Soil	RP POST SOLDIIFICATION
D40002-1A	10/16/12	10:45 DK	10/18/12	SO	Soil	RP POST SOLDIIFICATION

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



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: XTO Energy

Job No D40002

Site: PCU 197-36A

Report Date 10/24/2012 4:08:42 PM

On 10/18/2012, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3.6 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D40002 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: V5V1478

- All samples were analyzed within the recommended method holding time.
- Sample(s) D40002-1MS, D40002-1MSD 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: OP6830

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D40002-1MS, D40002-1MSD were used as the QC samples indicated.

Volatiles by GC By Method SW846 8015B

Matrix SO

Batch ID: GGB990

- All samples were analyzed within the recommended method holding time.
- Sample(s) D39960-1MS, D39960-1MSD 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: OP6832

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D39999-1MS, D39999-1MSD were used as the QC samples indicated.

Metals By Method SW846 6010C

Matrix AQ

Batch ID: MP8723

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D40074-1AMS, D40074-1AMSD, D40074-1ASDL were used as the QC samples for the metals analysis.

Matrix SO

Batch ID: MP8697

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D39968-2MS, D39968-2MSD, D39968-2SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Cadmium, Lead, Silver, Barium, Nickel, Zinc are outside control limits for sample MP8697-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP8697-SD1 for Nickel: Serial dilution indicates possible matrix interference.
- MP8697-SD1 for Barium: Serial dilution indicates possible matrix interference.
- MP8697-SD1 for Zinc: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix SO

Batch ID: MP8698

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D39968-2MS, D39968-2MSD, D39968-2SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471B

Matrix SO

Batch ID: MP8720

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D39936-1MS, D39936-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO

Batch ID: GN17302

- Sample(s) D39802-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN17303

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO

Batch ID: R14880

- The data for SW846 3060/7196A M meets quality control requirements.
- D40002-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO

Batch ID: GP8472

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D40002-1DUP, D40002-1MS, D40002-1MSD were used as the QC samples for the Chromium, Hexavalent analysis.

Wet Chemistry By Method SW846 9045D

Matrix SO

Batch ID: GN17297

- The following samples were run outside of holding time for method SW846 9045D: D40002-1

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO

Batch ID: MP8723

- D40002-1A 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: D40002
Account: XTO Energy
Project: PCU 197-36A
Collected: 10/16/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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D40002-1 RP POST SOLDIIFICATION

Toluene	0.165 J	0.21	0.11	mg/kg	SW846 8260B
Xylene (total)	0.268 J	0.42	0.21	mg/kg	SW846 8260B
Benzo(a)anthracene	0.0105 J	0.013	0.0067	mg/kg	SW846 8270C BY SIM
Chrysene	0.0269	0.013	0.0067	mg/kg	SW846 8270C BY SIM
Fluoranthene	0.0120 J	0.013	0.0067	mg/kg	SW846 8270C BY SIM
Naphthalene	0.133	0.018	0.016	mg/kg	SW846 8270C BY SIM
Pyrene	0.0232	0.013	0.0067	mg/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)	12.3 J	21	11	mg/kg	SW846 8015B
TPH-DRO (C10-C28)	578	21	13	mg/kg	SW846-8015B
Arsenic	11.1	0.16		mg/kg	SW846 6020A
Barium	8810	7.9		mg/kg	SW846 6010C
Chromium	14.7	1.6		mg/kg	SW846 6010C
Copper	29.5	1.6		mg/kg	SW846 6010C
Lead	23.0	7.9		mg/kg	SW846 6010C
Nickel	72.5	4.8		mg/kg	SW846 6010C
Zinc	42.3	4.8		mg/kg	SW846 6010C
Specific Conductivity	10700	1.0		umhos/cm	SM2510B-1997 MOD
Chromium, Trivalent ^a	14.7	2.6		mg/kg	SW846 3060/7196A M
Redox Potential Vs H2	65.50			mv	ASTM D1498-76M
pH	12.24			su	SW846 9045D

D40002-1A RP POST SOLDIIFICATION

Calcium	428	2.0		mg/l	SW846 6010C
Sodium	1650	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^b	21.9			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:	RP POST SOLDIIFICATION	Date Sampled:	10/16/12
Lab Sample ID:	D40002-1	Date Received:	10/18/12
Matrix:	SO - Soil	Percent Solids:	64.2
Method:	SW846 8260B		
Project:	PCU 197-36A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V24280.D	1	10/19/12	BD	n/a	n/a	V5V1478
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.05 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.11	0.053	mg/kg	
108-88-3	Toluene	0.165	0.21	0.11	mg/kg	J
100-41-4	Ethylbenzene	ND	0.21	0.040	mg/kg	
1330-20-7	Xylene (total)	0.268	0.42	0.21	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	95%		64-130%
460-00-4	4-Bromofluorobenzene	97%		62-131%
17060-07-0	1,2-Dichloroethane-D4	101%		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

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Report of Analysis

Page 1 of 1

Client Sample ID:	RP POST SOLDIIFICATION		
Lab Sample ID:	D40002-1	Date Sampled:	10/16/12
Matrix:	SO - Soil	Date Received:	10/18/12
Method:	SW846 8270C BY SIM SW846 3546	Percent Solids:	64.2
Project:	PCU 197-36A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G11723.D	1	10/19/12	DC	10/19/12	OP6830	E3G552
Run #2							

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

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.013	0.0067	mg/kg	
120-12-7	Anthracene	ND	0.013	0.0067	mg/kg	
56-55-3	Benzo(a)anthracene	0.0105	0.013	0.0067	mg/kg	J
50-32-8	Benzo(a)pyrene	ND	0.013	0.0067	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.013	0.0067	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.013	0.0067	mg/kg	
218-01-9	Chrysene	0.0269	0.013	0.0067	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.013	0.0067	mg/kg	
206-44-0	Fluoranthene	0.0120	0.013	0.0067	mg/kg	J
86-73-7	Fluorene	ND	0.013	0.0067	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.013	0.0067	mg/kg	
91-20-3	Naphthalene	0.133	0.018	0.016	mg/kg	
129-00-0	Pyrene	0.0232	0.013	0.0067	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	62%		10-159%
321-60-8	2-Fluorobiphenyl	68%		19-131%
1718-51-0	Terphenyl-d14	85%		18-150%

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:	RP POST SOLDIIFICATION			Date Sampled:	10/16/12
Lab Sample ID:	D40002-1			Date Received:	10/18/12
Matrix:	SO - Soil			Percent Solids:	64.2
Method:	SW846 8015B				
Project:	PCU 197-36A				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB18130.D	1	10/18/12	SK	n/a	n/a	GGB990
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	12.3	21	11	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	93%		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

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Report of Analysis

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Client Sample ID:	RP POST SOLDIIFICATION			Date Sampled:	10/16/12
Lab Sample ID:	D40002-1			Date Received:	10/18/12
Matrix:	SO - Soil			Percent Solids:	64.2
Method:	SW846-8015B SW846 3546				
Project:	PCU 197-36A				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD18732.D	1	10/19/12	AV	10/19/12	OP6832	GFD946
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)	578	21	13	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	78%		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:	RP POST SOLDIIFICATION	Date Sampled:	10/16/12
Lab Sample ID:	D40002-1	Date Received:	10/18/12
Matrix:	SO - Soil	Percent Solids:	64.2
Project:	PCU 197-36A		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	11.1	0.16	mg/kg	5	10/19/12	10/22/12 JM	SW846 6020A ²	SW846 3050B ⁶
Barium	8810	7.9	mg/kg	5	10/19/12	10/20/12 JB	SW846 6010C ³	SW846 3050B ⁵
Cadmium	< 1.6	1.6	mg/kg	1	10/19/12	10/20/12 JM	SW846 6010C ¹	SW846 3050B ⁵
Chromium	14.7	1.6	mg/kg	1	10/19/12	10/20/12 JM	SW846 6010C ¹	SW846 3050B ⁵
Copper	29.5	1.6	mg/kg	1	10/19/12	10/20/12 JB	SW846 6010C ³	SW846 3050B ⁵
Lead	23.0	7.9	mg/kg	1	10/19/12	10/20/12 JM	SW846 6010C ¹	SW846 3050B ⁵
Mercury	< 0.13	0.13	mg/kg	1	10/24/12	10/24/12 JB	SW846 7471B ⁴	SW846 7471B ⁷
Nickel	72.5	4.8	mg/kg	1	10/19/12	10/20/12 JM	SW846 6010C ¹	SW846 3050B ⁵
Selenium	< 7.9	7.9	mg/kg	1	10/19/12	10/20/12 JM	SW846 6010C ¹	SW846 3050B ⁵
Silver	< 4.8	4.8	mg/kg	1	10/19/12	10/20/12 JM	SW846 6010C ¹	SW846 3050B ⁵
Zinc	42.3	4.8	mg/kg	1	10/19/12	10/20/12 JM	SW846 6010C ¹	SW846 3050B ⁵

- (1) Instrument QC Batch: MA2912
 (2) Instrument QC Batch: MA2918
 (3) Instrument QC Batch: MA2919
 (4) Instrument QC Batch: MA2928
 (5) Prep QC Batch: MP8697
 (6) Prep QC Batch: MP8698
 (7) Prep QC Batch: MP8720

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RP POST SOLDIIFICATION	Date Sampled:	10/16/12
Lab Sample ID:	D40002-1	Date Received:	10/18/12
Matrix:	SO - Soil	Percent Solids:	64.2
Project:	PCU 197-36A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	10700	1.0	umhos/cm	1	10/19/12	JD	SM2510B-1997 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	10/19/12	KB	SW846 3060A/7196A
Chromium, Trivalent ^a	14.7	2.6	mg/kg	1	10/20/12 04:36	JM	SW846 3060/7196A M
Redox Potential Vs H2	65.50		mv	1	10/18/12	JD	ASTM D1498-76M
Solids, Percent	64.2		%	1	10/19/12	SWT	SM19 2540B M
pH	12.24		su	1	10/18/12 14:00	CT	SW846 9045D

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: RP POST SOLDIIFICATION
Lab Sample ID: D40002-1A
Matrix: SO - Soil
Project: PCU 197-36A

Date Sampled: 10/16/12
Date Received: 10/18/12
Percent Solids: 64.2

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	428	2.0	mg/l	1	10/23/12	10/24/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	< 1.0	1.0	mg/l	1	10/23/12	10/24/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Sodium	1650	2.0	mg/l	1	10/23/12	10/24/12 JB	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA2927
(2) Prep QC Batch: MP8723

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RP POST SOLDIIFICATION	Date Sampled:	10/16/12
Lab Sample ID:	D40002-1A	Date Received:	10/18/12
Matrix:	SO - Soil	Percent Solids:	64.2
Project:	PCU 197-36A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	21.9		ratio	1	10/24/12 12:26	JB	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



CHAIN OF CUSTODY

PAGE 1 OF 1

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

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # D40002
Requested Analysis (see TEST CODE sheet)	
Matrix Codes	
DW - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank	
LAB USE ONLY	

Client / Reporting Information		Project Information		
Company Name KRW Consulting	Project Name XTO PCW 197-86A			
Street Address 8000 West 14th Street, Suite 200	Street Lakewood, CO 80214			
City Lakewood, CO 80214	City Lakewood, CO 80214			
Project Contact Dwayne Knudson	Project # 1203-02			
Phone # 970-488-1098	Client Purchase Order #			
Sampler(s) Name(s) DWAYNE KNUDSON	Project Manager Joe Hess			
Billing Information (if different from Report to)				
Company Name XTO Energy				
Street Address 21459 CR 5				
City Rifle, CO 81660				
Attention: Jessica Dooling				
Collection				
Field ID / Point of Collection RP POST SOLIDIFICATION	MEOH/DI Vial #			
Date 10-16-12	Time 10:45			
Sampled by AK	Matrix SO			
# of bottles 5	Number of preserved bottles			
IC1	IC2			
IC3	IC4			
IC5	IC6			
IC7	IC8			
IC9	IC10			
IC11	IC12			
IC13	IC14			
IC15	IC16			
IC17	IC18			
IC19	IC20			
IC21	IC22			
IC23	IC24			
IC25	IC26			
IC27	IC28			
IC29	IC30			
IC31	IC32			
IC33	IC34			
IC35	IC36			
IC37	IC38			
IC39	IC40			
IC41	IC42			
IC43	IC44			
IC45	IC46			
IC47	IC48			
IC49	IC50			
IC51	IC52			
IC53	IC54			
IC55	IC56			
IC57	IC58			
IC59	IC60			
IC61	IC62			
IC63	IC64			
IC65	IC66			
IC67	IC68			
IC69	IC70			
IC71	IC72			
IC73	IC74			
IC75	IC76			
IC77	IC78			
IC79	IC80			
IC81	IC82			
IC83	IC84			
IC85	IC86			
IC87	IC88			
IC89	IC90			
IC91	IC92			
IC93	IC94			
IC95	IC96			
IC97	IC98			
IC99	IC100			
Turnaround Time (Business days)				
Data Deliverable Information				
Comments / Special Instructions				
Approved By (Accutest PM): / Date:				
Commercial "A" = Results Only Commercial "B" = Results + QC Summary Commercial BN = Results/QC/Narrative (+ = chromatograms)				
State Forms Required Send Forms to State Report by Fax Report by PDF ONLY EDD Format				
Please email to: KRW Piceance Team				
Emergency & Rush TIA data available VIA Lablink				
Sample Custody must be documented below each time samples change possession, including courier delivery.				
Relinquished by Sampler: 1 Dori Alonson	Date Time: 10/17/12 14:00	Received By: Service Center	Relinquished By: 2	Date Time: 10/18 1215
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Intact Not Intact
Preserved where applicable		On ice	Cooler Temp. 3.6	

D40002: Chain of Custody

Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D40002

Client: KRW CONSULTING

Immediate Client Services Action Required: No

Date / Time Received: 10/18/2012 12:15:00 P

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

 Accutest Laboratories
 V:(303) 425-6021

 4036 Youngfield Street
 F: (303) 425-6854

 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

Page 1 of 1

Job Number: D40002
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1478-MB	5V24278.D	1	10/19/12	BD	n/a	n/a	V5V1478

The QC reported here applies to the following samples:

Method: SW846 8260B

D40002-1

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

CAS No.	Surrogate Recoveries	Limits
2037-26-5	Toluene-D8	97% 61-130%
460-00-4	4-Bromofluorobenzene	88% 53-131%
17060-07-0	1,2-Dichloroethane-D4	98% 62-130%

Blank Spike Summary

Page 1 of 1

Job Number: D40002
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1478-BS	5V24279.D	1	10/19/12	BD	n/a	n/a	V5V1478

The QC reported here applies to the following samples:

Method: SW846 8260B

D40002-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	53.6	107	70-130
100-41-4	Ethylbenzene	50	54.3	109	70-130
108-88-3	Toluene	50	52.6	105	70-130
1330-20-7	Xylene (total)	150	169	113	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	98%	61-130%
460-00-4	4-Bromofluorobenzene	94%	53-131%
17060-07-0	1,2-Dichloroethane-D4	102%	62-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D40002
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D40002-1MS	5V24281.D	1	10/19/12	BD	n/a	n/a	V5V1478
D40002-1MSD	5V24282.D	1	10/19/12	BD	n/a	n/a	V5V1478
D40002-1	5V24280.D	1	10/19/12	BD	n/a	n/a	V5V1478

The QC reported here applies to the following samples:

Method: SW846 8260B

D40002-1

CAS No.	Compound	D40002-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		5250	5420	103	5440	104	0	70-134/30
100-41-4	Ethylbenzene	ND		5250	5350	102	5360	102	0	70-137/30
108-88-3	Toluene	165	J	5250	5210	96	5230	96	0	70-130/30
1330-20-7	Xylene (total)	268	J	15800	16800	105	16900	106	1	61-131/30

CAS No.	Surrogate Recoveries	MS	MSD	D40002-1	Limits
2037-26-5	Toluene-D8	96%	97%	95%	61-130%
460-00-4	4-Bromofluorobenzene	101%	100%	97%	53-131%
17060-07-0	1,2-Dichloroethane-D4	99%	97%	101%	62-130%

* = Outside of Control Limits.

GC/MS Volatiles

Raw Data

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5101912.S\
 Data File : 5V24280.D
 Acq On : 19 Oct 2012 12:47 pm
 Operator : BRETD
 Sample : D40002-1
 Misc : MS4834,V5V1478,5.047,,100,5,1
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 23 13:44:53 2012
 Quant Method : C:\msdchem\1\METHODS\V5AP1442TVH1442.M
 Quant Title : 8260
 QLast Update : Fri Sep 07 10:53:51 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	132354	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	178711	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	178887	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	136411	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.024	102	12844	50.59	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	101.18%
61) Toluene-d8	13.851	98	201596	47.51	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	95.02%
69) 4-Bromofluorobenzene	16.043	95	93818	48.55	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	97.10%

Target Compounds

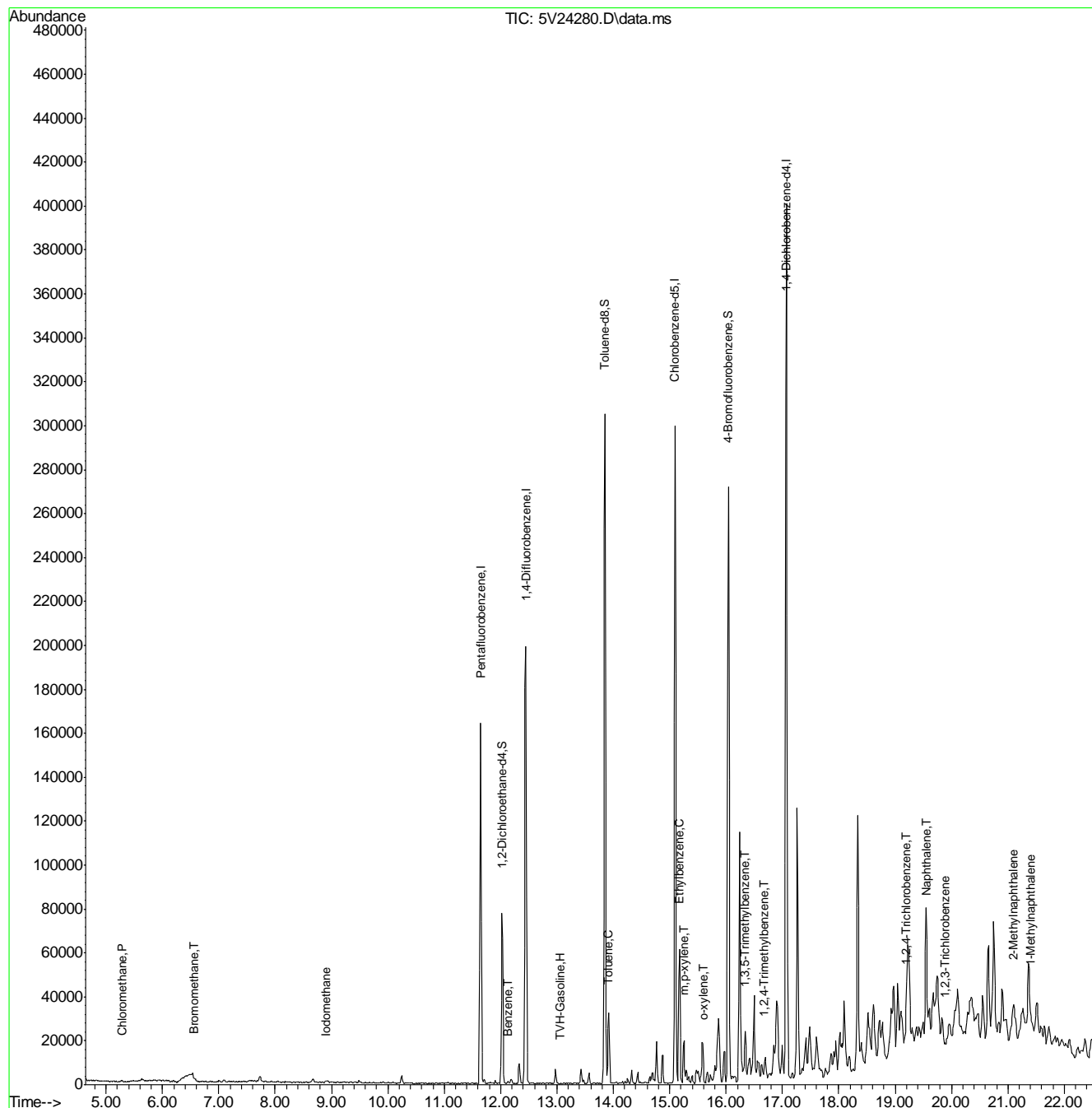
					Qvalue
1) TVH-Gasoline	13.055	TIC	834411m	70.69	ug/l
4) Chloromethane	5.276	50	821	0.49	ug/l # 43
6) Bromomethane	6.567	94	1243	1.65	ug/l # 51
12) Iodomethane	8.907	142	2075	1.80	ug/l # 32
50) Benzene	12.127	78	1599	0.29	ug/l 100
62) Toluene	13.908	92	6020	1.57	ug/l 99
66) Ethylbenzene	15.175	91	1525	0.21	ug/l 96
72) m,p-xylene	15.255	106	6757	2.26	ug/l 96
73) o-xylene	15.597	106	831	0.29	ug/l 86
80) 1,3,5-Trimethylbenzene	16.339	105	3680	0.47	ug/l 100
82) 1,2,4-Trimethylbenzene	16.682	105	5155	0.64	ug/l 98
90) 1,2,4-Trichlorobenzene	19.194	180	1030	0.26	ug/l # 82
91) Naphthalene	19.559	128	6307	0.81	ug/l 100
93) 1,2,3-Trichlorobenzene	19.879	180	2618	0.70	ug/l # 54
94) 2-Methylnaphthalene	21.100	142	9091	3.02	ug/l 95
95) 1-Methylnaphthalene	21.397	142	6157	2.17	ug/l # 92

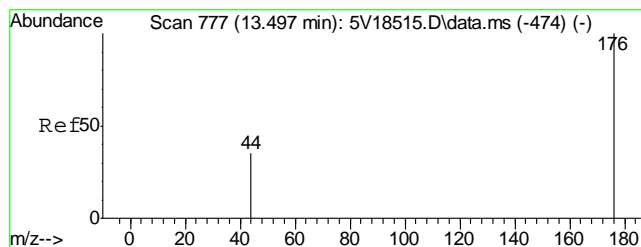
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5101912.S\
Data File : 5V24280.D
Acq On : 19 Oct 2012 12:47 pm
Operator : BRETD
Sample : D40002-1
Misc : MS4834,V5V1478,5.047,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

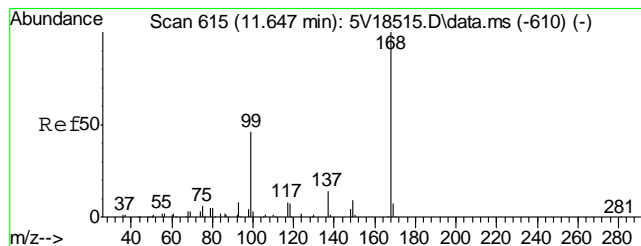
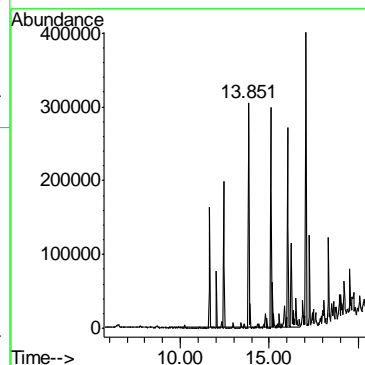
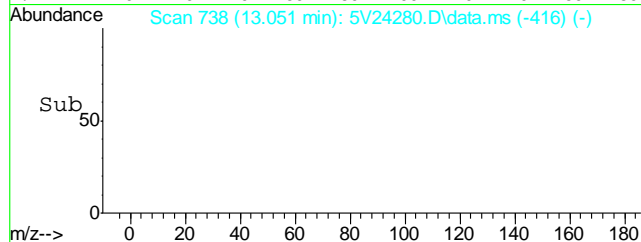
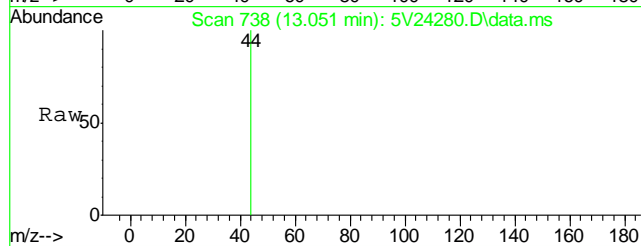
Quant Time: Oct 23 13:44:53 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1442TVH1442.M
Quant Title : 8260
QLast Update : Fri Sep 07 10:53:51 2012
Response via : Initial Calibration





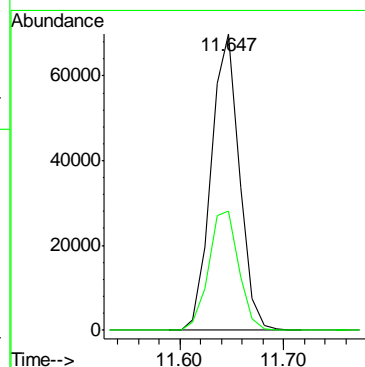
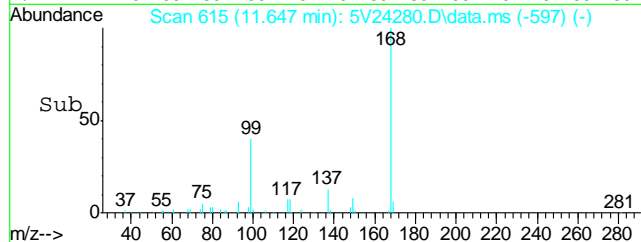
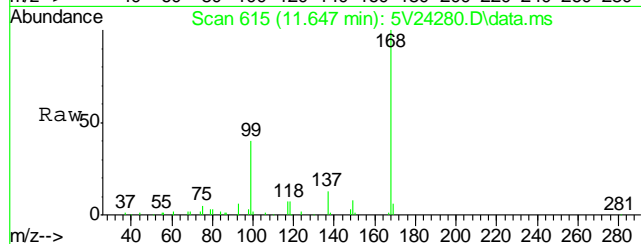
#1
TVH-Gasoline
Concen: 70.69 ug/l m
RT: 13.055 min Scan# 738
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

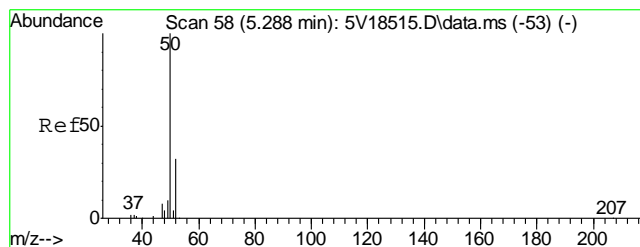
Tgt Ion:TIC Resp: 834411



#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.647 min Scan# 615
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

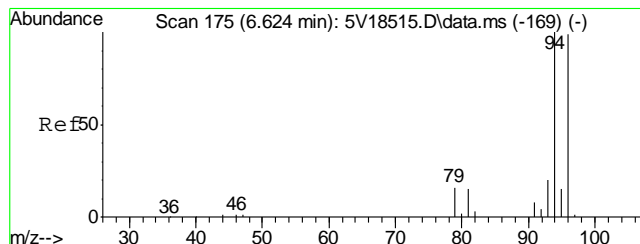
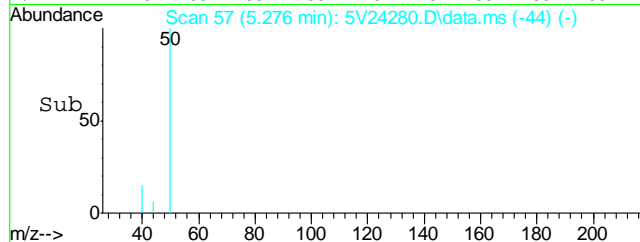
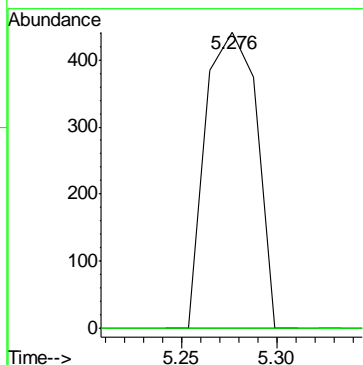
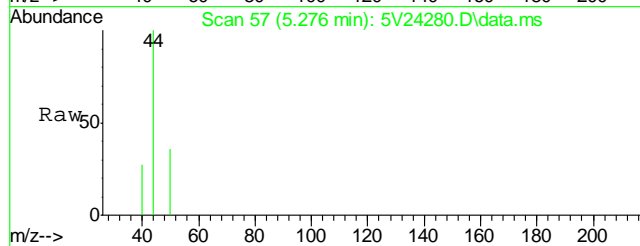
Tgt Ion:168 Resp: 132354
Ion Ratio Lower Upper
168 100
99 42.5 37.4 56.2





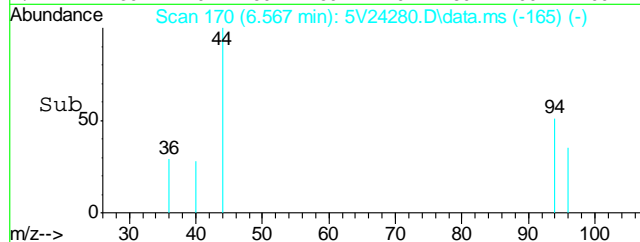
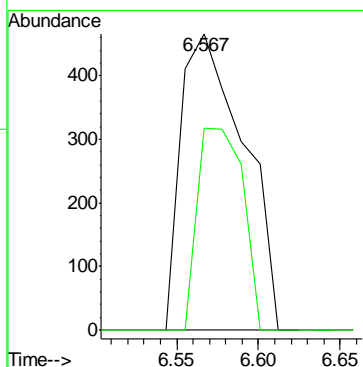
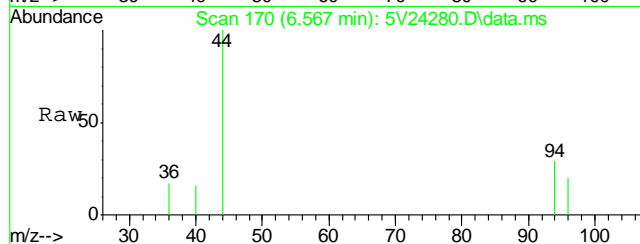
#4
Chloromethane
Concen: 0.49 ug/l
RT: 5.276 min Scan# 57
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

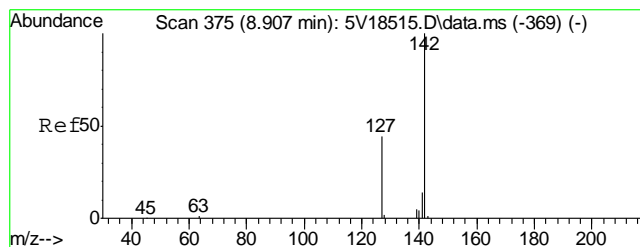
Tgt Ion: 50 Resp: 821
Ion Ratio Lower Upper
50 100
52 0.0 12.1 52.1#



#6
Bromomethane
Concen: 1.65 ug/l
RT: 6.567 min Scan# 170
Delta R.T. -0.045 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

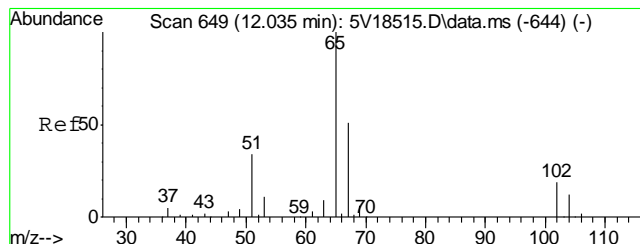
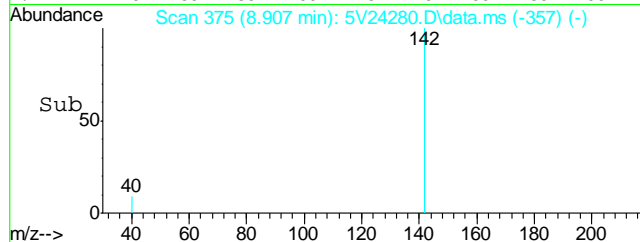
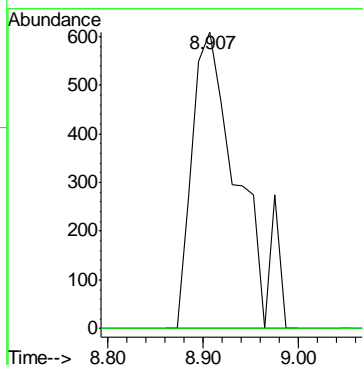
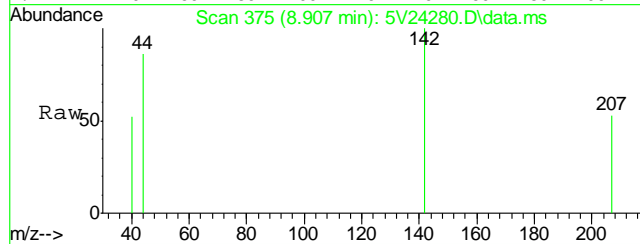
Tgt Ion: 94 Resp: 1243
Ion Ratio Lower Upper
94 100
96 49.3 78.0 118.0#





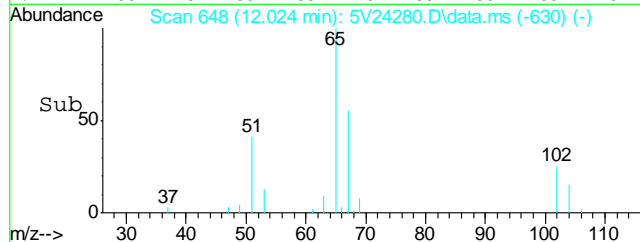
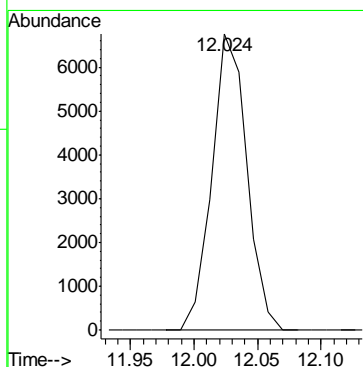
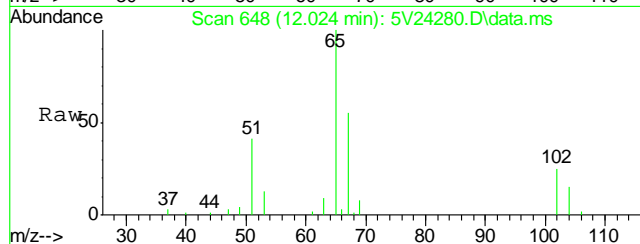
#12
Iodomethane
Concen: 1.80 ug/l
RT: 8.907 min Scan# 375
Delta R.T. 0.001 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

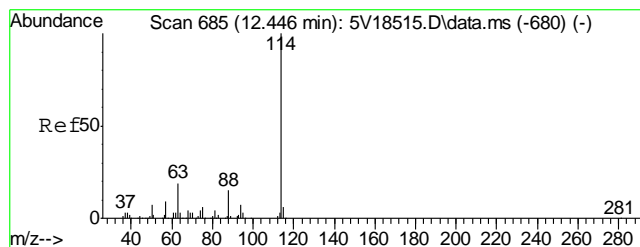
Tgt Ion:142 Resp: 2075
Ion Ratio Lower Upper
142 100
127 0.0 35.4 53.0#



#33
1,2-Dichloroethane-d4
Concen: 50.59 ug/l
RT: 12.024 min Scan# 648
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

