



10/29/12

Technical Report for

XTO Energy

PCU 197-36A

1203-02

Accutest Job Number: D40114

Sampling Date: 10/18/12

Report to:

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Total number of pages in report: 137



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


Brad Madadian
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP CO00049), 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: D40114

PCU 197-36A
Project No: 1203-02

Sample Number	Collected		Time By	Received	Matrix		Client Sample ID
	Date				Code	Type	
D40114-1	10/18/12	12:10	DK	10/20/12	SO	Soil	RP SUBLINER COMP
D40114-1A	10/18/12	12:10	DK	10/20/12	SO	Soil	RP SUBLINER COMP

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



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: XTO Energy

Job No D40114

Site: PCU 197-36A

Report Date 10/29/2012 10:52:51 A

On 10/20/2012, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D40114 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: V5V1483

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D40112-1MS, D40112-1MSD were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO

Batch ID: OP6857

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D40113-1MS, D40113-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Volatiles by GC By Method SW846 8015B

Matrix SO

Batch ID: GGB992

- All samples were analyzed within the recommended method holding time.
- Sample(s) D40111-1MS, D40111-1MSD 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: OP6840

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D40087-1MS, D40087-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Metals By Method SW846 6010C

Matrix AQ

Batch ID: MP8723

- All samples were digested and 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: MP8718

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D40074-1MS, D40074-1MSD, D40074-1SDL were used as the QC samples for the metals analysis.
- The matrix spike duplicate (MSD) recovery(s) of Barium, Nickel, Zinc are outside control limits. Probable cause due to matrix interference.
- The serial dilution RPD(s) for Cadmium, Silver, Barium, Chromium, Nickel, Zinc are outside control limits for sample MP8718-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP8718-SD1 for Zinc: Serial dilution indicates possible matrix interference.
- MP8718-SD1 for Nickel: Serial dilution indicates possible matrix interference.
- MP8718-SD1 for Chromium: Serial dilution indicates possible matrix interference.
- MP8718-SD1 for Barium: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix SO

Batch ID: MP8719

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

Metals By Method SW846 7471B

Matrix SO

Batch ID: MP8720

- All samples were digested and 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: GN17345

- Sample(s) D40111-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN17338

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO

Batch ID: R14963

- The data for SW846 3060/7196A M meets quality control requirements.
- D40114-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO

Batch ID: GP8539

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D40111-1DUP, D40111-1MS, D40111-1MSD were used as the QC samples for the Chromium, Hexavalent analysis.

Wet Chemistry By Method SW846 9045D

Matrix SO

Batch ID: GN17347

- The following samples were run outside of holding time for method SW846 9045D: D40114-1

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO

Batch ID: MP8723

- D40114-1A 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: D40114
Account: XTO Energy
Project: PCU 197-36A
Collected: 10/18/12



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

D40114-1 RP SUBLINER COMP

TPH-DRO (C10-C28)	17.8	15	10	mg/kg	SW846-8015B
Arsenic	7.0	0.11		mg/kg	SW846 6020A
Barium	1120	1.1		mg/kg	SW846 6010C
Chromium	69.9	1.1		mg/kg	SW846 6010C
Copper	11.0	1.1		mg/kg	SW846 6010C
Lead	8.5	5.6		mg/kg	SW846 6010C
Nickel	20.7	3.4		mg/kg	SW846 6010C
Zinc	39.7	3.4		mg/kg	SW846 6010C
Specific Conductivity	604	1.0		umhos/cm	SM2510B-1997 MOD
Chromium, Trivalent ^a	69.9	2.1		mg/kg	SW846 3060/7196A M
Redox Potential Vs H2	65.7			mv	ASTM D1498-76M
pH	9.68			su	SW846 9045D

D40114-1A RP SUBLINER COMP

Calcium	17.8	2.0		mg/l	SW846 6010C
Magnesium	3.98	1.0		mg/l	SW846 6010C
Sodium	133	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^b	7.42			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 SUBLINER COMP	Date Sampled:	10/18/12
Lab Sample ID:	D40114-1	Date Received:	10/20/12
Matrix:	SO - Soil	Percent Solids:	86.7
Method:	SW846 8260B		
Project:	PCU 197-36A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V24356.D	1	10/25/12	BD	n/a	n/a	V5V1483
Run #2							

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.065	0.033	mg/kg	
108-88-3	Toluene	ND	0.13	0.065	mg/kg	
100-41-4	Ethylbenzene	ND	0.13	0.025	mg/kg	
1330-20-7	Xylene (total)	ND	0.26	0.13	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	91%		64-130%
460-00-4	4-Bromofluorobenzene	97%		62-131%
17060-07-0	1,2-Dichloroethane-D4	98%		70-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	RP SUBLINER COMP	Date Sampled:	10/18/12
Lab Sample ID:	D40114-1	Date Received:	10/20/12
Matrix:	SO - Soil	Percent Solids:	86.7
Method:	SW846 8270C BY SIM SW846 3546		
Project:	PCU 197-36A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G11786.D	1	10/24/12	DC	10/24/12	OP6857	E3G555
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	0.0096	0.0050	mg/kg	
120-12-7	Anthracene	ND	0.0096	0.0050	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.0096	0.0050	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.0096	0.0050	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.0096	0.0050	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.0096	0.0050	mg/kg	
218-01-9	Chrysene	ND	0.0096	0.0050	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0096	0.0050	mg/kg	
206-44-0	Fluoranthene	ND	0.0096	0.0050	mg/kg	
86-73-7	Fluorene	ND	0.0096	0.0050	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.0096	0.0050	mg/kg	
91-20-3	Naphthalene	ND	0.013	0.012	mg/kg	
129-00-0	Pyrene	ND	0.0096	0.0050	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	67%		10-159%
321-60-8	2-Fluorobiphenyl	66%		19-131%
1718-51-0	Terphenyl-d14	91%		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

Accutest Laboratories

Report of Analysis

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Client Sample ID:	RP SUBLINER COMP	Date Sampled:	10/18/12
Lab Sample ID:	D40114-1	Date Received:	10/20/12
Matrix:	SO - Soil	Percent Solids:	86.7
Method:	SW846 8015B		
Project:	PCU 197-36A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB18164.D	1	10/22/12	SK	n/a	n/a	GGB992
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	13	6.5	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	90%		60-140%		

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

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

Accutest Laboratories

Report of Analysis

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Client Sample ID:	RP SUBLINER COMP	Date Sampled:	10/18/12
Lab Sample ID:	D40114-1	Date Received:	10/20/12
Matrix:	SO - Soil	Percent Solids:	86.7
Method:	SW846-8015B SW846 3546		
Project:	PCU 197-36A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD18808.D	1	10/23/12	AV	10/23/12	OP6840	GFD949
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	17.8	15	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	95%		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 SUBLINER COMP	Date Sampled:	10/18/12
Lab Sample ID:	D40114-1	Date Received:	10/20/12
Matrix:	SO - Soil	Percent Solids:	86.7
Project:	PCU 197-36A		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	7.0	0.11	mg/kg	5	10/23/12	10/25/12 JB	SW846 6020A ³	SW846 3050B ⁵
Barium	1120	1.1	mg/kg	1	10/23/12	10/24/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Cadmium	< 1.1	1.1	mg/kg	1	10/23/12	10/24/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Chromium	69.9	1.1	mg/kg	1	10/23/12	10/24/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Copper	11.0	1.1	mg/kg	1	10/23/12	10/24/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Lead	8.5	5.6	mg/kg	1	10/23/12	10/24/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Mercury	< 0.098	0.098	mg/kg	1	10/24/12	10/24/12 JB	SW846 7471B ²	SW846 7471B ⁶
Nickel	20.7	3.4	mg/kg	1	10/23/12	10/24/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Selenium	< 5.6	5.6	mg/kg	1	10/23/12	10/24/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Silver	< 3.4	3.4	mg/kg	1	10/23/12	10/24/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Zinc	39.7	3.4	mg/kg	1	10/23/12	10/24/12 JB	SW846 6010C ¹	SW846 3050B ⁴

- (1) Instrument QC Batch: MA2927
 (2) Instrument QC Batch: MA2928
 (3) Instrument QC Batch: MA2930
 (4) Prep QC Batch: MP8718
 (5) Prep QC Batch: MP8719
 (6) Prep QC Batch: MP8720

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RP SUBLINER COMP	Date Sampled:	10/18/12
Lab Sample ID:	D40114-1	Date Received:	10/20/12
Matrix:	SO - Soil	Percent Solids:	86.7
Project:	PCU 197-36A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	604	1.0	umhos/cm	1	10/24/12	JD	SM2510B-1997 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	10/26/12	KB	SW846 3060A/7196A
Chromium, Trivalent ^a	69.9	2.1	mg/kg	1	10/26/12	KB	SW846 3060/7196A M
Redox Potential Vs H2	65.7		mv	1	10/22/12	JD	ASTM D1498-76M
Solids, Percent	86.7		%	1	10/22/12	SWT	SM19 2540B M
pH	9.68		su	1	10/22/12 15:10	JD	SW846 9045D

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

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RP SUBLINER COMP	Date Sampled:	10/18/12
Lab Sample ID:	D40114-1A	Date Received:	10/20/12
Matrix:	SO - Soil	Percent Solids:	86.7
Project:	PCU 197-36A		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	17.8	2.0	mg/l	1	10/23/12	10/24/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	3.98	1.0	mg/l	1	10/23/12	10/24/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Sodium	133	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 SUBLINER COMP	Date Sampled:	10/18/12
Lab Sample ID:	D40114-1A	Date Received:	10/20/12
Matrix:	SO - Soil	Percent Solids:	86.7
Project:	PCU 197-36A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	7.42		ratio	1	10/24/12 13:21	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Misc. Forms

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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 # D40114

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)												Matrix Codes	
Company Name KRW Consulting	Project Name XTO PCU 197-36A	Street 8000 West 14th Street; Suite 200	Billing Information (if different from Report to)	T-910												DW - Drinking Water GW - Ground Water WW - Water 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	
City Lakewood, CO 80214	State CO	Company Name XTO Energy															
Project Contact Dwayne Knudson	Project # 1203-02	Street Address 21459 CR 5															
Phone # 970-488-1098	Client Purchase Order #	City Rifle, CO 81650															
Sample(s) Name(s) DWAYNE KNUDSON 970-488-1098	Project Manager Joe Hess	Attention Jessica Dooling															
Accutest Sample #	Field ID / Point of Collection	MECHDI Val #	Collection	Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	DI Water	MECH	ENHANCE	Blank	LAB USE ONLY
	RP SUBLINER COMP			10-18-12	12:10	DK	SO	5									01
Turnaround Time (Business days)		Data Deliverable Information												Comments / Special Instructions			
<input type="checkbox"/> Std. 10 Business Days <input checked="" type="checkbox"/> Std. 5 Business Days (By contract only) <input type="checkbox"/> 3 Day Emergency <input type="checkbox"/> 2 Day Emergency <input type="checkbox"/> 1 Day Emergency <input type="checkbox"/> Emergency & Rush T/A data available VIA Lablink		Approved By (Accutest PM) / Date:		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> COMMBN <input type="checkbox"/> COMMBN+ <input type="checkbox"/> State Forms Required <input type="checkbox"/> Send Forms to State <input type="checkbox"/> Report by Fax <input checked="" type="checkbox"/> Report by PDF ONLY <input type="checkbox"/> EDD Format Commercial "A" = Results Only Commercial "B" = Results + QC Summary Commercial BN = Results/QC Narrative (+ = chromatograms)												Please email to: KRW Piceance Team	
Sample Custody must be documented below each time samples change possession, including courier delivery.																	
Relinquished by Sampler: 1 Lori ALBINSON	Date Time: 10/19/12 16:30	Received By: 1 Time Service Center	Relinquished By: 2	Date Time: 10/20/12	Received By: 2 R D J P												
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4												
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # FX	<input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not intact	Preserved where applicable <input type="checkbox"/>	On Ice B	Cooler Temp. 4.0										

D40114: Chain of Custody

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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D40114

Client: KRW CONSULTING

Immediate Client Services Action Required: No

Date / Time Received: 10/20/2012 9:00:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XTO PCU 197-36A

Airbill #'s: FX

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: D40114
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1483-MB	5V24339.D	1	10/25/12	BD	n/a	n/a	V5V1483

The QC reported here applies to the following samples:

Method: SW846 8260B

D40114-1

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

CAS No.	Surrogate Recoveries	Limits
2037-26-5	Toluene-D8	93% 64-130%
460-00-4	4-Bromofluorobenzene	88% 62-131%
17060-07-0	1,2-Dichloroethane-D4	100% 70-130%

Blank Spike Summary

Page 1 of 1

Job Number: D40114

Account: XTOKRWR XTO Energy

Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1483-BS	5V24341.D	1	10/25/12	BD	n/a	n/a	V5V1483

The QC reported here applies to the following samples:

Method: SW846 8260B

D40114-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	48.9	98	70-130
100-41-4	Ethylbenzene	50	47.3	95	70-130
108-88-3	Toluene	50	45.3	91	70-130
1330-20-7	Xylene (total)	150	148	99	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	94%	64-130%
460-00-4	4-Bromofluorobenzene	100%	62-131%
17060-07-0	1,2-Dichloroethane-D4	100%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D40114
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D40112-1MS	5V24352.D	1	10/25/12	BD	n/a	n/a	V5V1483
D40112-1MSD	5V24353.D	1	10/25/12	BD	n/a	n/a	V5V1483
D40112-1	5V24351.D	1	10/25/12	BD	n/a	n/a	V5V1483

The QC reported here applies to the following samples:

Method: SW846 8260B

D40114-1

CAS No.	Compound	D40112-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	113		3410	3000	85	3330	94	10	64-139/30
100-41-4	Ethylbenzene	47.4	J	3410	2860	82	3170	92	10	68-136/30
108-88-3	Toluene	308		3410	2870	75	3130	83	9	60-130/30
1330-20-7	Xylene (total)	283		10200	9230	87	10200	97	10	58-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D40112-1	Limits
2037-26-5	Toluene-D8	92%	92%	90%	64-130%
460-00-4	4-Bromofluorobenzene	108%	107%	96%	62-131%
17060-07-0	1,2-Dichloroethane-D4	96%	95%	101%	70-130%

* = Outside of Control Limits.

GC/MS Volatiles

Raw Data

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5102512.S\
Data File : 5V24356.D
Acq On : 25 Oct 2012 9:22 pm
Operator : BRETD
Sample : D40114-1
Misc : MS4865,V5V1483,5.028,,100,5,1
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Oct 26 08:30:34 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	145371	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	197825	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	213217	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	156378	50.00	ug/l	0.00

System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.024	102	13617	48.84	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	97.68%
61) Toluene-d8	13.850	98	229143	45.31	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	90.62%
69) 4-Bromofluorobenzene	16.043	95	112243	48.74	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	97.48%

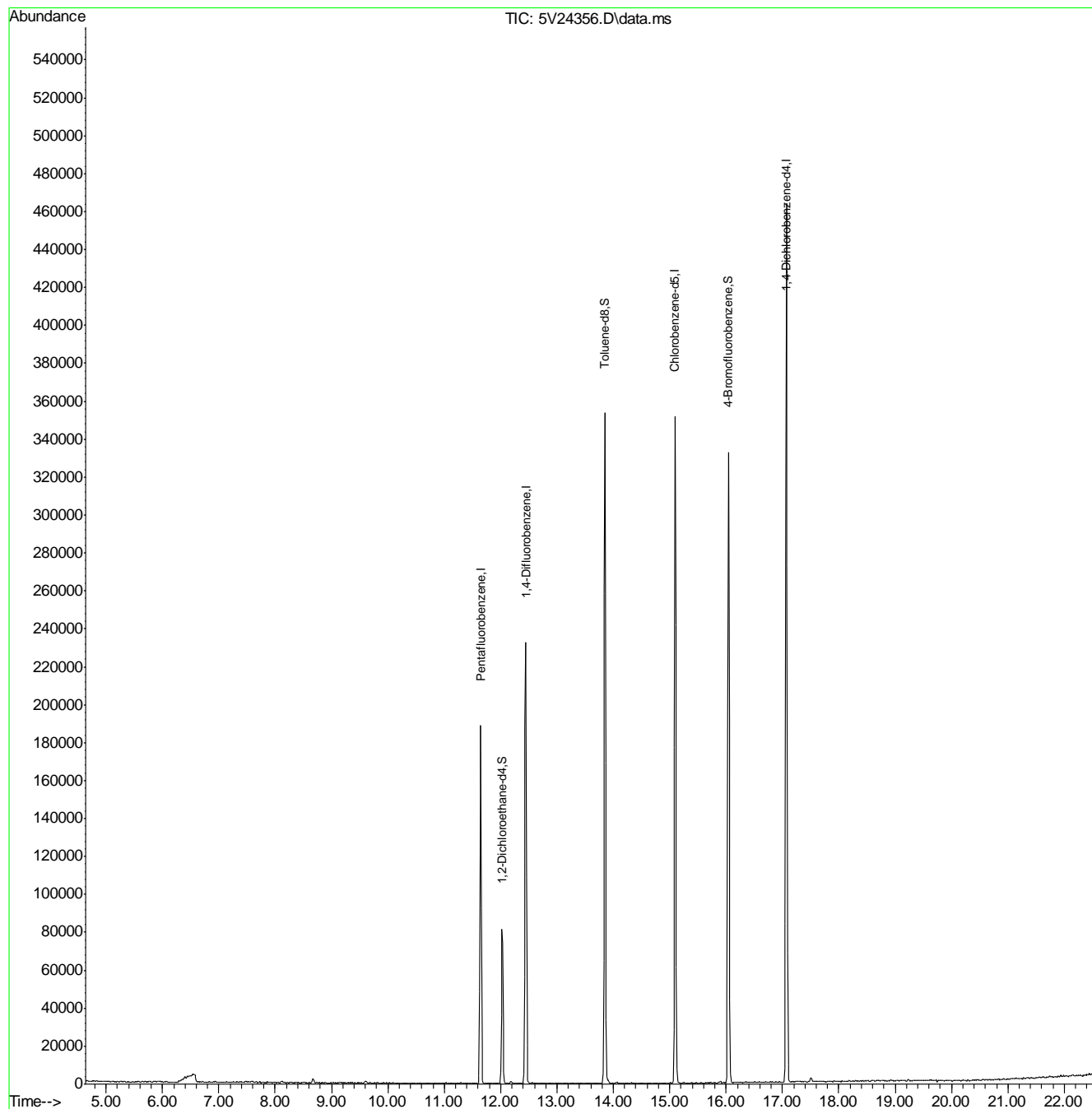
Target Compounds	Qvalue

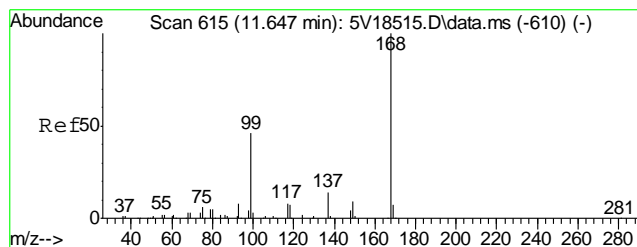
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5102512.S\
Data File : 5V24356.D
Acq On : 25 Oct 2012 9:22 pm
Operator : BRETD
Sample : D40114-1
Misc : MS4865,V5V1483,5.028,,100,5,1
ALS Vial : 22 Sample Multiplier: 1

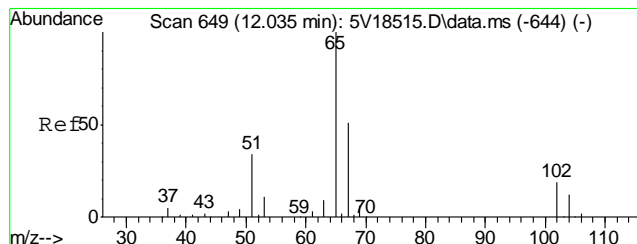
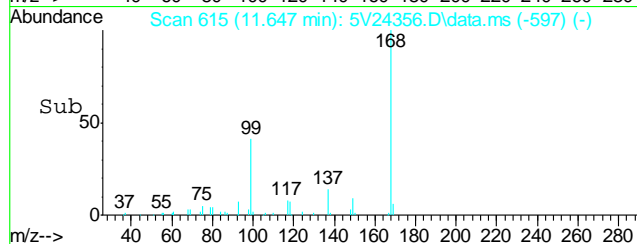
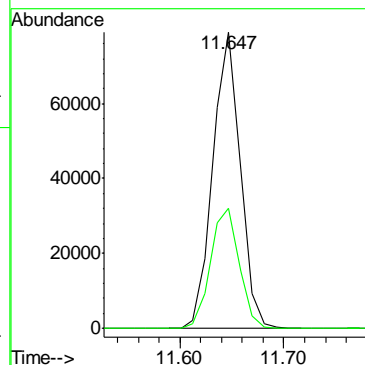
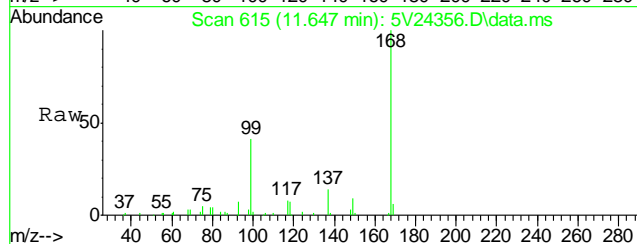
Quant Time: Oct 26 08:30:34 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1442TVH1442.M
Quant Title : 8260
QLast Update : Fri Sep 07 10:53:51 2012
Response via : Initial Calibration





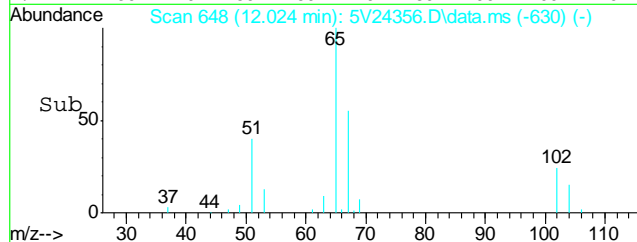
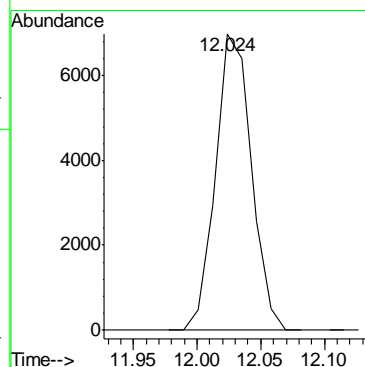
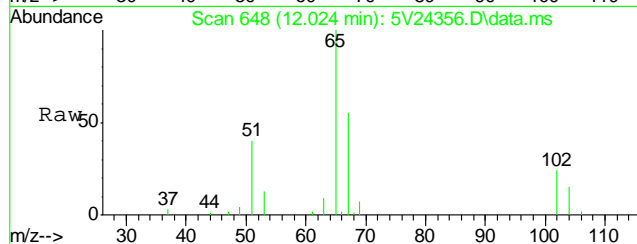
#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.647 min Scan# 615
Delta R.T. 0.000 min
Lab File: 5V24356.D
Acq: 25 Oct 2012 9:22 pm

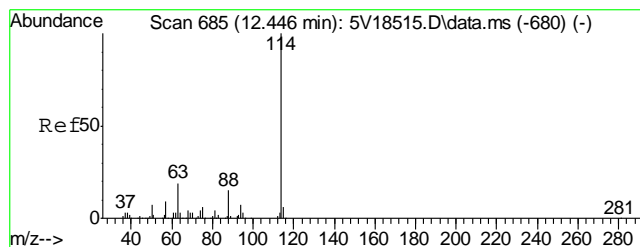
Tgt Ion:168 Resp: 145371
Ion Ratio Lower Upper
168 100
99 42.3 37.4 56.2



#33
1,2-Dichloroethane-d4
Concen: 48.84 ug/l
RT: 12.024 min Scan# 648
Delta R.T. 0.000 min
Lab File: 5V24356.D
Acq: 25 Oct 2012 9:22 pm

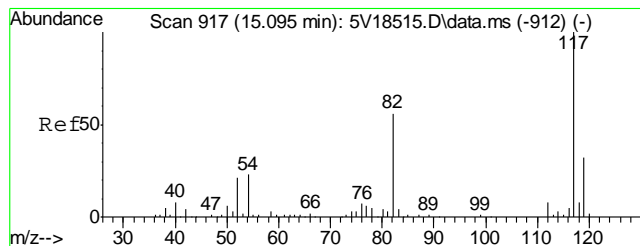
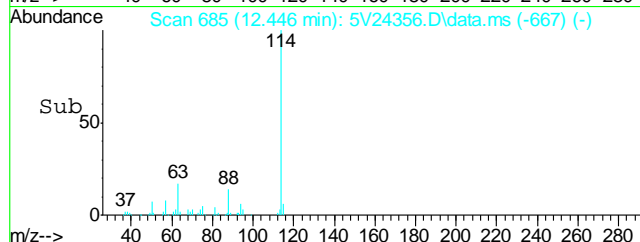
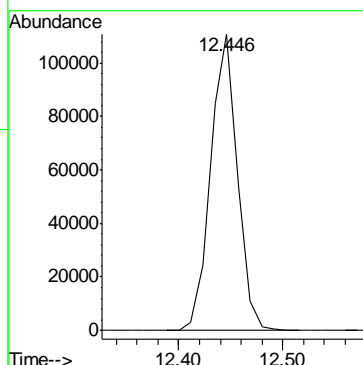
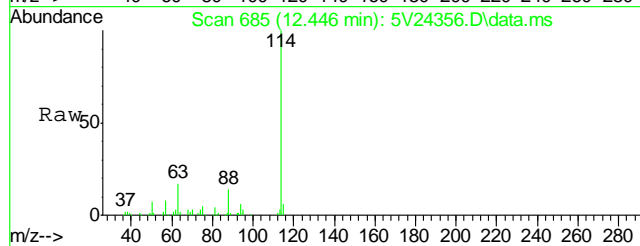
Tgt Ion:102 Resp: 13617





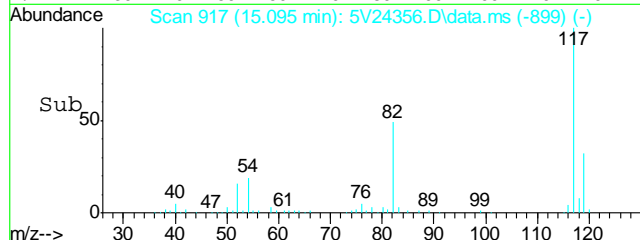
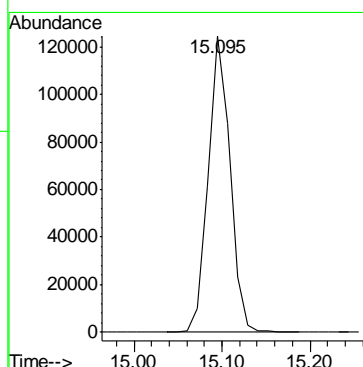
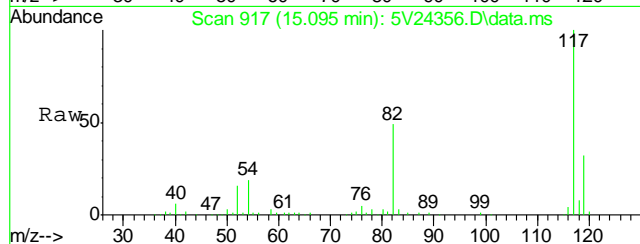
#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.446 min Scan# 685
Delta R.T. 0.000 min
Lab File: 5V24356.D
Acq: 25 Oct 2012 9:22 pm

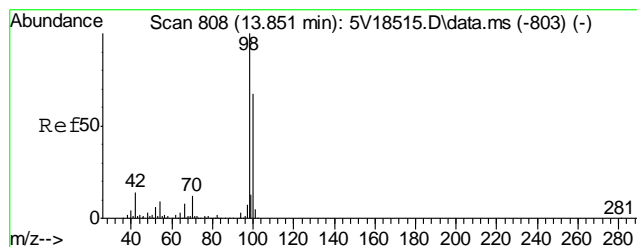
Tgt Ion:114 Resp: 197825



#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.095 min Scan# 917
Delta R.T. 0.000 min
Lab File: 5V24356.D
Acq: 25 Oct 2012 9:22 pm

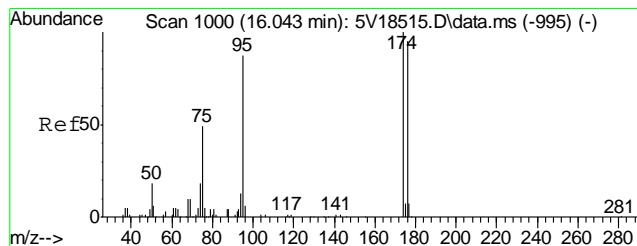
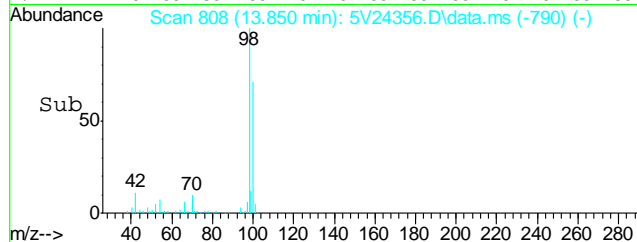
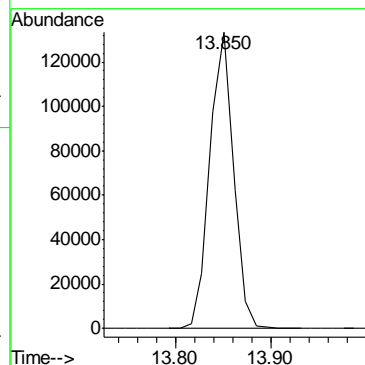
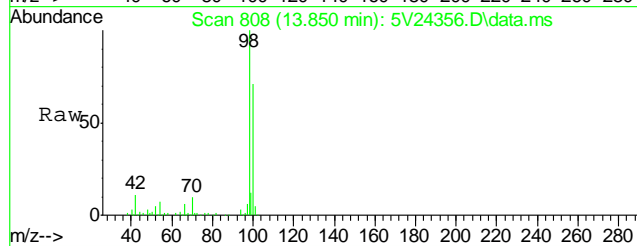
Tgt Ion:117 Resp: 213217





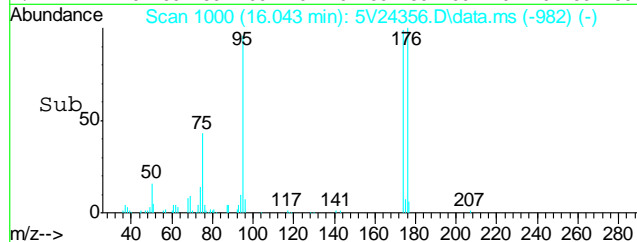
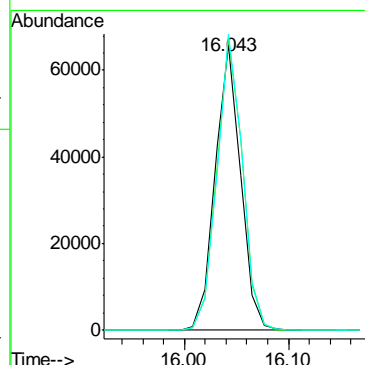
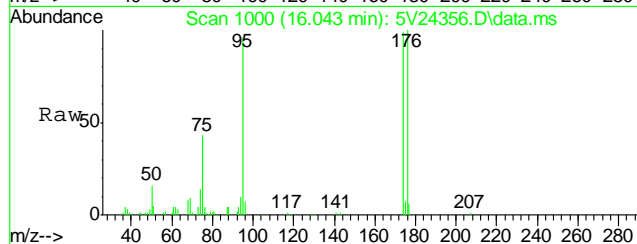
#61
Toluene-d8
Concen: 45.31 ug/l
RT: 13.850 min Scan# 808
Delta R.T. 0.000 min
Lab File: 5V24356.D
Acq: 25 Oct 2012 9:22 pm

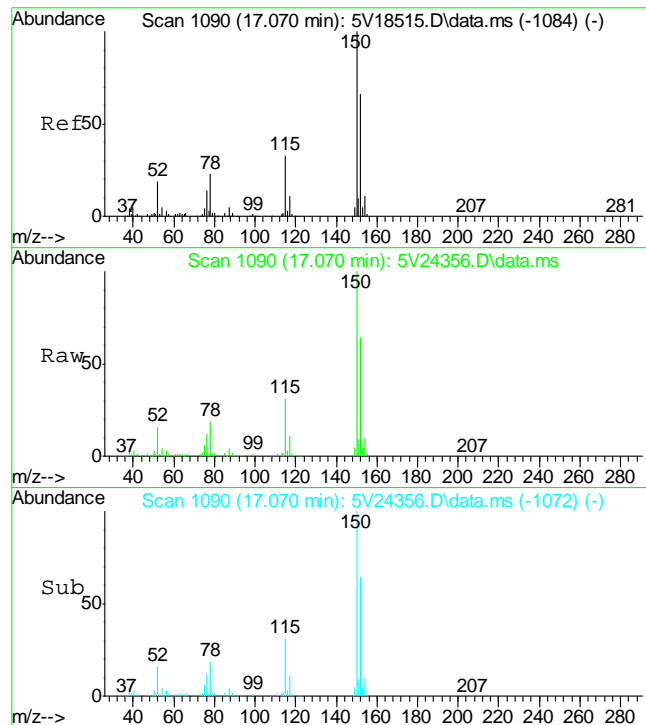
Tgt Ion: 98 Resp: 229143



#69
4-Bromofluorobenzene
Concen: 48.74 ug/l
RT: 16.043 min Scan# 1000
Delta R.T. 0.000 min
Lab File: 5V24356.D
Acq: 25 Oct 2012 9:22 pm

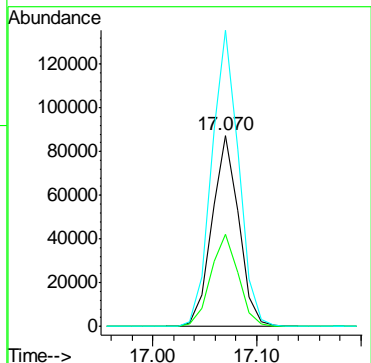
Tgt Ion: 95 Resp: 112243
Ion Ratio Lower Upper
95 100
174 103.6 77.1 117.1
176 103.3 73.4 113.4





#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.070 min Scan# 1090
Delta R.T. 0.000 min
Lab File: 5V24356.D
Acq: 25 Oct 2012 9:22 pm

Tgt Ion:	152	Resp:	156378
Ion Ratio	Lower	Upper	
152	100		
115	49.3	41.4	62.0
150	156.7	153.9	230.9



7.1.1
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5102512.S\
Data File : 5V24339.D
Acq On : 25 Oct 2012 11:59 am
Operator : BRETD
Sample : MB
Misc : MS4865,V5V1483,5.00,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 26 08:06:57 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	139340	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	192190	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	204047	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	139965	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.024	102	13311	49.80	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	99.60%
61) Toluene-d8	13.850	98	223980	46.28	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	92.56%
69) 4-Bromofluorobenzene	16.042	95	97017	44.02	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	88.04%

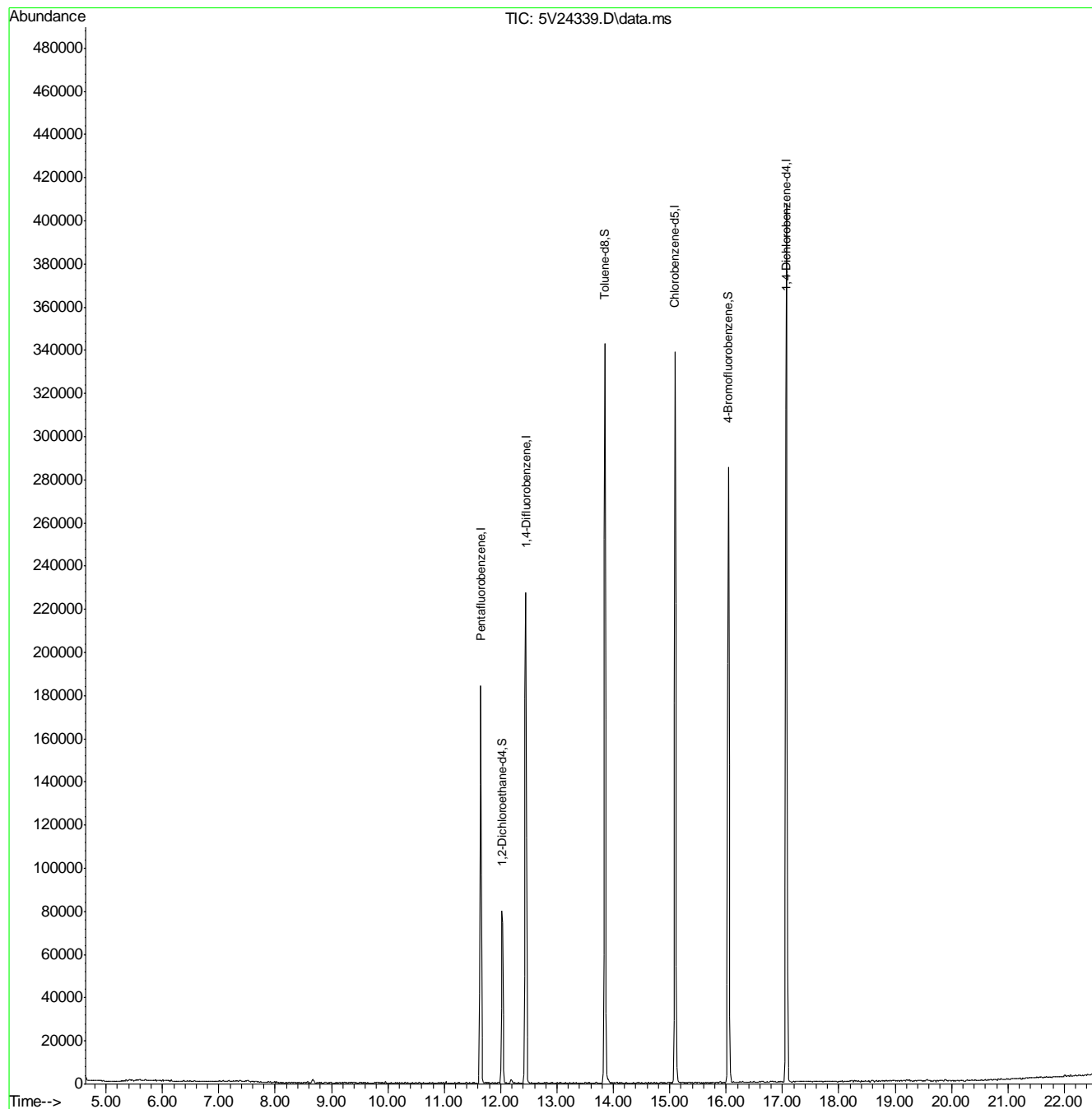
Target Compounds	Qvalue
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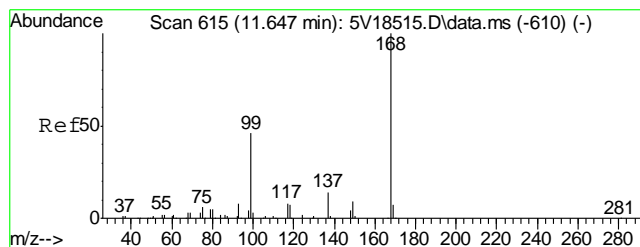
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5102512.S\
Data File : 5V24339.D
Acq On : 25 Oct 2012 11:59 am
Operator : BRETD
Sample : MB
Misc : MS4865,V5V1483,5.00,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

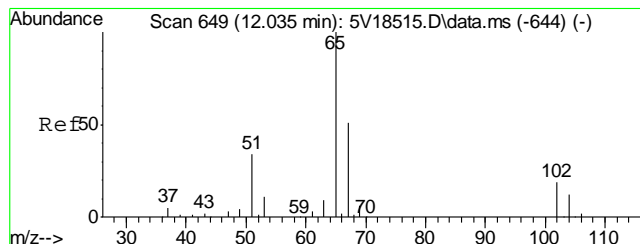
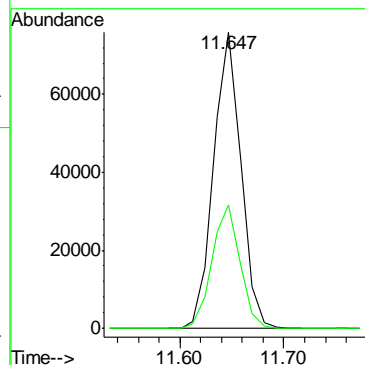
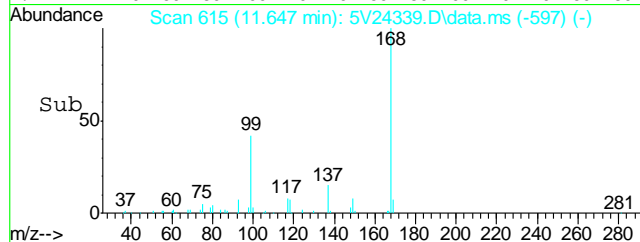
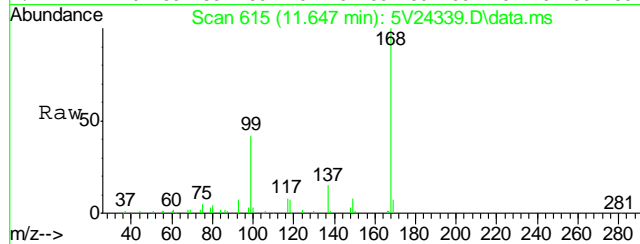
Quant Time: Oct 26 08:06:57 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1442TVH1442.M
Quant Title : 8260
QLast Update : Fri Sep 07 10:53:51 2012
Response via : Initial Calibration





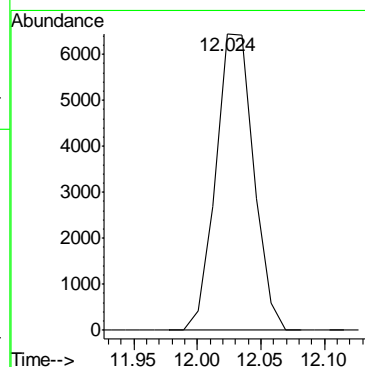
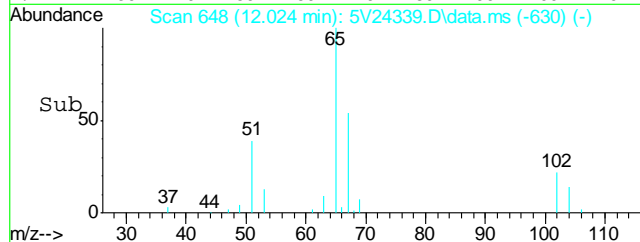
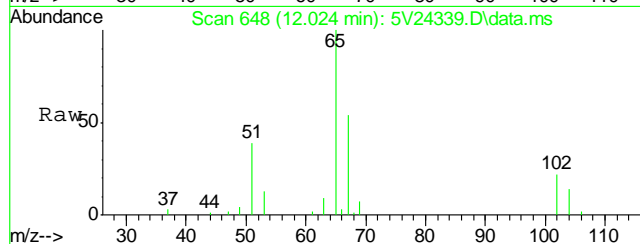
#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.647 min Scan# 615
Delta R.T. 0.000 min
Lab File: 5V24339.D
Acq: 25 Oct 2012 11:59 am

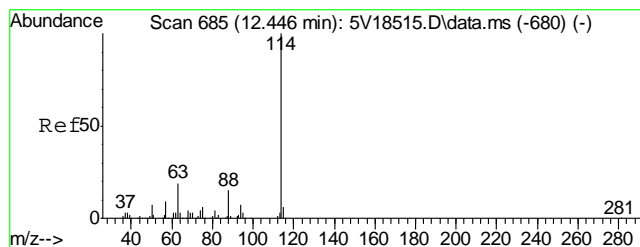
Tgt Ion:168 Resp: 139340
Ion Ratio Lower Upper
168 100
99 42.4 37.4 56.2



#33
1,2-Dichloroethane-d4
Concen: 49.80 ug/l
RT: 12.024 min Scan# 648
Delta R.T. 0.000 min
Lab File: 5V24339.D
Acq: 25 Oct 2012 11:59 am

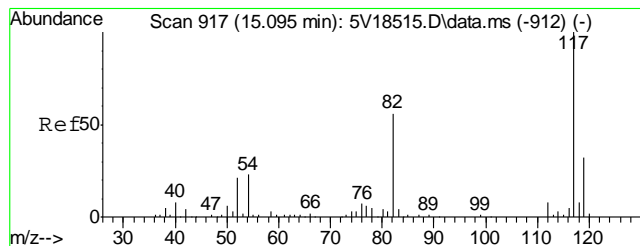
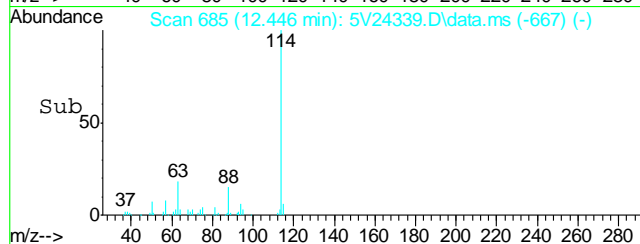
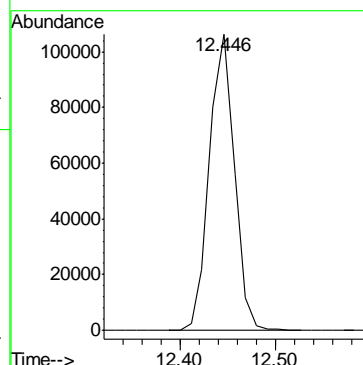
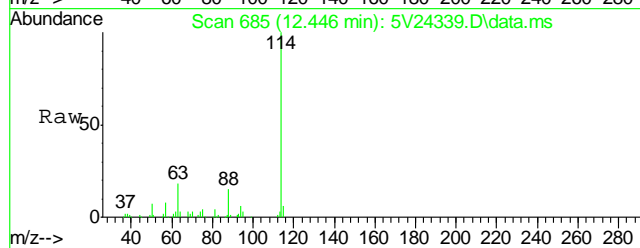
Tgt Ion:102 Resp: 13311





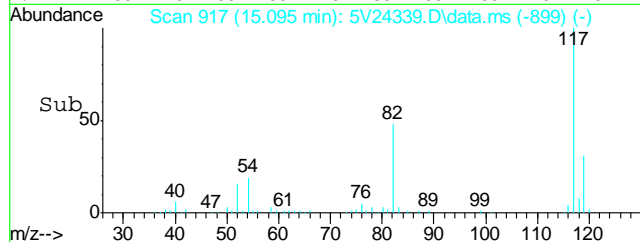
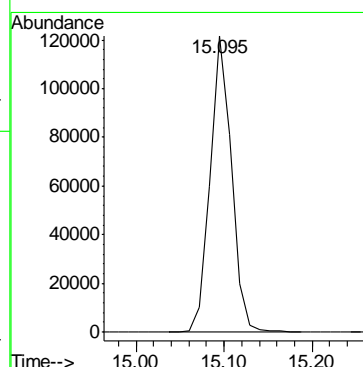
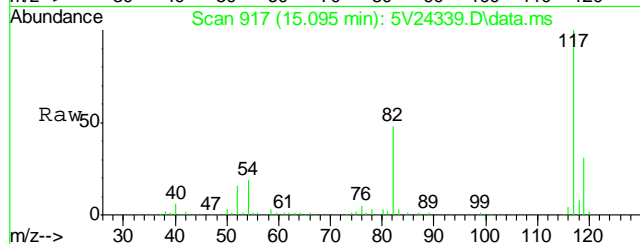
#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.446 min Scan# 685
Delta R.T. 0.000 min
Lab File: 5V24339.D
Acq: 25 Oct 2012 11:59 am

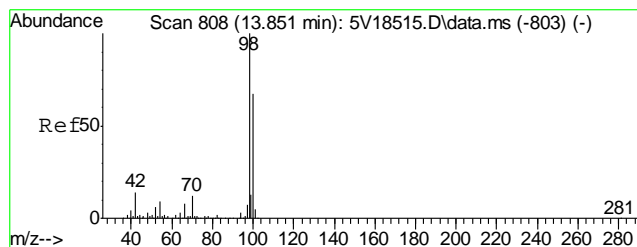
Tgt Ion:114 Resp: 192190



#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.095 min Scan# 917
Delta R.T. 0.000 min
Lab File: 5V24339.D
Acq: 25 Oct 2012 11:59 am

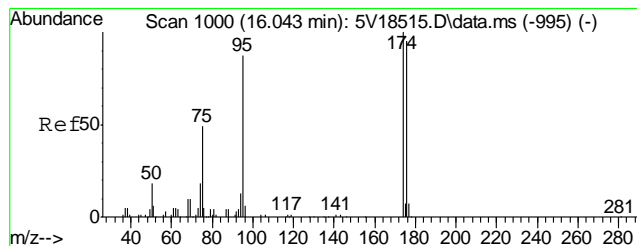
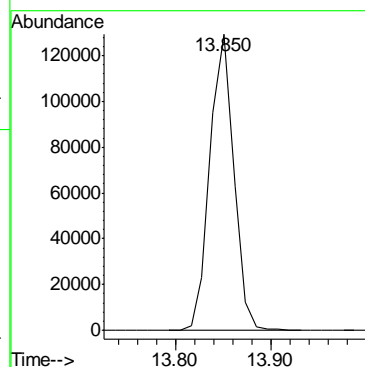
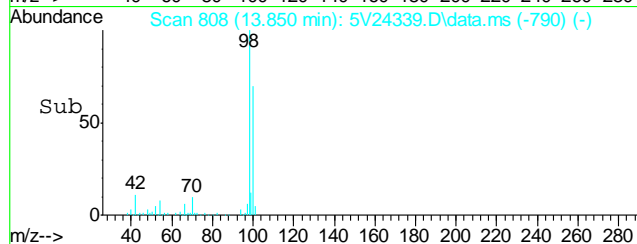
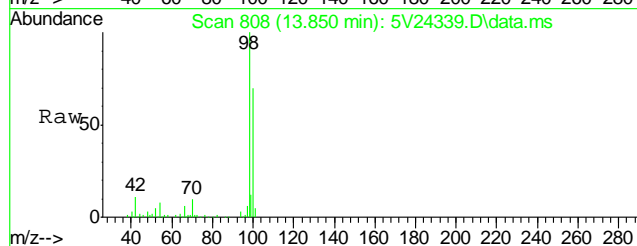
Tgt Ion:117 Resp: 204047





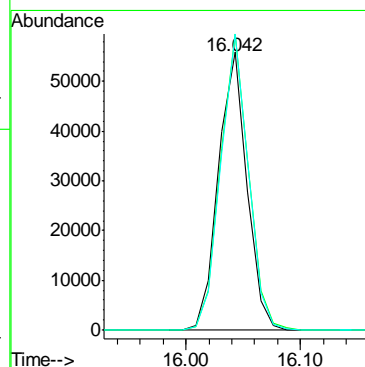
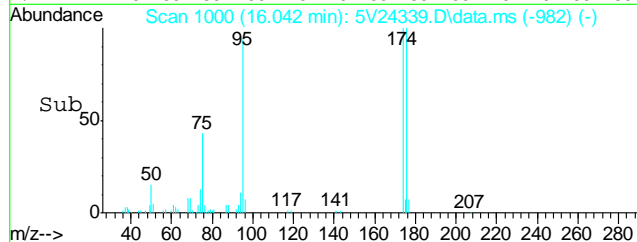
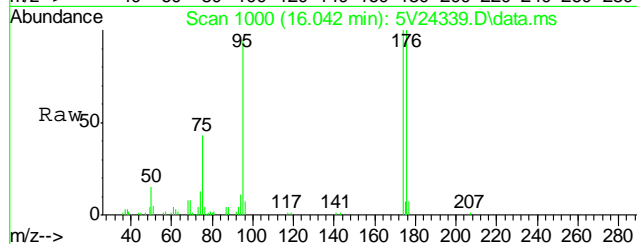
#61
Toluene-d8
Concen: 46.28 ug/l
RT: 13.850 min Scan# 808
Delta R.T. 0.000 min
Lab File: 5V24339.D
Acq: 25 Oct 2012 11:59 am

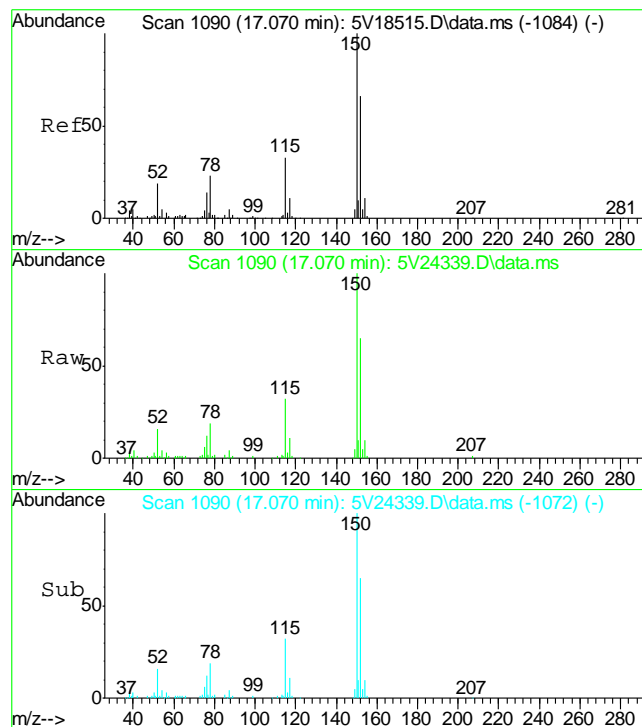
Tgt Ion: 98 Resp: 223980



#69
4-Bromofluorobenzene
Concen: 44.02 ug/l
RT: 16.042 min Scan# 1000
Delta R.T. 0.000 min
Lab File: 5V24339.D
Acq: 25 Oct 2012 11:59 am

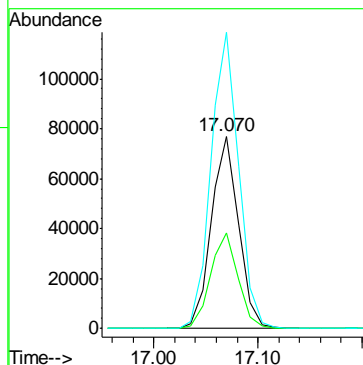
Tgt Ion: 95 Resp: 97017
Ion Ratio Lower Upper
95 100
174 104.5 77.1 117.1
176 103.4 73.4 113.4





#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.070 min Scan# 1090
Delta R.T. 0.000 min
Lab File: 5V24339.D
Acq: 25 Oct 2012 11:59 am

Tgt Ion:	152	Resp:	139965
Ion Ratio	Lower	Upper	
152	100		
115	50.0	41.4	62.0
150	156.4	153.9	230.9



GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D40114
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6857-MB	3G11777.D	1	10/24/12	DC	10/24/12	OP6857	E3G555

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

D40114-1

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	96% 10-159%
321-60-8	2-Fluorobiphenyl	81% 19-131%
1718-51-0	Terphenyl-d14	101% 18-150%

8.1.1

8

Blank Spike Summary

Page 1 of 1

Job Number: D40114
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6857-BS	3G11778.D	1	10/24/12	DC	10/24/12	OP6857	E3G555

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D40114-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	69.4	83	68-130
120-12-7	Anthracene	83.3	76.4	92	67-130
56-55-3	Benzo(a)anthracene	83.3	74.3	89	65-130
50-32-8	Benzo(a)pyrene	83.3	78.5	94	62-130
205-99-2	Benzo(b)fluoranthene	83.3	70.1	84	44-130
207-08-9	Benzo(k)fluoranthene	83.3	80.3	96	56-131
218-01-9	Chrysene	83.3	83.6	100	70-130
53-70-3	Dibenzo(a,h)anthracene	83.3	70.2	84	55-130
206-44-0	Fluoranthene	83.3	72.8	87	70-130
86-73-7	Fluorene	83.3	72.4	87	70-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	72.6	87	56-130
91-20-3	Naphthalene	83.3	71.6	86	70-130
129-00-0	Pyrene	83.3	81.7	98	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	88%	10-159%
321-60-8	2-Fluorobiphenyl	74%	19-131%
1718-51-0	Terphenyl-d14	94%	18-150%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D40114
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6857-MS	3G11780.D	1	10/24/12	DC	10/24/12	OP6857	E3G555
OP6857-MSD	3G11781.D	1	10/24/12	DC	10/24/12	OP6857	E3G555
D40113-1	3G11779.D	1	10/24/12	DC	10/24/12	OP6857	E3G555

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D40114-1

CAS No.	Compound	D40113-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		96.1	88.4	92	82.5	86	7	25-151/30
120-12-7	Anthracene	ND		96.1	95.6	100	96.0	100	0	39-159/30
56-55-3	Benzo(a)anthracene	ND		96.1	102	106	107	111	5	39-168/30
50-32-8	Benzo(a)pyrene	ND		96.1	97.3	101	102	106	5	32-144/30
205-99-2	Benzo(b)fluoranthene	ND		96.1	91.8	96	98.8	103	7	24-163/30
207-08-9	Benzo(k)fluoranthene	ND		96.1	88.6	92	92.2	96	4	10-188/30
218-01-9	Chrysene	5.6	J	96.1	103	101	103	101	0	43-150/30
53-70-3	Dibenzo(a,h)anthracene	ND		96.1	82.4	86	82.7	86	0	21-152/30
206-44-0	Fluoranthene	ND		96.1	101	105	117	121	15	36-157/30
86-73-7	Fluorene	8.5	J	96.1	107	103	96.4	91	10	10-182/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		96.1	88.3	92	88.9	92	1	20-154/30
91-20-3	Naphthalene	46.3		96.1	133	90	99.1	55	29	10-163/30
129-00-0	Pyrene	ND		96.1	109	113	124	129	13	25-180/30

CAS No.	Surrogate Recoveries	MS	MSD	D40113-1	Limits
4165-60-0	Nitrobenzene-d5	87%	74%	73%	10-159%
321-60-8	2-Fluorobiphenyl	75%	66%	63%	19-131%
1718-51-0	Terphenyl-d14	85%	80%	82%	18-150%

* = Outside of Control Limits.

GC/MS Semi-volatiles

Raw Data

6

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\102412\
 Data File : 3g11786.D
 Acq On : 24 Oct 2012 6:30 pm
 Operator : DONC
 Sample : D40114-1
 Misc : OP6857,E3G555,30.06,,,1,1
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 25 08:33:42 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G553.M
 Quant Title : PAHSIM BASE
 QLast Update : Mon Oct 22 14:22:49 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.789	136	184002	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.507	164	109158	4.0000	ug/mL	0.00
15) Phenanthrene-d10	8.987	188	175351	4.0000	ug/mL	0.00
19) Chrysene-d12	11.623	240	125055	4.0000	ug/mL	0.00
24) Perylene-d12	13.025	264	85144	4.0000	ug/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	5.103	82	673335	33.2586	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	66.52%		
7) 2-Fluorobiphenyl	6.834	172	1509619	32.9757	ug/mL	-0.01
Spiked Amount 50.000	Range 25 - 135		Recovery =	65.96%		
21) Terphenyl-d14	10.578	244	787340	45.3557	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	90.72%		

Target Compounds

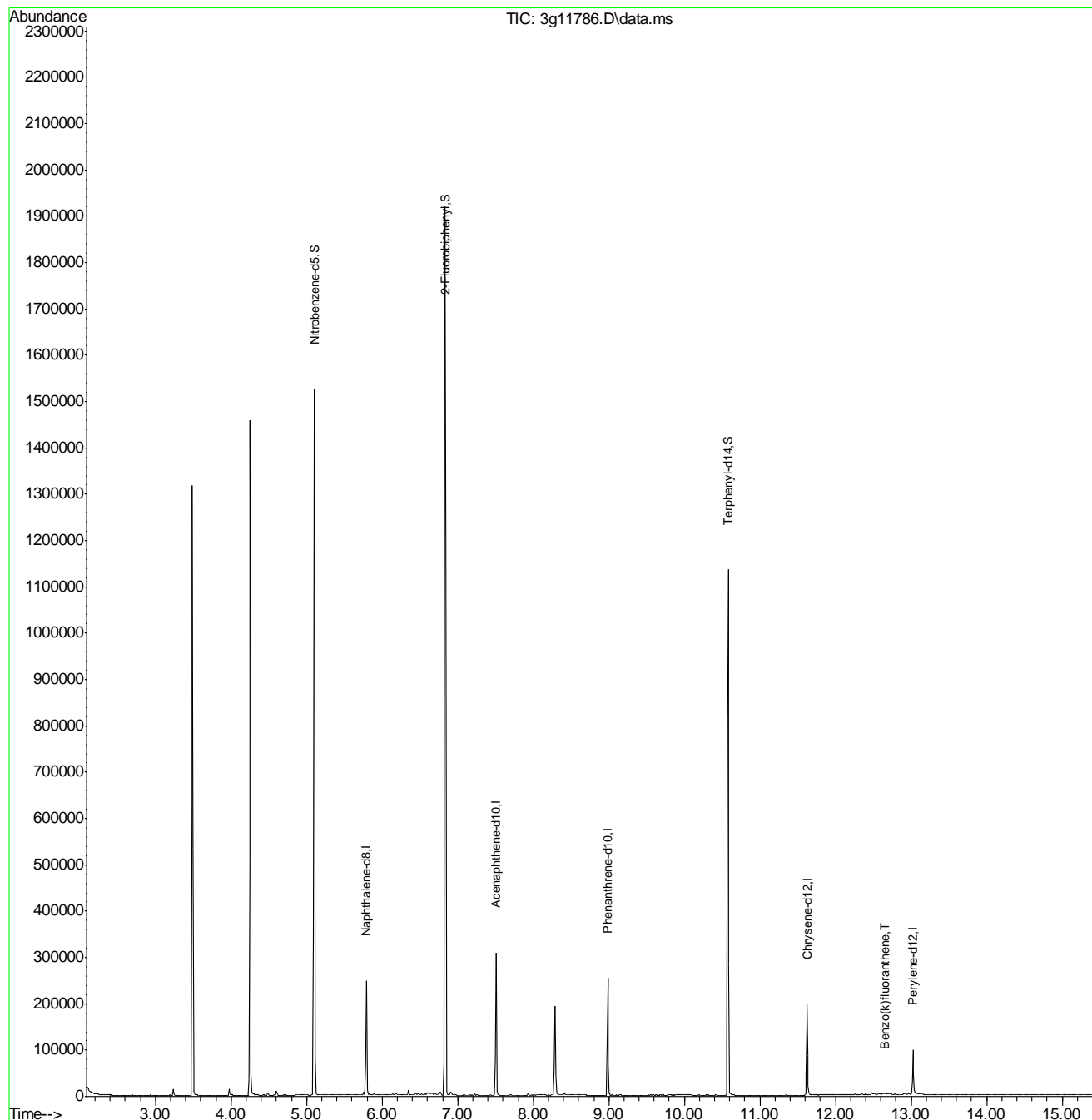
					Qvalue
3) N-Nitrosodimethylamine	2.639	74	131	N.D.	
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d
5) Naphthalene	5.801	128	1016	N.D.	
8) 2-Methylnaphthalene	6.487	142	1285	N.D.	
9) 1-Methylnaphthalene	6.574	142	501	N.D.	
10) Acenaphthylene	7.366	152	377	N.D.	
11) Acenaphthene	7.507	154	635	N.D.	
12) Dibenzofuran	7.708	168	515	N.D.	
13) Fluorene	0.000	166	0	N.D.	d
14) Diphenylamine	8.157	169	1006	N.D.	
16) Phenanthrene	9.011	178	2142	N.D.	
17) Anthracene	9.059	178	626	N.D.	
18) Fluoranthene	10.191	202	1374	N.D.	
20) Pyrene	10.420	202	1187	N.D.	
22) Benzo(a)anthracene	11.610	228	1375	N.D.	
23) Chrysene	11.650	228	1185	N.D.	
25) Benzo(b)fluoranthene	12.635	252	1011	N.D.	
26) Benzo(k)fluoranthene	12.656	252	873m	0.0605	ug/mL
27) Benzo(a)pyrene	12.961	252	659	N.D.	
28) Indeno(1,2,3-cd)pyrene	14.297	276	648	N.D.	
29) Dibenz(a,h)anthracene	14.308	278	414	N.D.	
30) Benzo(g,h,i)perylene	14.665	276	623	N.D.	

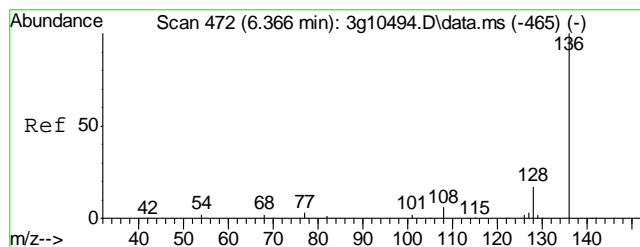
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\102412\
 Data File : 3g11786.D
 Acq On : 24 Oct 2012 6:30 pm
 Operator : DONC
 Sample : D40114-1
 Misc : OP6857,E3G555,30.06,,,1,1
 ALS Vial : 13 Sample Multiplier: 1

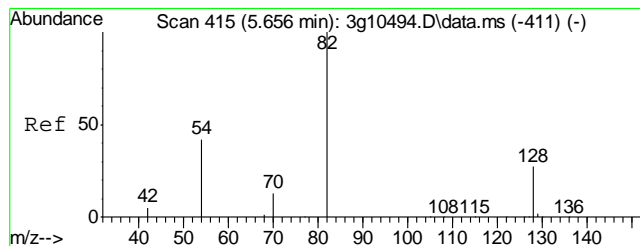
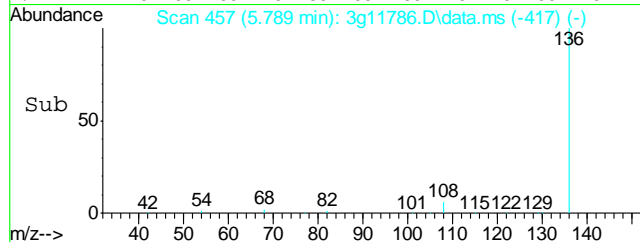
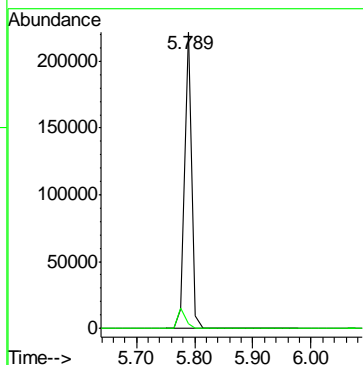
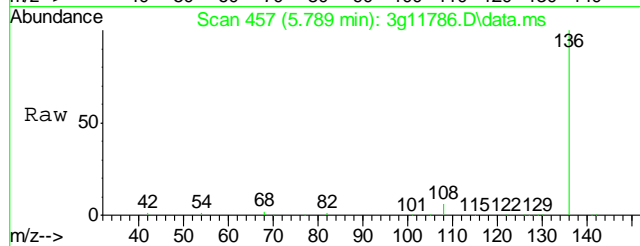
Quant Time: Oct 25 08:33:42 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G553.M
 Quant Title : PAHSIM BASE
 QLast Update : Mon Oct 22 14:22:49 2012
 Response via : Initial Calibration





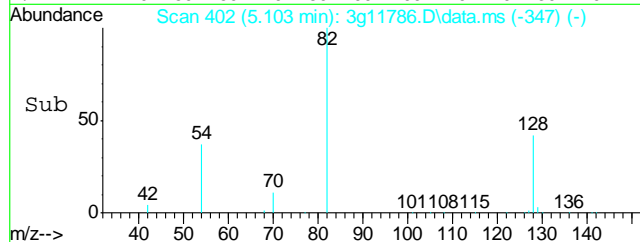
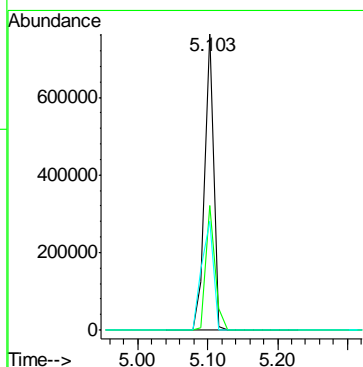
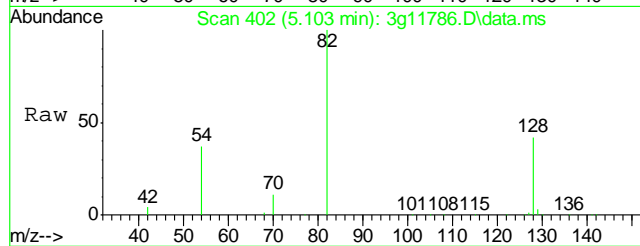
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.789 min Scan# 457
Delta R.T. 0.000 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

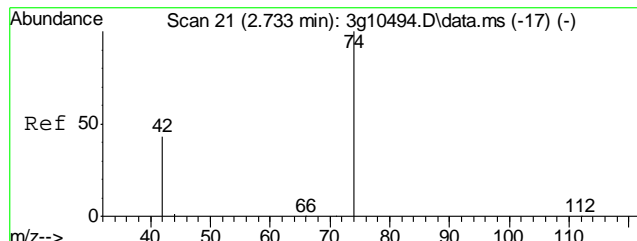
Tgt Ion: 136 Resp: 184002
Ion Ratio Lower Upper
136 100
68 7.9 0.0 29.7



#2
Nitrobenzene-d5
Concen: 33.2586 ug/mL
RT: 5.103 min Scan# 402
Delta R.T. 0.001 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

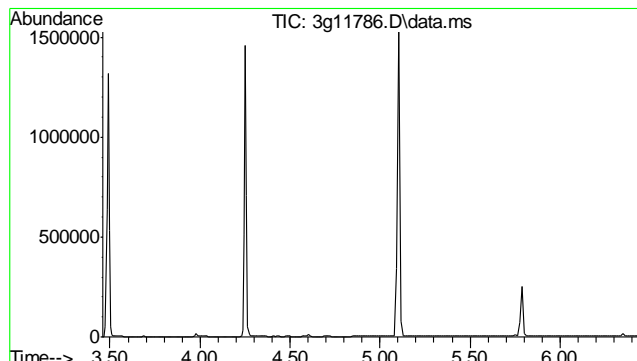
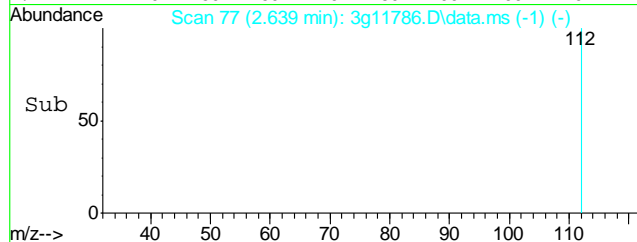
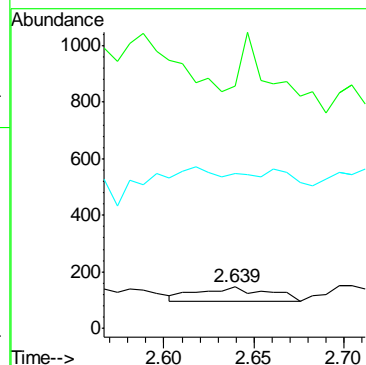
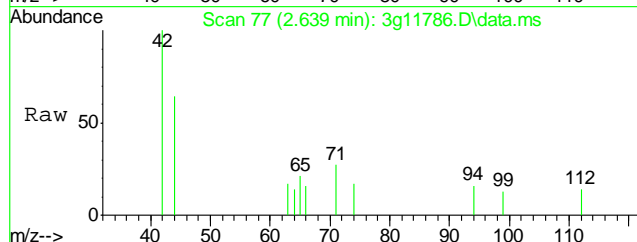
Tgt Ion: 82 Resp: 673335
Ion Ratio Lower Upper
82 100
128 42.7 17.4 57.4
54 48.7 28.5 68.5





#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.639 min Scan# 77
Delta R.T. 0.160 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

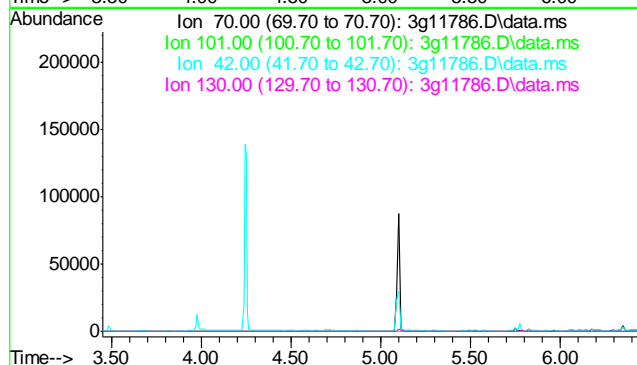
Tgt Ion:	74	Resp:	131
Ion Ratio	Lower	Upper	
74	100		
42	0.0	51.1	91.1#
44	286.3	0.0	23.9#

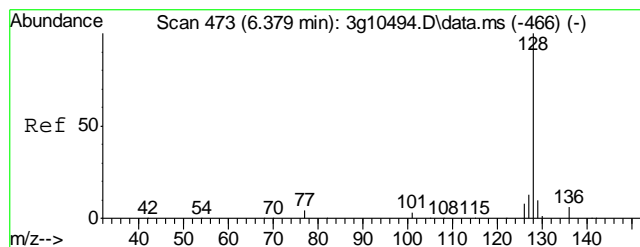


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 4.95 min

Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

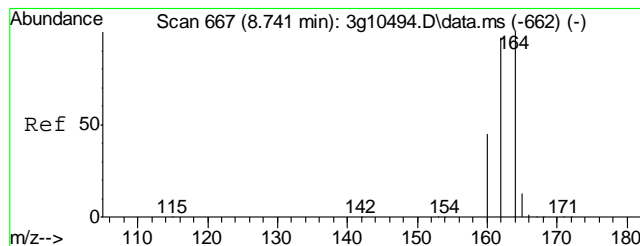
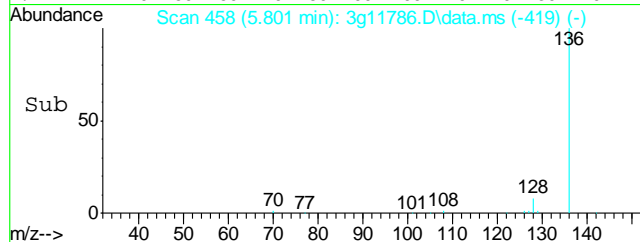
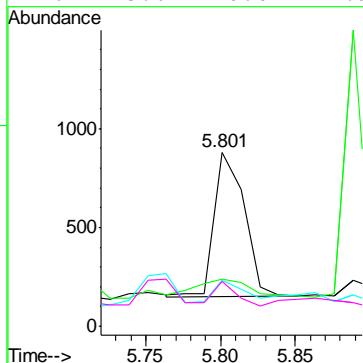
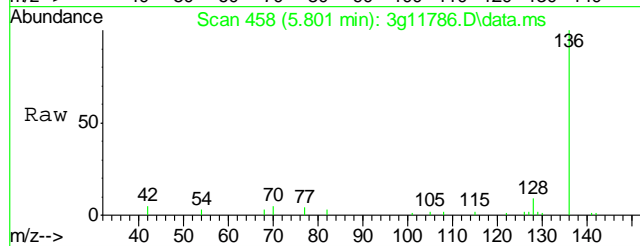
Tgt Ion:	70
Sig	Exp Ratio
70	100
101	9.5
42	58.9
130	21.7





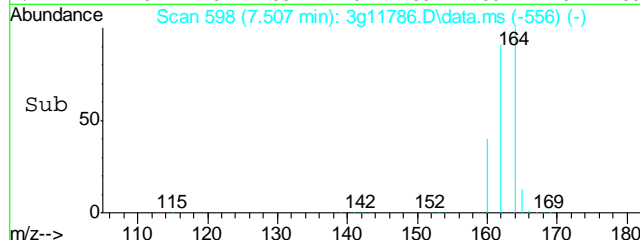
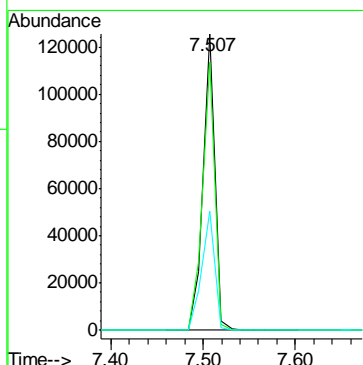
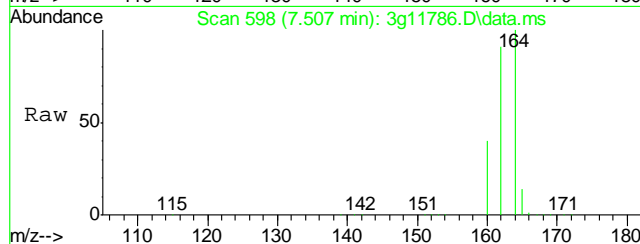
#5
Naphthalene
Concen: Below ug/mL
RT: 5.801 min Scan# 458
Delta R.T. -0.012 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

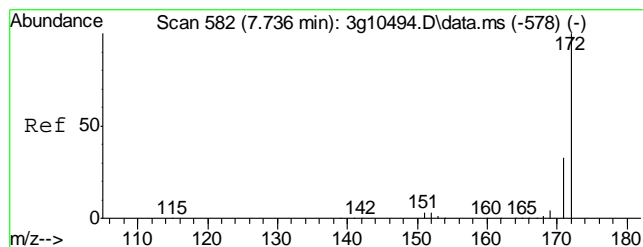
Tgt Ion	Ratio	Lower	Upper
128	100		
129	37.9	0.0	30.9#
127	16.4	0.0	33.3
126	13.6	0.0	27.9



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.507 min Scan# 598
Delta R.T. 0.000 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

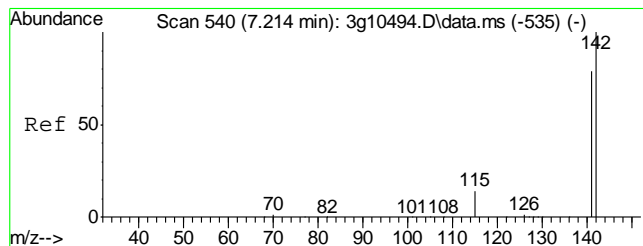
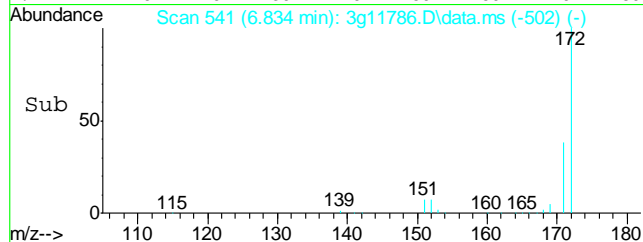
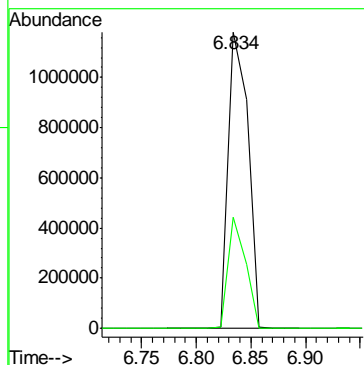
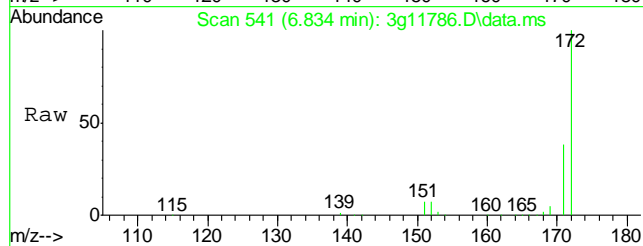
Tgt Ion	Ratio	Lower	Upper
164	100		
162	94.6	75.5	115.5
160	44.3	24.4	64.4





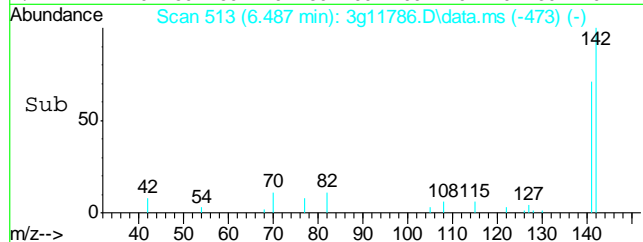
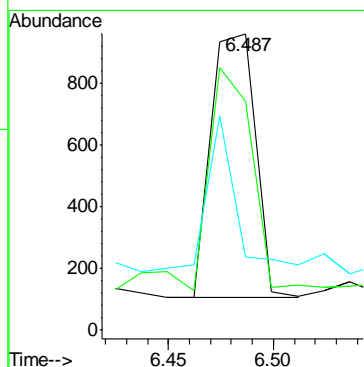
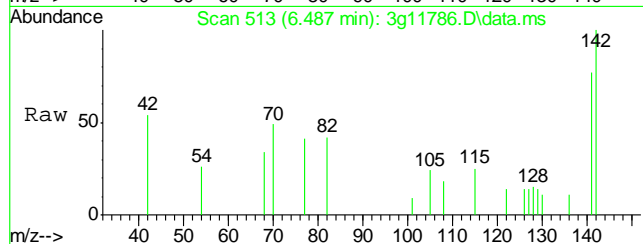
#7
2-Fluorobiphenyl
Concen: 32.9757 ug/mL
RT: 6.834 min Scan# 541
Delta R.T. -0.012 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

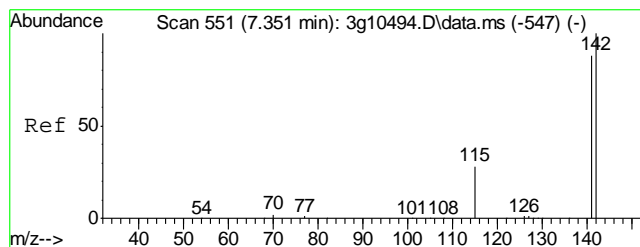
Tgt Ion	Ratio	Lower	Upper
172	100		
171	33.5	13.4	53.4



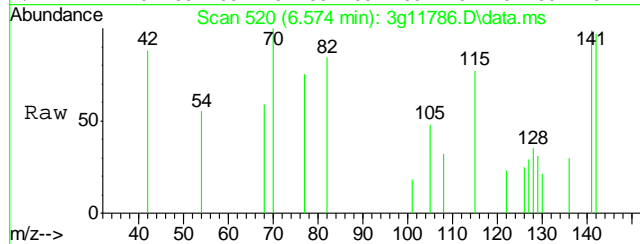
#8
2-Methylnaphthalene
Concen: Below ug/mL
RT: 6.487 min Scan# 513
Delta R.T. 0.000 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

Tgt Ion	Ratio	Lower	Upper
142	100		
141	85.6	63.5	103.5
115	43.3	20.6	60.6

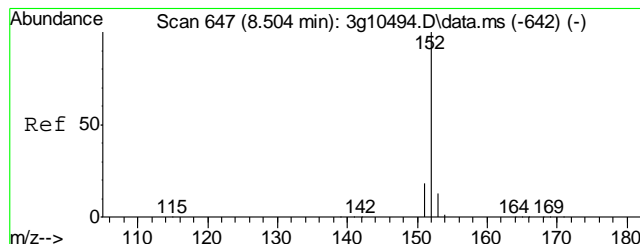
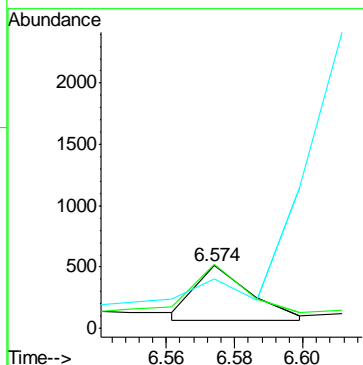
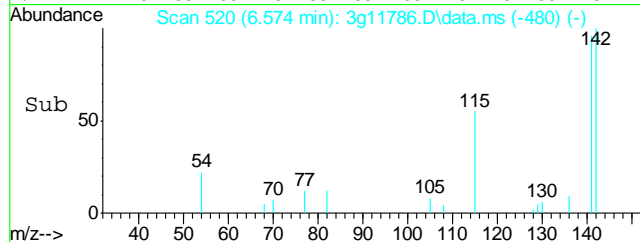




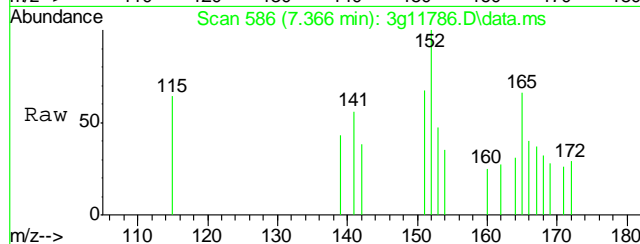
#9
1-Methylnaphthalene
Concen: Below ug/mL m
RT: 6.574 min Scan# 520
Delta R.T. 0.000 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm



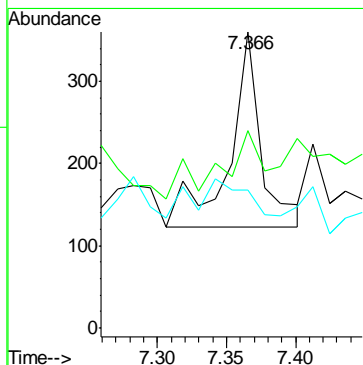
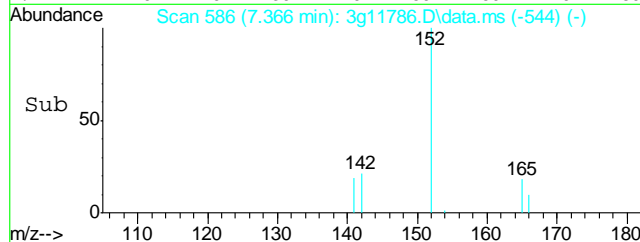
Tgt Ion: 142 Resp: 501
Ion Ratio Lower Upper
142 100
141 219.6 68.7 108.7#
115 111.0 21.1 61.1#

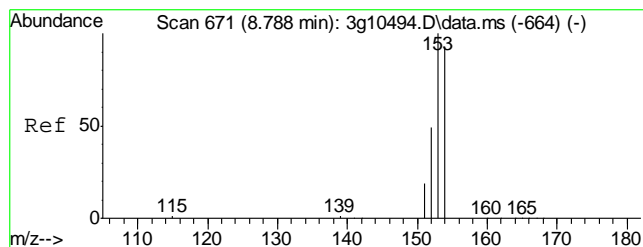


#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.366 min Scan# 586
Delta R.T. 0.000 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm



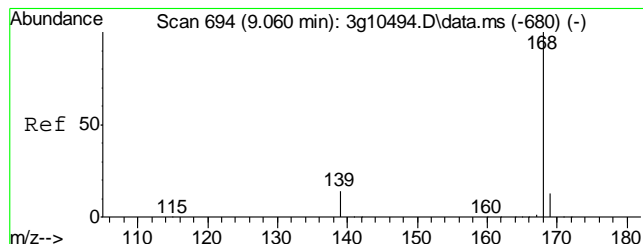
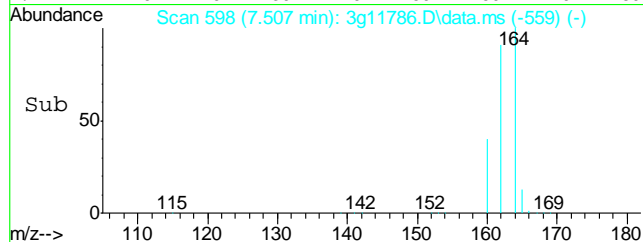
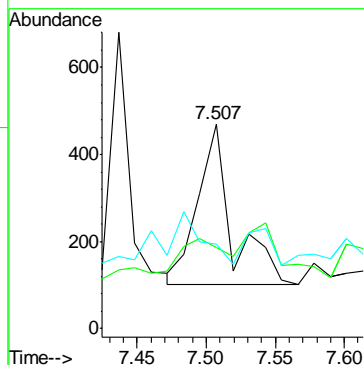
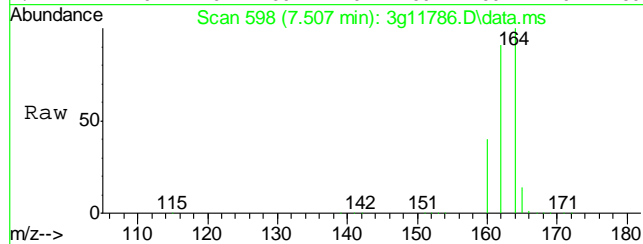
Tgt Ion: 152 Resp: 377
Ion Ratio Lower Upper
152 100
151 35.8 0.0 39.2
153 31.8 0.0 33.0





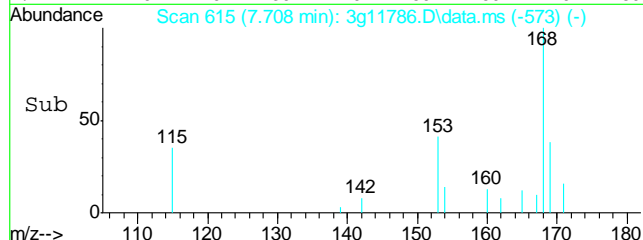
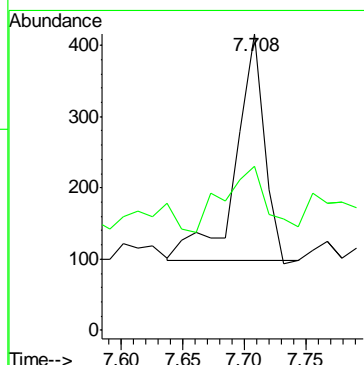
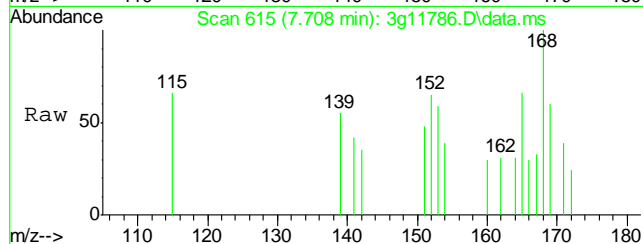
#11
Acenaphthene
Concen: Below ug/mL
RT: 7.507 min Scan# 598
Delta R.T. -0.035 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

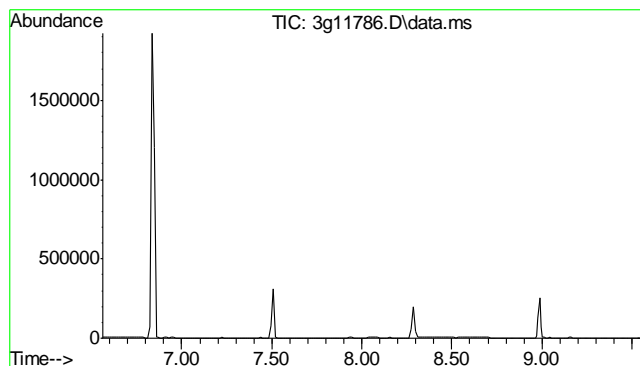
Tgt Ion	Ratio	Lower	Upper
154	100		
153	23.1	86.3	126.3
152	44.1	31.9	71.9



#12
Dibenzofuran
Concen: Below ug/mL
RT: 7.708 min Scan# 615
Delta R.T. 0.000 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

Tgt Ion	Ratio	Lower	Upper
168	100		
139	44.1	10.8	50.8

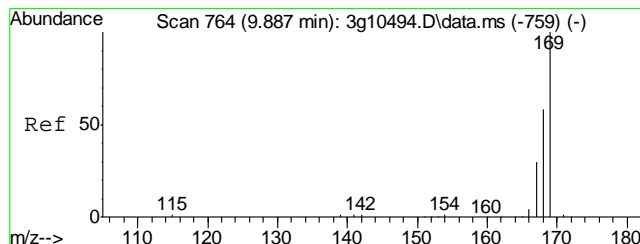
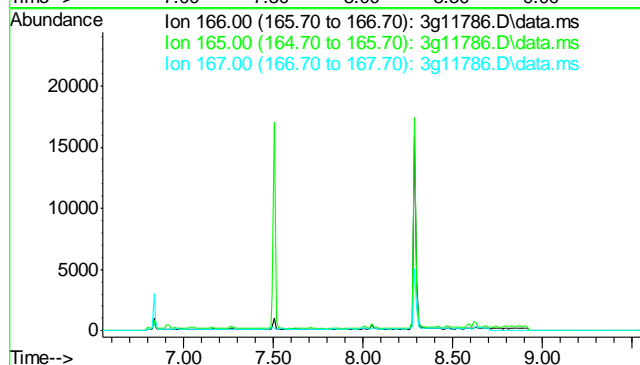




#13
 Fluorene
 Concen: N.D. ug/mL
 Expected RT: 8.05 min

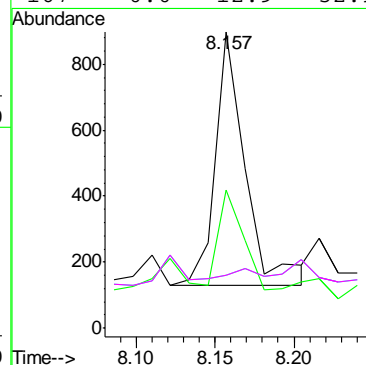
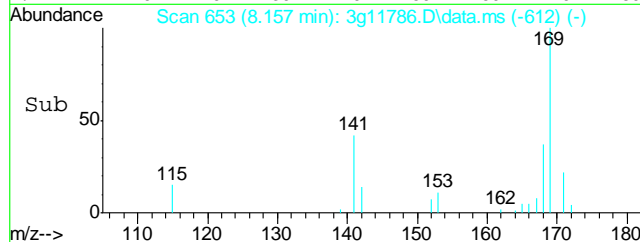
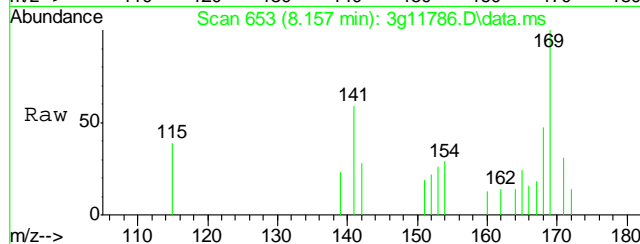
 Lab File: 3g11786.D
 Acq: 24 Oct 12 6:30 pm

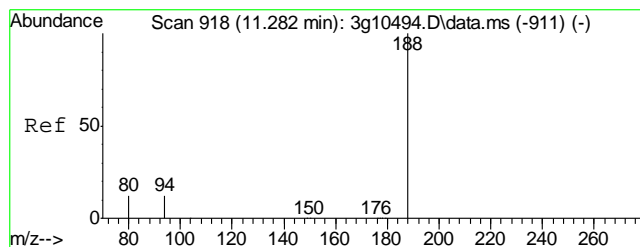
Tgt Ion: 166
 Sig Exp Ratio
 166 100
 165 90.7
 167 13.3



#14
 Diphenylamine
 Concen: Below ug/mL
 RT: 8.157 min Scan# 653
 Delta R.T. -0.012 min
 Lab File: 3g11786.D
 Acq: 24 Oct 12 6:30 pm

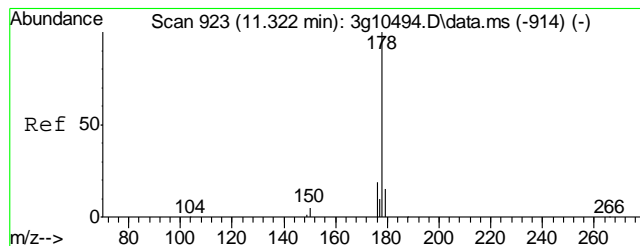
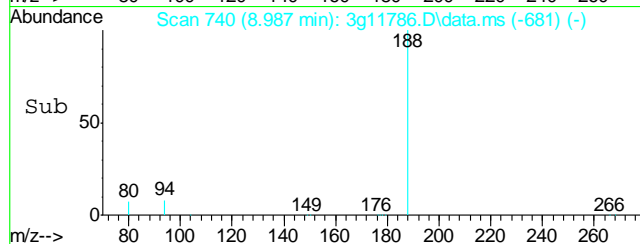
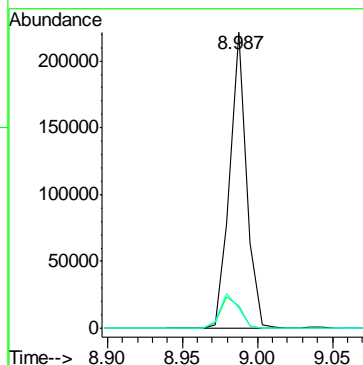
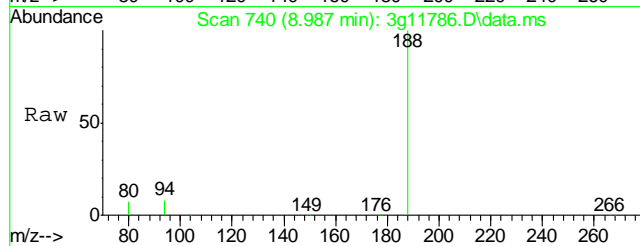
Tgt Ion: 169 Resp: 1006
 Ion Ratio Lower Upper
 169 100
 168 43.6 40.5 80.5
 167 0.0 12.9 52.9#
 167 0.0 12.9 52.9#





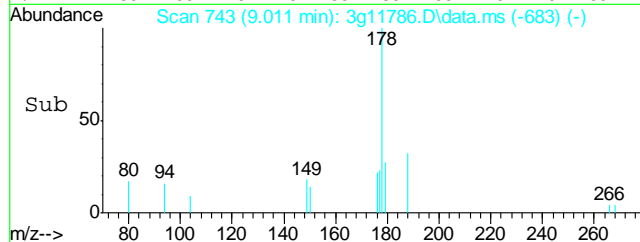
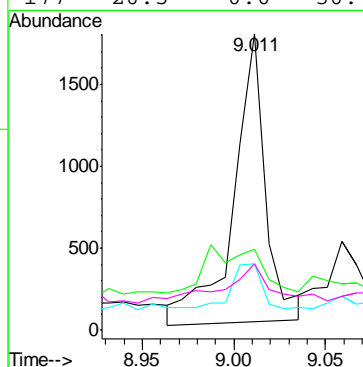
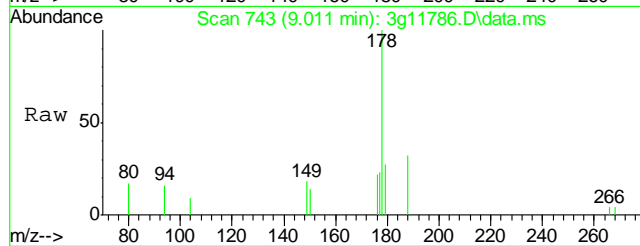
#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.987 min Scan# 740
Delta R.T. 0.000 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

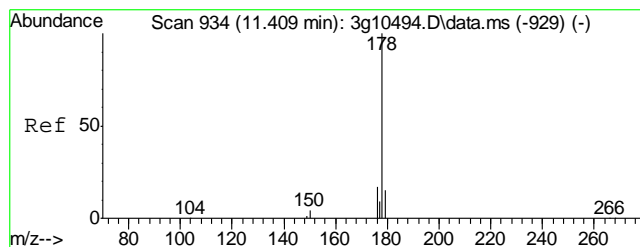
Tgt Ion:188	Resp:	175351
Ion Ratio	Lower	Upper
188	100	
94	12.3	0.0 33.6
80	12.9	0.0 35.0



#16
Phenanthrene
Concen: Below ug/mL
RT: 9.011 min Scan# 743
Delta R.T. 0.000 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

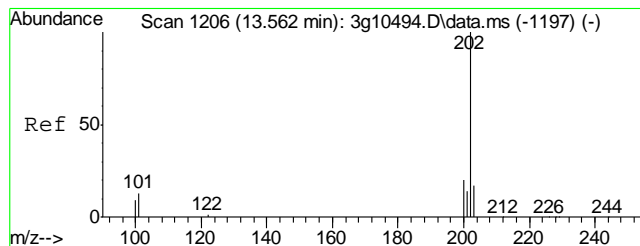
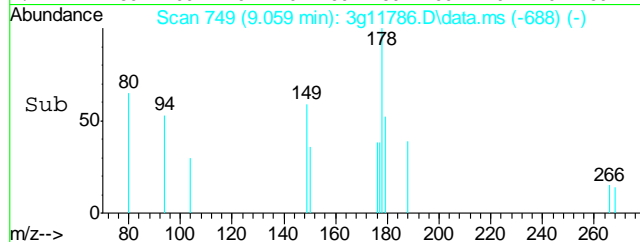
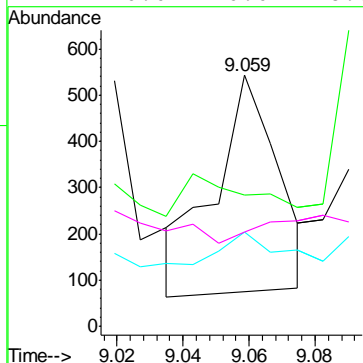
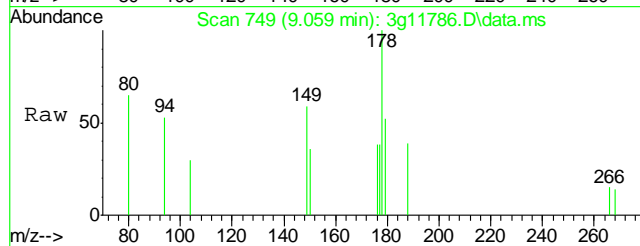
Tgt Ion:178	Resp:	2142
Ion Ratio	Lower	Upper
178	100	
179	59.7	0.0 35.2#
176	24.3	0.0 38.9
177	20.5	0.0 30.4





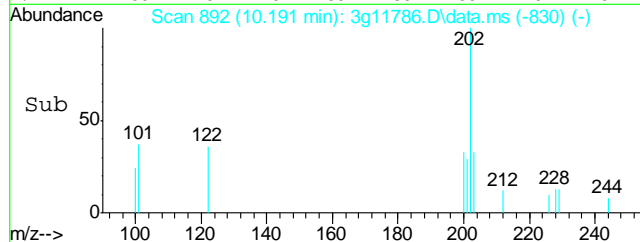
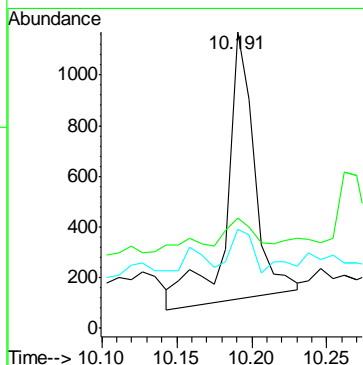
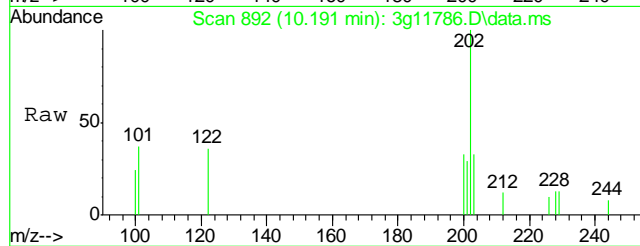
#17
 Anthracene
 Concen: Below ug/mL
 RT: 9.059 min Scan# 749
 Delta R.T. -0.008 min
 Lab File: 3g11786.D
 Acq: 24 Oct 12 6:30 pm

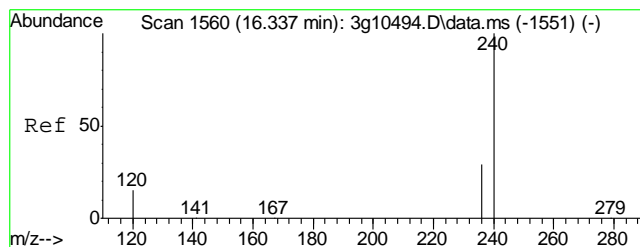
Tgt Ion:	178	Resp:	626
Ion Ratio	Lower	Upper	
178	100		
179	74.8	0.0	35.2#
176	30.2	0.0	38.0
177	0.0	0.0	28.8



#18
 Fluoranthene
 Concen: Below ug/mL
 RT: 10.191 min Scan# 892
 Delta R.T. -0.008 min
 Lab File: 3g11786.D
 Acq: 24 Oct 12 6:30 pm

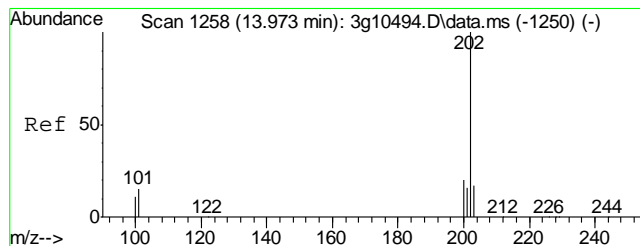
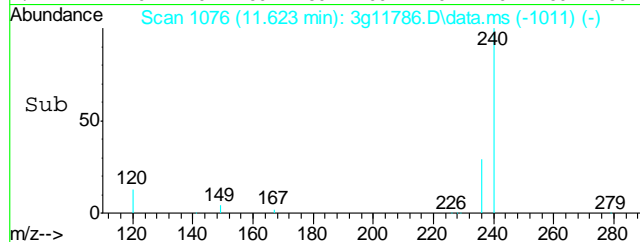
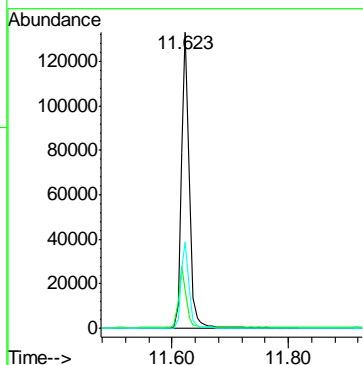
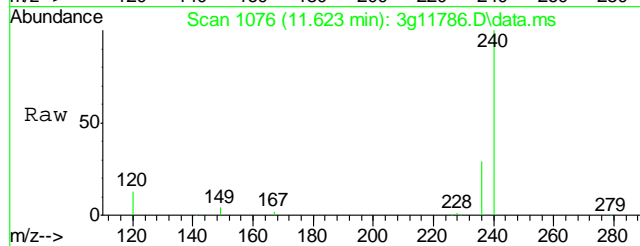
Tgt Ion:	202	Resp:	1374
Ion Ratio	Lower	Upper	
202	100		
101	9.0	0.0	32.6
203	15.9	0.0	37.3





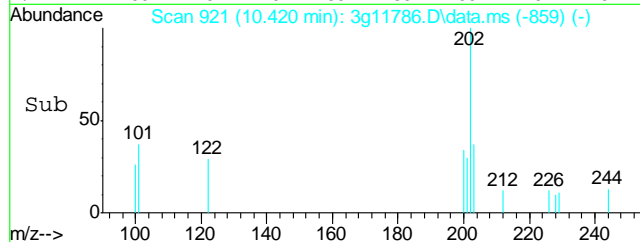
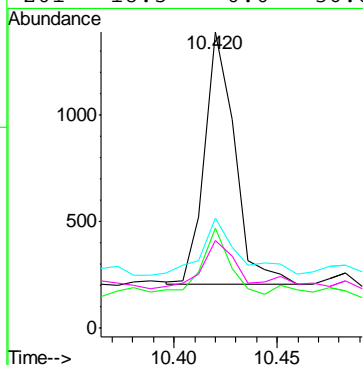
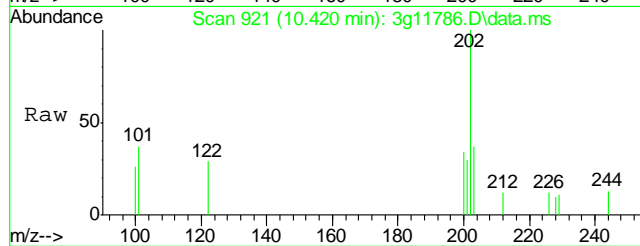
#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.623 min Scan# 1076
Delta R.T. -0.007 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

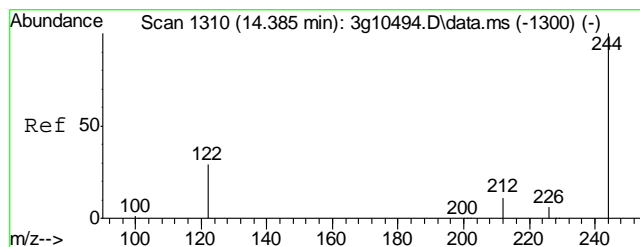
Tgt Ion	Ratio	Lower	Upper
240	100		
120	20.3	0.0	38.0
236	29.5	11.4	51.4



#20
Pyrene
Concen: Below ug/mL
RT: 10.420 min Scan# 921
Delta R.T. -0.008 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

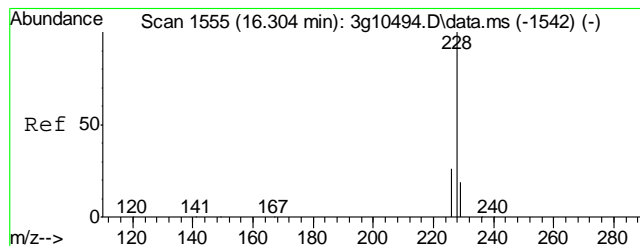
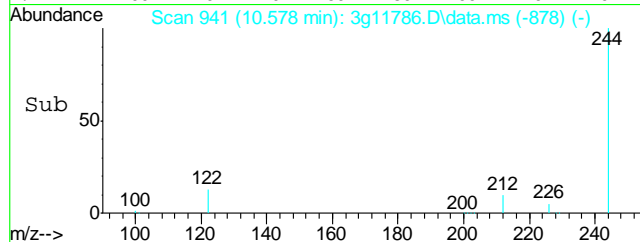
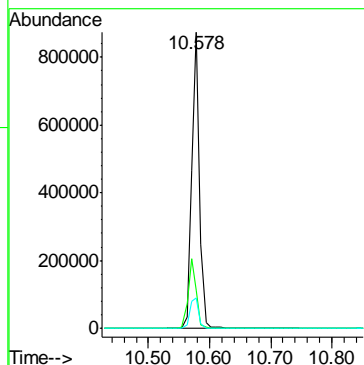
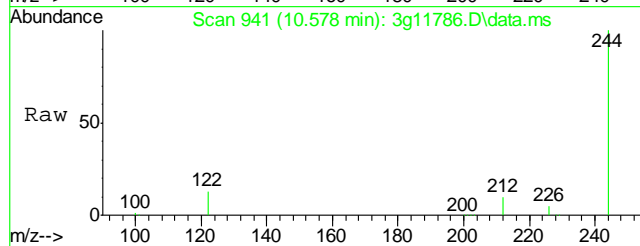
Tgt Ion	Ratio	Lower	Upper
202	100		
200	26.0	0.6	40.6
203	24.9	0.0	37.7
201	18.5	0.0	36.8





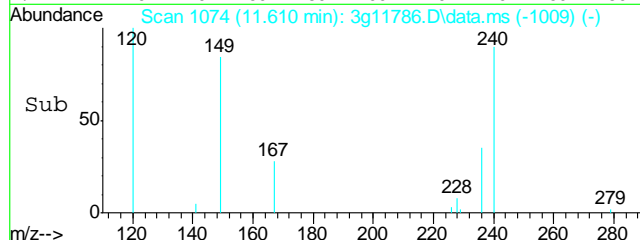
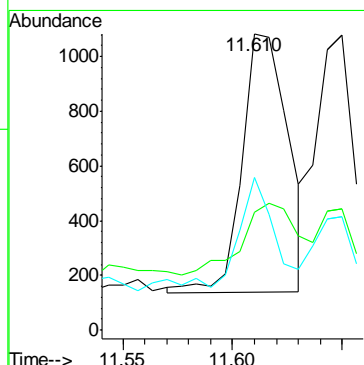
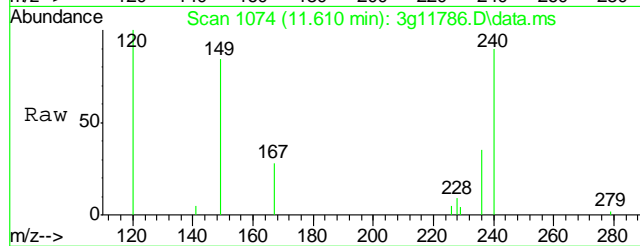
#21
Terphenyl-d14
Concen: 45.3557 ug/mL
RT: 10.578 min Scan# 941
Delta R.T. 0.000 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

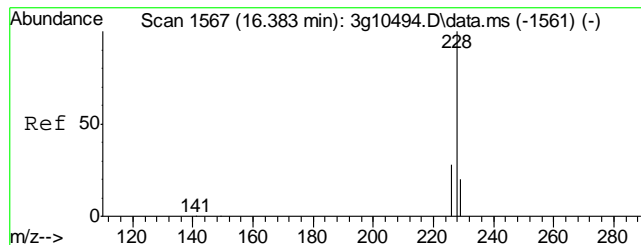
Tgt Ion	Ratio	Lower	Upper
244	100		
122	24.6	4.2	44.2
212	11.9	0.0	32.4



#22
Benzo(a)anthracene
Concen: Below ug/mL
RT: 11.610 min Scan# 1074
Delta R.T. -0.006 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

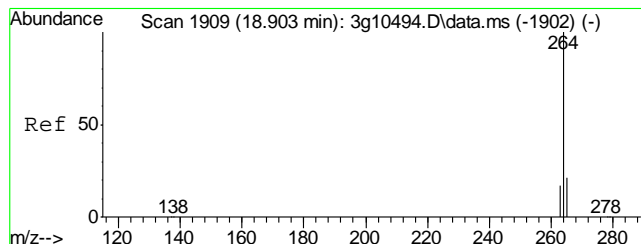
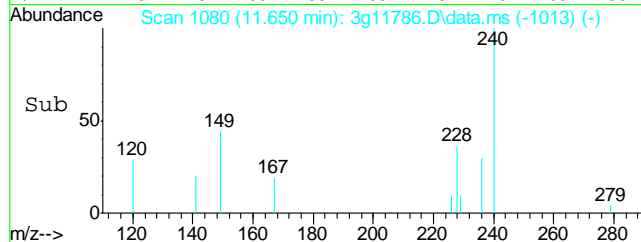
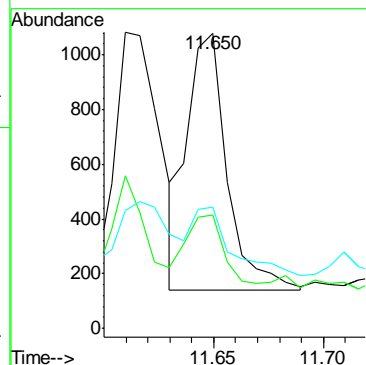
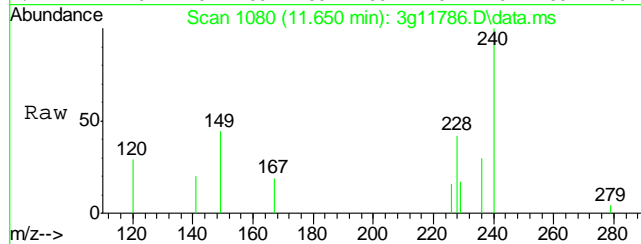
Tgt Ion	Ratio	Lower	Upper
228	100		
229	38.5	0.0	39.5
226	31.7	6.7	46.7





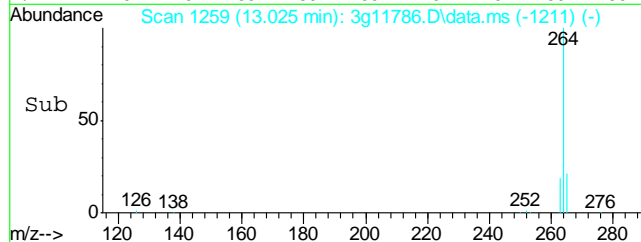
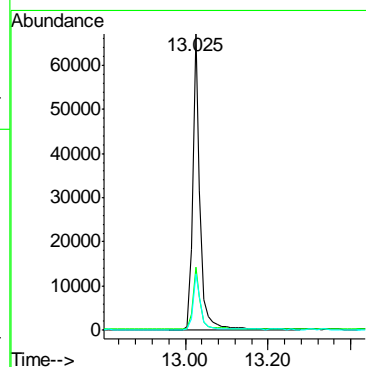
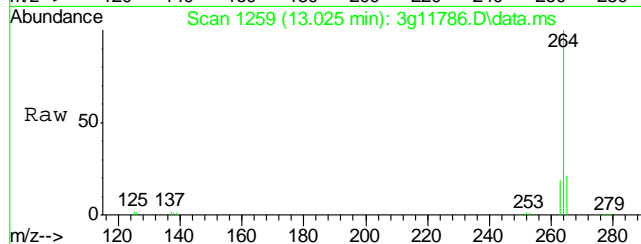
#23
Chrysene
Concen: Below ug/mL
RT: 11.650 min Scan# 1080
Delta R.T. 0.000 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

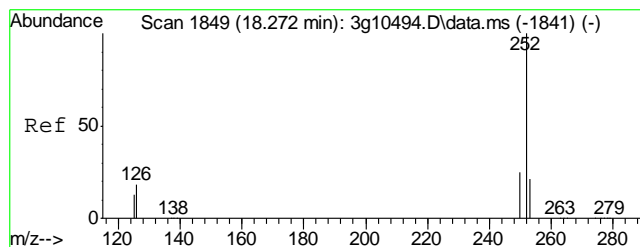
Tgt Ion: 228 Resp: 1185
Ion Ratio Lower Upper
228 100
226 25.0 9.0 49.0
229 26.9 0.0 39.4



#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 13.025 min Scan# 1259
Delta R.T. 0.000 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

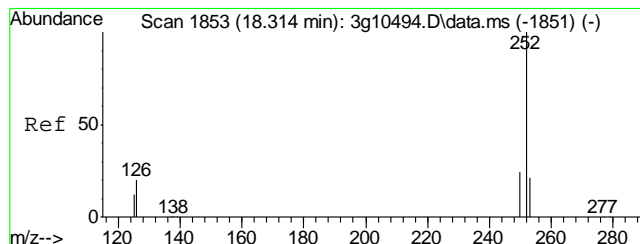
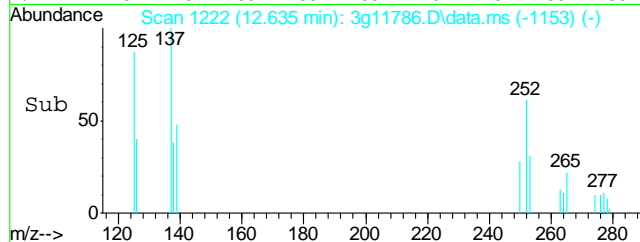
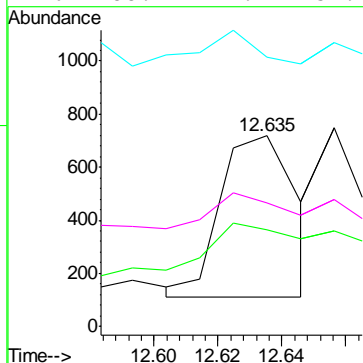
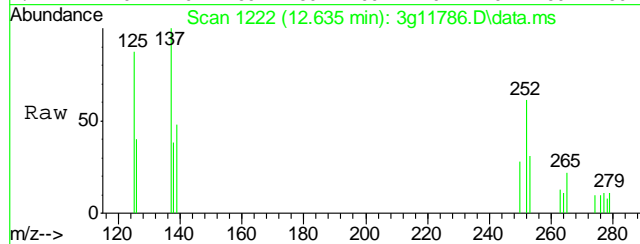
Tgt Ion: 264 Resp: 85144
Ion Ratio Lower Upper
264 100
265 21.7 0.8 40.8
263 19.6 0.2 40.2





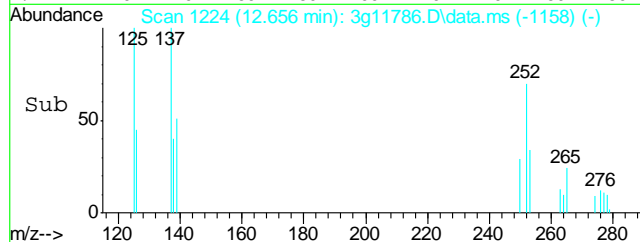
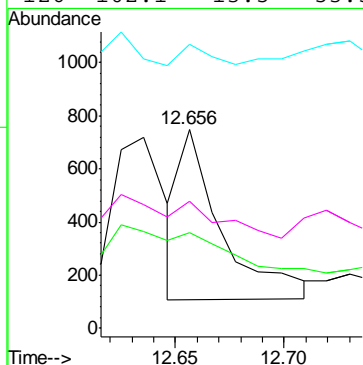
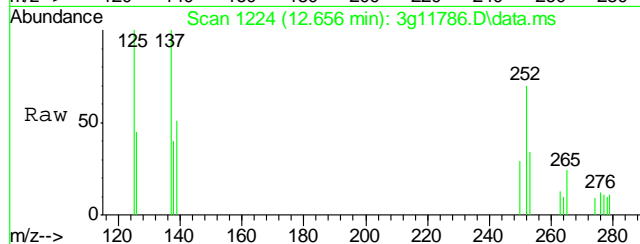
#25
Benzo(b)fluoranthene
Concen: Below ug/mL m
RT: 12.635 min Scan# 1222
Delta R.T. 0.000 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

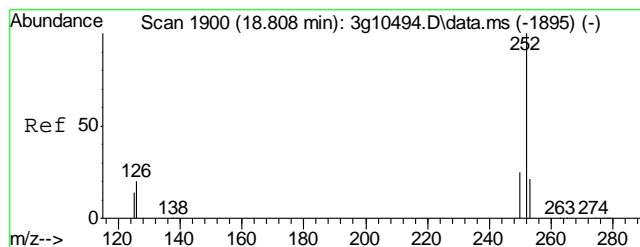
Tgt Ion:	252	Resp:	1011
Ion Ratio	Lower	Upper	
252	100		
253	114.3	1.3	41.3#
125	0.0	2.4	42.4#
126	88.1	12.4	52.4#



#26
Benzo(k)fluoranthene
Concen: 0.0605 ug/mL m
RT: 12.656 min Scan# 1224
Delta R.T. -0.010 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

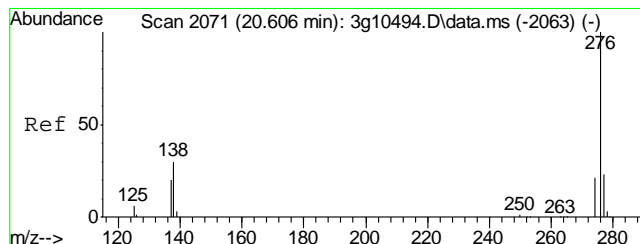
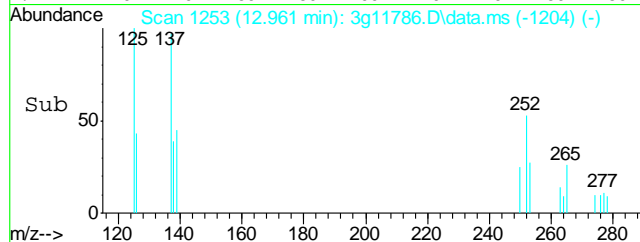
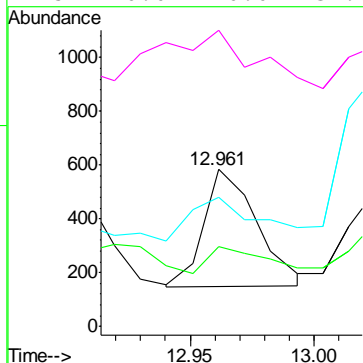
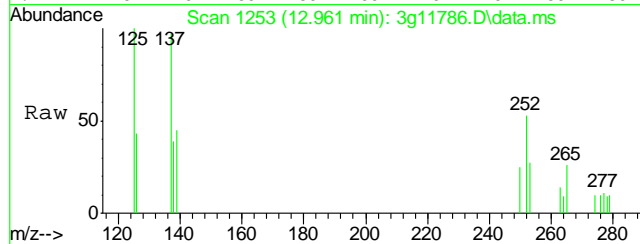
Tgt Ion:	252	Resp:	873
Ion Ratio	Lower	Upper	
252	100		
253	132.4	2.0	42.0#
125	0.0	3.1	43.1#
126	102.1	13.5	53.5#





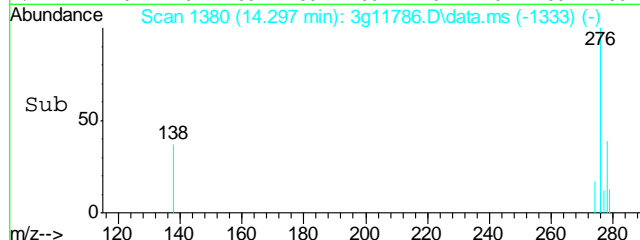
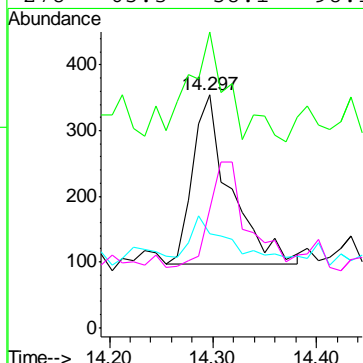
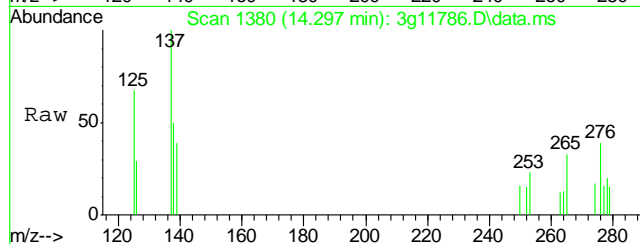
#27
Benzo(a)pyrene
Concen: Below ug/mL
RT: 12.961 min Scan# 1253
Delta R.T. -0.010 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

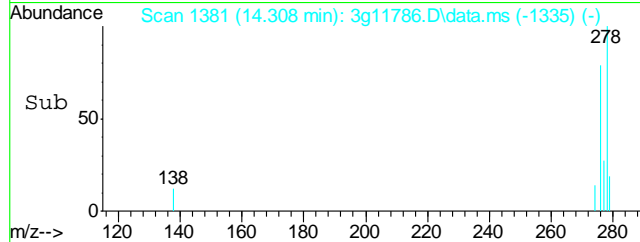
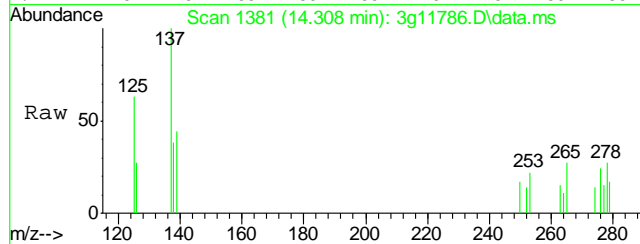
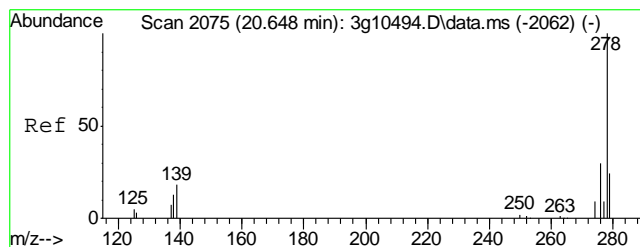
Tgt Ion:	252	Resp:	659
Ion Ratio	Lower	Upper	
252	100		
253	25.5	1.3	41.3
126	46.3	0.0	36.5#
125	0.0	0.0	32.0



#28
Indeno(1,2,3-cd)pyrene
Concen: Below ug/mL
RT: 14.297 min Scan# 1380
Delta R.T. -0.010 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

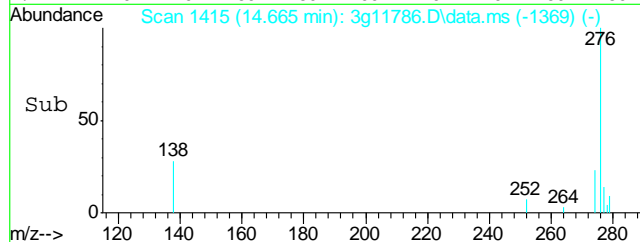
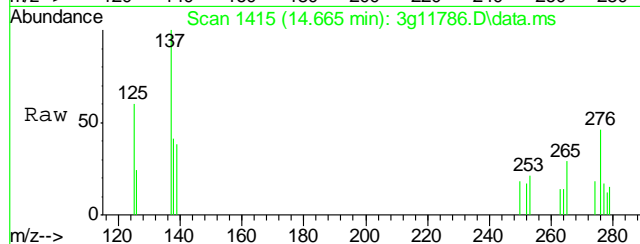
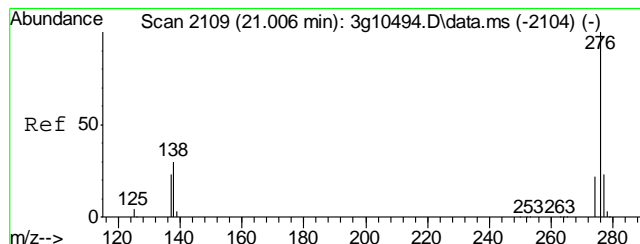
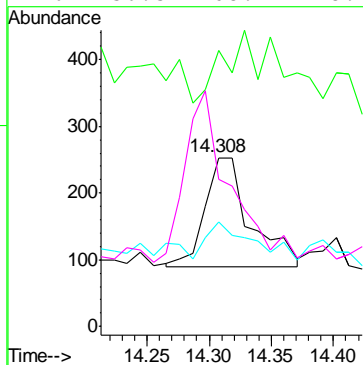
Tgt Ion:	276	Resp:	648
Ion Ratio	Lower	Upper	
276	100		
138	73.5	12.2	52.2#
277	20.2	4.9	44.9
278	65.3	58.1	98.1





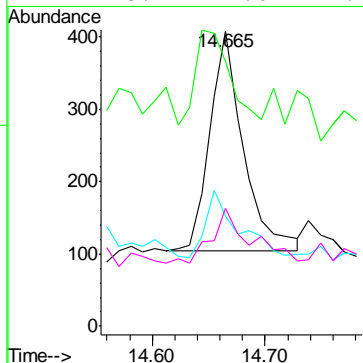
#29
Dibenz(a,h)anthracene
Concen: Below ug/mL
RT: 14.308 min Scan# 1381
Delta R.T. -0.020 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

Tgt Ion:	278	Resp:	414
Ion Ratio	Lower	Upper	
278	100		
139	78.5	4.7	44.7#
279	34.3	3.2	43.2
276	156.5	108.1	148.1#



#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.665 min Scan# 1415
Delta R.T. -0.021 min
Lab File: 3g11786.D
Acq: 24 Oct 12 6:30 pm

Tgt Ion:	276	Resp:	623
Ion Ratio	Lower	Upper	
276	100		
138	44.8	7.7	47.7
277	29.5	3.4	43.4
274	28.1	2.0	42.0



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\102412\
 Data File : 3g11777.D
 Acq On : 24 Oct 2012 2:54 pm
 Operator : DONC
 Sample : OP6857-MB
 Misc : OP6857,E3G555,30.00,,,1,1
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 24 15:52:15 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G553.M
 Quant Title : PAHSIM BASE
 QLast Update : Mon Oct 22 14:22:49 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.789	136	191564	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.507	164	106058	4.0000	ug/mL	0.00
15) Phenanthrene-d10	8.987	188	187553	4.0000	ug/mL	0.00
19) Chrysene-d12	11.623	240	127266	4.0000	ug/mL	0.00
24) Perylene-d12	13.024	264	83899	4.0000	ug/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	5.103	82	1011161	47.9735	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	95.94%		
7) 2-Fluorobiphenyl	6.834	172	1794762	40.3502	ug/mL	-0.01
Spiked Amount 50.000	Range 25 - 135		Recovery =	80.70%		
21) Terphenyl-d14	10.578	244	893283	50.5647	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	101.12%		

Target Compounds

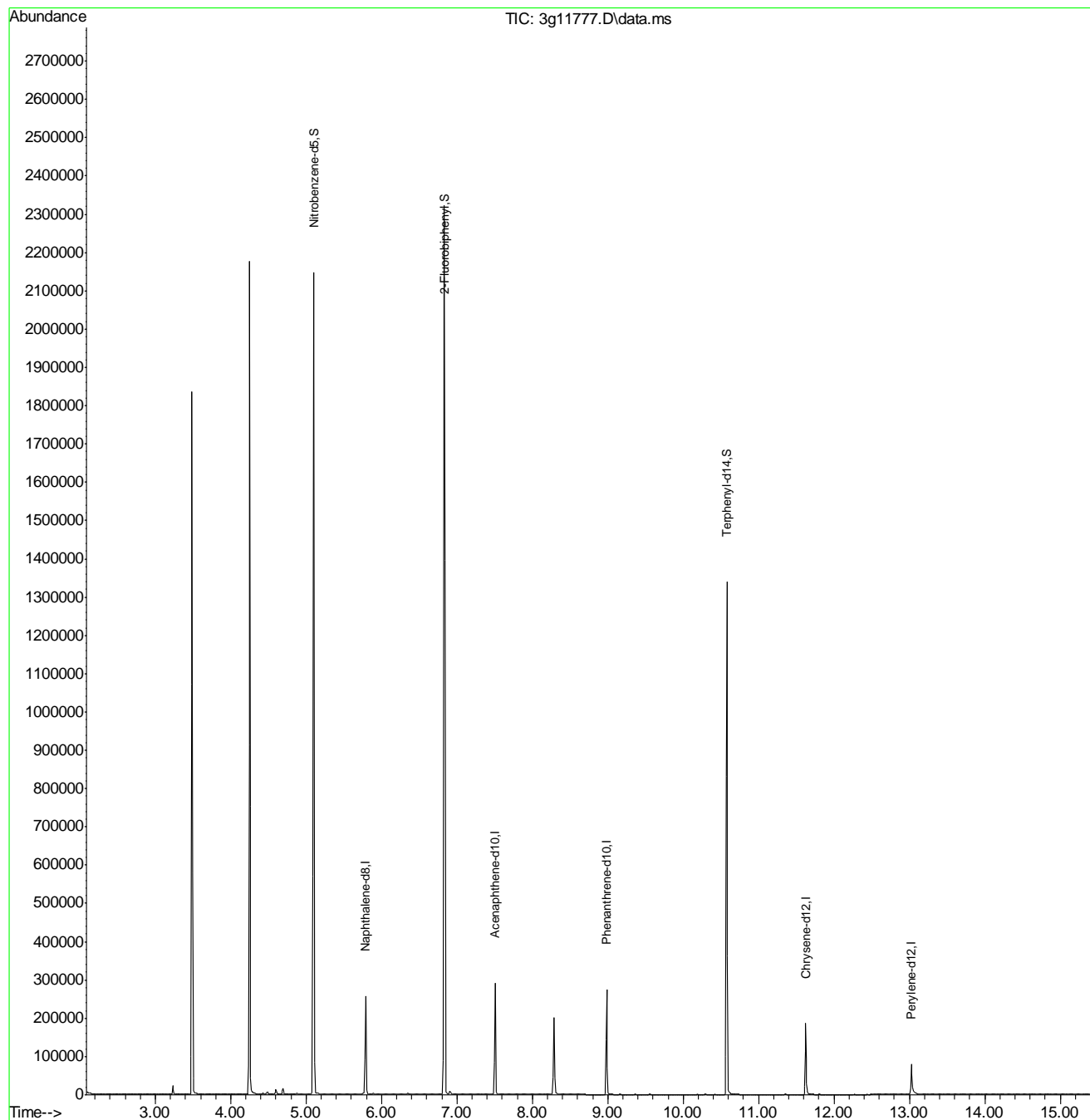
					Qvalue
3) N-Nitrosodimethylamine	2.450	74	19	N.D.	
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d
5) Naphthalene	5.801	128	600	N.D.	
8) 2-Methylnaphthalene	6.474	142	515	N.D.	
9) 1-Methylnaphthalene	6.574	142	249	N.D.	
10) Acenaphthylene	7.366	152	67	N.D.	
11) Acenaphthene	7.188	154	95	N.D.	
12) Dibenzofuran	7.708	168	167	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	564	N.D.	
17) Anthracene	9.059	178	184	N.D.	
18) Fluoranthene	10.420	202	287	N.D.	
20) Pyrene	10.420	202	287	N.D.	
22) Benzo(a)anthracene	11.616	228	720	N.D.	
23) Chrysene	11.616	228	720	N.D.	
25) Benzo(b)fluoranthene	12.635	252	407	N.D.	
26) Benzo(k)fluoranthene	0.000	252	0	N.D.	d
27) Benzo(a)pyrene	12.961	252	127	N.D.	
28) Indeno(1,2,3-cd)pyrene	14.297	276	118	N.D.	
29) Dibenz(a,h)anthracene	14.318	278	88	N.D.	
30) Benzo(g,h,i)perylene	14.676	276	228	N.D.	

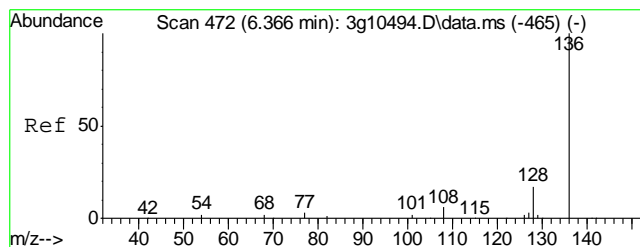
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\102412\
Data File : 3g11777.D
Acq On : 24 Oct 2012 2:54 pm
Operator : DONC
Sample : OP6857-MB
Misc : OP6857,E3G555,30.00,,,1,1
ALS Vial : 4 Sample Multiplier: 1

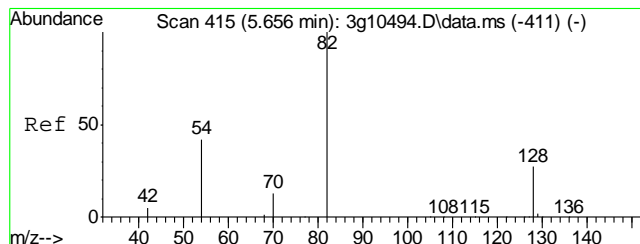
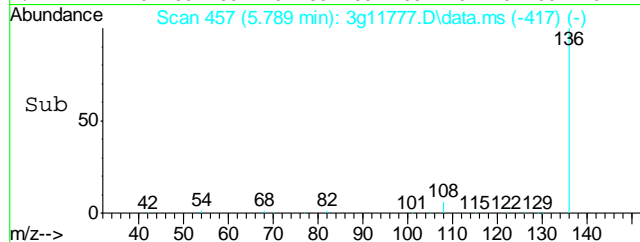
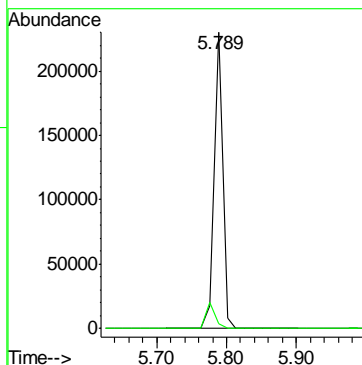
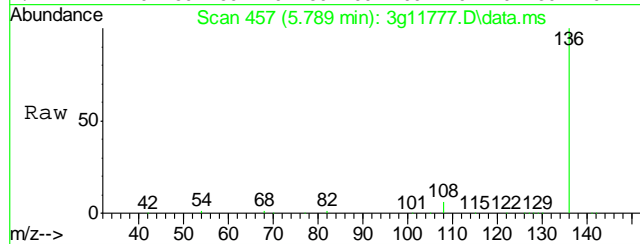
Quant Time: Oct 24 15:52:15 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G553.M
Quant Title : PAHSIM BASE
QLast Update : Mon Oct 22 14:22:49 2012
Response via : Initial Calibration





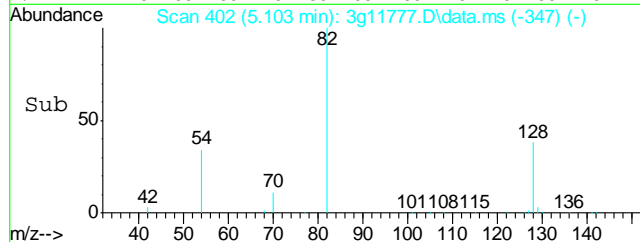
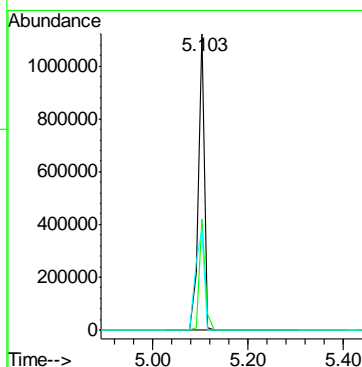
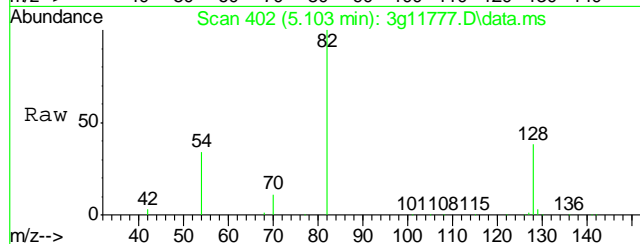
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.789 min Scan# 457
Delta R.T. 0.000 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

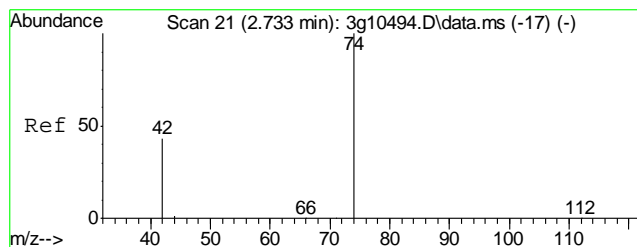
Tgt Ion:	136	Resp:	191564
Ion Ratio	Lower	Upper	
136	100		
68	9.5	0.0	29.7



#2
Nitrobenzene-d5
Concen: 47.9735 ug/mL
RT: 5.103 min Scan# 402
Delta R.T. 0.001 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

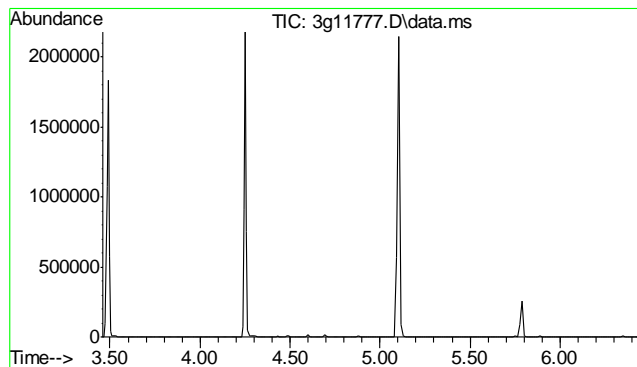
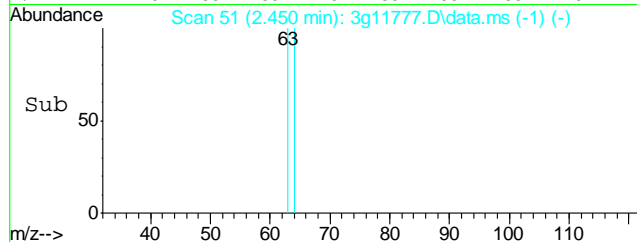
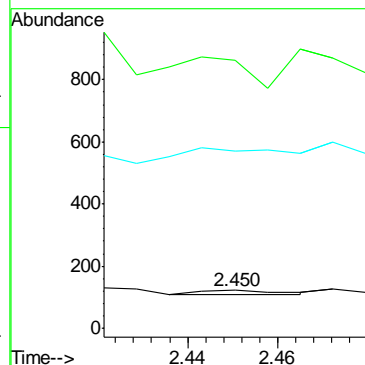
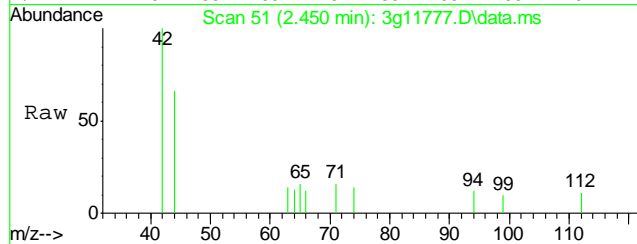
Tgt Ion:	82	Resp:	1011161
Ion Ratio	Lower	Upper	
82	100		
128	36.1	17.4	57.4
54	47.8	28.5	68.5





#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.450 min Scan# 51
Delta R.T. -0.029 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

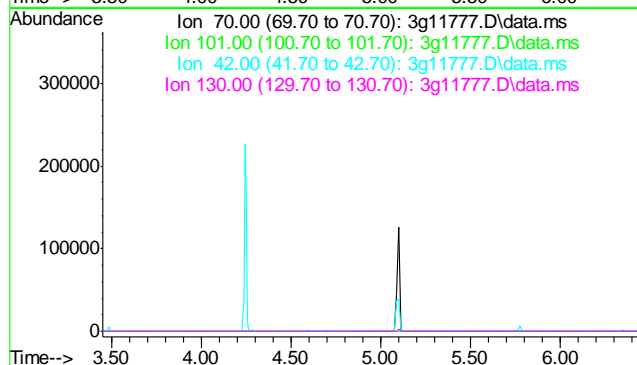
Tgt Ion: 74 Resp: 19
Ion Ratio Lower Upper
74 100
42 0.0 51.1 91.1#
44 763.2 0.0 23.9#

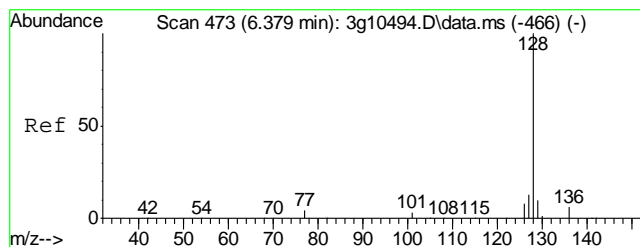


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 4.95 min

Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

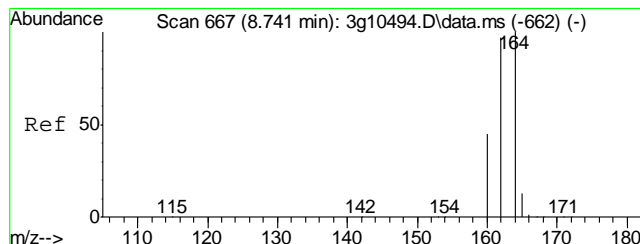
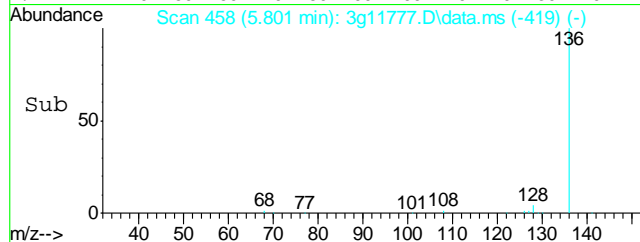
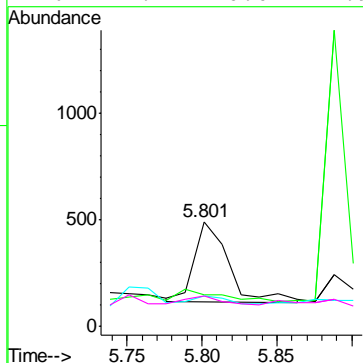
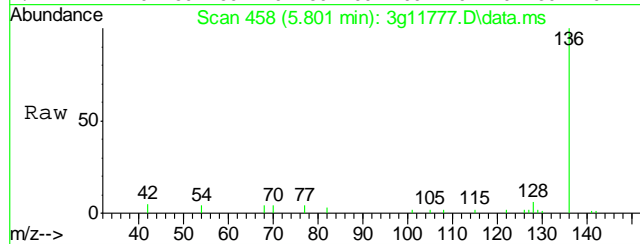
Tgt Ion: 70
Sig Exp Ratio
70 100
101 9.5
42 58.9
130 21.7





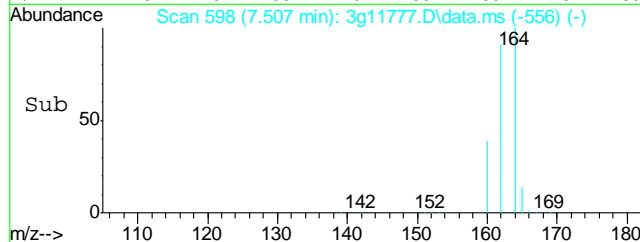
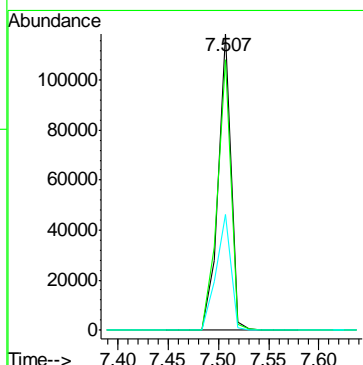
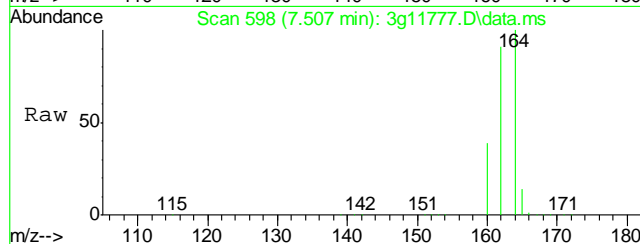
#5
Naphthalene
Concen: Below ug/mL
RT: 5.801 min Scan# 458
Delta R.T. -0.012 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

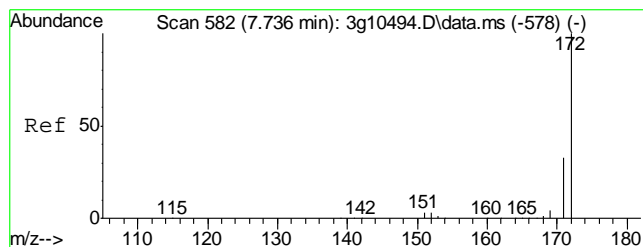
Tgt Ion:	128	Resp:	600
Ion Ratio	Lower	Upper	
128	100		
129	30.7	0.0	30.9
127	11.8	0.0	33.3
126	21.7	0.0	27.9



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.507 min Scan# 598
Delta R.T. -0.000 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

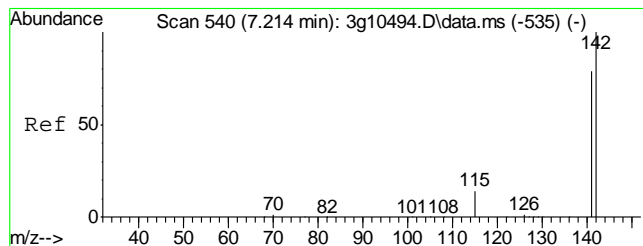
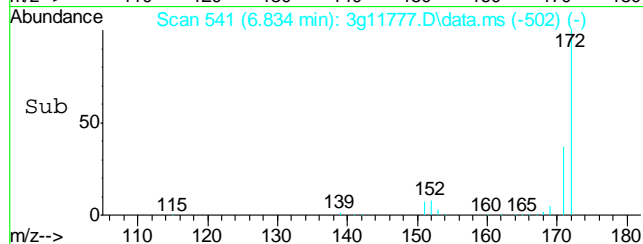
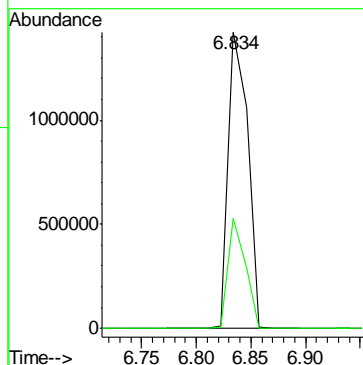
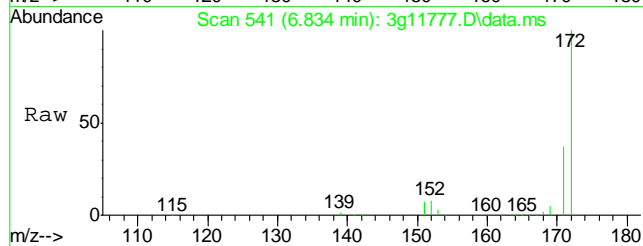
Tgt Ion:	164	Resp:	106058
Ion Ratio	Lower	Upper	
164	100		
162	96.4	75.5	115.5
160	44.5	24.4	64.4





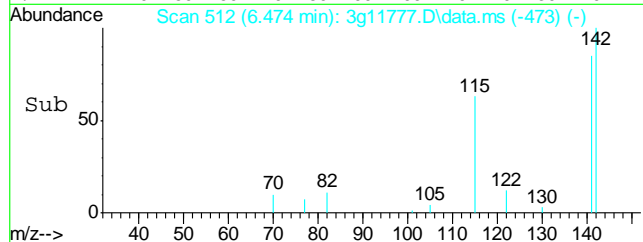
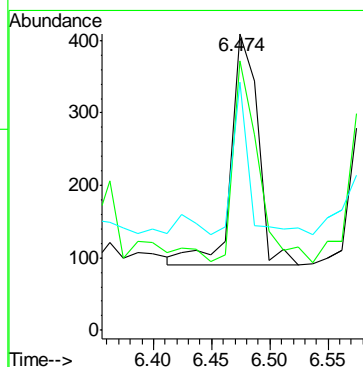
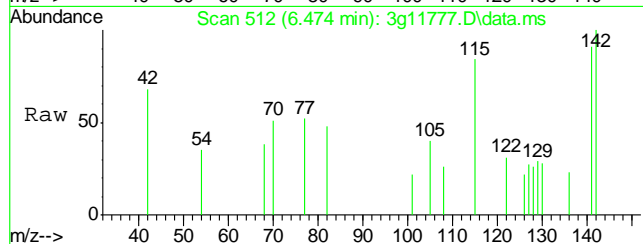
#7
2-Fluorobiphenyl
Concen: 40.3502 ug/mL
RT: 6.834 min Scan# 541
Delta R.T. -0.012 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

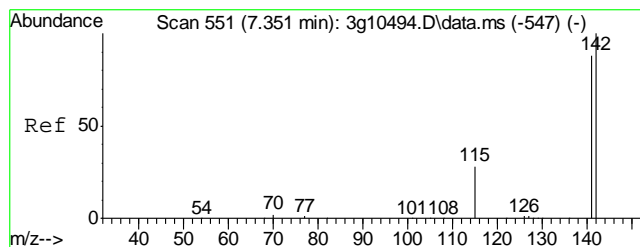
Tgt Ion:172 Resp: 1794762
Ion Ratio Lower Upper
172 100
171 33.1 13.4 53.4



#8
2-Methylnaphthalene
Concen: Below ug/mL
RT: 6.474 min Scan# 512
Delta R.T. -0.012 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

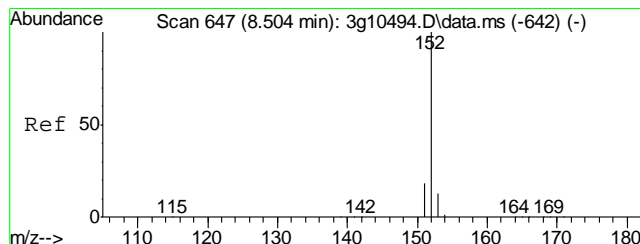
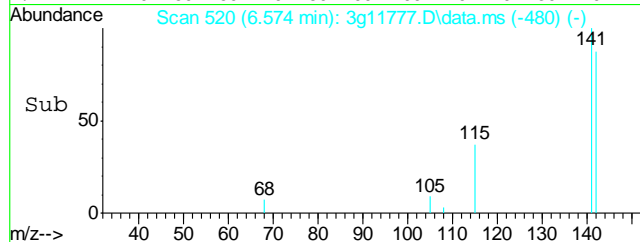
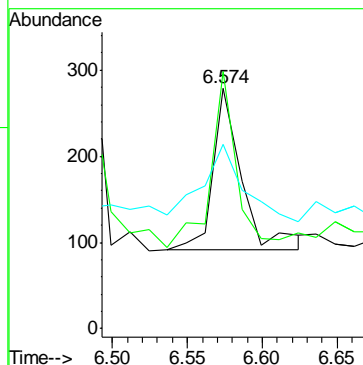
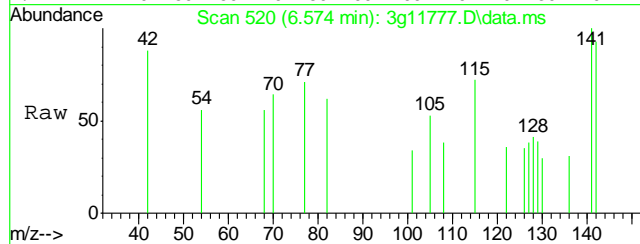
Tgt Ion:142 Resp: 515
Ion Ratio Lower Upper
142 100
141 79.0 63.5 103.5
115 0.0 20.6 60.6#





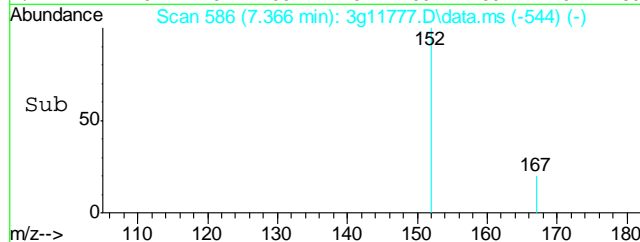
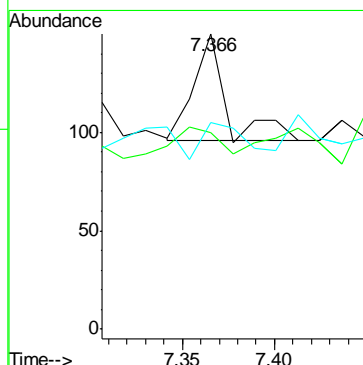
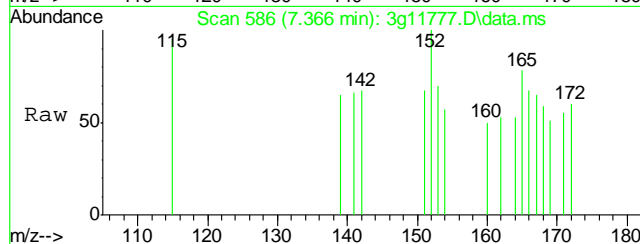
#9
1-Methylnaphthalene
Concen: Below ug/mL
RT: 6.574 min Scan# 520
Delta R.T. 0.000 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

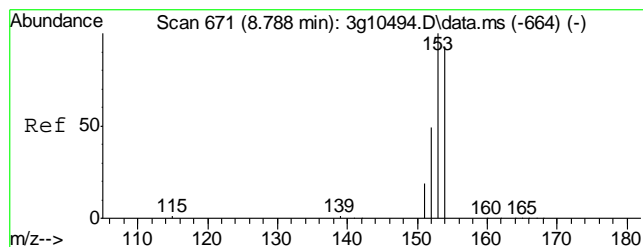
Tgt Ion:142 Resp: 249
Ion Ratio Lower Upper
142 100
141 98.0 68.7 108.7
115 0.0 21.1 61.1#



#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.366 min Scan# 586
Delta R.T. 0.000 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

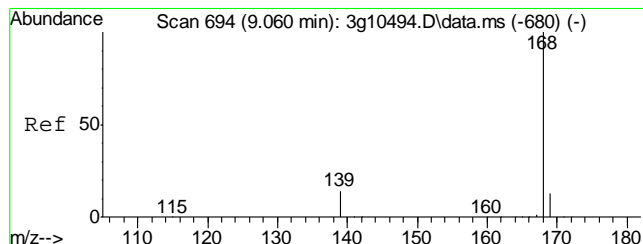
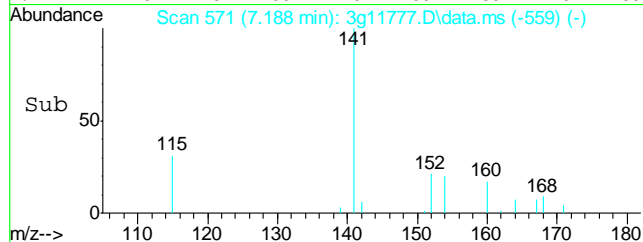
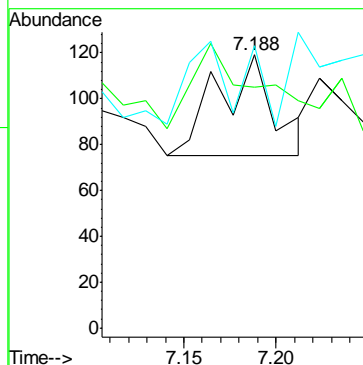
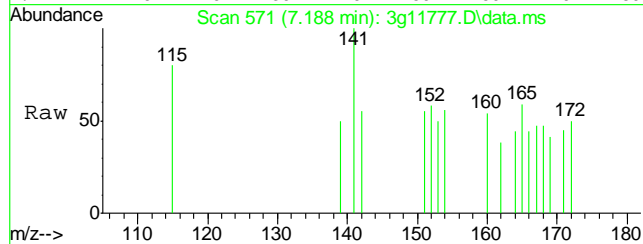
Tgt Ion:152 Resp: 67
Ion Ratio Lower Upper
152 100
151 41.8 0.0 39.2#
153 49.3 0.0 33.0#





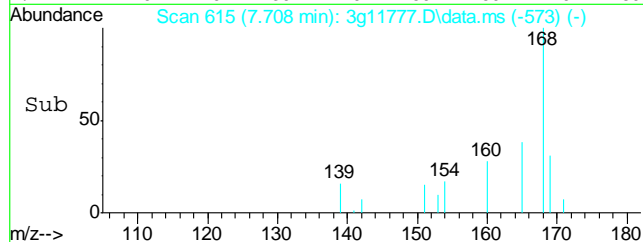
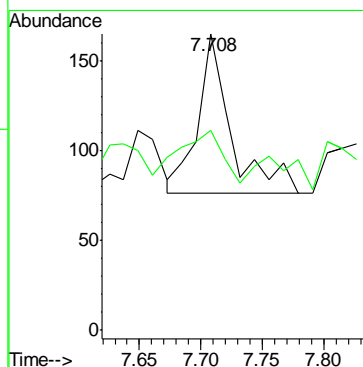
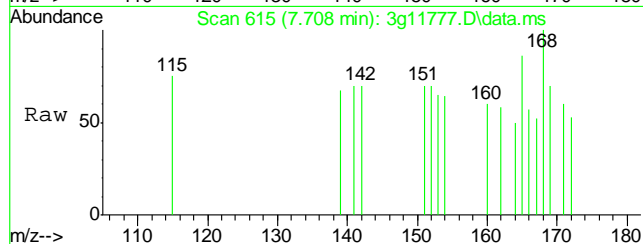
#11
Acenaphthene
Concen: Below ug/mL
RT: 7.188 min Scan# 571
Delta R.T. -0.354 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

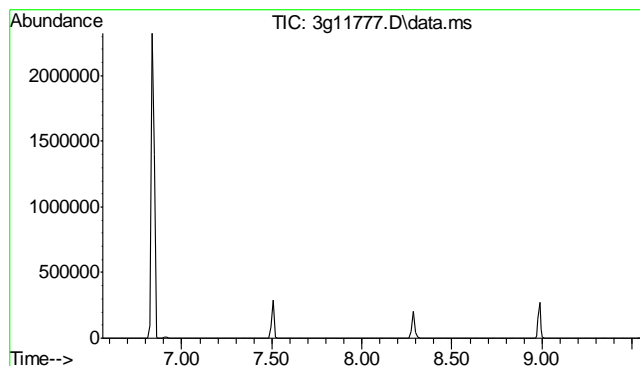
Tgt Ion:	154	Resp:	95
Ion Ratio	Lower	Upper	
154	100		
153	98.9	86.3	126.3
152	50.5	31.9	71.9



#12
Dibenzofuran
Concen: Below ug/mL
RT: 7.708 min Scan# 615
Delta R.T. 0.000 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

Tgt Ion:	168	Resp:	167
Ion Ratio	Lower	Upper	
168	100		
139	41.9	10.8	50.8

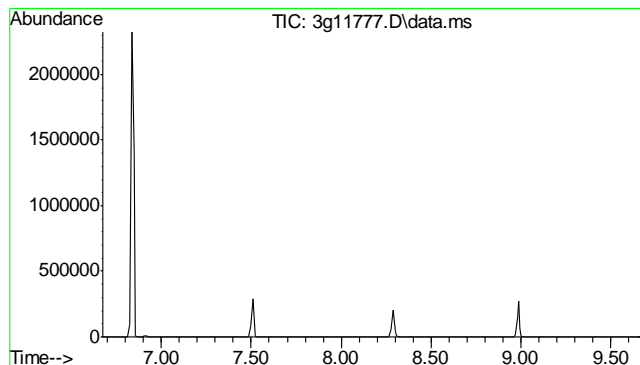
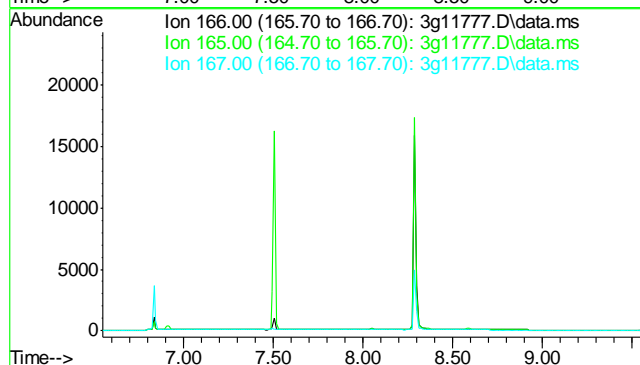




#13
Fluorene
Concen: N.D. ug/mL
Expected RT: 8.05 min

Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

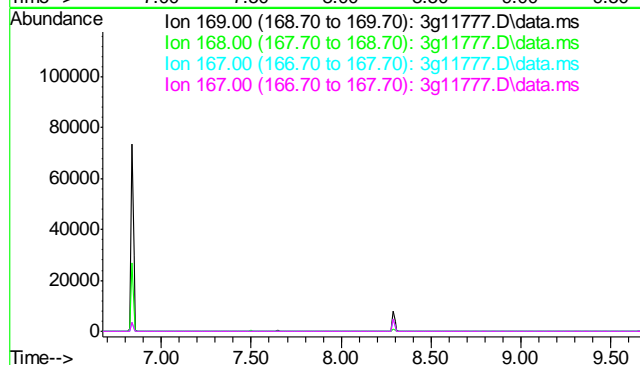
Tgt Ion:	166
Sig	Exp Ratio
166	100
165	90.7
167	13.3

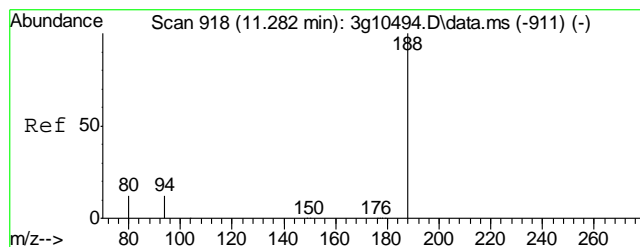


#14
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 8.17 min

Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

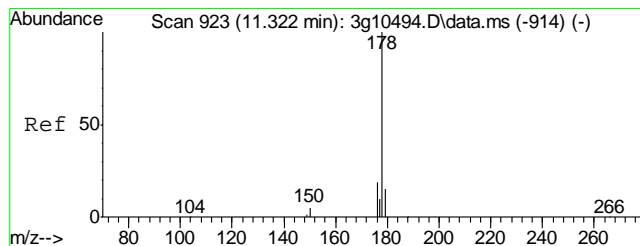
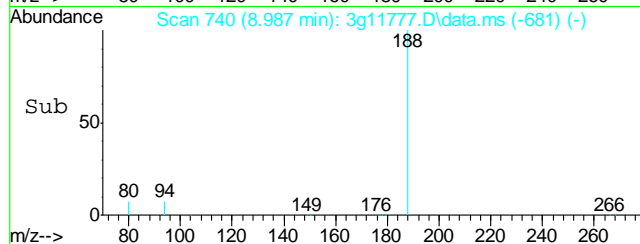
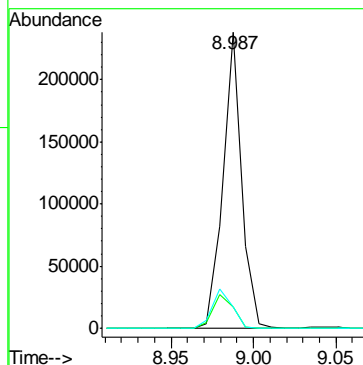
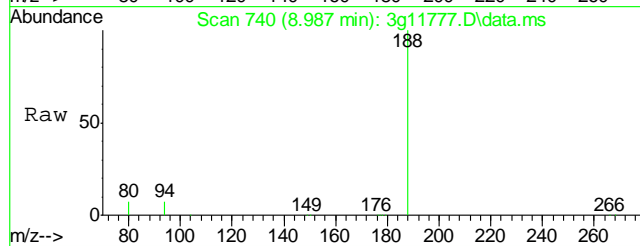
Tgt Ion:	169
Sig	Exp Ratio
169	100
168	60.5
167	32.9
167	32.9





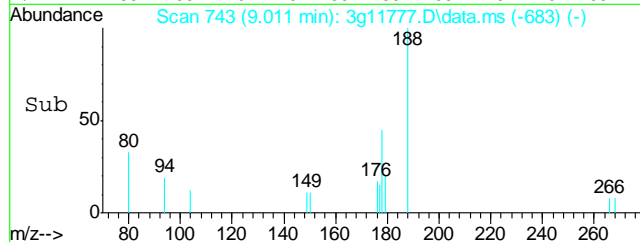
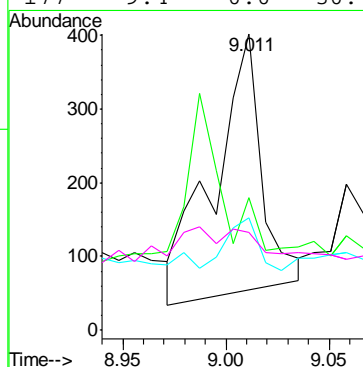
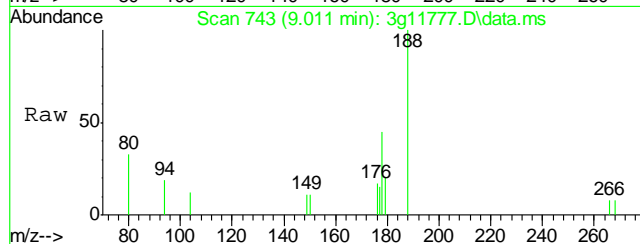
#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.987 min Scan# 740
Delta R.T. 0.000 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

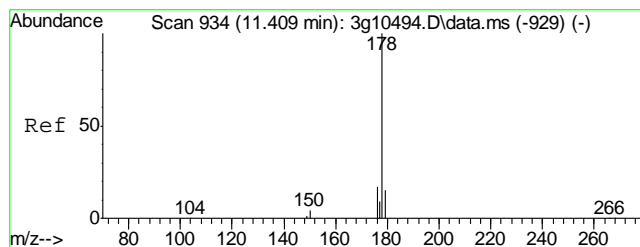
Tgt Ion	188	94	80
Ratio	100	12.7	14.1
Lower		0.0	0.0
Upper		33.6	35.0



#16
Phenanthrene
Concen: Below ug/mL
RT: 9.011 min Scan# 743
Delta R.T. -0.000 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

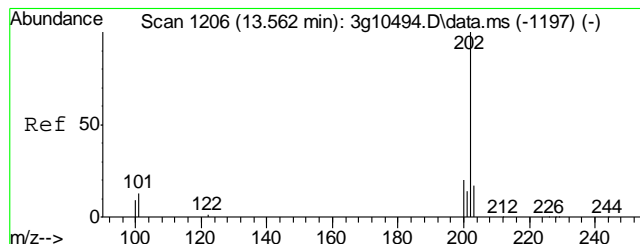
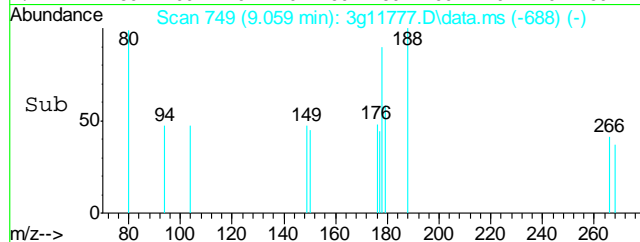
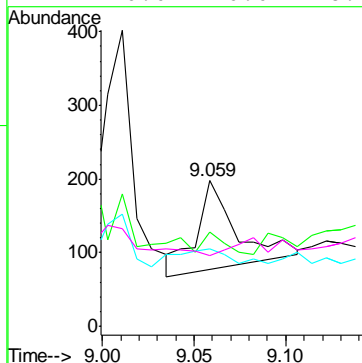
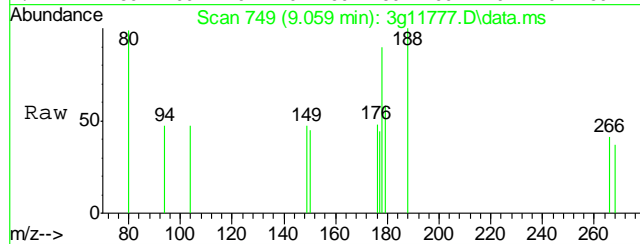
Tgt Ion	178	179	176	177
Ratio	100	158.0	19.0	9.4
Lower		0.0	0.0	0.0
Upper		35.2#	38.9	30.4





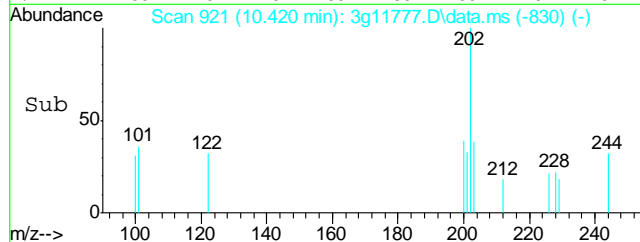
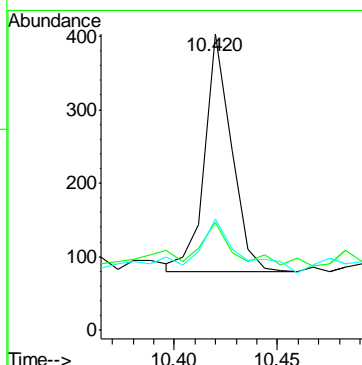
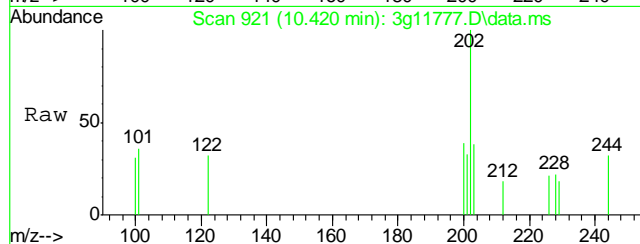
#17
Anthracene
Concen: Below ug/mL
RT: 9.059 min Scan# 749
Delta R.T. -0.008 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

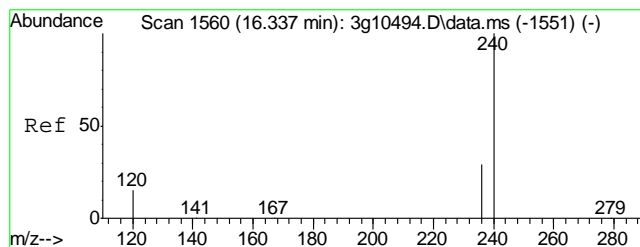
Tgt Ion	178	Ratio	100	Resp	184
178	100				
179	0.0		0.0		35.2
176	0.0		0.0		38.0
177	0.0		0.0		28.8



#18
Fluoranthene
Concen: Below ug/mL
RT: 10.420 min Scan# 921
Delta R.T. 0.222 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

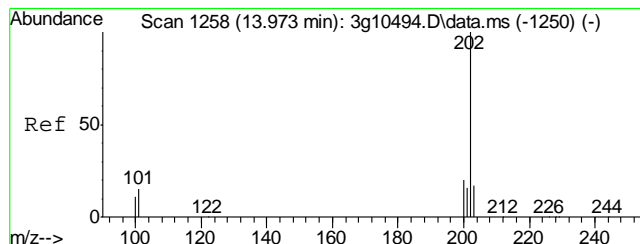
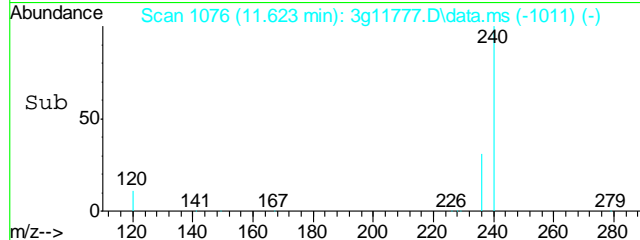
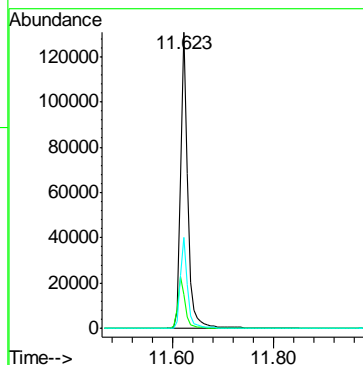
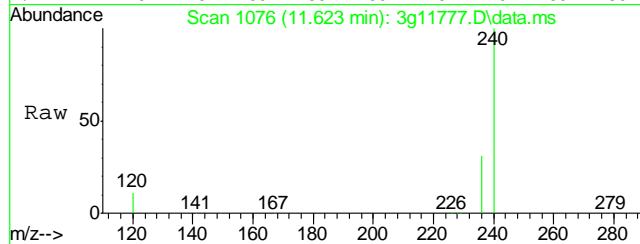
Tgt Ion	202	Ratio	100	Resp	287
202	100				
101	22.6		0.0		32.6
203	30.7		0.0		37.3





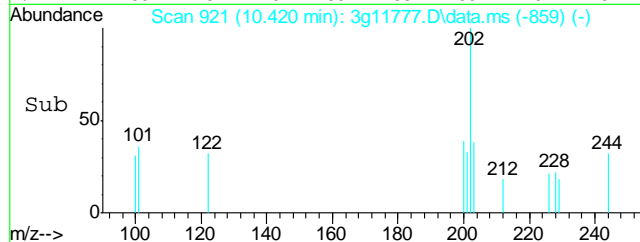
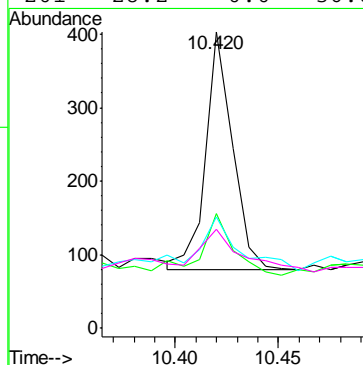
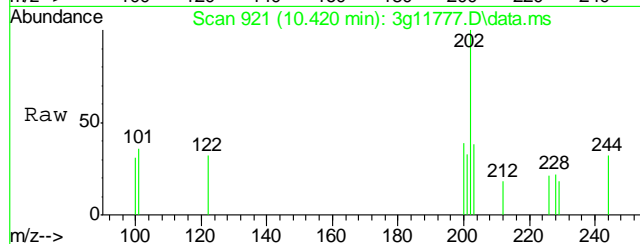
#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.623 min Scan# 1076
Delta R.T. -0.007 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

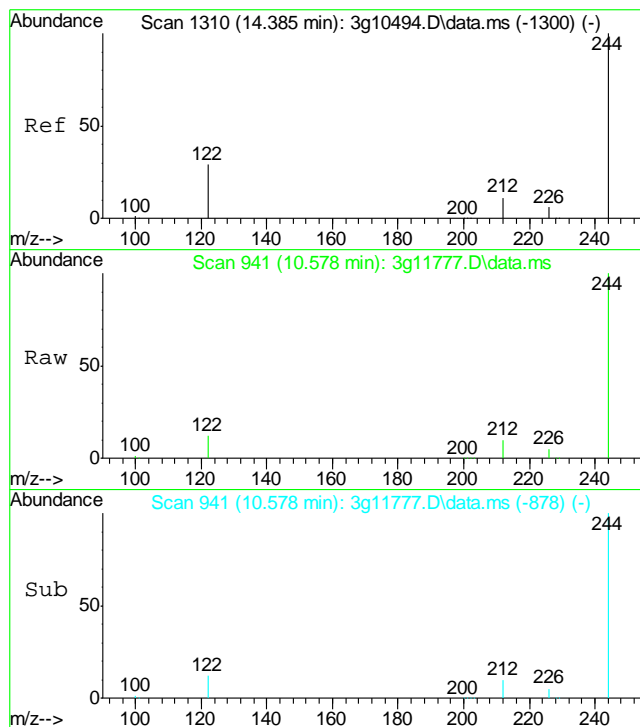
Tgt Ion	Ratio	Lower	Upper
240	100		
120	17.4	0.0	38.0
236	30.8	11.4	51.4



#20
Pyrene
Concen: Below ug/mL
RT: 10.420 min Scan# 921
Delta R.T. -0.008 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

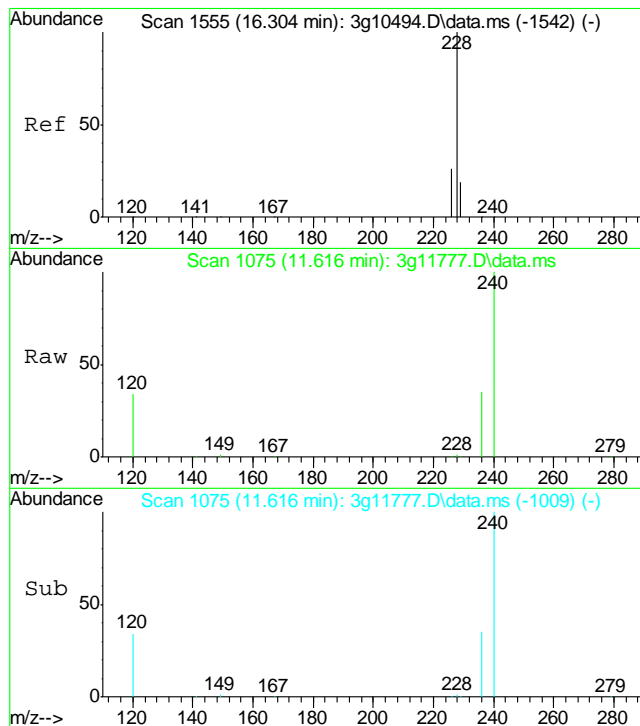
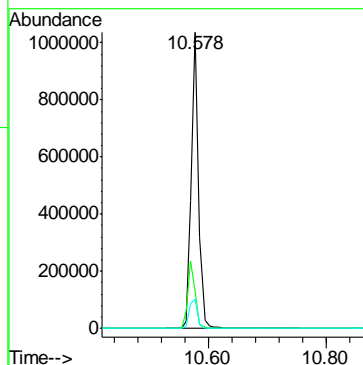
Tgt Ion	Ratio	Lower	Upper
202	100		
200	26.8	0.6	40.6
203	30.7	0.0	37.7
201	28.2	0.0	36.8





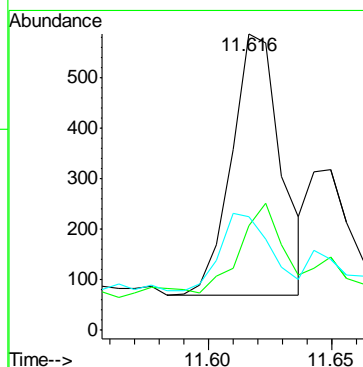
#21
Terphenyl-d14
Concen: 50.5647 ug/mL
RT: 10.578 min Scan# 941
Delta R.T. 0.000 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

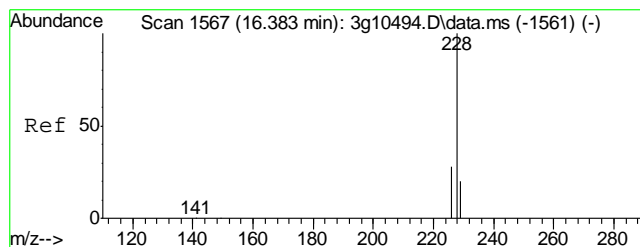
Tgt Ion	Ratio	Lower	Upper
244	100		
122	23.5	4.2	44.2
212	11.7	0.0	32.4



#22
Benzo(a)anthracene
Concen: Below ug/mL
RT: 11.616 min Scan# 1075
Delta R.T. 0.000 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

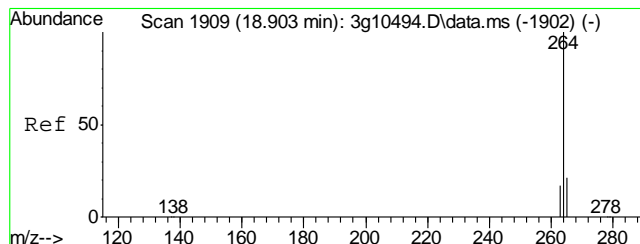
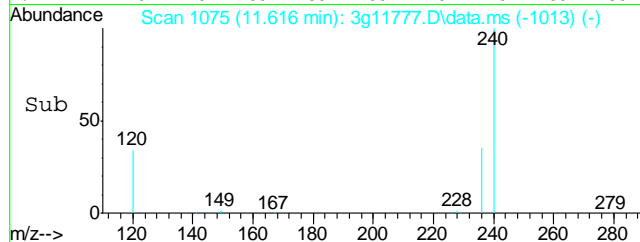
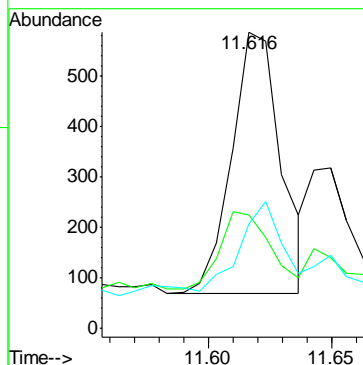
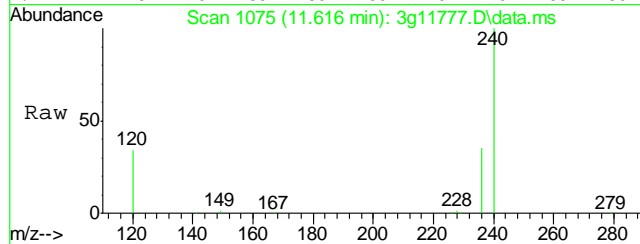
Tgt Ion	Ratio	Lower	Upper
228	100		
229	48.9	0.0	39.5#
226	30.3	6.7	46.7





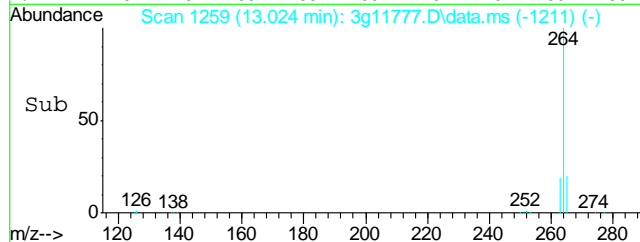
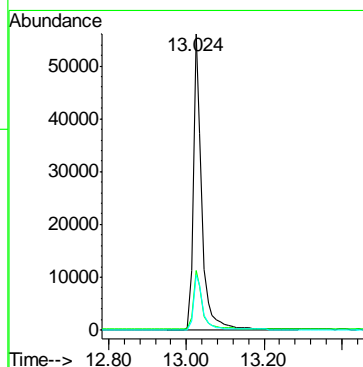
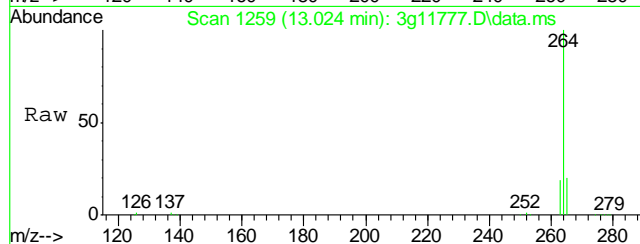
#23
Chrysene
Concen: Below ug/mL
RT: 11.616 min Scan# 1075
Delta R.T. -0.033 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

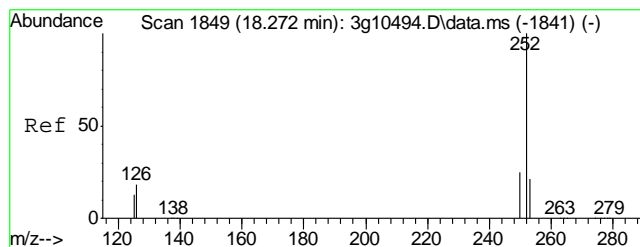
Tgt Ion: 228	Resp: 720
Ion Ratio	Lower Upper
228	100
226	30.3 9.0 49.0
229	48.9 0.0 39.4



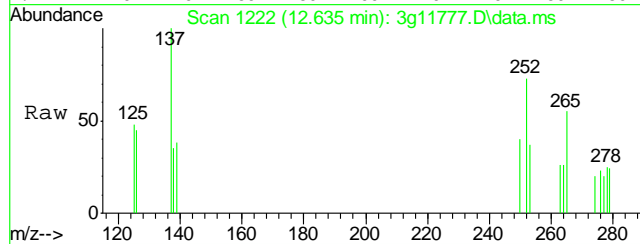
#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 13.024 min Scan# 1259
Delta R.T. 0.000 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

Tgt Ion: 264	Resp: 83899
Ion Ratio	Lower Upper
264	100
265	20.5 0.8 40.8
263	20.5 0.2 40.2



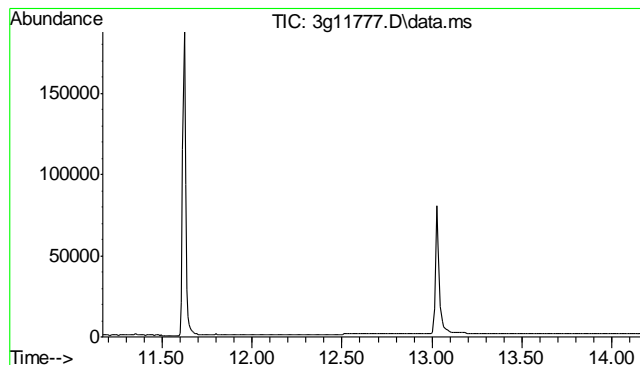
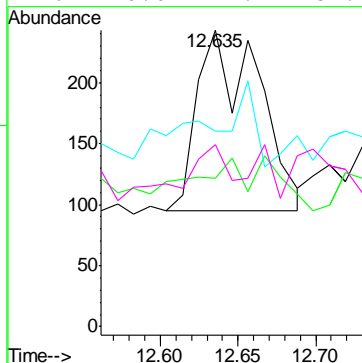
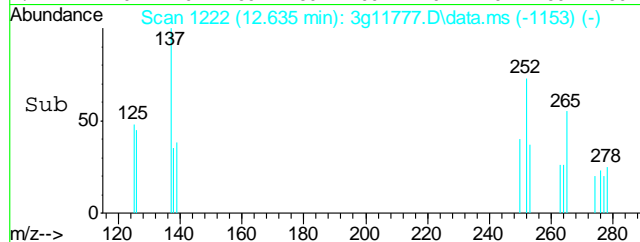


#25
Benzo(b)fluoranthene
Concen: Below ug/mL
RT: 12.635 min Scan# 1222
Delta R.T. 0.000 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm



Tgt Ion: 252 Resp: 407

Ion	Ratio	Lower	Upper
252	100		
253	12.8	1.3	41.3
125	0.0	2.4	42.4#
126	0.0	12.4	52.4#

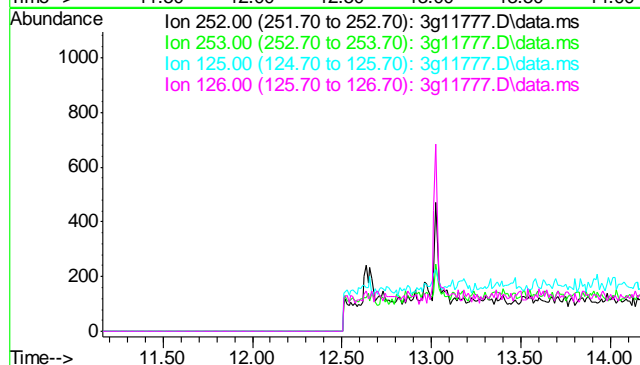


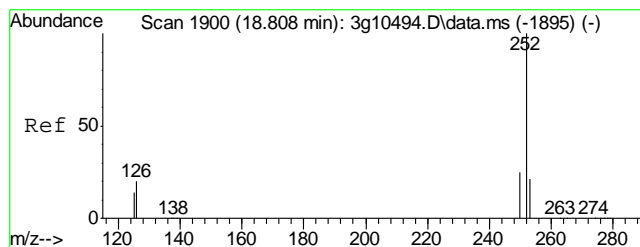
#26
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.67 min

Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

Tgt Ion: 252

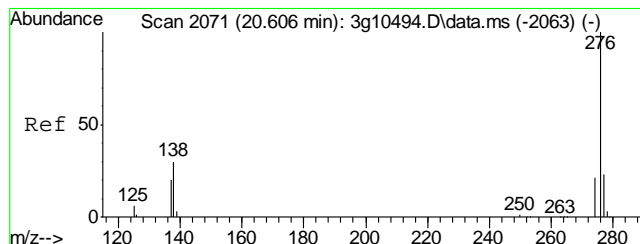
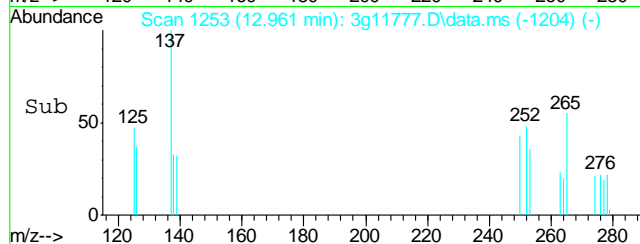
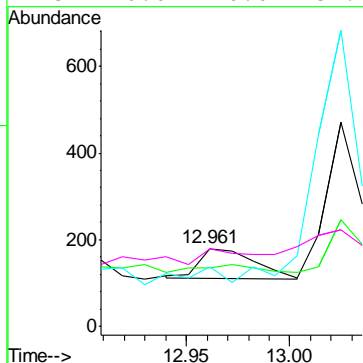
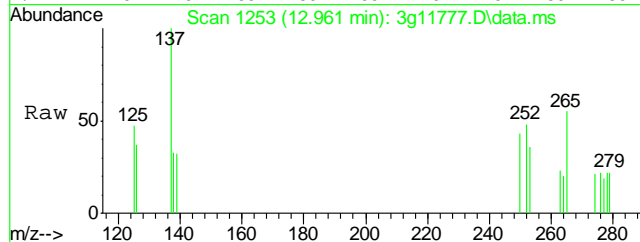
Sig	Exp	Ratio
252	100	
253	22.0	
125	23.1	
126	33.5	





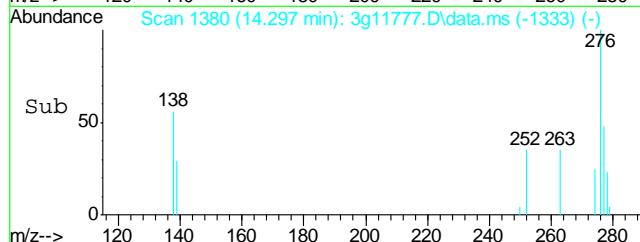
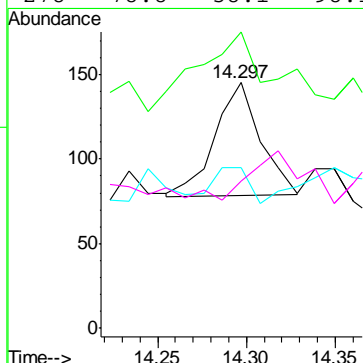
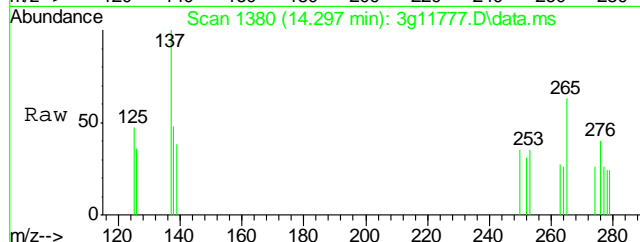
#27
Benzo(a)pyrene
Concen: Below ug/mL
RT: 12.961 min Scan# 1253
Delta R.T. -0.010 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

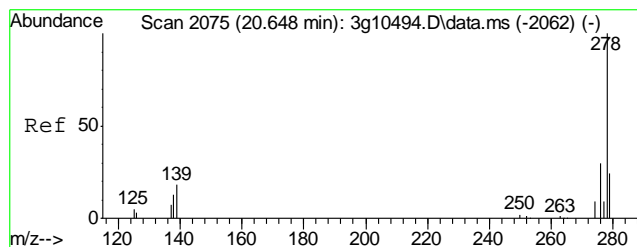
Tgt Ion	252	253	126	125
Resp:	127	0.0	0.0	0.0
Ratio	100	0.0	0.0	0.0
Lower		1.3	0.0	0.0
Upper		41.3#	36.5	32.0



#28
Indeno(1,2,3-cd)pyrene
Concen: Below ug/mL
RT: 14.297 min Scan# 1380
Delta R.T. -0.010 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

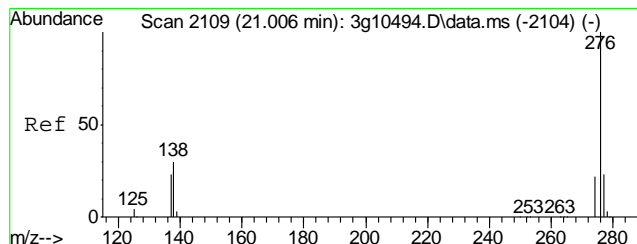
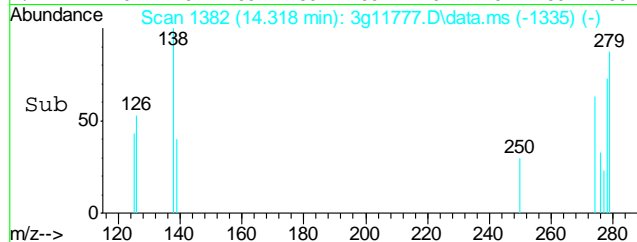
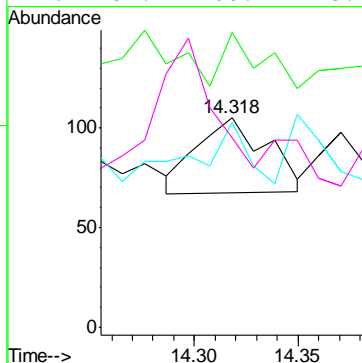
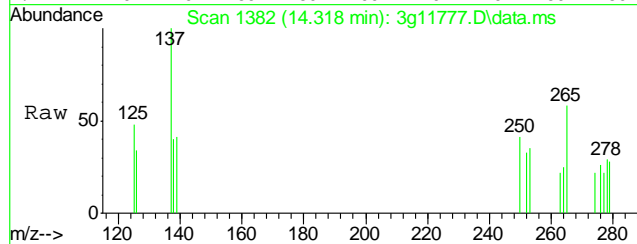
Tgt Ion	276	138	277	278
Resp:	118	119.5	25.4	78.8
Ratio	100	119.5	25.4	78.8
Lower		12.2	4.9	58.1
Upper		52.2#	44.9	98.1





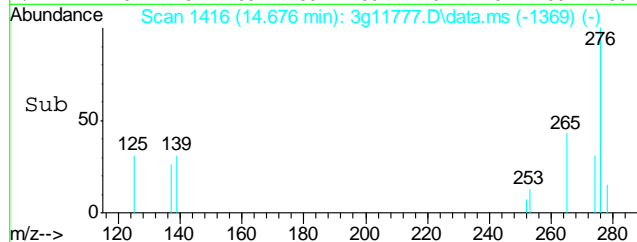
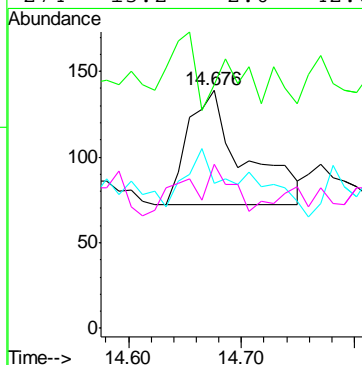
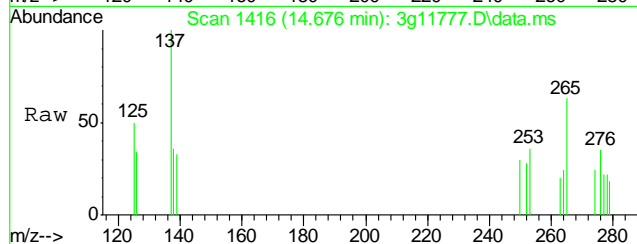
#29
Dibenzo(a,h)anthracene
Concen: Below ug/mL
RT: 14.318 min Scan# 1382
Delta R.T. -0.010 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

Tgt Ion: 278 Resp: 88
Ion Ratio Lower Upper
278 100
139 39.8 4.7 44.7
279 61.4 3.2 43.2#
276 134.1 108.1 148.1



#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.676 min Scan# 1416
Delta R.T. -0.010 min
Lab File: 3g11777.D
Acq: 24 Oct 12 2:54 pm

Tgt Ion: 276 Resp: 228
Ion Ratio Lower Upper
276 100
138 19.3 7.7 47.7
277 30.7 3.4 43.4
274 13.2 2.0 42.0



GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D40114
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB992-MB	GB18157.D	1	10/22/12	SK	n/a	n/a	GGB992

The QC reported here applies to the following samples:

Method: SW846 8015B

D40114-1

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	86% 60-140%

10.1.1
10

Blank Spike Summary

Job Number: D40114
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB992-BS	GB18158.D	1	10/22/12	SK	n/a	n/a	GGB992

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

D40114-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	121	110	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	109%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D40114
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D40111-1MS	GB18160.D	1	10/22/12	SK	n/a	n/a	GGB992
D40111-1MSD	GB18161.D	1	10/22/12	SK	n/a	n/a	GGB992
D40111-1	GB18159.D	1	10/22/12	SK	n/a	n/a	GGB992

The QC reported here applies to the following samples:

Method: SW846 8015B

D40114-1

CAS No.	Compound	D40111-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	22.1		150	186	109	186	109	0	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D40111-1	Limits
120-82-1	1,2,4-Trichlorobenzene	95%	96%	96%	60-140%

* = Outside of Control Limits.

GC Volatiles

Raw Data



Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\102212\GB18164.D\FID1A.CH Vial: 10
 Signal #2 : Y:\1\DATA\102212\GB18164.D\FID2B.CH
 Acq On : 22 Oct 2012 8:11 pm Operator: StephK
 Sample : D40114-1, 50X Inst : GC/MS Ins
 Misc : GC3187,GGB992,5.028,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Oct 23 08:33:29 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Mon Oct 22 16:14:28 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

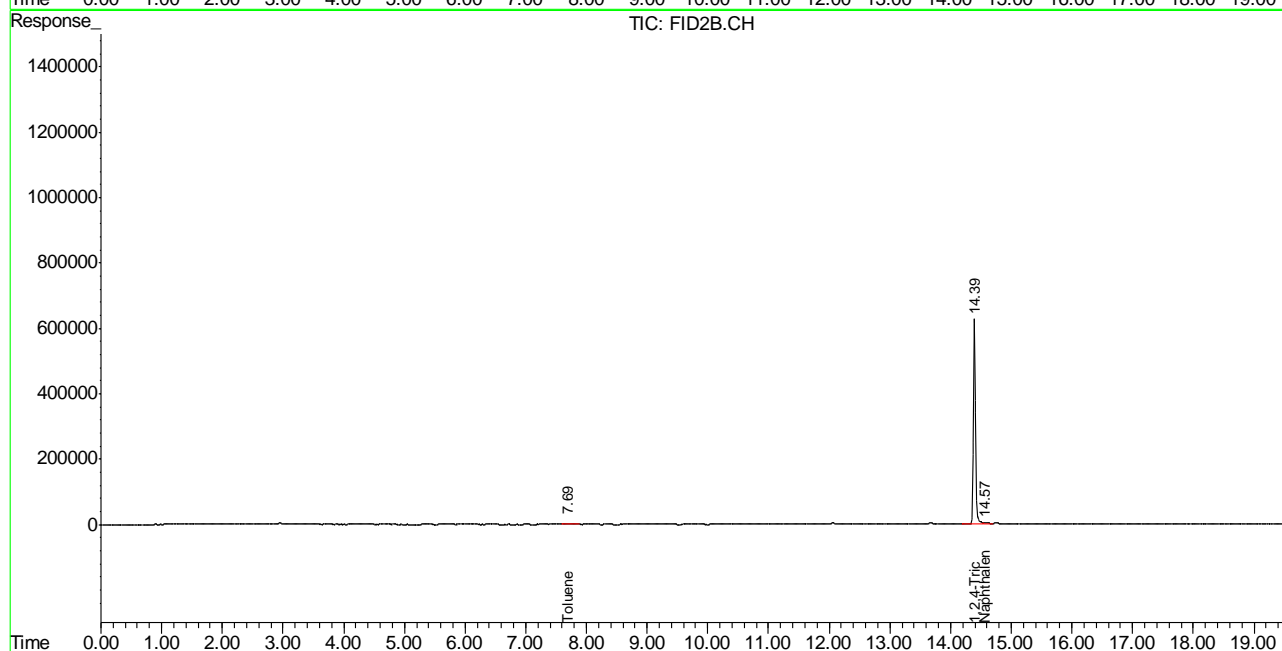
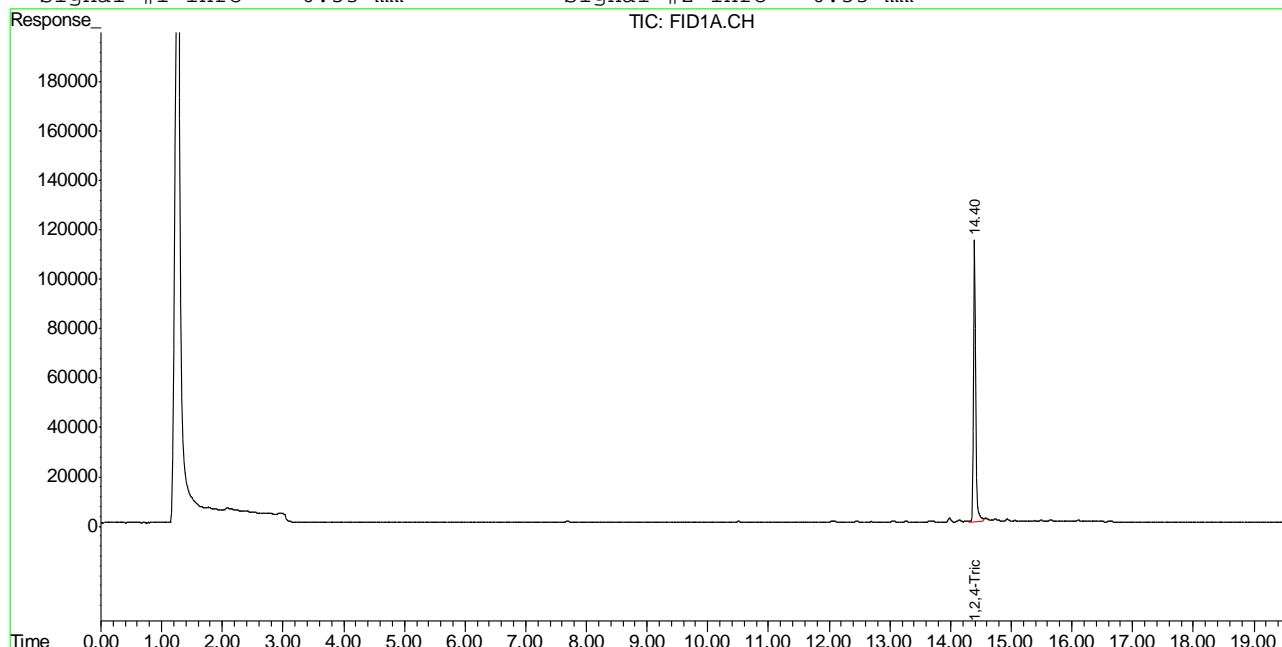
System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.40	2814318	89.817	%
10) S	1,2,4-Trichlorobenzene (P)	14.39	15092012	92.858	%
Target Compounds					
1) H	TVH-Gasoline	7.23	3975425	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	7.69	101877	0.257	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	14.57	256120	1.298	ug/L

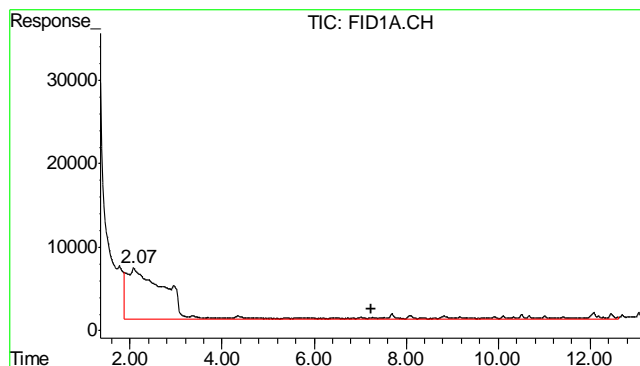
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\102212\GB18164.D\FID1A.CH Vial: 10
 Signal #2 : Y:\1\DATA\102212\GB18164.D\FID2B.CH
 Acq On : 22 Oct 2012 8:11 pm Operator: StephK
 Sample : D40114-1, 50X Inst : GC/MS Ins
 Misc : GC3187,GGB992,5.028,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Oct 23 7:56 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Mon Oct 22 16:14:28 2012
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

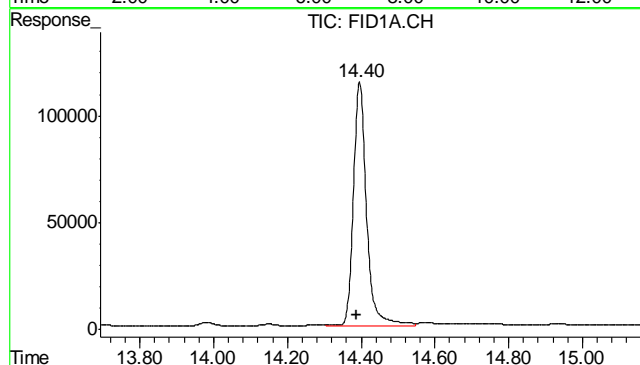
Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





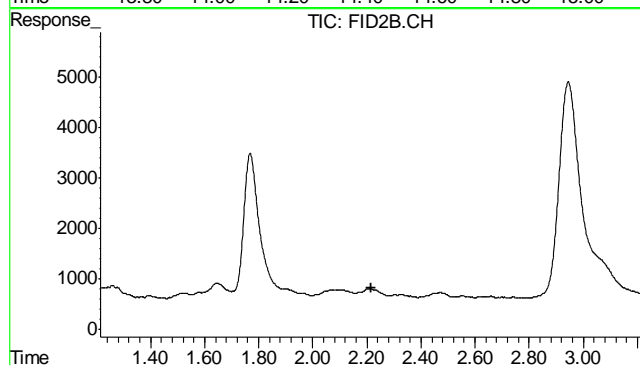
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 3975425
Conc: N.D.



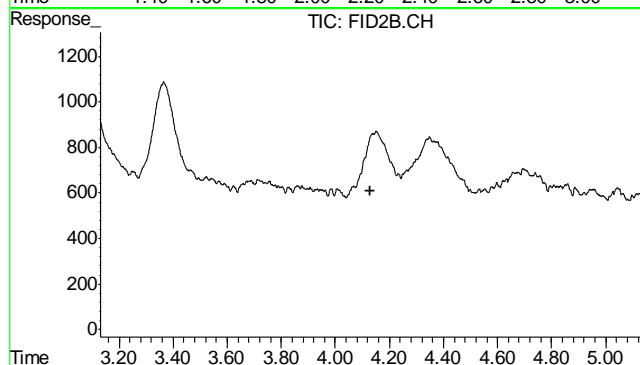
#2 1,2,4-Trichlorobenzene

R.T.: 14.396 min
Delta R.T.: 0.009 min
Response: 2814318
Conc: 89.82 %



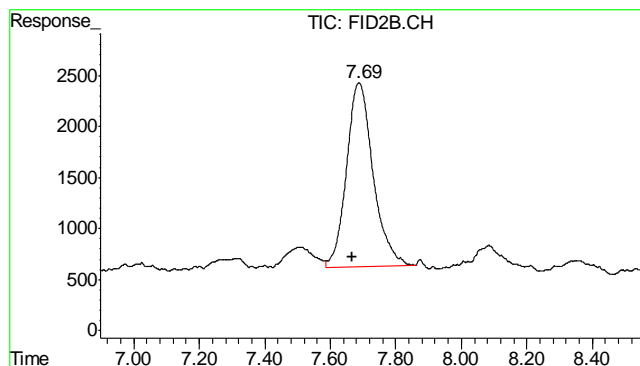
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T.: 2.215 min
Response: 0
Conc: N.D.

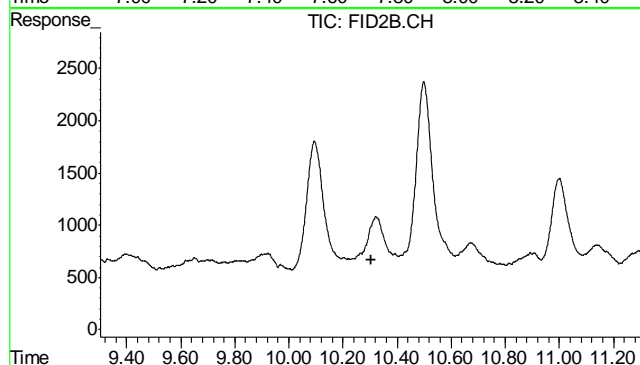


#5 Benzene

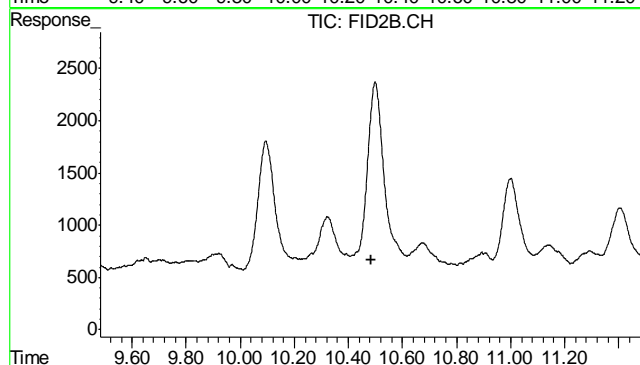
R.T.: 0.000 min
Exp R.T.: 4.131 min
Response: 0
Conc: N.D.



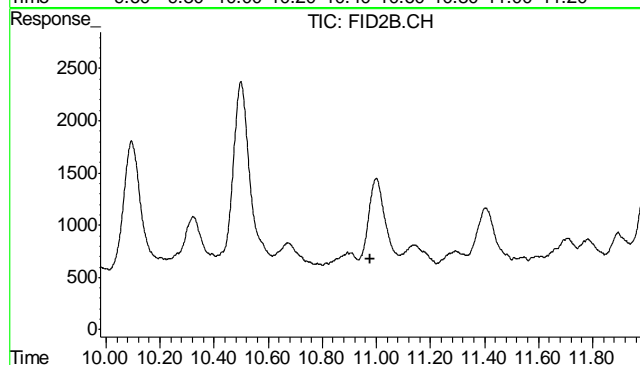
#6 Toluene
 R.T.: 7.688 min
 Delta R.T.: 0.020 min
 Response: 101877
 Conc: 0.26 ug/L



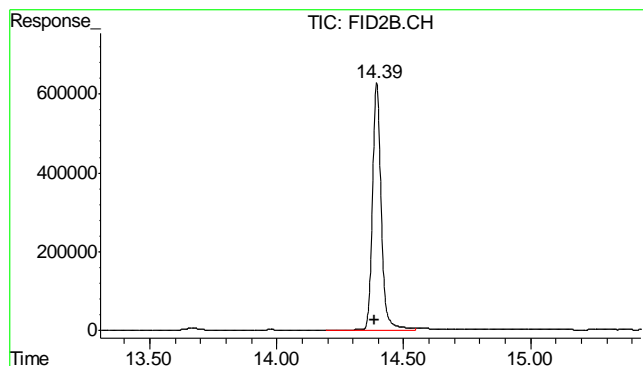
#7 Ethylbenzene
 R.T.: 0.000 min
 Exp R.T. : 10.303 min
 Response: 0
 Conc: N.D.



#8 m,p-Xylene
 R.T.: 0.000 min
 Exp R.T. : 10.483 min
 Response: 0
 Conc: N.D.

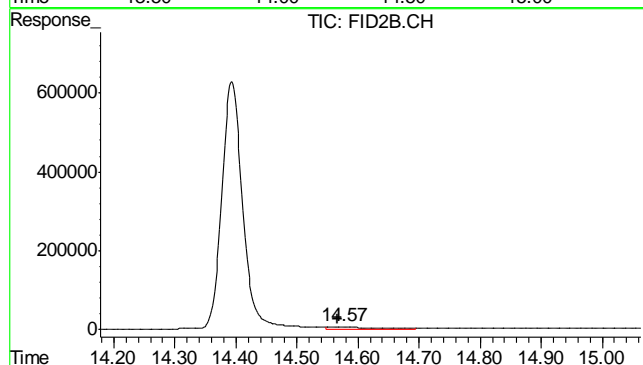


#9 o-Xylene
 R.T.: 0.000 min
 Exp R.T. : 10.979 min
 Response: 0
 Conc: N.D.



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

R.T.: 14.394 min
Delta R.T.: 0.009 min
Response: 15092012
Conc: 92.86 %



#11 Naphthalene

R.T.: 14.573 min
Delta R.T.: 0.006 min
Response: 256120
Conc: 1.30 ug/L

11.1.1
11

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\102212\GB18157.D\FID1A.CH Vial: 3
 Signal #2 : Y:\1\DATA\102212\GB18157.D\FID2B.CH
 Acq On : 22 Oct 2012 4:03 pm Operator: StephK
 Sample : MB Inst : GC/MS Ins
 Misc : GC3187,GGB992,5.000,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Oct 22 16:14:45 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Mon Oct 22 16:14:28 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	14.40	2705139	86.332	%
10) S	1,2,4-Trichlorobenzene (P)	14.40	14514175	89.303	%
Target Compounds					
1) H	TVH-Gasoline	7.23	4092293	<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	7.69	128742	0.325	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	14.58	192234	0.974	ug/L

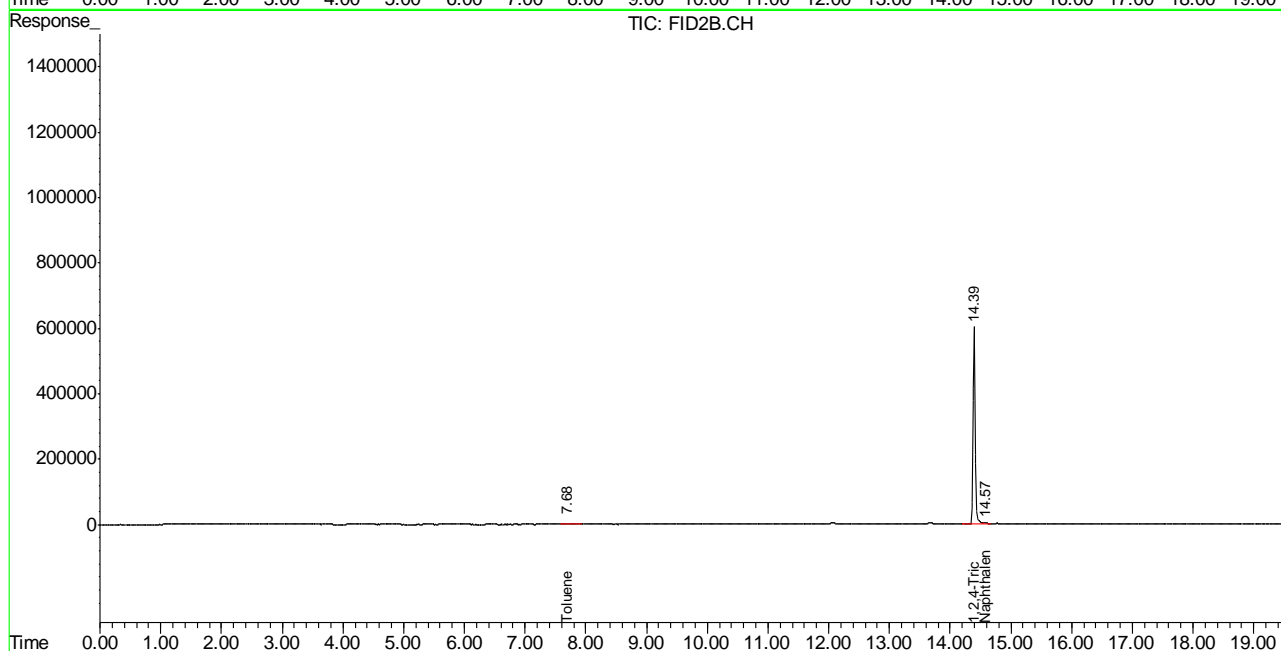
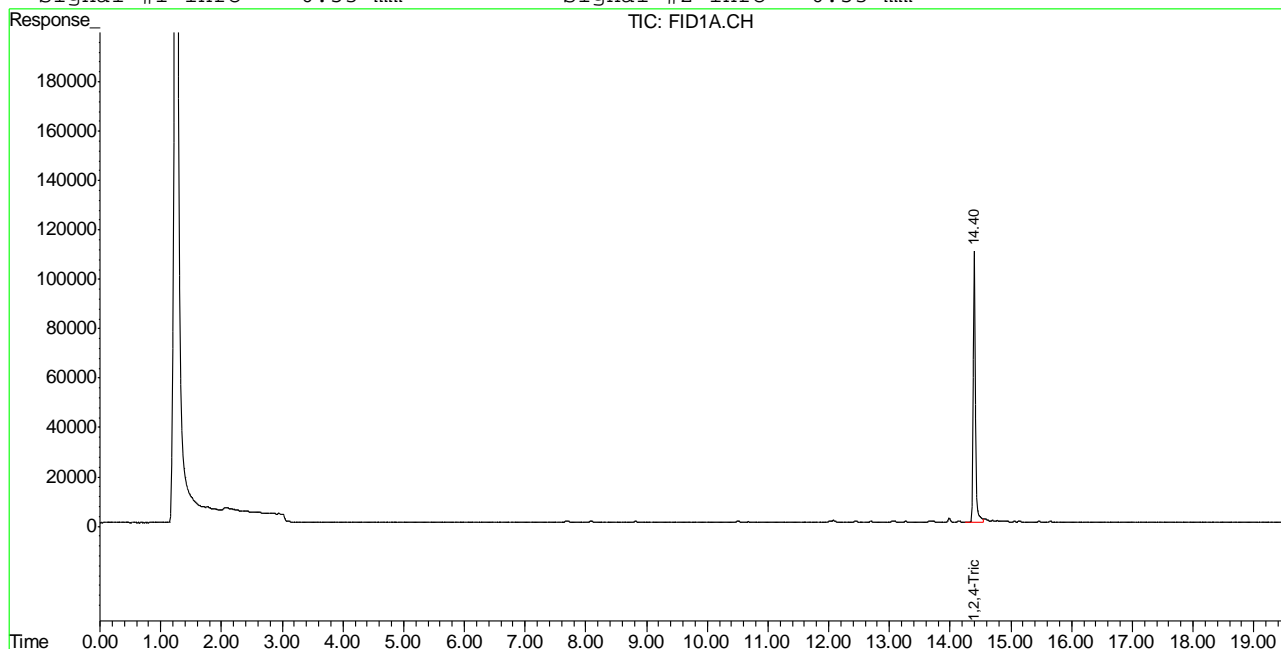
 (f)=RT Delta > 1/2 Window (m)=manual int.
 GB18157.D TB868GB868SOIL.M Tue Oct 23 08:49:08 2012 GC

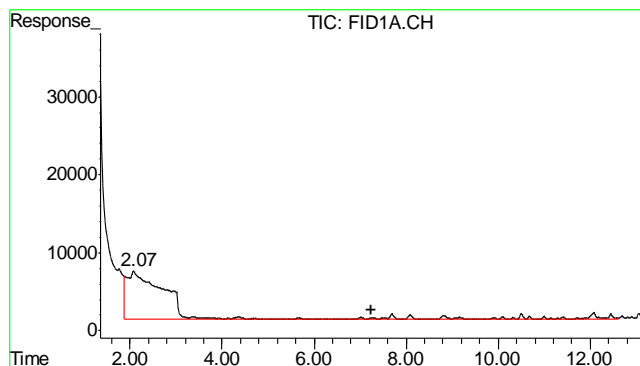
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\102212\GB18157.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\102212\GB18157.D\FID2B.CH
Acq On : 22 Oct 2012 4:03 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3187,GGB992,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Oct 22 15:24 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Oct 22 16:14:28 2012
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

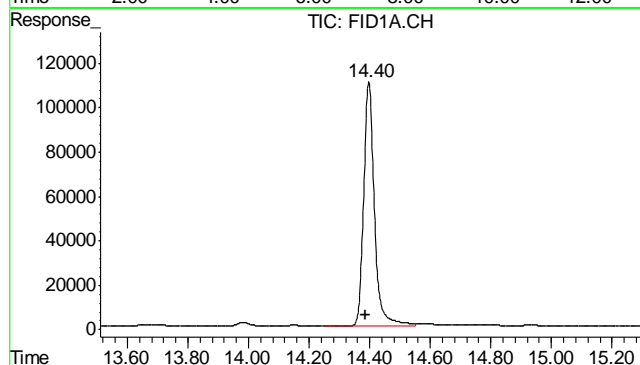
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





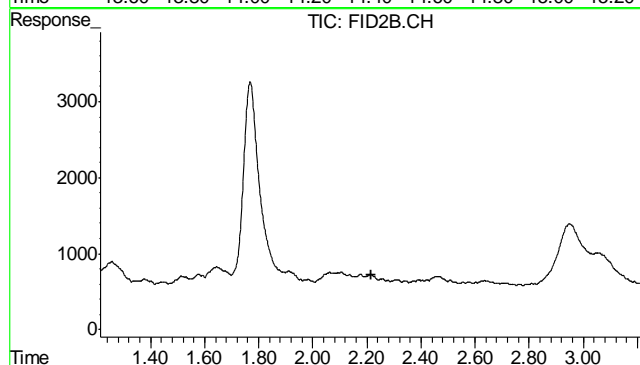
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 4092293
Conc: N.D.



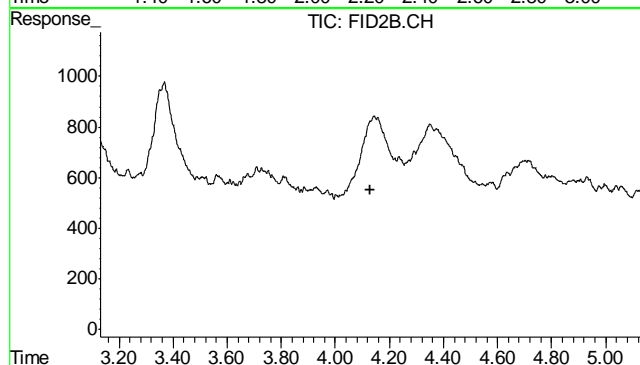
#2 1,2,4-Trichlorobenzene

R.T.: 14.397 min
Delta R.T.: 0.011 min
Response: 2705139
Conc: 86.33 %



#4 Methyl-t-butyl-ether

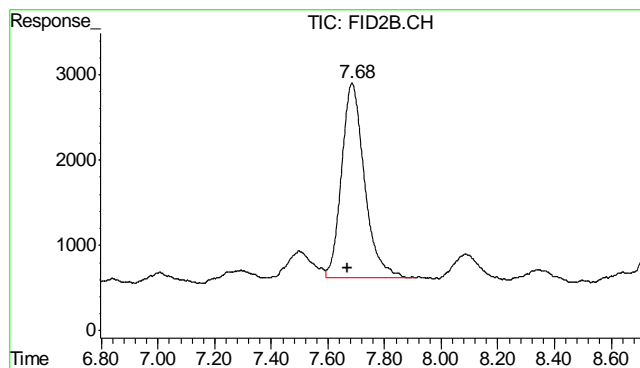
R.T.: 0.000 min
Exp R.T.: 2.215 min
Response: 0
Conc: N.D.



#5 Benzene

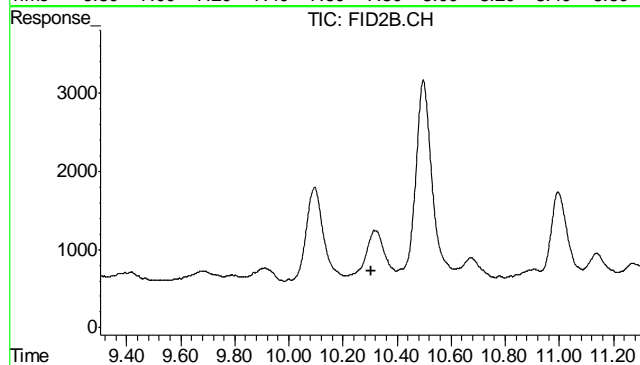
R.T.: 0.000 min
Exp R.T.: 4.131 min
Response: 0
Conc: N.D.

11.21
11



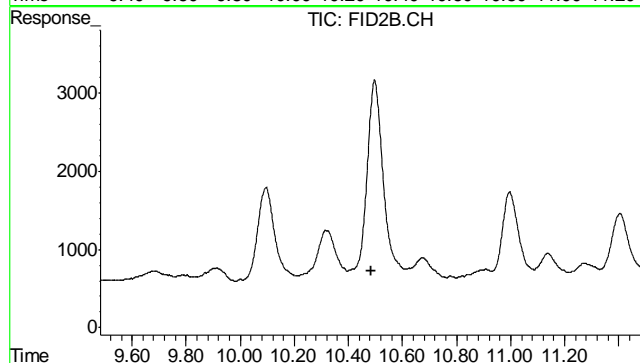
#6 Toluene

R.T.: 7.685 min
Delta R.T.: 0.017 min
Response: 128742
Conc: 0.32 ug/L



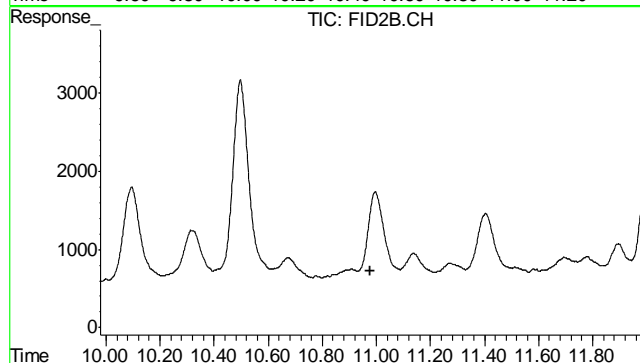
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.303 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

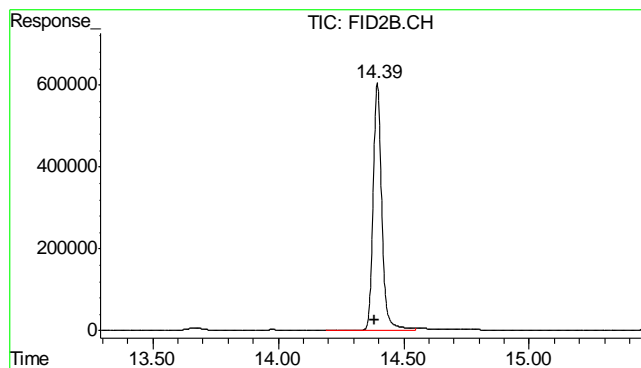
R.T.: 0.000 min
Exp R.T. : 10.483 min
Response: 0
Conc: N.D.



#9 o-Xylene

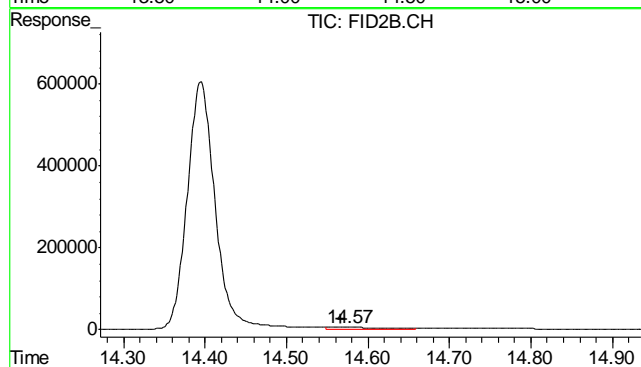
R.T.: 0.000 min
Exp R.T. : 10.979 min
Response: 0
Conc: N.D.

11.21
11



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

R.T.: 14.395 min
Delta R.T.: 0.010 min
Response: 14514175
Conc: 89.30 %



#11 Naphthalene

R.T.: 14.575 min
Delta R.T.: 0.008 min
Response: 192234
Conc: 0.97 ug/L

11.21
11

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D40114
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6840-MB	FD18785.D	1	10/22/12	AV	10/22/12	OP6840	GFD949

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

D40114-1

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	94% 43-136%

12.1.1
12

Blank Spike Summary

Job Number: D40114
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6840-BS	FD18786.D	1	10/22/12	AV	10/22/12	OP6840	GFD949

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

D40114-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	657	99	58-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	101%	43-136%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D40114
Account: XTOKRWR XTO Energy
Project: PCU 197-36A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6840-MS	FD18787.D	1	10/22/12	AV	10/22/12	OP6840	GFD949
OP6840-MSD	FD18788.D	1	10/22/12	AV	10/22/12	OP6840	GFD949
D40087-1	FD18803.D	1	10/23/12	AV	10/22/12	OP6840	GFD949

The QC reported here applies to the following samples:

Method: SW846-8015B

D40114-1

CAS No.	Compound	D40087-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	675		736	1390	97	1420	101	2	20-183/43

CAS No.	Surrogate Recoveries	MS	MSD	D40087-1	Limits
84-15-1	o-Terphenyl	89%	92%	85%	43-136%

* = Outside of Control Limits.

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\OCT\FD102212\FD18808.D Vial: 33
Acq On : 10-23-2012 03:17:33 AM Operator: ashleyv
Sample : D40114-1 Inst : FID5
Misc : OP6840,GFD949,30.05,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Oct 23 14:42:37 2012 Quant Results File: DRO-GFD823F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD823F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Mon Oct 22 10:08:28 2012
Response via : Initial Calibration
DataAcq Meth : DRO_FR.M

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

Compound	R.T.	Response	Conc Units

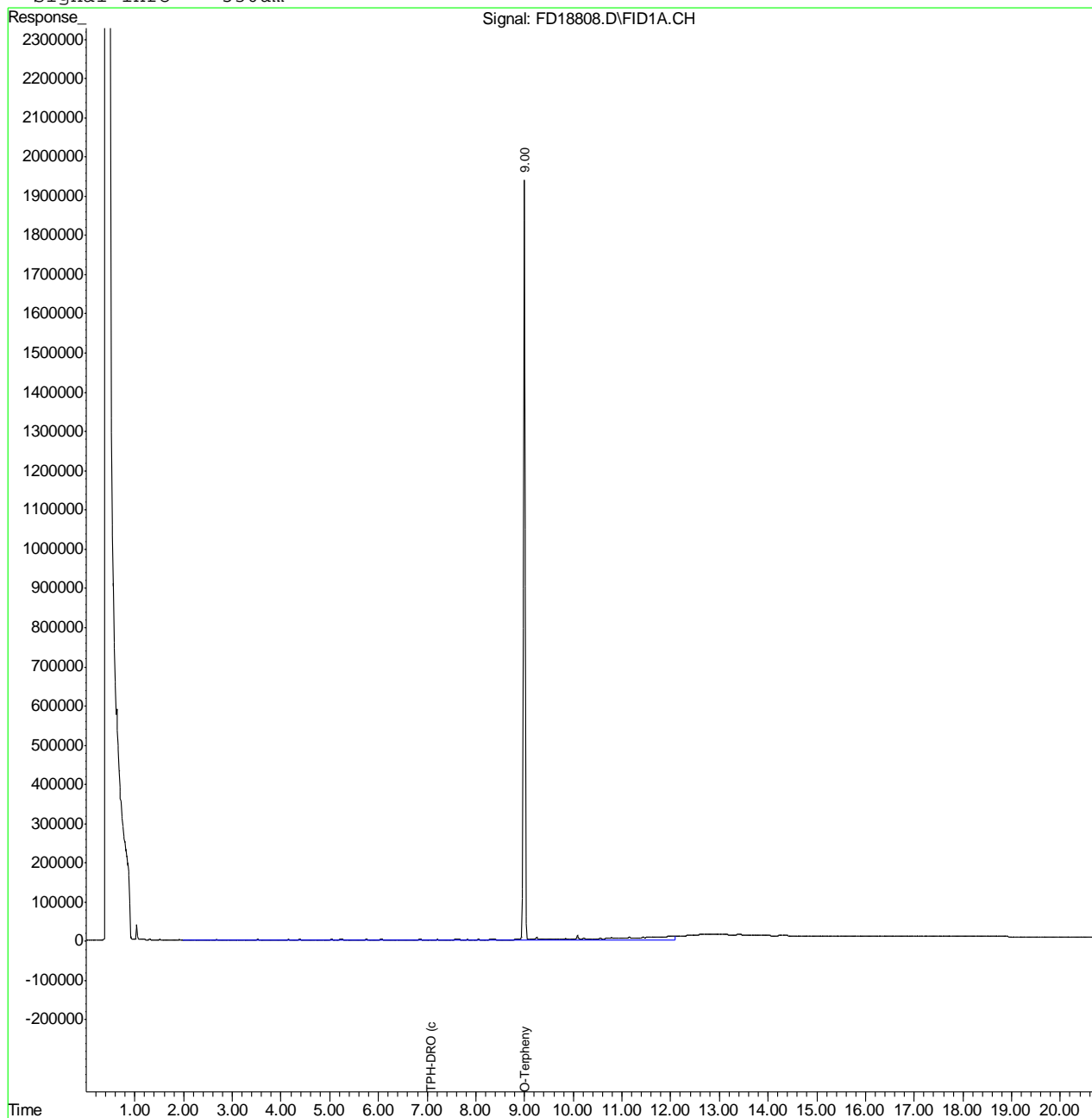
System Monitoring Compounds			
1) S O-Terphenyl	9.00	44745114	947.217 mg/L
Target Compounds			
2) H TPH-DRO (c10-c28)	7.08	8942110	232.231 mg/L

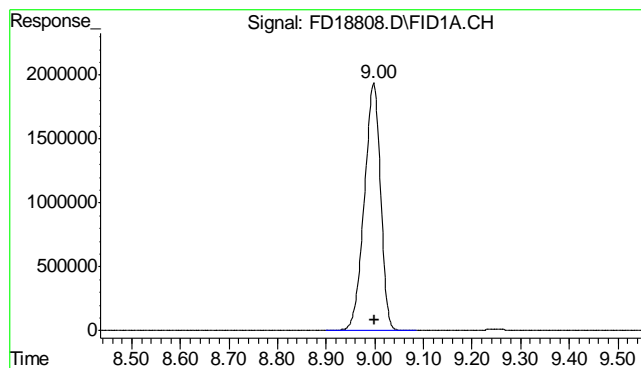
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\OCT\FD102212\FD18808.D Vial: 33
Acq On : 10-23-2012 03:17:33 AM Operator: ashleyv
Sample : D40114-1 Inst : FID5
Misc : OP6840,GFD949,30.05,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Oct 23 15:04 2012 Quant Results File: DRO-GFD823F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD823F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Mon Oct 22 10:08:28 2012
Response via : Multiple Level Calibration
DataAcq Meth : DRO_FR.M

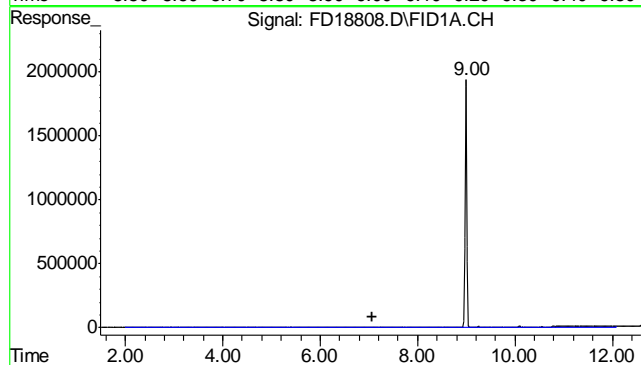
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 8.998 min
 Delta R.T.: -0.002 min
 Response: 44745114
 Conc: 947.22 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 7.075 min
 Delta R.T.: 0.000 min
 Response: 8942110
 Conc: 232.23 mg/L m

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\OCT\FD102212\FD18785.D Vial: 10
Acq On : 10-22-2012 05:06:18 PM Operator: ashleyv
Sample : OP6840-MB Inst : FID5
Misc : OP6840,GFD949,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Oct 23 14:42:15 2012 Quant Results File: DRO-GFD823F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD823F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Mon Oct 22 10:08:28 2012
Response via : Initial Calibration
DataAcq Meth : DRO_FR.M

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

Compound	R.T.	Response	Conc Units

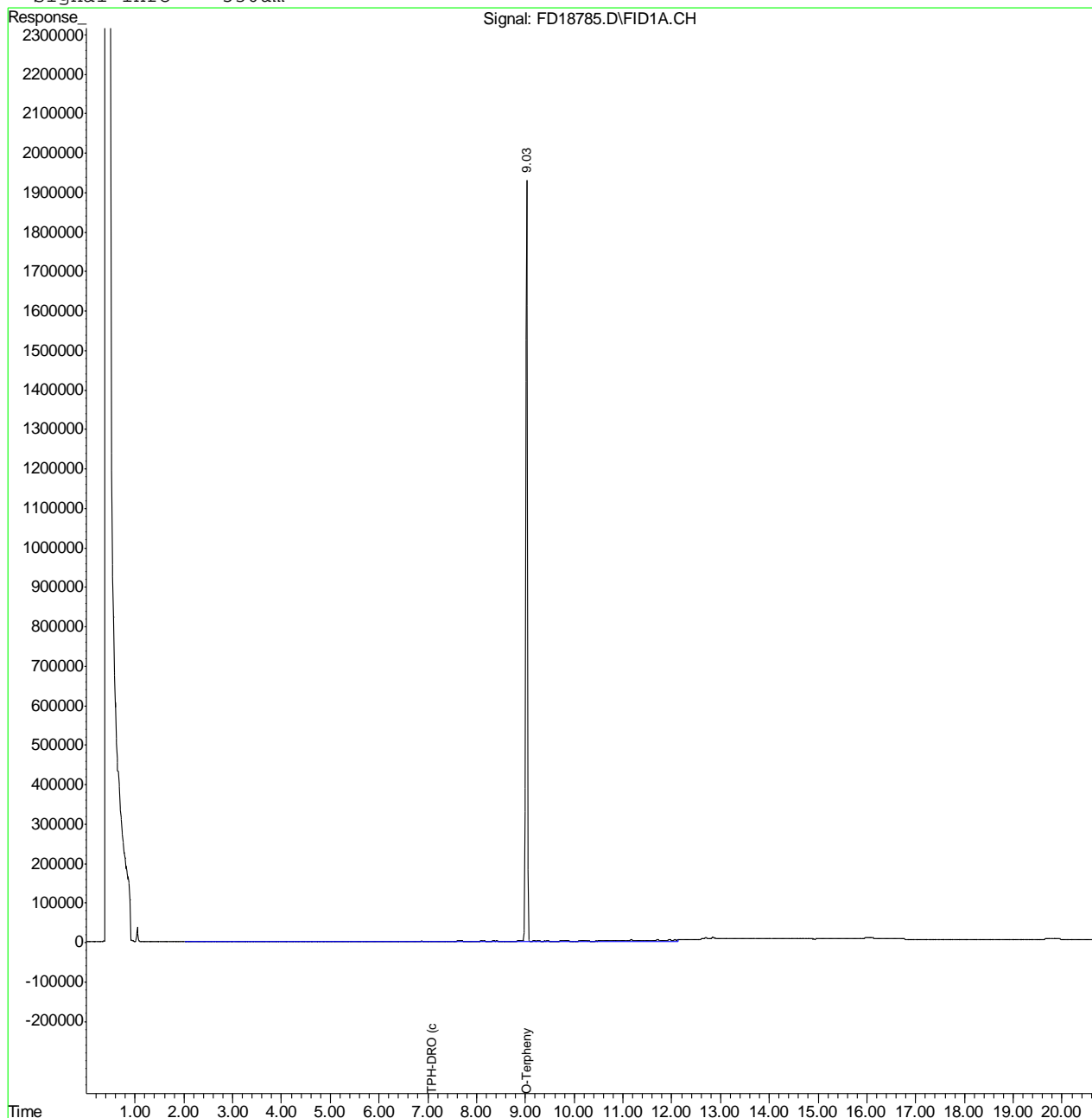
System Monitoring Compounds			
1) S O-Terphenyl	9.03	44481703	941.640 mg/L
Target Compounds			
2) H TPH-DRO (c10-c28)	7.08	3854394	100.100 mg/L

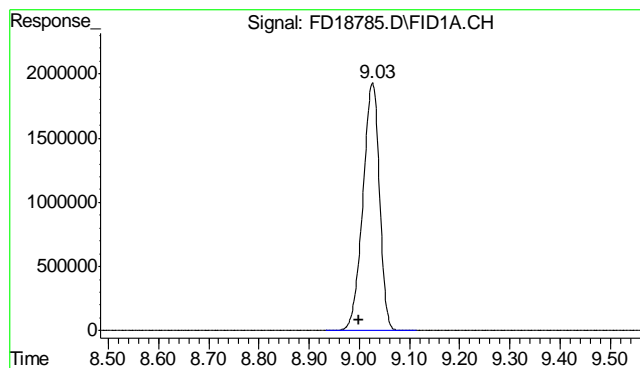
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\OCT\FD102212\FD18785.D Vial: 10
Acq On : 10-22-2012 05:06:18 PM Operator: ashleyv
Sample : OP6840-MB Inst : FID5
Misc : OP6840,GFD949,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Oct 23 14:42 2012 Quant Results File: DRO-GFD823F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD823F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Mon Oct 22 10:08:28 2012
Response via : Multiple Level Calibration
DataAcq Meth : DRO_FR.M

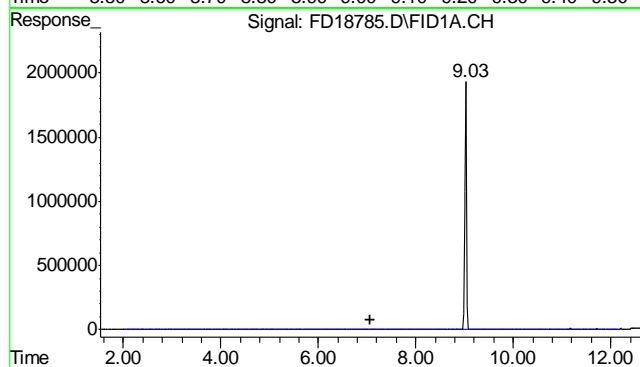
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.026 min
Delta R.T.: 0.026 min
Response: 44481703
Conc: 941.64 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 7.075 min
Delta R.T.: 0.000 min
Response: 3854394
Conc: 100.10 mg/L m

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: D40114
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8718
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 10/23/12

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	0.020	<1.0
Calcium	40	.54	9		
Chromium	1.0	.03	.03	0.020	<1.0
Cobalt	0.50	.04	.07		
Copper	1.0	.12	.15	-0.040	<1.0
Iron	7.0	.12	.87		
Lead	5.0	.19	.24	-0.020	<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	0.010	<3.0
Phosphorus	10	1.4	1.9		
Potassium	200	6.1	7		
Selenium	5.0	.48	.36	-0.050	<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	0.33	<3.0

Associated samples MP8718: D40114-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D40114
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8718
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D40114
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8718
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 10/23/12

Metal	D40074-1 Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	429	648	204	107.4	75-125
Beryllium					
Boron					
Cadmium	0.14	42.7	51	83.5	75-125
Calcium					
Chromium	62.2	105	51	83.9	75-125
Cobalt					
Copper	11.0	57.1	51	90.4	75-125
Iron					
Lead	8.4	93.1	102	83.1	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	19.9	60.1	51	78.8	75-125
Phosphorus	anr				
Potassium					
Selenium	0.0	85.4	102	83.8	75-125
Silicon					
Silver	0.17	18.3	20.4	88.9	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	37.8	79.6	51	82.0	75-125

Associated samples MP8718: D40114-1

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

14.1.2
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D40114
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8718
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: D40114
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8718
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 10/23/12

Metal	D40074-1 Original	MSD	Spikelot ICPAL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	429	744	210	150.0N(a)	13.8	20
Beryllium						
Boron						
Cadmium	0.14	43.1	52.5	81.9	0.9	20
Calcium						
Chromium	62.2	103	52.5	77.7	1.9	20
Cobalt						
Copper	11.0	56.7	52.5	87.1	0.7	20
Iron						
Lead	8.4	92.5	105	80.1	0.6	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	19.9	59.1	52.5	74.7N(a)	1.7	20
Phosphorus	anr					
Potassium						
Selenium	0.0	86.2	105	82.1	0.9	20
Silicon						
Silver	0.17	18.4	21	86.8	0.5	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	37.8	75.9	52.5	72.6N(b)	4.8	20

Associated samples MP8718: D40114-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D40114
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8718
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

- (N) Matrix Spike Rec. outside of QC limits
- (anr) Analyte not requested
- (a) Spike recovery indicates possible matrix interference.
- (b) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D40114
 Account: XTOKRWR - XTO Energy
 Project: PCU 197-36A

QC Batch ID: MP8718
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 10/23/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	194	200	97.0	80-120
Beryllium				
Boron				
Cadmium	43.6	50	87.2	80-120
Calcium				
Chromium	46.2	50	92.4	80-120
Cobalt				
Copper	43.6	50	87.2	80-120
Iron				
Lead	90.4	100	90.4	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	43.6	50	87.2	80-120
Phosphorus	anr			
Potassium				
Selenium	88.0	100	88.0	80-120
Silicon				
Silver	18.6	20	93.0	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	43.4	50	86.8	80-120

Associated samples MP8718: D40114-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D40114
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8718
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D40114
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8718
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 10/23/12

Metal	D40074-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	4010	4660	16.3*(a)	0-10
Beryllium				
Boron				
Cadmium	1.30	0.00	100.0(b)	0-10
Calcium				
Chromium	581	659	13.4*(a)	0-10
Cobalt				
Copper	102	101	1.4	0-10
Iron				
Lead	78.5	75.0	4.5	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	185	216	16.5*(a)	0-10
Phosphorus	anr			
Potassium				
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver	1.60	4.50	181.3(b)	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	353	434	22.8*(a)	0-10

Associated samples MP8718: D40114-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D40114
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8718
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D40114
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8719
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 10/23/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.006	.06	0.0051	<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 MP8719: D40114-1

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: D40114
 Account: XTOKRWR - XTO Energy
 Project: PCU 197-36A

QC Batch ID: MP8719
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: mg/kg

Prep Date: 10/23/12

Metal	D40074-1 Original MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	5.8	109	102	101.2 75-125
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8719: D40114-1

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: D40114
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8719
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 10/23/12

Metal	D40074-1 Original	MSD	Spikelot ICPAL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	5.8	118	105	106.9	7.9	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 MP8719: D40114-1

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: D40114
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8719
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 10/23/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	99.6	100	99.6	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 MP8719: D40114-1

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: D40114
 Account: XTOKRWR - XTO Energy
 Project: PCU 197-36A

QC Batch ID: MP8719
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: ug/l

Prep Date: 10/23/12

Metal	D40074-1			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic	54.3	53.7	1.2	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 MP8719: D40114-1

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: D40114
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: D40114-1

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: D40114
 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 MS	Spikelot HGWSR1	% Rec	QC Limits
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Mercury	0.049	0.87	0.785	104.6	75-125
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Associated samples MP8720: D40114-1

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: D40114
 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: D40114-1

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: D40114
 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: D40114-1

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: D40114
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: D40114-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D40114
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: D40114
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: D40114-1A

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: D40114
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: D40114
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: D40114-1A

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: D40114
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: D40114
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: D40114-1A

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: D40114
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: D40114
 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: D40114-1A

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

14.4.4
 14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D40114
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: D40114
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	GP8539/GN17425	1.0	0.0	mg/kg	173.0	163	95.0	80-120%
Specific Conductivity	GP8517/GN17378			umhos/cm	9989	9920	93.3	90-110%
pH	GN17347			su	8.00su	7.98	99.8	99.3-100.7%

Associated Samples:
Batch GP8517: D40114-1
Batch GP8539: D40114-1
Batch GN17347: D40114-1
(*) Outside of QC limits

15.1
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DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D40114
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP8539/GN17425	D40111-1	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN17345	D40111-1	mv	25.1	27.3	8.4	0-20%

Associated Samples:
Batch GP8539: D40114-1
Batch GN17345: D40114-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D40114
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	GP8539/GN17425	D40111-1	mg/kg	0.0	0.40	33.6	84.0	75-125%

Associated Samples:

Batch GP8539: D40114-1

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D40114
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	GP8539/GN17425	D40111-1	mg/kg	0.0	0.40	34.0	1.3	

Associated Samples:
Batch GP8539: D40114-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits