



12/06/12

Technical Report for

XTO Energy

PCU 296-5A

1210-04

Accutest Job Number: D41305

Sampling Date: 11/27/12

Report to:

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Total number of pages in report: 149



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


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Laboratory Director

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: D41305

PCU 296-5A
Project No: 1210-04

Sample Number	Collected		Time By	Received	Matrix		Client Sample ID
	Date				Code	Type	
D41305-1	11/27/12	13:00	DS	11/29/12	SO	Soil	CUT 2 POST SOLIDIFICATION
D41305-1A	11/27/12	13:00	DS	11/29/12	SO	Soil	CUT 2 POST SOLIDIFICATION

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: XTO Energy

Job No D41305

Site: PCU 296-5A

Report Date 12/6/2012 5:32:57 PM

On 11/29/2012, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 5.2 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D41305 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: V5V1515

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41291-1MS, D41291-1MSD were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix: SO

Batch ID: OP7031

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41248-1MS, D41248-1MSD were used as the QC samples indicated.
- D41305-1: Dilution required due to matrix interference; extract was black and viscous.
- OP7031-BS for Benzo(k)fluoranthene: Compound ND in associated samples.

Volatiles by GC By Method SW846 8015B

Matrix: SO

Batch ID: GGB1016

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41047-1MS, D41047-1MSD were used as the QC samples indicated.

Extractables by GC By Method SW846-8015B

Matrix: SO

Batch ID: OP7032

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D41047-2MS, D41047-2MSD 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: MP8975

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41248-1AMS, D41248-1AMSD, D41248-1ASDL were used as the QC samples for the metals analysis.
- MP8975-SD1 for Sodium: Serial dilution indicates possible matrix interference.

Matrix: SO

Batch ID: MP8983

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41305-1MS, D41305-1MSD, D41305-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Barium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The serial dilution RPD(s) for Selenium are outside control limits for sample MP8983-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP8983-SD1 for Nickel, Zinc: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix: SO

Batch ID: MP8984

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41305-1MS, D41305-1MSD, D41305-1SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471B

Matrix: SO

Batch ID: MP8965

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41219-3MS, D41219-3MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix: SO

Batch ID: GN17892

- Sample(s) D41266-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.
- The duplicate RPD(s) for Redox Potential Vs H2 are outside control limits for sample GN17892-D1. High RPD due to possible nonhomogeneity.

Wet Chemistry By Method SM19 2540B M

Matrix: SO

Batch ID: GN17871

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

Wet Chemistry By Method SW846 3060A/7196A

Matrix: SO

Batch ID: GP8811

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41305-1DUP, D41305-1MS, D41305-1MSD were used as the QC samples for the Chromium, Hexavalent analysis.

Wet Chemistry By Method SW846 3060A/7196A M

Matrix: SO

Batch ID: R15344

- The data for SW846 3060A/7196A M meets quality control requirements.
- D41305-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 9045D

Matrix: SO

Batch ID: GN17890

- The following samples were run outside of holding time for method SW846 9045D: D41305-1

Wet Chemistry By Method USDA HANDBOOK 60

Matrix: SO

Batch ID: MP8975

- D41305-1A 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: D41305
Account: XTO Energy
Project: PCU 296-5A
Collected: 11/27/12

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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D41305-1 CUT 2 POST SOLIDIFICATION

Benzene	0.811	0.071	0.036	mg/kg	SW846 8260B
Toluene	1.91	0.14	0.071	mg/kg	SW846 8260B
Ethylbenzene	0.221	0.14	0.027	mg/kg	SW846 8260B
Xylene (total)	1.79	0.29	0.14	mg/kg	SW846 8260B
Benzo(a)anthracene ^a	0.0234 J	0.041	0.021	mg/kg	SW846 8270C BY SIM
Benzo(a)pyrene ^a	0.0338 J	0.041	0.021	mg/kg	SW846 8270C BY SIM
Chrysene ^a	0.0819	0.041	0.021	mg/kg	SW846 8270C BY SIM
Fluoranthene ^a	0.0304 J	0.041	0.021	mg/kg	SW846 8270C BY SIM
Fluorene ^a	0.131	0.041	0.021	mg/kg	SW846 8270C BY SIM
Naphthalene ^a	0.662	0.057	0.050	mg/kg	SW846 8270C BY SIM
Pyrene ^a	0.0512	0.041	0.021	mg/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)	7.36 J	14	7.1	mg/kg	SW846 8015B
TPH-DRO (C10-C28)	240	81	49	mg/kg	SW846-8015B
Arsenic	8.3	0.12		mg/kg	SW846 6020A
Barium	8740	5.9		mg/kg	SW846 6010C
Chromium	13.5	1.2		mg/kg	SW846 6010C
Copper	28.9	1.2		mg/kg	SW846 6010C
Lead	29.4	5.9		mg/kg	SW846 6010C
Nickel	12.7	3.6		mg/kg	SW846 6010C
Zinc	35.3	3.6		mg/kg	SW846 6010C
Specific Conductivity	5380	1.0		umhos/cm	SM2510B-1997 MOD
Chromium, Trivalent ^b	13.5	2.2		mg/kg	SW846 3060A/7196A M
Redox Potential Vs H2	56.3			mv	ASTM D1498-76M
pH	12.18			su	SW846 9045D

D41305-1A CUT 2 POST SOLIDIFICATION

Calcium	63.0	2.0		mg/l	SW846 6010C
Sodium	883	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^c	30.5			ratio	USDA HANDBOOK 60

(a) Dilution required due to matrix interference; extract was black and viscous.

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

(c) 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:	CUT 2 POST SOLIDIFICATION	
Lab Sample ID:	D41305-1	Date Sampled: 11/27/12
Matrix:	SO - Soil	Date Received: 11/29/12
Method:	SW846 8260B	Percent Solids: 81.9
Project:	PCU 296-5A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V24815.D	1	11/30/12	BD	n/a	n/a	V5V1515
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.07 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.811	0.071	0.036	mg/kg	
108-88-3	Toluene	1.91	0.14	0.071	mg/kg	
100-41-4	Ethylbenzene	0.221	0.14	0.027	mg/kg	
1330-20-7	Xylene (total)	1.79	0.29	0.14	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	103%		64-130%
460-00-4	4-Bromofluorobenzene	99%		62-131%
17060-07-0	1,2-Dichloroethane-D4	102%		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:	CUT 2 POST SOLIDIFICATION	
Lab Sample ID:	D41305-1	Date Sampled: 11/27/12
Matrix:	SO - Soil	Date Received: 11/29/12
Method:	SW846 8270C BY SIM SW846 3546	Percent Solids: 81.9
Project:	PCU 296-5A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	3G12385.D	4	12/03/12	DC	11/30/12	OP7031	E3G586
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	0.041	0.021	mg/kg	
120-12-7	Anthracene	ND	0.041	0.021	mg/kg	
56-55-3	Benzo(a)anthracene	0.0234	0.041	0.021	mg/kg	J
205-99-2	Benzo(b)fluoranthene	ND	0.041	0.021	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.041	0.021	mg/kg	
50-32-8	Benzo(a)pyrene	0.0338	0.041	0.021	mg/kg	J
218-01-9	Chrysene	0.0819	0.041	0.021	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.041	0.021	mg/kg	
206-44-0	Fluoranthene	0.0304	0.041	0.021	mg/kg	J
86-73-7	Fluorene	0.131	0.041	0.021	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.041	0.021	mg/kg	
91-20-3	Naphthalene	0.662	0.057	0.050	mg/kg	
129-00-0	Pyrene	0.0512	0.041	0.021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	98%		10-159%
321-60-8	2-Fluorobiphenyl	103%		19-131%
1718-51-0	Terphenyl-d14	111%		18-150%

(a) Dilution required due to matrix interference; extract was black and viscous.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	CUT 2 POST SOLIDIFICATION	
Lab Sample ID:	D41305-1	Date Sampled: 11/27/12
Matrix:	SO - Soil	Date Received: 11/29/12
Method:	SW846 8015B	Percent Solids: 81.9
Project:	PCU 296-5A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB18649.D	1	11/29/12	SK	n/a	n/a	GGB1016
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	7.36	14	7.1	mg/kg	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	91%		60-140%		

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

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

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Report of Analysis

Page 1 of 1

Client Sample ID:	CUT 2 POST SOLIDIFICATION					Date Sampled:	11/27/12
Lab Sample ID:	D41305-1					Date Received:	11/29/12
Matrix:	SO - Soil					Percent Solids:	81.9
Method:	SW846-8015B SW846 3546						
Project:	PCU 296-5A						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD20152.D	10	12/03/12	TR	11/30/12	OP7032	GFD1010
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	240	81	49	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	57%		35-130%		

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

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

Report of Analysis

Client Sample ID: CUT 2 POST SOLIDIFICATION**Lab Sample ID:** D41305-1**Matrix:** SO - Soil**Project:** PCU 296-5A**Date Sampled:** 11/27/12**Date Received:** 11/29/12**Percent Solids:** 81.9**Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	8.3	0.12	mg/kg	5	12/03/12	12/06/12 JM	SW846 6020A ⁴	SW846 3050B ⁷
Barium	8740	5.9	mg/kg	5	12/03/12	12/05/12 JB	SW846 6010C ³	SW846 3050B ⁶
Cadmium	< 1.2	1.2	mg/kg	1	12/03/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Chromium	13.5	1.2	mg/kg	1	12/03/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Copper	28.9	1.2	mg/kg	1	12/03/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Lead	29.4	5.9	mg/kg	1	12/03/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Mercury	< 0.10	0.10	mg/kg	1	11/30/12	11/30/12 JM	SW846 7471B ¹	SW846 7471B ⁵
Nickel	12.7	3.6	mg/kg	1	12/03/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Selenium	< 5.9	5.9	mg/kg	1	12/03/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Silver	< 3.6	3.6	mg/kg	1	12/03/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Zinc	35.3	3.6	mg/kg	1	12/03/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶

(1) Instrument QC Batch: MA3037

(2) Instrument QC Batch: MA3052

(3) Instrument QC Batch: MA3055

(4) Instrument QC Batch: MA3059

(5) Prep QC Batch: MP8965

(6) Prep QC Batch: MP8983

(7) Prep QC Batch: MP8984

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUT 2 POST SOLIDIFICATION	Date Sampled:	11/27/12
Lab Sample ID:	D41305-1	Date Received:	11/29/12
Matrix:	SO - Soil	Percent Solids:	81.9
Project:	PCU 296-5A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	5380	1.0	umhos/cm	1	12/04/12	JD	SM2510B-1997 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	12/04/12	KB	SW846 3060A/7196A
Chromium, Trivalent ^a	13.5	2.2	mg/kg	1	12/05/12 12:26	JB	SW846 3060A/7196A M
Redox Potential Vs H2	56.3		mv	1	11/30/12	CT	ASTM D1498-76M
Solids, Percent	81.9		%	1	11/30/12	SWT	SM19 2540B M
pH	12.18		su	1	11/30/12 14:10	JD	SW846 9045D

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUT 2 POST SOLIDIFICATION
Lab Sample ID: D41305-1A
Matrix: SO - Soil
Project: PCU 296-5A

Date Sampled: 11/27/12
Date Received: 11/29/12
Percent Solids: 81.9

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	63.0	2.0	mg/l	1	11/30/12	11/30/12 JM	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	< 1.0	1.0	mg/l	1	11/30/12	11/30/12 JM	SW846 6010C ¹	SW846 3010A/M ²
Sodium	883	2.0	mg/l	1	11/30/12	11/30/12 JM	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA3038
(2) Prep QC Batch: MP8975

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUT 2 POST SOLIDIFICATION	Date Sampled:	11/27/12
Lab Sample ID:	D41305-1A	Date Received:	11/29/12
Matrix:	SO - Soil	Percent Solids:	81.9
Project:	PCU 296-5A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	30.5		ratio	1	11/30/12 14:36	JM	USDA HANDBOOK 60

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

RL = Reporting Limit

Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

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

ACCUTEST LABORATORIES		4036 Youngfield Street, West Ridge, CO 80033 TEL: 303-425-6021 FAX: 303-425-6854 www.accutest.com		FED-EX Tracking # _____ Bottle Order Control # _____	
Client / Reporting Information Company Name: KRW Consulting Street Address: 8000 West 14th Street; Suite 200 City: Lakewood, CO 80214 Project Contact: Dwayne Knudson Phone #: 970-488-1098 Sampler(s) Name(s): DAVID SANDERS 970-488-1098		Project Information Project Name: XTO PCU 2916-SA Street: _____ City: _____ State: _____ Billing Information (If different from Report to) Company Name: XTO Energy Street Address: 21459 CR 5 City: Rifle, CO 81650 Attention: Jessica Dooling Client Purchase Order #: 1210-04 Project Manager: Joe Hess		Requested Analysis (see TEST CODE sheet) <div style="float: right; text-align: right;"> Matrix Codes: DW - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SL - Sludge SED - Sediment OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Waste Product FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank </div>	
Accutest Sample #: _____ Field ID / Point of Collection: _____ MECH/DI Vial #: _____ Date: _____ Time: _____ Sampled by: _____ Matrix: _____ # of bottles: _____ HCl _____ NaOH _____ KMnO4 _____ K2CrO4 _____ NONE _____ DI Water _____ MCHL _____ ENCODE _____ Biocide _____		Number of preserved Bottles: HCl _____ NaOH _____ KMnO4 _____ K2CrO4 _____ NONE _____ DI Water _____ MCHL _____ ENCODE _____ Biocide _____ Turnaround Time (Business days): _____ Approved By (Accutest PM): / Date: _____ <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 Emergency & Rush TIA data available via Lablink		Data Deliverable Information: <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 Comments / Special Instructions: _____ Please email to: KRW Pisceance Team	
Relinquished by Sampler: 1 Lori Albinson Relinquished by Sampler: 3 Relinquished by: 5		Received By: 1 Mike Service Center Received By: 3 Received By: A		Relinquished By: 2 Relinquished By: 4 Custody Seal # H1050 <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact Preserved where applicable: _____ Office Cooler Temp: S.2	

D41305: Chain of Custody

Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D41305

Client: KRW

Immediate Client Services Action Required: No

Date / Time Received: 11/29/2012 12:30:00 P

No. Coolers: 1

Client Service Action Required at Login: No

Project: XTO PCU 296-5A

Airbill #'s: HDCO

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

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

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

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

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

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

Comments

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www.accutest.com

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1515-MB	5V24804.D	1	11/30/12	BD	n/a	n/a	V5V1515

The QC reported here applies to the following samples:

Method: SW846 8260B

D41305-1

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	99% 64-130%
460-00-4	4-Bromofluorobenzene	91% 62-131%
17060-07-0	1,2-Dichloroethane-D4	105% 70-130%

Blank Spike Summary

Page 1 of 1

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1515-BS	5V24805.D	1	11/30/12	BD	n/a	n/a	V5V1515

The QC reported here applies to the following samples:

Method: SW846 8260B

D41305-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	46.8	94	70-130
100-41-4	Ethylbenzene	50	47.0	94	70-130
108-88-3	Toluene	50	46.8	94	70-130
1330-20-7	Xylene (total)	150	146	97	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	101%	64-130%
460-00-4	4-Bromofluorobenzene	96%	62-131%
17060-07-0	1,2-Dichloroethane-D4	101%	70-130%

* = Outside of Control Limits.

Blank Spike Summary

Page 1 of 1

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1515-BS	5V24806.D	1	11/30/12	BD	n/a	n/a	V5V1515

The QC reported here applies to the following samples:

Method: SW846 8260B

D41305-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
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CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	103%	64-130%
460-00-4	4-Bromofluorobenzene	94%	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: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D41291-1MS	5V24808.D	1	11/30/12	BD	n/a	n/a	V5V1515
D41291-1MSD	5V24809.D	1	11/30/12	BD	n/a	n/a	V5V1515
D41291-1	5V24807.D	1	11/30/12	BD	n/a	n/a	V5V1515

The QC reported here applies to the following samples:

Method: SW846 8260B

D41305-1

CAS No.	Compound	D41291-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3590	3870	108	3510	98	10	64-139/30
100-41-4	Ethylbenzene	ND		3590	3840	107	3550	99	8	68-136/30
108-88-3	Toluene	ND		3590	3830	107	3510	98	9	60-130/30
1330-20-7	Xylene (total)	ND		10800	11900	111	10900	101	9	58-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D41291-1	Limits
2037-26-5	Toluene-D8	99%	101%	99%	64-130%
460-00-4	4-Bromofluorobenzene	103%	103%	98%	62-131%
17060-07-0	1,2-Dichloroethane-D4	102%	101%	101%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D41291-1MS	5V24810.D	1	11/30/12	BD	n/a	n/a	V5V1515
D41291-1MSD	5V24811.D	1	11/30/12	BD	n/a	n/a	V5V1515
D41291-1	5V24807.D	1	11/30/12	BD	n/a	n/a	V5V1515

The QC reported here applies to the following samples:

Method: SW846 8260B

D41305-1

CAS No.	Compound	D41291-1 ug/kg	Spike Q	ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
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CAS No.	Surrogate Recoveries	MS	MSD	D41291-1	Limits
2037-26-5	Toluene-D8	102%	102%	99%	64-130%
460-00-4	4-Bromofluorobenzene	100%	100%	98%	62-131%
17060-07-0	1,2-Dichloroethane-D4	99%	100%	101%	70-130%

* = Outside of Control Limits.

GC/MS Volatiles

Raw Data

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5113012.S\
 Data File : 5V24815.D
 Acq On : 30 Nov 2012 6:44 pm
 Operator : BRETD
 Sample : D41305-1
 Misc : MS5037,V5V1515,5.065,,100,5,1
 ALS Vial : 19 Sample Multiplier: 1

Quant Time: Dec 03 15:58:38 2012
 Quant Method : C:\msdchem\1\METHODS\V5AP1497TVH1497.M
 Quant Title : 8260
 QLast Update : Wed Nov 14 09:54:38 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.624	168	440030	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.423	114	567437	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.072	117	532607	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.036	152	390478	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.012	102	38124	50.90	ug/l	-0.01
Spiked Amount	50.000	Range	70 - 130	Recovery	=	101.80%
61) Toluene-d8	13.816	98	649359	51.47	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	102.94%
69) 4-Bromofluorobenzene	16.020	95	267890	49.26	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	98.52%

Target Compounds

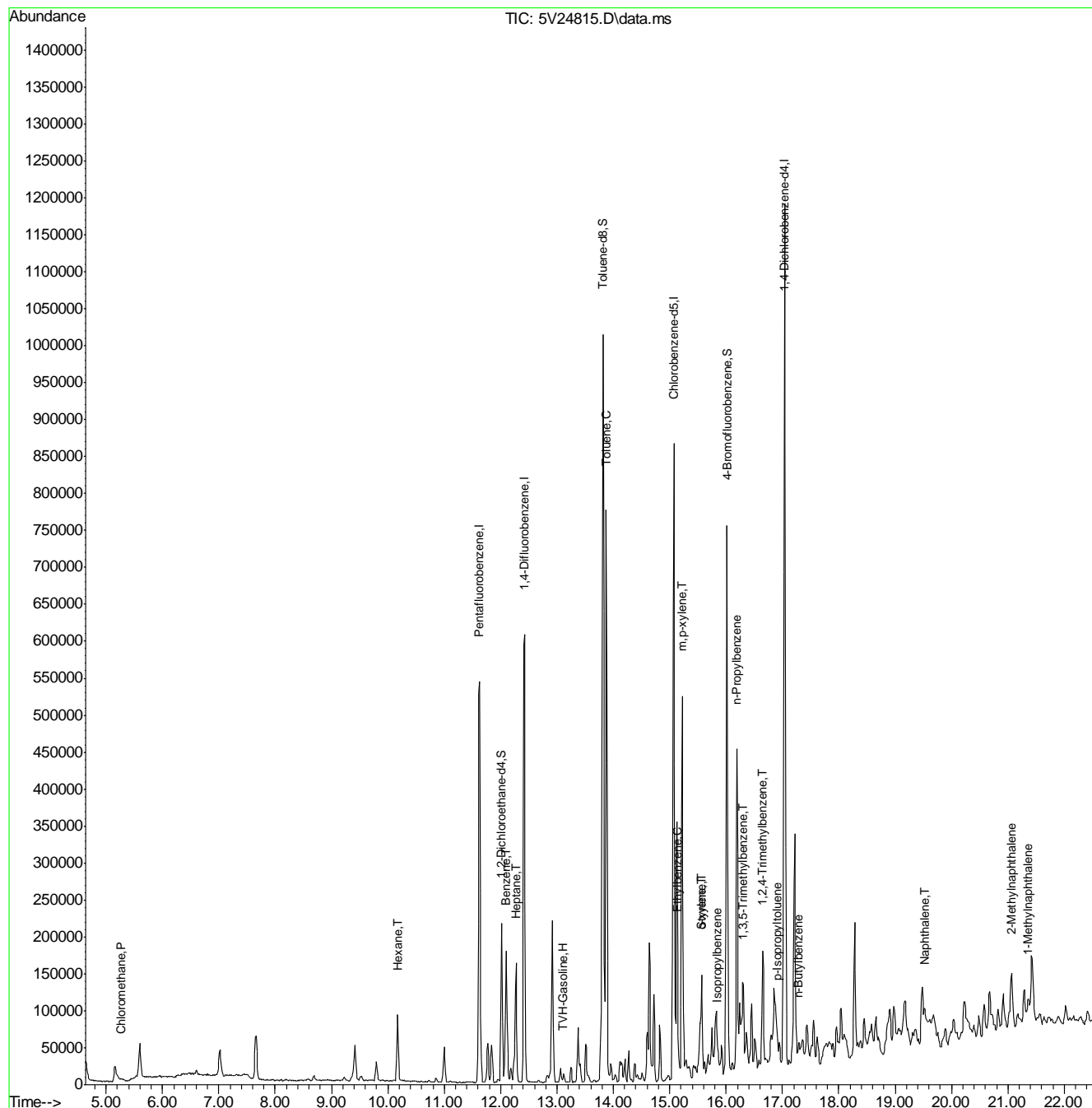
					Qvalue
1) TVH-Gasoline	13.102	TIC	9347111m	7.64	ug/l
4) Chloromethane	5.265	50	849	0.17	ug/l
41) Hexane	10.174	57	44679	8.69	ug/l
43) Heptane	12.275	43	59518	10.06	ug/l
50) Benzene	12.092	78	171333	11.37	ug/l
62) Toluene	13.873	92	263476	26.78	ug/l
66) Ethylbenzene	15.140	91	58189	3.10	ug/l
68) Isopropylbenzene	15.848	105	8915	0.46	ug/l
71) Styrene	15.563	104	30828	2.55	ug/l
72) m,p-xylene	15.220	106	164009	21.75	ug/l
73) o-xylene	15.563	106	25222	3.37	ug/l
77) n-Propylbenzene	16.191	91	26631	1.14	ug/l
80) 1,3,5-Trimethylbenzene	16.305	105	47542	2.67	ug/l
82) 1,2,4-Trimethylbenzene	16.648	105	89584	4.81	ug/l
86) p-Isopropyltoluene	16.899	119	22384	1.04	ug/l #
88) n-Butylbenzene	17.287	91	9113	0.46	ug/l #
91) Naphthalene	19.525	128	41564	2.15	ug/l
94) 2-Methylnaphthalene	21.054	142	39467	8.33	ug/l #
95) 1-Methylnaphthalene	21.351	142	21738	3.11	ug/l

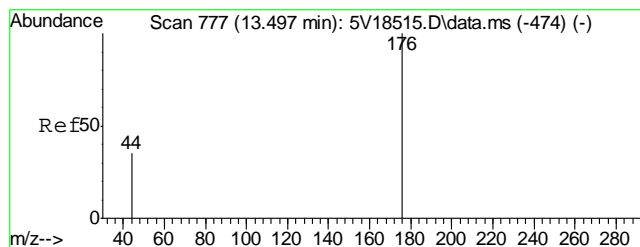
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5113012.S\
Data File : 5V24815.D
Acq On : 30 Nov 2012 6:44 pm
Operator : BRETD
Sample : D41305-1
Misc : MS5037,V5V1515,5.065,,100,5,1
ALS Vial : 19 Sample Multiplier: 1

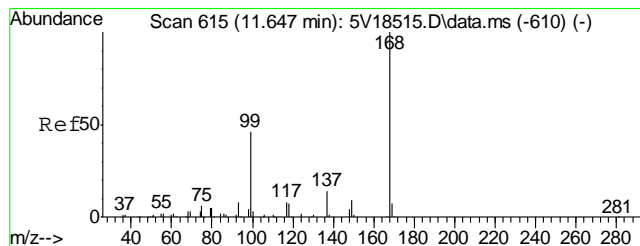
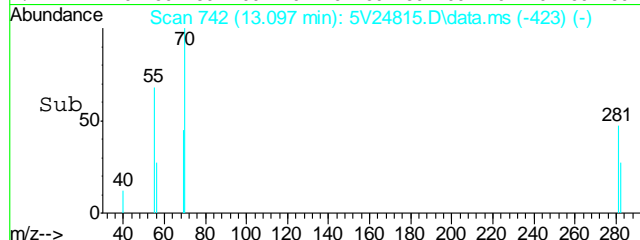
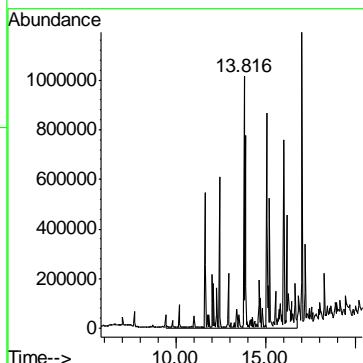
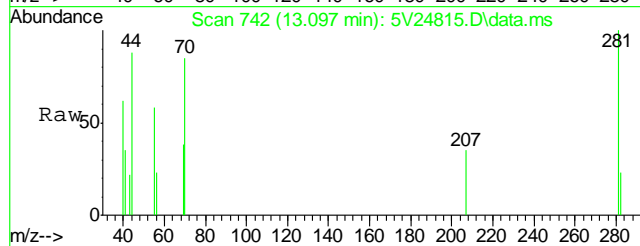
Quant Time: Dec 03 15:58:38 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1497TVH1497.M
Quant Title : 8260
QLast Update : Wed Nov 14 09:54:38 2012
Response via : Initial Calibration





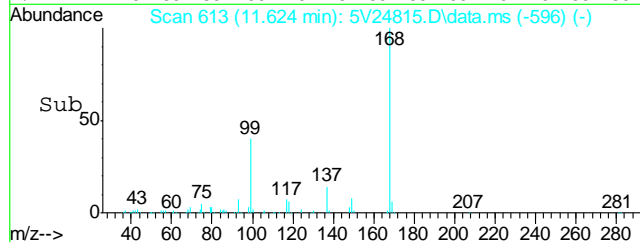
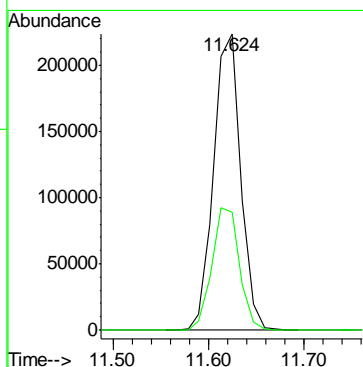
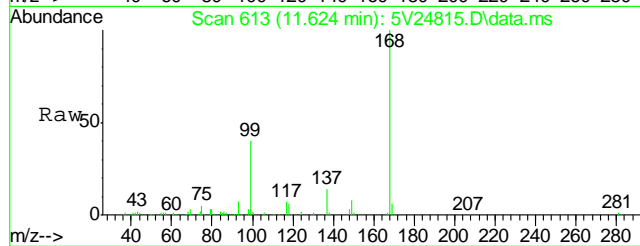
#1
TVH-Gasoline
Concen: 7.64 ug/l m
RT: 13.102 min Scan# 742
Delta R.T. 0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

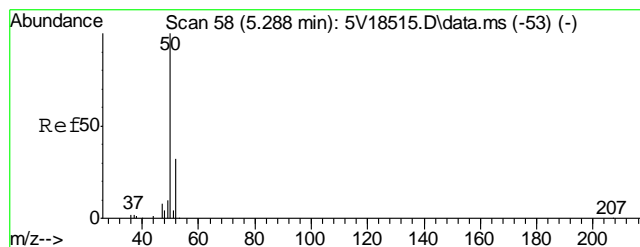
Tgt Ion:TIC Resp: 9347111



#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.624 min Scan# 613
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

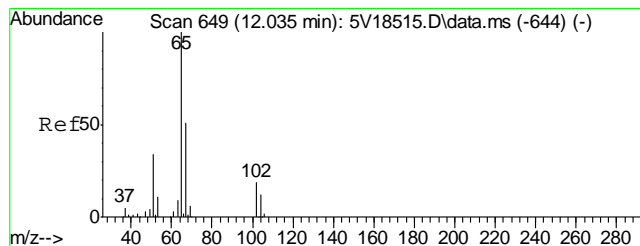
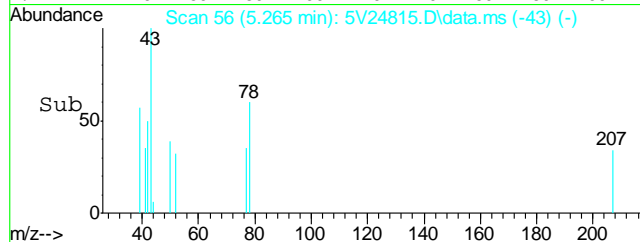
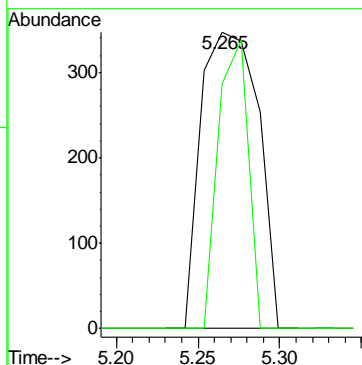
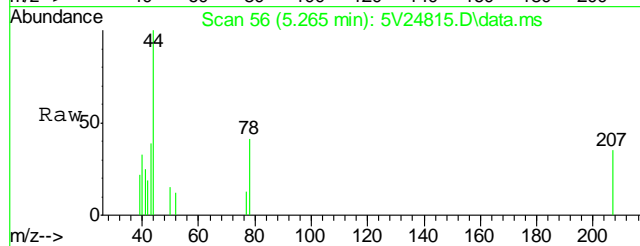
Tgt Ion:168 Resp: 440030
Ion Ratio Lower Upper
168 100
99 41.9 37.4 56.2





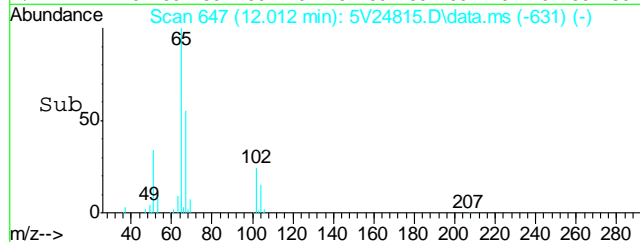
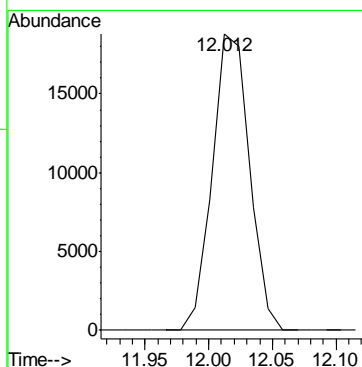
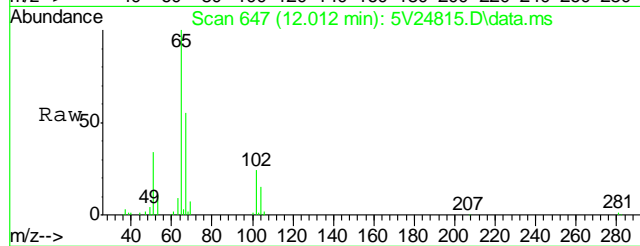
#4
Chloromethane
Concen: 0.17 ug/l
RT: 5.265 min Scan# 56
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

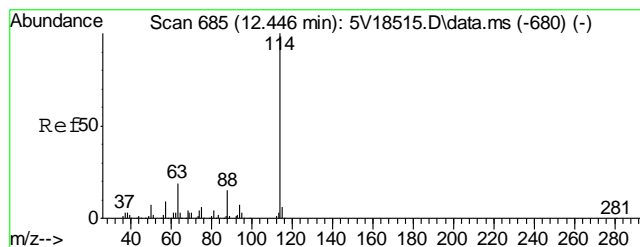
Tgt Ion: 50 Resp: 849
Ion Ratio Lower Upper
50 100
52 50.4 12.1 52.1



#33
1,2-Dichloroethane-d4
Concen: 50.90 ug/l
RT: 12.012 min Scan# 647
Delta R.T. -0.012 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

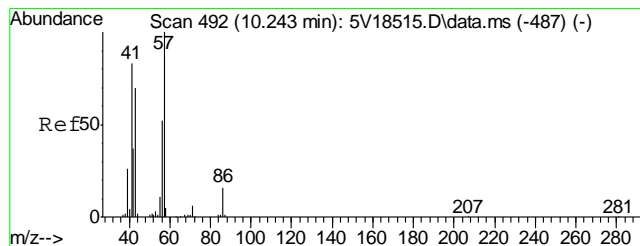
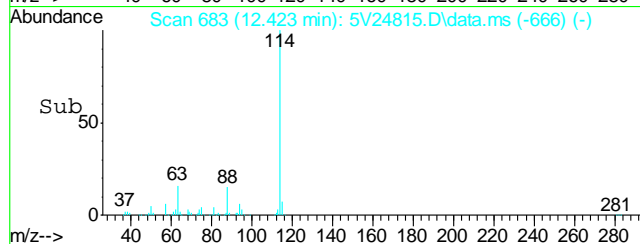
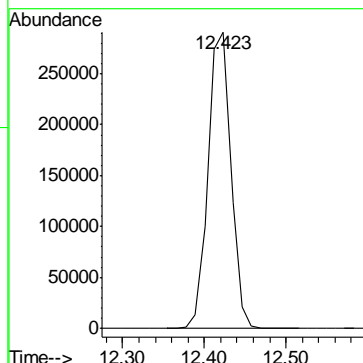
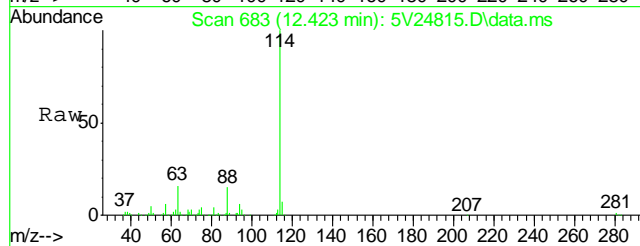
Tgt Ion: 102 Resp: 38124





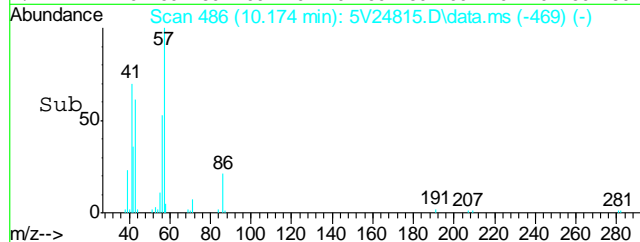
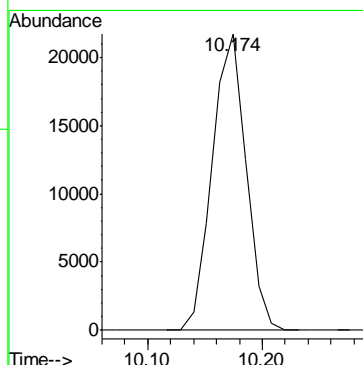
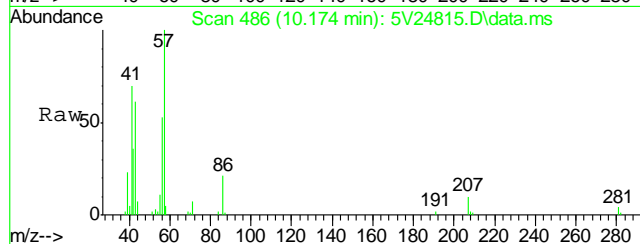
#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.423 min Scan# 683
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

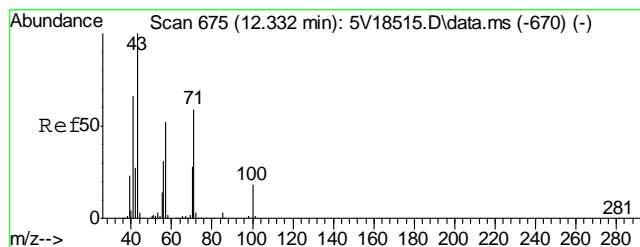
Tgt Ion:114 Resp: 567437



#41
Hexane
Concen: 8.69 ug/l
RT: 10.174 min Scan# 486
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

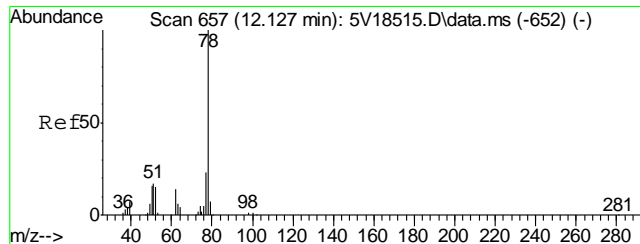
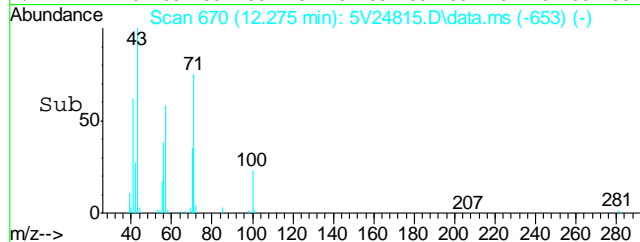
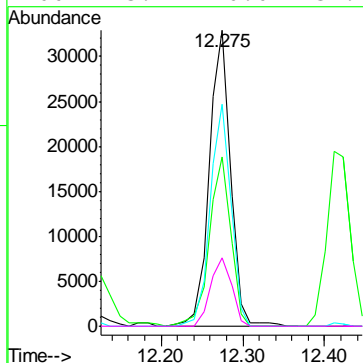
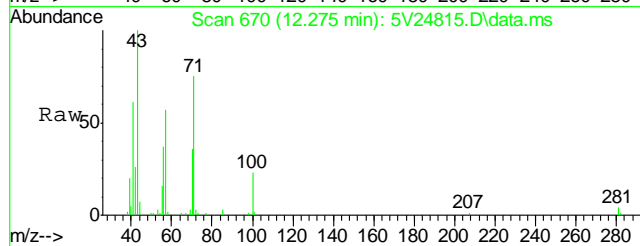
Tgt Ion: 57 Resp: 44679





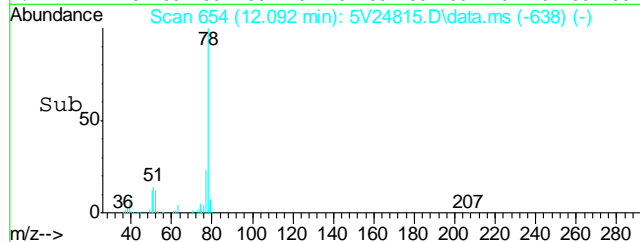
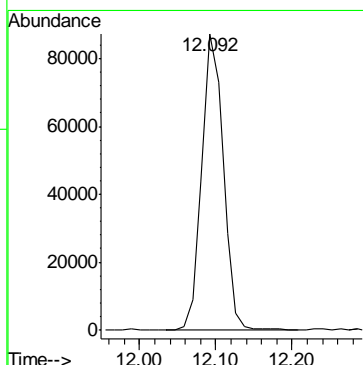
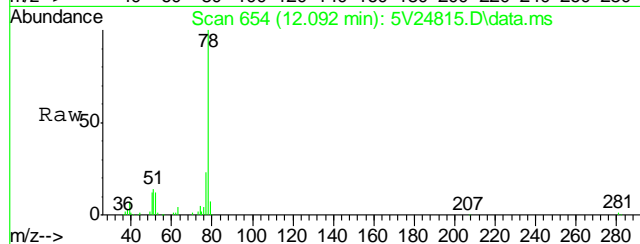
#43
Heptane
Concen: 10.06 ug/l
RT: 12.275 min Scan# 670
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

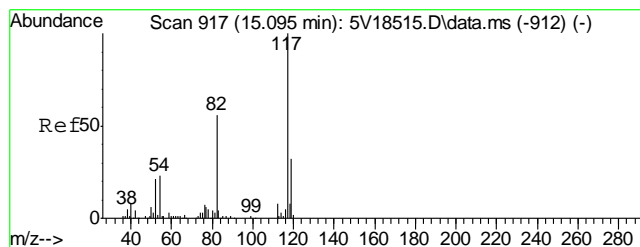
Tgt Ion:	43	Resp:	59518
Ion Ratio	Lower	Upper	
43	100		
57	57.5	30.6	70.6
71	72.8	38.9	78.9
100	23.1	0.0	37.4



#50
Benzene
Concen: 11.37 ug/l
RT: 12.092 min Scan# 654
Delta R.T. -0.012 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

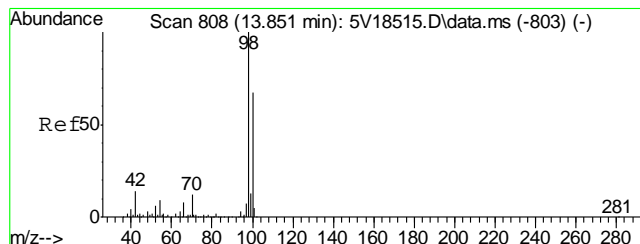
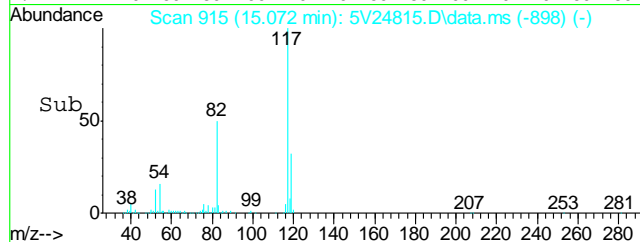
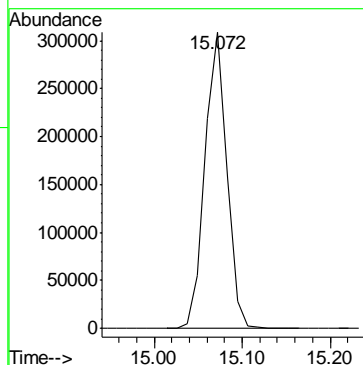
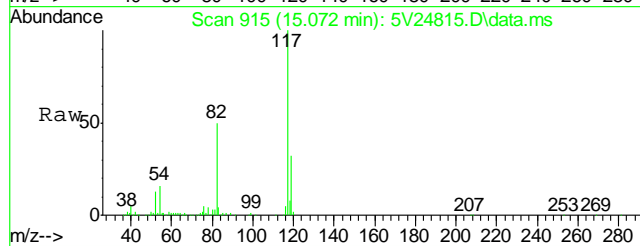
Tgt Ion: 78 Resp: 171333





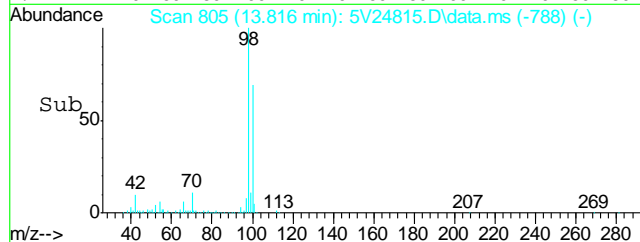
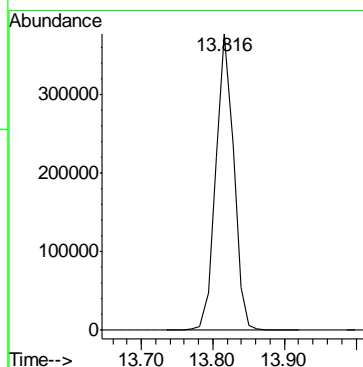
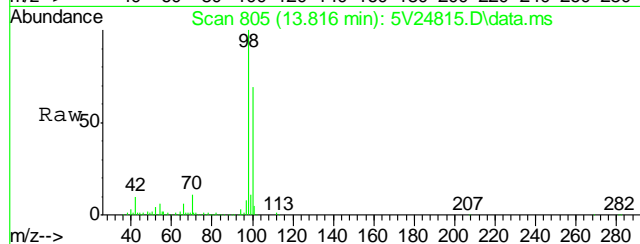
#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.072 min Scan# 915
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

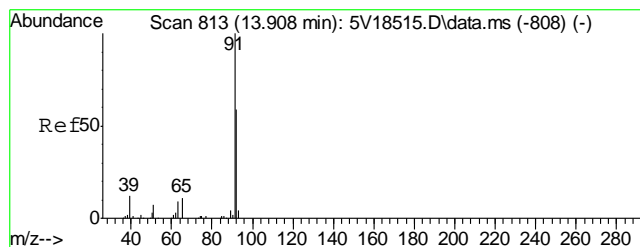
Tgt Ion: 117 Resp: 532607



#61
Toluene-d8
Concen: 51.47 ug/l
RT: 13.816 min Scan# 805
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

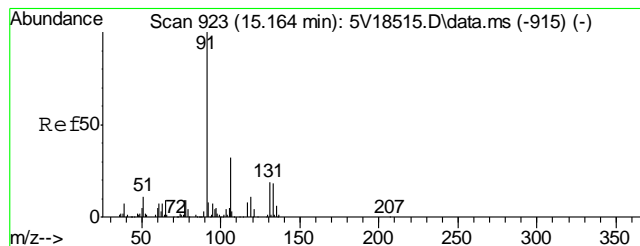
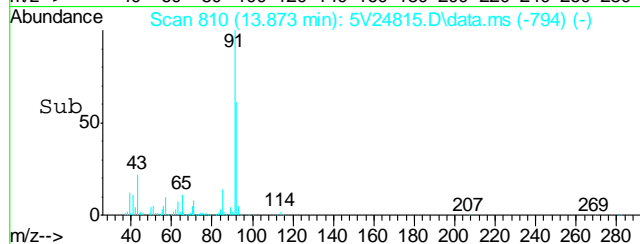
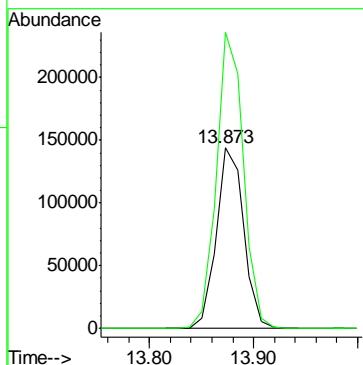
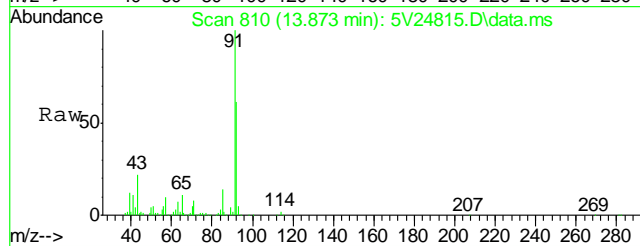
Tgt Ion: 98 Resp: 649359





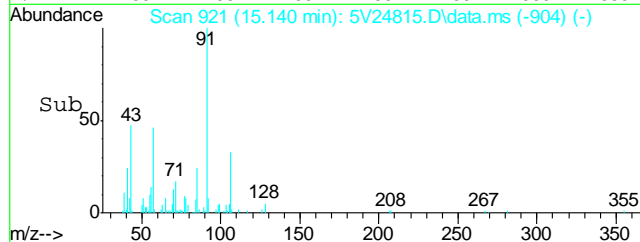
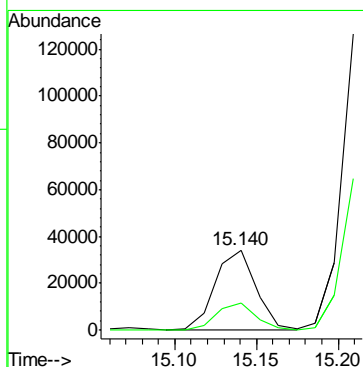
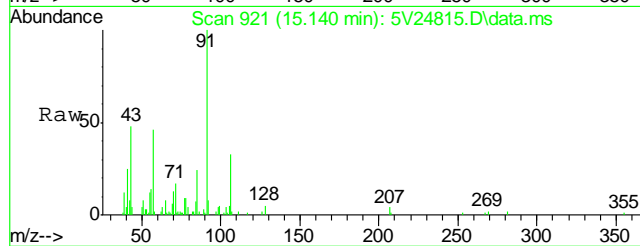
#62
Toluene
Concen: 26.78 ug/l
RT: 13.873 min Scan# 810
Delta R.T. -0.012 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

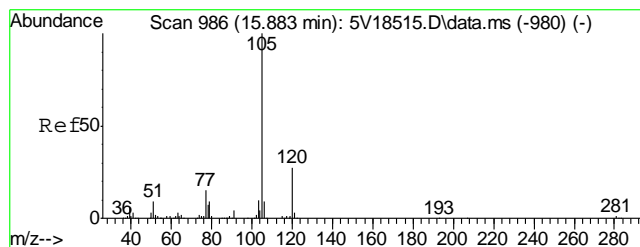
Tgt Ion: 92 Resp: 263476
Ion Ratio Lower Upper
92 100
91 162.8 149.8 189.8



#66
Ethylbenzene
Concen: 3.10 ug/l
RT: 15.140 min Scan# 921
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

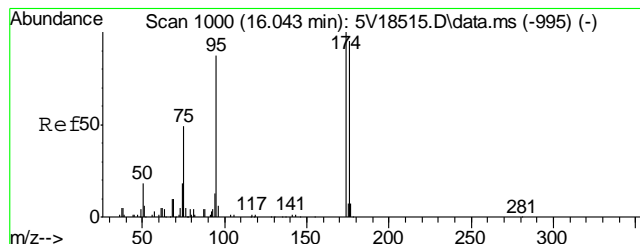
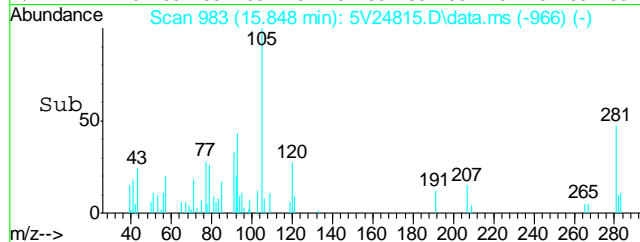
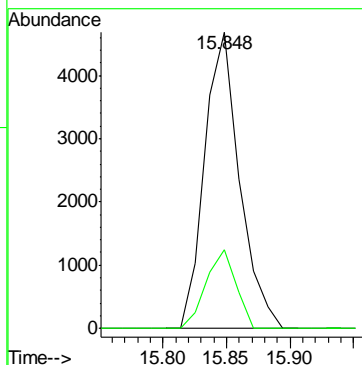
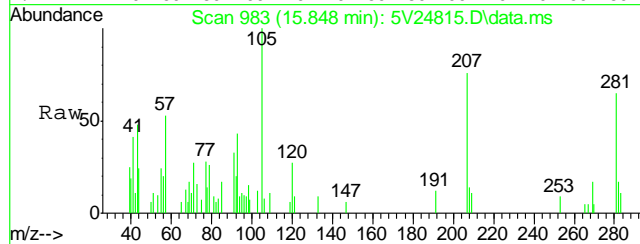
Tgt Ion: 91 Resp: 58189
Ion Ratio Lower Upper
91 100
106 33.0 11.7 51.7





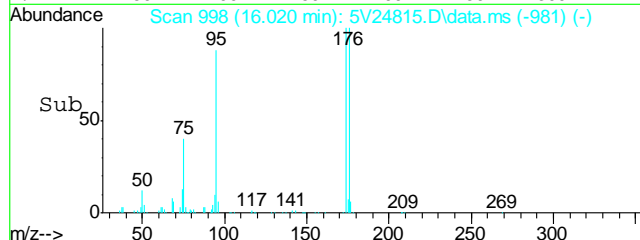
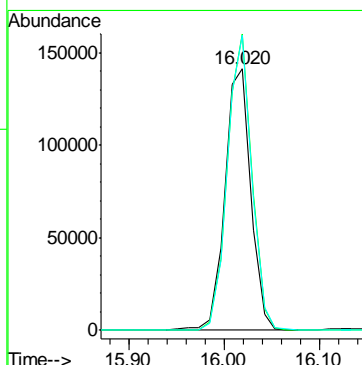
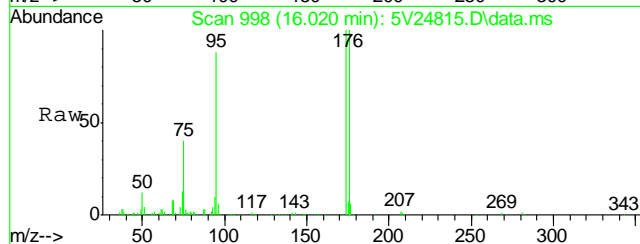
#68
Isopropylbenzene
Concen: 0.46 ug/l
RT: 15.848 min Scan# 983
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

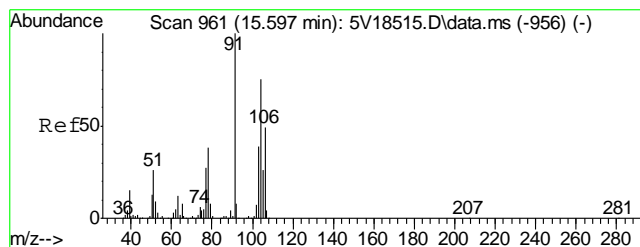
Tgt Ion	Ratio	Lower	Upper
105	100		
120	22.7	21.0	31.4



#69
4-Bromofluorobenzene
Concen: 49.26 ug/l
RT: 16.020 min Scan# 998
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

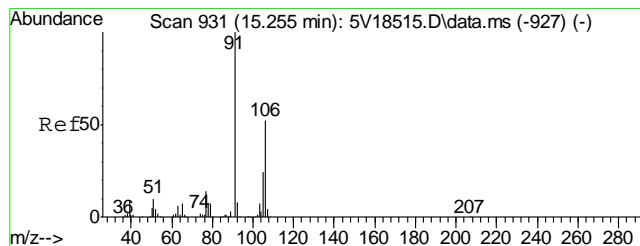
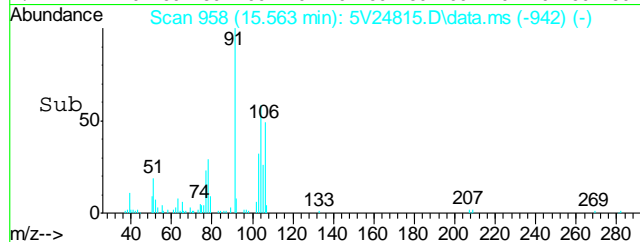
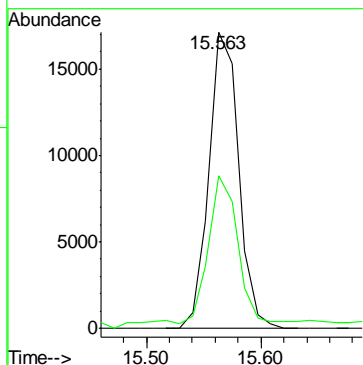
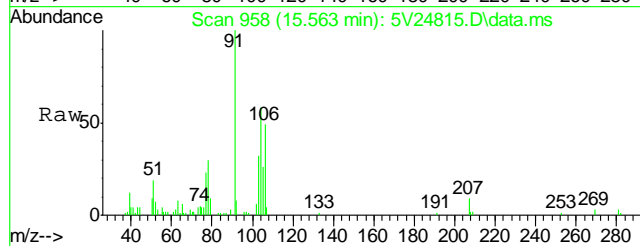
Tgt Ion	Ratio	Lower	Upper
95	100		
174	106.5	77.1	117.1
176	106.0	73.4	113.4





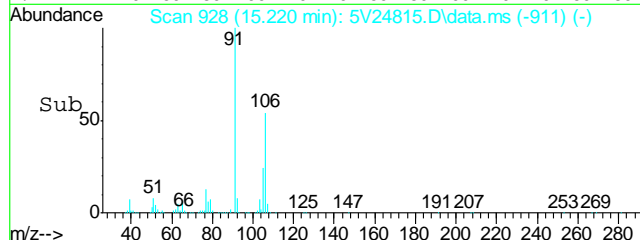
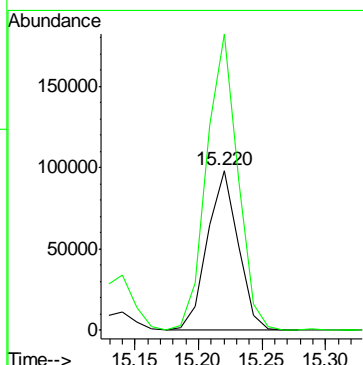
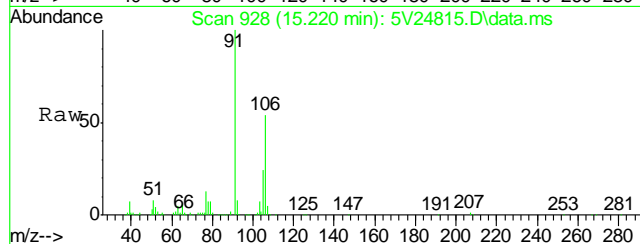
#71
Styrene
Concen: 2.55 ug/l
RT: 15.563 min Scan# 958
Delta R.T. -0.012 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

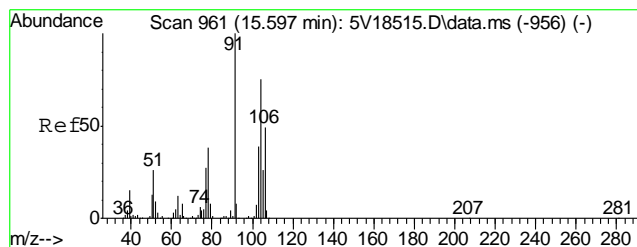
Tgt Ion	Ratio	Lower	Upper
104	100		
78	61.9	32.6	72.6



#72
m,p-xylene
Concen: 21.75 ug/l
RT: 15.220 min Scan# 928
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

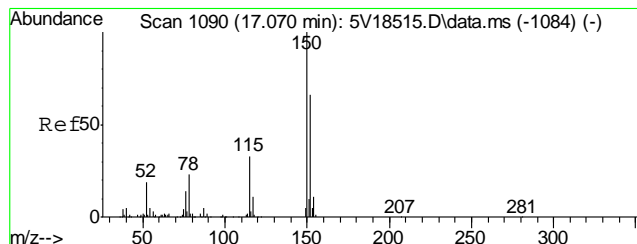
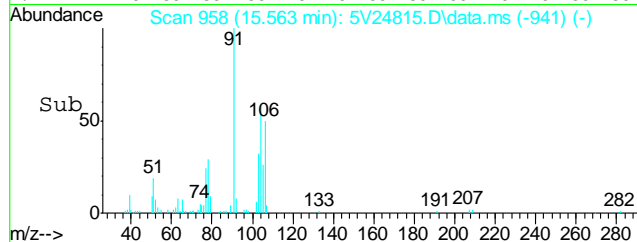
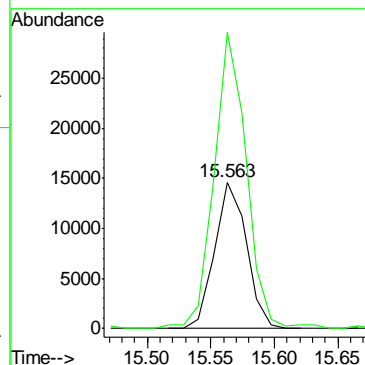
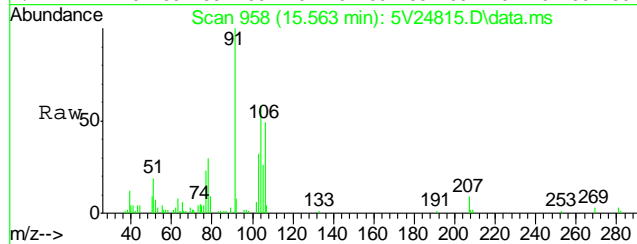
Tgt Ion	Ratio	Lower	Upper
106	100		
91	188.5	177.1	217.1





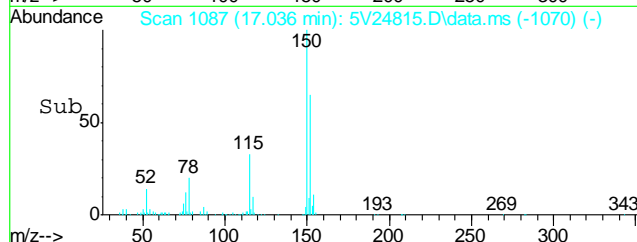
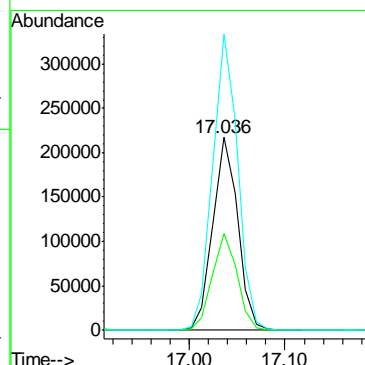
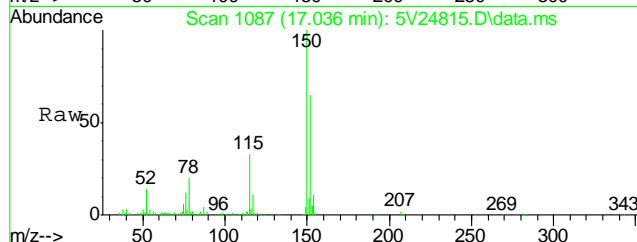
#73
o-xylene
Concen: 3.37 ug/l
RT: 15.563 min Scan# 958
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

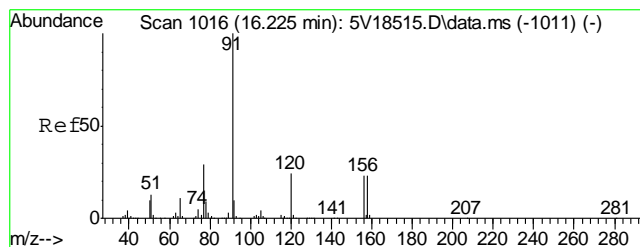
Tgt Ion:106 Resp: 25222
Ion Ratio Lower Upper
106 100
91 206.0 166.6 249.8



#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.036 min Scan# 1087
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

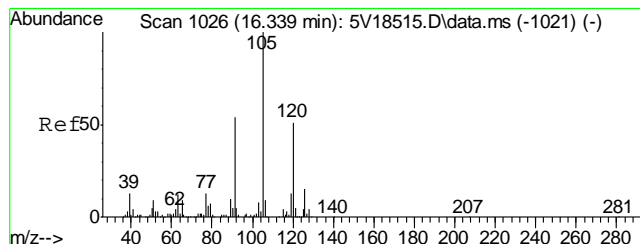
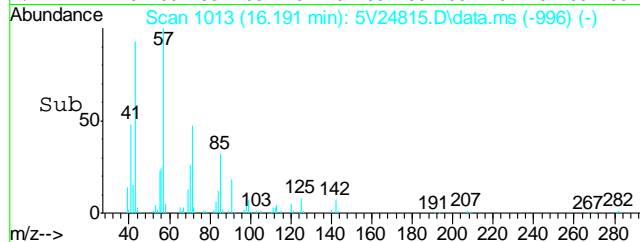
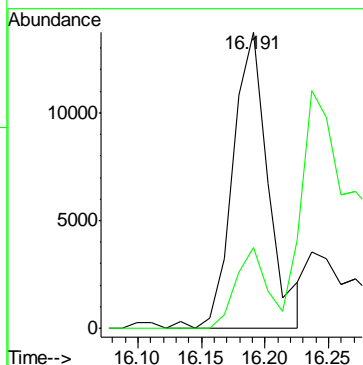
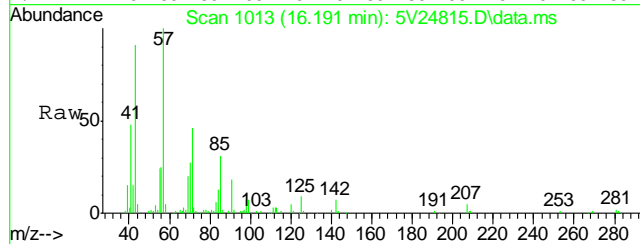
Tgt Ion:152 Resp: 390478
Ion Ratio Lower Upper
152 100
115 50.5 41.4 62.0
150 155.0 153.9 230.9





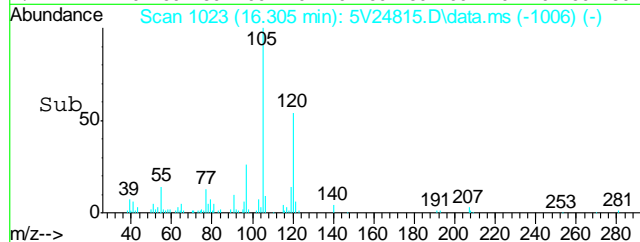
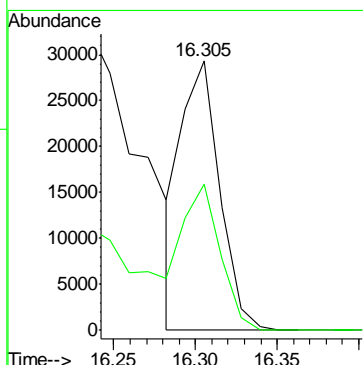
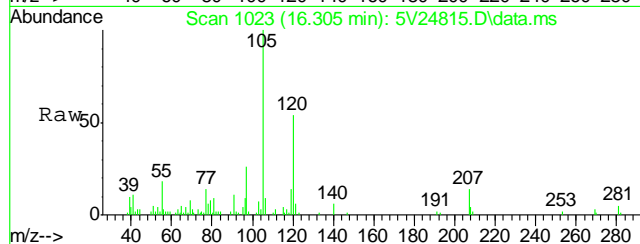
#77
n-Propylbenzene
Concen: 1.14 ug/l
RT: 16.191 min Scan# 1013
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

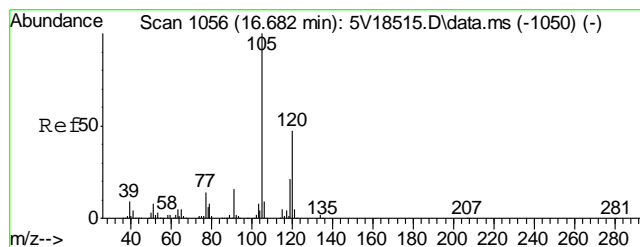
Tgt Ion: 91 Resp: 26631
Ion Ratio Lower Upper
91 100
120 24.4 18.6 27.8



#80
1,3,5-Trimethylbenzene
Concen: 2.67 ug/l
RT: 16.305 min Scan# 1023
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

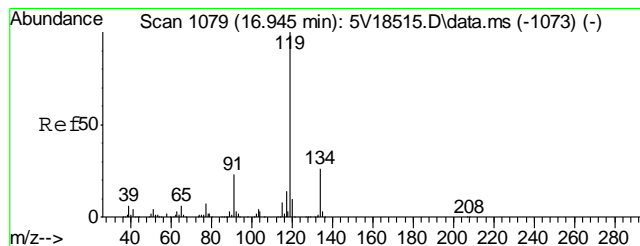
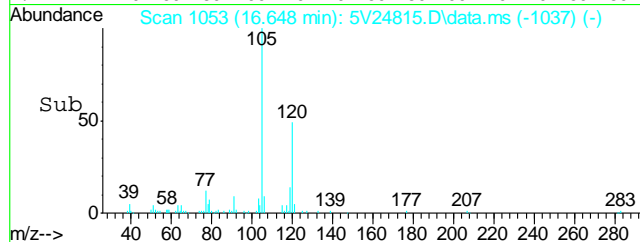
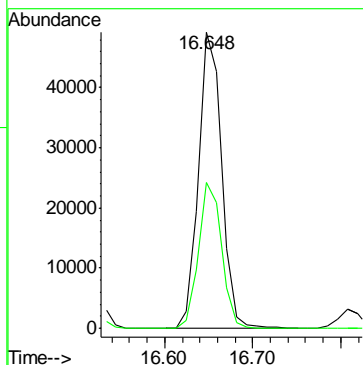
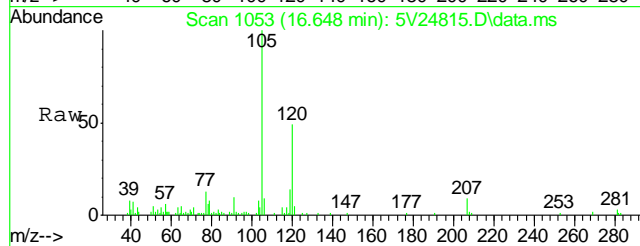
Tgt Ion: 105 Resp: 47542
Ion Ratio Lower Upper
105 100
120 53.6 40.1 60.1





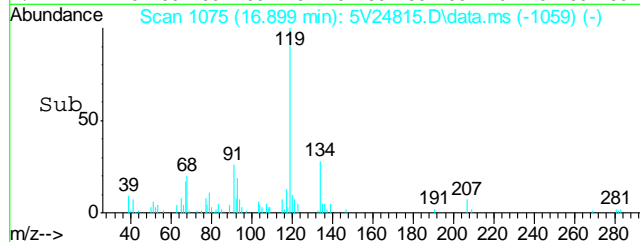
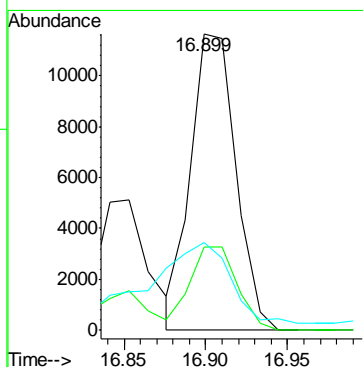
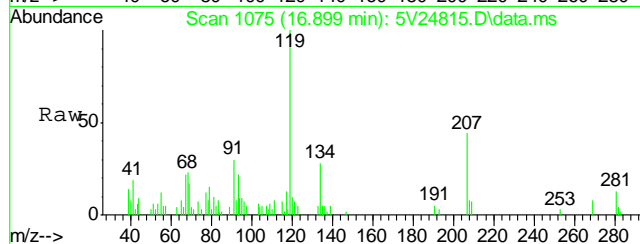
#82
1,2,4-Trimethylbenzene
Concen: 4.81 ug/l
RT: 16.648 min Scan# 1053
Delta R.T. -0.012 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

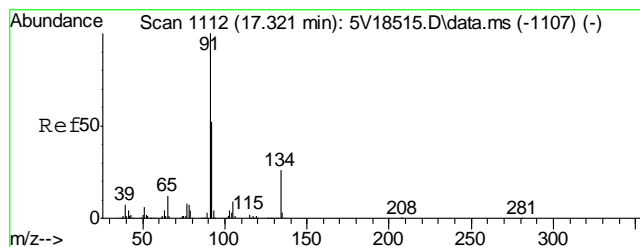
Tgt Ion	Ratio	Lower	Upper
105	100		
120	49.1	43.8	65.8



#86
p-Isopropyltoluene
Concen: 1.04 ug/l
RT: 16.899 min Scan# 1075
Delta R.T. -0.012 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

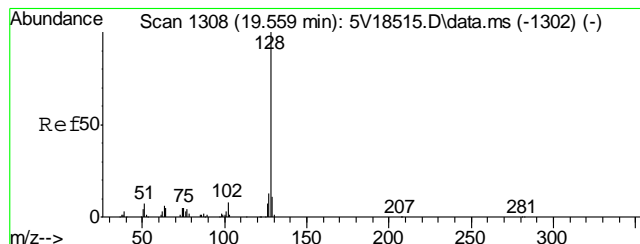
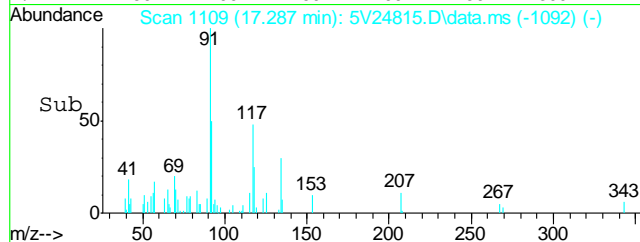
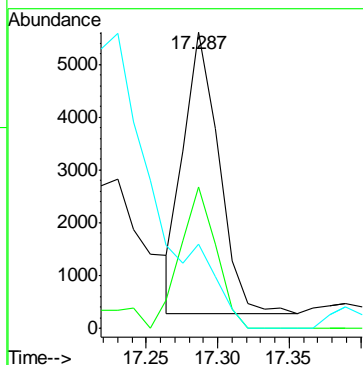
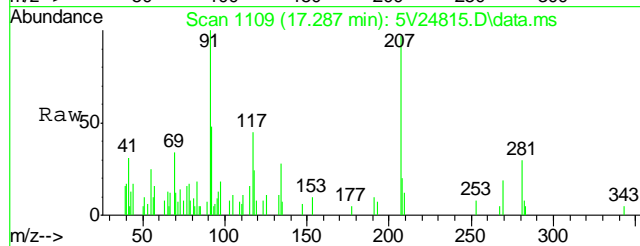
Tgt Ion	Ratio	Lower	Upper
119	100		
134	29.4	21.3	31.9
91	47.4	19.0	28.6





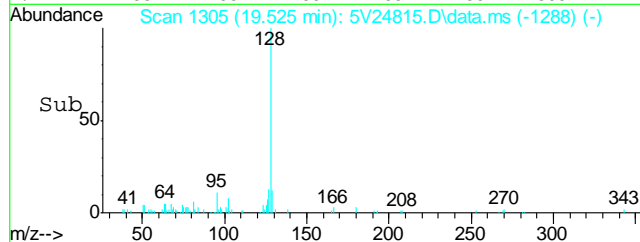
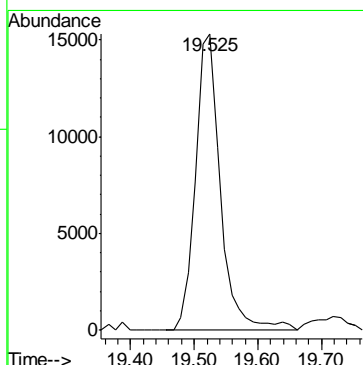
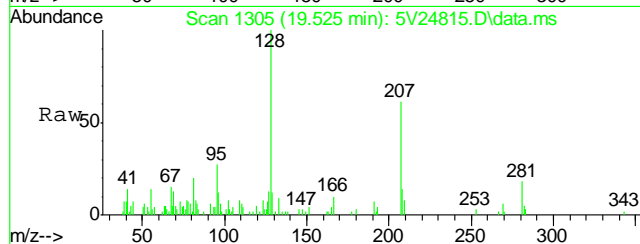
#88
n-Butylbenzene
Concen: 0.46 ug/l
RT: 17.287 min Scan# 1109
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

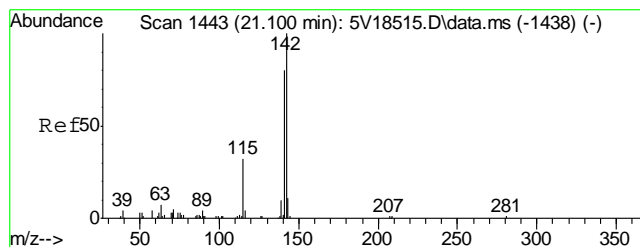
Tgt Ion: 91 Resp: 9113
Ion Ratio Lower Upper
91 100
92 51.3 42.2 63.4
134 0.0 21.4 32.2#



#91
Naphthalene
Concen: 2.15 ug/l
RT: 19.525 min Scan# 1305
Delta R.T. -0.000 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

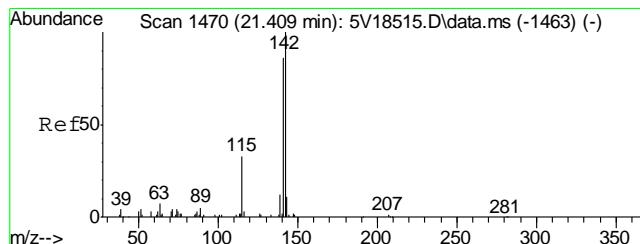
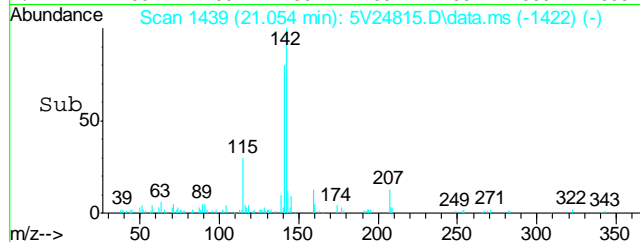
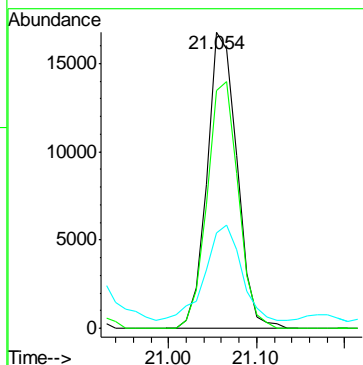
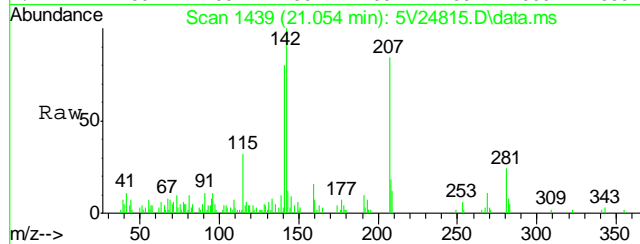
Tgt Ion: 128 Resp: 41564





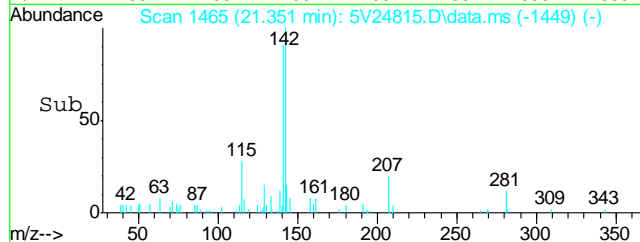
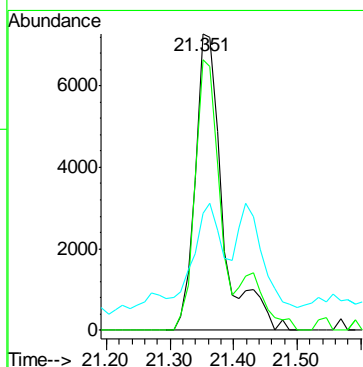
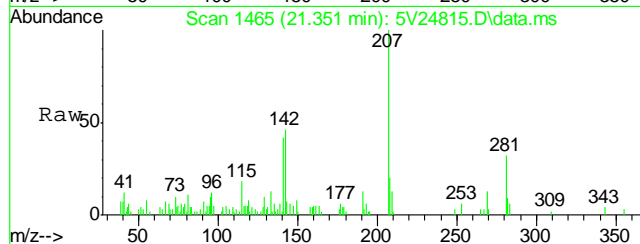
#94
2-Methylnaphthalene
Concen: 8.33 ug/l
RT: 21.054 min Scan# 1439
Delta R.T. -0.012 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion:	142	Resp:	39467
Ion Ratio	Lower	Upper	
142	100		
141	86.9	66.2	99.4
115	39.3	25.9	38.9#



#95
1-Methylnaphthalene
Concen: 3.11 ug/l
RT: 21.351 min Scan# 1465
Delta R.T. -0.012 min
Lab File: 5V24815.D
Acq: 30 Nov 2012 6:44 pm

Tgt Ion:	142	Resp:	21738
Ion Ratio	Lower	Upper	
142	100		
141	82.3	68.9	103.3
115	40.4	27.3	40.9



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5113012.S\
Data File : 5V24804.D
Acq On : 30 Nov 2012 12:36 pm
Operator : BRETD
Sample : MB
Misc : MS5037,V5V1515,5.00,,100,5,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 03 15:25:05 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1497TVH1497.M
Quant Title : 8260
QLast Update : Wed Nov 14 09:54:38 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.624	168	376674	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.423	114	473950	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.072	117	455154	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.036	152	308385	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.012	102	33764	52.67	ug/l	-0.01
Spiked Amount	50.000	Range	70 - 130	Recovery	=	105.34%
61) Toluene-d8	13.816	98	534703	49.59	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	99.18%
69) 4-Bromofluorobenzene	16.020	95	211026	45.41	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	90.82%

Target Compounds

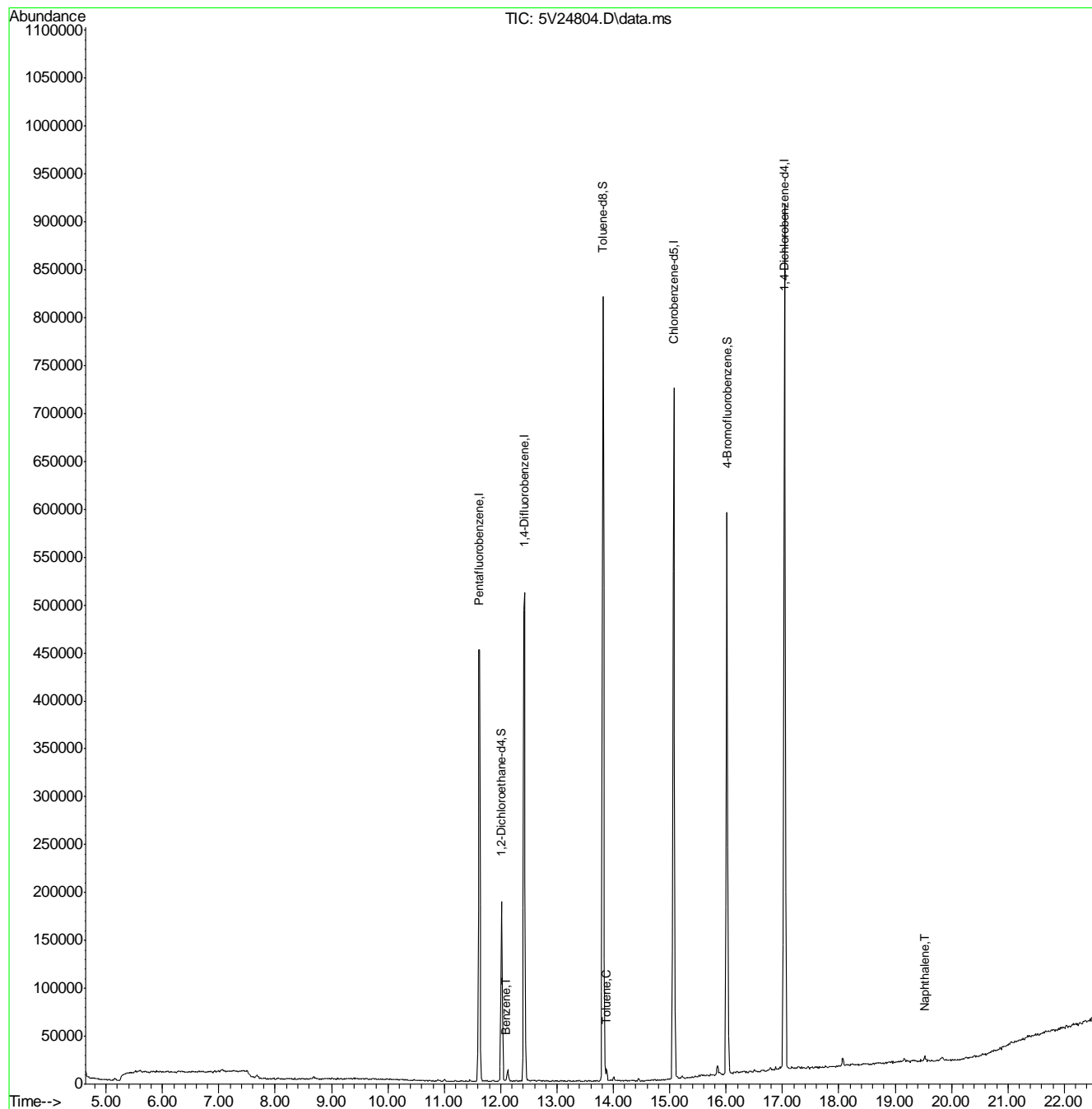
					Qvalue
1) TVH-Gasoline	13.816	TIC	7299411m	Below Cal	
50) Benzene	12.092	78	1089	0.09 ug/l	100
62) Toluene	13.873	92	5761	0.69 ug/l	99
91) Naphthalene	19.525	128	6127	0.40 ug/l	100

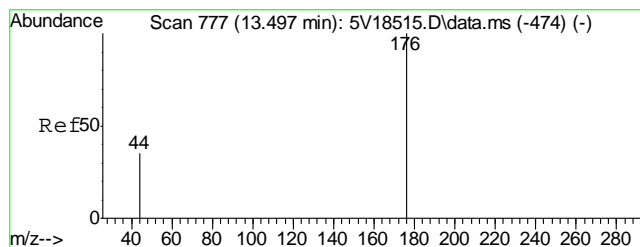
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5113012.S\
Data File : 5V24804.D
Acq On : 30 Nov 2012 12:36 pm
Operator : BRETD
Sample : MB
Misc : MS5037,V5V1515,5.00,,100,5,1
ALS Vial : 8 Sample Multiplier: 1

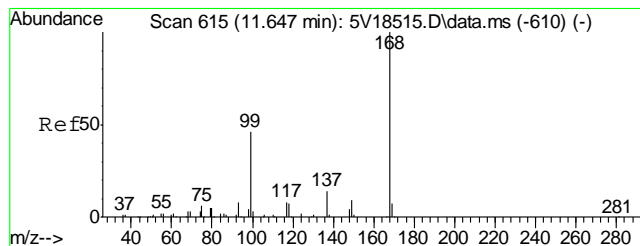
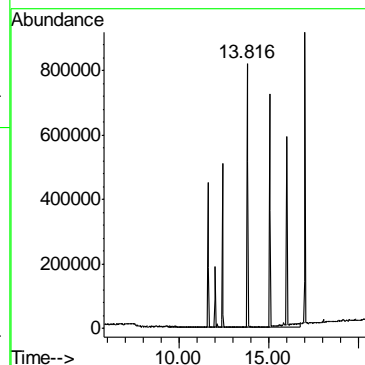
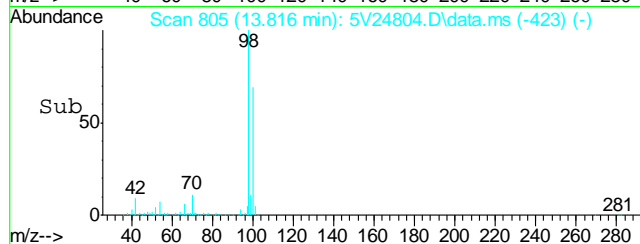
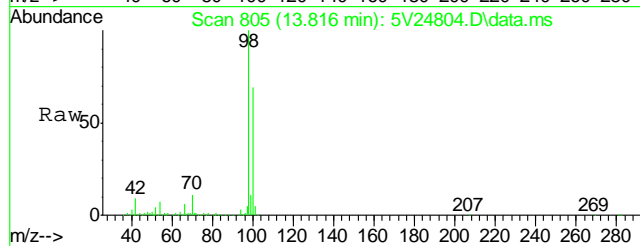
Quant Time: Dec 03 15:25:05 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1497TVH1497.M
Quant Title : 8260
QLast Update : Wed Nov 14 09:54:38 2012
Response via : Initial Calibration





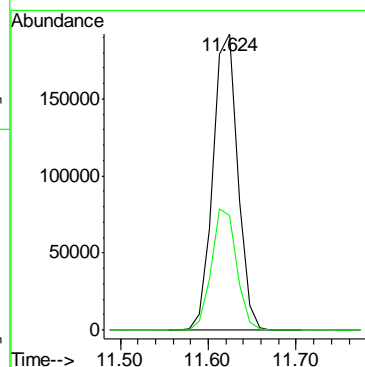
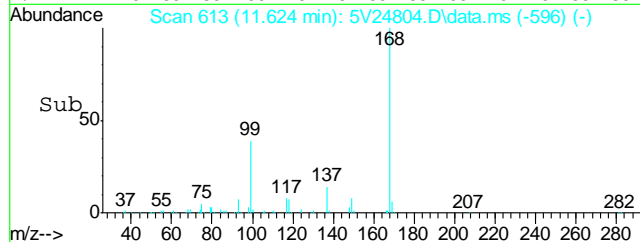
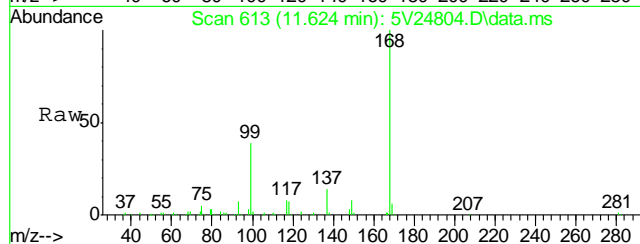
#1
TVH-Gasoline
Concen: Below Cal m
RT: 13.816 min Scan# 805
Delta R.T. 0.714 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

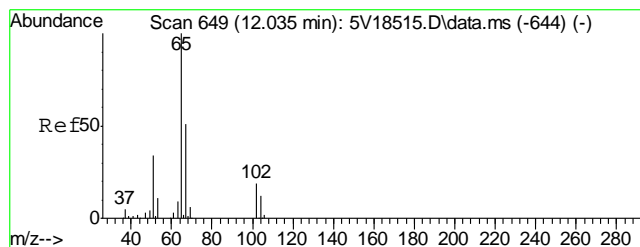
Tgt Ion:TIC Resp: 7299411



#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.624 min Scan# 613
Delta R.T. -0.000 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

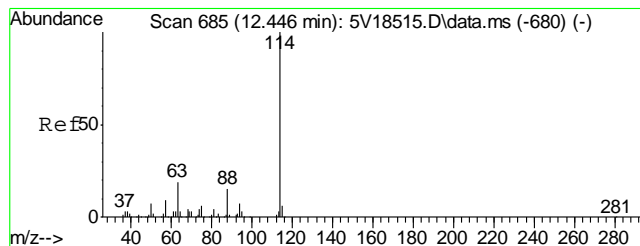
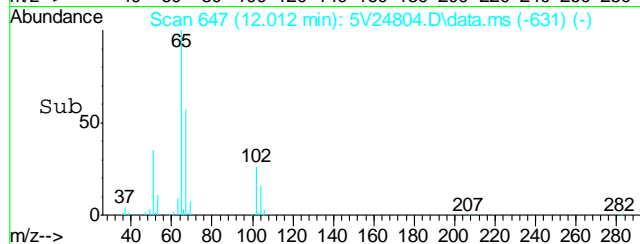
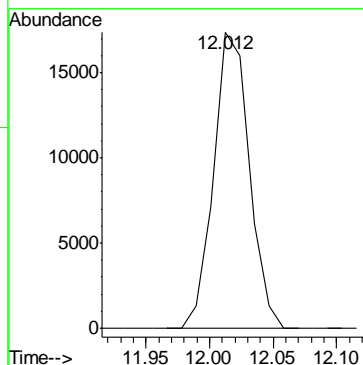
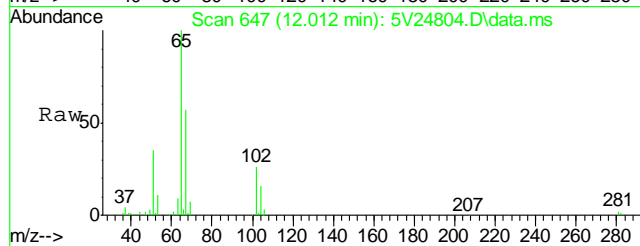
Tgt Ion:168 Resp: 376674
Ion Ratio Lower Upper
168 100
99 41.2 37.4 56.2





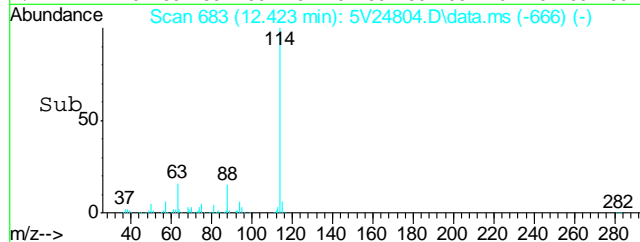
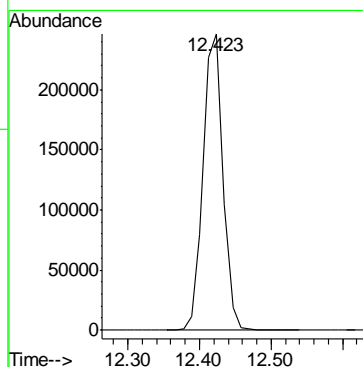
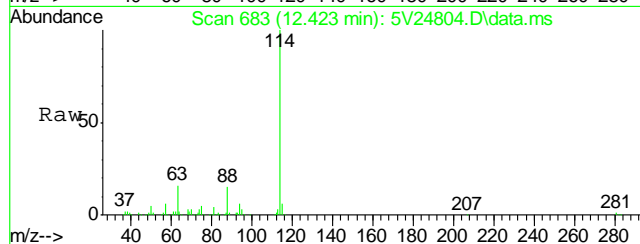
#33
1,2-Dichloroethane-d4
Concen: 52.67 ug/l
RT: 12.012 min Scan# 647
Delta R.T. -0.012 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

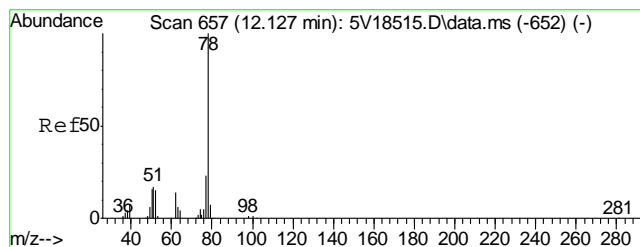
Tgt Ion:102 Resp: 33764



#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.423 min Scan# 683
Delta R.T. -0.000 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

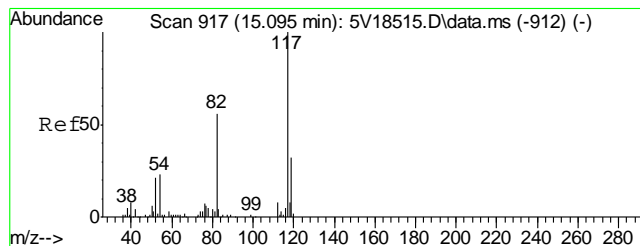
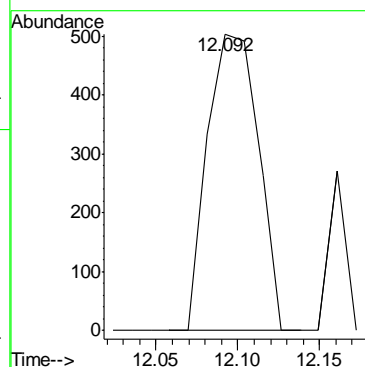
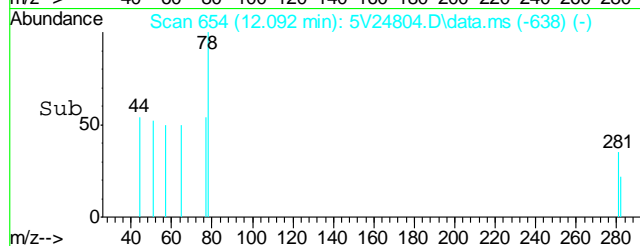
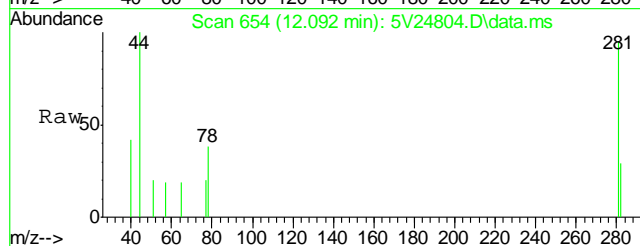
Tgt Ion:114 Resp: 473950





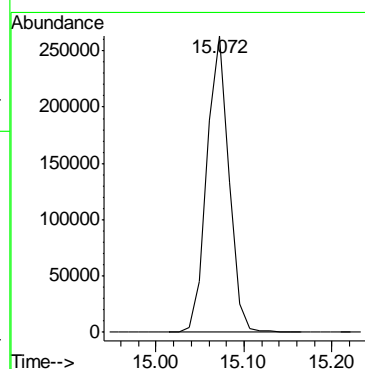
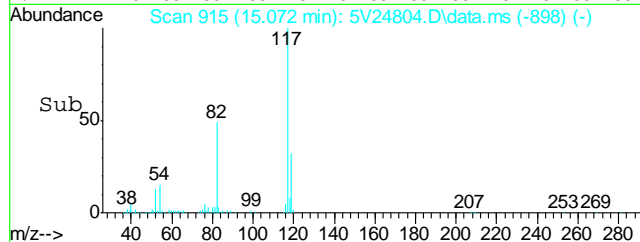
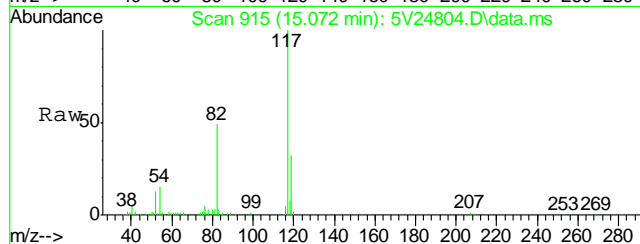
#50
Benzene
Concen: 0.09 ug/l
RT: 12.092 min Scan# 654
Delta R.T. -0.012 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

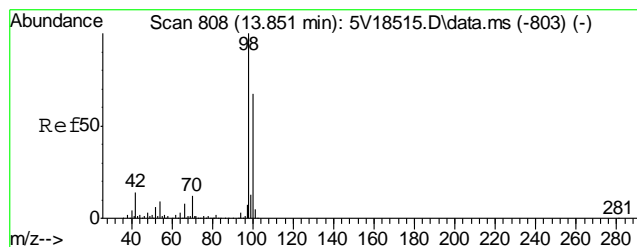
Tgt Ion: 78 Resp: 1089



#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.072 min Scan# 915
Delta R.T. -0.000 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

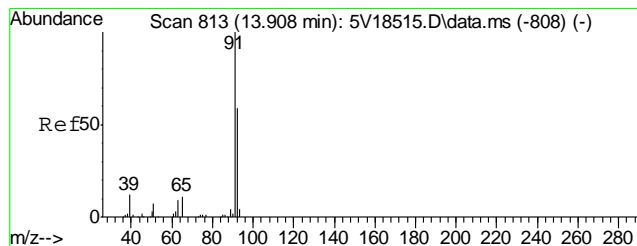
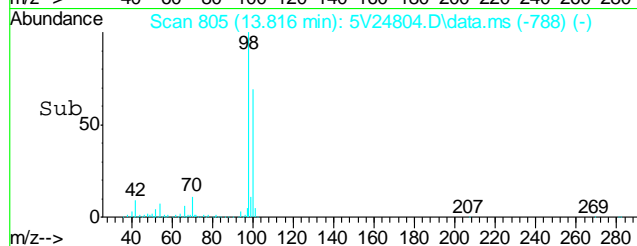
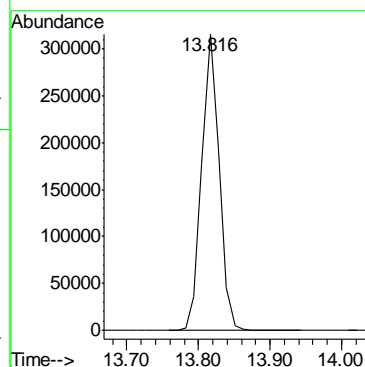
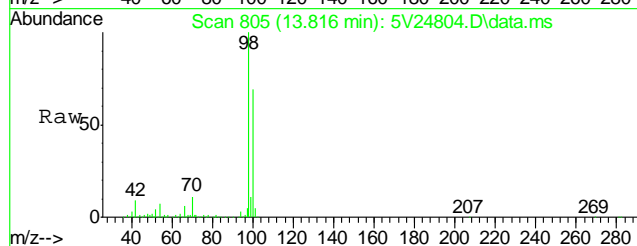
Tgt Ion: 117 Resp: 455154





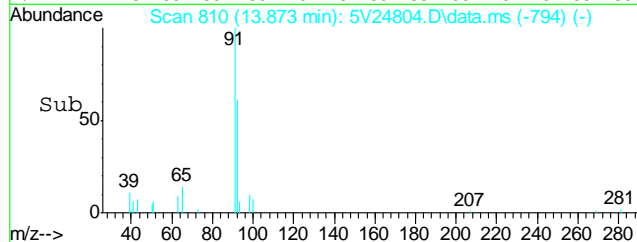
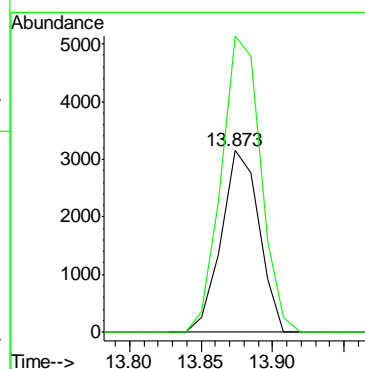
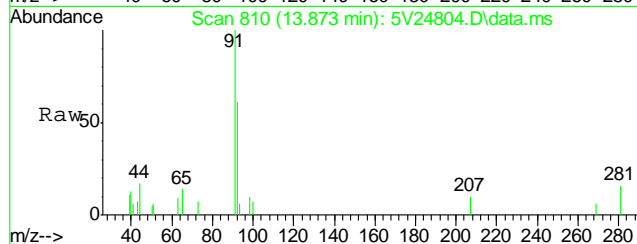
#61
Toluene-d8
Concen: 49.59 ug/l
RT: 13.816 min Scan# 805
Delta R.T. -0.000 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

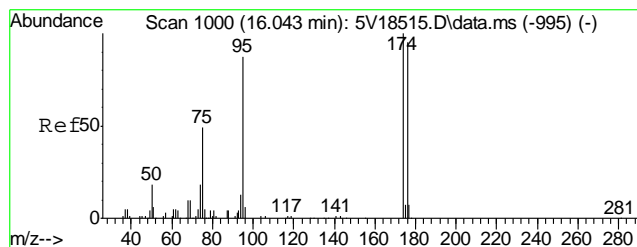
Tgt Ion: 98 Resp: 534703



#62
Toluene
Concen: 0.69 ug/l
RT: 13.873 min Scan# 810
Delta R.T. -0.012 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

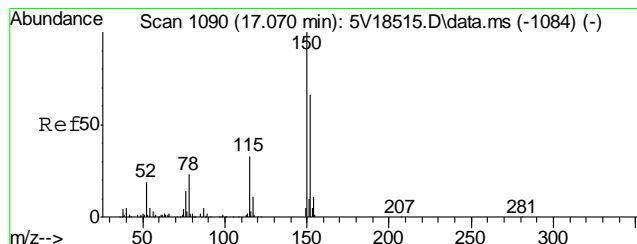
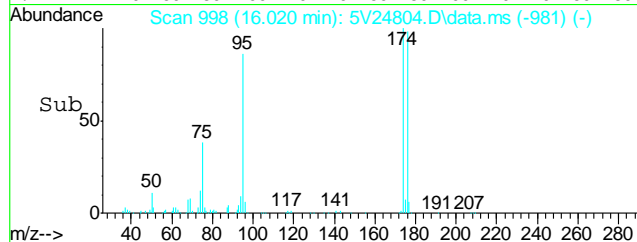
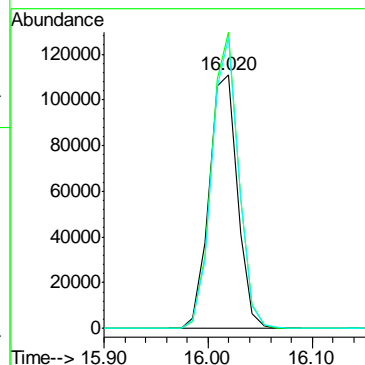
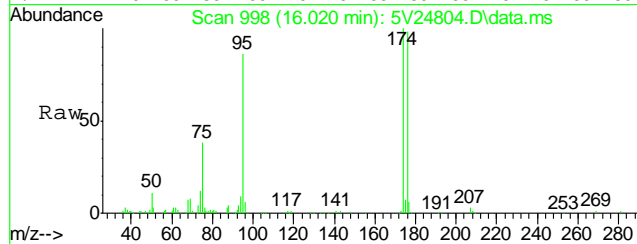
Tgt Ion: 92 Resp: 5761
Ion Ratio Lower Upper
92 100
91 170.9 149.8 189.8





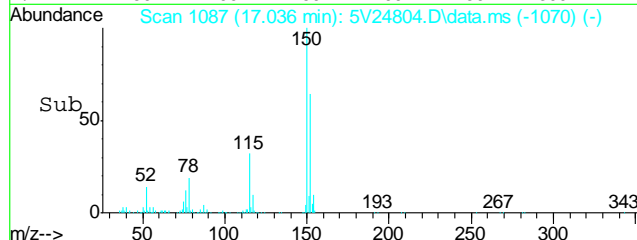
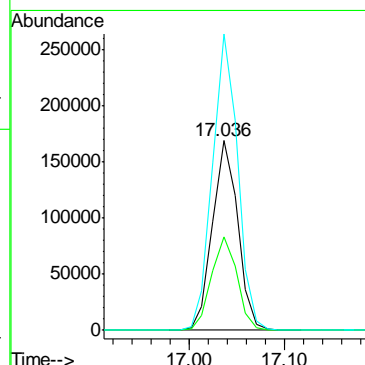
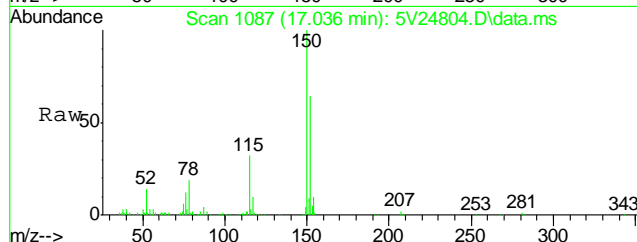
#69
4-Bromofluorobenzene
Concen: 45.41 ug/l
RT: 16.020 min Scan# 998
Delta R.T. -0.000 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

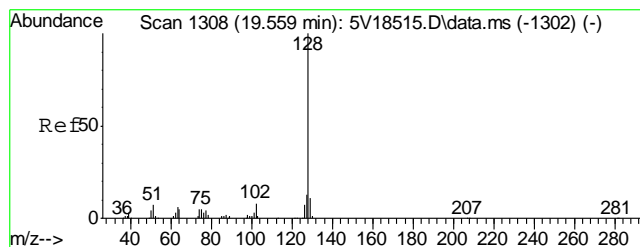
Tgt Ion	Resp	Lower	Upper
95	211026		
174	110.8	77.1	117.1
176	108.4	73.4	113.4



#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.036 min Scan# 1087
Delta R.T. -0.000 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

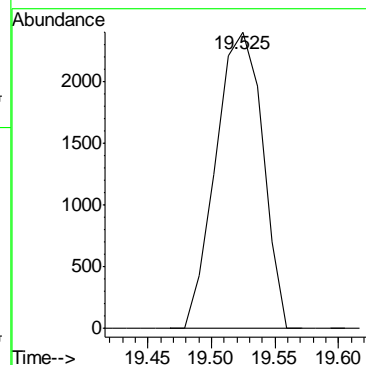
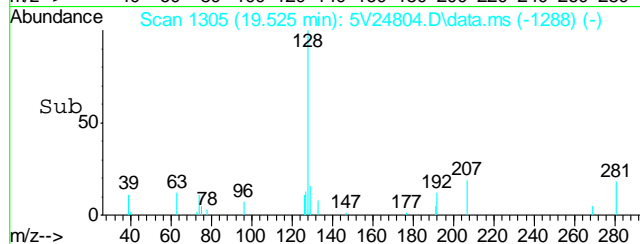
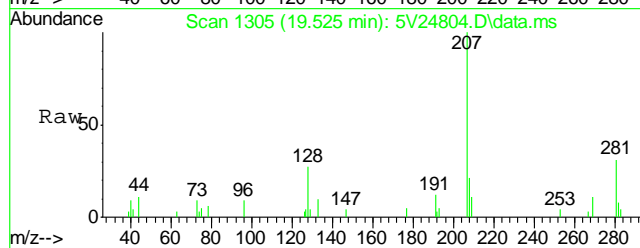
Tgt Ion	Resp	Lower	Upper
152	308385		
115	50.0	41.4	62.0
150	155.7	153.9	230.9





#91
Naphthalene
Concen: 0.40 ug/l
RT: 19.525 min Scan# 1305
Delta R.T. -0.000 min
Lab File: 5V24804.D
Acq: 30 Nov 2012 12:36 pm

Tgt Ion:128 Resp: 6127



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: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7031-MB	3G12377.D	1	12/03/12	DC	11/30/12	OP7031	E3G586

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

D41305-1

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	
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	
50-32-8	Benzo(a)pyrene	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	89% 10-159%
321-60-8	2-Fluorobiphenyl	78% 19-131%
1718-51-0	Terphenyl-d14	84% 18-150%

8.1.1

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Blank Spike Summary

Page 1 of 1

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7031-BS	3G12378.D	1	12/03/12	DC	11/30/12	OP7031	E3G586

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D41305-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	77.3	93	68-130
120-12-7	Anthracene	83.3	72.9	87	67-130
56-55-3	Benzo(a)anthracene	83.3	68.8	83	65-130
205-99-2	Benzo(b)fluoranthene	83.3	97.4	117	44-130
207-08-9	Benzo(k)fluoranthene	83.3	113	136* a	56-131
50-32-8	Benzo(a)pyrene	83.3	107	128	62-130
218-01-9	Chrysene	83.3	75.9	91	70-130
53-70-3	Dibenzo(a,h)anthracene	83.3	102	122	55-130
206-44-0	Fluoranthene	83.3	70.1	84	70-130
86-73-7	Fluorene	83.3	65.4	78	70-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	104	125	56-130
91-20-3	Naphthalene	83.3	84.6	102	70-130
129-00-0	Pyrene	83.3	75.8	91	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	91%	10-159%
321-60-8	2-Fluorobiphenyl	80%	19-131%
1718-51-0	Terphenyl-d14	82%	18-150%

(a) Compound ND in associated samples.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7031-MS	3G12380.D	1	12/03/12	DC	11/30/12	OP7031	E3G586
OP7031-MSD	3G12381.D	1	12/03/12	DC	11/30/12	OP7031	E3G586
D41248-1	3G12379.D	1	12/03/12	DC	11/30/12	OP7031	E3G586

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D41305-1

CAS No.	Compound	D41248-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		95.4	75.9	80	73.5	77	3	25-151/30
120-12-7	Anthracene	ND		95.4	72.7	76	78.8	83	8	39-159/30
56-55-3	Benzo(a)anthracene	ND		95.4	70.4	74	81.7	86	15	39-168/30
205-99-2	Benzo(b)fluoranthene	ND		95.4	96.3	101	111	117	14	24-163/30
207-08-9	Benzo(k)fluoranthene	ND		95.4	109	114	125	131	14	10-188/30
50-32-8	Benzo(a)pyrene	ND		95.4	104	109	120	126	14	32-144/30
218-01-9	Chrysene	ND		95.4	73.9	77	85.3	90	14	43-150/30
53-70-3	Dibenzo(a,h)anthracene	ND		95.4	97.6	102	113	119	15	21-152/30
206-44-0	Fluoranthene	ND		95.4	70.7	74	80.8	85	13	36-157/30
86-73-7	Fluorene	ND		95.4	66.7	70	65.4	69	2	10-182/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		95.4	99.6	104	115	121	14	20-154/30
91-20-3	Naphthalene	ND		95.4	78.1	82	76.0	80	3	10-163/30
129-00-0	Pyrene	ND		95.4	76.8	81	88.2	93	14	25-180/30

CAS No.	Surrogate Recoveries	MS	MSD	D41248-1	Limits
4165-60-0	Nitrobenzene-d5	79%	65%	69%	10-159%
321-60-8	2-Fluorobiphenyl	74%	60%	66%	19-131%
1718-51-0	Terphenyl-d14	79%	77%	77%	18-150%

* = Outside of Control Limits.

GC/MS Semi-volatiles

Raw Data

6

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\120312\
 Data File : 3g12385.D
 Acq On : 3 Dec 2012 11:07 pm
 Operator : DONC
 Sample : D41305-1, 4x
 Misc : OP7031,E3G586,30.09,,,1,4
 ALS Vial : 20 Sample Multiplier: 1

Quant Time: Dec 04 09:20:54 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G586.M
 Quant Title : PAHSIM BASE
 QLast Update : Tue Dec 04 08:50:28 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.682	136	143561	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.389	164	90164	4.0000	ug/mL	0.00
15) Phenanthrene-d10	8.871	188	132788	4.0000	ug/mL	0.00
19) Chrysene-d12	11.509	240	102959	4.0000	ug/mL	0.00
24) Perylene-d12	12.892	264	56323	4.0000	ug/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	4.996	82	176061	12.2686	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	24.54%#		
7) 2-Fluorobiphenyl	6.727	172	549500	12.9120	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	25.82%		
21) Terphenyl-d14	10.462	244	209540	13.8263	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	27.66%		

Target Compounds

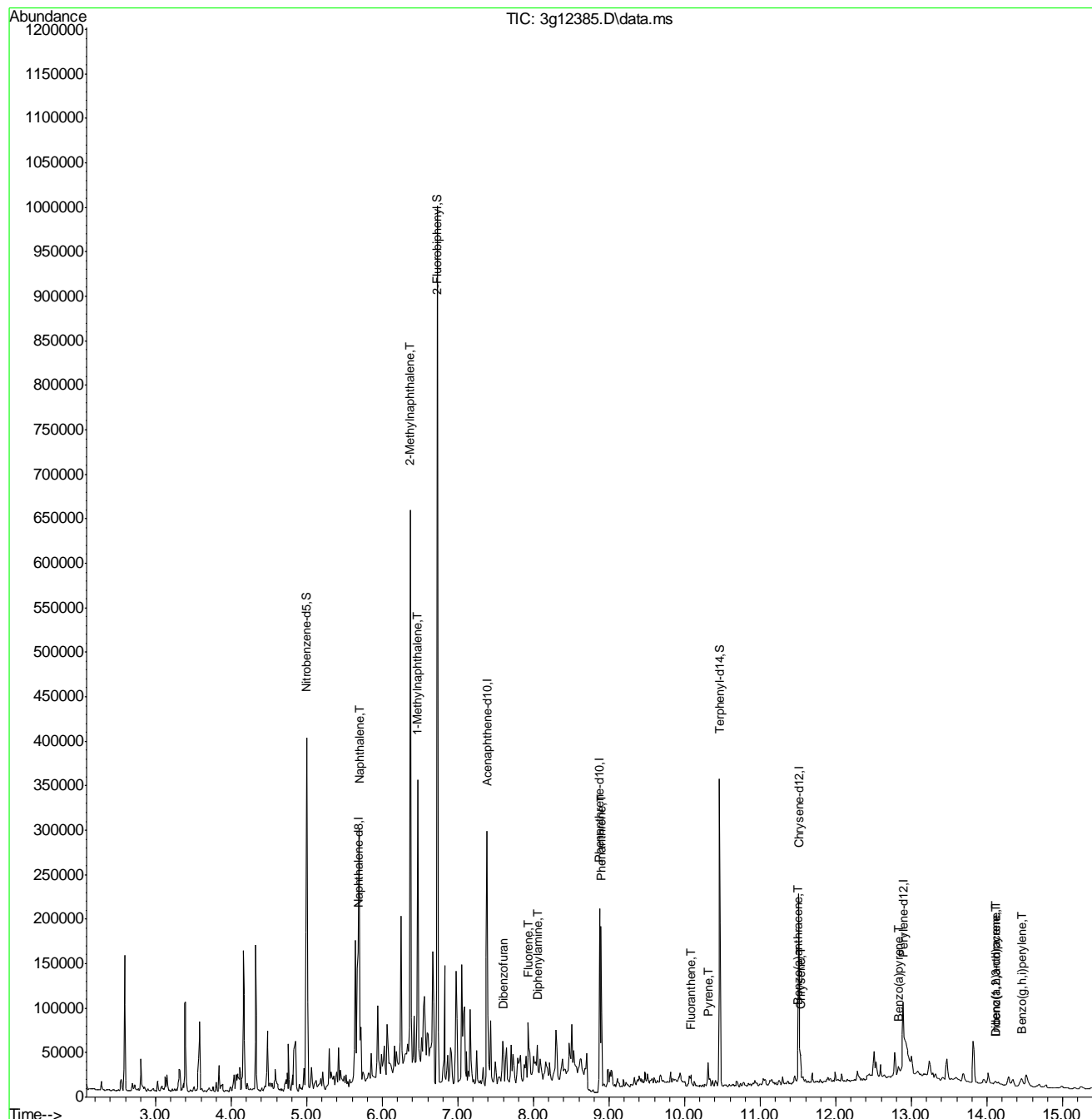
						Qvalue
3) N-Nitrosodimethylamine	0.000	74	0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d	
5) Naphthalene	5.694	128	177069	4.0769	ug/mL	95
8) 2-Methylnaphthalene	6.368	142	246043	7.6339	ug/mL	98
9) 1-Methylnaphthalene	6.467	142	122906	3.8478	ug/mL	96
10) Acenaphthylene	7.247	152	2418	N.D.		
11) Acenaphthene	7.424	154	2406	N.D.		
12) Dibenzofuran	7.601	168	15734	0.3016	ug/mL	79
13) Fluorene	7.932	166	32496	0.8043	ug/mL#	59
14) Diphenylamine	8.050	169	20714m	0.5928	ug/mL	
16) Phenanthrene	8.894	178	98875	1.8148	ug/mL	91
17) Anthracene	0.000	178	0	N.D.	d	
18) Fluoranthene	10.082	202	11171	0.1872	ug/mL#	1
20) Pyrene	10.311	202	18239	0.3156	ug/mL#	72
22) Benzo(a)anthracene	11.496	228	7120	0.1439	ug/mL	78
23) Chrysene	11.535	228	24712m	0.5046	ug/mL	
25) Benzo(b)fluoranthene	0.000	252	0	N.D.	d	
26) Benzo(k)fluoranthene	0.000	252	0	N.D.	d	
27) Benzo(a)pyrene	12.829	252	5955	0.2083	ug/mL#	76
28) Indeno(1,2,3-cd)pyrene	14.112	276	2674	0.0883	ug/mL#	71
29) Dibenz(a,h)anthracene	14.122	278	2723	0.1169	ug/mL#	68
30) Benzo(g,h,i)perylene	14.459	276	8413	0.3156	ug/mL	82

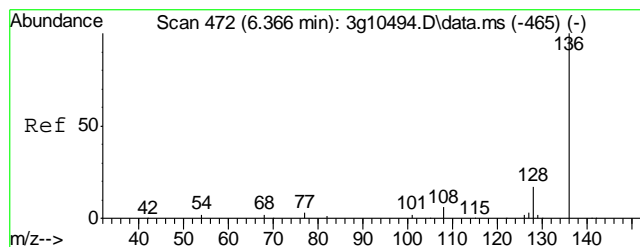
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\120312\
 Data File : 3g12385.D
 Acq On : 3 Dec 2012 11:07 pm
 Operator : DONC
 Sample : D41305-1, 4x
 Misc : OP7031,E3G586,30.09,,,1,4
 ALS Vial : 20 Sample Multiplier: 1

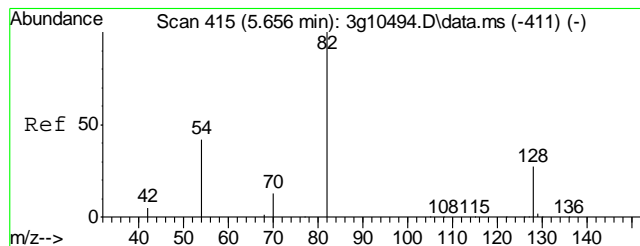
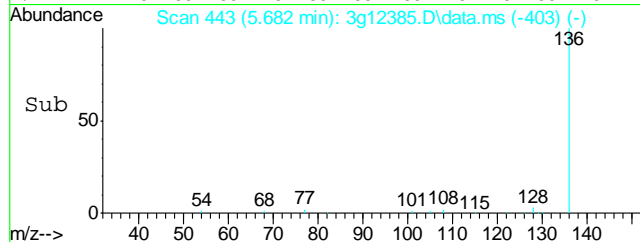
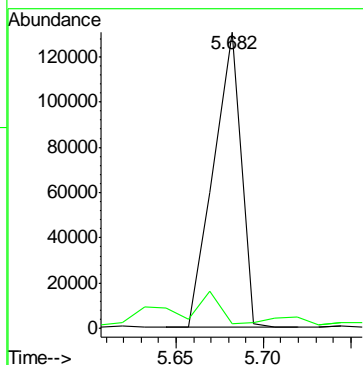
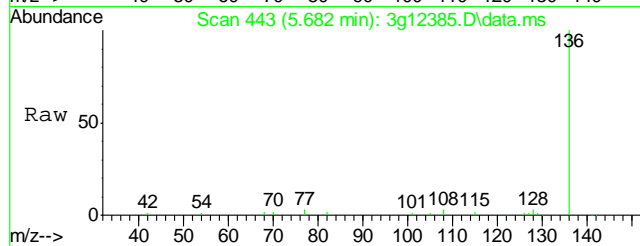
Quant Time: Dec 04 09:20:54 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G586.M
 Quant Title : PAHSIM BASE
 QLast Update : Tue Dec 04 08:50:28 2012
 Response via : Initial Calibration





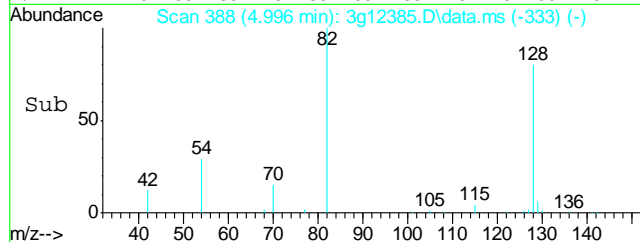
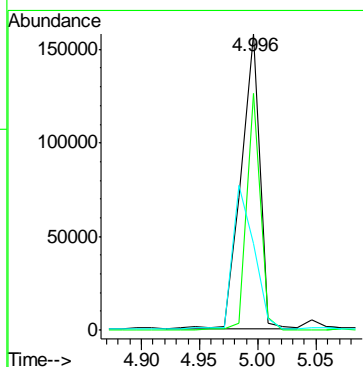
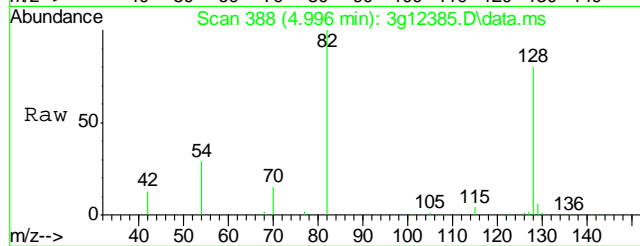
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.682 min Scan# 443
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

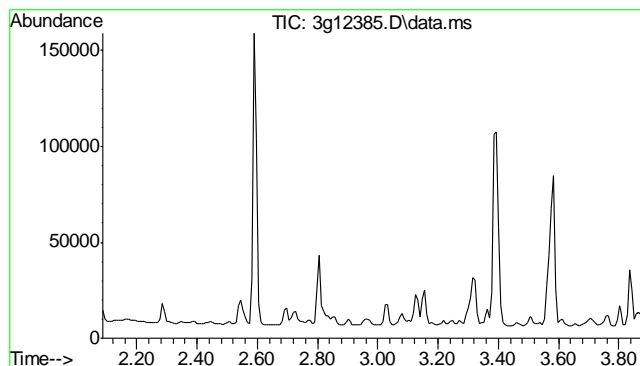
Tgt Ion	Ratio	Lower	Upper
136	100		
68	3.4	0.0	28.4



#2
Nitrobenzene-d5
Concen: 12.2686 ug/mL
RT: 4.996 min Scan# 388
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion	Ratio	Lower	Upper
82	100		
128	58.6	31.8	71.8
54	55.7	29.2	69.2

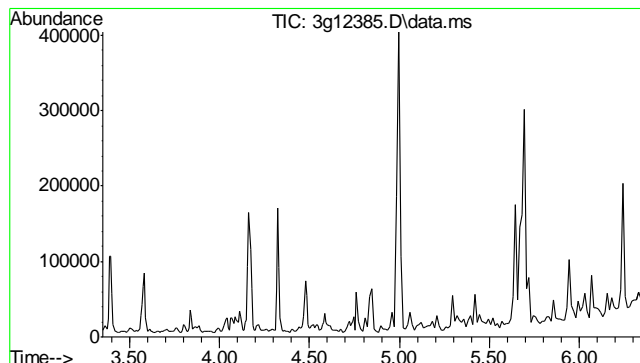
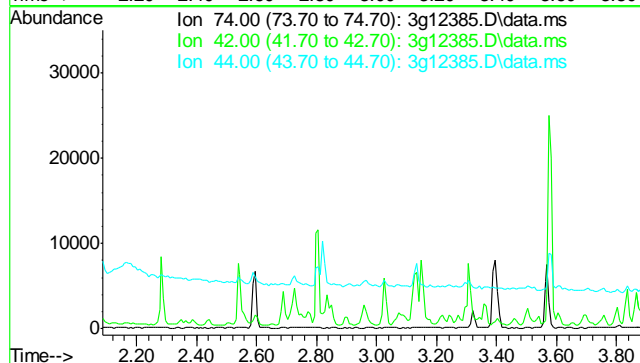




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.38 min

Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

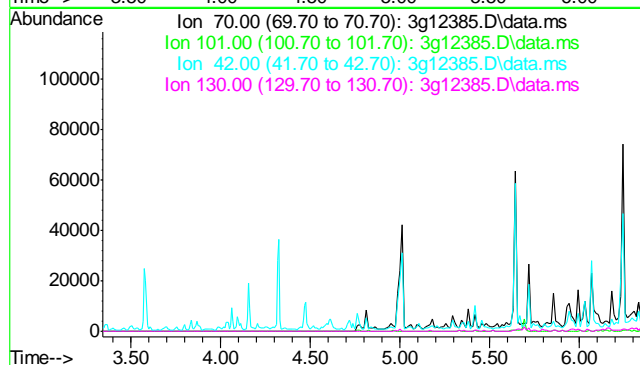
Tgt Ion	Exp Ratio
74	100
42	72.5
44	4.1

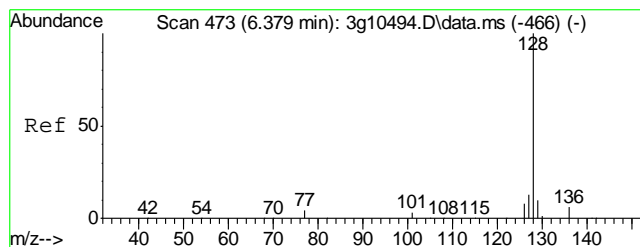


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 4.85 min

Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

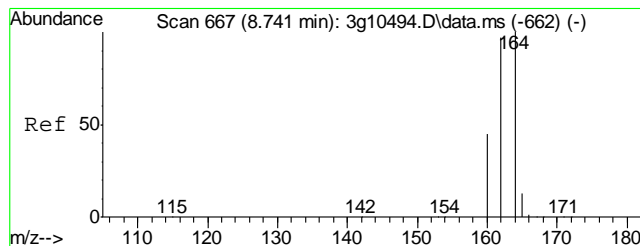
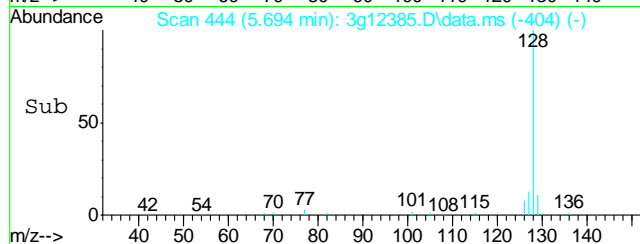
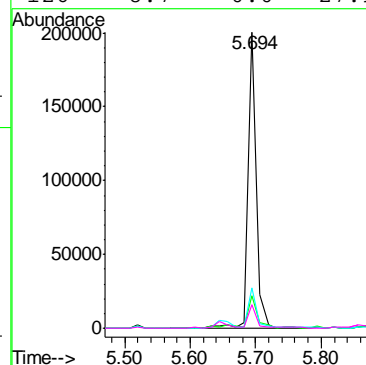
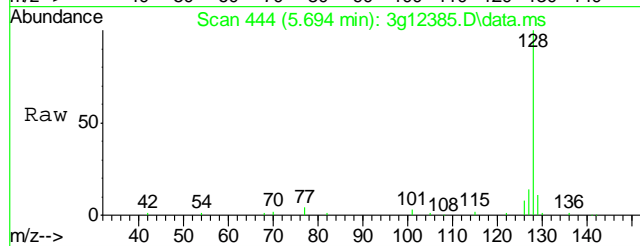
Tgt Ion	Exp Ratio
70	100
101	12.2
42	67.9
130	33.2





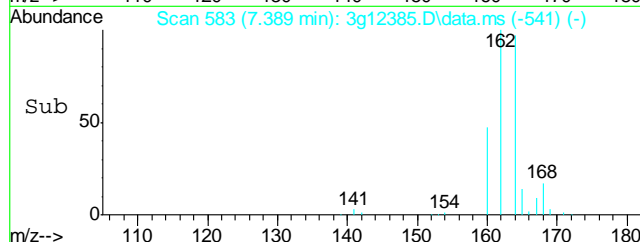
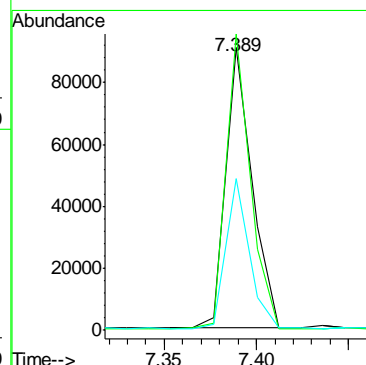
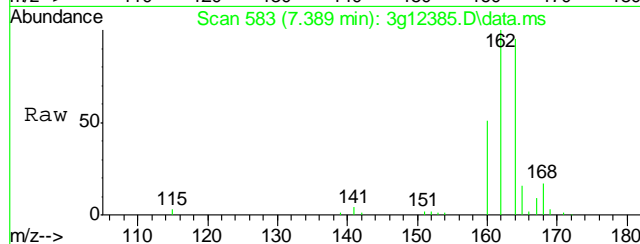
#5
Naphthalene
Concen: 4.0769 ug/mL
RT: 5.694 min Scan# 444
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

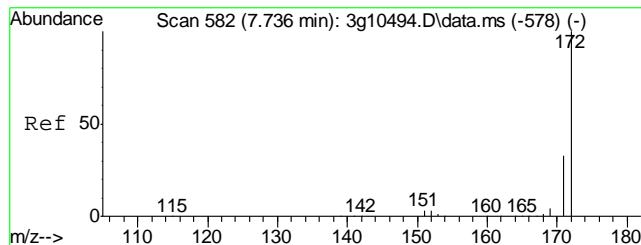
Tgt Ion:	128	Resp:	177069
Ion Ratio	Lower	Upper	
128	100		
129	15.1	0.0	30.7
127	13.2	0.0	33.2
126	8.7	0.0	27.9



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.389 min Scan# 583
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

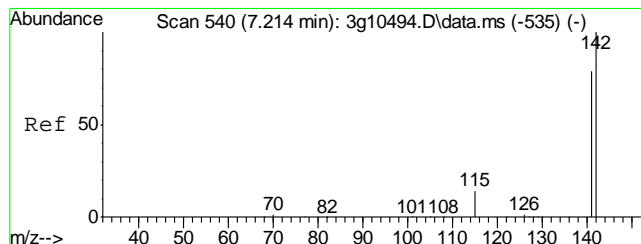
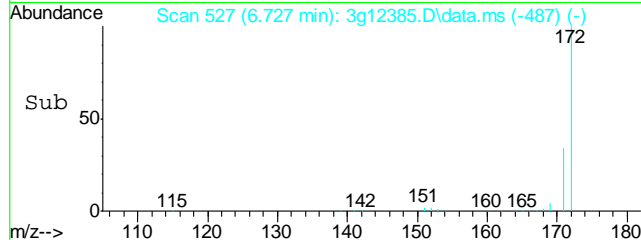
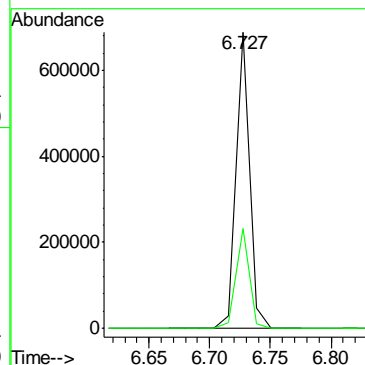
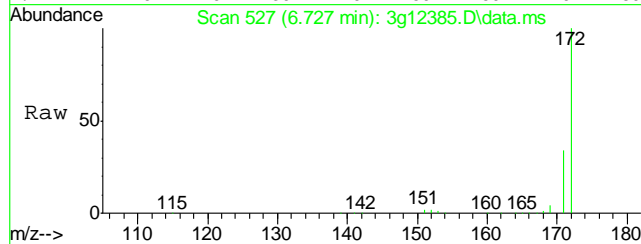
Tgt Ion:	164	Resp:	90164
Ion Ratio	Lower	Upper	
164	100		
162	97.5	78.0	118.0
160	47.4	27.3	67.3





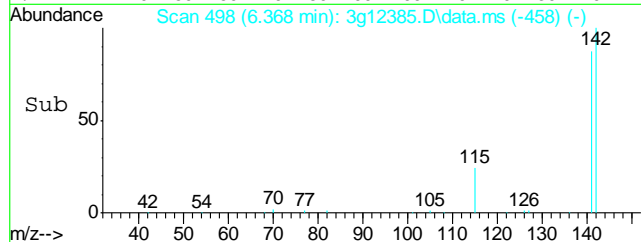
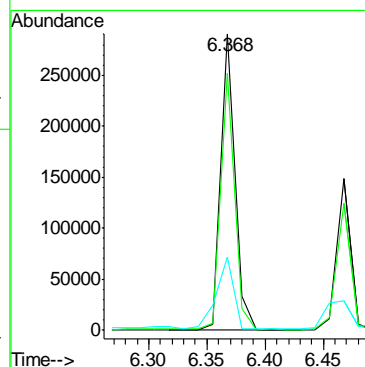
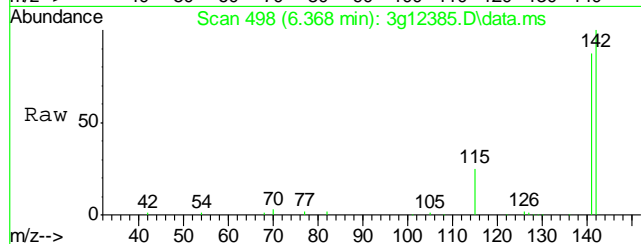
#7
2-Fluorobiphenyl
Concen: 12.9120 ug/mL
RT: 6.727 min Scan# 527
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

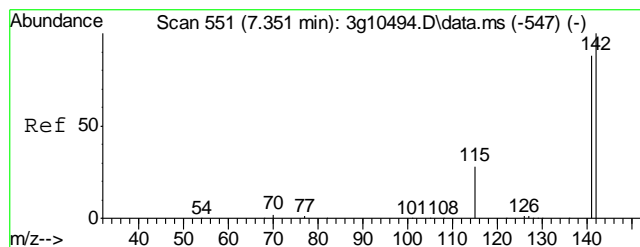
Tgt Ion:172 Resp: 549500
Ion Ratio Lower Upper
172 100
171 33.5 13.7 53.7



#8
2-Methylnaphthalene
Concen: 7.6339 ug/mL
RT: 6.368 min Scan# 498
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

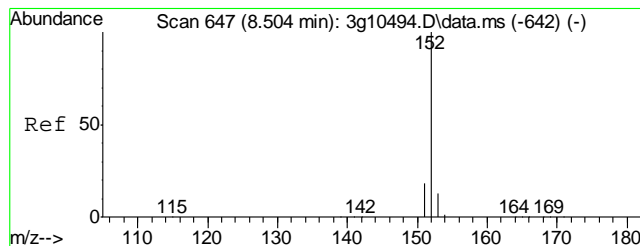
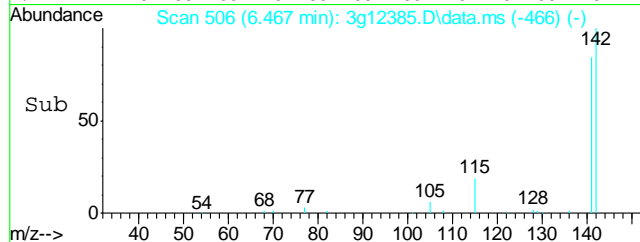
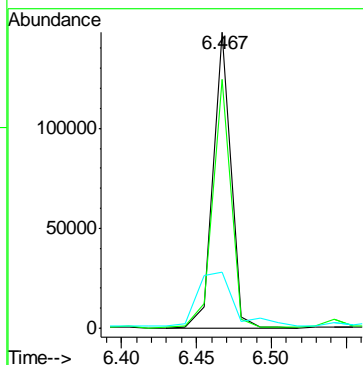
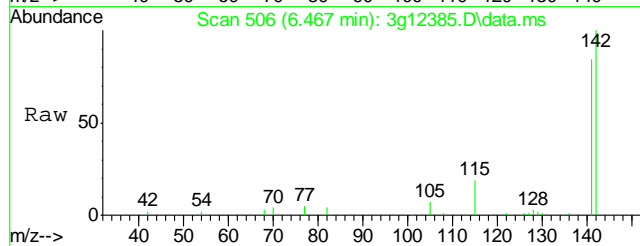
Tgt Ion:142 Resp: 246043
Ion Ratio Lower Upper
142 100
141 86.0 65.6 105.6
115 29.1 12.2 52.2





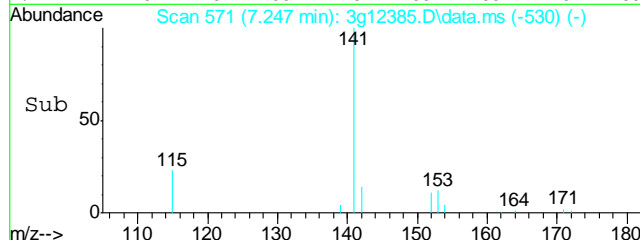
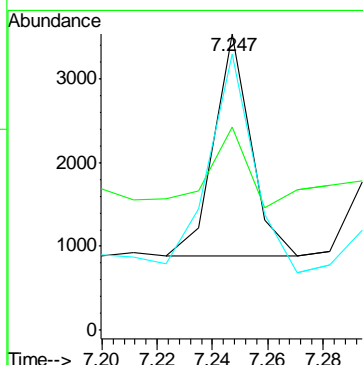
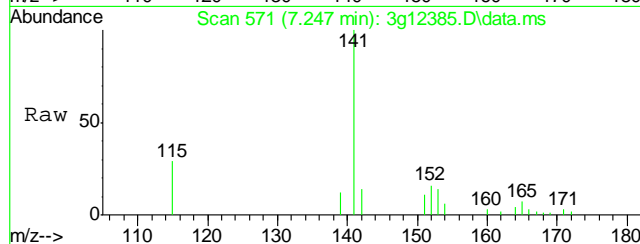
#9
1-Methylnaphthalene
Concen: 3.8478 ug/mL
RT: 6.467 min Scan# 506
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

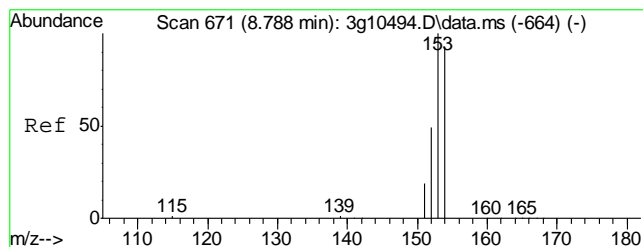
Tgt Ion	Ratio	Lower	Upper
142	100		
141	86.6	67.0	107.0
115	38.1	9.3	49.3



#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.247 min Scan# 571
Delta R.T. -0.012 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

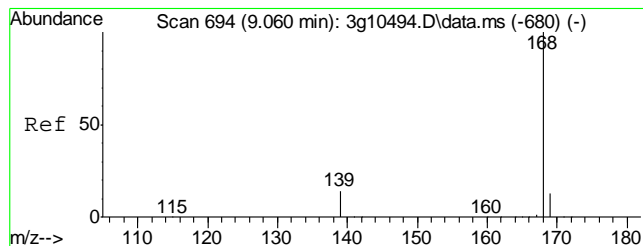
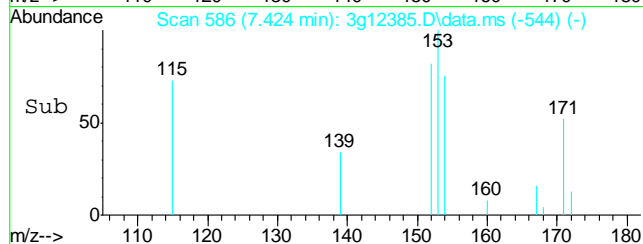
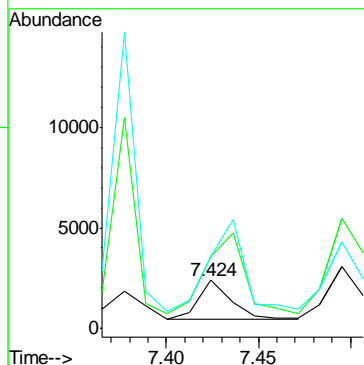
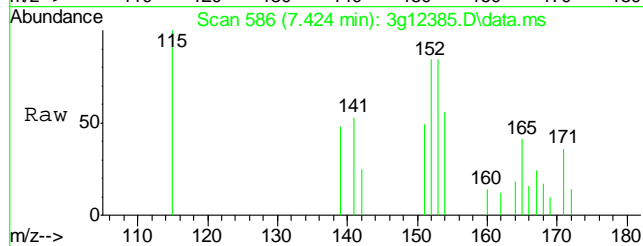
Tgt Ion	Ratio	Lower	Upper
152	100		
151	32.3	0.0	39.5
153	109.1	0.0	33.0#





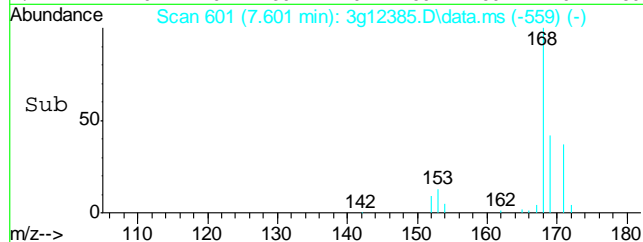
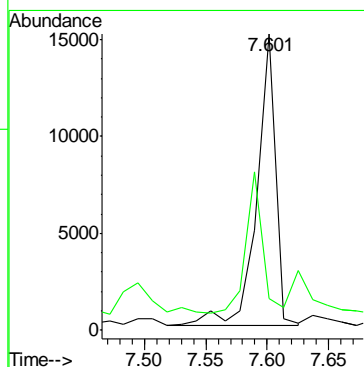
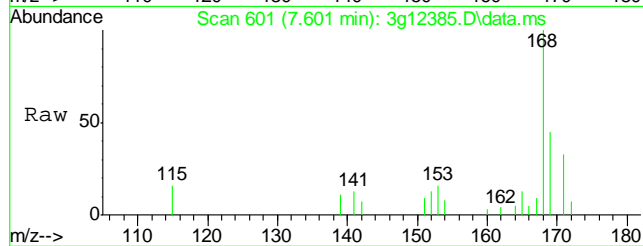
#11
Acenaphthene
Concen: Below ug/mL
RT: 7.424 min Scan# 586
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

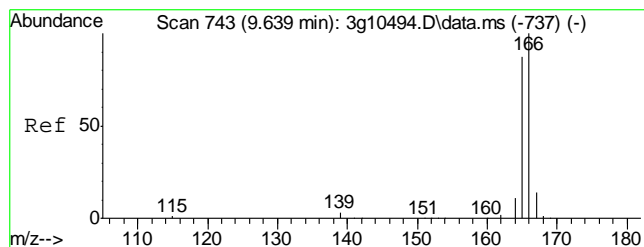
Tgt Ion:154 Resp: 2406
Ion Ratio Lower Upper
154 100
153 244.8 84.7 124.7#
152 250.0 30.2 70.2#



#12
Dibenzofuran
Concen: 0.3016 ug/mL
RT: 7.601 min Scan# 601
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

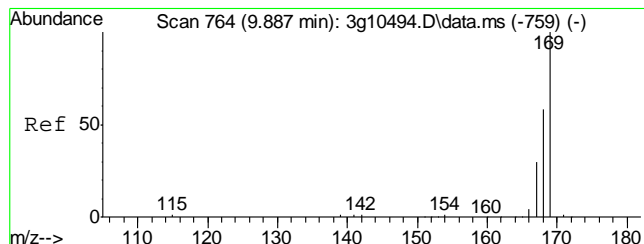
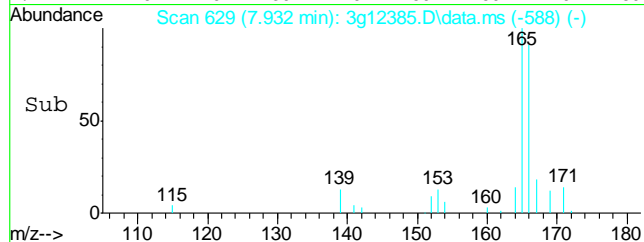
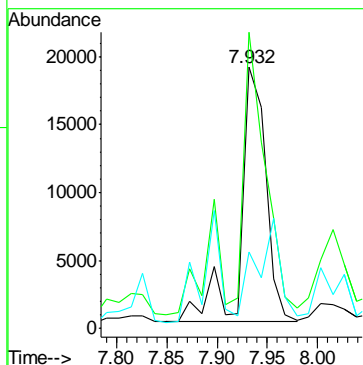
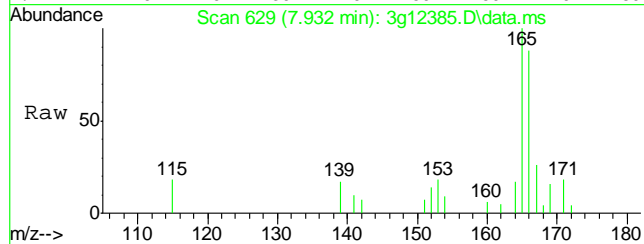
Tgt Ion:168 Resp: 15734
Ion Ratio Lower Upper
168 100
139 43.5 12.0 52.0





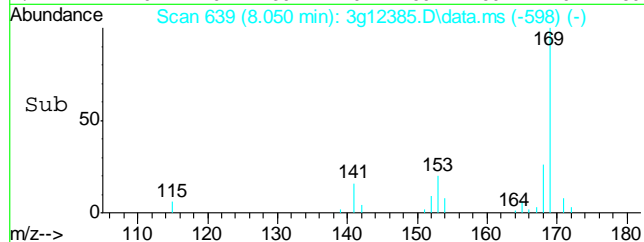
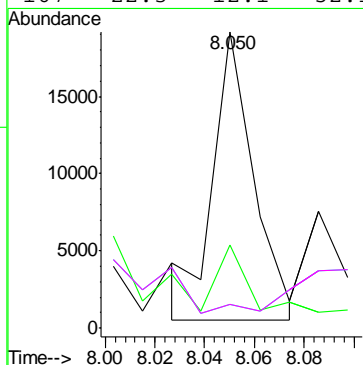
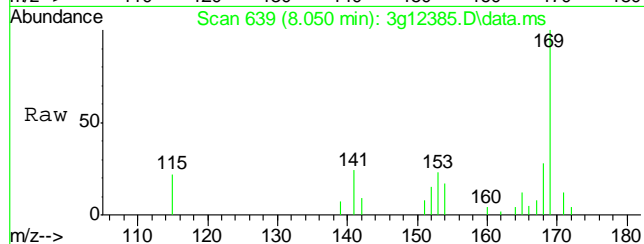
#13
Fluorene
Concen: 0.8043 ug/mL
RT: 7.932 min Scan# 629
Delta R.T. -0.012 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

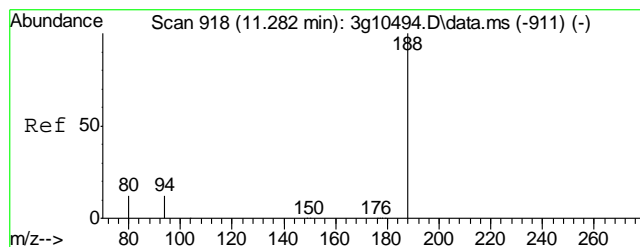
Tgt Ion:	166	Resp:	32496
Ion Ratio	Lower	Upper	
166	100		
165	126.6	70.1	110.1#
167	37.4	0.0	33.4#



#14
Diphenylamine
Concen: 0.5928 ug/mL m
RT: 8.050 min Scan# 639
Delta R.T. -0.012 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

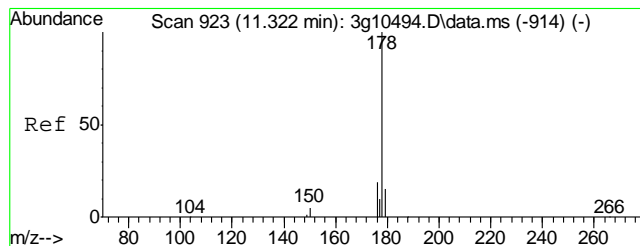
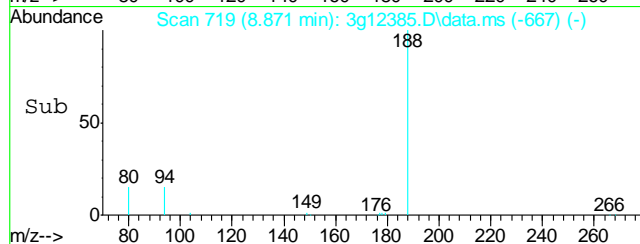
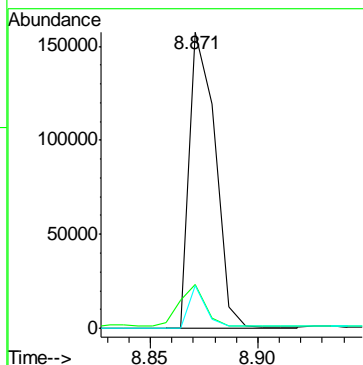
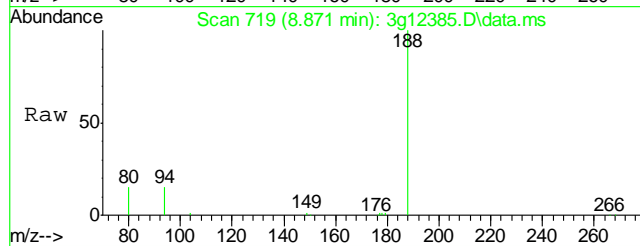
Tgt Ion:	169	Resp:	20714
Ion Ratio	Lower	Upper	
169	100		
168	34.6	40.1	80.1#
167	22.3	12.1	52.1
167	22.3	12.1	52.1





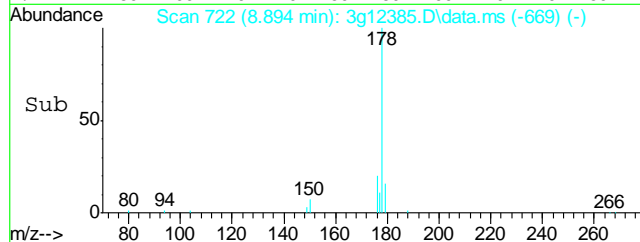
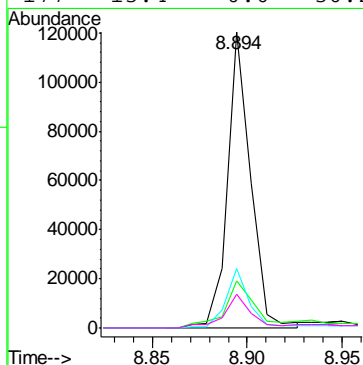
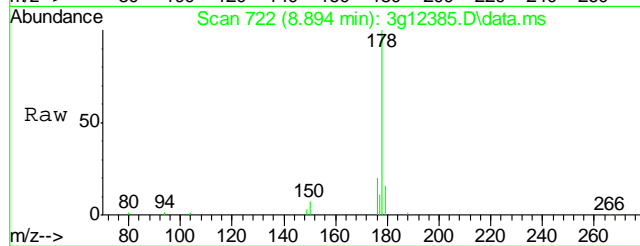
#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.871 min Scan# 719
Delta R.T. -0.008 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

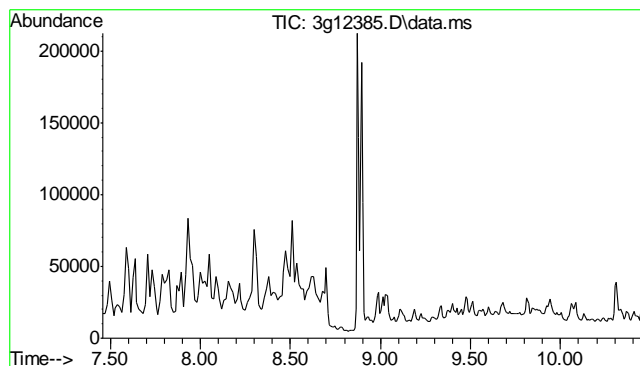
Tgt Ion:188	Resp:	132788
Ion Ratio	Lower	Upper
188	100	
94	14.3	0.0 33.4
80	11.0	0.0 28.9



#16
Phenanthrene
Concen: 1.8148 ug/mL
RT: 8.894 min Scan# 722
Delta R.T. -0.008 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:178	Resp:	98875
Ion Ratio	Lower	Upper
178	100	
179	20.7	0.0 35.3
176	20.9	0.0 38.6
177	13.4	0.0 30.2

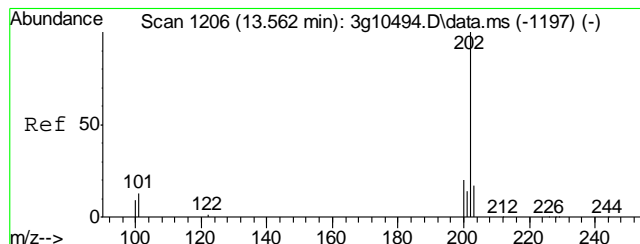
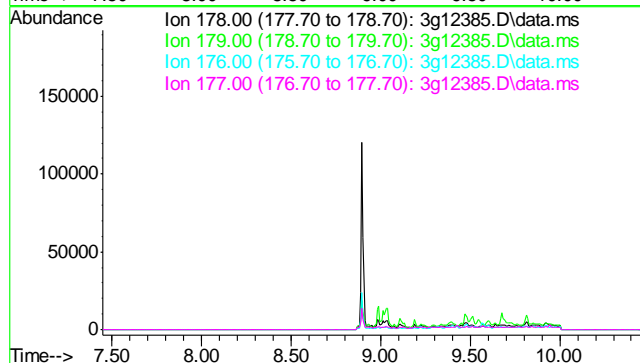




#17
 Anthracene
 Concen: N.D. ug/mL
 Expected RT: 8.95 min

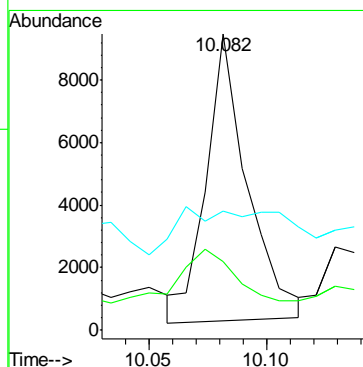
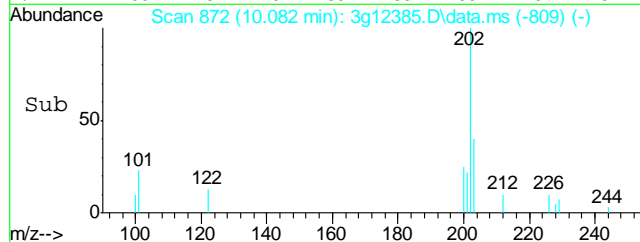
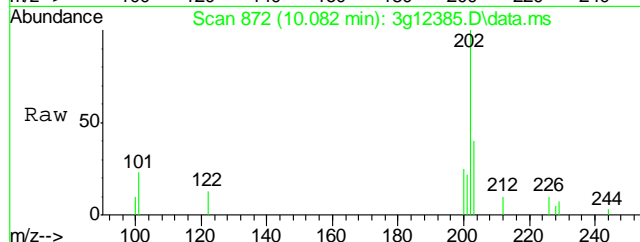
 Lab File: 3g12385.D
 Acq: 3 Dec 12 11:07 pm

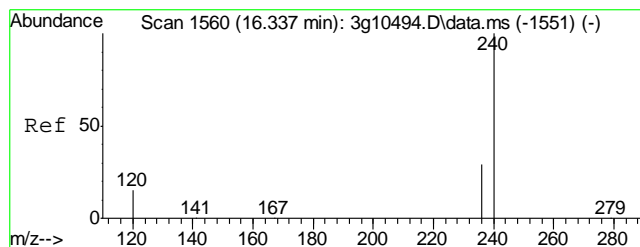
Tgt Ion: 178
 Sig Exp Ratio
 178 100
 179 15.1
 176 18.2
 177 8.8



#18
 Fluoranthene
 Concen: 0.1872 ug/mL
 RT: 10.082 min Scan# 872
 Delta R.T. 0.000 min
 Lab File: 3g12385.D
 Acq: 3 Dec 12 11:07 pm

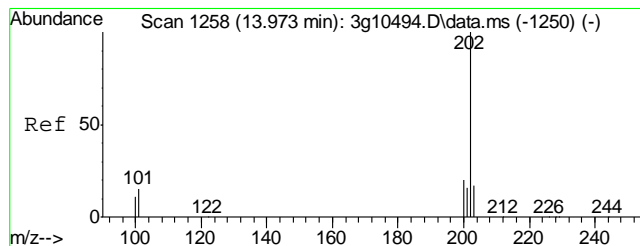
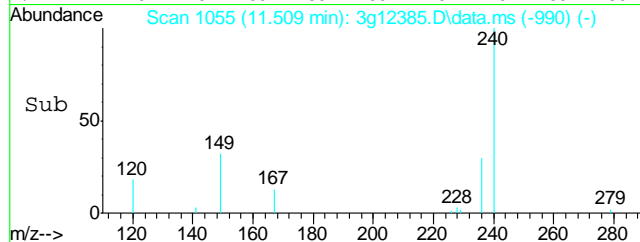
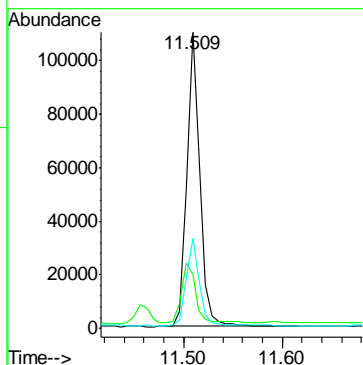
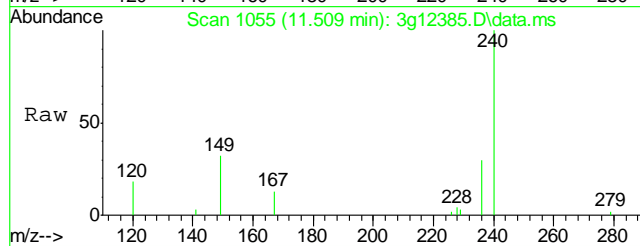
Tgt Ion: 202 Resp: 11171
 Ion Ratio Lower Upper
 202 100
 101 43.4 0.0 32.5#
 203 136.5 0.0 37.3#





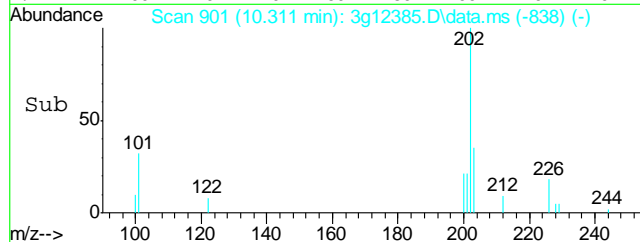
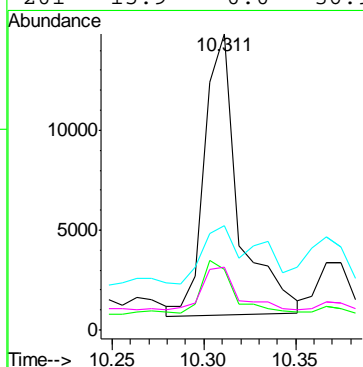
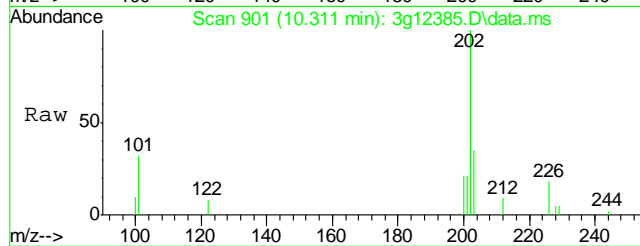
#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.509 min Scan# 1055
Delta R.T. -0.007 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

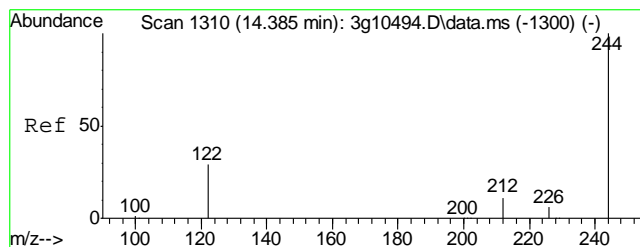
Tgt Ion	Ratio	Lower	Upper
240	100		
120	22.1	0.0	39.7
236	31.0	11.1	51.1



#20
Pyrene
Concen: 0.3156 ug/mL
RT: 10.311 min Scan# 901
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

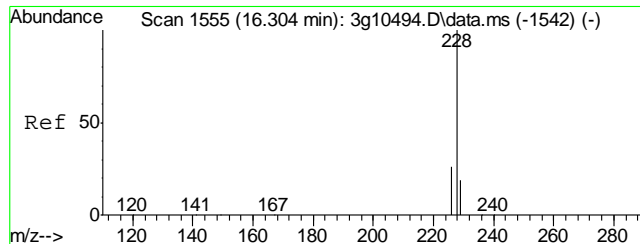
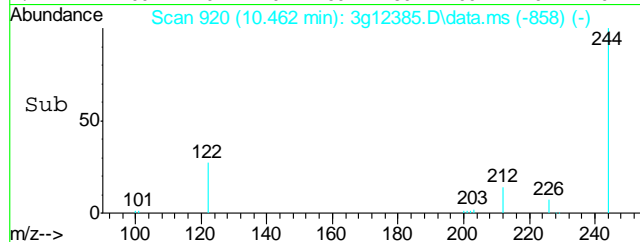
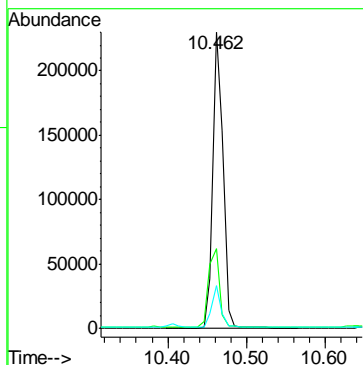
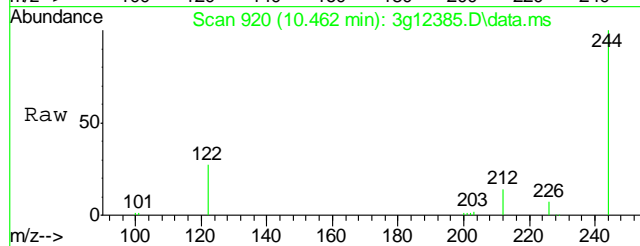
Tgt Ion	Ratio	Lower	Upper
202	100		
200	17.1	0.7	40.7
203	51.7	0.0	37.8
201	15.9	0.0	36.9





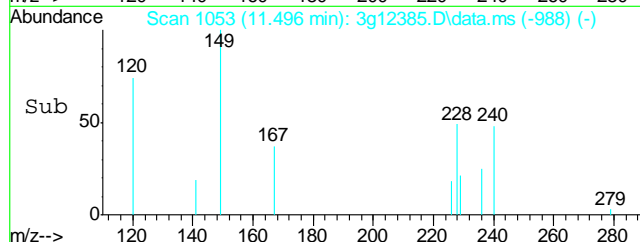
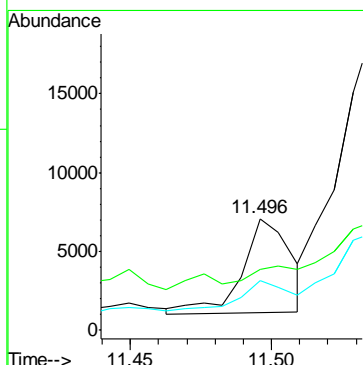
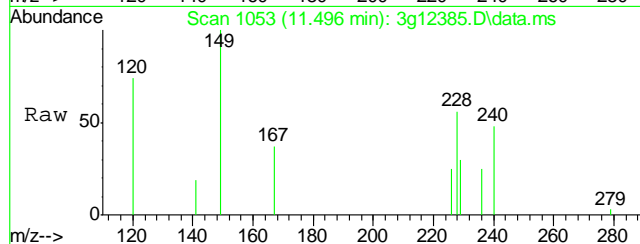
#21
Terphenyl-d14
Concen: 13.8263 ug/mL
RT: 10.462 min Scan# 920
Delta R.T. -0.008 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

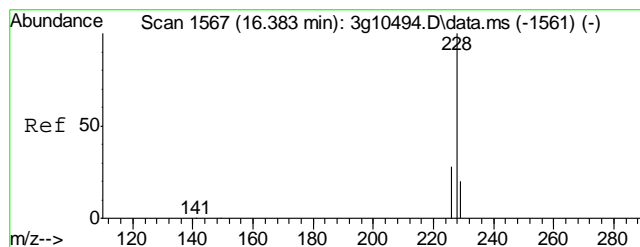
Tgt Ion:	244	Resp:	209540
Ion Ratio	Lower	Upper	
244	100		
122	28.5	6.8	46.8
212	12.6	0.0	32.3



#22
Benzo(a)anthracene
Concen: 0.1439 ug/mL
RT: 11.496 min Scan# 1053
Delta R.T. -0.007 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

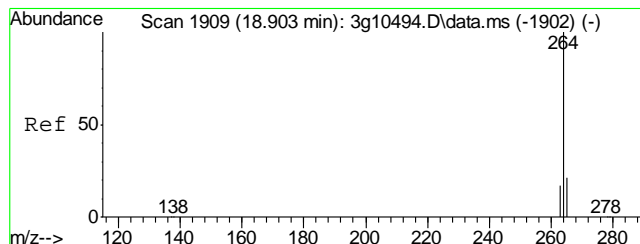
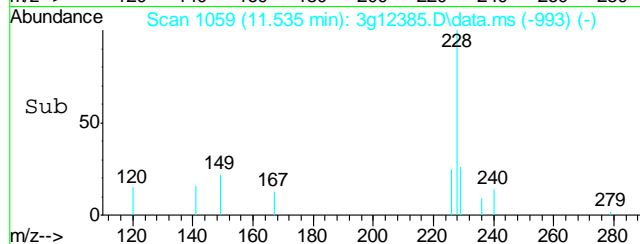
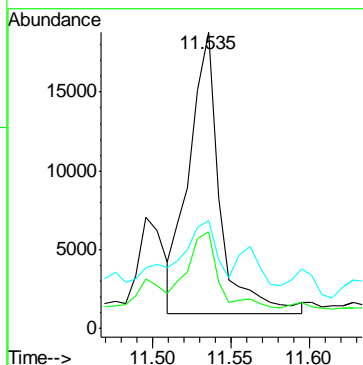
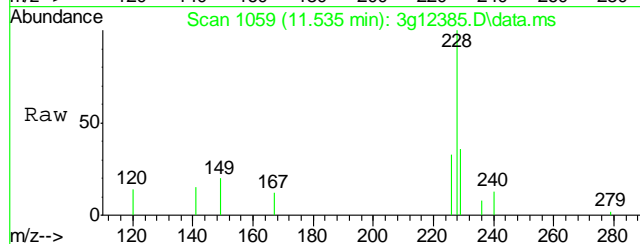
Tgt Ion:	228	Resp:	7120
Ion Ratio	Lower	Upper	
228	100		
229	31.9	0.0	39.4
226	36.2	6.8	46.8





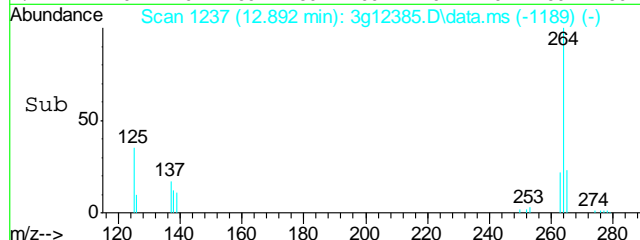
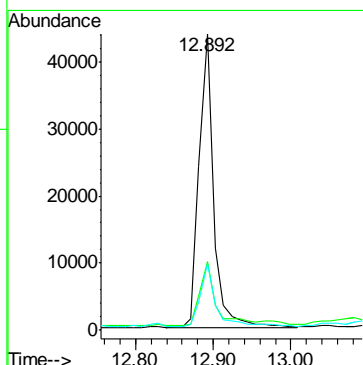
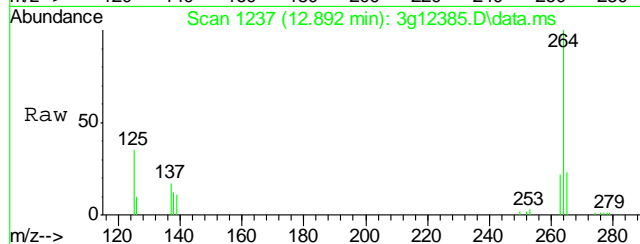
#23
Chrysene
Concen: 0.5046 ug/mL m
RT: 11.535 min Scan# 1059
Delta R.T. -0.007 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

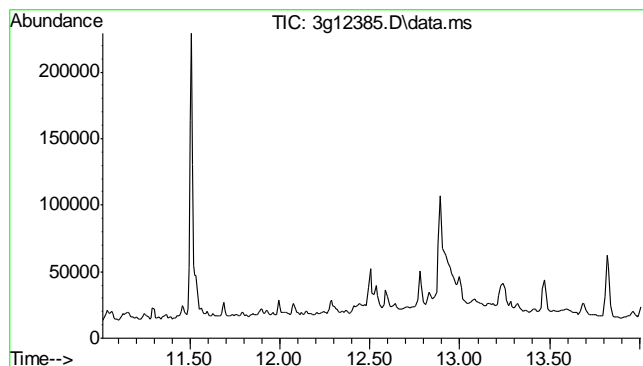
Tgt Ion	Ratio	Lower	Upper
228	100		
226	10.4	9.2	49.2
229	9.3	0.0	39.4



#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 12.892 min Scan# 1237
Delta R.T. 0.000 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion	Ratio	Lower	Upper
264	100		
265	23.6	0.6	40.6
263	22.3	0.0	39.7

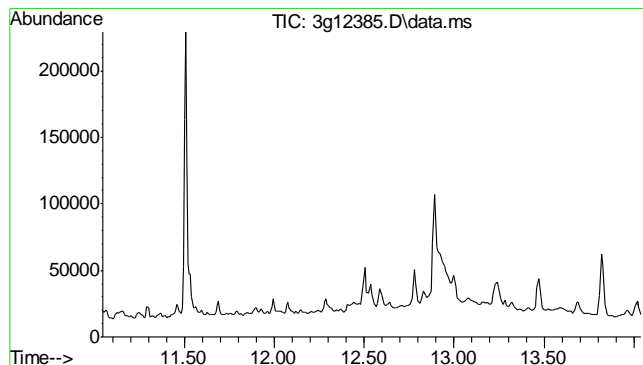
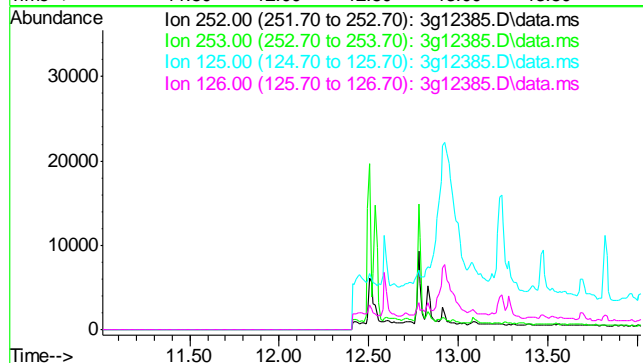




#25
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.51 min

Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

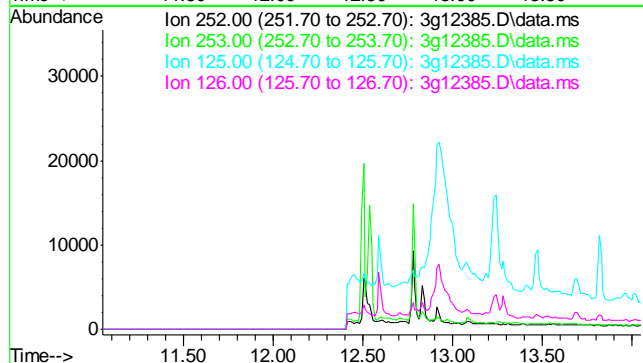
Tgt Ion	Exp Ratio
252	100
253	27.0
125	29.0
126	41.6

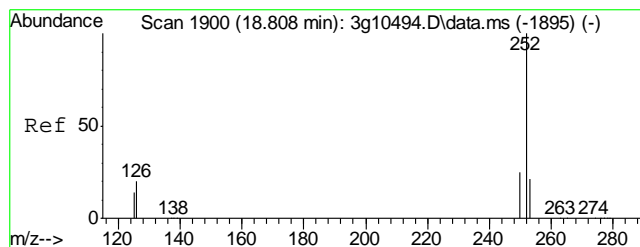


#26
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.54 min

Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

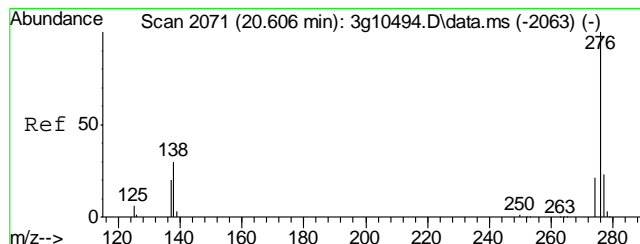
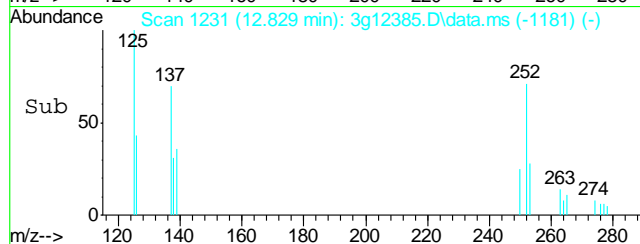
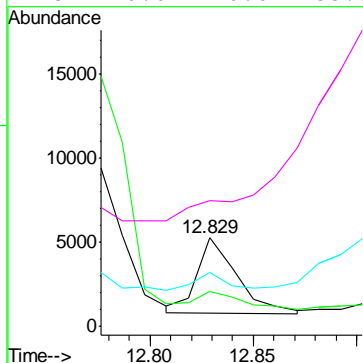
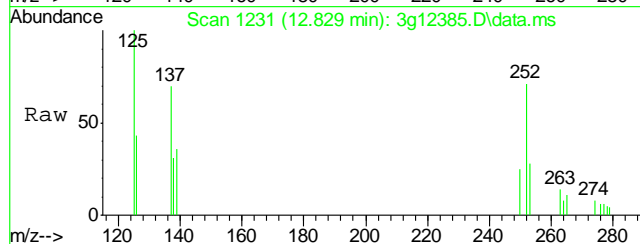
Tgt Ion	Exp Ratio
252	100
253	24.0
125	15.3
126	20.8





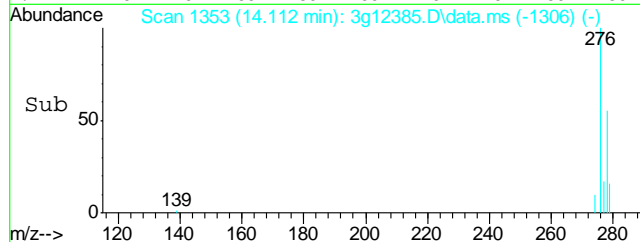
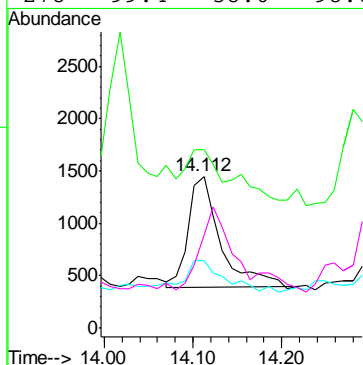
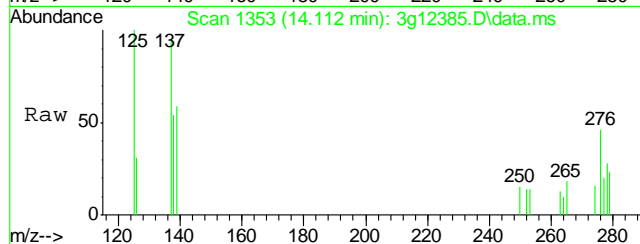
#27
Benzo(a)pyrene
Concen: 0.2083 ug/mL
RT: 12.829 min Scan# 1231
Delta R.T. -0.010 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

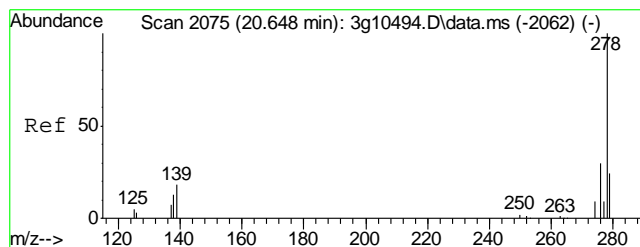
Tgt Ion:	252	Resp:	5955
Ion Ratio	Lower	Upper	
252	100		
253	25.7	1.5	41.5
126	33.8	0.0	38.4
125	0.0	0.0	33.5



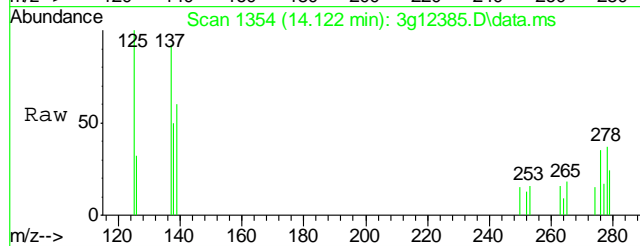
#28
Indeno(1,2,3-cd)pyrene
Concen: 0.0883 ug/mL
RT: 14.112 min Scan# 1353
Delta R.T. -0.010 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm

Tgt Ion:	276	Resp:	2674
Ion Ratio	Lower	Upper	
276	100		
138	59.3	16.0	56.0#
277	37.3	4.9	44.9
278	99.4	58.0	98.0#

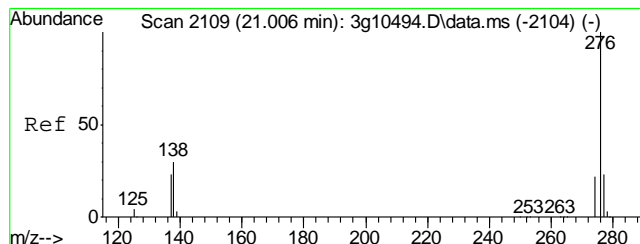
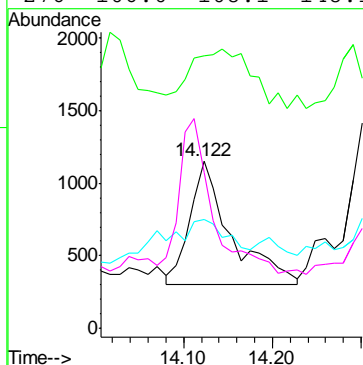
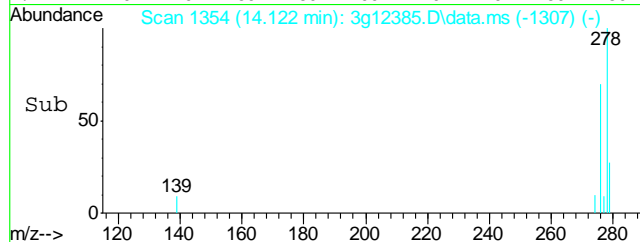




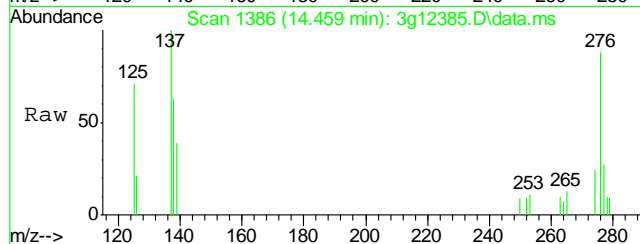
#29
Dibenz(a,h)anthracene
Concen: 0.1169 ug/mL
RT: 14.122 min Scan# 1354
Delta R.T. -0.010 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm



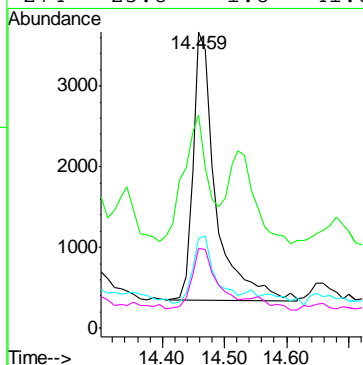
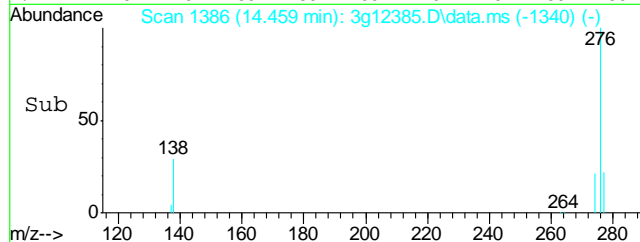
Tgt Ion: 278 Resp: 2723
Ion Ratio Lower Upper
278 100
139 87.9 7.4 47.4#
279 19.8 2.8 42.8
276 106.0 108.1 148.1#



#30
Benzo(g,h,i)perylene
Concen: 0.3156 ug/mL
RT: 14.459 min Scan# 1386
Delta R.T. -0.021 min
Lab File: 3g12385.D
Acq: 3 Dec 12 11:07 pm



Tgt Ion: 276 Resp: 8413
Ion Ratio Lower Upper
276 100
138 50.6 10.9 50.9
277 24.5 3.2 43.2
274 25.8 1.8 41.8



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\120312\
Data File : 3g12377.D
Acq On : 3 Dec 2012 7:58 pm
Operator : DONC
Sample : OP7031-MB
Misc : OP7031,E3G586,30.00,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Dec 04 09:12:04 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G586.M
Quant Title : PAHSIM BASE
QLast Update : Tue Dec 04 08:50:28 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.682	136	151768	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.389	164	95999	4.0000	ug/mL	0.00
15) Phenanthrene-d10	8.871	188	147491	4.0000	ug/mL	0.00
19) Chrysene-d12	11.509	240	108551	4.0000	ug/mL	0.00
24) Perylene-d12	12.892	264	61443	4.0000	ug/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	4.996	82	677227	44.6396	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	89.28%		
7) 2-Fluorobiphenyl	6.727	172	1643542	39.1796	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	78.36%		
21) Terphenyl-d14	10.469	244	668273	41.8237	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	83.64%		

Target Compounds

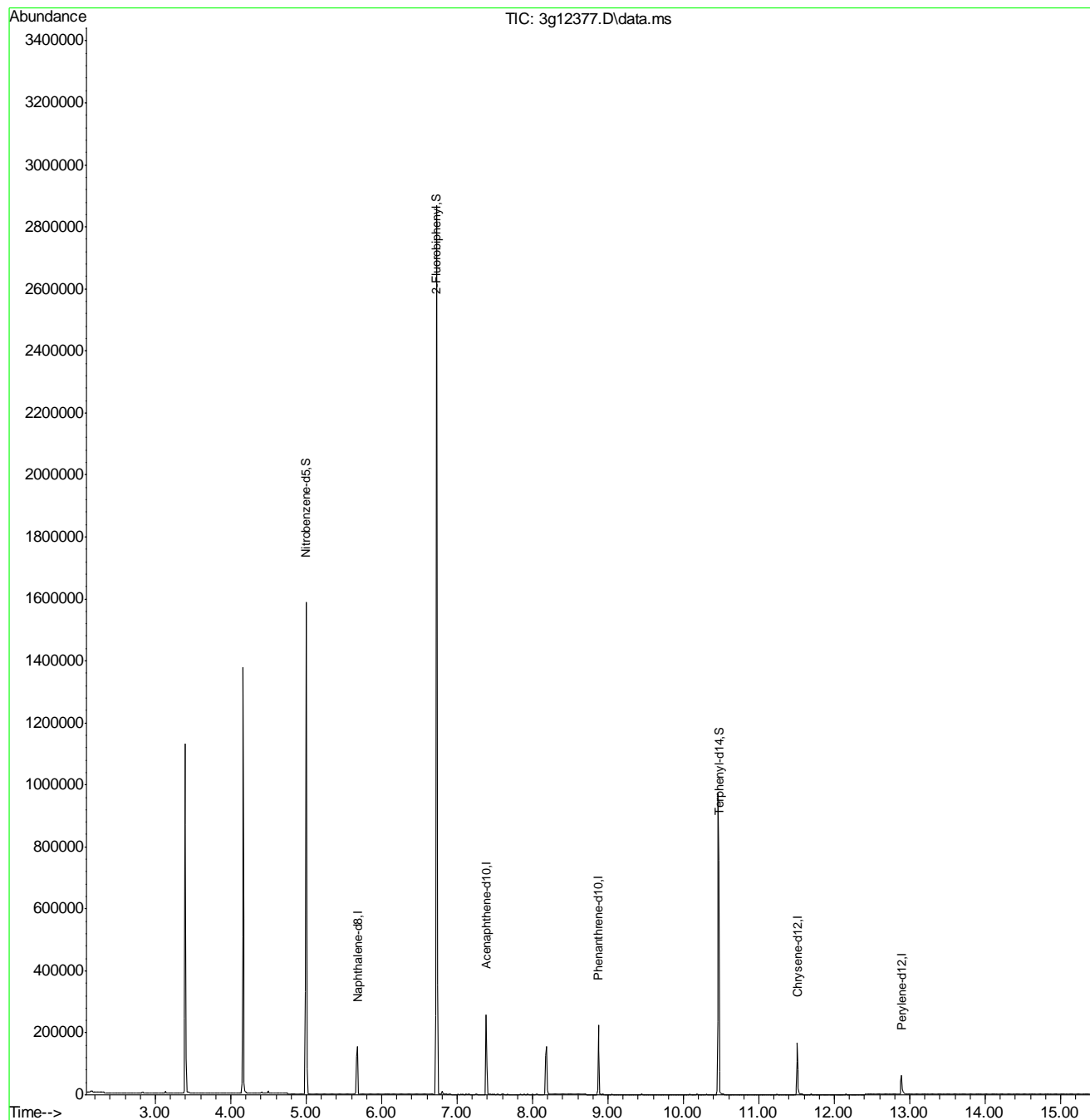
					Qvalue
3) N-Nitrosodimethylamine	2.385	74	41	N.D.	
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d
5) Naphthalene	5.694	128	493	N.D.	
8) 2-Methylnaphthalene	6.368	142	288	N.D.	
9) 1-Methylnaphthalene	6.467	142	169	N.D.	
10) Acenaphthylene	7.117	152	305	N.D.	
11) Acenaphthene	7.389	154	560	Below Cal # 23	
12) Dibenzofuran	7.601	168	175	N.D.	
13) Fluorene	0.000	166	0	N.D.	d
14) Diphenylamine	0.000	169	0	N.D.	d
16) Phenanthrene	8.894	178	658	N.D.	
17) Anthracene	8.950	178	238	N.D.	
18) Fluoranthene	10.303	202	448	N.D.	
20) Pyrene	10.303	202	448	N.D.	
22) Benzo(a)anthracene	11.502	228	794	N.D.	
23) Chrysene	11.535	228	348	N.D.	
25) Benzo(b)fluoranthene	0.000	252	0	N.D.	d
26) Benzo(k)fluoranthene	12.535	252	1693	N.D.	
27) Benzo(a)pyrene	12.829	252	290	N.D.	
28) Indeno(1,2,3-cd)pyrene	14.017	276	122	N.D.	
29) Dibenz(a,h)anthracene	14.122	278	173	N.D.	
30) Benzo(g,h,i)perylene	14.459	276	245	N.D.	

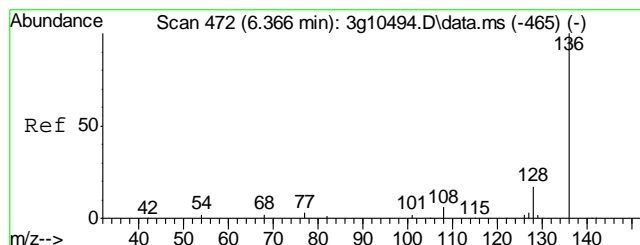
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\120312\
Data File : 3g12377.D
Acq On : 3 Dec 2012 7:58 pm
Operator : DONC
Sample : OP7031-MB
Misc : OP7031,E3G586,30.00,,,1,1
ALS Vial : 12 Sample Multiplier: 1

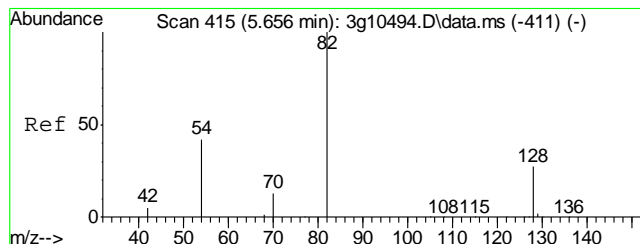
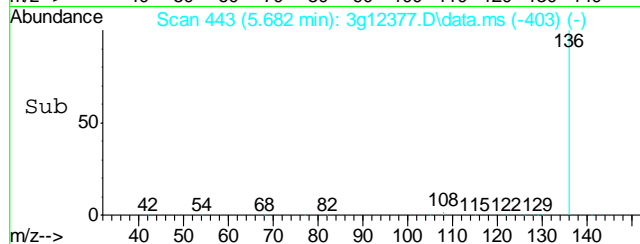
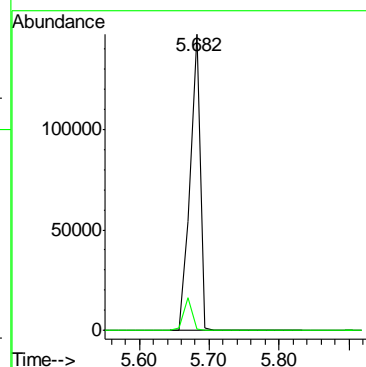
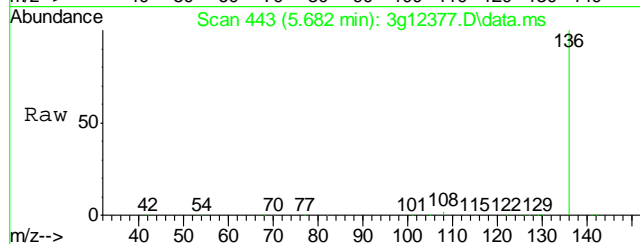
Quant Time: Dec 04 09:12:04 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G586.M
Quant Title : PAHSIM BASE
QLast Update : Tue Dec 04 08:50:28 2012
Response via : Initial Calibration





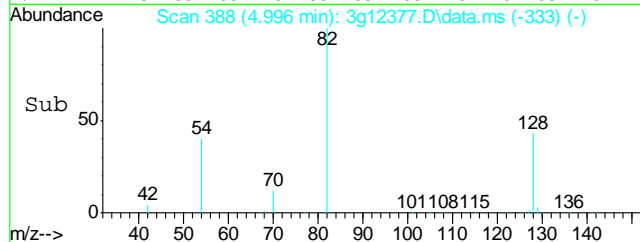
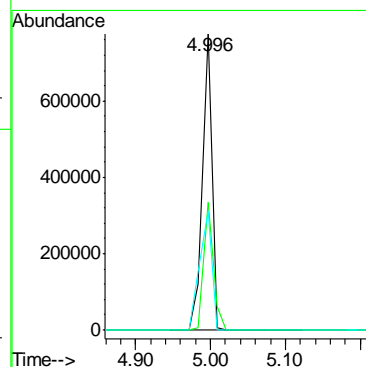
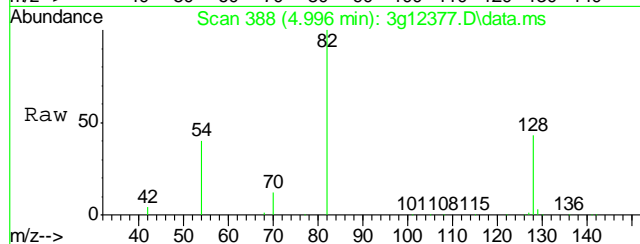
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.682 min Scan# 443
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

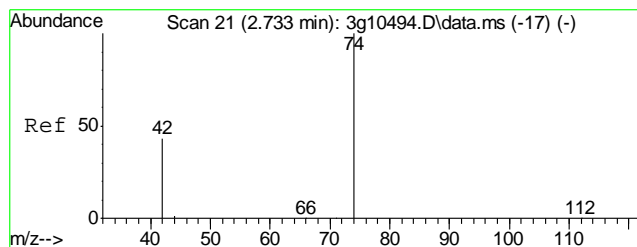
Tgt Ion: 136 Resp: 151768
Ion Ratio Lower Upper
136 100
68 8.7 0.0 28.4



#2
Nitrobenzene-d5
Concen: 44.6396 ug/mL
RT: 4.996 min Scan# 388
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

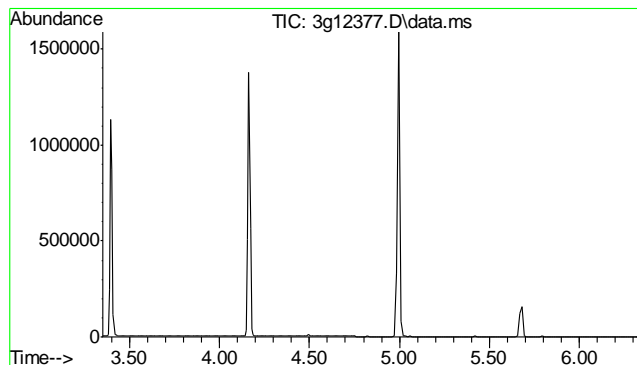
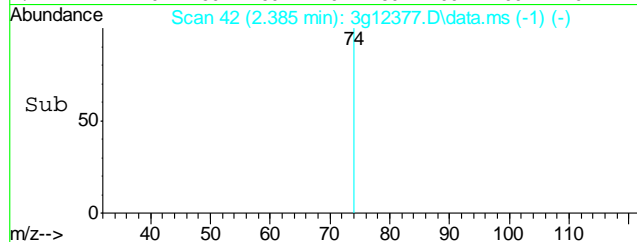
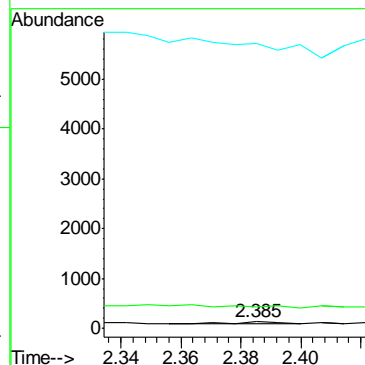
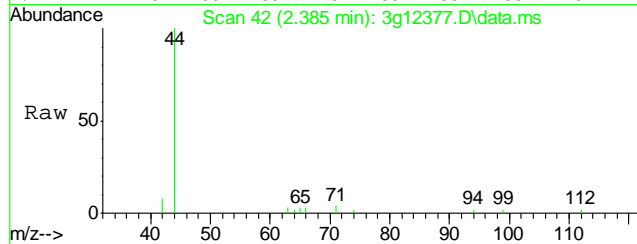
Tgt Ion: 82 Resp: 677227
Ion Ratio Lower Upper
82 100
128 44.6 31.8 71.8
54 51.5 29.2 69.2





#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.385 min Scan# 42
Delta R.T. 0.007 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

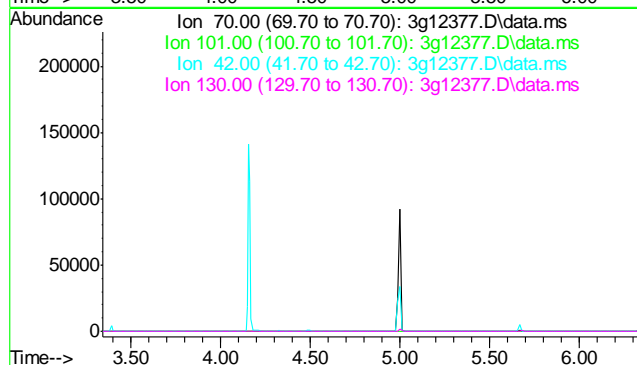
Tgt Ion: 74 Resp: 41
Ion Ratio Lower Upper
74 100
42 209.8 52.5 92.5#
44 0.0 0.0 24.1

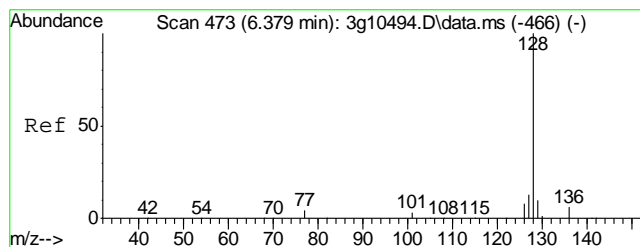


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 4.85 min

Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

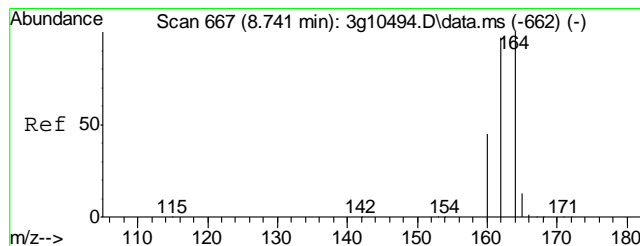
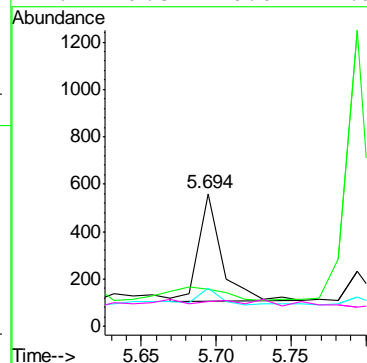
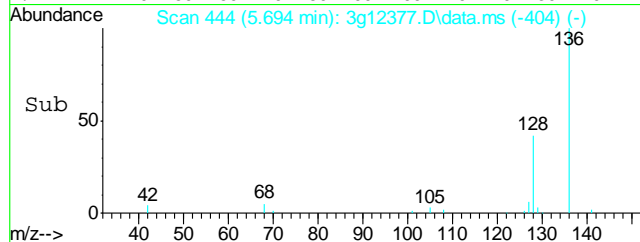
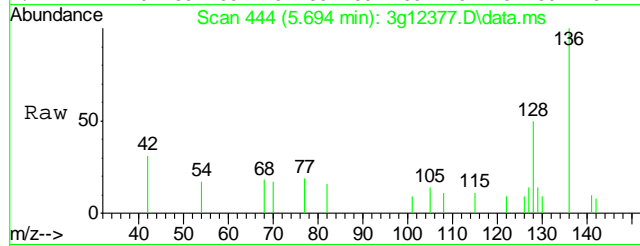
Tgt Ion: 70
Sig Exp Ratio
70 100
101 12.2
42 67.9
130 33.2





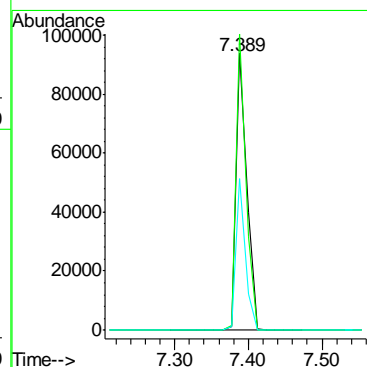
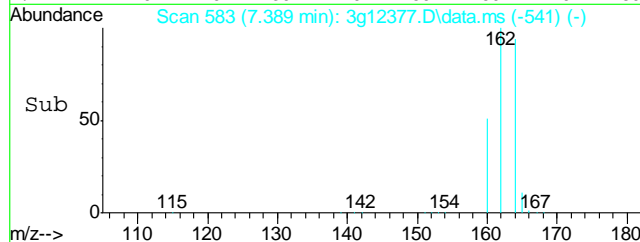
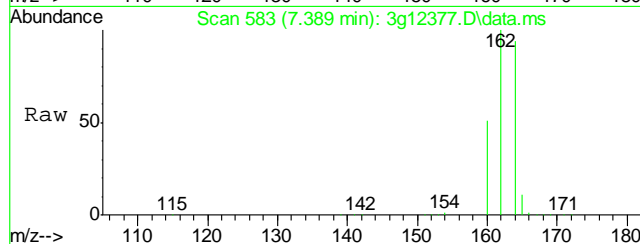
#5
Naphthalene
Concen: Below ug/mL
RT: 5.694 min Scan# 444
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

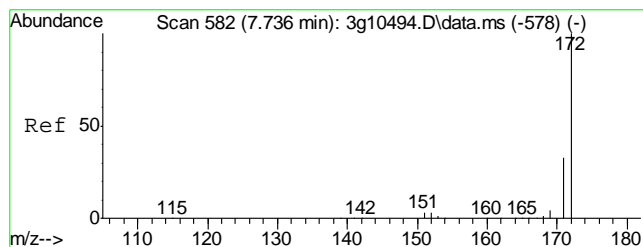
Tgt Ion	128	Resp	493
Ion Ratio	100		
Lower	0.0		
Upper	30.7#		
129	32.3		
127	28.4		
126	19.5		



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.389 min Scan# 583
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

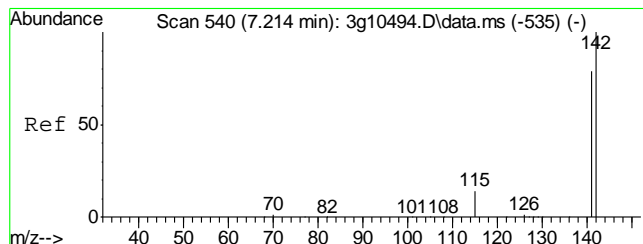
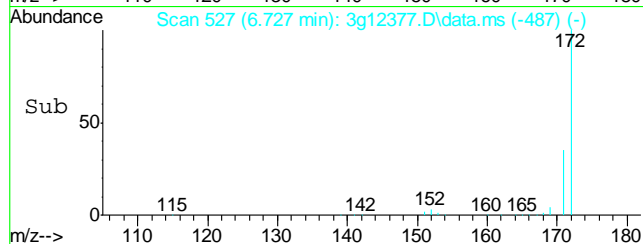
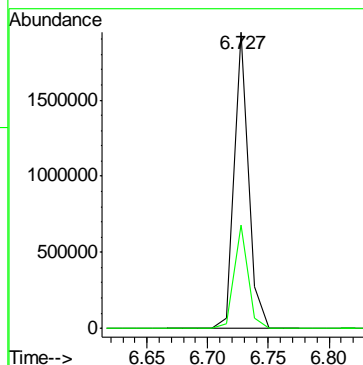
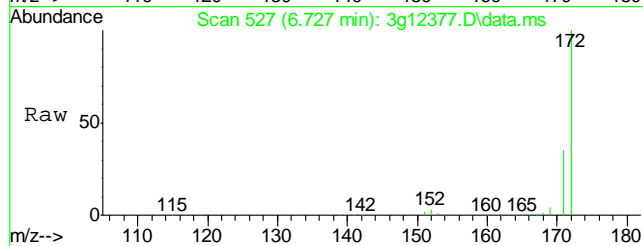
Tgt Ion	164	Resp	95999
Ion Ratio <td>100</td> <td></td> <td></td>	100		
Lower <td>78.0</td> <td></td> <td></td>	78.0		
Upper <td>118.0</td> <td></td> <td></td>	118.0		
162	98.8		
160	47.9		





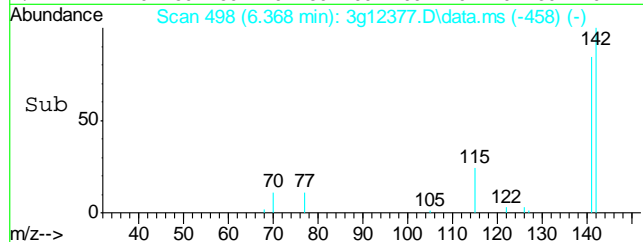
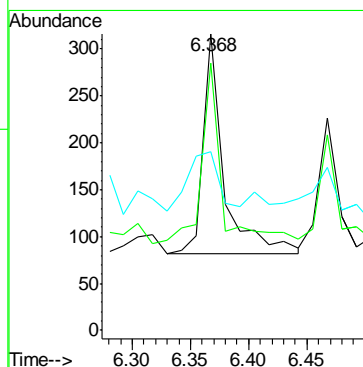
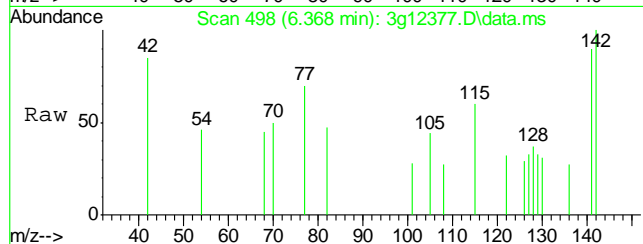
#7
2-Fluorobiphenyl
Concen: 39.1796 ug/mL
RT: 6.727 min Scan# 527
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

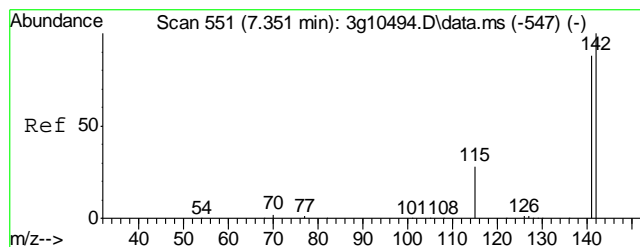
Tgt Ion:172 Resp: 1643542
Ion Ratio Lower Upper
172 100
171 33.9 13.7 53.7



#8
2-Methylnaphthalene
Concen: Below ug/mL
RT: 6.368 min Scan# 498
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

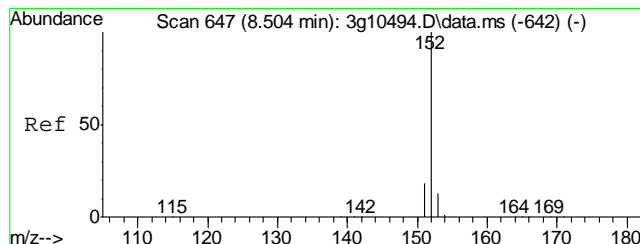
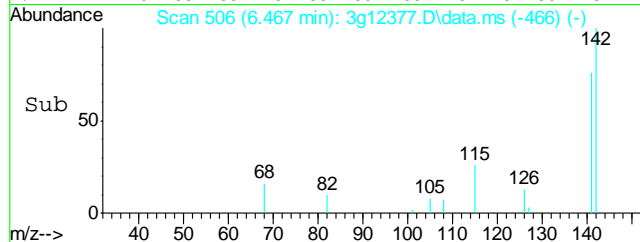
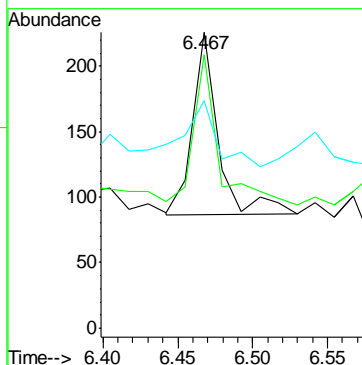
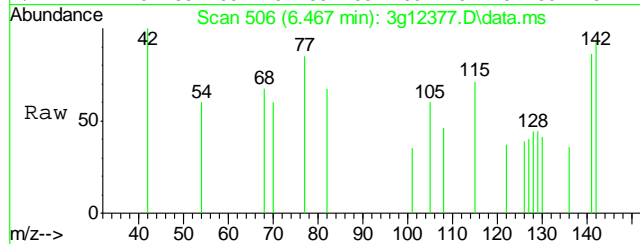
Tgt Ion:142 Resp: 288
Ion Ratio Lower Upper
142 100
141 77.8 65.6 105.6
115 0.0 12.2 52.2#





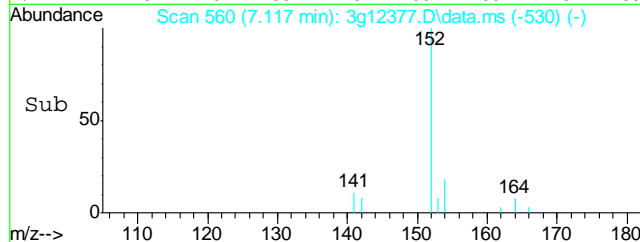
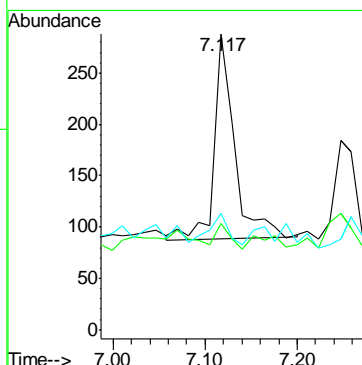
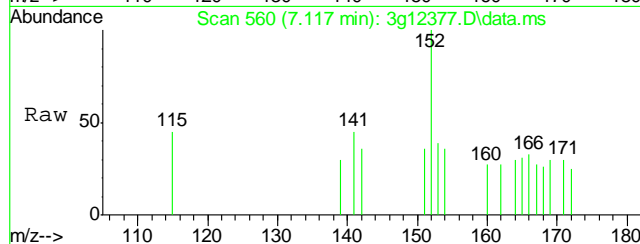
#9
1-Methylnaphthalene
Concen: Below ug/mL
RT: 6.467 min Scan# 506
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

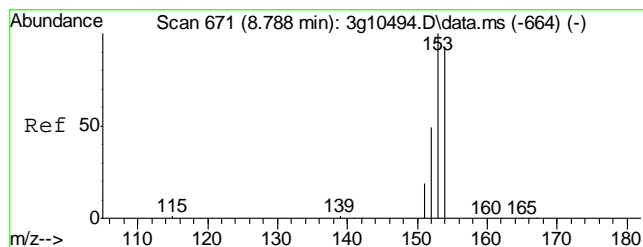
Tgt Ion:142 Resp: 169
Ion Ratio Lower Upper
142 100
141 76.9 67.0 107.0
115 0.0 9.3 49.3#



#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.117 min Scan# 560
Delta R.T. -0.142 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

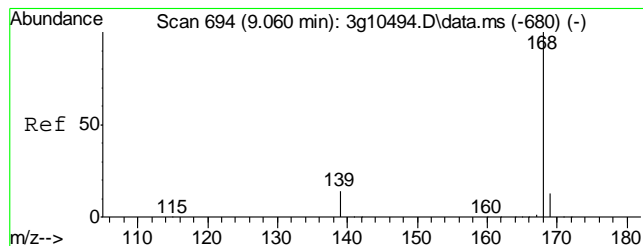
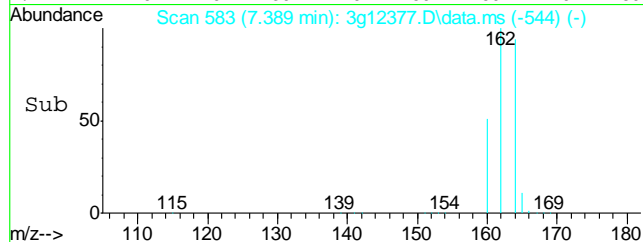
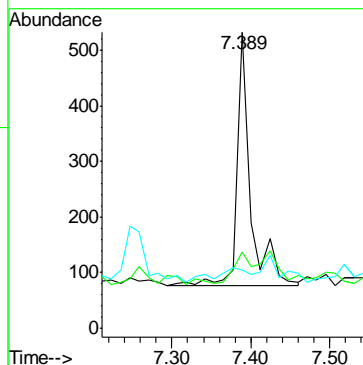
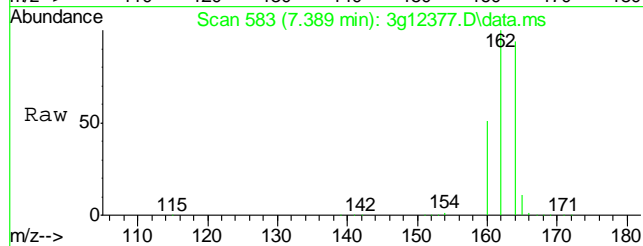
Tgt Ion:152 Resp: 305
Ion Ratio Lower Upper
152 100
151 8.5 0.0 39.5
153 13.4 0.0 33.0





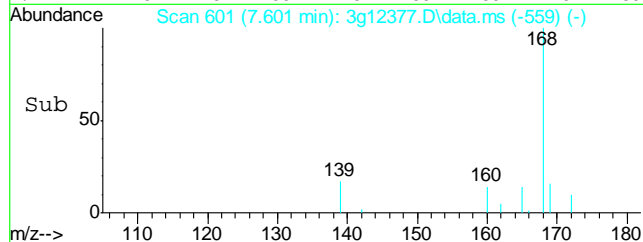
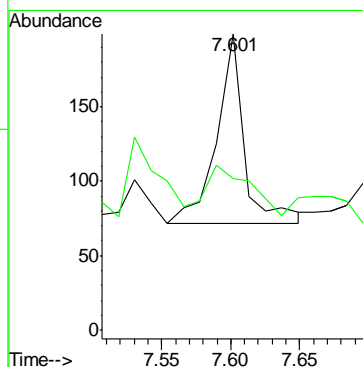
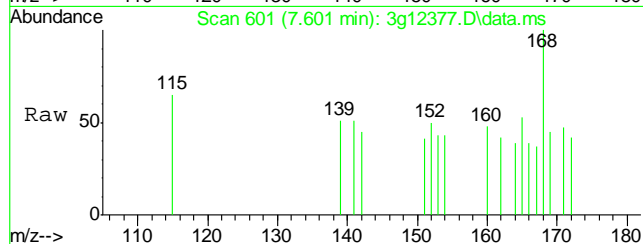
#11
Acenaphthene
Concen: Below ug/mL
RT: 7.389 min Scan# 583
Delta R.T. -0.035 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

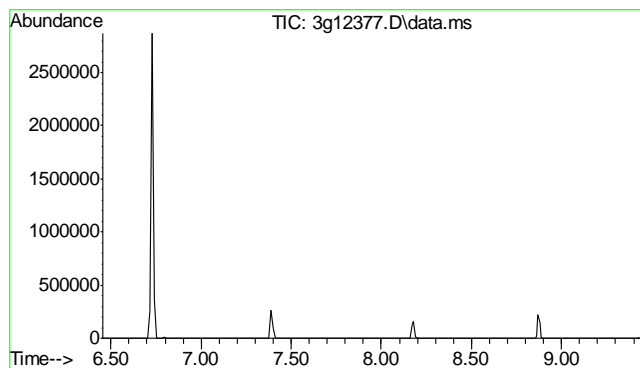
Tgt Ion	154	153	152
Resp:	560		
Ion Ratio	100	14.3	13.2
Lower		84.7	30.2
Upper		124.7#	70.2#



#12
Dibenzofuran
Concen: Below ug/mL
RT: 7.601 min Scan# 601
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion	168	139
Resp:	175	
Ion Ratio	100	48.0
Lower		12.0
Upper		52.0

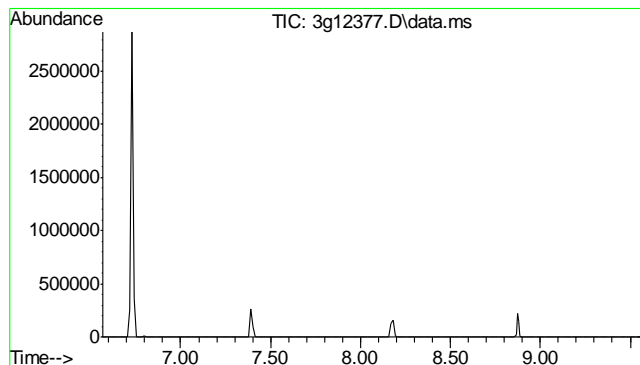
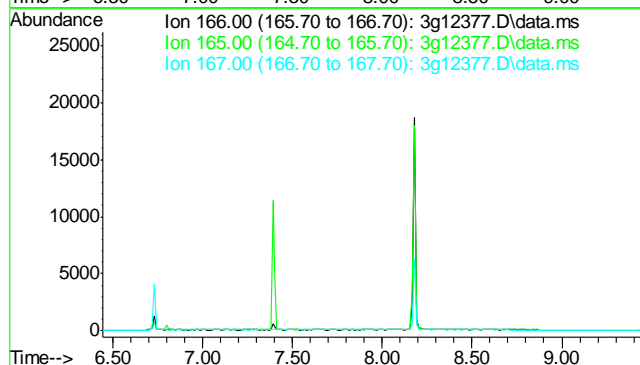




#13
Fluorene
Concen: N.D. ug/mL
Expected RT: 7.94 min

Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

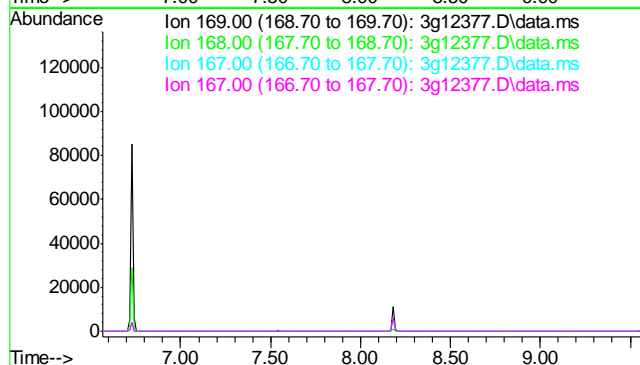
Tgt Ion: 166
Sig Exp Ratio
166 100
165 90.1
167 13.4

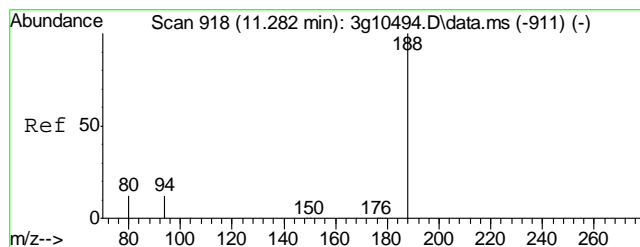


#14
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 8.06 min

Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

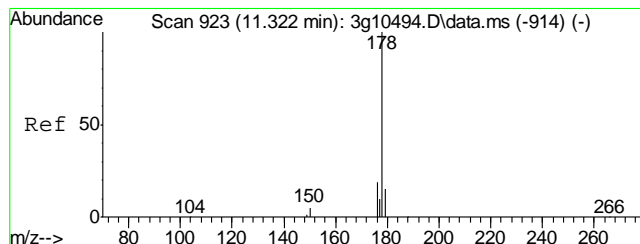
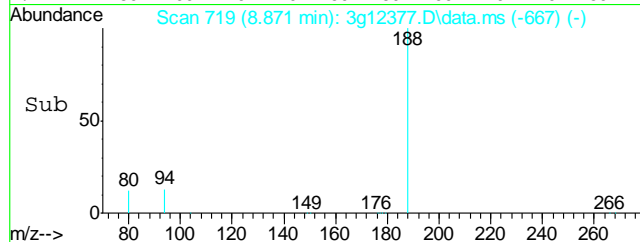
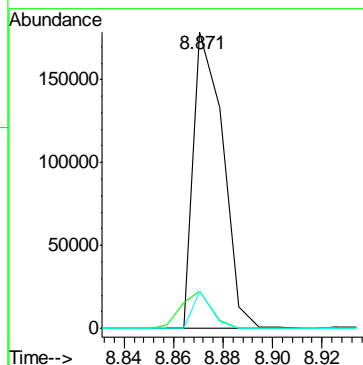
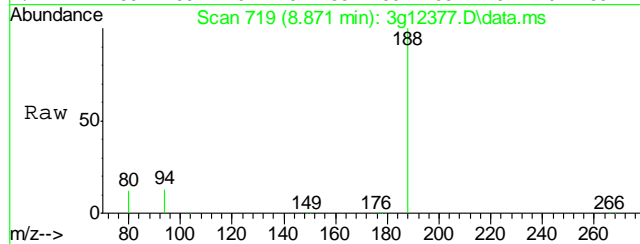
Tgt Ion: 169
Sig Exp Ratio
169 100
168 60.1
167 32.1
167 32.1





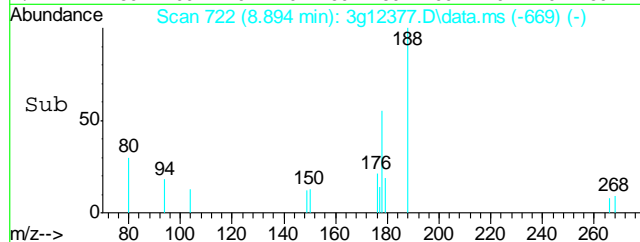
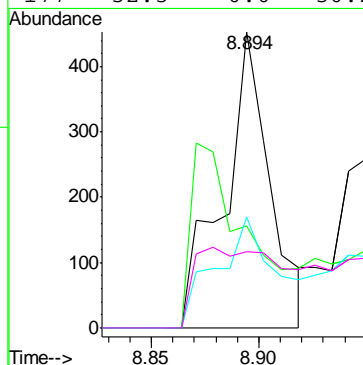
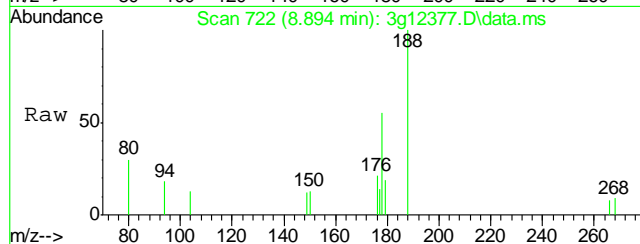
#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.871 min Scan# 719
Delta R.T. -0.008 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

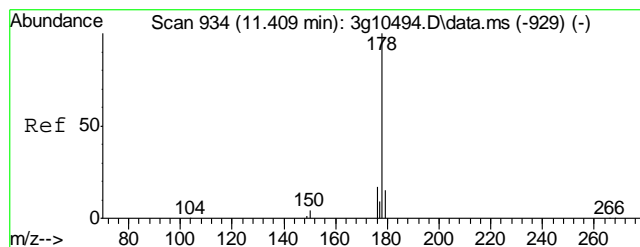
Tgt Ion:188	Resp:	147491
Ion Ratio	Lower	Upper
188	100	
94	13.7	0.0 33.4
80	8.4	0.0 28.9



#16
Phenanthrene
Concen: Below ug/mL
RT: 8.894 min Scan# 722
Delta R.T. -0.008 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

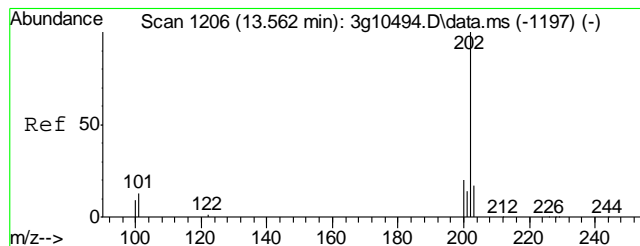
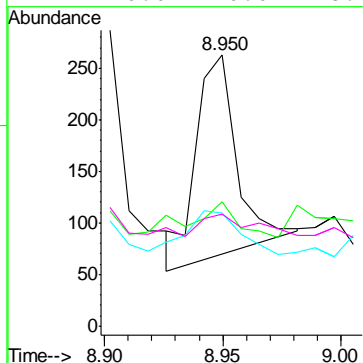
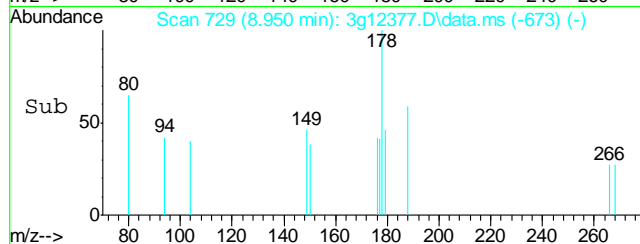
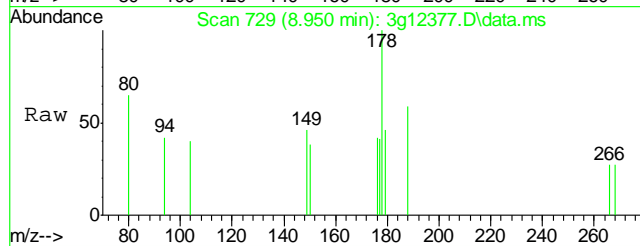
Tgt Ion:178	Resp:	658
Ion Ratio	Lower	Upper
178	100	
179	79.5	0.0 35.3#
176	47.7	0.0 38.6#
177	52.3	0.0 30.2#





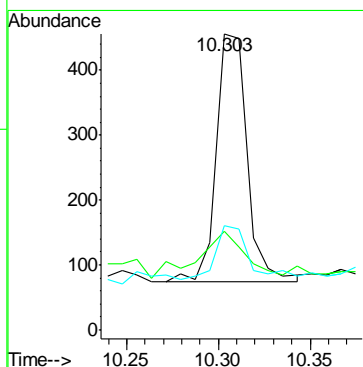
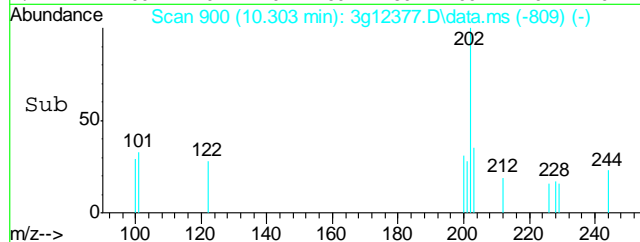
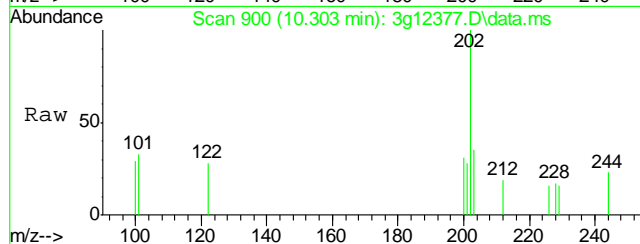
#17
Anthracene
Concen: Below ug/mL
RT: 8.950 min Scan# 729
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

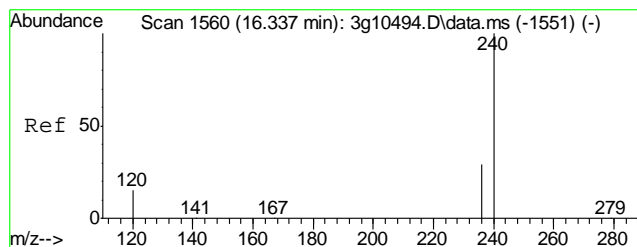
Tgt Ion	178	179	176	177
Resp	238	18.9	53.4	0.0
Ratio	100			
Lower		0.0	0.0	0.0
Upper		35.1	38.2	28.8



#18
Fluoranthene
Concen: Below ug/mL
RT: 10.303 min Scan# 900
Delta R.T. 0.222 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

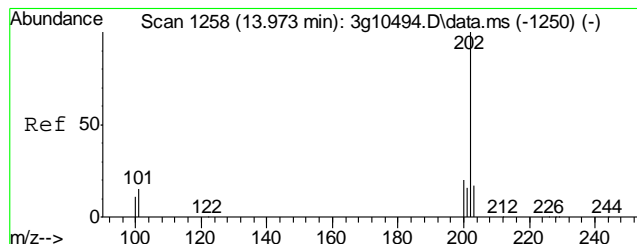
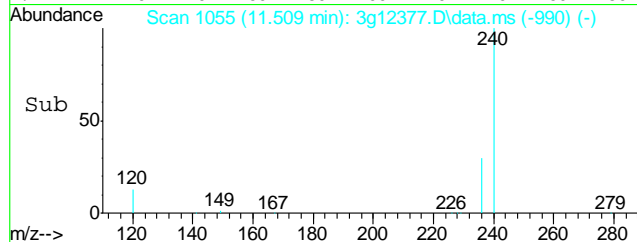
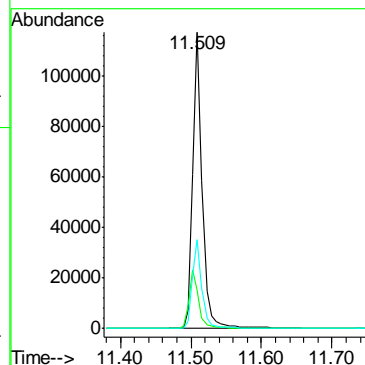
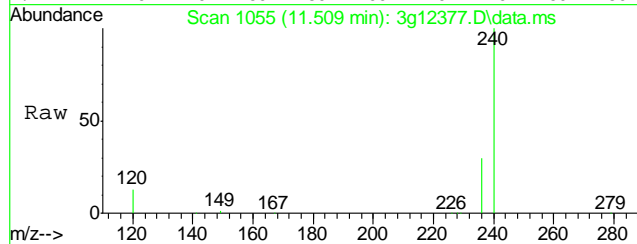
Tgt Ion	202	101	203
Resp	448	20.3	25.7
Ratio	100		
Lower		0.0	0.0
Upper		32.5	37.3





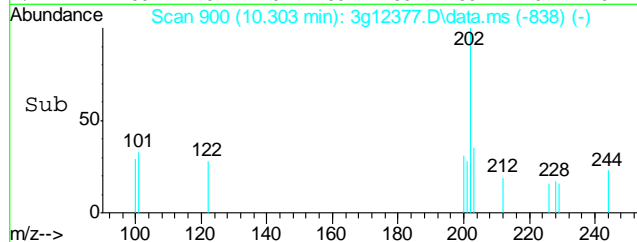
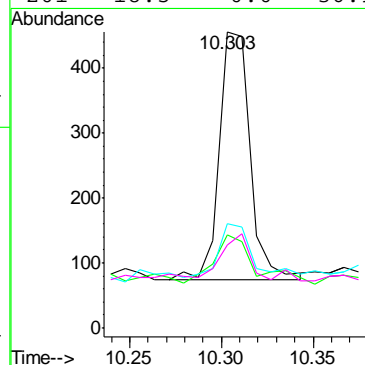
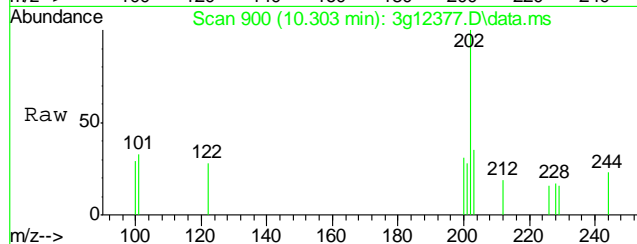
#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.509 min Scan# 1055
Delta R.T. -0.007 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

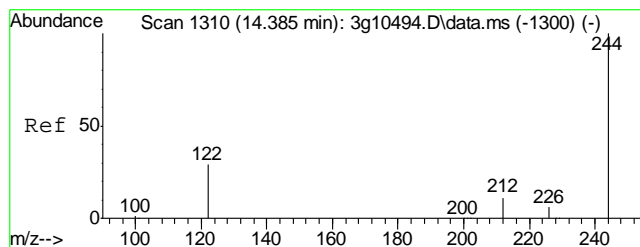
Tgt Ion:	240	Resp:	108551
Ion Ratio	Lower	Upper	
240	100		
120	19.8	0.0	39.7
236	30.6	11.1	51.1



#20
Pyrene
Concen: Below ug/mL
RT: 10.303 min Scan# 900
Delta R.T. -0.008 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

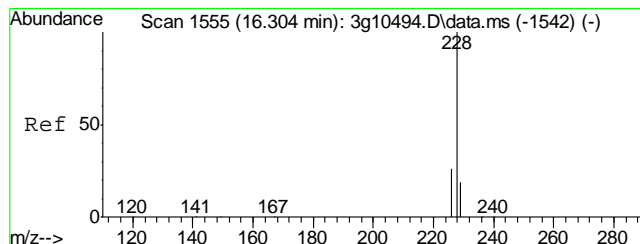
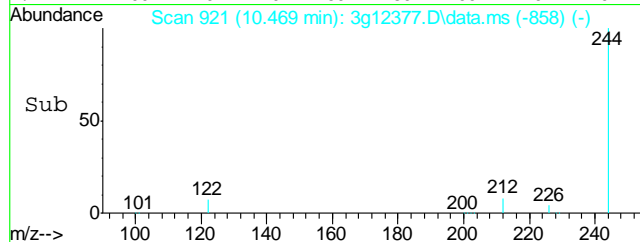
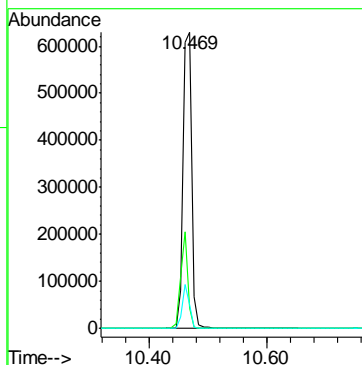
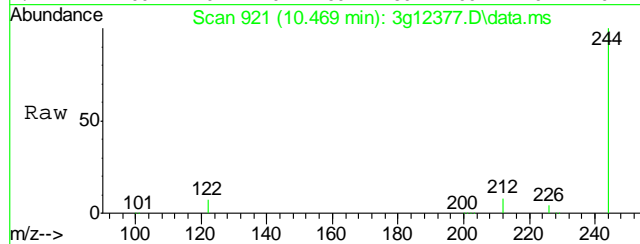
Tgt Ion:	202	Resp:	448
Ion Ratio	Lower	Upper	
202	100		
200	25.7	0.7	40.7
203	25.7	0.0	37.8
201	18.5	0.0	36.9





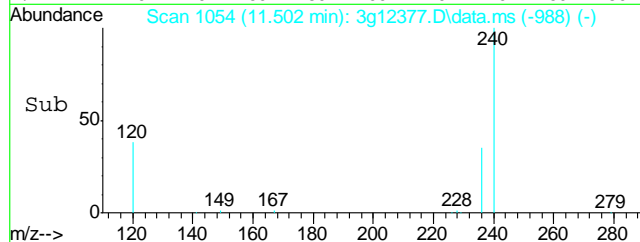
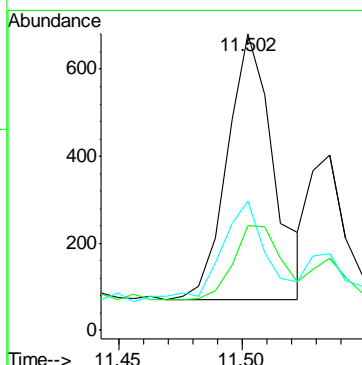
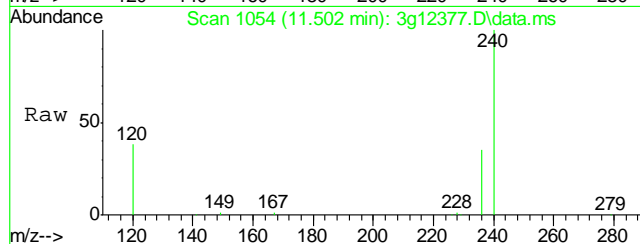
#21
Terphenyl-d14
Concen: 41.8237 ug/mL
RT: 10.469 min Scan# 921
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

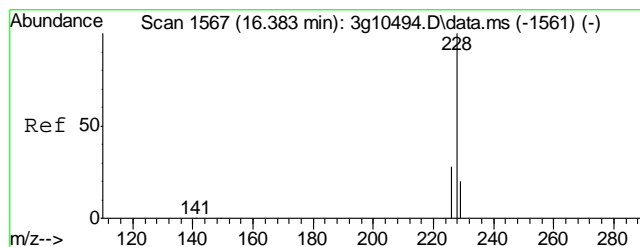
Tgt Ion:	244	Resp:	668273
Ion Ratio	Lower	Upper	
244	100		
122	26.4	6.8	46.8
212	12.1	0.0	32.3



#22
Benzo(a)anthracene
Concen: Below ug/mL
RT: 11.502 min Scan# 1054
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

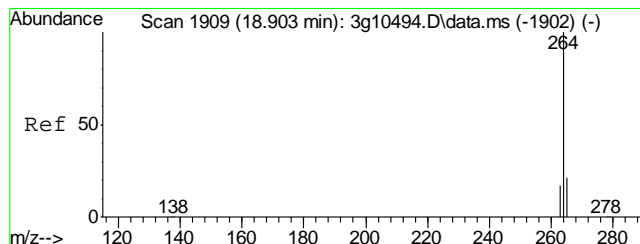
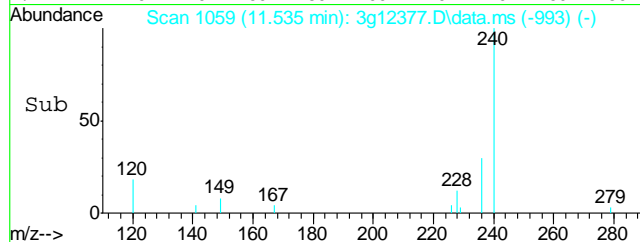
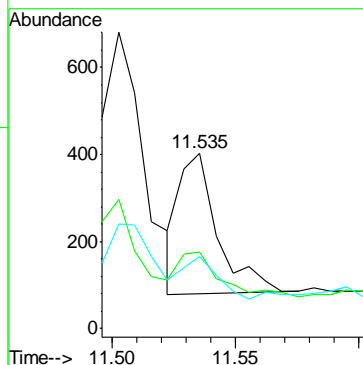
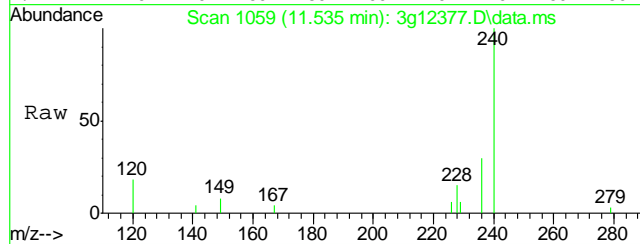
Tgt Ion:	228	Resp:	794
Ion Ratio	Lower	Upper	
228	100		
229	29.0	0.0	39.4
226	39.4	6.8	46.8





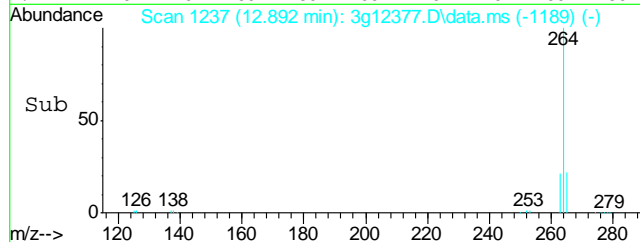
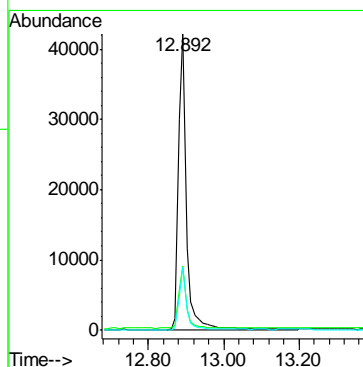
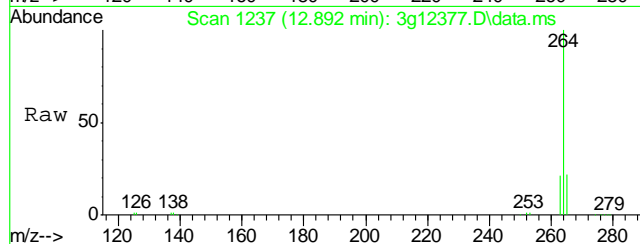
#23
Chrysene
Concen: Below ug/mL
RT: 11.535 min Scan# 1059
Delta R.T. -0.007 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

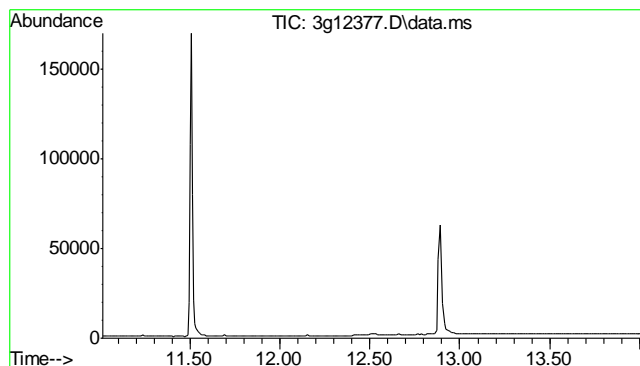
Tgt Ion: 228	Resp: 348
Ion Ratio	Lower Upper
228	100
226	35.9 9.2 49.2
229	13.5 0.0 39.4



#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 12.892 min Scan# 1237
Delta R.T. 0.000 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion: 264	Resp: 61443
Ion Ratio	Lower Upper
264	100
265	20.3 0.6 40.6
263	20.1 0.0 39.7

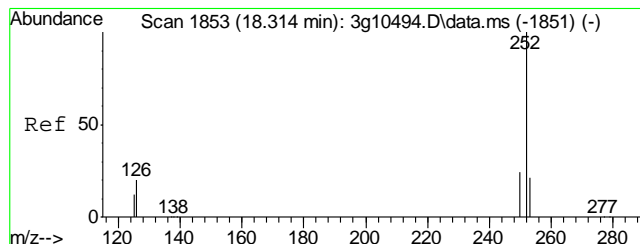
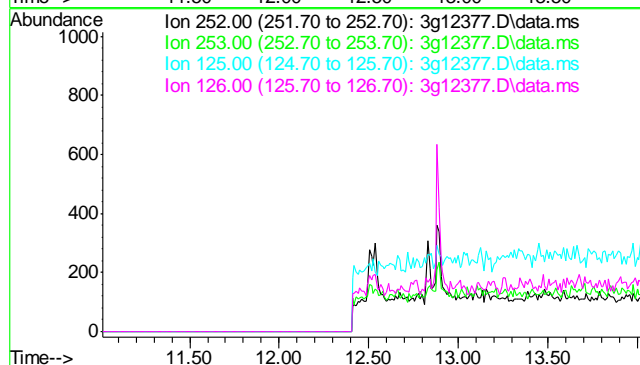




#25
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.51 min

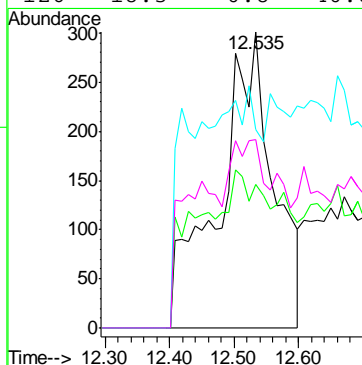
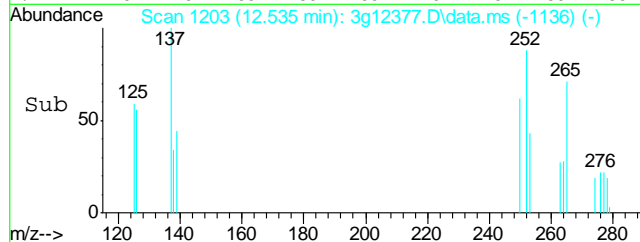
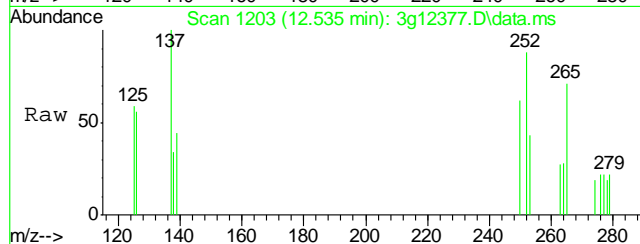
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

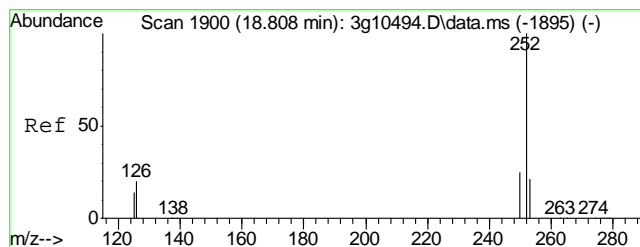
Tgt Ion: 252
Sig Exp Ratio
252 100
253 27.0
125 29.0
126 41.6



#26
Benzo(k)fluoranthene
Concen: Below ug/mL
RT: 12.535 min Scan# 1203
Delta R.T. -0.010 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

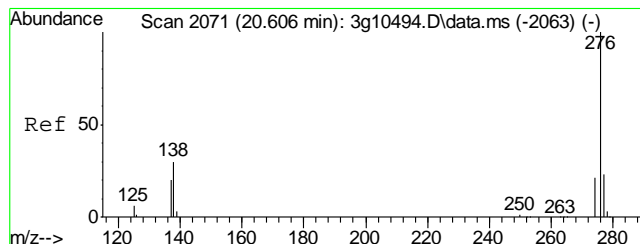
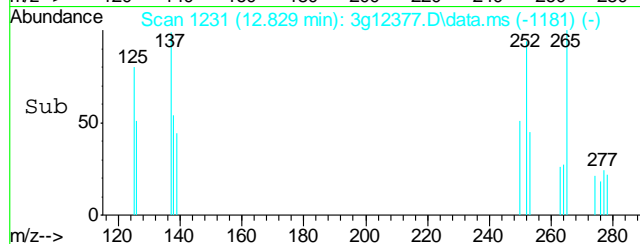
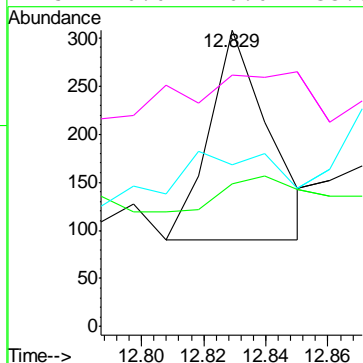
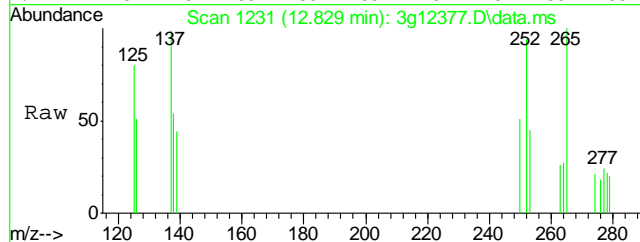
Tgt Ion: 252 Resp: 1693
Ion Ratio Lower Upper
252 100
253 9.9 4.0 44.0
125 0.0 0.0 35.3
126 18.3 0.8 40.8





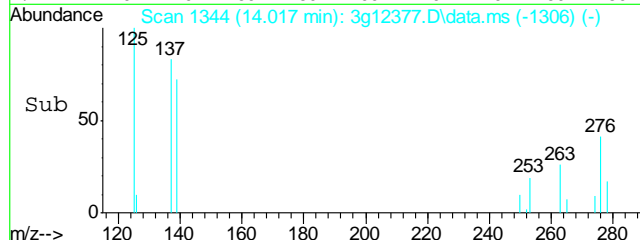
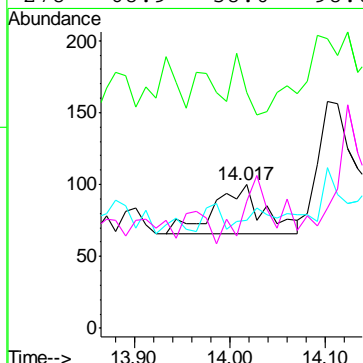
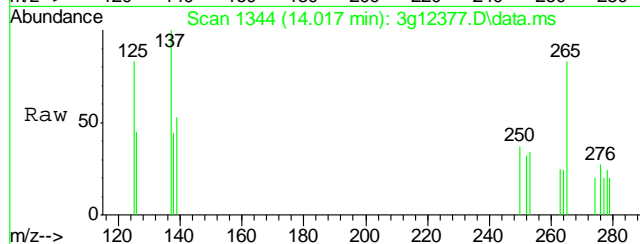
#27
Benzo(a)pyrene
Concen: Below ug/mL
RT: 12.829 min Scan# 1231
Delta R.T. -0.010 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

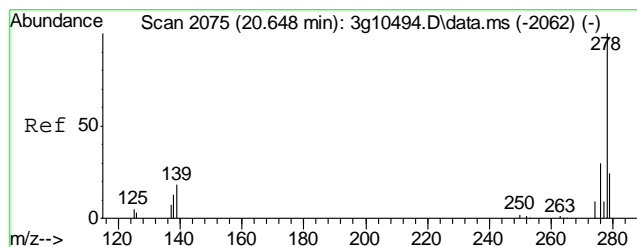
Tgt Ion:	252	Resp:	290
Ion Ratio	Lower	Upper	
252	100		
253	24.8	1.5	41.5
126	34.5	0.0	38.4
125	0.0	0.0	33.5



#28
Indeno(1,2,3-cd)pyrene
Concen: Below ug/mL
RT: 14.017 min Scan# 1344
Delta R.T. -0.105 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

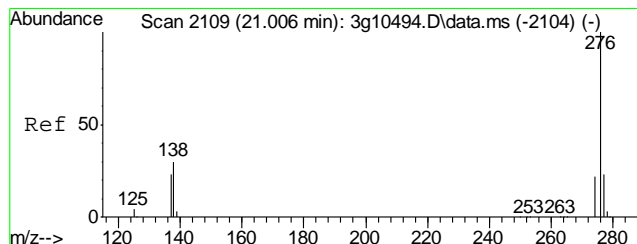
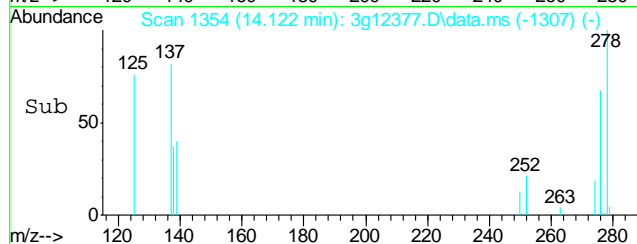
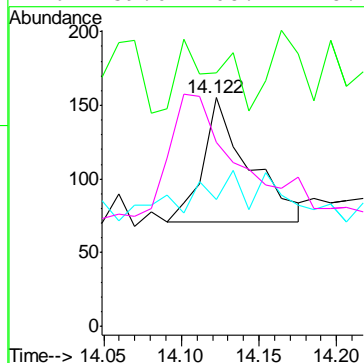
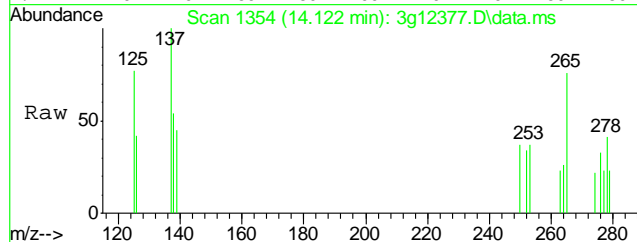
Tgt Ion:	276	Resp:	122
Ion Ratio	Lower	Upper	
276	100		
138	30.3	16.0	56.0
277	9.8	4.9	44.9
278	68.9	58.0	98.0





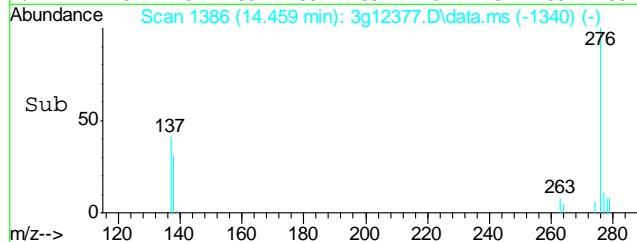
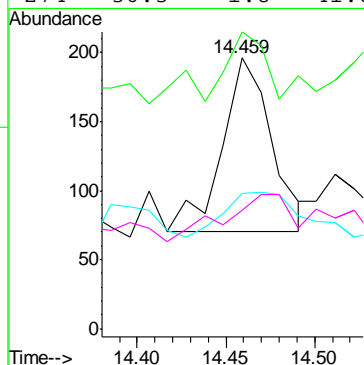
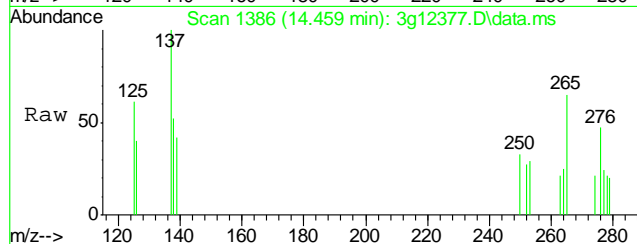
#29
Dibenzo(a,h)anthracene
Concen: Below ug/mL
RT: 14.122 min Scan# 1354
Delta R.T. -0.010 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion: 278 Resp: 173
Ion Ratio Lower Upper
278 100
139 53.8 7.4 47.4#
279 45.1 2.8 42.8#
276 159.0 108.1 148.1#



#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.459 min Scan# 1386
Delta R.T. -0.021 min
Lab File: 3g12377.D
Acq: 3 Dec 12 7:58 pm

Tgt Ion: 276 Resp: 245
Ion Ratio Lower Upper
276 100
138 57.1 10.9 50.9#
277 41.2 3.2 43.2
274 36.3 1.8 41.8



GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1016-MB	GB18638.D	1	11/29/12	SK	n/a	n/a	GGB1016

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

D41305-1

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	90% 60-140%

10.1.1
10

Blank Spike Summary

Page 1 of 1

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1016-BS	GB18639.D	1	11/29/12	SK	n/a	n/a	GGB1016

The QC reported here applies to the following samples:

Method: SW846 8015B

D41305-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	123	112	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	107%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D41047-1MS	GB18641.D	1	11/29/12	SK	n/a	n/a	GGB1016
D41047-1MSD	GB18642.D	1	11/29/12	SK	n/a	n/a	GGB1016
D41047-1	GB18640.D	1	11/29/12	SK	n/a	n/a	GGB1016

The QC reported here applies to the following samples:

Method: SW846 8015B

D41305-1

CAS No.	Compound	D41047-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	76.5		157	249	110	246	108	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D41047-1	Limits
120-82-1	1,2,4-Trichlorobenzene	107%	108%	97%	60-140%

* = Outside of Control Limits.

GC Volatiles

Raw Data



Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\112912\GB18649.D\FID1A.CH Vial: 14
Signal #2 : Y:\1\DATA\112912\GB18649.D\FID2B.CH
Acq On : 29 Nov 2012 8:10 pm Operator: StephK
Sample : D41305-1, 50X Inst : GC/MS Ins
Misc : GC3260,GGB1016,5.065,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 30 08:17:10 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Nov 29 18:07:37 2012
Response via : Initial Calibration
DataAcq Meth : TVB4.M

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

	Compound	R.T.	Response	Conc	Units

System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.37	2842052	90.702 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.37	14582093	89.721 %	
Target Compounds					
1) H	TVH-Gasoline	7.23	8594928	0.103 mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D. ug/L	d
5) T	Benzene	4.14	334968	0.831 ug/L	
6) T	Toluene	7.67	990686	2.500 ug/L	
7) T	Ethylbenzene	10.30	140799	0.416 ug/L	
8) T	m,p-Xylene	10.47	1051324	2.507 ug/L	
9) T	o-Xylene	10.98	239823	0.730 ug/L	
11) T	Naphthalene	14.56	701007	3.553 ug/L	

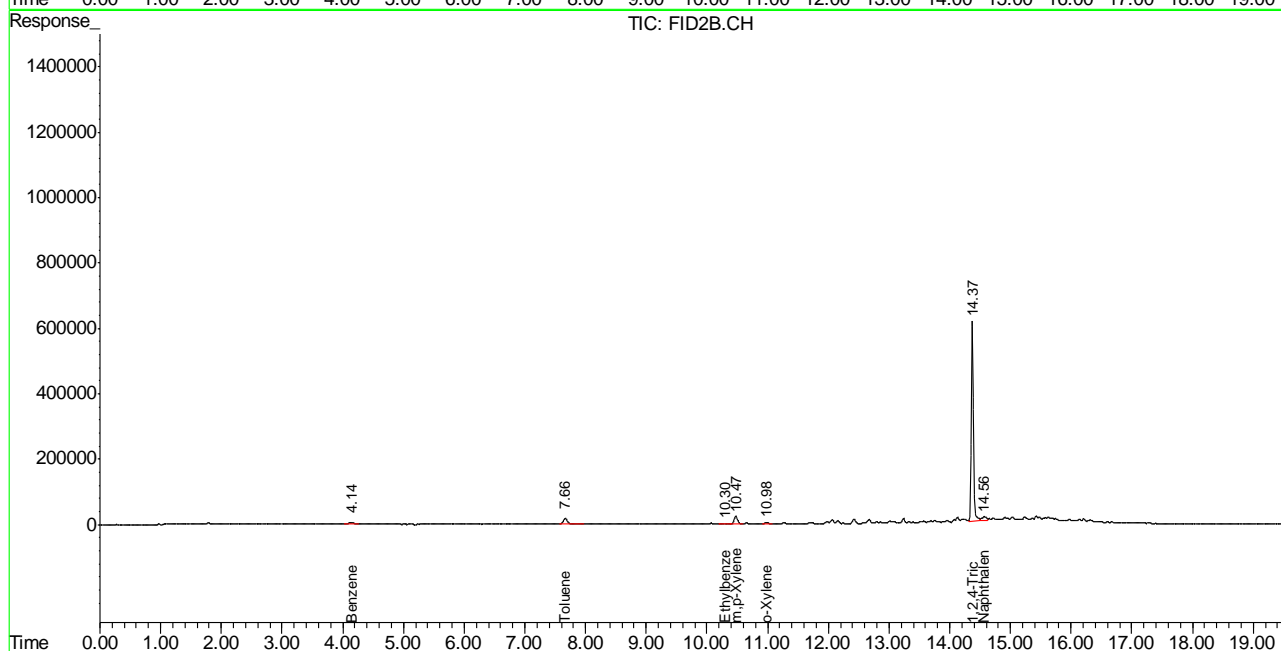
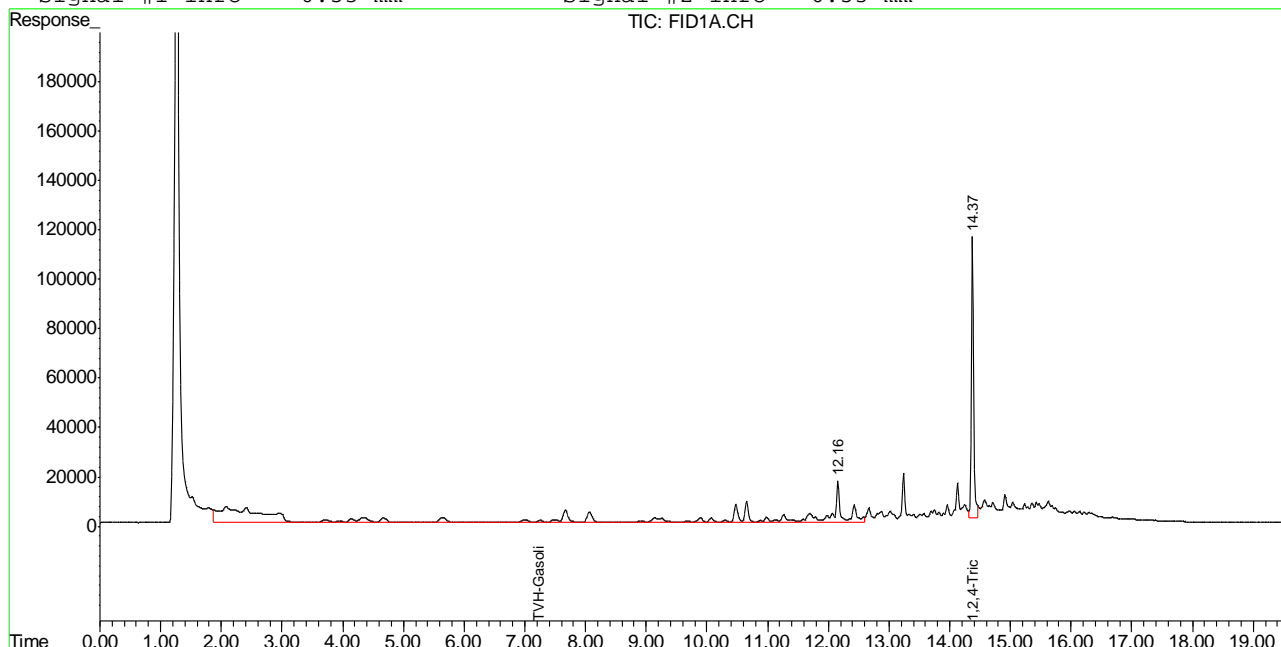
11.1.1
11

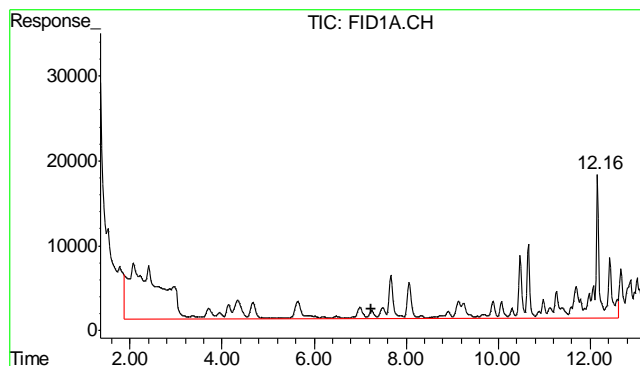
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\112912\GB18649.D\FID1A.CH Vial: 14
 Signal #2 : Y:\1\DATA\112912\GB18649.D\FID2B.CH
 Acq On : 29 Nov 2012 8:10 pm Operator: StephK
 Sample : D41305-1, 50X Inst : GC/MS Ins
 Misc : GC3260,GGB1016,5.065,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Nov 30 8:24 2012 Quant Results File: TB868GB868SOIL.RES

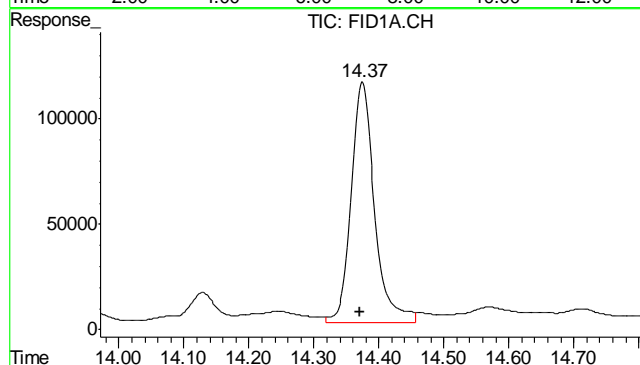
Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Nov 29 18:07:37 2012
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

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

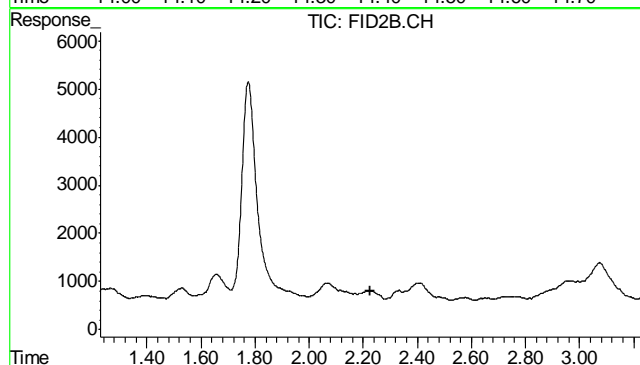




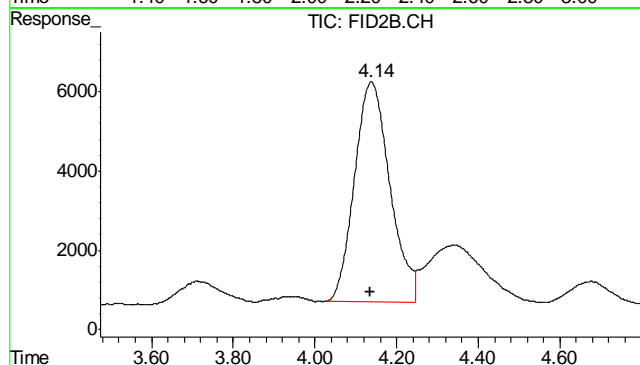
#1 TVH-Gasoline
 R.T.: 7.230 min
 Delta R.T.: 0.000 min
 Response: 8594928
 Conc: 0.10 mg/L m



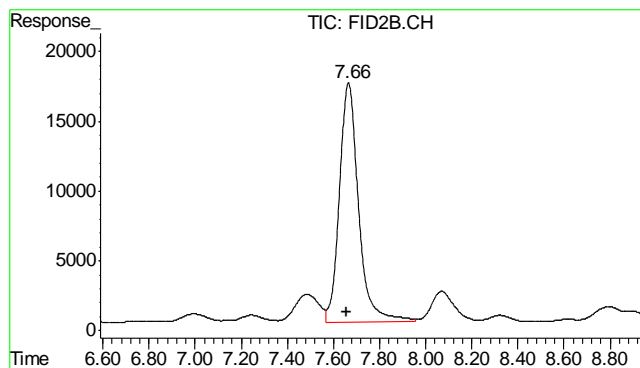
#2 1,2,4-Trichlorobenzene
 R.T.: 14.374 min
 Delta R.T.: 0.003 min
 Response: 2842052
 Conc: 90.70 % m



#4 Methyl-t-butyl-ether
 R.T.: 0.000 min
 Exp R.T.: 2.227 min
 Response: 0
 Conc: N.D.

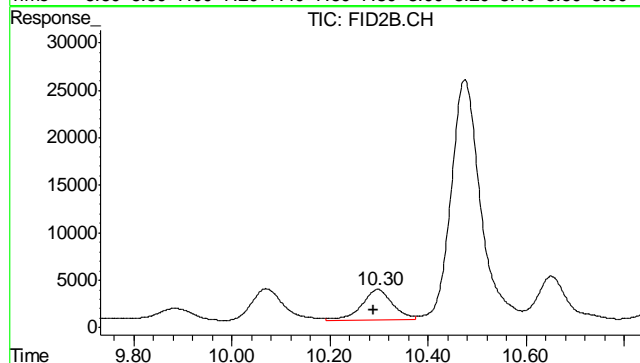


#5 Benzene
 R.T.: 4.138 min
 Delta R.T.: 0.004 min
 Response: 334968
 Conc: 0.83 ug/L



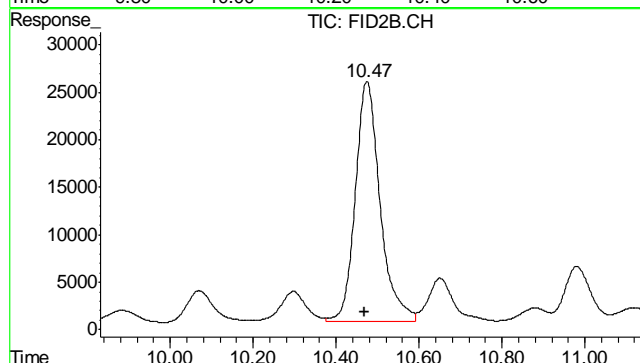
#6 Toluene

R.T.: 7.665 min
Delta R.T.: 0.008 min
Response: 990686
Conc: 2.50 ug/L



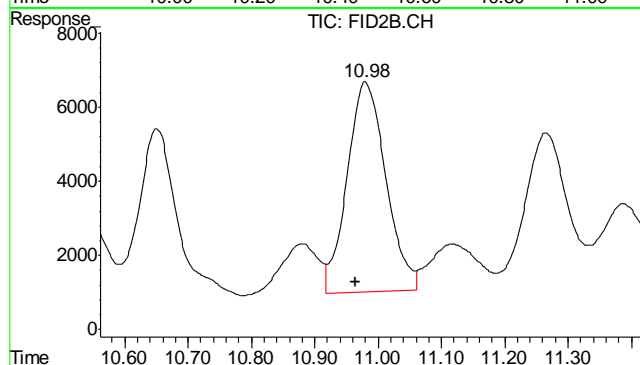
#7 Ethylbenzene

R.T.: 10.297 min
Delta R.T.: 0.009 min
Response: 140799
Conc: 0.42 ug/L



#8 m,p-Xylene

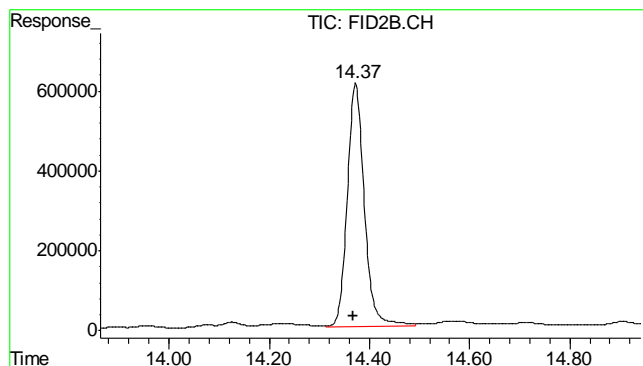
R.T.: 10.474 min
Delta R.T.: 0.006 min
Response: 1051324
Conc: 2.51 ug/L



#9 o-Xylene

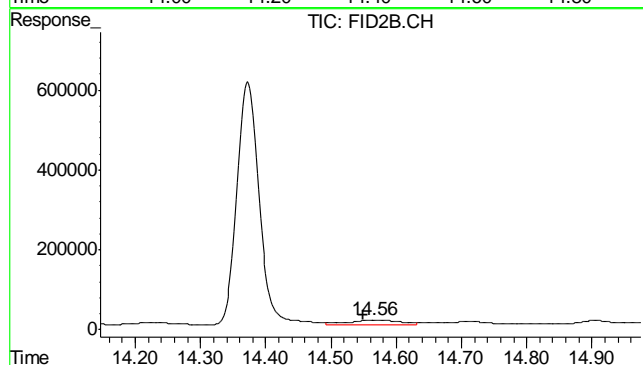
R.T.: 10.980 min
Delta R.T.: 0.015 min
Response: 239823
Conc: 0.73 ug/L

11.11



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

R.T.: 14.373 min
 Delta R.T.: 0.004 min
 Response: 14582093
 Conc: 89.72 %



#11 Naphthalene

R.T.: 14.565 min
 Delta R.T.: 0.015 min
 Response: 701007
 Conc: 3.55 ug/L

11.1.1
11

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\112912\GB18638.D\FID1A.CH Vial: 3
 Signal #2 : Y:\1\DATA\112912\GB18638.D\FID2B.CH
 Acq On : 29 Nov 2012 1:39 pm Operator: StephK
 Sample : MB Inst : GC/MS Ins
 Misc : GC3260,GGB1016,5.000,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Nov 29 18:07:57 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Nov 29 18:07:37 2012
 Response via : Initial Calibration
 DataAcq Meth : TVB4.M

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

	Compound	R.T.	Response	Conc	Units

System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.37	2827268	90.230	%
10) S	1,2,4-Trichlorobenzene (P)	14.37	14819830	91.184	%
Target Compounds					
1) H	TVH-Gasoline	7.23	3713773	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	7.66	177074	0.447	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	0.00	0	N.D.	ug/L d
9) T	o-Xylene	0.00	0	N.D.	ug/L d
11) T	Naphthalene	14.55	213770	1.083	ug/L

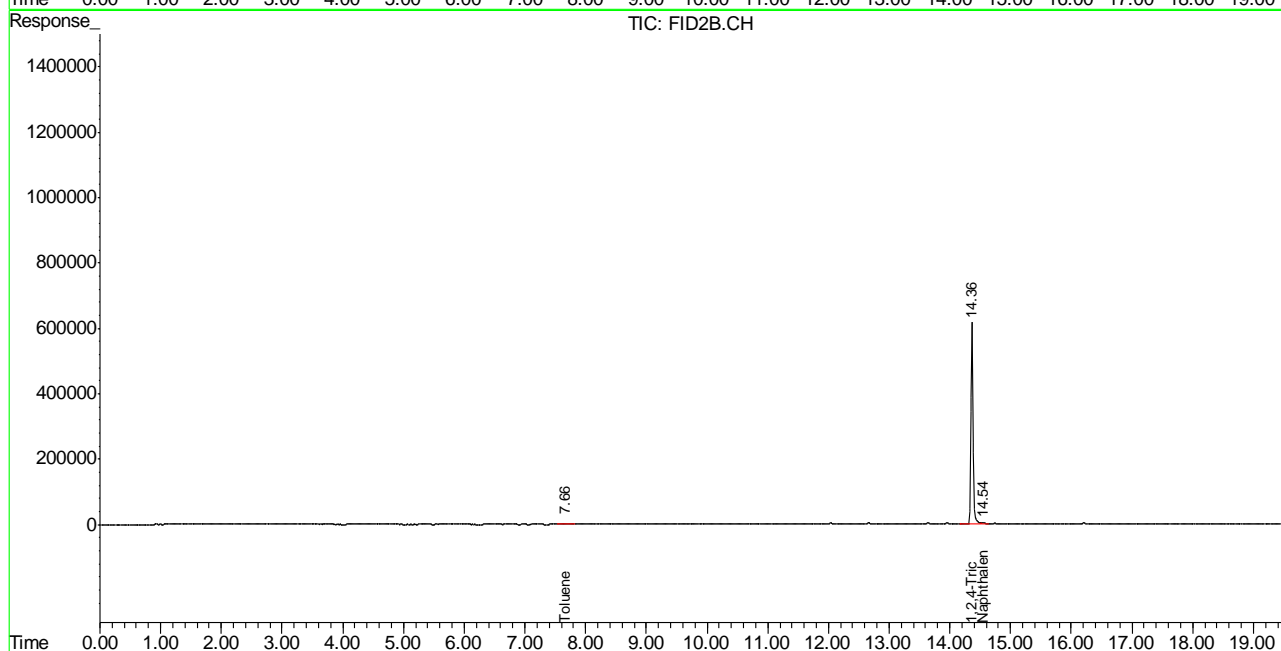
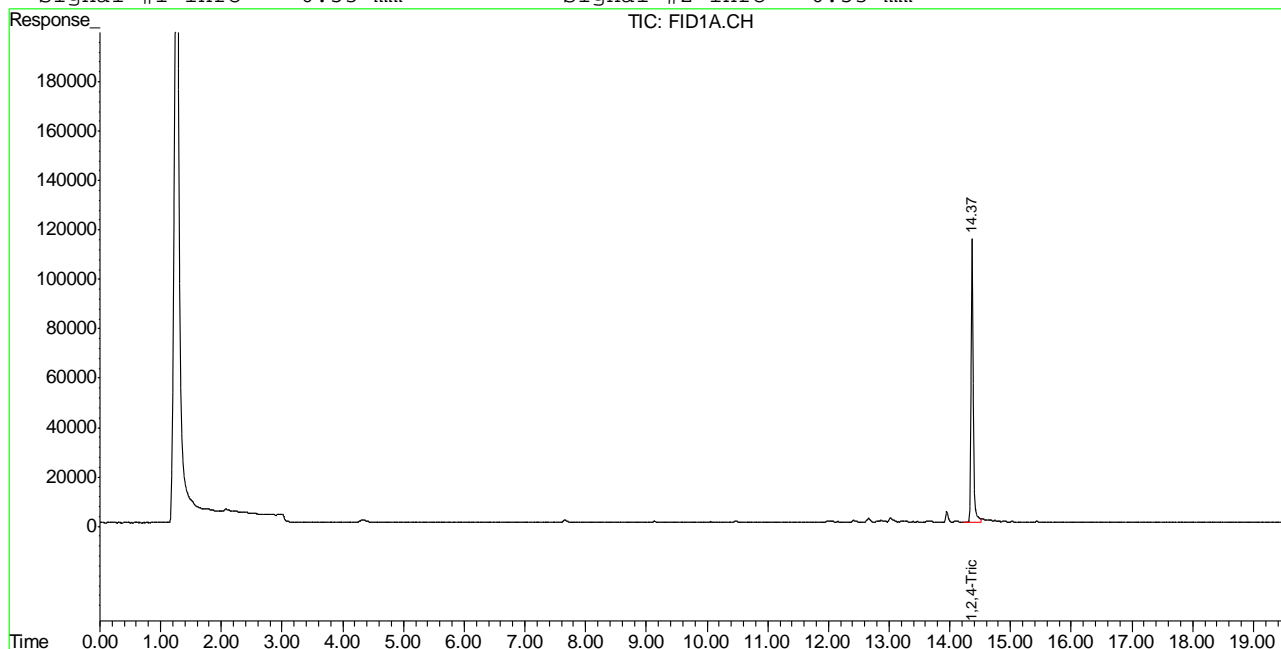
 (f)=RT Delta > 1/2 Window (m)=manual int.
 GB18638.D TB868GB868SOIL.M Fri Nov 30 08:28:04 2012 GC

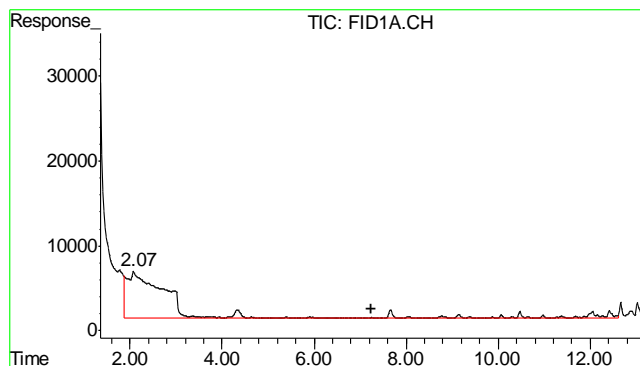
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\112912\GB18638.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\112912\GB18638.D\FID2B.CH
Acq On : 29 Nov 2012 1:39 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3260,GGB1016,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 29 18:10 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Nov 29 18:07:37 2012
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

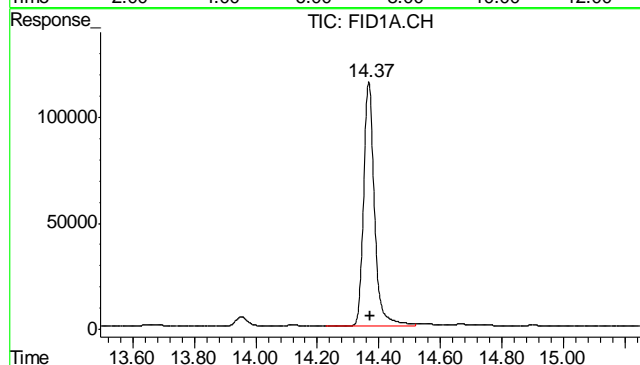
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





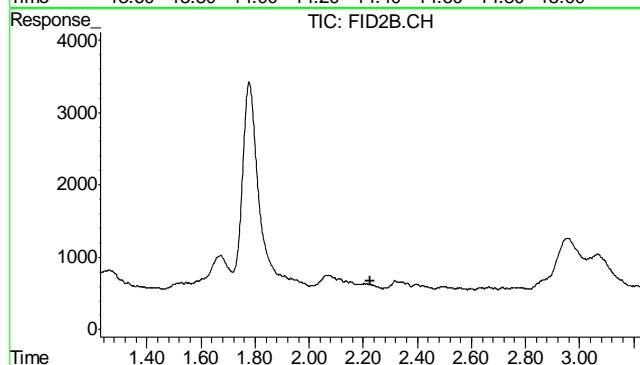
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 3713773
Conc: N.D.



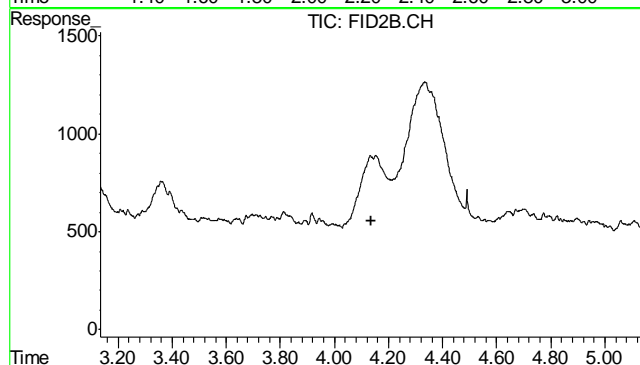
#2 1,2,4-Trichlorobenzene

R.T.: 14.367 min
Delta R.T.: -0.003 min
Response: 2827268
Conc: 90.23 %



#4 Methyl-t-butyl-ether

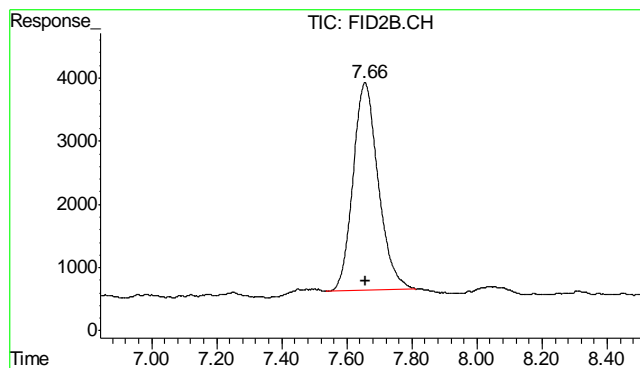
R.T.: 0.000 min
Exp R.T.: 2.227 min
Response: 0
Conc: N.D.



#5 Benzene

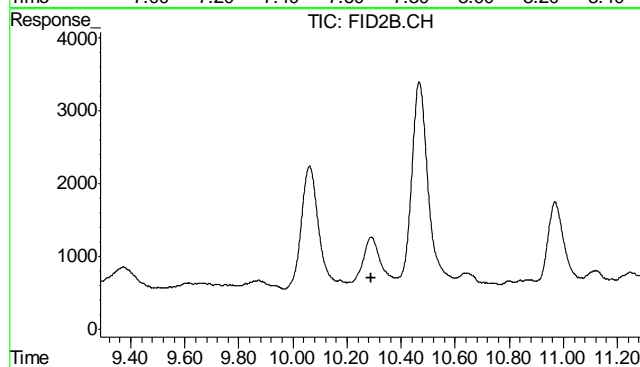
R.T.: 0.000 min
Exp R.T.: 4.134 min
Response: 0
Conc: N.D.

11.21
11



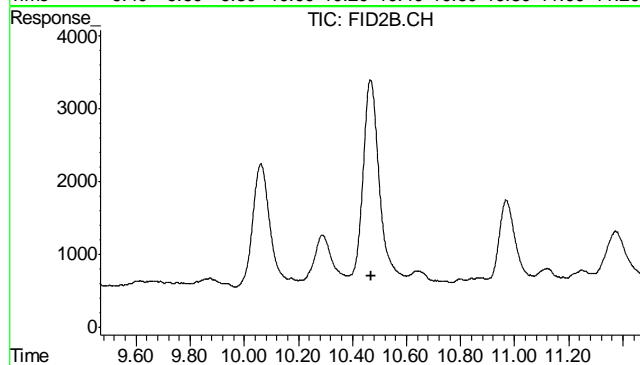
#6 Toluene

R.T.: 7.656 min
Delta R.T.: -0.001 min
Response: 177074
Conc: 0.45 ug/L



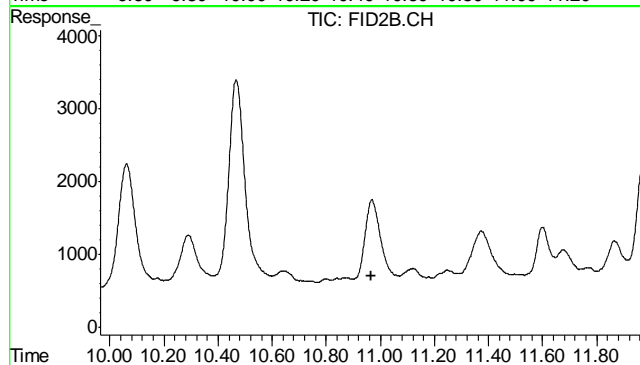
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T.: 10.288 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

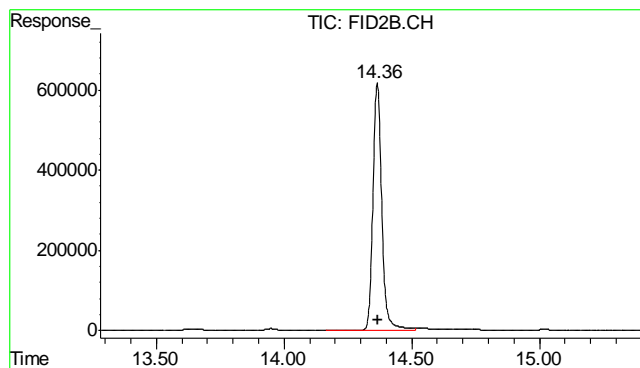
R.T.: 0.000 min
Exp R.T.: 10.468 min
Response: 0
Conc: N.D.



#9 o-Xylene

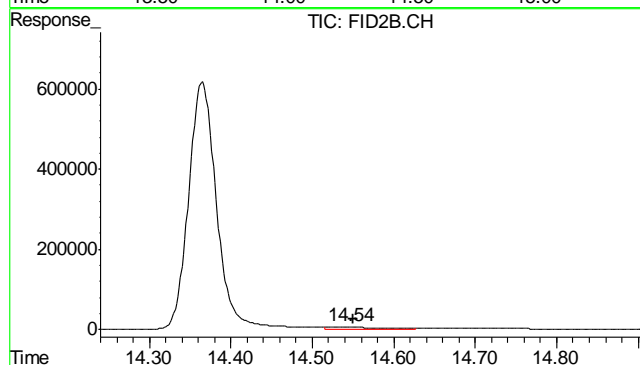
R.T.: 0.000 min
Exp R.T.: 10.964 min
Response: 0
Conc: N.D.

11.21
11



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

R.T.: 14.365 min
Delta R.T.: -0.003 min
Response: 14819830
Conc: 91.18 %



#11 Naphthalene

R.T.: 14.545 min
Delta R.T.: -0.005 min
Response: 213770
Conc: 1.08 ug/L

11.2.1
11

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7032-MB	FD20087.D	1	11/30/12	AV	11/30/12	OP7032	GFD1007

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

D41305-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	6.7	4.0	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	66% 35-130%

Blank Spike Summary

Page 1 of 1

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7032-BS	FD20089.D	1	11/30/12	AV	11/30/12	OP7032	GFD1007

The QC reported here applies to the following samples:

Method: SW846-8015B

D41305-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	603	90	48-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	86%	35-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D41305
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7032-MS	FD20093.D	1	11/30/12	AV	11/30/12	OP7032	GFD1007
OP7032-MSD	FD20095.D	1	11/30/12	AV	11/30/12	OP7032	GFD1007
D41047-2 ^a	FD20099.D	1	11/30/12	AV	11/30/12	OP7032	GFD1007

The QC reported here applies to the following samples:

Method: SW846-8015B

D41305-1

CAS No.	Compound	D41047-2 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	30.4		762	686	86	578	72	17	20-168/30

CAS No.	Surrogate Recoveries	MS	MSD	D41047-2	Limits
84-15-1	o-Terphenyl	79%	69%	67%	35-130%

(a) Sample extracted beyond hold time per client instruction.

* = Outside of Control Limits.

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\DEC\FD120312.SEC\FD20152.D Vial: 69
Acq On : 12-3-2012 08:10:48 PM Operator: TedR
Sample : D41305-1, 10X Inst : FID5
Misc : OP7032,GFD1010,30.02,,,1,10 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Dec 04 09:00:57 2012 Quant Results File: DRO-GFD983R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD983R.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Mon Nov 19 13:57:49 2012
Response via : Initial Calibration
DataAcq Meth : DRODUAL.M

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

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
1) S O-Terphenyl	9.02	5789098	113.224 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	6.93	21820948	590.417 mg/L

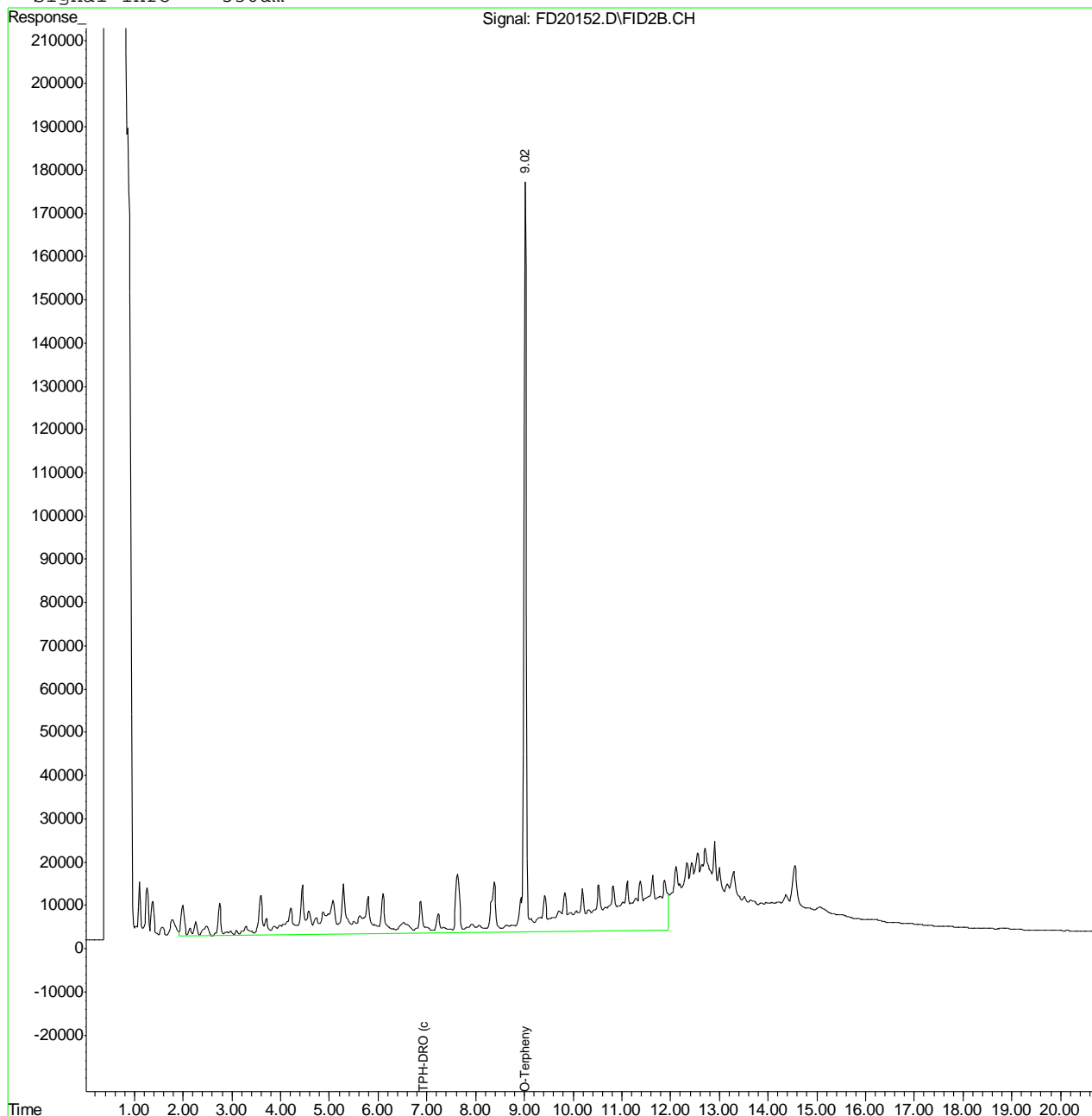
13.1.1
13

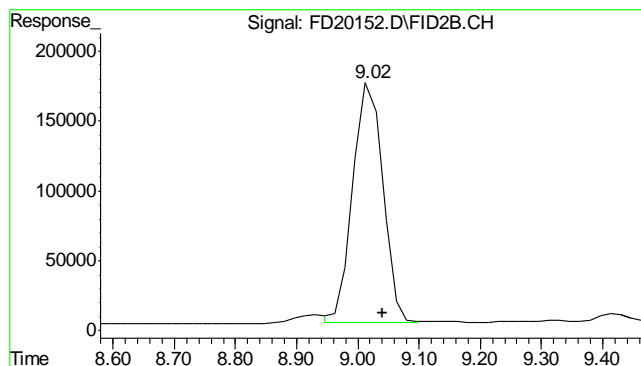
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\DEC\FD120312.SEC\FD20152.D Vial: 69
 Acq On : 12-3-2012 08:10:48 PM Operator: TedR
 Sample : D41305-1, 10X Inst : FID5
 Misc : OP7032,GFD1010,30.02,,,1,10 Multiplr: 1.00
 IntFile : autoint1.e
 Quant Time: Dec 4 9:01 2012 Quant Results File: DRO-GFD983R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD983R.M (Chemstation Integrator)
 Title : 8015B TEH
 Last Update : Mon Nov 19 13:57:49 2012
 Response via : Multiple Level Calibration
 DataAcq Meth : DRODUAL.M

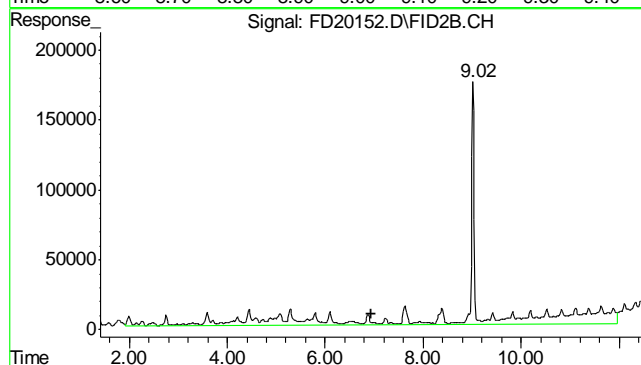
Volume Inj. : 1ul
 Signal Phase : RTX-5
 Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.016 min
 Delta R.T.: -0.024 min
 Response: 5789098
 Conc: 113.22 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 6.935 min
 Delta R.T.: 0.000 min
 Response: 21820948
 Conc: 590.42 mg/L m

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\NOV\FD113012\FD20087.D Vial: 13
Acq On : 30 Nov 2012 12:56 pm Operator: ashleyv
Sample : OP7032-MB Inst : FID5
Misc : OP7032,GFD1007,30.00,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Nov 30 13:55:45 2012 Quant Results File: DRO-GFD982F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD982F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Thu Nov 29 16:03:22 2012
Response via : Initial Calibration
DataAcq Meth : DRODUAL.M

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

Compound	R.T.	Response	Conc Units

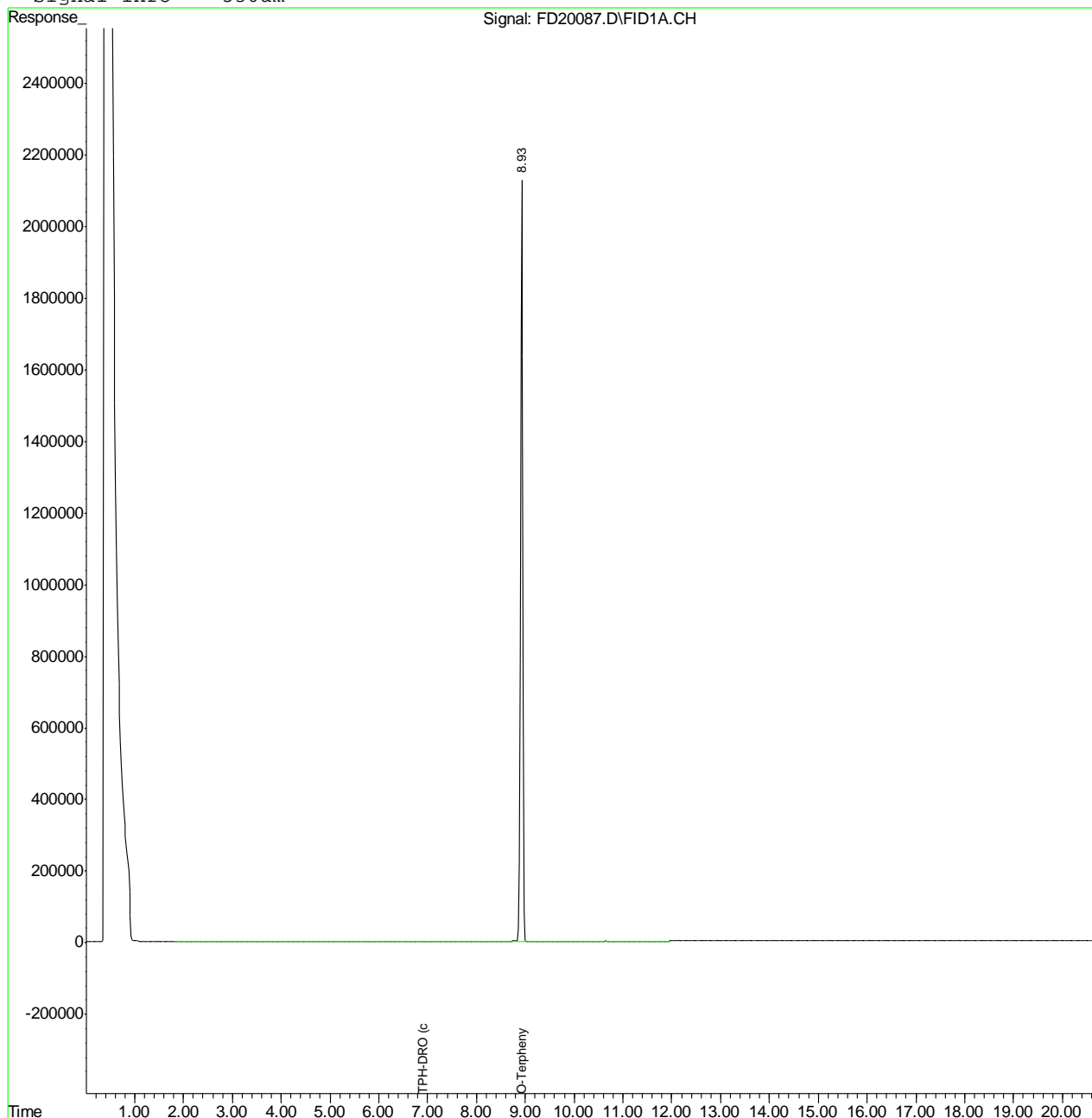
System Monitoring Compounds			
1) S O-Terphenyl	8.93	72889083	1317.343 mg/L
Target Compounds			
2) H TPH-DRO (c10-c28)	6.89	1324851	34.887 mg/L

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\NOV\FD113012\FD20087.D Vial: 13
Acq On : 30 Nov 2012 12:56 pm Operator: ashleyv
Sample : OP7032-MB Inst : FID5
Misc : OP7032,GFD1007,30.00,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Nov 30 13:55 2012 Quant Results File: DRO-GFD982F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD982F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Thu Nov 29 16:03:22 2012
Response via : Multiple Level Calibration
DataAcq Meth : DRODUAL.M

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



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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8965
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 11/30/12

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.083	.00088	.00075	0.0024	<0.083

Associated samples MP8965: D41305-1

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: D41305
 Account: XTOKRWR - XTO Energy
 Project: PCU 296-5A

QC Batch ID: MP8965
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 11/30/12

Metal	D41219-3		Spikelot		QC
	Original	MS	HGWSR1	% Rec	Limits
Mercury	0.022	0.34	0.336	94.5	75-125

Associated samples MP8965: D41305-1

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: D41305
 Account: XTOKRWR - XTO Energy
 Project: PCU 296-5A

QC Batch ID: MP8965
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 11/30/12

Metal	D41219-3 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.022	0.34	0.336	94.5	0.0	20

Associated samples MP8965: D41305-1

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: D41305
 Account: XTOKRWR - XTO Energy
 Project: PCU 296-5A

QC Batch ID: MP8965
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 11/30/12

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.32	0.333	96.0	80-120

Associated samples MP8965: D41305-1

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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
Matrix Type: AQUEOUS

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

Prep Date: 11/30/12

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	20.5	<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	4.5	<1000
Manganese	25	6	6		
Molybdenum	50	11	11		
Nickel	150	2.5	2.9		
Phosphorus	500	70	300		
Potassium	5000	310	750		
Selenium	250	24	55		
Silicon	250	15			
Silver	150	2	4.9		
Sodium	2000	30	490	727	<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 MP8975: D41305-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
Matrix Type: AQUEOUS

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

Prep Date: 11/30/12

Metal	D41248-1A Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	14300	147000	125000	106.2	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	5510	130000	125000	99.6	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	54700	179000	125000	99.4	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP8975: D41305-1A

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

14.2.2
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
Matrix Type: AQUEOUS

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

Prep Date: 11/30/12

Metal	D41248-1A Original	MSD	SpikeLot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	14300	146000	125000	105.4	0.7	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	5510	129000	125000	98.8	0.8	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	54700	176000	125000	97.0	1.7	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP8975: D41305-1A

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

14.2.2
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
Matrix Type: AQUEOUS

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

Prep Date: 11/30/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	135000	125000	108.0	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	123000	125000	98.4	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	126000	125000	100.8	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8975: D41305-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
Matrix Type: AQUEOUS

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

Prep Date: 11/30/12

Metal	D41248-1A Original SDL 1:5		%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	2860	2740	4.0	0-10
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	1100	1190	8.0	0-10
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	10900	12200	11.6*(a)	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8975: D41305-1A

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

14.2.4
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8975
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.

14.2.4
14

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/03/12

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	0.12	<1.0
Beryllium	1.0	.13	.15		
Boron	5.0	.1	.06		
Cadmium	1.0	.06	.036	0.0	<1.0
Calcium	40	.54	9		
Chromium	1.0	.03	.03	0.070	<1.0
Cobalt	0.50	.04	.07		
Copper	1.0	.12	.15	-0.020	<1.0
Iron	7.0	.12	.87		
Lead	5.0	.19	.24	0.040	<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	0.11	<3.0
Phosphorus	10	1.4	1.9		
Potassium	200	6.1	7		
Selenium	5.0	.48	.36	0.080	<5.0
Silicon	5.0	.29	.37		
Silver	3.0	.04	.06	-0.070	<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	0.25	<3.0

Associated samples MP8983: D41305-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/03/12

Metal	D41305-1 Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony	anr				
Arsenic	anr				
Barium	8740	10900	244	884.5(a)	75-125
Beryllium	anr				
Boron					
Cadmium	0.0	52.1	61.1	85.3	75-125
Calcium					
Chromium	13.5	63.2	61.1	81.4	75-125
Cobalt	anr				
Copper	28.9	80.7	61.1	84.8	75-125
Iron					
Lead	30.2	126	122	79.1	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum	anr				
Nickel	12.7	60.0	61.1	77.5	75-125
Phosphorus					
Potassium					
Selenium	1.1	111	122	90.0	