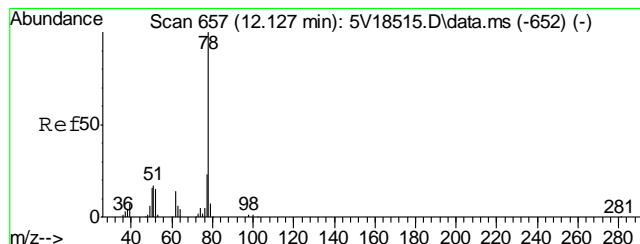
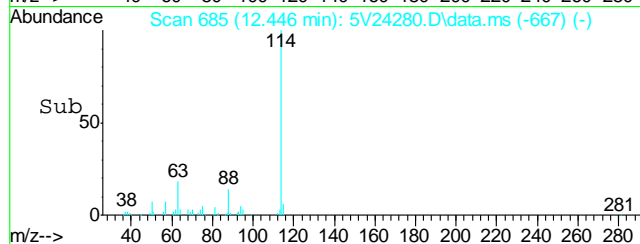
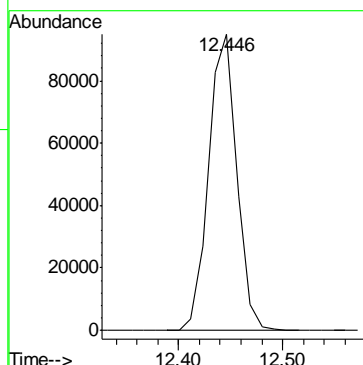
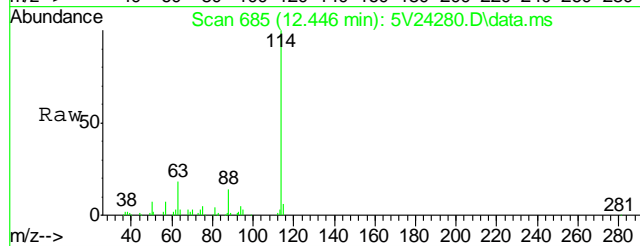
Tgt Ion:102 Resp: 12844





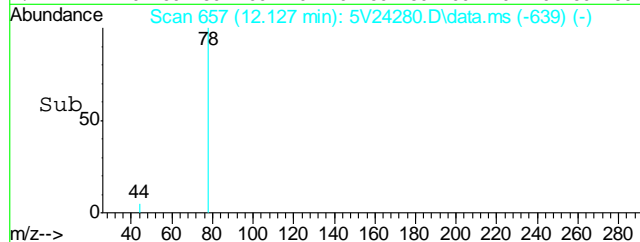
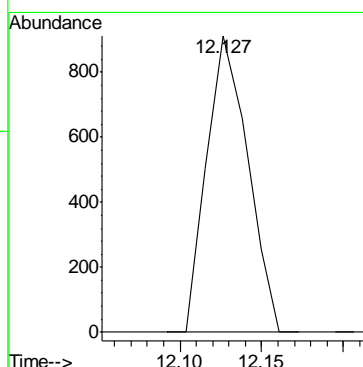
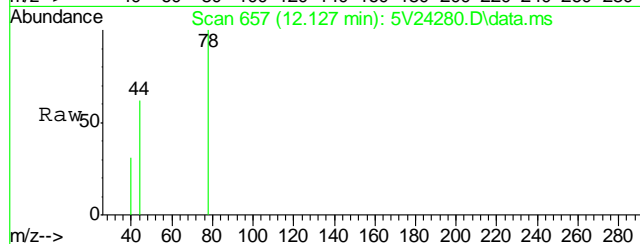
#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.446 min Scan# 685
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

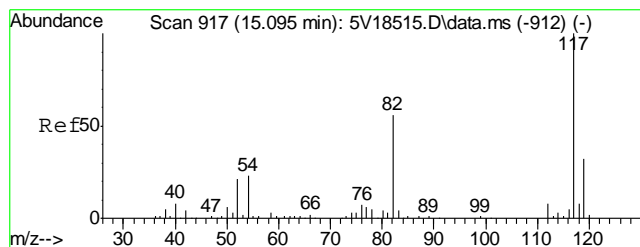
Tgt Ion: 114 Resp: 178711



#50
Benzene
Concen: 0.29 ug/l
RT: 12.127 min Scan# 657
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

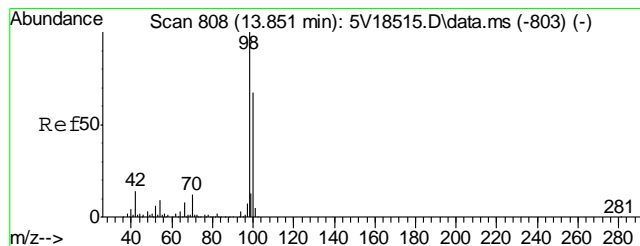
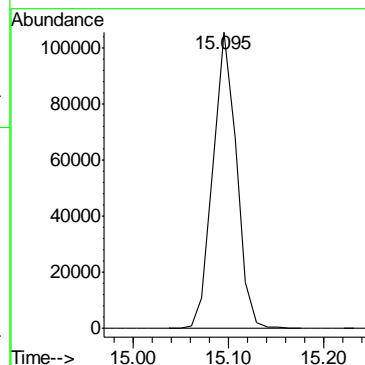
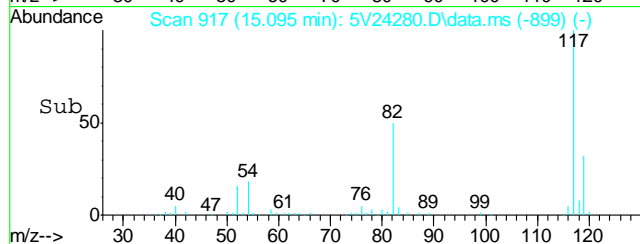
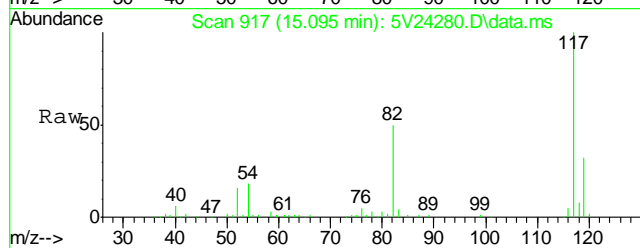
Tgt Ion: 78 Resp: 1599





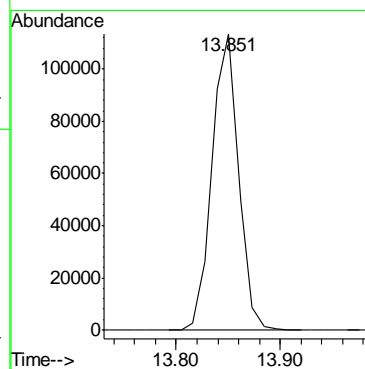
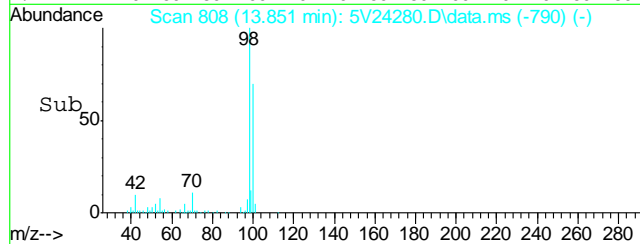
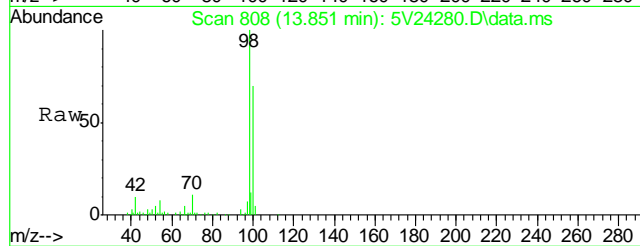
#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.095 min Scan# 917
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

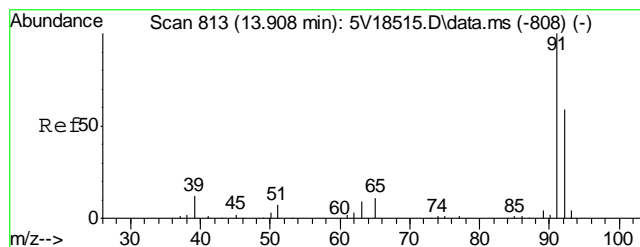
Tgt Ion:117 Resp: 178887



#61
Toluene-d8
Concen: 47.51 ug/l
RT: 13.851 min Scan# 808
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

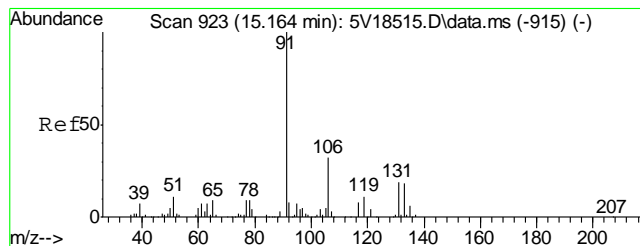
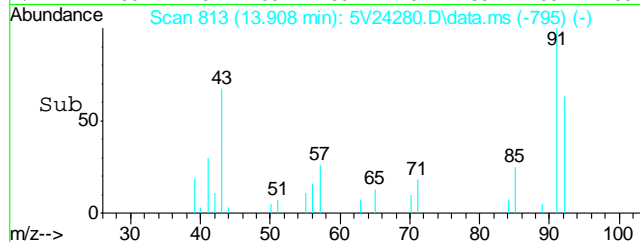
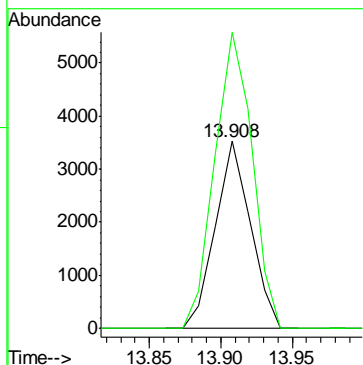
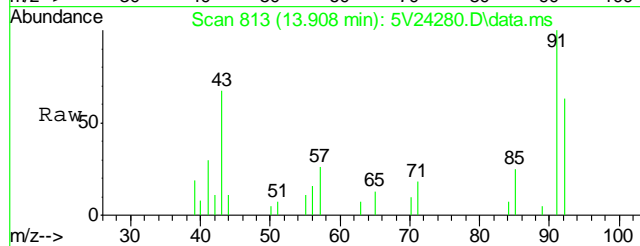
Tgt Ion: 98 Resp: 201596





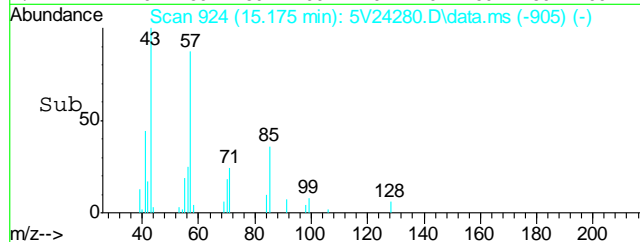
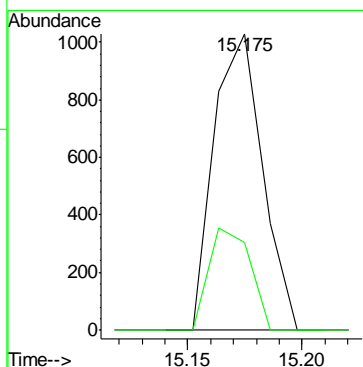
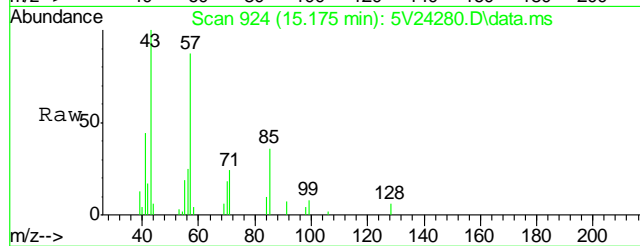
#62
Toluene
Concen: 1.57 ug/l
RT: 13.908 min Scan# 813
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

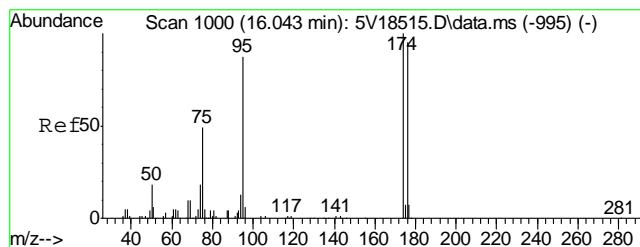
Tgt Ion: 92 Resp: 6020
Ion Ratio Lower Upper
92 100
91 168.4 149.8 189.8



#66
Ethylbenzene
Concen: 0.21 ug/l
RT: 15.175 min Scan# 924
Delta R.T. 0.012 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

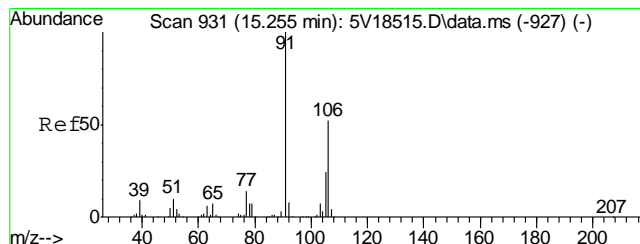
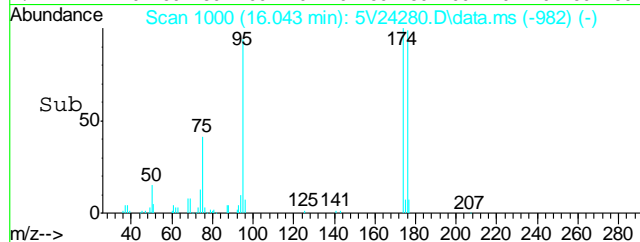
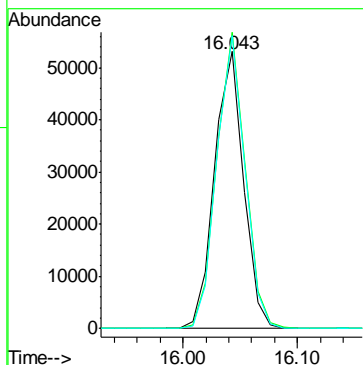
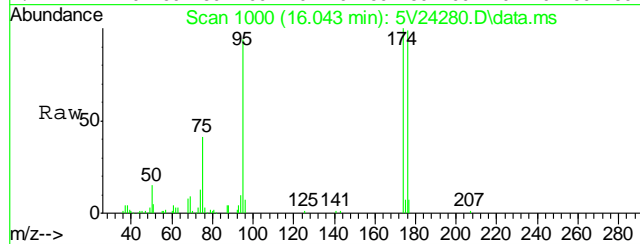
Tgt Ion: 91 Resp: 1525
Ion Ratio Lower Upper
91 100
106 29.6 11.7 51.7





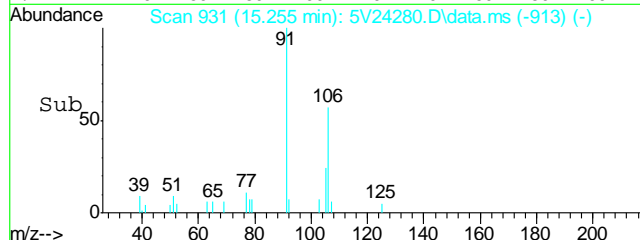
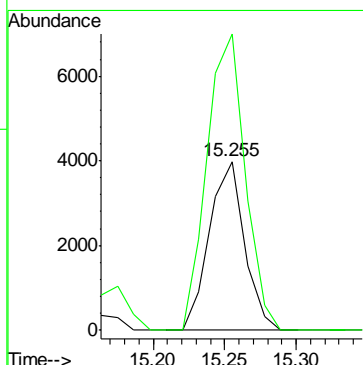
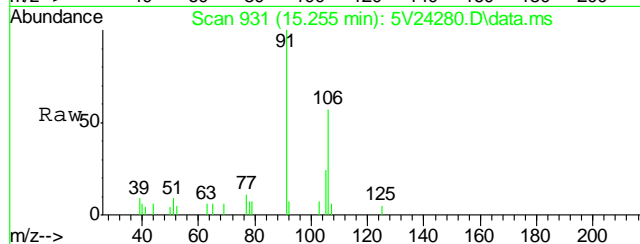
#69
4-Bromofluorobenzene
Concen: 48.55 ug/l
RT: 16.043 min Scan# 1000
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

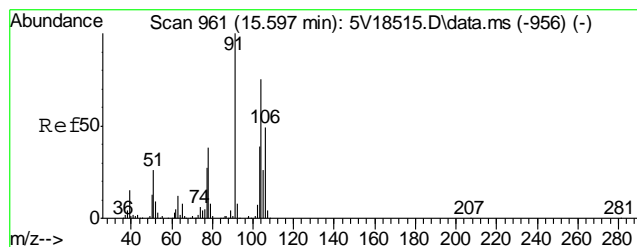
Tgt Ion	Ratio	Lower	Upper
95	100		
174	104.8	77.1	117.1
176	103.0	73.4	113.4



#72
m,p-xylene
Concen: 2.26 ug/l
RT: 15.255 min Scan# 931
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

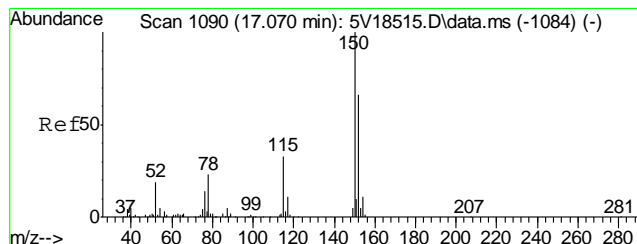
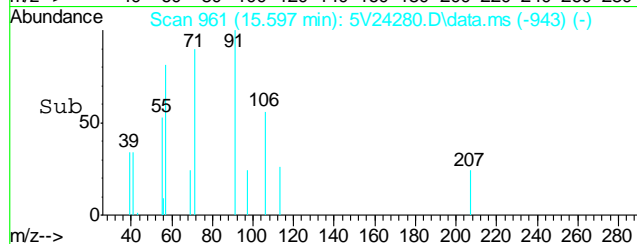
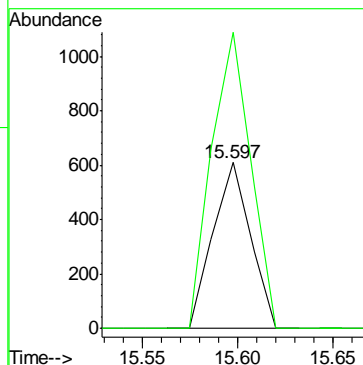
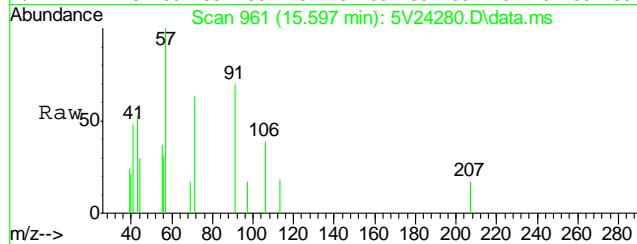
Tgt Ion	Ratio	Lower	Upper
106	100		
91	191.2	177.1	217.1





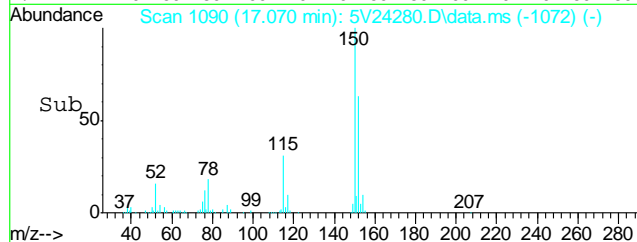
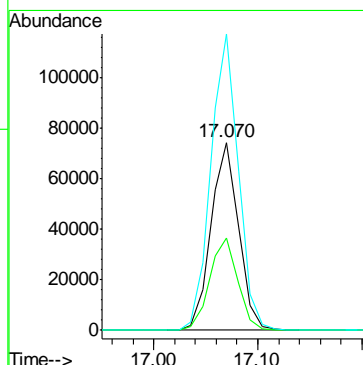
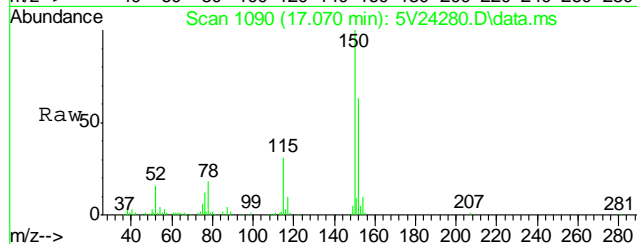
#73
o-xylene
Concen: 0.29 ug/l
RT: 15.597 min Scan# 961
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

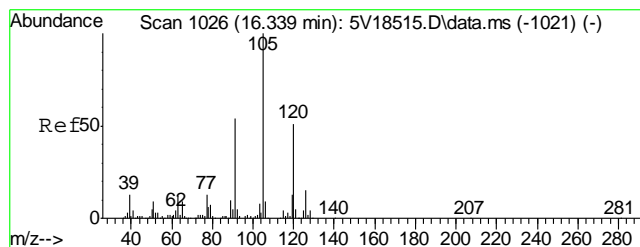
Tgt Ion:106 Resp: 831
Ion Ratio Lower Upper
106 100
91 186.8 166.6 249.8



#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.070 min Scan# 1090
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

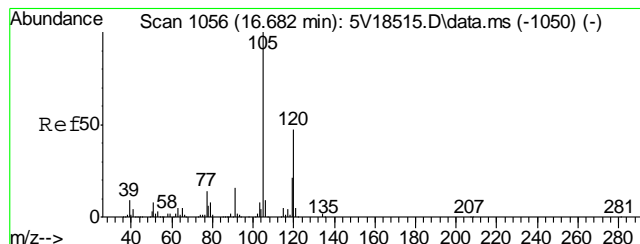
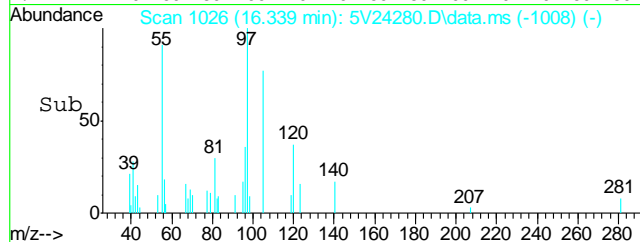
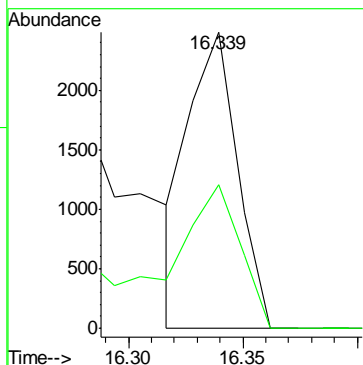
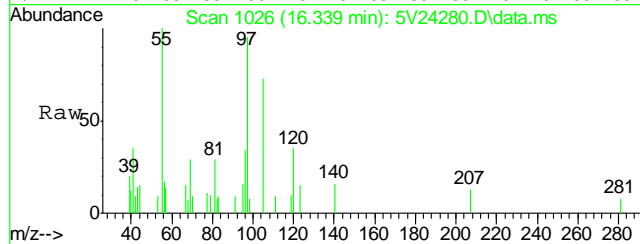
Tgt Ion:152 Resp: 136411
Ion Ratio Lower Upper
152 100
115 50.2 41.4 62.0
150 157.7 153.9 230.9





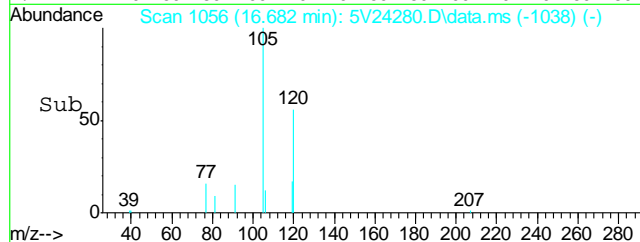
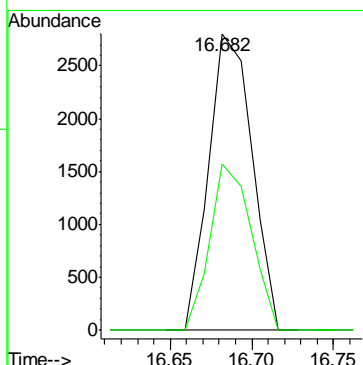
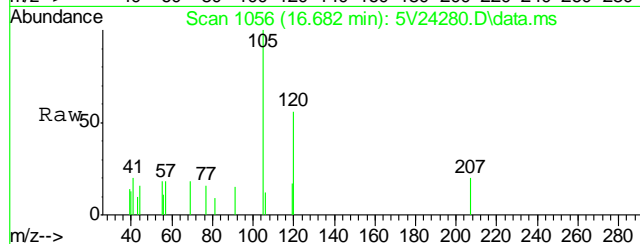
#80
1,3,5-Trimethylbenzene
Concen: 0.47 ug/l
RT: 16.339 min Scan# 1026
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

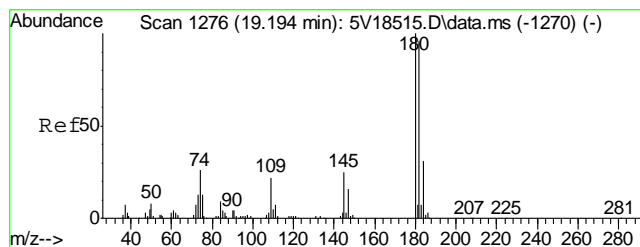
Tgt Ion	Ratio	Lower	Upper
105	100		
120	49.9	40.1	60.1



#82
1,2,4-Trimethylbenzene
Concen: 0.64 ug/l
RT: 16.682 min Scan# 1056
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

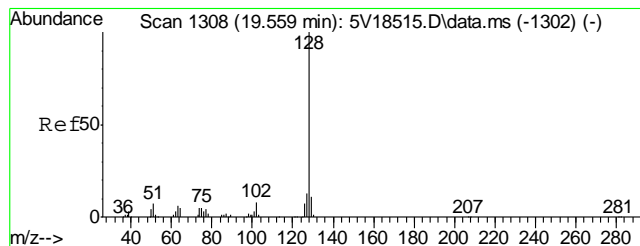
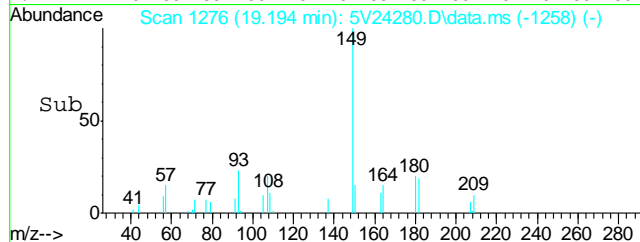
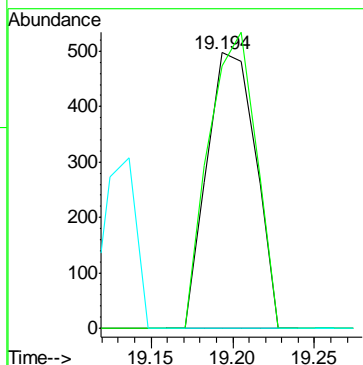
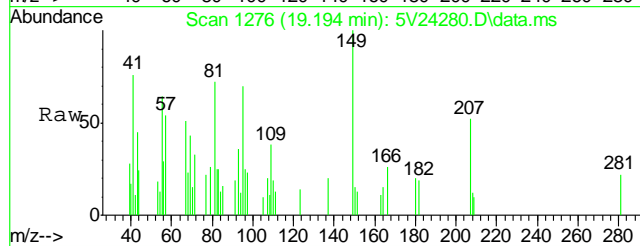
Tgt Ion	Ratio	Lower	Upper
105	100		
120	53.6	43.8	65.8





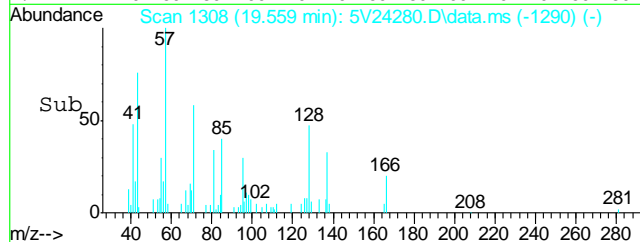
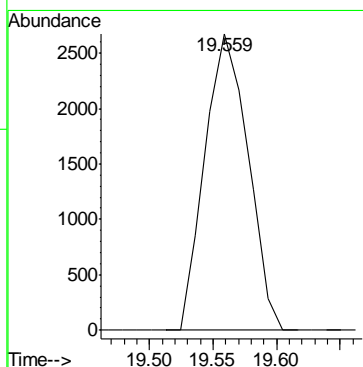
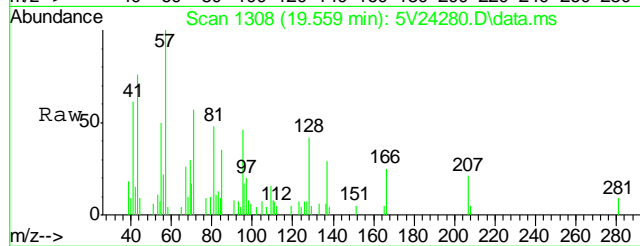
#90
1,2,4-Trichlorobenzene
Concen: 0.26 ug/l
RT: 19.194 min Scan# 1276
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

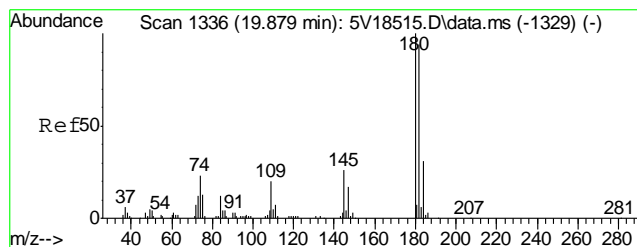
Tgt Ion	Ratio	Lower	Upper
180	100		
182	104.7	76.2	114.4
145	0.0	20.1	30.1#



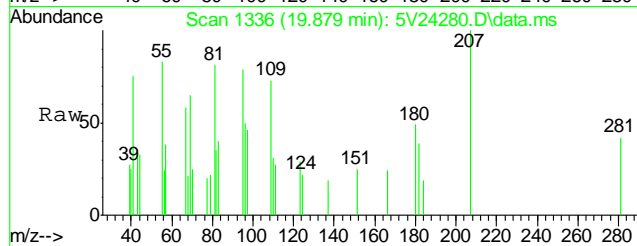
#91
Naphthalene
Concen: 0.81 ug/l
RT: 19.559 min Scan# 1308
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm

Tgt Ion:128 Resp: 6307

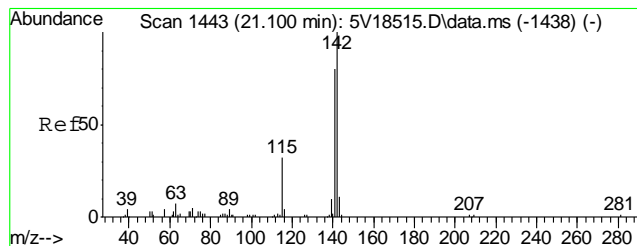
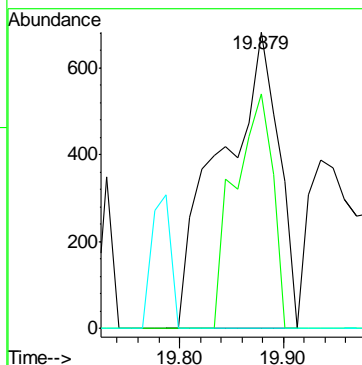
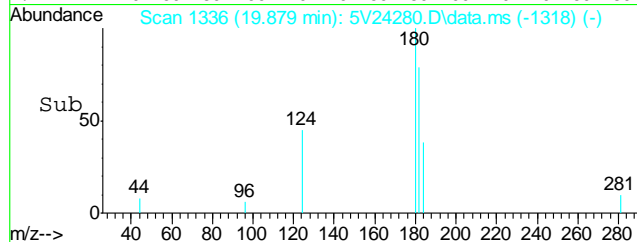




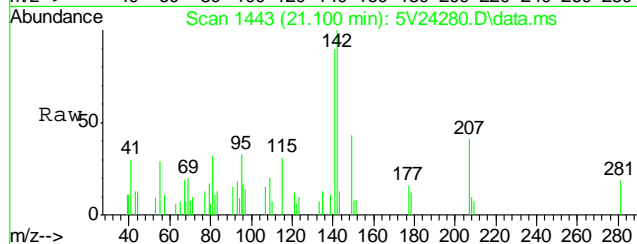
#93
1,2,3-Trichlorobenzene
Concen: 0.70 ug/l
RT: 19.879 min Scan# 1336
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm



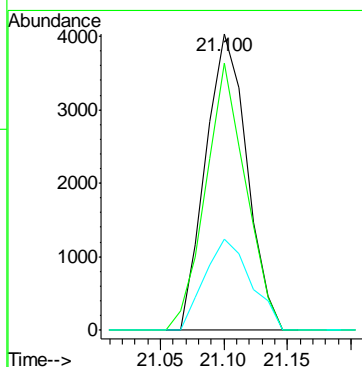
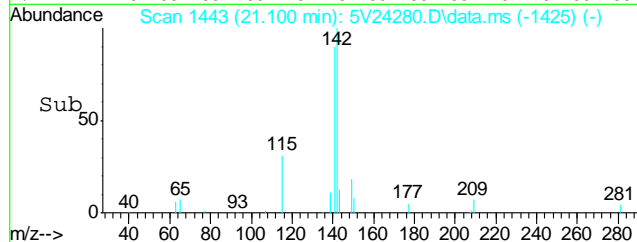
Tgt Ion:180 Resp: 2618
Ion Ratio Lower Upper
180 100
182 52.4 76.0 114.0#
145 0.0 21.4 32.0#

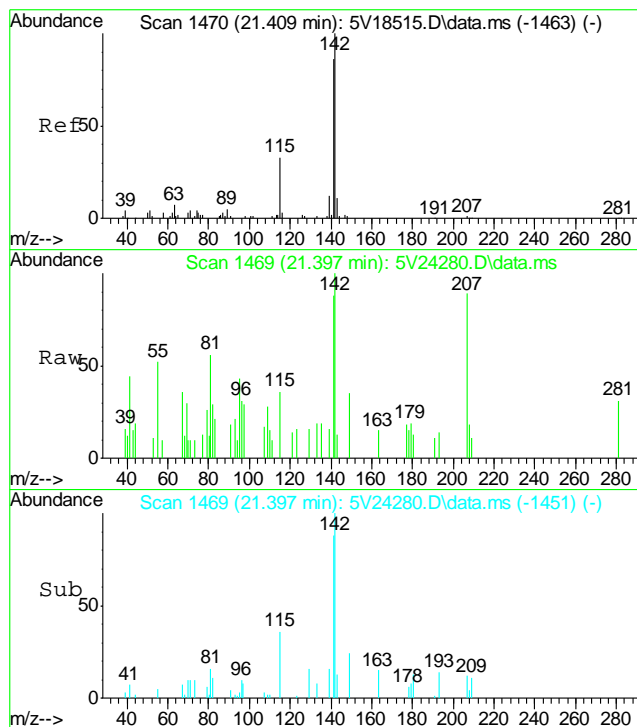


#94
2-Methylnaphthalene
Concen: 3.02 ug/l
RT: 21.100 min Scan# 1443
Delta R.T. 0.000 min
Lab File: 5V24280.D
Acq: 19 Oct 2012 12:47 pm



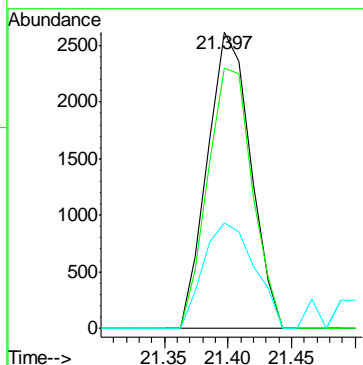
Tgt Ion:142 Resp: 9091
Ion Ratio Lower Upper
142 100
141 87.4 66.2 99.4
115 34.5 25.9 38.9





#95
 1-Methylnaphthalene
 Concen: 2.17 ug/l
 RT: 21.397 min Scan# 1469
 Delta R.T. 0.001 min
 Lab File: 5V24280.D
 Acq: 19 Oct 2012 12:47 pm

Tgt Ion:	142	Resp:	6157
Ion Ratio	Lower	Upper	
142	100		
141	90.8	68.9	103.3
115	42.0	27.3	40.9



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5101912.S\
Data File : 5V24278.D
Acq On : 19 Oct 2012 11:42 am
Operator : BRETD
Sample : MB
Misc : MS4834,V5V1478,5.00,,100,5,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 23 13:41:01 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1442TVH1442.M
Quant Title : 8260
QLast Update : Fri Sep 07 10:53:51 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	155729	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	209195	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	209311	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	141646	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.024	102	14685	49.16	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	98.32%
61) Toluene-d8	13.851	98	240469	48.44	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	96.88%
69) 4-Bromofluorobenzene	16.043	95	99177	43.87	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	87.74%

Target Compounds

					Qvalue
91) Naphthalene	19.559	128	1808	0.22	ug/l 100

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

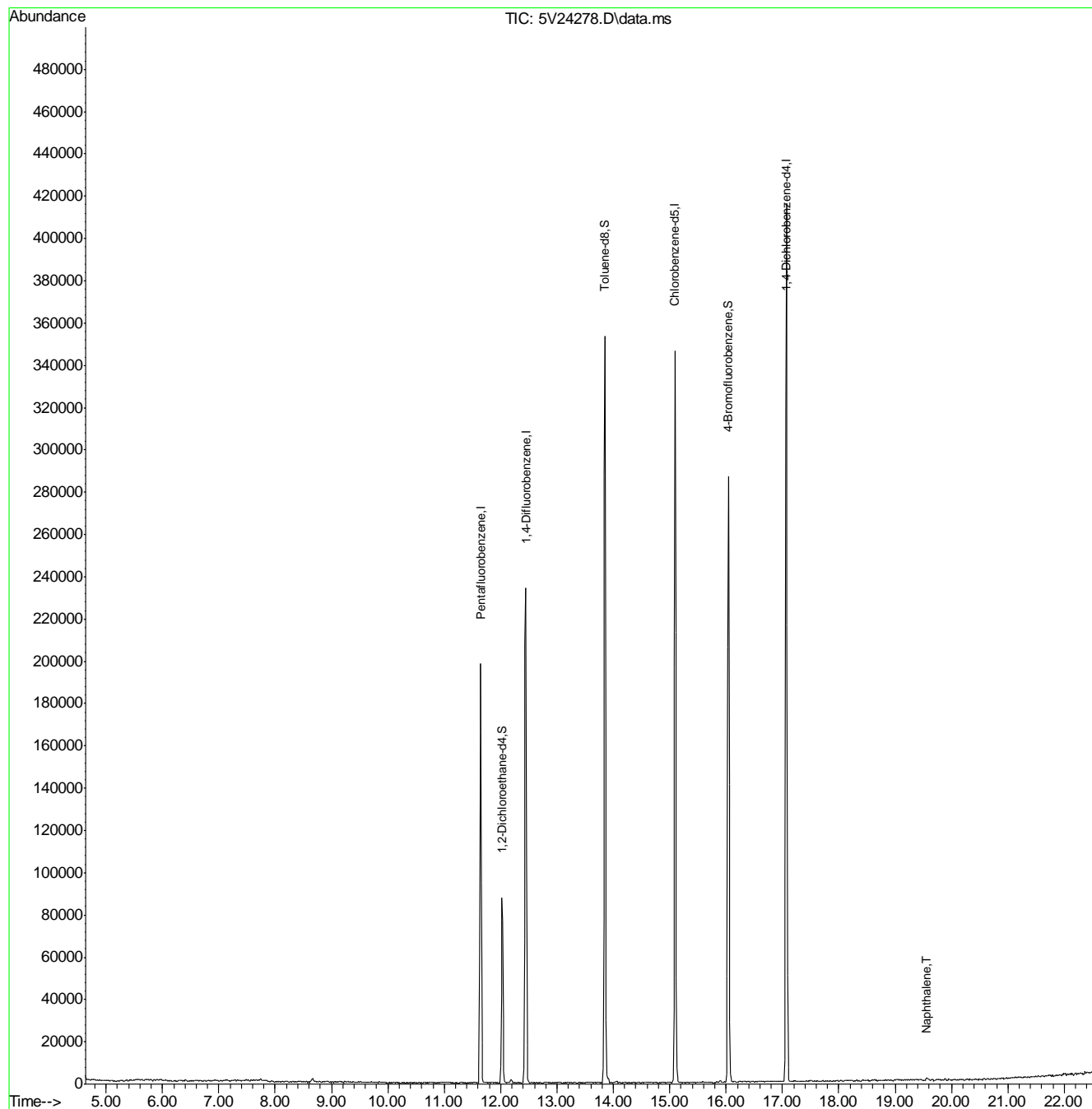
7.2.1

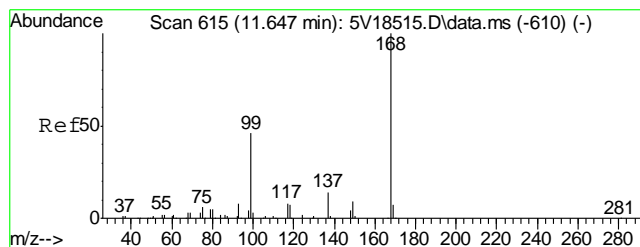
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5101912.S\
Data File : 5V24278.D
Acq On : 19 Oct 2012 11:42 am
Operator : BRETD
Sample : MB
Misc : MS4834,V5V1478,5.00,,100,5,1
ALS Vial : 3 Sample Multiplier: 1

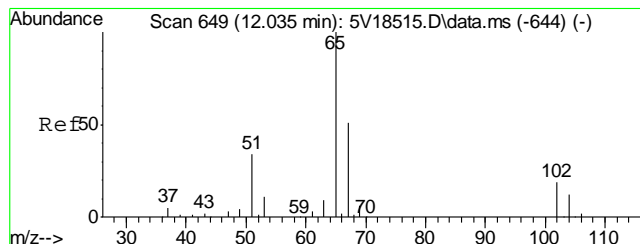
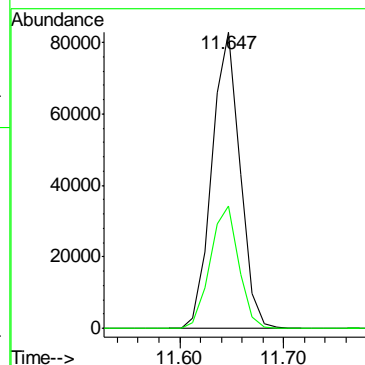
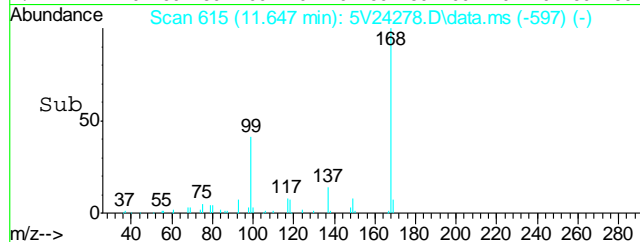
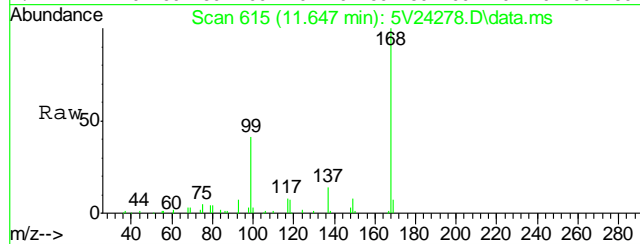
Quant Time: Oct 23 13:41:01 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1442TVH1442.M
Quant Title : 8260
QLast Update : Fri Sep 07 10:53:51 2012
Response via : Initial Calibration





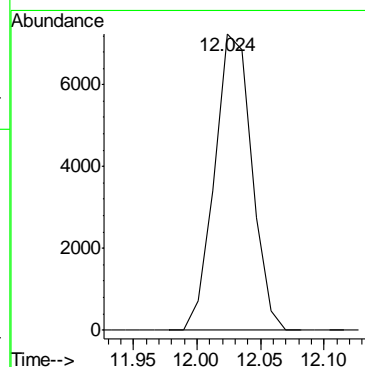
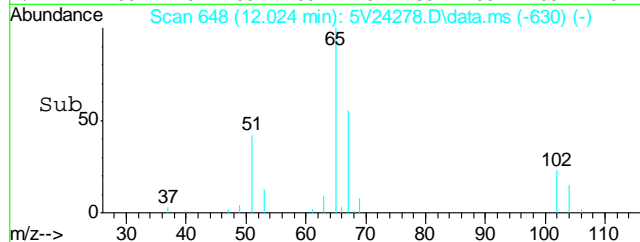
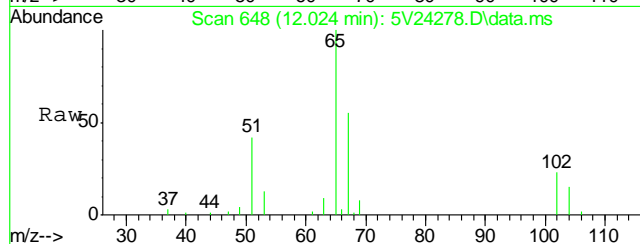
#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.647 min Scan# 615
Delta R.T. 0.000 min
Lab File: 5V24278.D
Acq: 19 Oct 2012 11:42 am

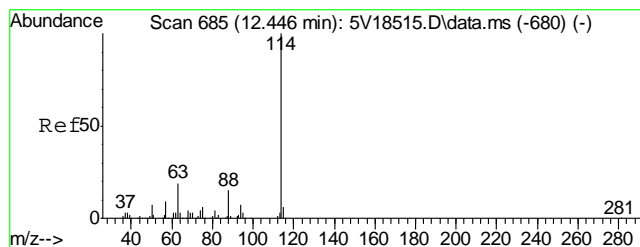
Tgt Ion:168 Resp: 155729
Ion Ratio Lower Upper
168 100
99 41.9 37.4 56.2



#33
1,2-Dichloroethane-d4
Concen: 49.16 ug/l
RT: 12.024 min Scan# 648
Delta R.T. 0.000 min
Lab File: 5V24278.D
Acq: 19 Oct 2012 11:42 am

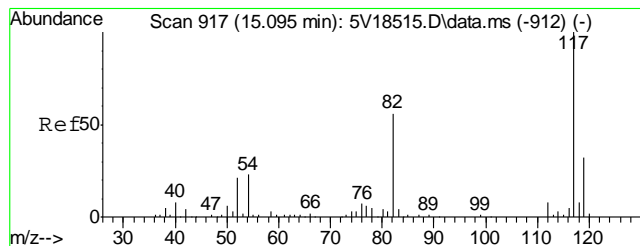
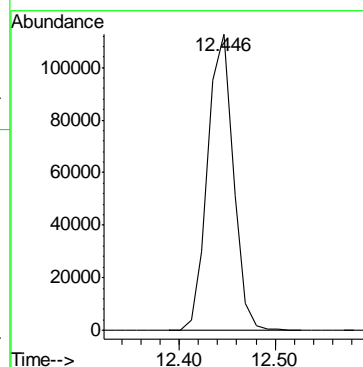
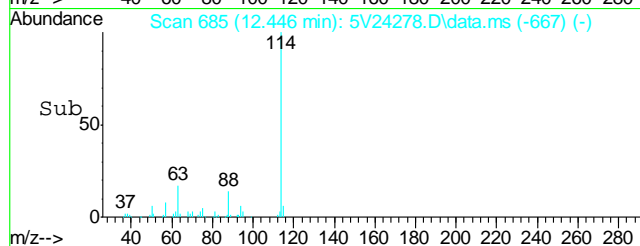
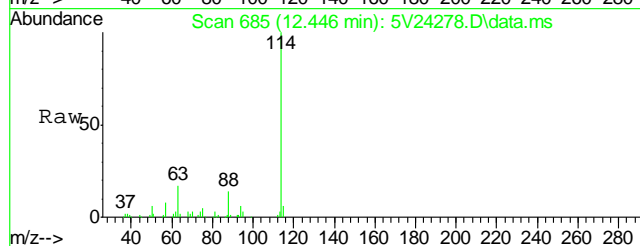
Tgt Ion:102 Resp: 14685





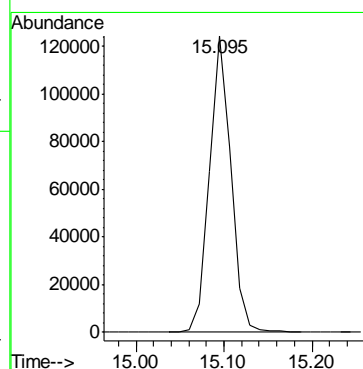
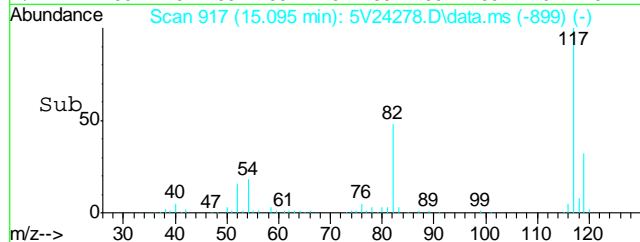
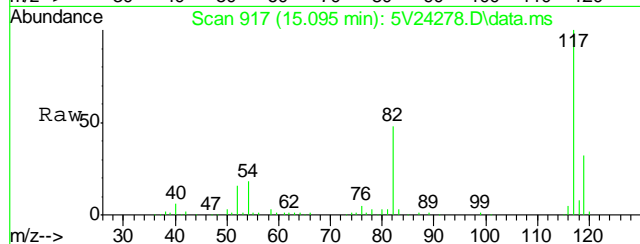
#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.446 min Scan# 685
Delta R.T. 0.000 min
Lab File: 5V24278.D
Acq: 19 Oct 2012 11:42 am

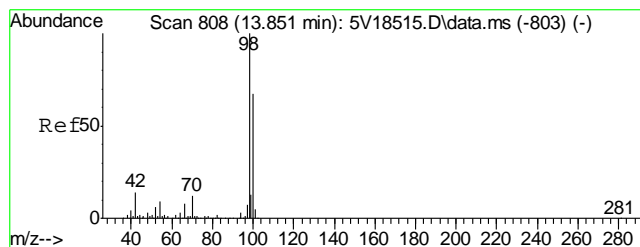
Tgt Ion:114 Resp: 209195



#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.095 min Scan# 917
Delta R.T. 0.000 min
Lab File: 5V24278.D
Acq: 19 Oct 2012 11:42 am

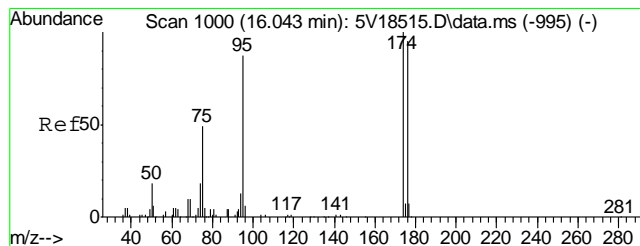
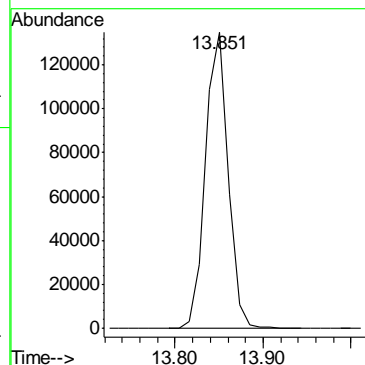
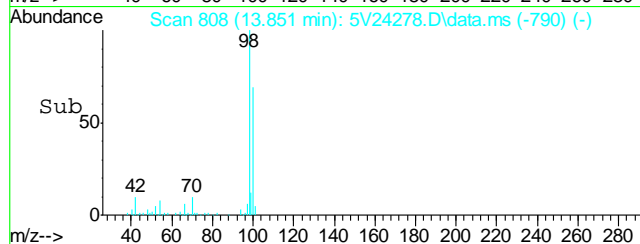
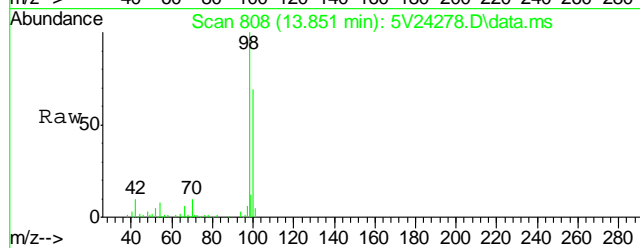
Tgt Ion:117 Resp: 209311





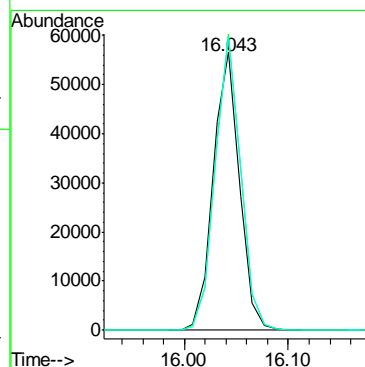
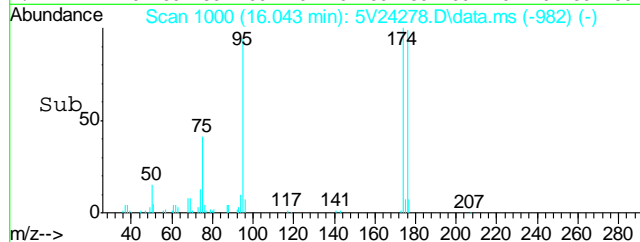
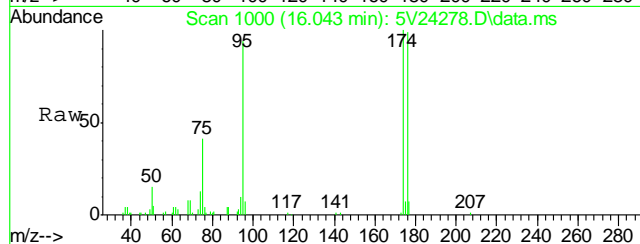
#61
Toluene-d8
Concen: 48.44 ug/l
RT: 13.851 min Scan# 808
Delta R.T. 0.000 min
Lab File: 5V24278.D
Acq: 19 Oct 2012 11:42 am

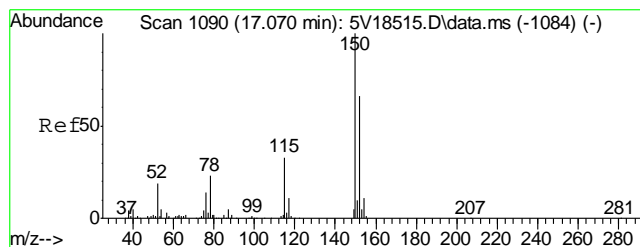
Tgt Ion: 98 Resp: 240469



#69
4-Bromofluorobenzene
Concen: 43.87 ug/l
RT: 16.043 min Scan# 1000
Delta R.T. 0.000 min
Lab File: 5V24278.D
Acq: 19 Oct 2012 11:42 am

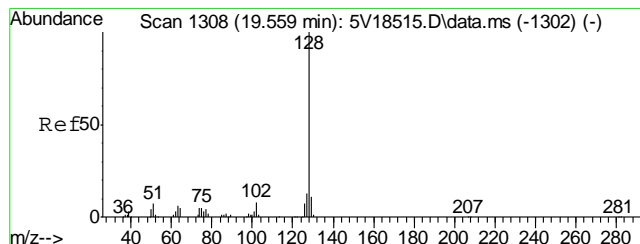
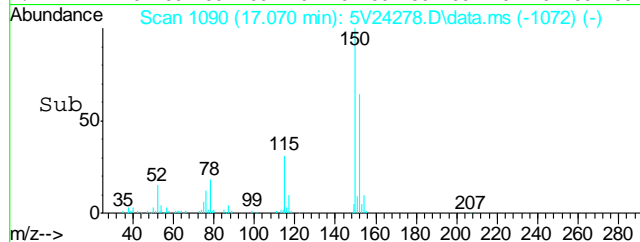
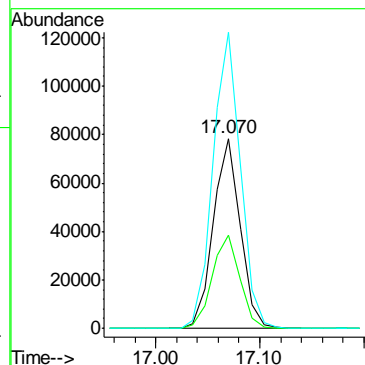
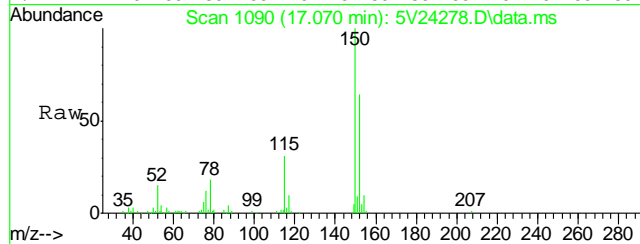
Tgt Ion: 95 Resp: 99177
Ion Ratio Lower Upper
95 100
174 104.1 77.1 117.1
176 102.9 73.4 113.4





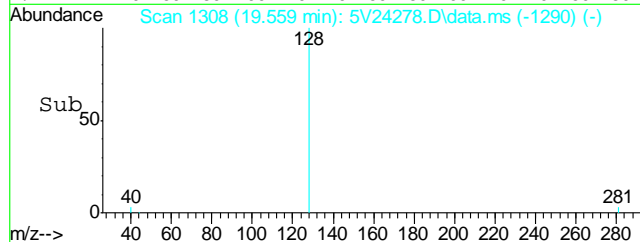
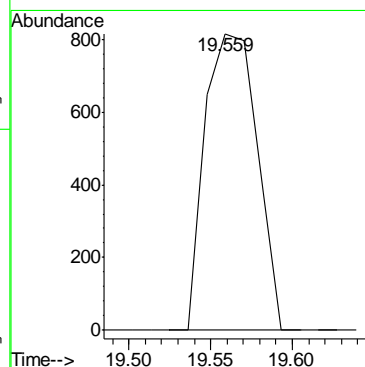
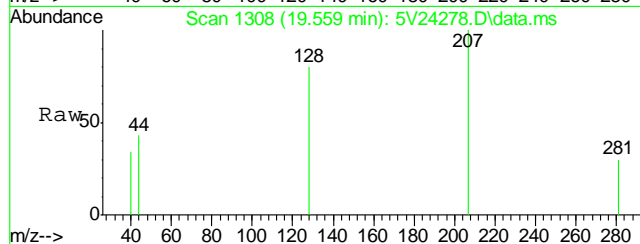
#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.070 min Scan# 1090
Delta R.T. 0.000 min
Lab File: 5V24278.D
Acq: 19 Oct 2012 11:42 am

Tgt Ion:	152	Resp:	141646
Ion Ratio	Lower	Upper	
152	100		
115	49.9	41.4	62.0
150	158.4	153.9	230.9



#91
Naphthalene
Concen: 0.22 ug/l
RT: 19.559 min Scan# 1308
Delta R.T. 0.000 min
Lab File: 5V24278.D
Acq: 19 Oct 2012 11:42 am

Tgt Ion:	128	Resp:	1808
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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: D40002
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6830-MB	3G11720.D	1	10/19/12	DC	10/19/12	OP6830	E3G552

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

D40002-1

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	92% 10-159%
321-60-8	2-Fluorobiphenyl	82% 19-131%
1718-51-0	Terphenyl-d14	103% 18-150%

8.1.1

8

Blank Spike Summary

Page 1 of 1

Job Number: D40002
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6830-BS	3G11721.D	1	10/19/12	DC	10/19/12	OP6830	E3G552

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D40002-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	80.5	97	68-130
120-12-7	Anthracene	83.3	80.8	97	67-130
56-55-3	Benzo(a)anthracene	83.3	84.9	102	65-130
50-32-8	Benzo(a)pyrene	83.3	72.5	87	62-130
205-99-2	Benzo(b)fluoranthene	83.3	85.1	102	44-130
207-08-9	Benzo(k)fluoranthene	83.3	61.5	74	56-131
218-01-9	Chrysene	83.3	74.5	89	70-130
53-70-3	Dibenzo(a,h)anthracene	83.3	86.2	103	55-130
206-44-0	Fluoranthene	83.3	69.8	84	70-130
86-73-7	Fluorene	83.3	82.4	99	70-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	80.1	96	56-130
91-20-3	Naphthalene	83.3	74.9	90	70-130
129-00-0	Pyrene	83.3	92.2	111	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	84%	10-159%
321-60-8	2-Fluorobiphenyl	75%	19-131%
1718-51-0	Terphenyl-d14	99%	18-150%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D40002
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6830-MS	3G11724.D	1	10/19/12	DC	10/19/12	OP6830	E3G552
OP6830-MSD	3G11725.D	1	10/19/12	DC	10/19/12	OP6830	E3G552
D40002-1	3G11723.D	1	10/19/12	DC	10/19/12	OP6830	E3G552

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D40002-1

CAS No.	Compound	D40002-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		130	108	83	101	78	7	25-151/30
120-12-7	Anthracene	ND		130	136	105	135	104	1	39-159/30
56-55-3	Benzo(a)anthracene	10.5	J	130	147	105	146	105	1	39-168/30
50-32-8	Benzo(a)pyrene	ND		130	113	87	112	86	1	32-144/30
205-99-2	Benzo(b)fluoranthene	ND		130	129	99	127	98	2	24-163/30
207-08-9	Benzo(k)fluoranthene	ND		130	110	85	109	84	1	10-188/30
218-01-9	Chrysene	26.9		130	139	86	139	87	0	43-150/30
53-70-3	Dibenzo(a,h)anthracene	ND		130	127	98	124	96	2	21-152/30
206-44-0	Fluoranthene	12.0	J	130	122	85	121	84	1	36-157/30
86-73-7	Fluorene	ND		130	157	121	172	133	9	10-182/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		130	117	90	113	87	3	20-154/30
91-20-3	Naphthalene	133		130	260	98	257	96	1	10-163/30
129-00-0	Pyrene	23.2		130	172	115	178	120	3	25-180/30

CAS No.	Surrogate Recoveries	MS	MSD	D40002-1	Limits
4165-60-0	Nitrobenzene-d5	37%	42%	62%	10-159%
321-60-8	2-Fluorobiphenyl	63%	62%	68%	19-131%
1718-51-0	Terphenyl-d14	84%	88%	85%	18-150%

* = Outside of Control Limits.

GC/MS Semi-volatiles

Raw Data

6

James Rhudy
10/22/12 11:45

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\101912\
 Data File : 3g11723.D
 Acq On : 19 Oct 2012 1:41 pm
 Operator : DONC
 Sample : D40002-1
 Misc : OP6830,E3G552,30.09,,,1,1
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 22 08:17:39 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G544.M
 Quant Title : PAHSIM BASE
 QLast Update : Thu Oct 11 09:29:33 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.789	136	232881	4.0000	ug/mL	-0.01
6) Acenaphthene-d10	7.507	164	128809	4.0000	ug/mL	-0.01
15) Phenanthrene-d10	8.987	188	200503	4.0000	ug/mL	0.00
19) Chrysene-d12	11.623	240	126138	4.0000	ug/mL	-0.01
24) Perylene-d12	13.024	264	90451	4.0000	ug/mL	-0.01

System Monitoring Compounds

2) Nitrobenzene-d5	5.103	82	853023	30.8550	ug/mL	-0.01
Spiked Amount 50.000	Range 25 - 135		Recovery =	61.70%		
7) 2-Fluorobiphenyl	6.846	172	1922716	33.8230	ug/mL	-0.01
Spiked Amount 50.000	Range 25 - 135		Recovery =	67.64%		
21) Terphenyl-d14	10.578	244	730852	42.6109	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	85.22%		

Target Compounds

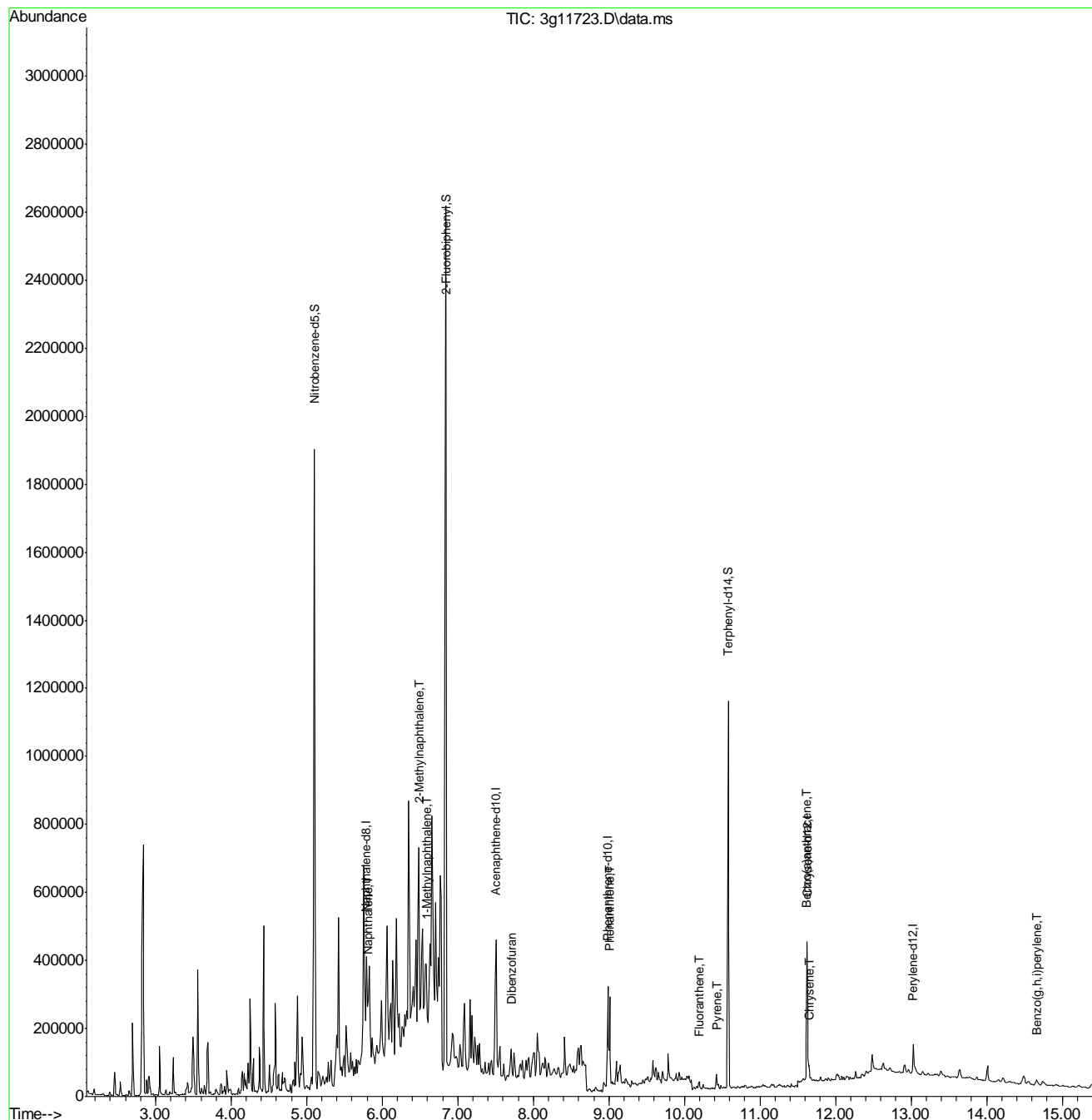
						Qvalue
3) N-Nitrosodimethylamine	0.000	74	0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d	
5) Naphthalene	5.814	128	159479	2.5727	ug/mL	90
8) 2-Methylnaphthalene	6.487	142	268315	6.3189	ug/mL	90
9) 1-Methylnaphthalene	6.586	142	88448	2.1642	ug/mL	91
10) Acenaphthylene	0.000	152	0	N.D.	d	
11) Acenaphthene	0.000	154	0	N.D.	d	
12) Dibenzofuran	7.708	168	21504	0.3235	ug/mL	98
13) Fluorene	0.000	166	0	N.D.	d	
14) Diphenylamine	0.000	169	0	N.D.	d	
16) Phenanthrene	9.011	178	150012	2.0038	ug/mL	89
17) Anthracene	0.000	178	0	N.D.	d	
18) Fluoranthene	10.198	202	19268	0.2315	ug/mL	65
20) Pyrene	10.428	202	28559	0.4485	ug/mL	91
22) Benzo(a)anthracene	11.616	228	9605	0.2026	ug/mL	84
23) Chrysene	11.650	228	32296m	0.5200	ug/mL	
25) Benzo(b)fluoranthene	0.000	252	0	N.D.	d	
26) Benzo(k)fluoranthene	0.000	252	0	N.D.	d	
27) Benzo(a)pyrene	0.000	252	0	N.D.	d	
28) Indeno(1,2,3-cd)pyrene	0.000	276	0	N.D.	d	
29) Dibenz(a,h)anthracene	0.000	278	0	N.D.	d	
30) Benzo(g,h,i)perylene	14.665	276	12349m	0.2989	ug/mL	

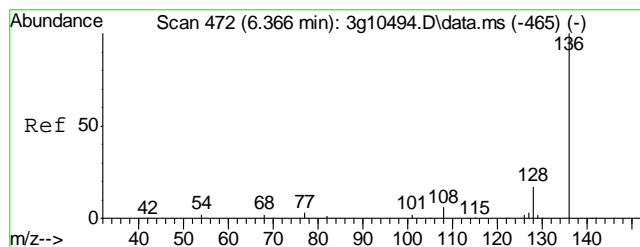
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\101912\
Data File : 3g11723.D
Acq On : 19 Oct 2012 1:41 pm
Operator : DONC
Sample : D40002-1
Misc : OP6830,E3G552,30.09,,,1,1
ALS Vial : 7 Sample Multiplier: 1

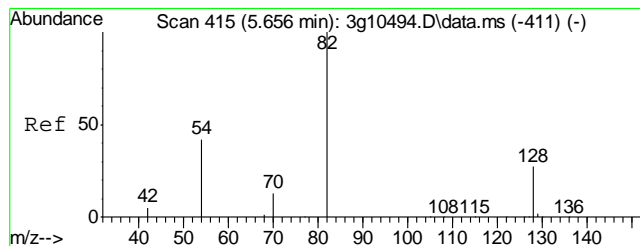
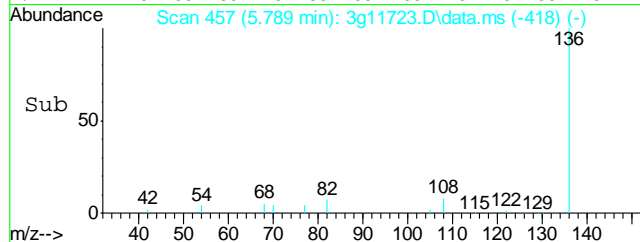
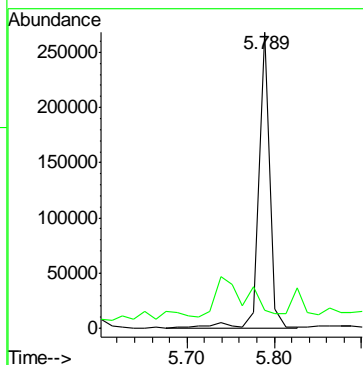
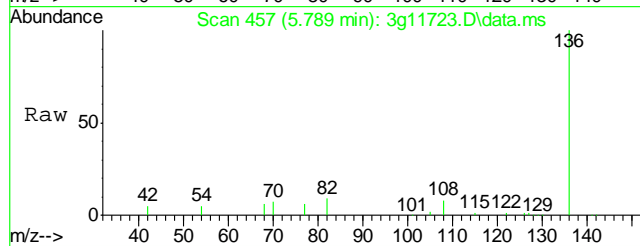
Quant Time: Oct 22 08:17:39 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G544.M
Quant Title : PAHSIM BASE
QLast Update : Thu Oct 11 09:29:33 2012
Response via : Initial Calibration





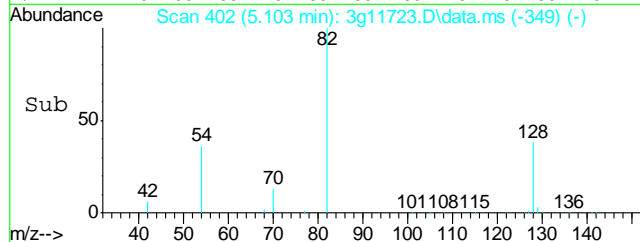
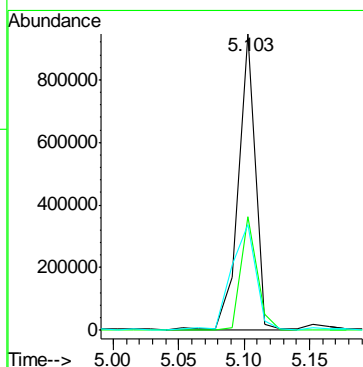
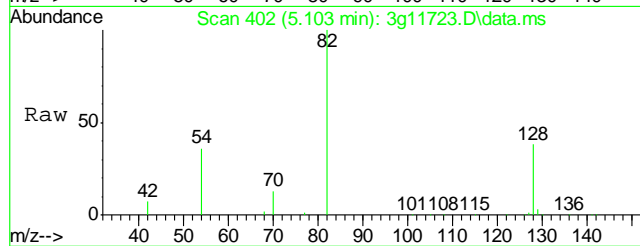
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.789 min Scan# 457
Delta R.T. -0.013 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

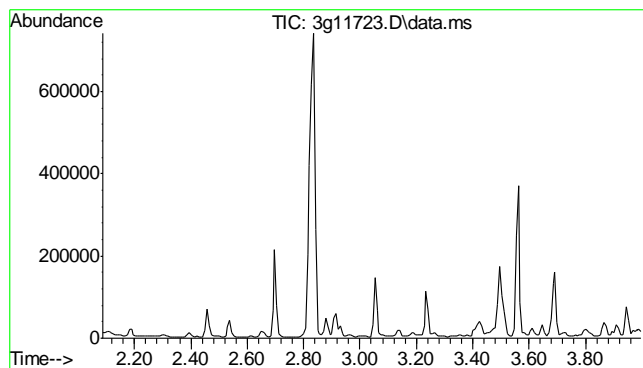
Tgt Ion	Ratio	Lower	Upper
136	100		
68	10.6	0.0	30.9



#2
Nitrobenzene-d5
Concen: 30.8550 ug/mL
RT: 5.103 min Scan# 402
Delta R.T. -0.012 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

Tgt Ion	Ratio	Lower	Upper
82	100		
128	36.8	7.7	47.7
54	51.0	28.2	68.2

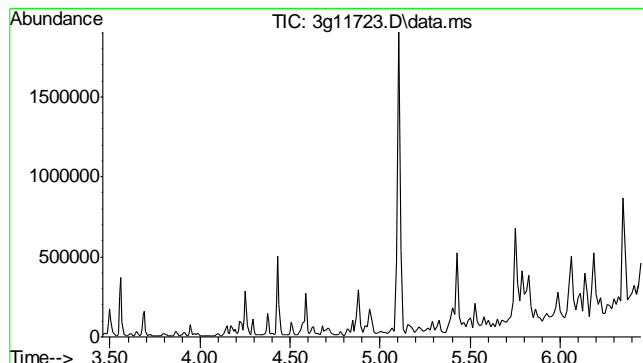
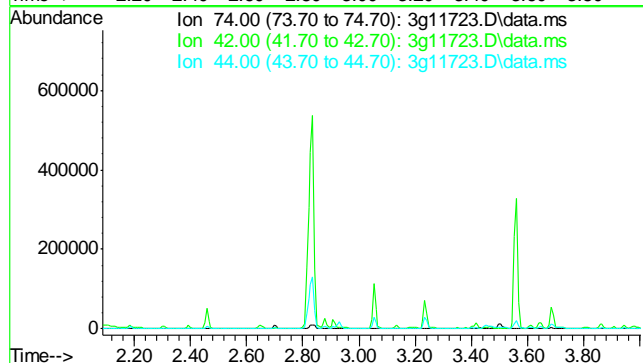




#3
 N-Nitrosodimethylamine
 Concen: N.D. ug/mL
 Expected RT: 2.50 min

 Lab File: 3g11723.D
 Acq: 19 Oct 12 1:41 pm

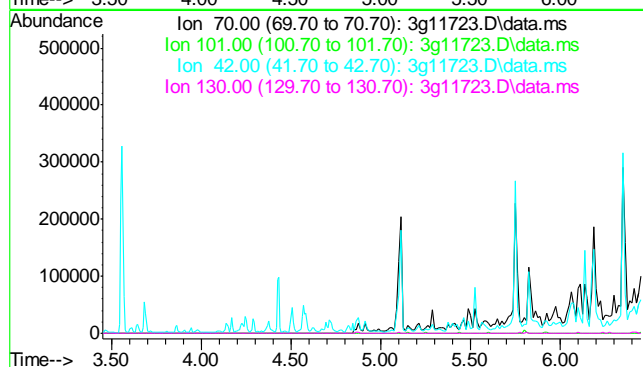
Tgt Ion	Exp Ratio
74	100
42	74.8
44	4.8

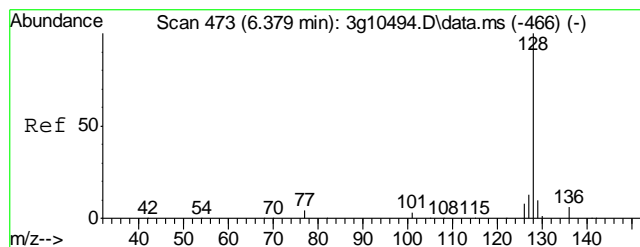


#4
 N-Nitrosodi-propylamine
 Concen: N.D. ug/mL
 Expected RT: 4.95 min

 Lab File: 3g11723.D
 Acq: 19 Oct 12 1:41 pm

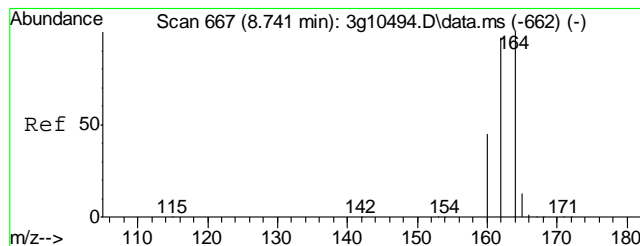
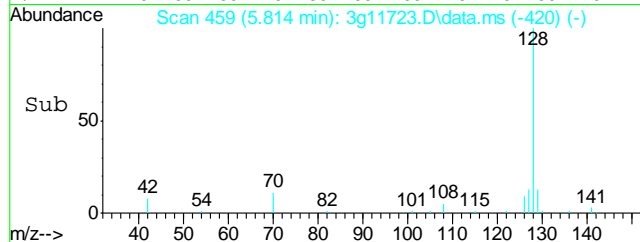
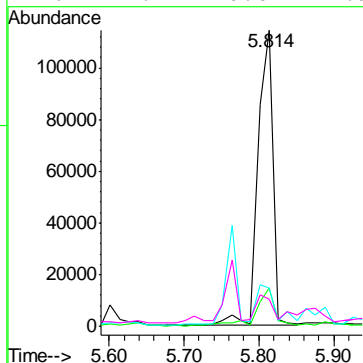
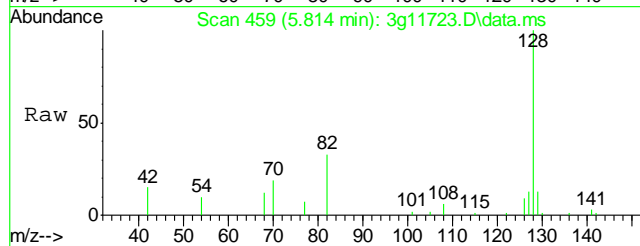
Tgt Ion	Exp Ratio
70	100
101	10.0
42	60.8
130	20.2





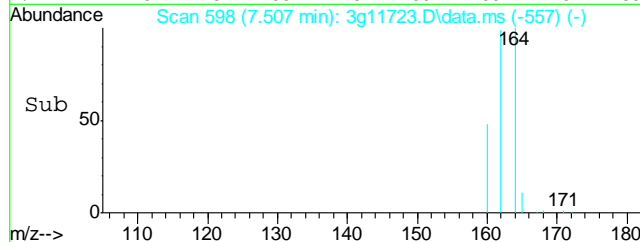
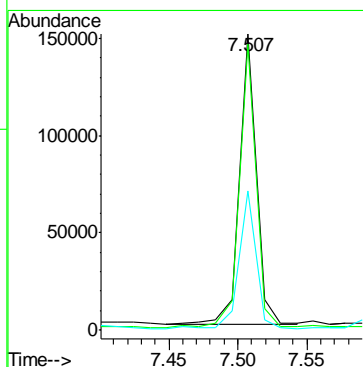
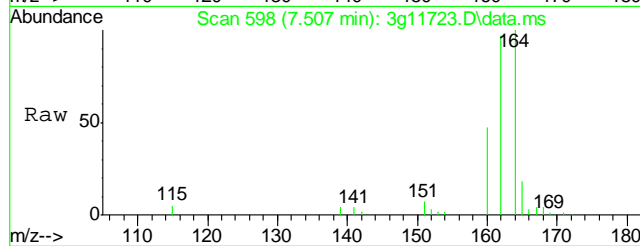
#5
Naphthalene
Concen: 2.5727 ug/mL
RT: 5.814 min Scan# 459
Delta R.T. -0.013 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

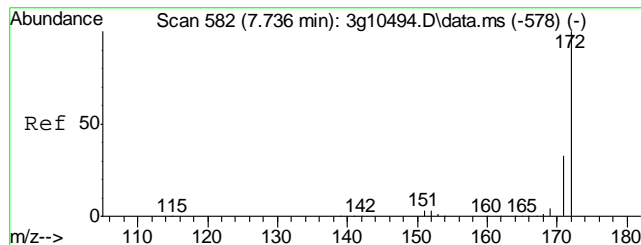
Tgt Ion	Ratio	Lower	Upper
128	100		
129	15.5	0.0	31.1
127	16.7	0.0	33.2
126	11.2	0.0	27.9



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.507 min Scan# 598
Delta R.T. -0.012 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

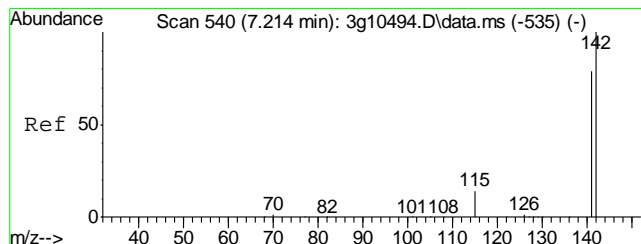
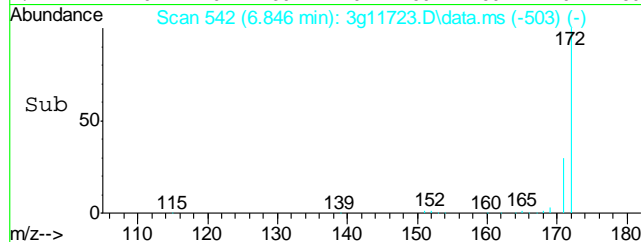
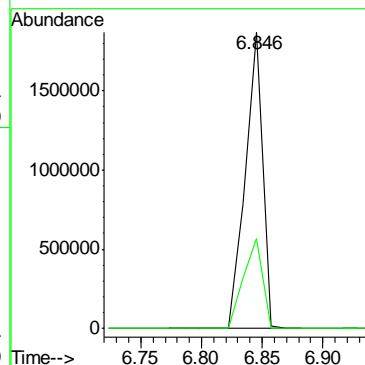
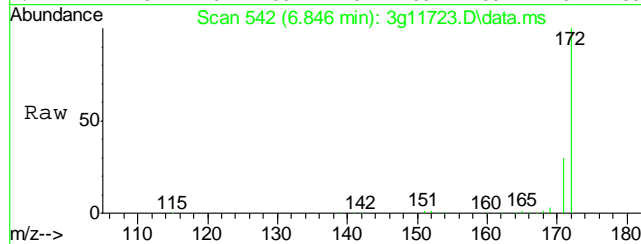
Tgt Ion	Ratio	Lower	Upper
164	100		
162	96.2	74.4	114.4
160	47.9	25.5	65.5





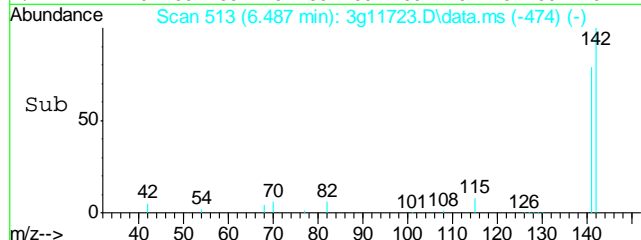
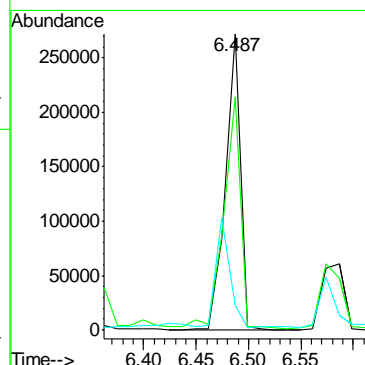
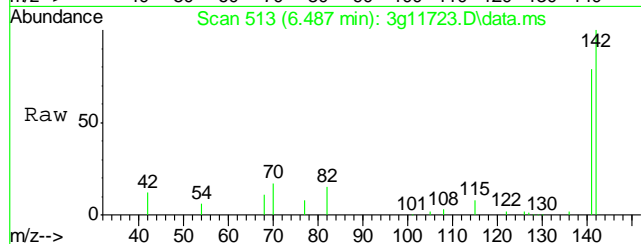
#7
2-Fluorobiphenyl
Concen: 33.8230 ug/mL
RT: 6.846 min Scan# 542
Delta R.T. -0.012 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

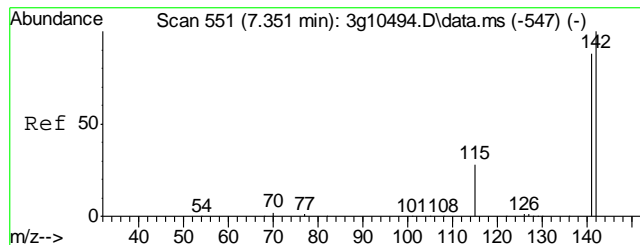
Tgt Ion	Ratio	Lower	Upper
172	100		
171	33.3	13.0	53.0



#8
2-Methylnaphthalene
Concen: 6.3189 ug/mL
RT: 6.487 min Scan# 513
Delta R.T. -0.013 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

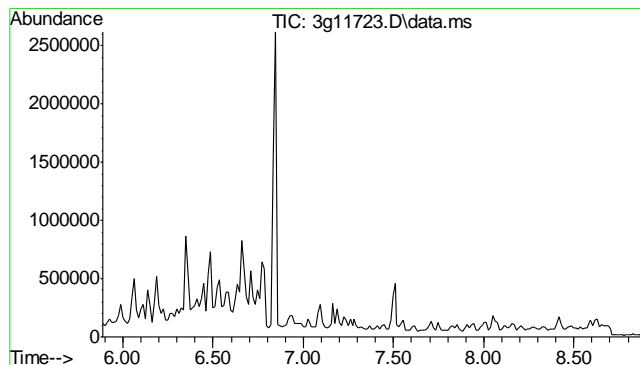
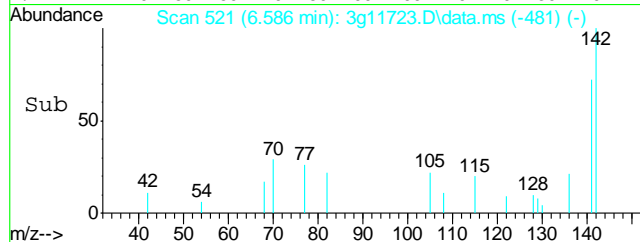
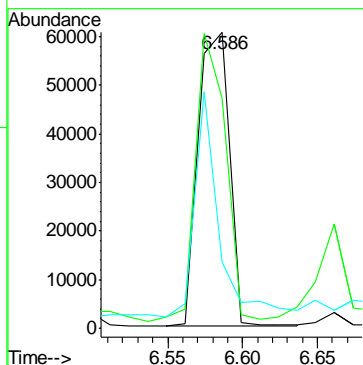
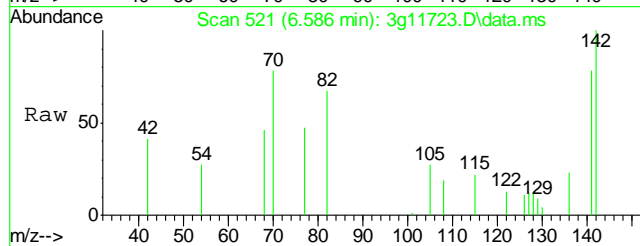
Tgt Ion	Ratio	Lower	Upper
142	100		
141	87.8	63.7	103.7
115	34.2	27.3	67.3





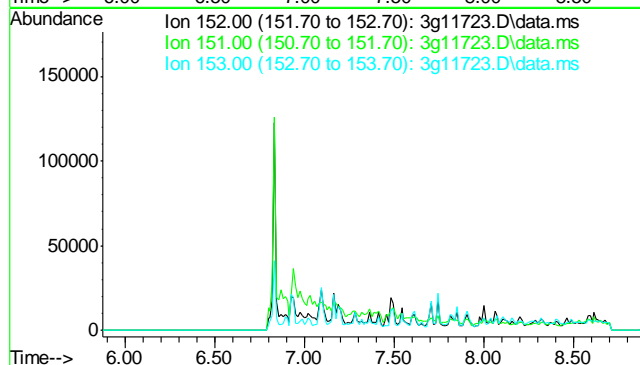
#9
1-Methylnaphthalene
Concen: 2.1642 ug/mL
RT: 6.586 min Scan# 521
Delta R.T. -0.000 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

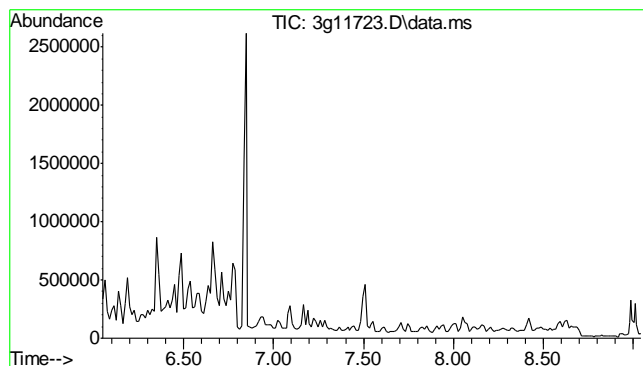
Tgt Ion	Ratio	Lower	Upper
142	100		
141	93.0	68.2	108.2
115	57.3	26.3	66.3



#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 7.38 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

Tgt Ion	Sig	Exp Ratio
152	100	
151	19.6	
153	13.0	

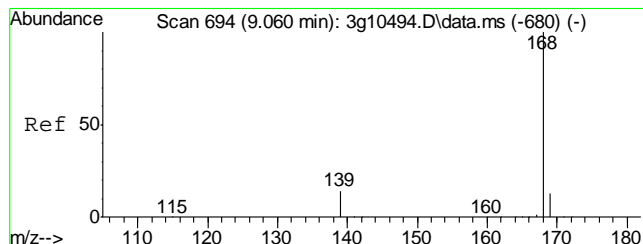
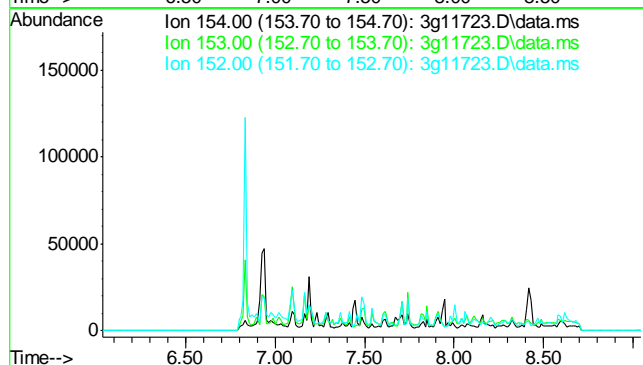




#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 7.54 min

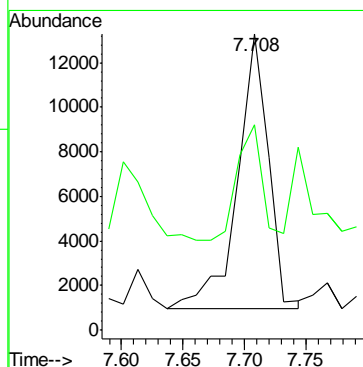
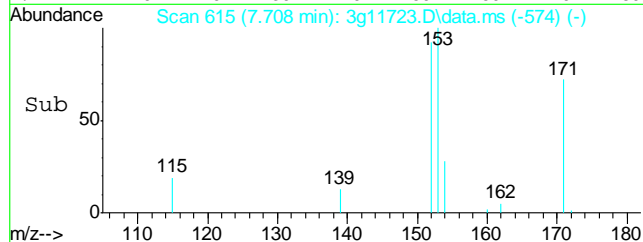
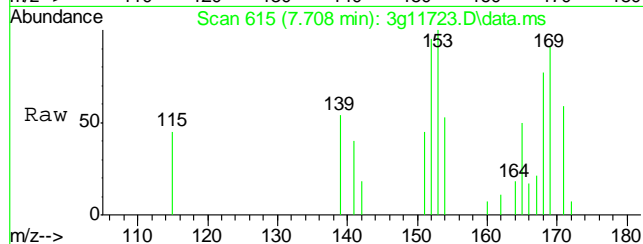
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

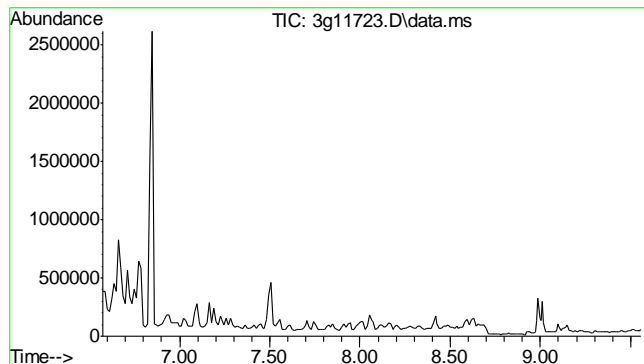
Tgt Ion: 154
Sig Exp Ratio
154 100
153 105.5
152 52.0



#12
Dibenzofuran
Concen: 0.3235 ug/mL
RT: 7.708 min Scan# 615
Delta R.T. -0.012 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

Tgt Ion: 168 Resp: 21504
Ion Ratio Lower Upper
168 100
139 34.0 13.0 53.0

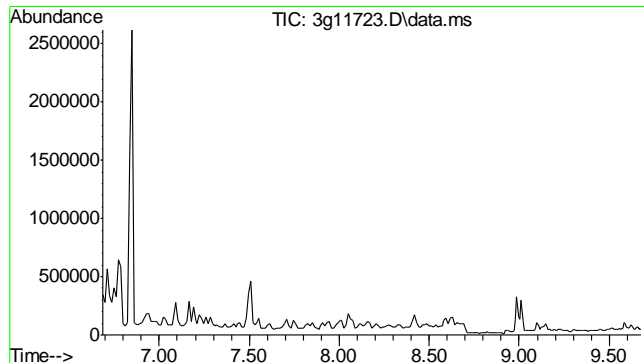
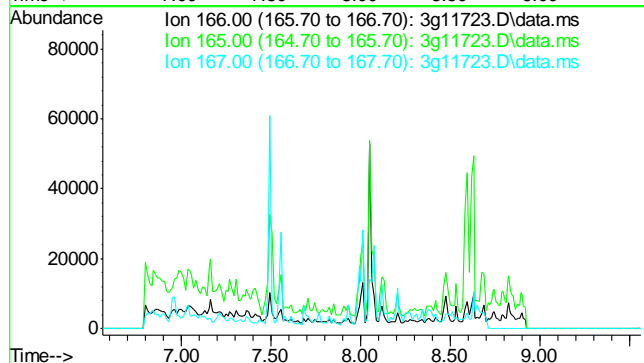




#13
Fluorene
Concen: N.D. ug/mL
Expected RT: 8.06 min

Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

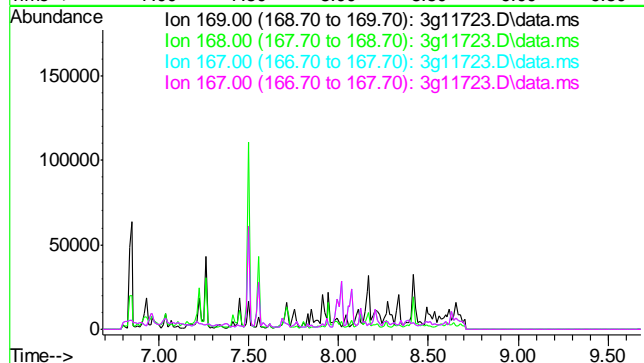
Tgt Ion:	166
Sig	Exp Ratio
166	100
165	92.4
167	13.2

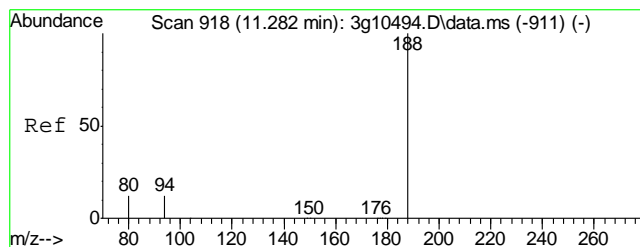


#14
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 8.18 min

Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

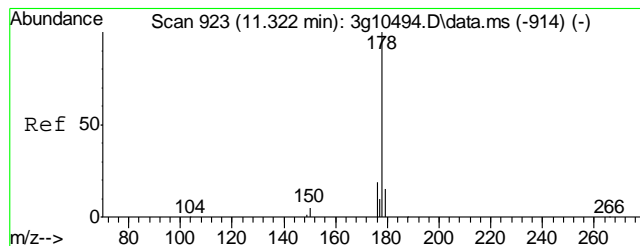
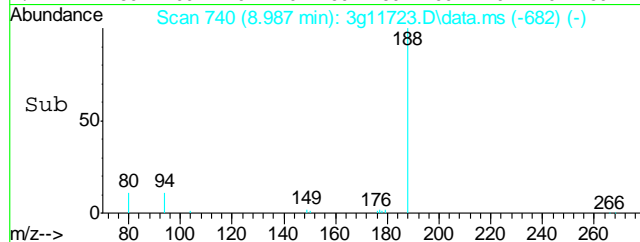
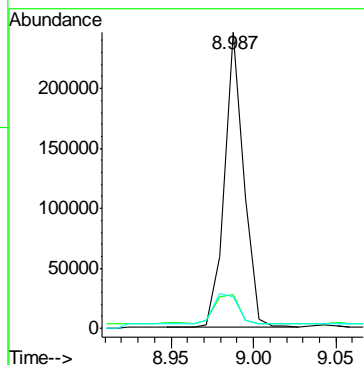
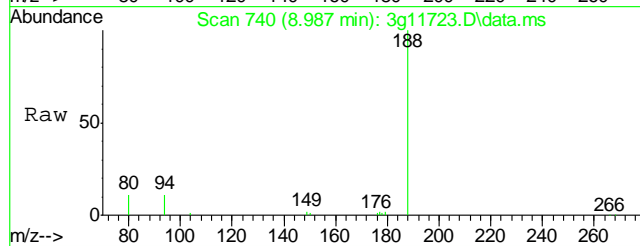
Tgt Ion:	169
Sig	Exp Ratio
169	100
168	59.9
167	33.3
167	33.3





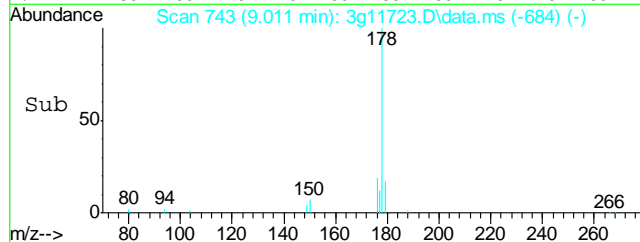
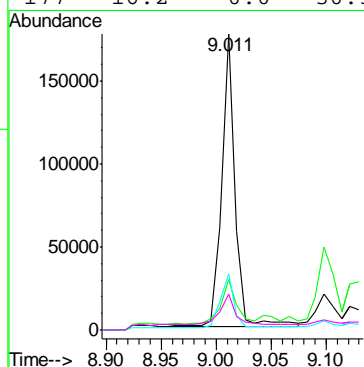
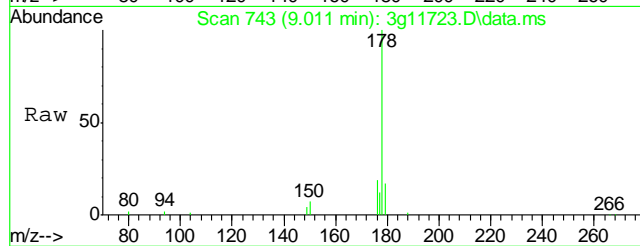
#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.987 min Scan# 740
Delta R.T. -0.008 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

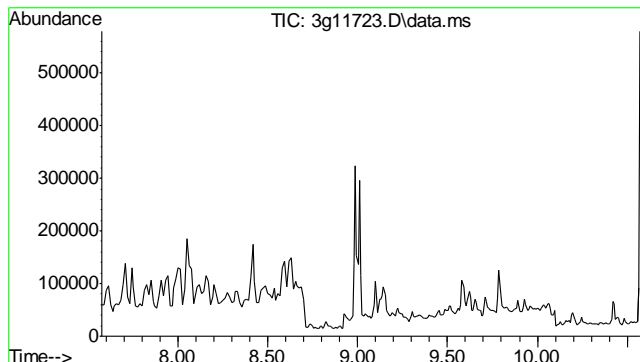
Tgt Ion:	188	Resp:	200503
Ion Ratio	Lower	Upper	
188	100		
94	12.6	0.0	34.7
80	14.9	0.0	37.0



#16
Phenanthrene
Concen: 2.0038 ug/mL
RT: 9.011 min Scan# 743
Delta R.T. -0.008 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

Tgt Ion:	178	Resp:	150012
Ion Ratio	Lower	Upper	
178	100		
179	23.6	0.0	35.2
176	18.9	0.0	39.1
177	16.2	0.0	30.3

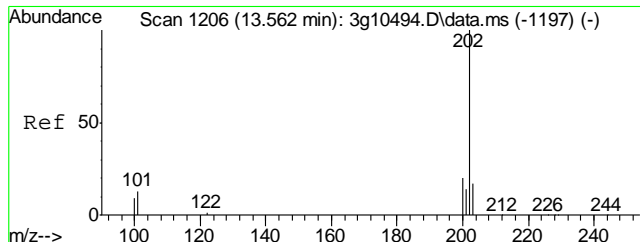
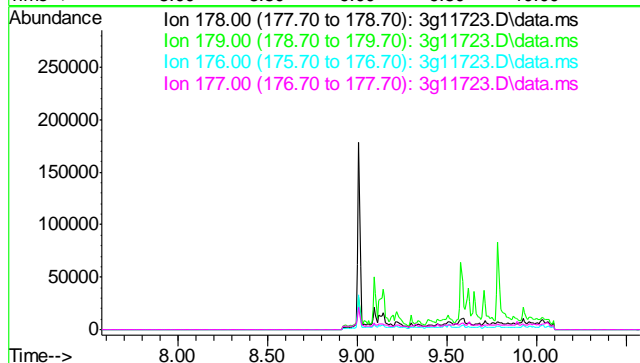




#17
Anthracene
Concen: N.D. ug/mL
Expected RT: 9.07 min

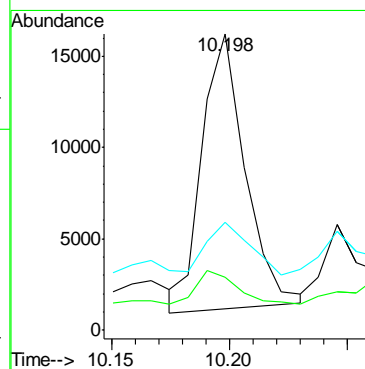
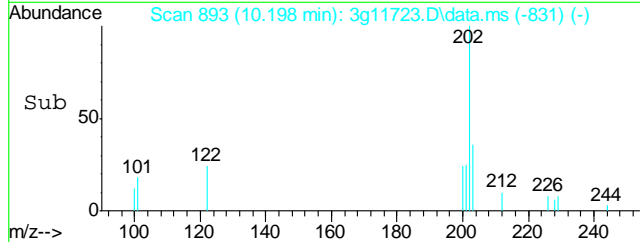
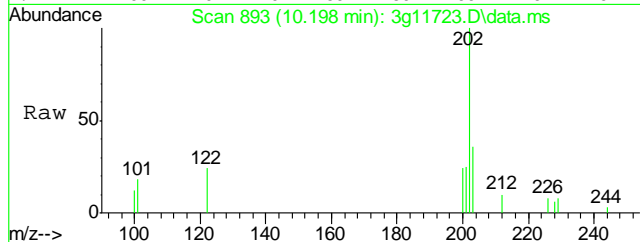
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

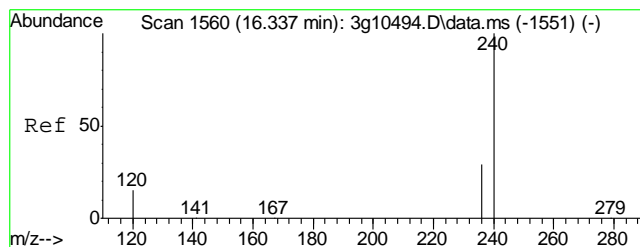
Tgt Ion: 178
Sig Exp Ratio
178 100
179 15.2
176 18.5
177 8.9



#18
Fluoranthene
Concen: 0.2315 ug/mL
RT: 10.198 min Scan# 893
Delta R.T. -0.008 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

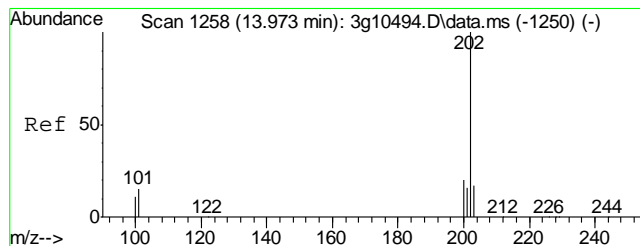
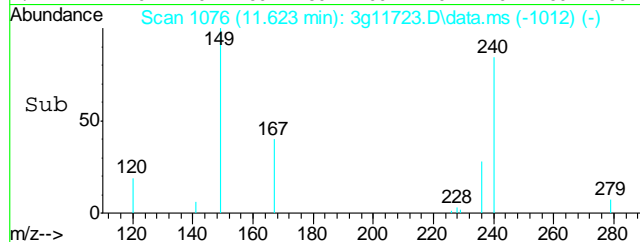
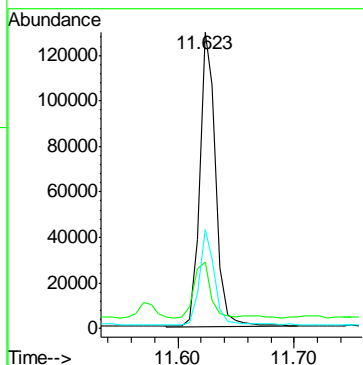
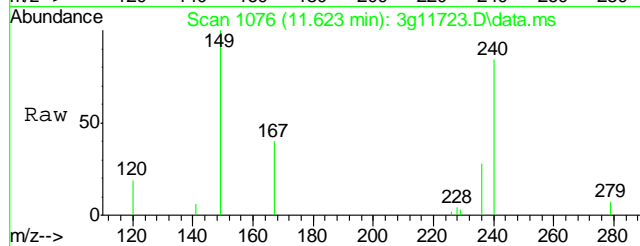
Tgt Ion: 202 Resp: 19268
Ion Ratio Lower Upper
202 100
101 24.3 0.0 32.5
203 34.6 0.0 37.5





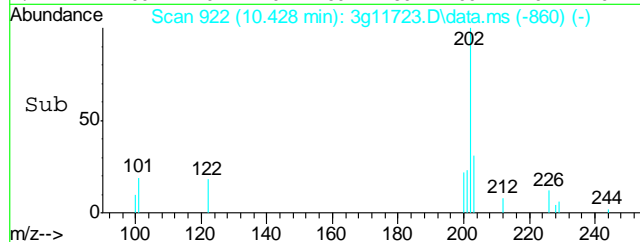
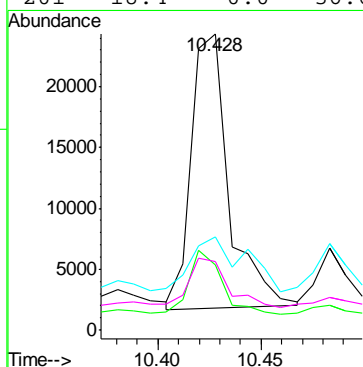
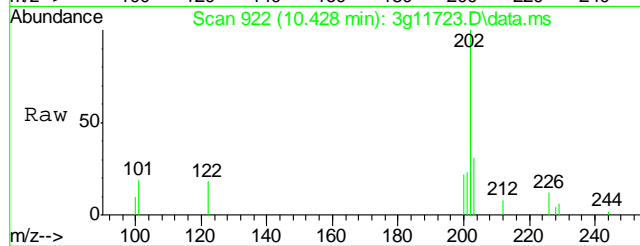
#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.623 min Scan# 1076
Delta R.T. -0.013 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

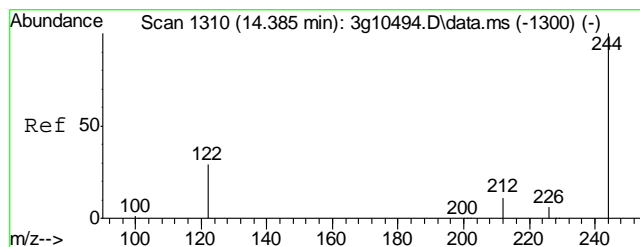
Tgt Ion	Ratio	Lower	Upper
240	100		
120	20.9	0.0	35.3
236	30.3	10.9	50.9



#20
Pyrene
Concen: 0.4485 ug/mL
RT: 10.428 min Scan# 922
Delta R.T. -0.008 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

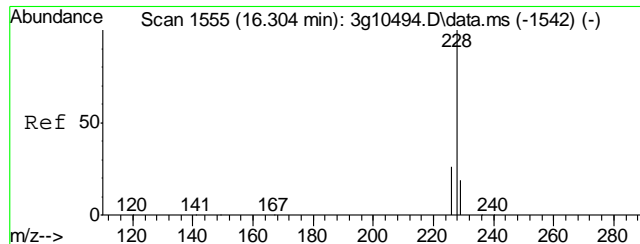
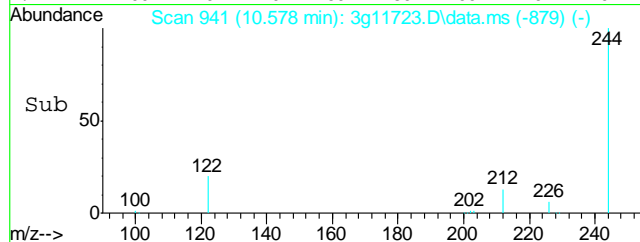
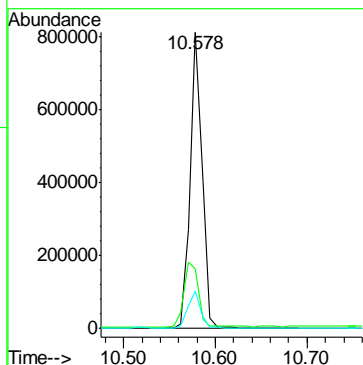
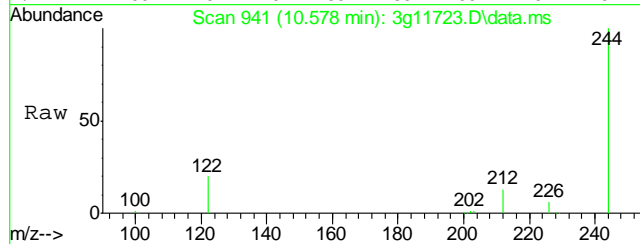
Tgt Ion	Ratio	Lower	Upper
202	100		
200	20.8	0.7	40.7
203	28.4	0.0	37.9
201	18.4	0.0	36.6





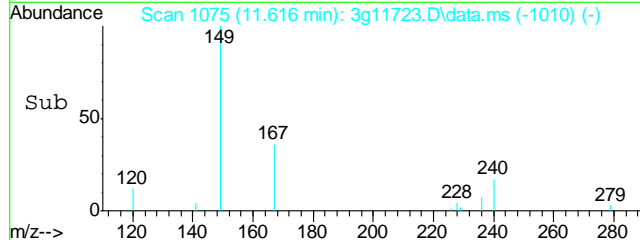
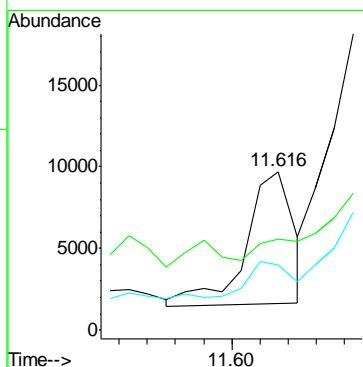
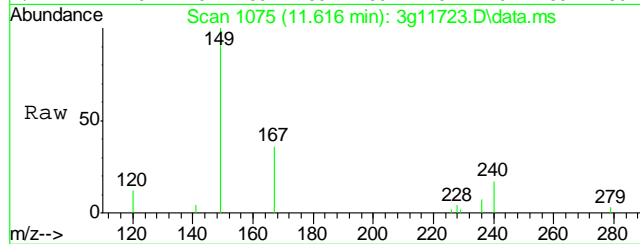
#21
Terphenyl-d14
Concen: 42.6109 ug/mL
RT: 10.578 min Scan# 941
Delta R.T. -0.008 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

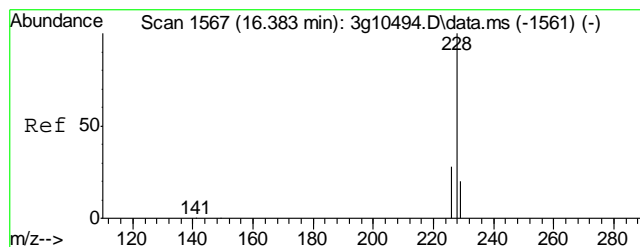
Tgt Ion	Ratio	Lower	Upper
244	100		
122	26.1	2.1	42.1
212	12.9	0.0	32.7



#22
Benzo(a)anthracene
Concen: 0.2026 ug/mL
RT: 11.616 min Scan# 1075
Delta R.T. -0.007 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

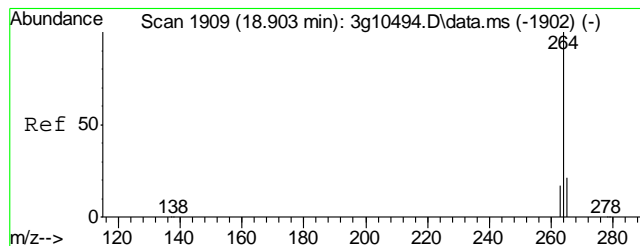
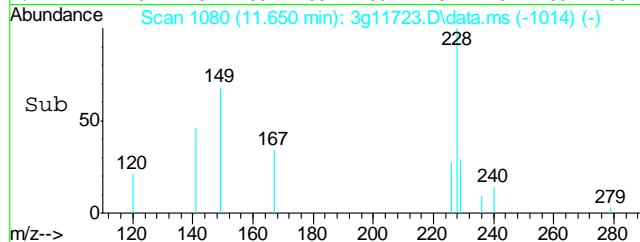
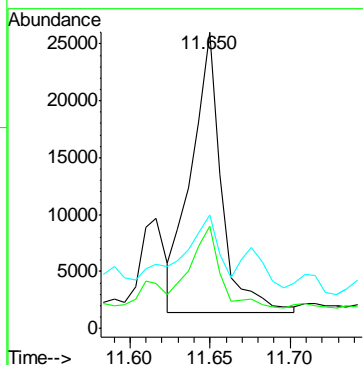
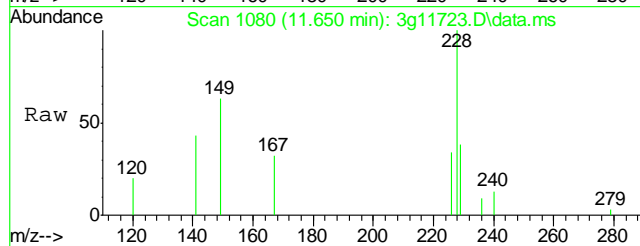
Tgt Ion	Ratio	Lower	Upper
228	100		
229	31.6	0.0	39.3
226	31.6	7.4	47.4





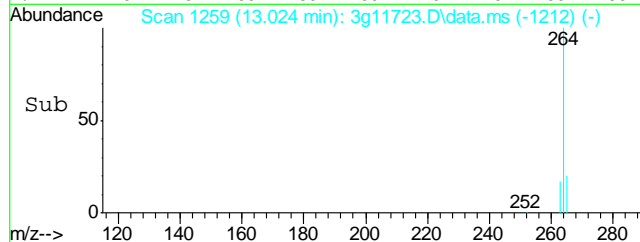
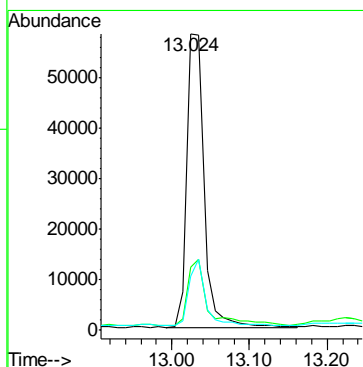
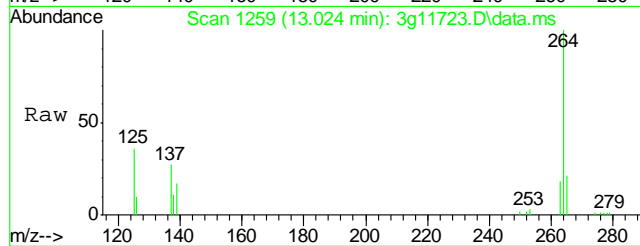
#23
Chrysene
Concen: 0.5200 ug/mL m
RT: 11.650 min Scan# 1080
Delta R.T. -0.006 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

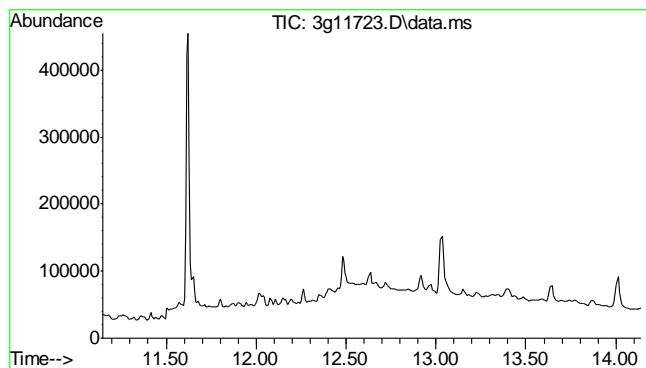
Tgt Ion:	228	Resp:	32296
Ion Ratio	Lower	Upper	
228	100		
226	9.8	8.5	48.5
229	9.4	0.0	39.3



#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 13.024 min Scan# 1259
Delta R.T. -0.011 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

Tgt Ion:	264	Resp:	90451
Ion Ratio	Lower	Upper	
264	100		
265	25.4	0.5	40.5
263	21.9	0.4	40.4

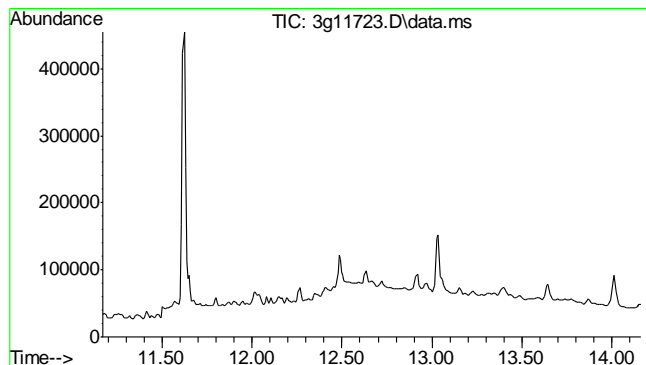
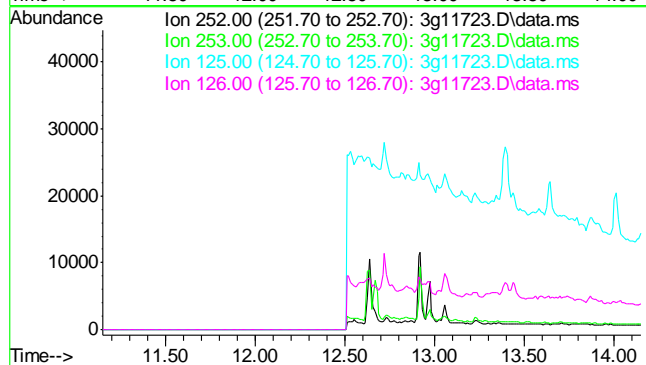




#25
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.65 min

Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

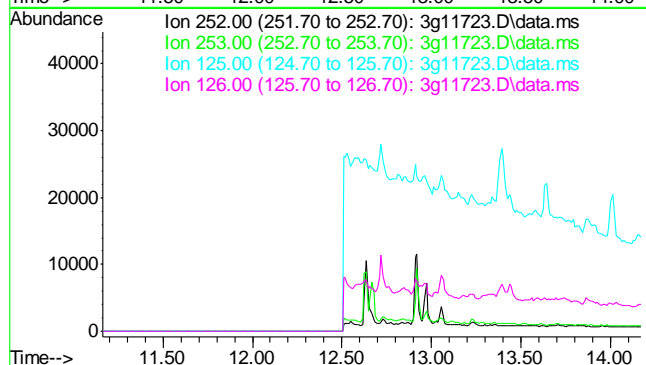
Tgt Ion: 252	
Sig	Exp Ratio
252	100
253	21.2
125	23.2
126	33.1

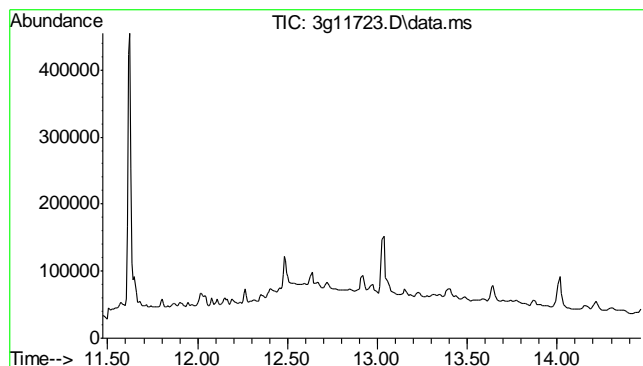


#26
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.67 min

Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

Tgt Ion: 252	
Sig	Exp Ratio
252	100
253	16.7
125	18.4
126	26.2

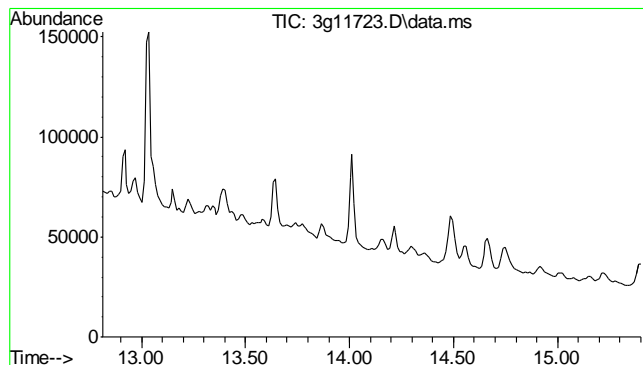
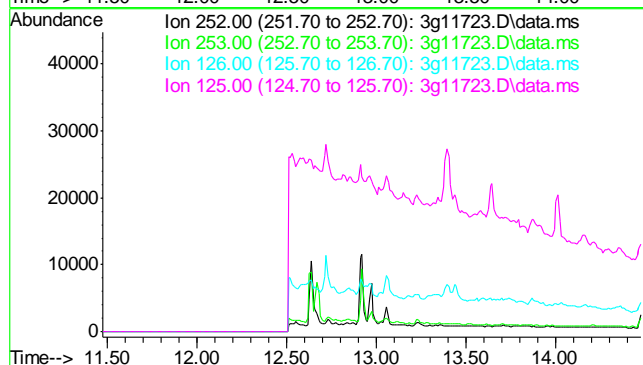




#27
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 12.97 min

Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

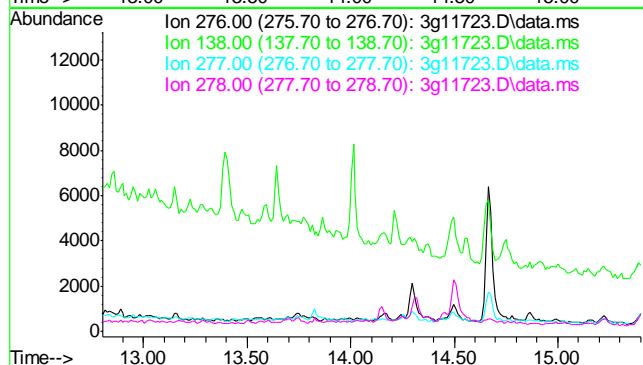
Tgt Ion	Sig	Exp Ratio
252	100	
253	21.5	
126	14.7	
125	10.6	

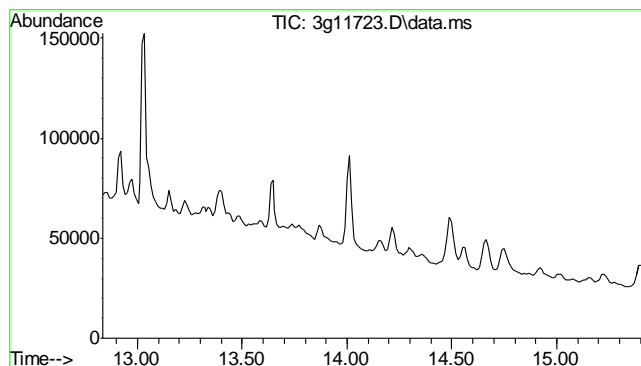


#28
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 14.31 min

Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

Tgt Ion	Sig	Exp Ratio
276	100	
138	27.8	
277	24.6	
278	68.7	

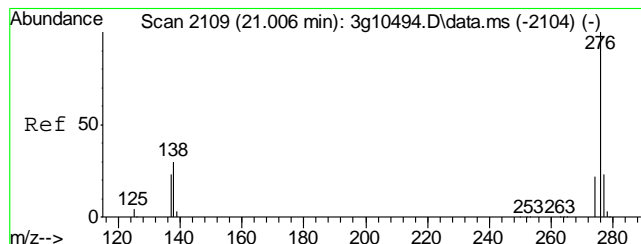
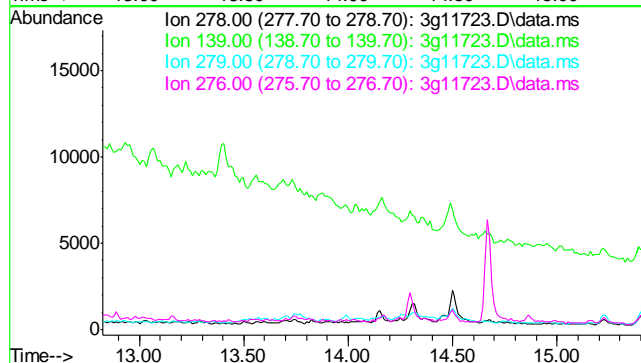




#29
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 14.33 min

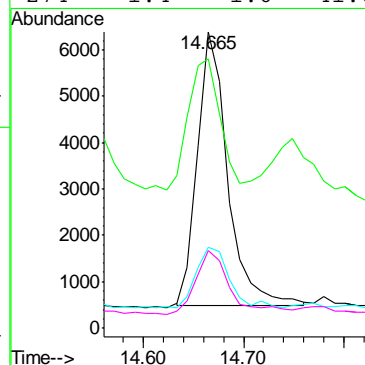
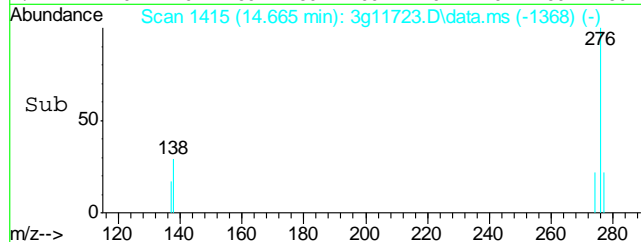
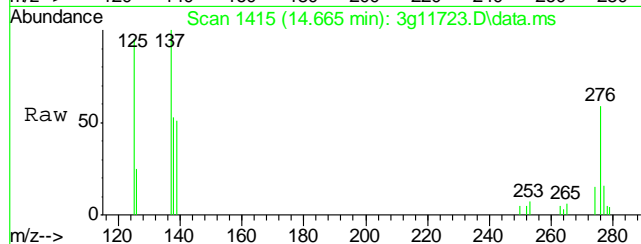
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

Tgt Ion: 278
Sig Exp Ratio
278 100
139 22.5
279 22.9
276 145.5



#30
Benzo(g,h,i)perylene
Concen: 0.2989 ug/mL m
RT: 14.665 min Scan# 1415
Delta R.T. -0.010 min
Lab File: 3g11723.D
Acq: 19 Oct 12 1:41 pm

Tgt Ion: 276 Resp: 12349
Ion Ratio Lower Upper
276 100
138 3.5 4.2 44.2#
277 2.1 2.4 42.4#
274 1.4 1.6 41.6#



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\101912\
 Data File : 3g11720.D
 Acq On : 19 Oct 2012 12:28 pm
 Operator : DONC
 Sample : OP6830-MB
 Misc : OP6830,E3G552,30.00,,,1,1
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 22 08:13:54 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G544.M
 Quant Title : PAHSIM BASE
 QLast Update : Thu Oct 11 09:29:33 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.789	136	220965	4.0000	ug/mL	-0.01
6) Acenaphthene-d10	7.507	164	118392	4.0000	ug/mL	-0.01
15) Phenanthrene-d10	8.987	188	204826	4.0000	ug/mL	0.00
19) Chrysene-d12	11.623	240	131471	4.0000	ug/mL	-0.01
24) Perylene-d12	13.025	264	90669	4.0000	ug/mL	-0.01

System Monitoring Compounds

2) Nitrobenzene-d5	5.103	82	1206251	45.8991	ug/mL	-0.01
Spiked Amount	50.000	Range	25 - 135	Recovery	=	91.80%
7) 2-Fluorobiphenyl	6.834	172	2129936	40.7650	ug/mL	-0.02
Spiked Amount	50.000	Range	25 - 135	Recovery	=	81.52%
21) Terphenyl-d14	10.578	244	922498	51.6027	ug/mL	0.00
Spiked Amount	50.000	Range	25 - 135	Recovery	=	103.20%

Target Compounds

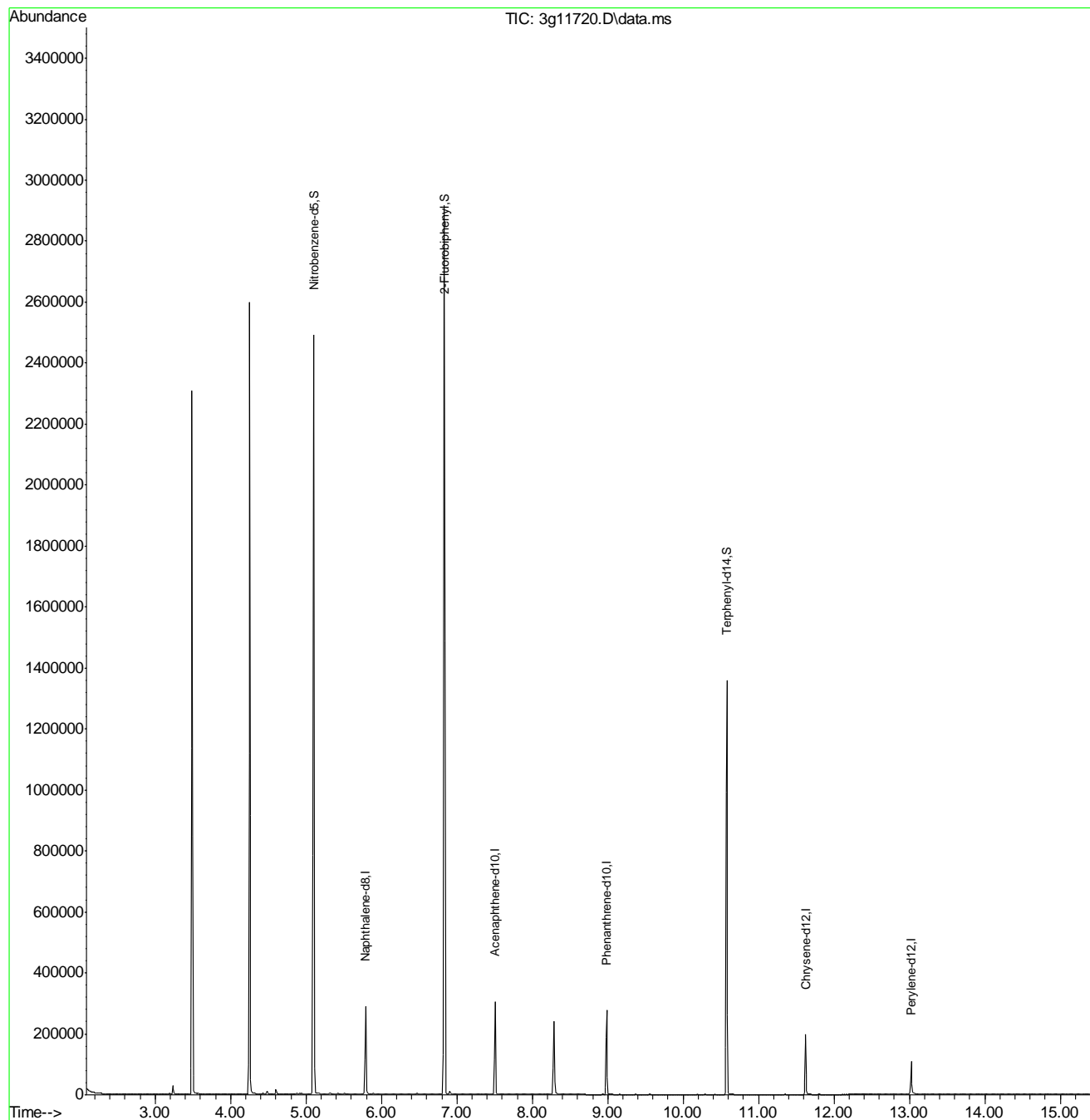
					Qvalue
3) N-Nitrosodimethylamine	2.509	74	181	N.D.	
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d
5) Naphthalene	5.801	128	1450	N.D.	
8) 2-Methylnaphthalene	6.474	142	869	N.D.	
9) 1-Methylnaphthalene	6.474	142	828	N.D.	
10) Acenaphthylene	7.366	152	503	N.D.	
11) Acenaphthene	7.507	154	728	N.D.	
12) Dibenzofuran	7.708	168	471	N.D.	
13) Fluorene	0.000	166	0	N.D.	d
14) Diphenylamine	0.000	169	0	N.D.	d
16) Phenanthrene	9.011	178	846	N.D.	
17) Anthracene	9.059	178	457	N.D.	
18) Fluoranthene	10.191	202	544	N.D.	
20) Pyrene	10.420	202	407	N.D.	
22) Benzo(a)anthracene	11.617	228	916	N.D.	
23) Chrysene	11.643	228	500	N.D.	
25) Benzo(b)fluoranthene	0.000	252	0	N.D.	d
26) Benzo(k)fluoranthene	0.000	252	0	N.D.	d
27) Benzo(a)pyrene	0.000	252	0	N.D.	d
28) Indeno(1,2,3-cd)pyrene	0.000	276	0	N.D.	d
29) Dibenz(a,h)anthracene	0.000	278	0	N.D.	d
30) Benzo(g,h,i)perylene	0.000	276	0	N.D.	d

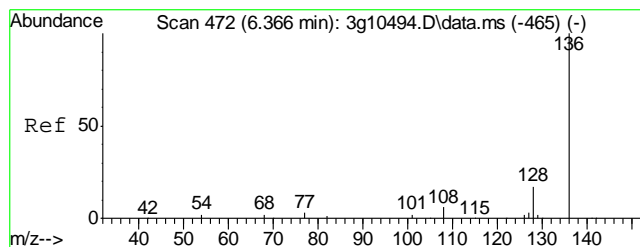
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\101912\
Data File : 3g11720.D
Acq On : 19 Oct 2012 12:28 pm
Operator : DONC
Sample : OP6830-MB
Misc : OP6830,E3G552,30.00,,,1,1
ALS Vial : 4 Sample Multiplier: 1

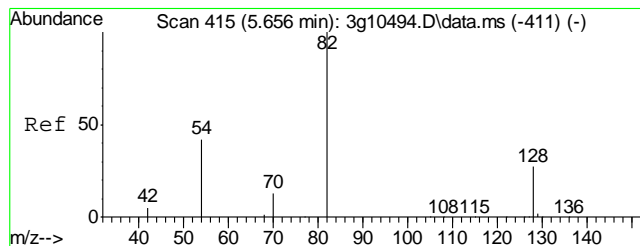
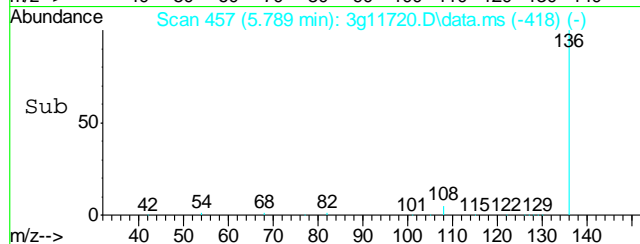
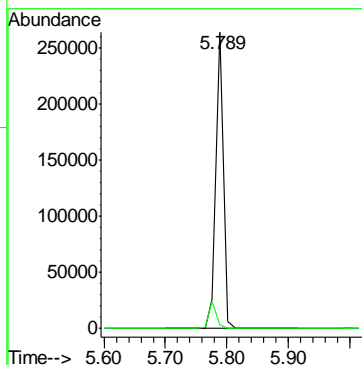
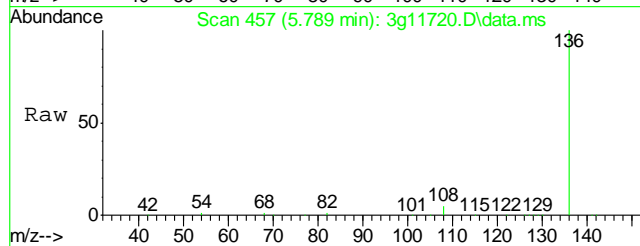
Quant Time: Oct 22 08:13:54 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G544.M
Quant Title : PAHSIM BASE
QLast Update : Thu Oct 11 09:29:33 2012
Response via : Initial Calibration





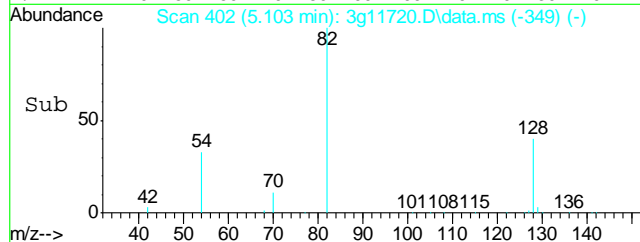
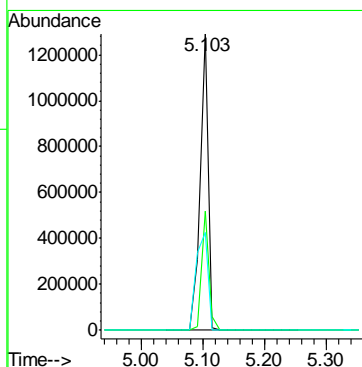
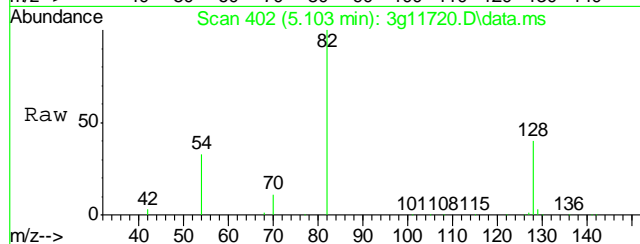
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.789 min Scan# 457
Delta R.T. -0.012 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

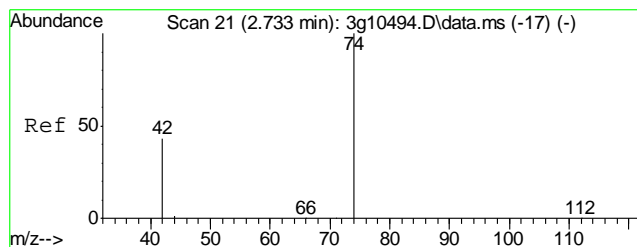
Tgt Ion: 136	Resp: 220965
Ion Ratio	Lower Upper
136 100	
68 9.3	0.0 30.9



#2
Nitrobenzene-d5
Concen: 45.8991 ug/mL
RT: 5.103 min Scan# 402
Delta R.T. -0.012 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

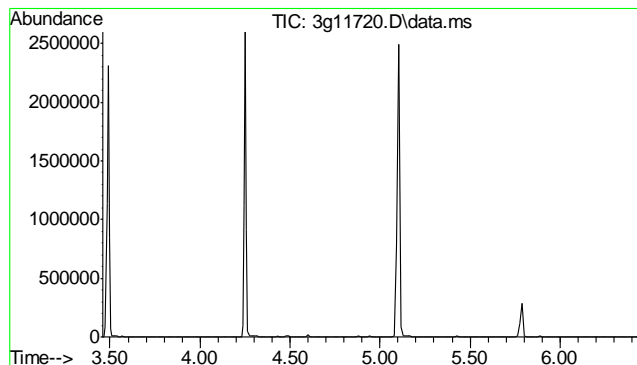
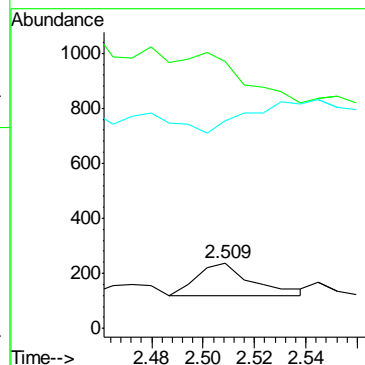
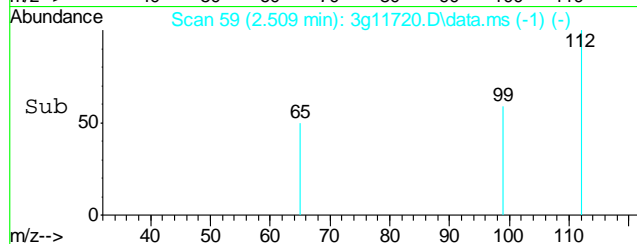
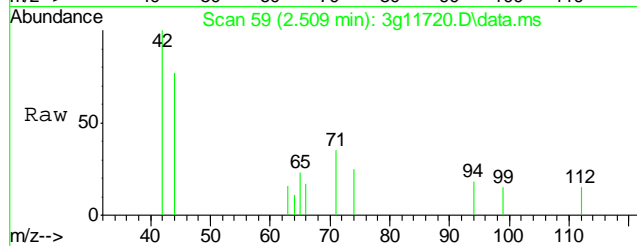
Tgt Ion: 82	Resp: 1206251
Ion Ratio	Lower Upper
82 100	
128 36.8	7.7 47.7
54 47.9	28.2 68.2





#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.509 min Scan# 59
Delta R.T. 0.007 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

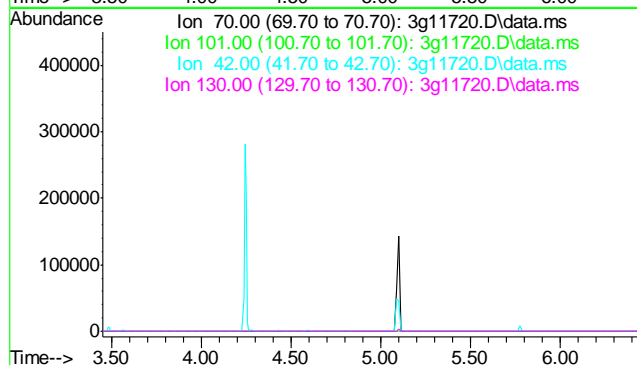
Tgt Ion: 74 Resp: 181
Ion Ratio Lower Upper
74 100
42 0.0 54.8 94.8#
44 0.0 0.0 24.8

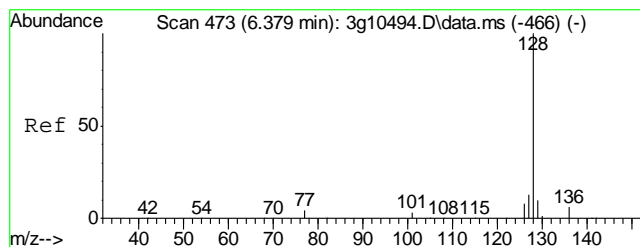


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 4.95 min

Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

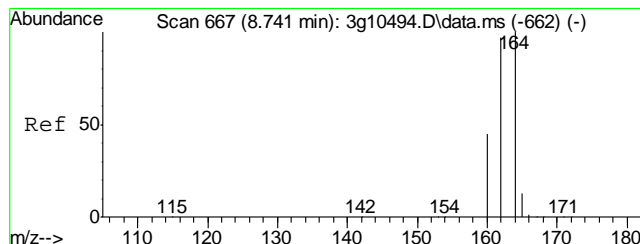
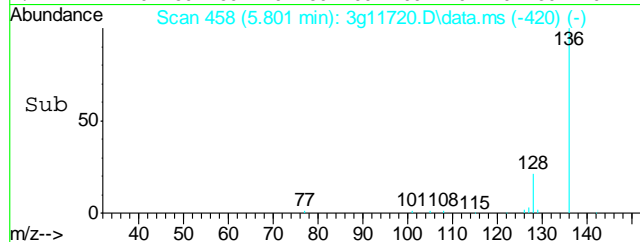
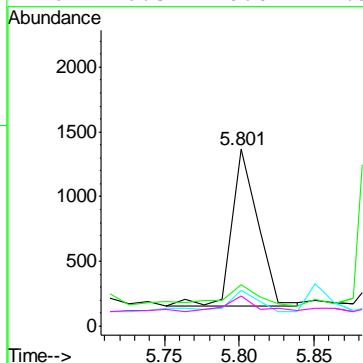
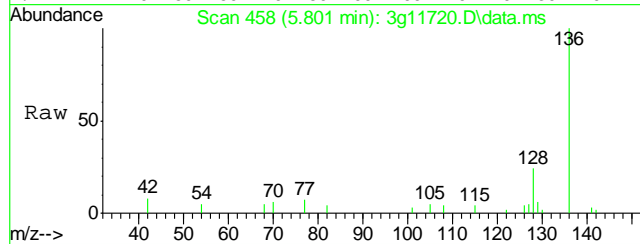
Tgt Ion: 70
Sig Exp Ratio
70 100
101 10.0
42 60.8
130 20.2





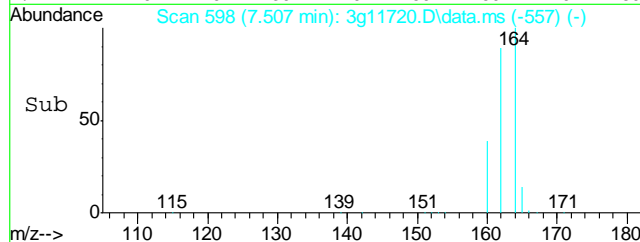
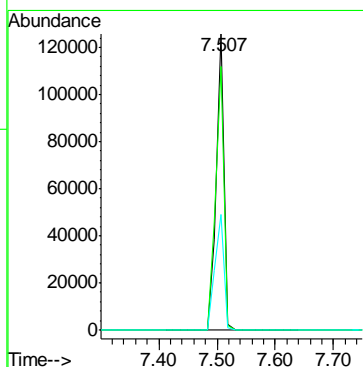
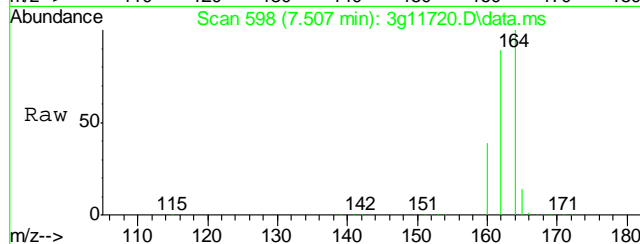
#5
Naphthalene
Concen: Below ug/mL
RT: 5.801 min Scan# 458
Delta R.T. -0.025 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

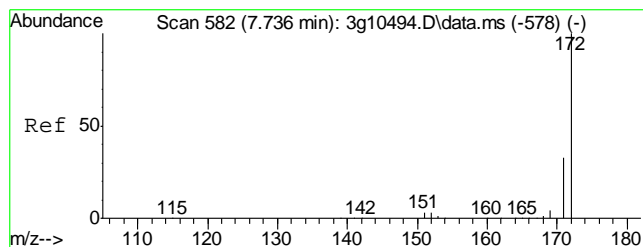
Tgt Ion	128	Resp	1450
Ion Ratio	100		
Lower	0.0		
Upper	31.1		
129	24.6		
127	22.6		
126	16.3		



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.507 min Scan# 598
Delta R.T. -0.012 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

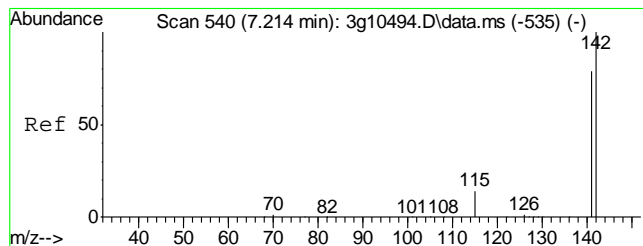
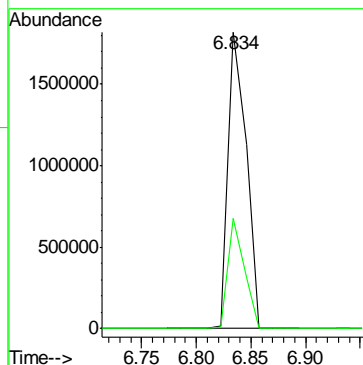
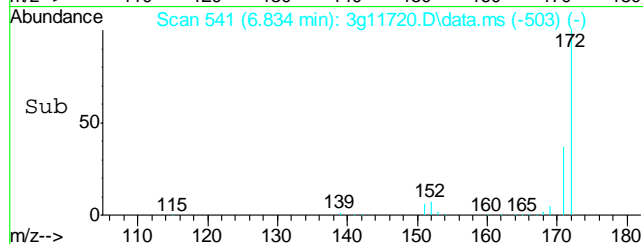
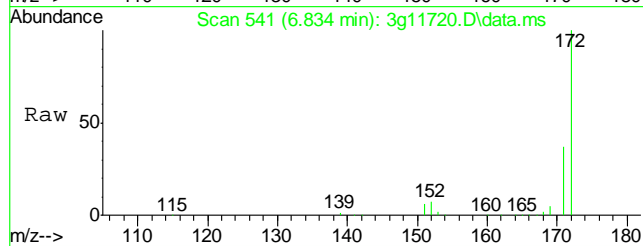
Tgt Ion	164	Resp	118392
Ion Ratio	100		
Lower	74.4		
Upper	114.4		
162	95.7		
160	44.9		





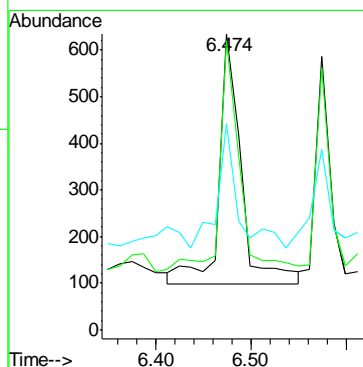
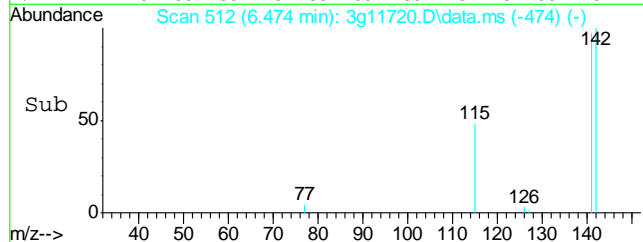
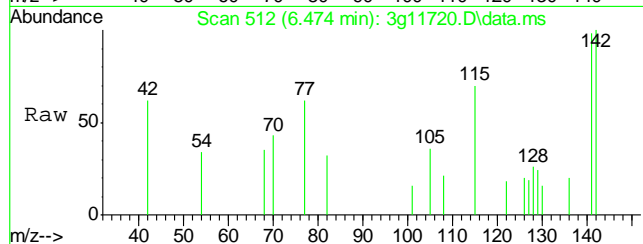
#7
2-Fluorobiphenyl
Concen: 40.7650 ug/mL
RT: 6.834 min Scan# 541
Delta R.T. -0.024 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

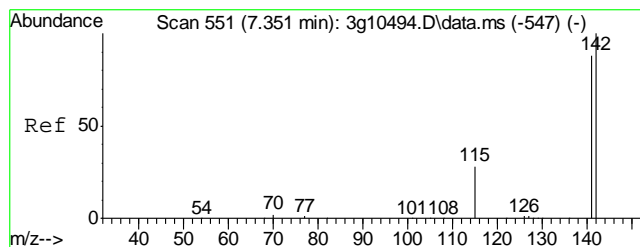
Tgt Ion:172 Resp: 2129936
Ion Ratio Lower Upper
172 100
171 33.4 13.0 53.0



#8
2-Methylnaphthalene
Concen: Below ug/mL
RT: 6.474 min Scan# 512
Delta R.T. -0.025 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

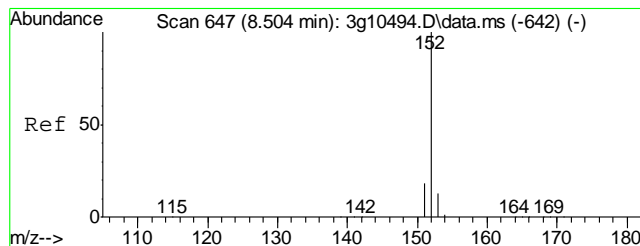
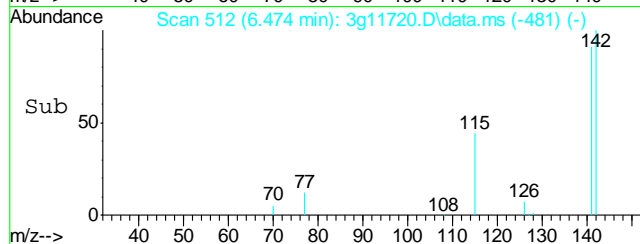
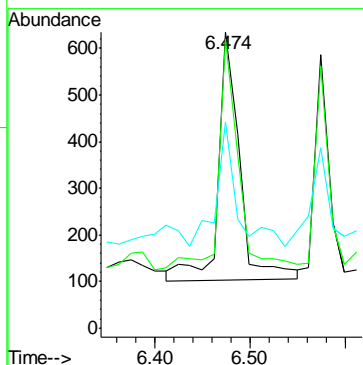
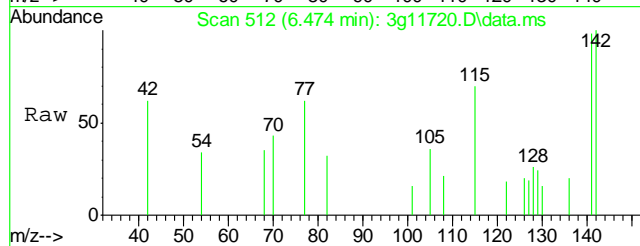
Tgt Ion:142 Resp: 869
Ion Ratio Lower Upper
142 100
141 78.0 63.7 103.7
115 45.7 27.3 67.3





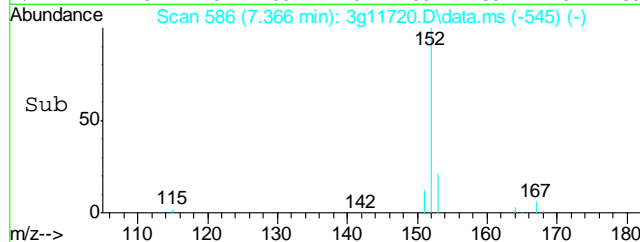
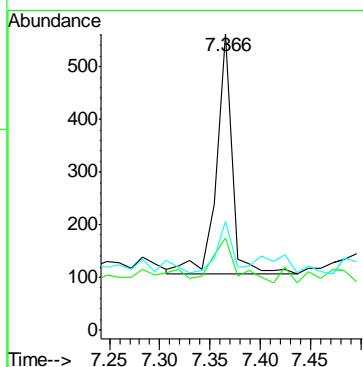
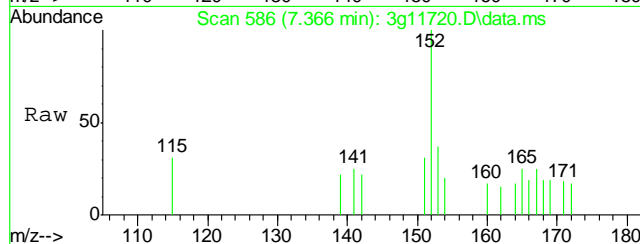
#9
1-Methylnaphthalene
Concen: Below ug/mL
RT: 6.474 min Scan# 512
Delta R.T. -0.112 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

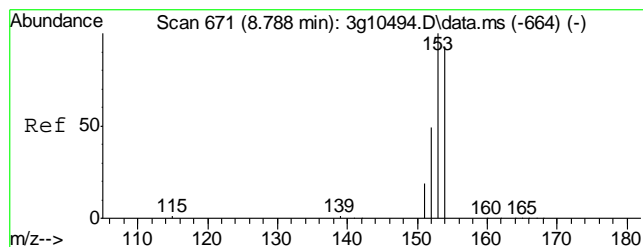
Tgt Ion:142	Resp:	828
Ion Ratio	Lower	Upper
142	100	
141	81.9	68.2 108.2
115	47.9	26.3 66.3



#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.366 min Scan# 586
Delta R.T. -0.012 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

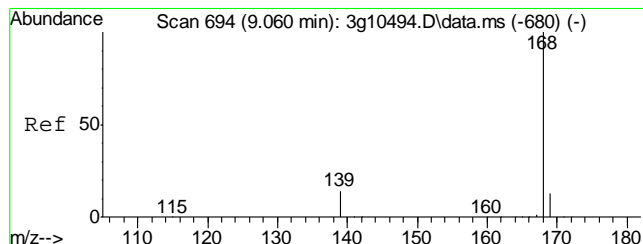
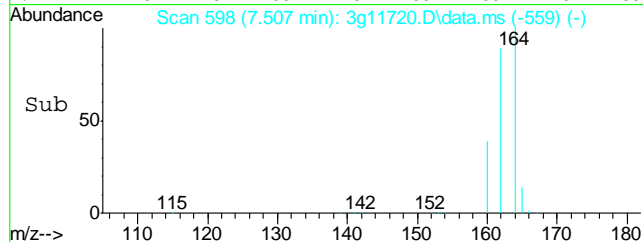
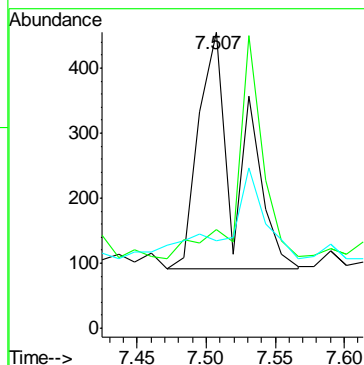
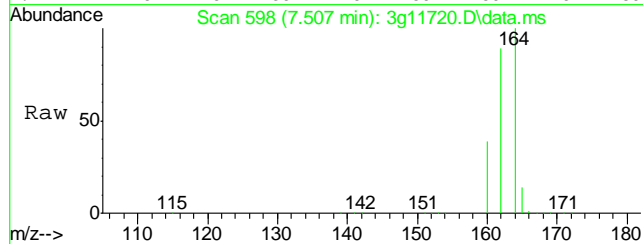
Tgt Ion:152	Resp:	503
Ion Ratio	Lower	Upper
152	100	
151	27.4	0.0 39.6
153	21.1	0.0 33.0





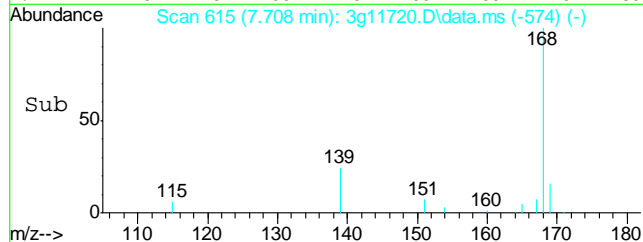
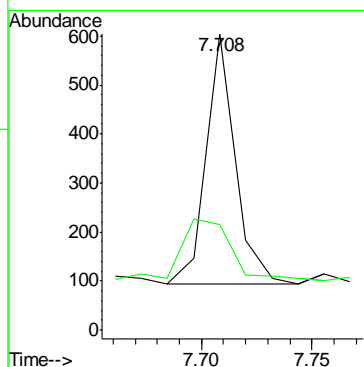
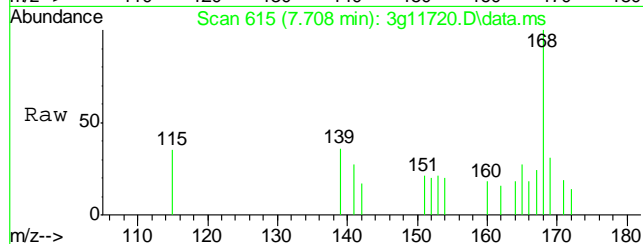
#11
Acenaphthene
Concen: Below ug/mL
RT: 7.507 min Scan# 598
Delta R.T. -0.035 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

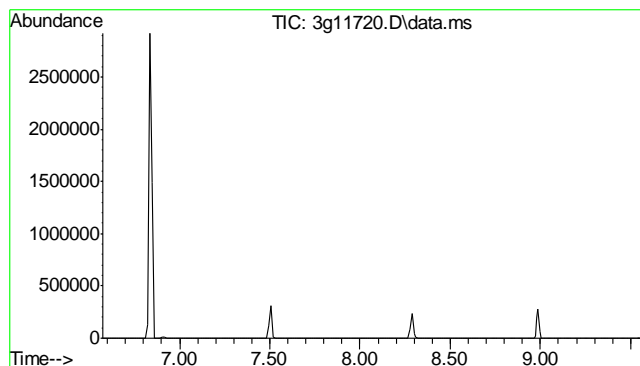
Tgt Ion:	154	Resp:	728
Ion Ratio	Lower	Upper	
154	100		
153	60.6	85.5	125.5#
152	39.1	32.0	72.0



#12
Dibenzofuran
Concen: Below ug/mL
RT: 7.708 min Scan# 615
Delta R.T. -0.012 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

Tgt Ion:	168	Resp:	471
Ion Ratio	Lower	Upper	
168	100		
139	42.0	13.0	53.0

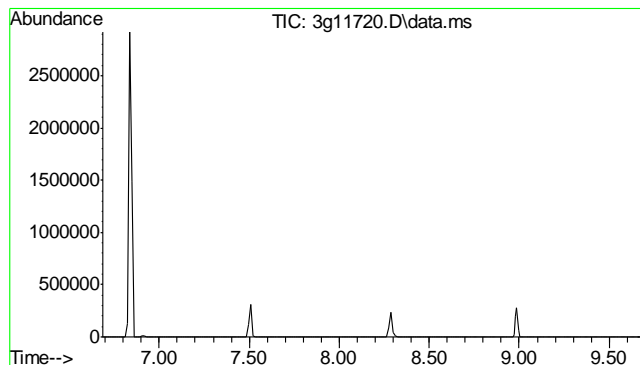
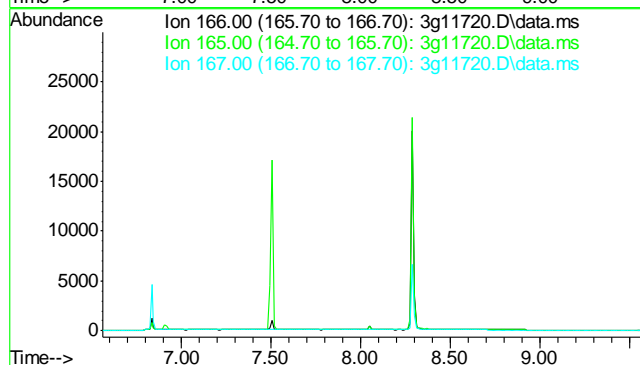




#13
Fluorene
Concen: N.D. ug/mL
Expected RT: 8.06 min

Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

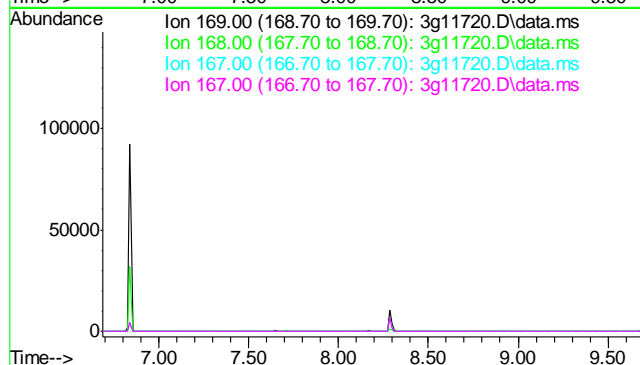
Tgt Ion:	166
Sig	Exp Ratio
166	100
165	92.4
167	13.2

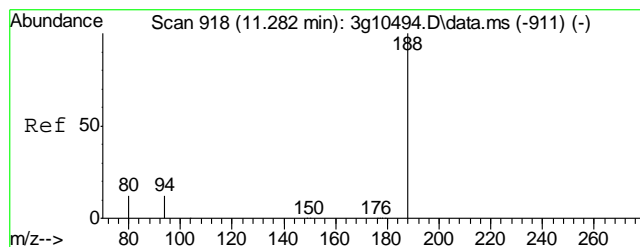


#14
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 8.18 min

Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

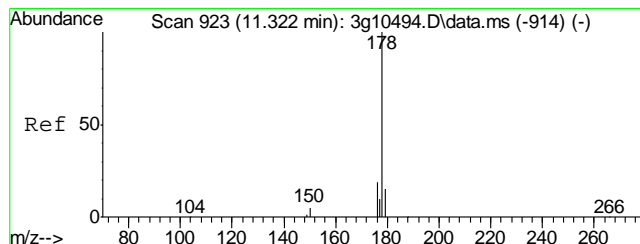
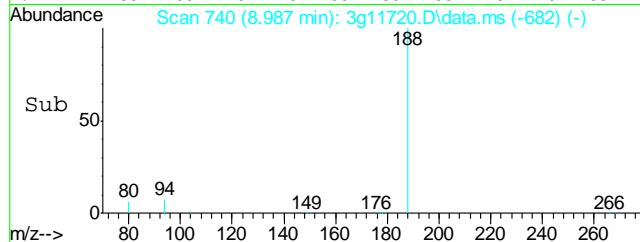
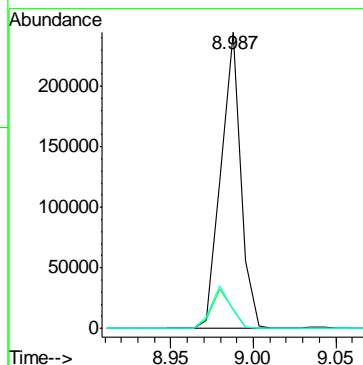
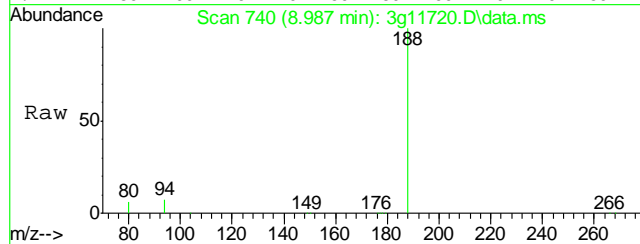
Tgt Ion:	169
Sig	Exp Ratio
169	100
168	59.9
167	33.3
167	33.3





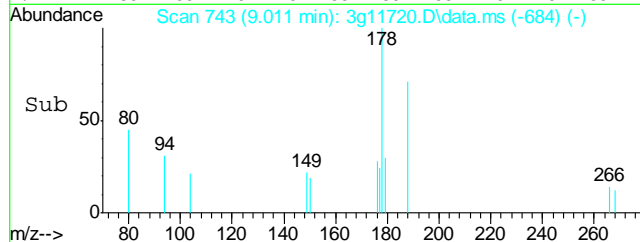
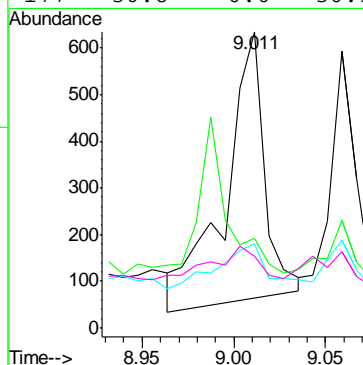
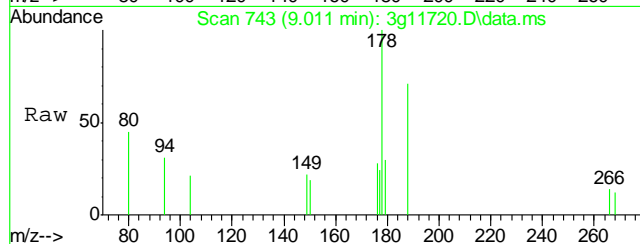
#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.987 min Scan# 740
Delta R.T. -0.008 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

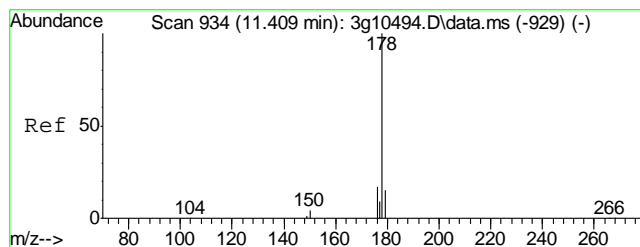
Tgt Ion	Ratio	Lower	Upper
188	100		
94	13.1	0.0	34.7
80	14.0	0.0	37.0



#16
Phenanthrene
Concen: Below ug/mL
RT: 9.011 min Scan# 743
Delta R.T. -0.008 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

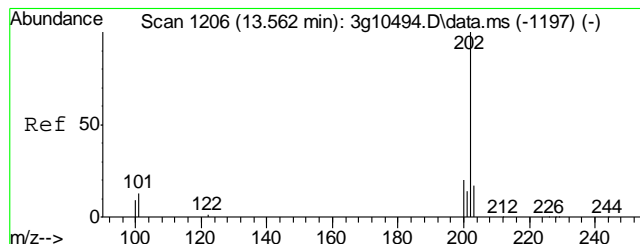
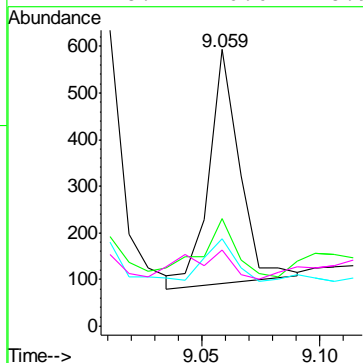
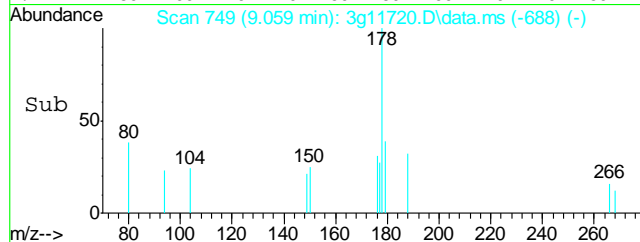
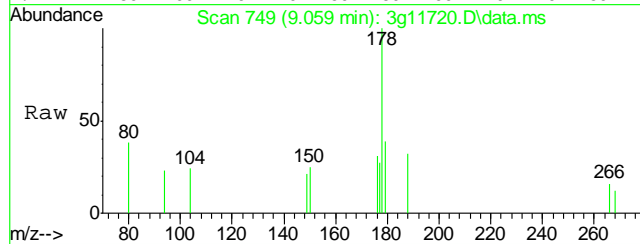
Tgt Ion	Ratio	Lower	Upper
178	100		
179	81.0	0.0	35.2#
176	37.4	0.0	39.1
177	36.8	0.0	30.3#





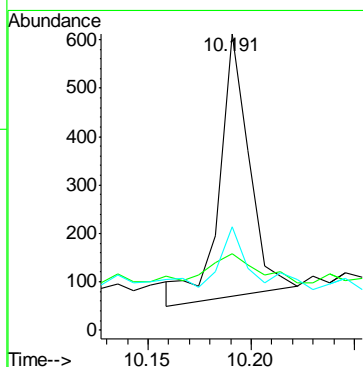
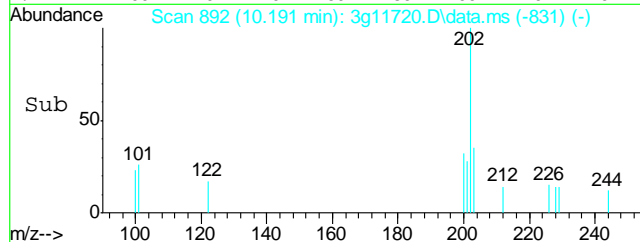
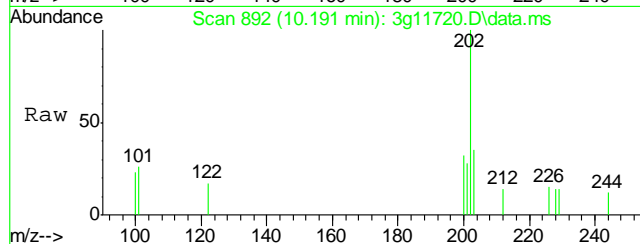
#17
Anthracene
Concen: Below ug/mL
RT: 9.059 min Scan# 749
Delta R.T. -0.016 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

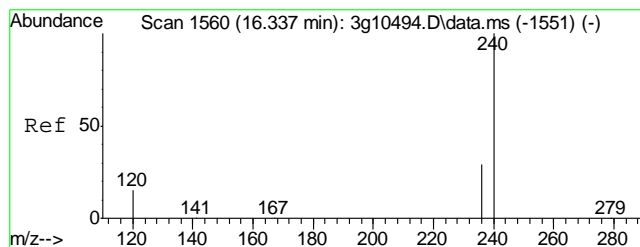
Tgt Ion: 178	Resp:	457
Ion Ratio	Lower	Upper
178	100	
179	46.4	0.0 35.2#
176	22.5	0.0 38.5
177	28.4	0.0 28.9



#18
Fluoranthene
Concen: Below ug/mL
RT: 10.191 min Scan# 892
Delta R.T. -0.016 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

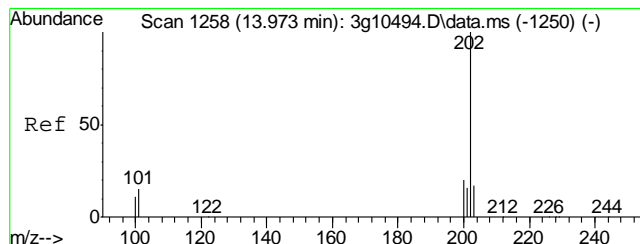
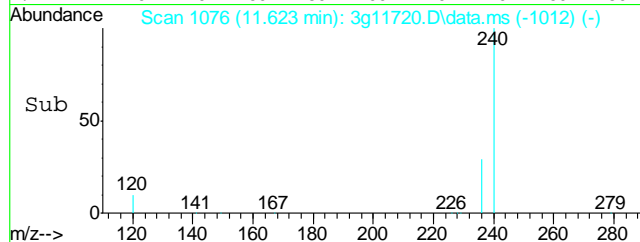
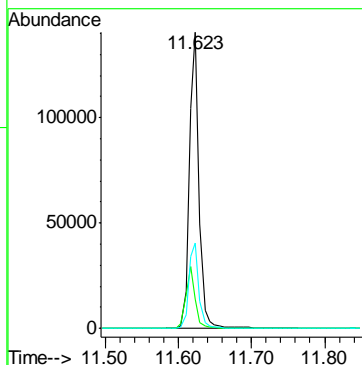
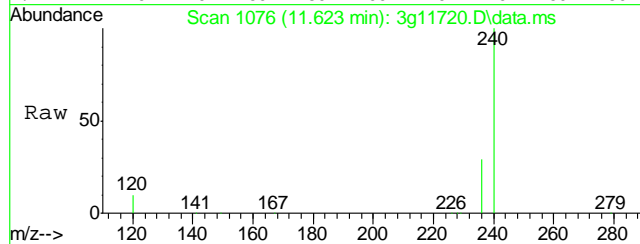
Tgt Ion: 202	Resp:	544
Ion Ratio	Lower	Upper
202	100	
101	31.6	0.0 32.5
203	34.6	0.0 37.5





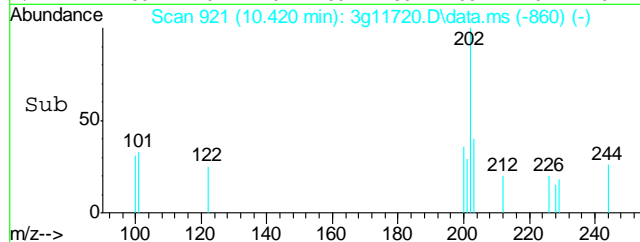
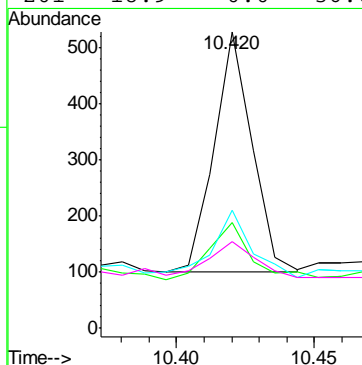
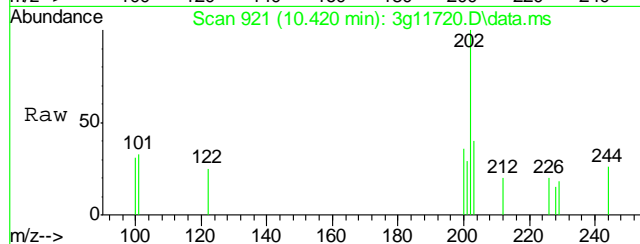
#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.623 min Scan# 1076
Delta R.T. -0.013 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

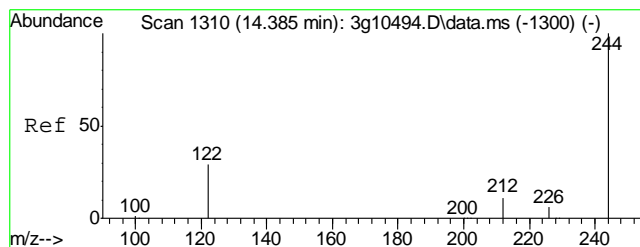
Tgt Ion:	240	Resp:	131471
Ion Ratio	Lower	Upper	
240	100		
120	19.8	0.0	35.3
236	29.9	10.9	50.9



#20
Pyrene
Concen: Below ug/mL
RT: 10.420 min Scan# 921
Delta R.T. -0.016 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

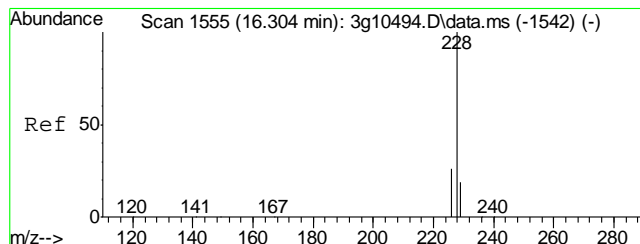
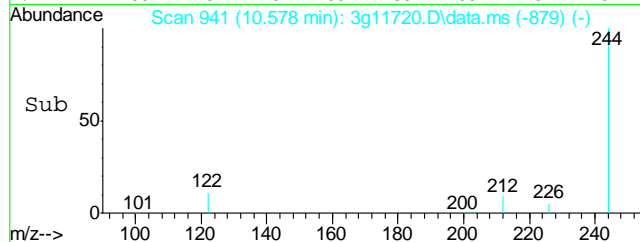
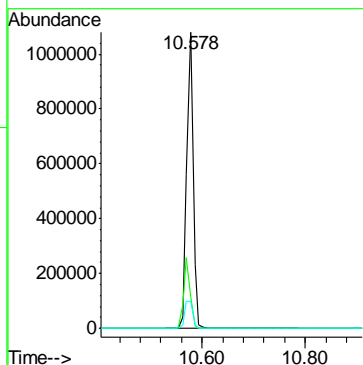
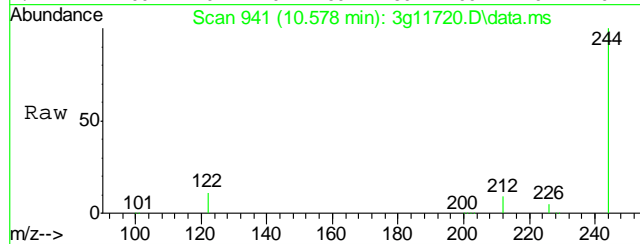
Tgt Ion:	202	Resp:	407
Ion Ratio	Lower	Upper	
202	100		
200	37.3	0.7	40.7
203	28.3	0.0	37.9
201	18.9	0.0	36.6





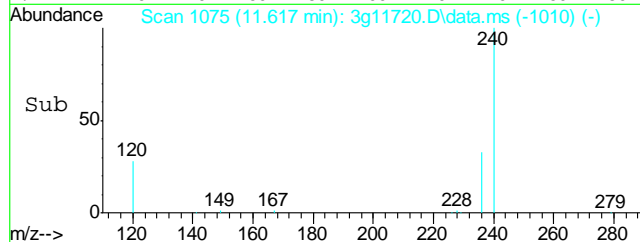
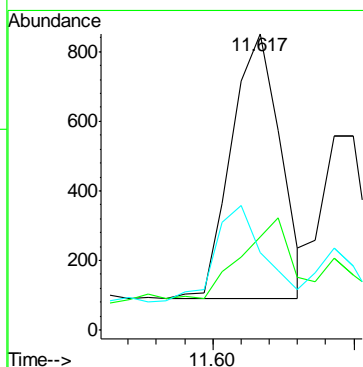
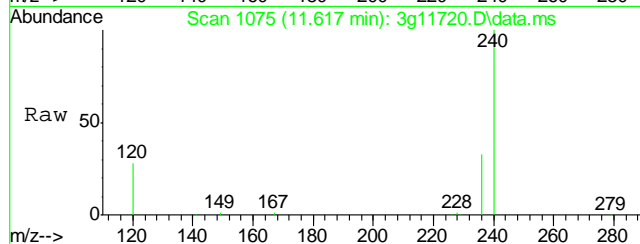
#21
Terphenyl-d14
Concen: 51.6027 ug/mL
RT: 10.578 min Scan# 941
Delta R.T. -0.008 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

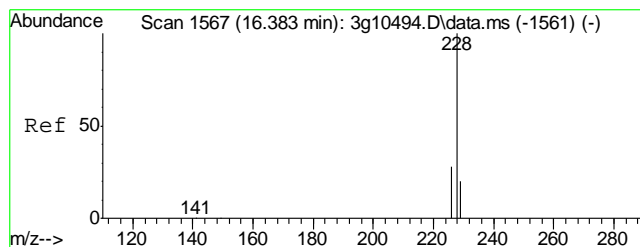
Tgt Ion:	244	Resp:	922498
Ion Ratio	Lower	Upper	
244	100		
122	24.3	2.1	42.1
212	11.6	0.0	32.7



#22
Benzo(a)anthracene
Concen: Below ug/mL
RT: 11.617 min Scan# 1075
Delta R.T. -0.006 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

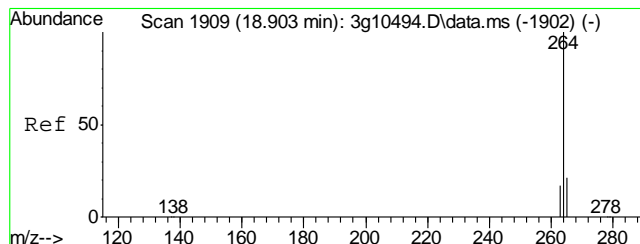
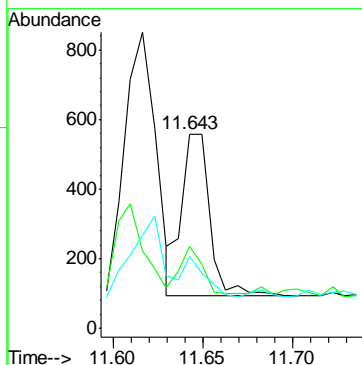
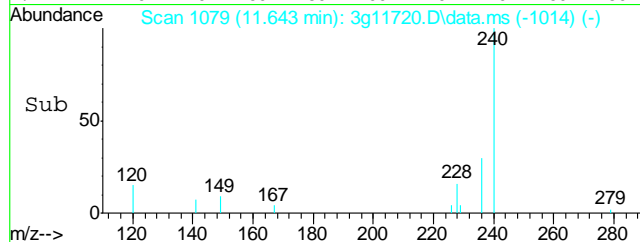
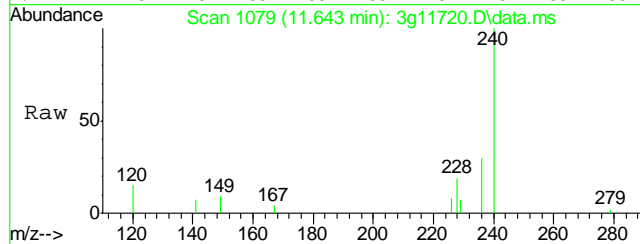
Tgt Ion:	228	Resp:	916
Ion Ratio	Lower	Upper	
228	100		
229	35.2	0.0	39.3
226	36.5	7.4	47.4





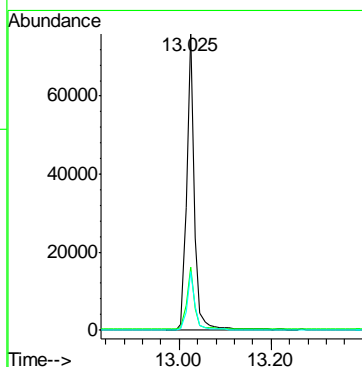
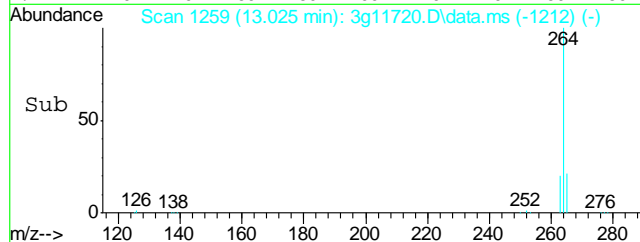
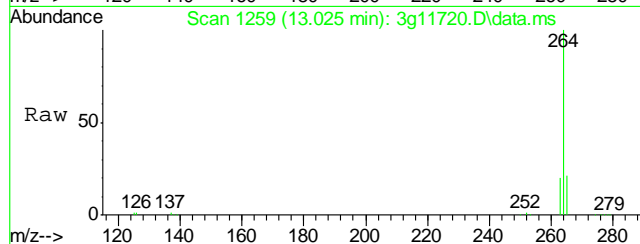
#23
Chrysene
Concen: Below ug/mL
RT: 11.643 min Scan# 1079
Delta R.T. -0.013 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

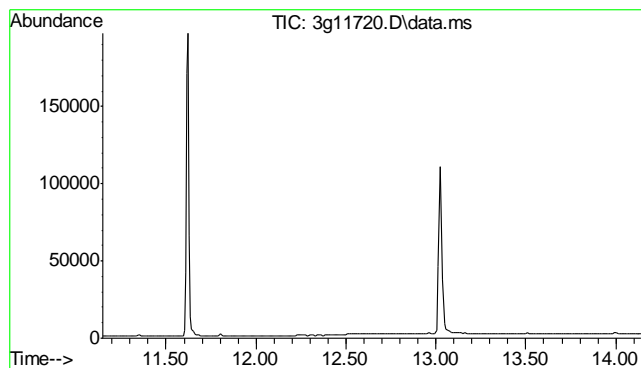
Tgt Ion:	228	Resp:	500
Ion Ratio	100	Lower	Upper
228	100		
226	24.8	8.5	48.5
229	20.2	0.0	39.3



#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 13.025 min Scan# 1259
Delta R.T. -0.010 min
Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

Tgt Ion:	264	Resp:	90669
Ion Ratio	100	Lower	Upper
264	100		
265	20.8	0.5	40.5
263	19.8	0.4	40.4

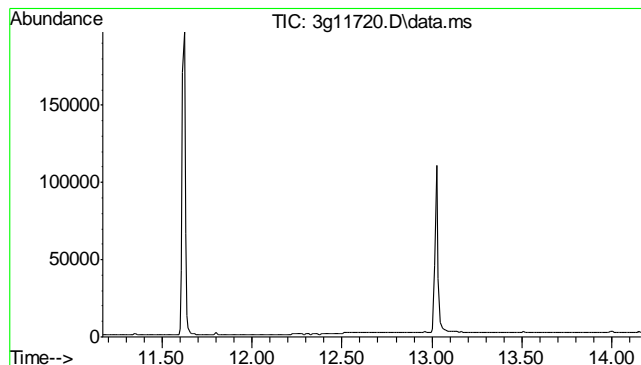
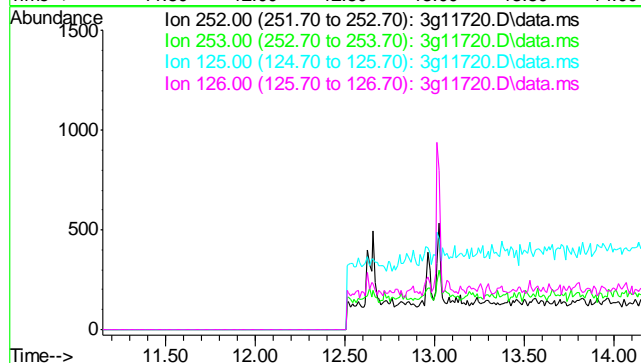




#25
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.65 min

Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

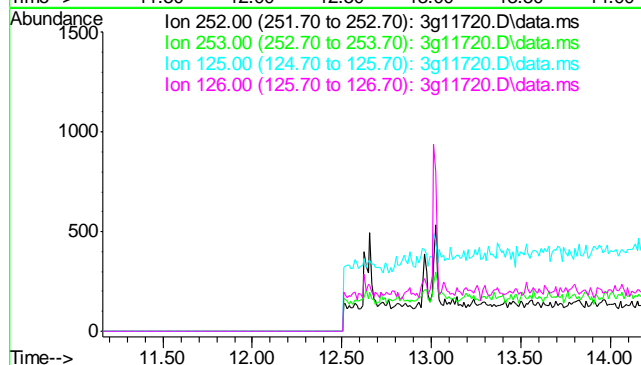
Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.2
125	23.2
126	33.1

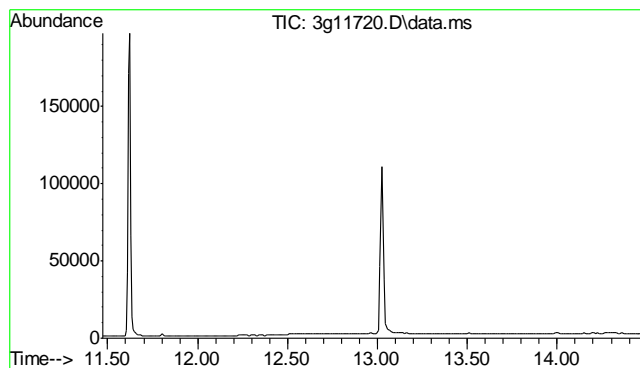


#26
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.67 min

Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	16.7
125	18.4
126	26.2

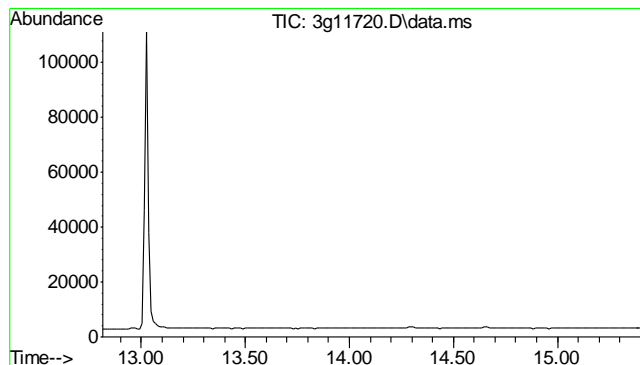
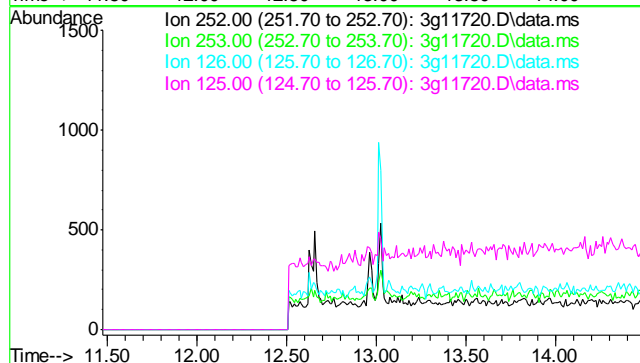




#27
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 12.97 min

Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

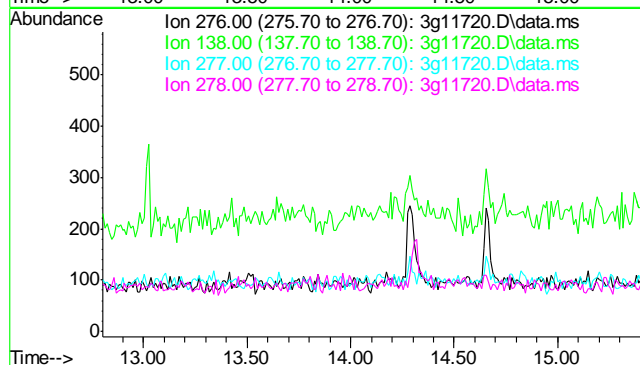
Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.5
126	14.7
125	10.6

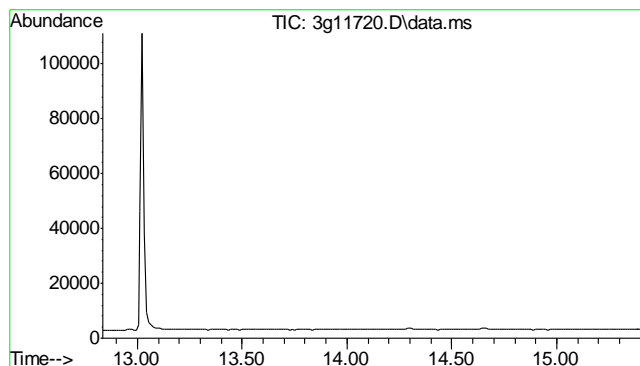


#28
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 14.31 min

Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

Tgt Ion:	276
Sig	Exp Ratio
276	100
138	27.8
277	24.6
278	68.7

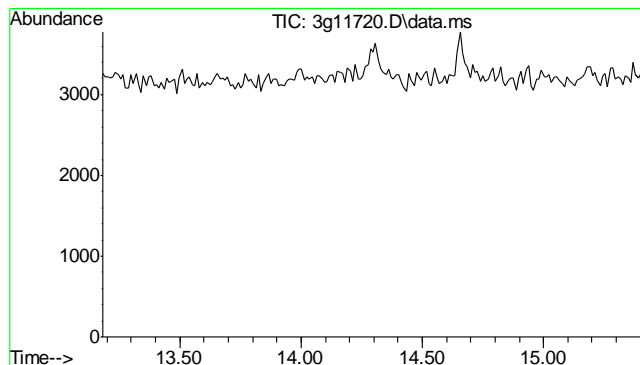
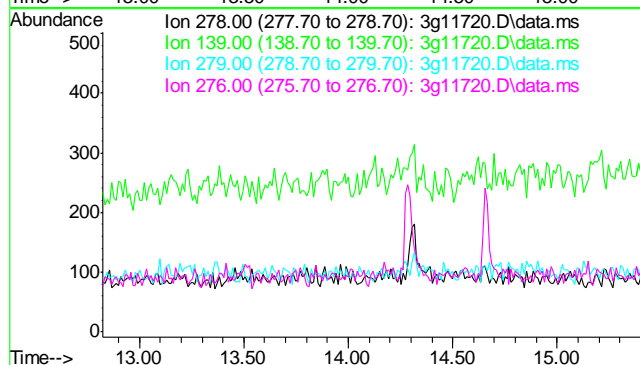




#29
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 14.33 min

Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

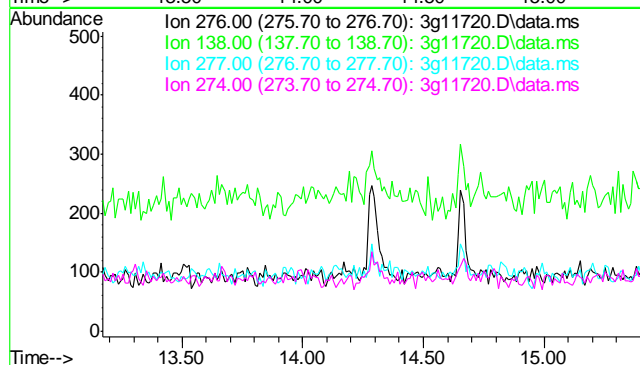
Tgt Ion:	278
Sig	Exp Ratio
278	100
139	22.5
279	22.9
276	145.5



#30
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 14.68 min

Lab File: 3g11720.D
Acq: 19 Oct 12 12:28 pm

Tgt Ion:	276
Sig	Exp Ratio
276	100
138	24.2
277	22.4
274	21.6



GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D40002
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB990-MB	GB18116.D	1	10/18/12	SK	n/a	n/a	GGB990

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

D40002-1

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	91% 60-140%

10.1.1
10

Blank Spike Summary

Job Number: D40002
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB990-BS	GB18117.D	1	10/18/12	SK	n/a	n/a	GGB990

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

D40002-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	125	114	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	102%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D40002
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D39960-1MS	GB18119.D	1	10/18/12	SK	n/a	n/a	GGB990
D39960-1MSD	GB18120.D	1	10/18/12	SK	n/a	n/a	GGB990
D39960-1	GB18118.D	1	10/18/12	SK	n/a	n/a	GGB990

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

D40002-1

CAS No.	Compound	D39960-1 mg/kg	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND	139	158	114	159	115	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D39960-1	Limits
120-82-1	1,2,4-Trichlorobenzene	101%	99%	86%	60-140%

* = Outside of Control Limits.

GC Volatiles

Raw Data



Judy Melson
10/19/12 14:18

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\101812\GB18130.D\FID1A.CH Vial: 17
Signal #2 : Y:\1\DATA\101812\GB18130.D\FID2B.CH
Acq On : 18 Oct 2012 9:31 pm Operator: StephK
Sample : D40002-1, 50X Inst : GC/MS Ins
Misc : GC3179,GGB990,5.047,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Oct 19 10:03:28 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Oct 18 14:16:20 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

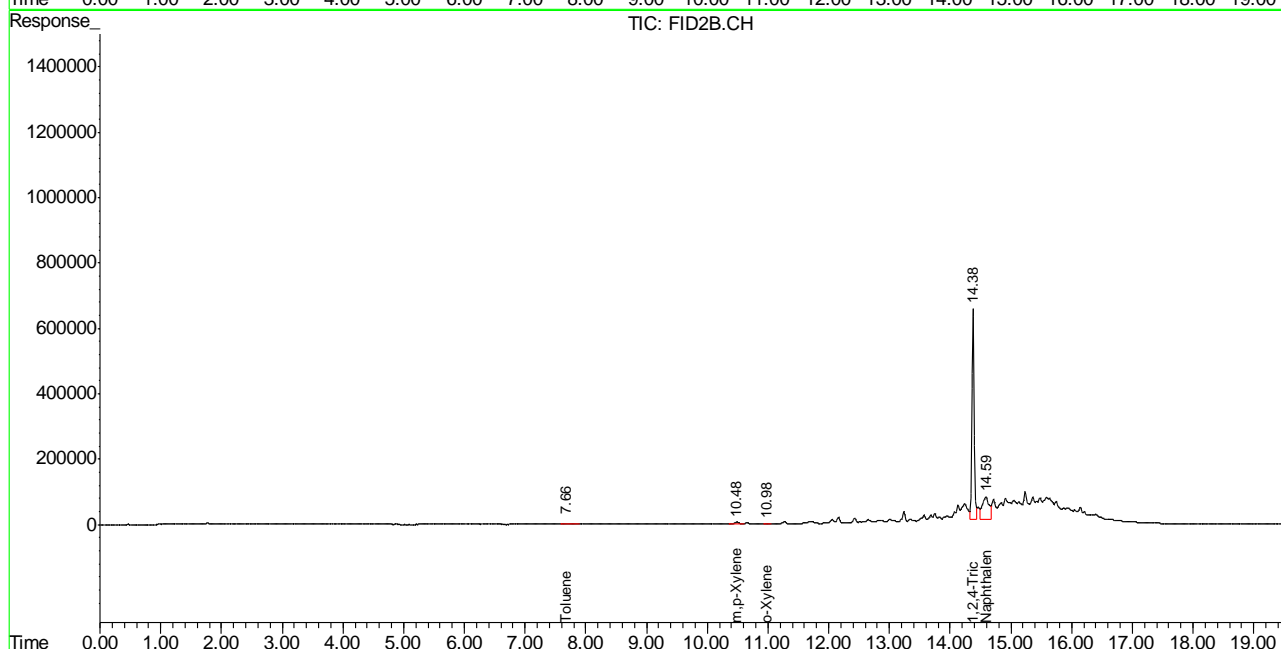
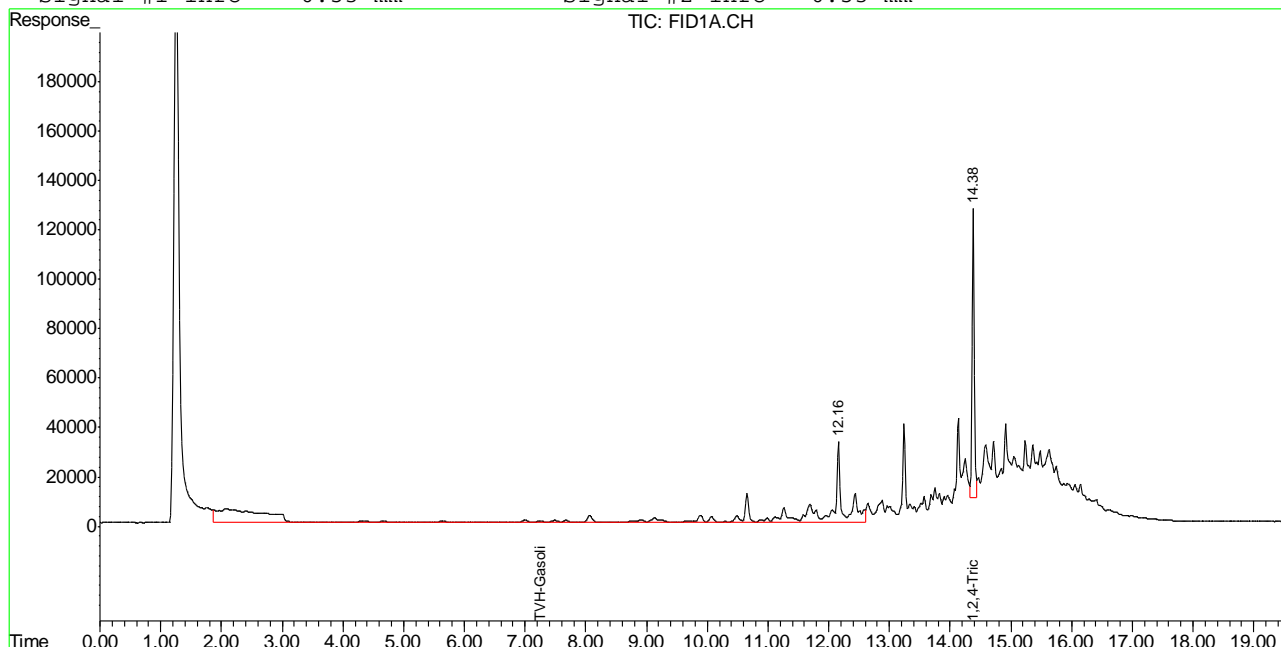
System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.38	2908232	92.814 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.38	16290186	100.230 %	
Target Compounds					
1) H	TVH-Gasoline	7.23	9471931	0.117 mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D. ug/L	d
5) T	Benzene	0.00	0	N.D. ug/L	d
6) T	Toluene	7.67	171603	0.433 ug/L	
7) T	Ethylbenzene	0.00	0	N.D. ug/L	d
8) T	m,p-Xylene	10.48	388918	0.692 ug/L	
9) T	o-Xylene	10.98	103867	0.316 ug/L	
11) T	Naphthalene	14.59	5256875	26.643 ug/L	

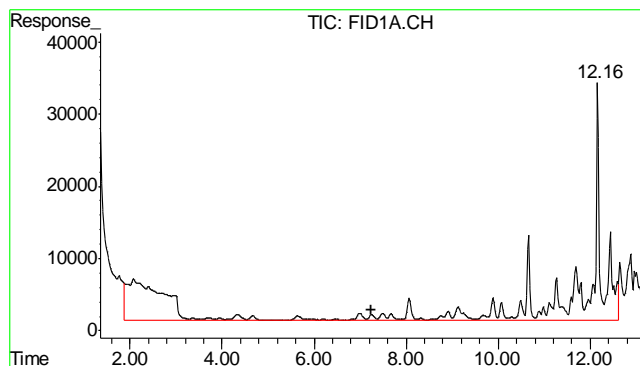
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\101812\GB18130.D\FID1A.CH Vial: 17
 Signal #2 : Y:\1\DATA\101812\GB18130.D\FID2B.CH
 Acq On : 18 Oct 2012 9:31 pm Operator: StephK
 Sample : D40002-1, 50X Inst : GC/MS Ins
 Misc : GC3179,GGB990,5.047,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Oct 19 9:15 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Oct 18 14:16:20 2012
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

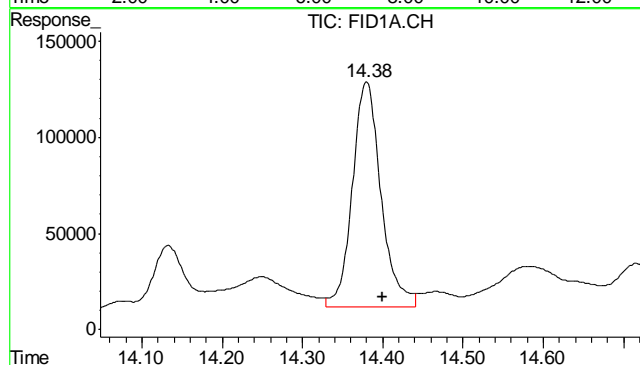
Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





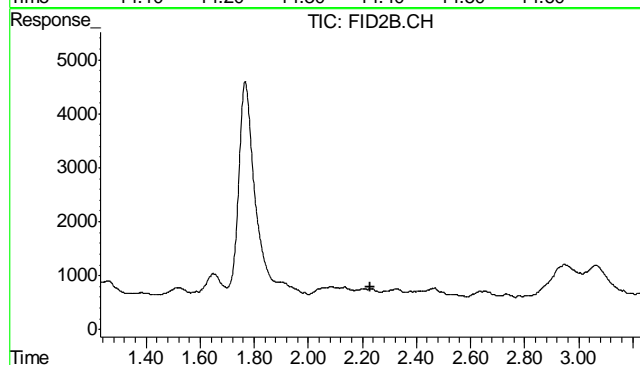
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 9471931
Conc: 0.12 mg/L m



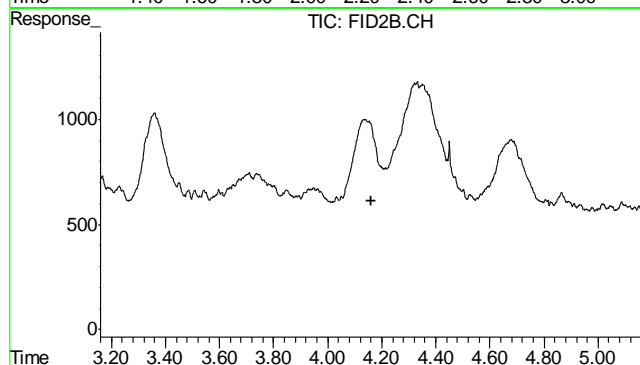
#2 1,2,4-Trichlorobenzene

R.T.: 14.379 min
Delta R.T.: -0.020 min
Response: 2908232
Conc: 92.81 % m



#4 Methyl-t-butyl-ether

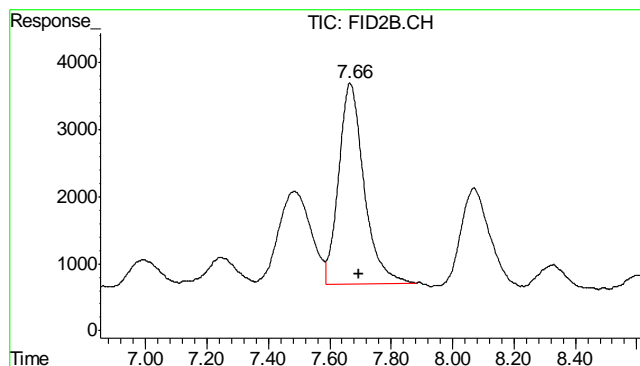
R.T.: 0.000 min
Exp R.T.: 2.230 min
Response: 0
Conc: N.D.



#5 Benzene

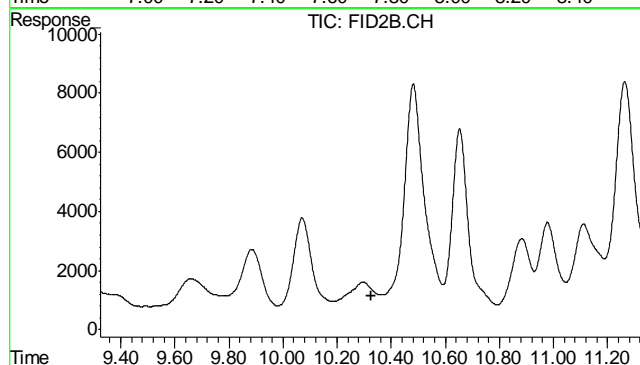
R.T.: 0.000 min
Exp R.T.: 4.160 min
Response: 0
Conc: N.D.

11.1.1



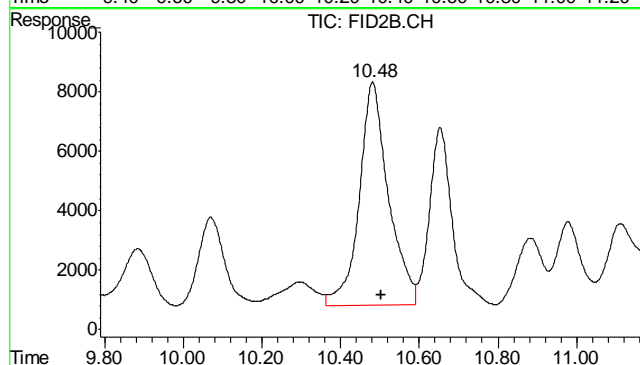
#6 Toluene

R.T.: 7.665 min
Delta R.T.: -0.031 min
Response: 171603
Conc: 0.43 ug/L



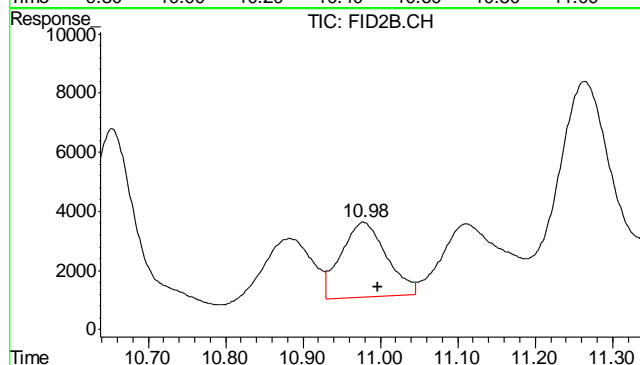
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T.: 10.324 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

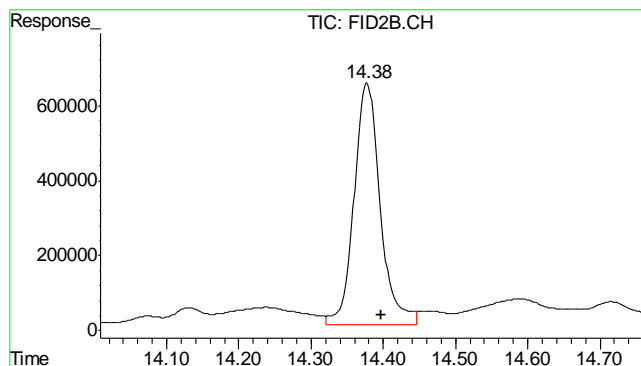
R.T.: 10.482 min
Delta R.T.: -0.021 min
Response: 388918
Conc: 0.69 ug/L



#9 o-Xylene

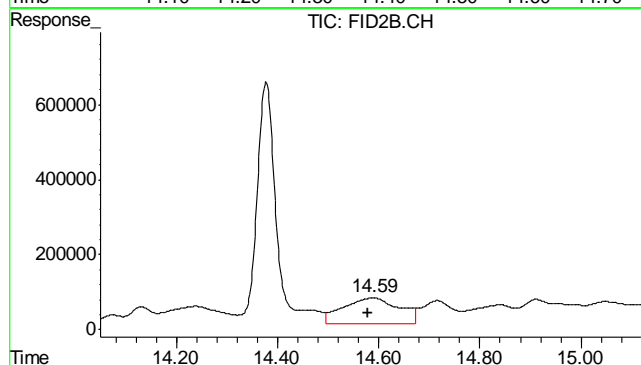
R.T.: 10.978 min
Delta R.T.: -0.018 min
Response: 103867
Conc: 0.32 ug/L

11.1.1



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

R.T.: 14.378 min
Delta R.T.: -0.019 min
Response: 16290186
Conc: 100.23 %



#11 Naphthalene

R.T.: 14.589 min
Delta R.T.: 0.010 min
Response: 5256875
Conc: 26.64 ug/L

11.1.1

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\101812\GB18116.D\FID1A.CH Vial: 3
 Signal #2 : Y:\1\DATA\101812\GB18116.D\FID2B.CH
 Acq On : 18 Oct 2012 1:15 pm Operator: StephK
 Sample : MB Inst : GC/MS Ins
 Misc : GC3179,GGB990,5.000,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Oct 18 14:16:37 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Oct 18 14:16:20 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	2845219	90.803	%
10) S	1,2,4-Trichlorobenzene (P)	14.37	15145585	93.188	%
Target Compounds					
1) H	TVH-Gasoline	7.23	4310811	<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	7.66	149842	0.378	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	0.00	0	N.D.	ug/L d
9) T	o-Xylene	0.00	0	N.D.	ug/L d
11) T	Naphthalene	14.55	208666	1.058	ug/L

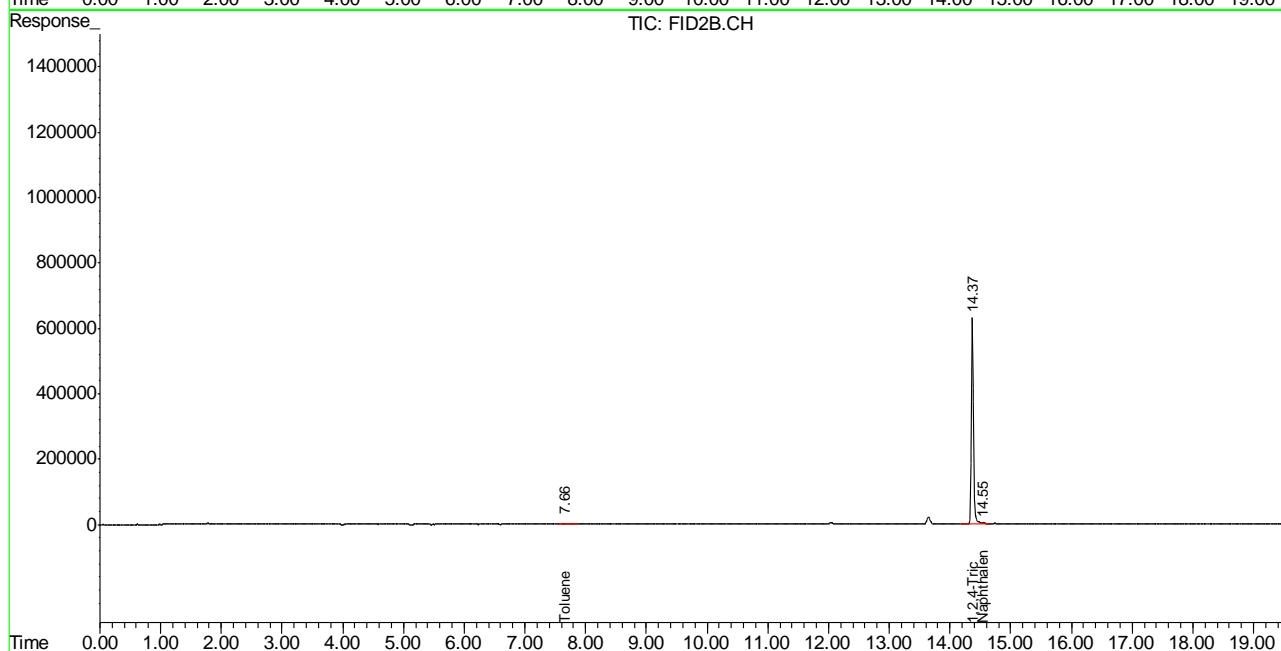
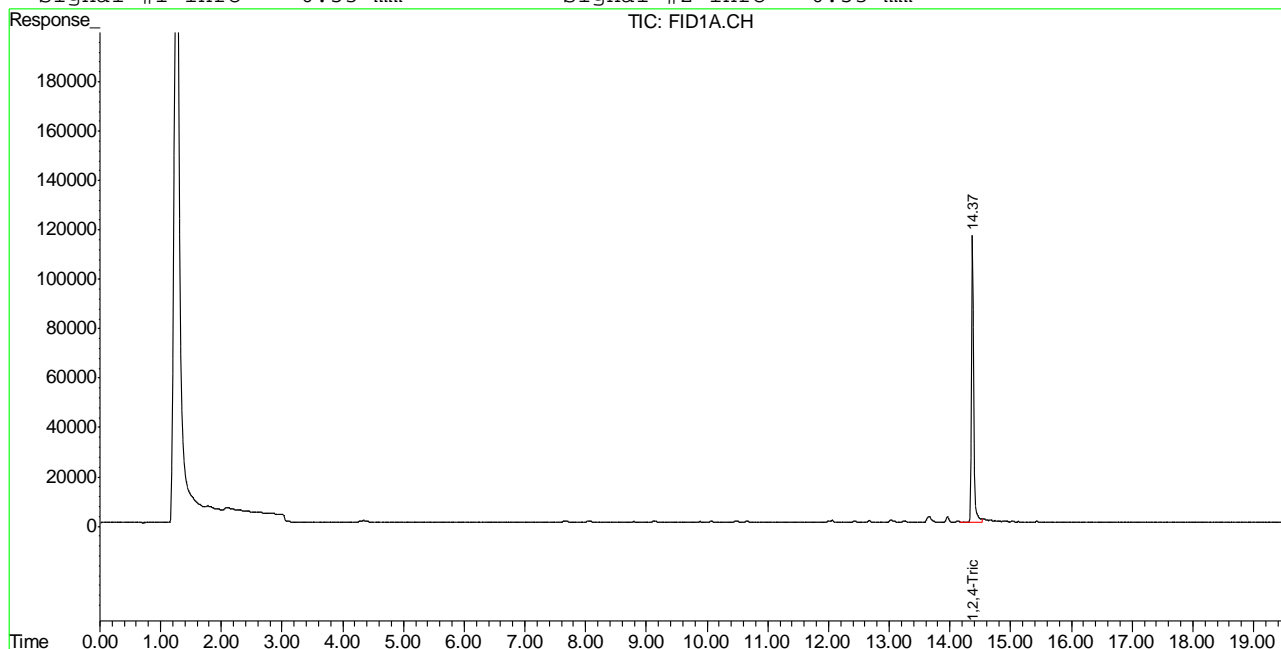
 (f)=RT Delta > 1/2 Window (m)=manual int.
 GB18116.D TB868GB868SOIL.M Fri Oct 19 10:06:46 2012 GC

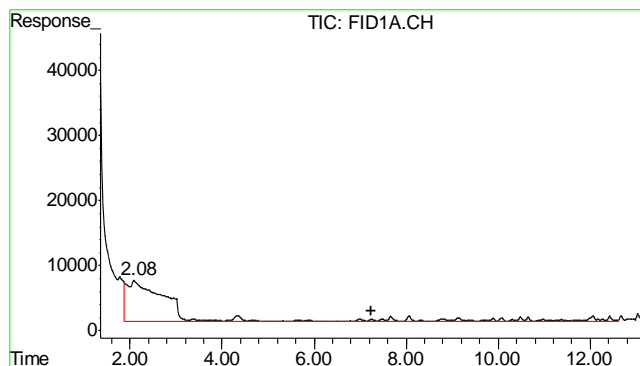
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\101812\GB18116.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\101812\GB18116.D\FID2B.CH
Acq On : 18 Oct 2012 1:15 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3179,GGB990,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Oct 18 13:26 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Oct 18 14:16:20 2012
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

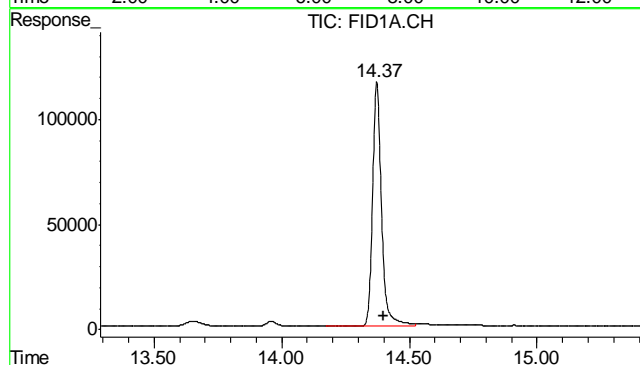
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





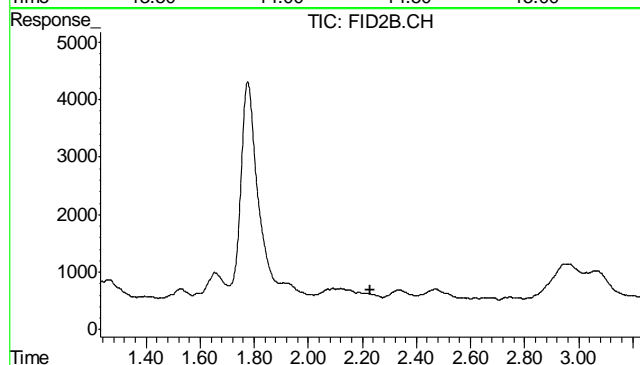
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 4310811
Conc: N.D.



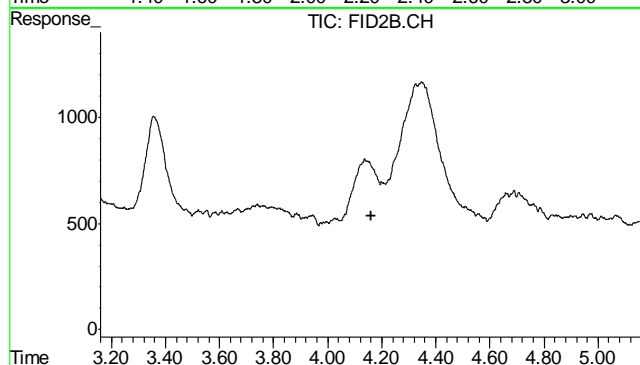
#2 1,2,4-Trichlorobenzene

R.T.: 14.373 min
Delta R.T.: -0.027 min
Response: 2845219
Conc: 90.80 %



#4 Methyl-t-butyl-ether

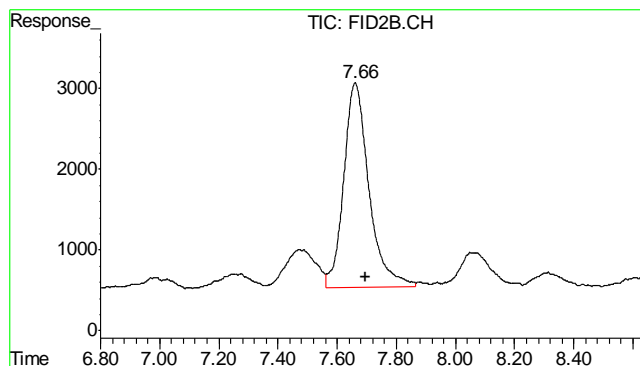
R.T.: 0.000 min
Exp R.T.: 2.230 min
Response: 0
Conc: N.D.



#5 Benzene

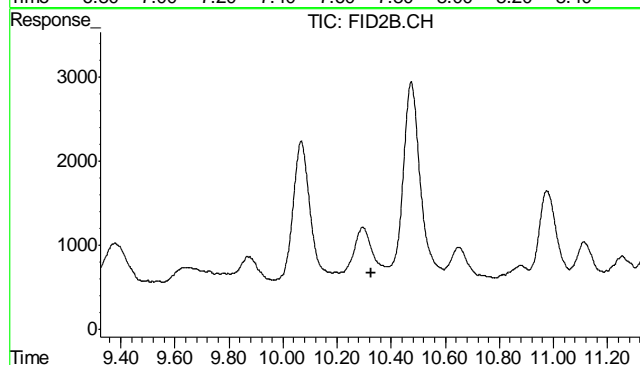
R.T.: 0.000 min
Exp R.T.: 4.160 min
Response: 0
Conc: N.D.

11.21
11



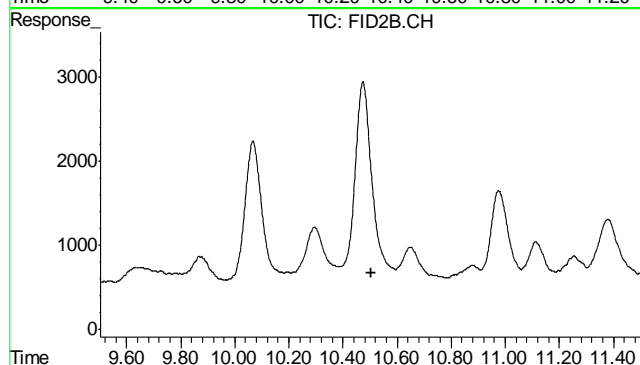
#6 Toluene

R.T.: 7.661 min
Delta R.T.: -0.036 min
Response: 149842
Conc: 0.38 ug/L



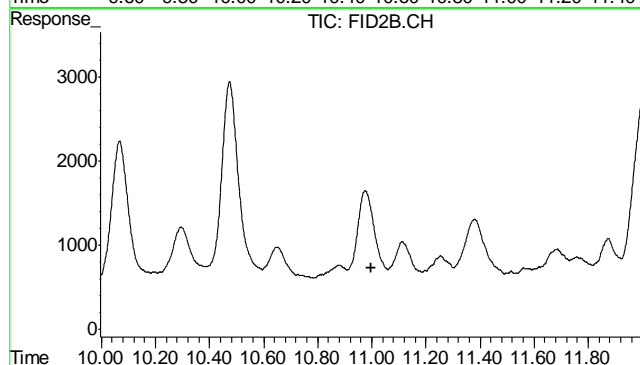
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.324 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

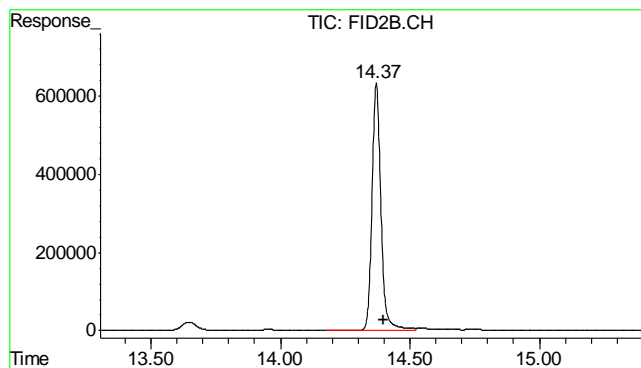
R.T.: 0.000 min
Exp R.T. : 10.503 min
Response: 0
Conc: N.D.



#9 o-Xylene

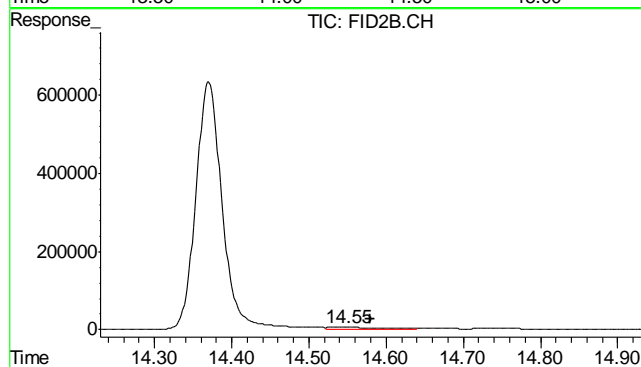
R.T.: 0.000 min
Exp R.T. : 10.996 min
Response: 0
Conc: N.D.

11.21
11



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

R.T.: 14.370 min
Delta R.T.: -0.026 min
Response: 15145585
Conc: 93.19 %



#11 Naphthalene

R.T.: 14.549 min
Delta R.T.: -0.030 min
Response: 208666
Conc: 1.06 ug/L

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D40002
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6832-MB	FD18700.D	1	10/19/12	AV	10/19/12	OP6832	GFD946

The QC reported here applies to the following samples:

Method: SW846-8015B

D40002-1

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	98% 43-136%

12.1.1
12

Blank Spike Summary

Page 1 of 1

Job Number: D40002
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6832-BS	FD18702.D	1	10/19/12	AV	10/19/12	OP6832	GFD946

The QC reported here applies to the following samples:

Method: SW846-8015B

D40002-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	600	90	58-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	102%	43-136%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D40002
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6832-MS	FD18704.D	1	10/19/12	AV	10/19/12	OP6832	GFD946
OP6832-MSD	FD18706.D	1	10/19/12	AV	10/19/12	OP6832	GFD946
D39999-1	FD18708.D	1	10/19/12	AV	10/19/12	OP6832	GFD946

The QC reported here applies to the following samples:

Method: SW846-8015B

D40002-1

CAS No.	Compound	D39999-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	753		708	1140	55	1070	45	6	20-183/43

CAS No.	Surrogate Recoveries	MS	MSD	D39999-1	Limits
84-15-1	o-Terphenyl	86%	82%	99%	43-136%

* = Outside of Control Limits.

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\OCT\FD101912.SEC\FD18732.D Vial: 69
Acq On : 10-19-2012 07:02:02 PM Operator: ashleyv
Sample : D40002-1 Inst : FID5
Misc : OP6832,GFD946,30.02,,,,,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Oct 22 10:05:30 2012 Quant Results File: DRO-GFD939R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD939R.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Oct 16 14:46:18 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	9.17	31677965	780.810 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	7.04	202813655	5569.834 mg/L

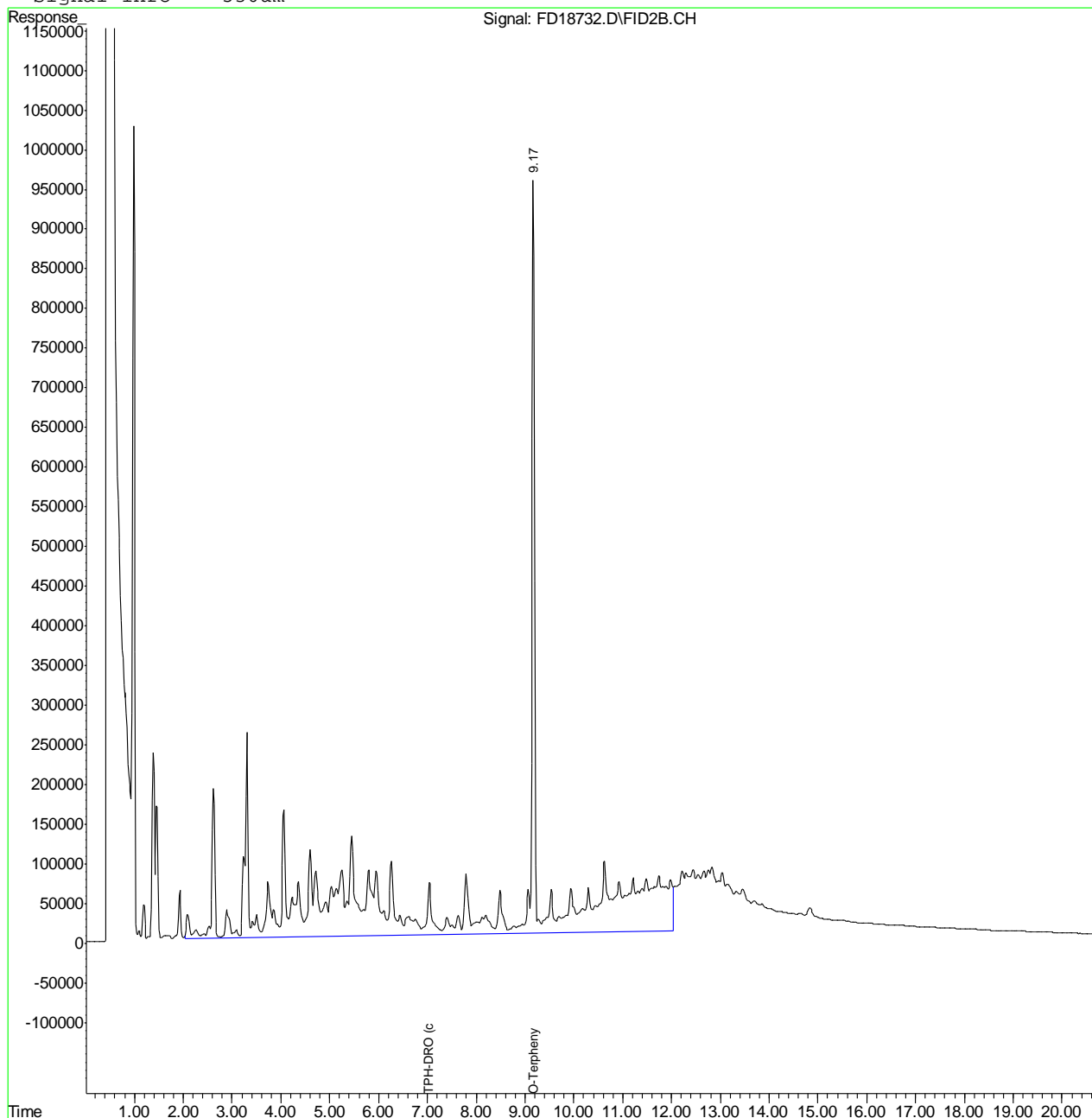
13.1.1
13

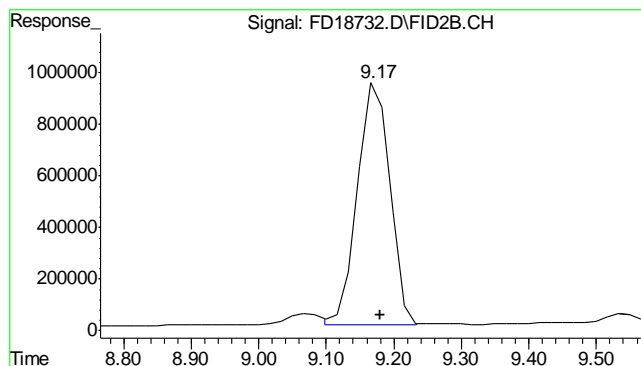
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\OCT\FD101912.SEC\FD18732.D Vial: 69
Acq On : 10-19-2012 07:02:02 PM Operator: ashleyv
Sample : D40002-1 Inst : FID5
Misc : OP6832,GFD946,30.02,,,,,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Oct 22 10:50 2012 Quant Results File: DRO-GFD939R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD939R.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Oct 16 14:46:18 2012
Response via : Multiple Level Calibration
DataAcq Meth : DRODUAL.M

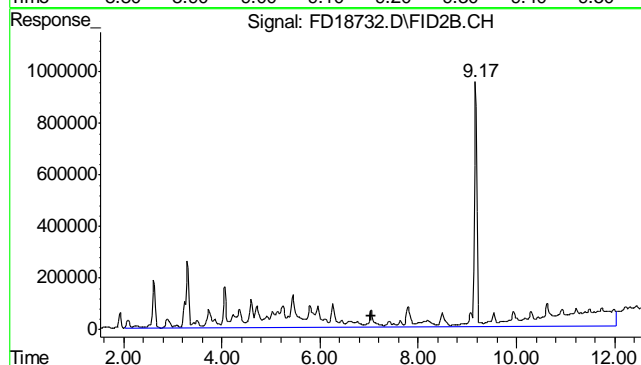
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.170 min
 Delta R.T.: -0.010 min
 Response: 31677965
 Conc: 780.81 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 7.035 min
 Delta R.T.: 0.000 min
 Response: 202813655
 Conc: 5569.83 mg/L m

13.1.1
 13

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\OCT\FD101912.SEC\FD18700.D Vial: 53
Acq On : 19 Oct 2012 11:37 am Operator: ashleyv
Sample : OP6832-MB Inst : FID5
Misc : OP6832,GFD946,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Oct 22 10:05:16 2012 Quant Results File: DRO-GFD939R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD939R.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Oct 16 14:46:18 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	9.18	39810594	981.266 mg/L
Target Compounds			
2) H TPH-DRO (c10-c28)	7.04	1303393	35.795 mg/L

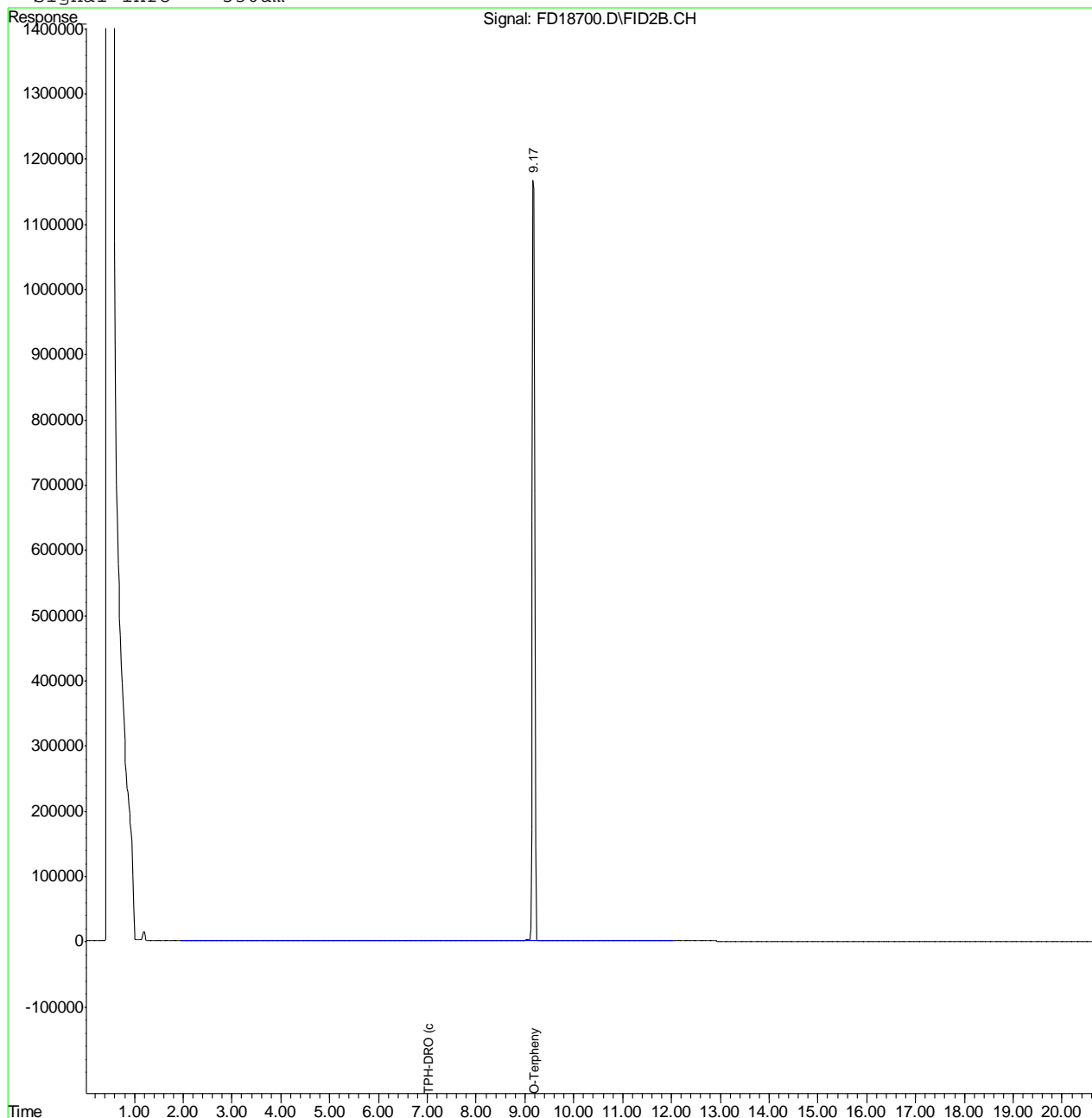
(f)=RT Delta > 1/2 Window (m)=manual int.
FD18700.D DRO-GFD939R.M Mon Oct 22 10:56:26 2012 GC

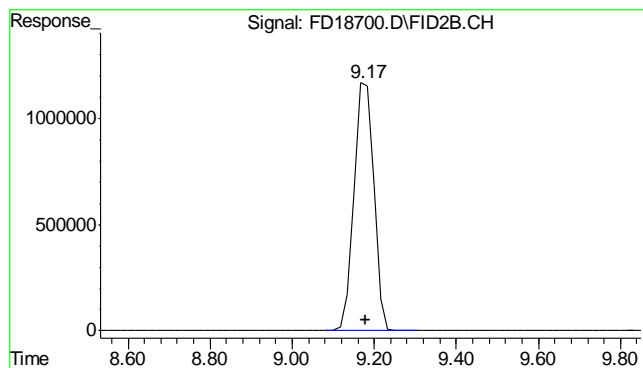
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\OCT\FD101912.SEC\FD18700.D Vial: 53
Acq On : 19 Oct 2012 11:37 am Operator: ashleyv
Sample : OP6832-MB Inst : FID5
Misc : OP6832,GFD946,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Oct 22 10:42 2012 Quant Results File: DRO-GFD939R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD939R.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Oct 16 14:46:18 2012
Response via : Multiple Level Calibration
DataAcq Meth : DRODUAL.M

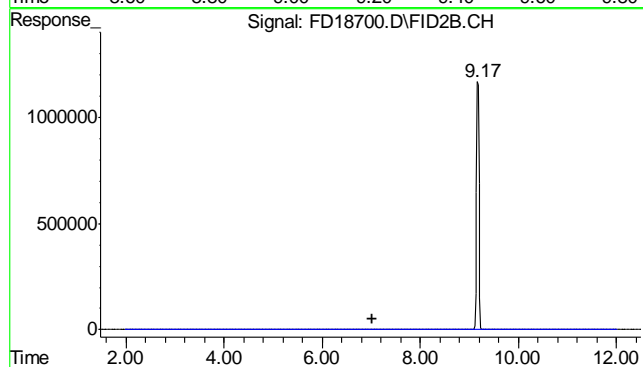
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.182 min
Delta R.T.: 0.002 min
Response: 39810594
Conc: 981.27 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 7.035 min
Delta R.T.: 0.000 min
Response: 1303393
Conc: 35.79 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: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8697
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 10/19/12

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	0.040	<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	0.040	<1.0
Cobalt	0.50	.04	.07		
Copper	1.0	.12	.15	0.070	<1.0
Iron	7.0	.12	.87		
Lead	5.0	.19	.24	-0.13	<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	0.050	<3.0
Phosphorus	10	1.4	1.9		
Potassium	200	6.1	7		
Selenium	5.0	.48	.36	-0.14	<5.0
Silicon	5.0	.29	.37		
Silver	3.0	.04	.06	-0.040	<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	0.21	<3.0

Associated samples MP8697: D40002-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8697
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8697
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 10/19/12

	D39968-2		Spikelot		QC
Metal	Original MS		ICPALL2	% Rec	Limits
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	143	324	210	88.9	75-125
Beryllium	anr				
Boron					
Cadmium	0.17	42.3	52.6	80.2	75-125
Calcium					
Chromium	5.2	49.7	52.6	85.0	75-125
Cobalt					
Copper	6.5	53.6	52.6	89.6	75-125
Iron	anr				
Lead	6.4	91.9	105	81.3	75-125
Lithium					
Magnesium	anr				
Manganese	anr				
Molybdenum	anr				
Nickel	5.3	46.7	52.6	78.7	75-125
Phosphorus	anr				
Potassium					
Selenium	0.0	85.6	105	81.4	75-125
Silicon					
Silver	0.17	19.0	21	90.0	75-125
Sodium					
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium	anr				
Vanadium					
Zinc	20.7	64.4	52.6	83.1	75-125

Associated samples MP8697: D40002-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8697
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: D40002
 Account: XTOKRWR - XTO Energy
 Project: PCU 197-36A

QC Batch ID: MP8697
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 10/19/12

Metal	D39968-2 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	143	323	212	87.6	0.3	20
Beryllium	anr					
Boron						
Cadmium	0.17	42.5	53.1	79.8	0.5	20
Calcium						
Chromium	5.2	50.1	53.1	84.9	0.8	20
Cobalt						
Copper	6.5	54.0	53.1	89.4	0.7	20
Iron	anr					
Lead	6.4	92.5	106	81.1	0.7	20
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum	anr					
Nickel	5.3	46.9	53.1	78.3	0.4	20
Phosphorus	anr					
Potassium						
Selenium	0.0	86.1	106	81.1	0.6	20
Silicon						
Silver	0.17	19.1	21.2	89.6	0.5	20
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium	anr					
Vanadium						
Zinc	20.7	64.9	53.1	83.2	0.8	20

Associated samples MP8697: D40002-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8697
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: D40002
 Account: XTOKRWR - XTO Energy
 Project: PCU 197-36A

QC Batch ID: MP8697
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 10/19/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	192	200	96.0	80-120
Beryllium	anr			
Boron				
Cadmium	44.8	50	89.6	80-120
Calcium				
Chromium	48.0	50	96.0	80-120
Cobalt				
Copper	46.2	50	92.4	80-120
Iron	anr			
Lead	93.9	100	93.9	80-120
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	45.5	50	91.0	80-120
Phosphorus	anr			
Potassium				
Selenium	92.6	100	92.6	80-120
Silicon				
Silver	19.9	20	99.5	80-120
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium	anr			
Vanadium				
Zinc	46.6	50	93.2	80-120

Associated samples MP8697: D40002-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8697
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8697
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 10/19/12

Metal	D39968-2 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	1340	1530	17.9*(a)	0-10
Beryllium	anr			
Boron				
Cadmium	1.10	0.00	100.0(b)	0-10
Calcium				
Chromium	48.5	50.5	6.8	0-10
Cobalt				
Copper	56.5	64.5	5.0	0-10
Iron	anr			
Lead	60.0	48.0	20.0 (b)	0-10
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	50.9	55.5	11.7*(a)	0-10
Phosphorus	anr			
Potassium				
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver	1.60	0.00	100.0(b)	0-10
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium	anr			
Vanadium				
Zinc	195	231	18.7*(a)	0-10

Associated samples MP8697: D40002-1

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

14.1.4
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8697
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

(a) Serial dilution indicates possible matrix interference.

(b) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

14.1.4
14

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8698
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 10/19/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.006	.06	0.0059	<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 MP8698: D40002-1

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: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8698
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 10/19/12

Metal	D39968-2 Original MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	2.8	119	105	110.5
Barium				75-125
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 MP8698: D40002-1

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

14.2.2
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8698
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 10/19/12

Metal	D39968-2 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	2.8	117	106	107.5	1.7	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 MP8698: D40002-1

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

14.2.2
14

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D40002
 Account: XTOKRWR - XTO Energy
 Project: PCU 197-36A

QC Batch ID: MP8698
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: mg/kg

Prep Date: 10/19/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	103	98	105.1	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 MP8698: D40002-1

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

14.2.3
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8698
Matrix Type: SOLID

Methods: SW846 6020A
Units: ug/l

Prep Date: 10/19/12

Metal	D39968-2			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic	26.3	25.2	4.1	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 MP8698: D40002-1

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

14.2.4
14

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8720
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 10/24/12

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.10	.0011	.0009	0.00013	<0.10

Associated samples MP8720: D40002-1

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: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8720
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 10/24/12

Metal	D39936-1		Spikelot		QC
	Original	MS	HGWSR1	% Rec	Limits
Mercury	0.049	0.87	0.785	104.6	75-125

Associated samples MP8720: D40002-1

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: D40002
 Account: XTOKRWR - XTO Energy
 Project: PCU 197-36A

QC Batch ID: MP8720
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 10/24/12

Metal	D39936-1 Original MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.049	0.79	0.772	96.0	9.6

Associated samples MP8720: D40002-1

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: D40002
 Account: XTOKRWR - XTO Energy
 Project: PCU 197-36A

QC Batch ID: MP8720
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 10/24/12

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.43	0.4	107.5	80-120

Associated samples MP8720: D40002-1

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: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8723
Matrix Type: AQUEOUS

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

Prep Date: 10/23/12

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	11.0	<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	-13	<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	127	<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 MP8723: D40002-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8723
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: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8723
Matrix Type: AQUEOUS

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

Prep Date: 10/23/12

Metal	D40074-1A Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	31000	171000	125000	112.0	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	9880	144000	125000	107.3	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	92600	225000	125000	105.9	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP8723: D40002-1A

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: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8723
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

14.4.2
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8723
Matrix Type: AQUEOUS

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

Prep Date: 10/23/12

Metal	D40074-1A Original	MSD	SpikeLot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	31000	170000	125000	111.2	0.6	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	9880	144000	125000	107.3	0.0	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	92600	227000	125000	107.5	0.9	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP8723: D40002-1A

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: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8723
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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8723
Matrix Type: AQUEOUS

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

Prep Date: 10/23/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	139000	125000	111.2	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	131000	125000	104.8	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	135000	125000	108.0	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8723: D40002-1A

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

14.4.3
14

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8723
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: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8723
Matrix Type: AQUEOUS

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

Prep Date: 10/23/12

	D40074-1A		QC	
Metal	Original	SDL 1:5	%DIF	Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	6210	6080	2.0	0-10
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	1980	1990	0.5	0-10
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	18500	18700	0.9	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8723: D40002-1A

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

14.4.4
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8723
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: D40002
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	GP8472/GN17313	1.0	0.0	mg/kg	40.0	177	102.0	80-120%
Specific Conductivity	GP8479/GN17312			umhos/cm	9989	9890	99.0	90-110%
pH	GN17297			su	8.00	7.97	99.6	99.3-100.7%

Associated Samples:
Batch GP8472: D40002-1
Batch GP8479: D40002-1
Batch GN17297: D40002-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D40002
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP8472/GN17313	D40002-1	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN17302	D39802-1	mv	67.3	60.7	10.3	0-20%

Associated Samples:
Batch GP8472: D40002-1
Batch GN17302: D40002-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D40002
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	GP8472/GN17313	D40002-1	mg/kg	0.0	173.0	33.9	85.0	75-125%

Associated Samples:

Batch GP8472: D40002-1

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D40002
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	GP8472/GN17313	D40002-1	mg/kg	0.0	40.0	34.3	1.0	

Associated Samples:
Batch GP8472: D40002-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits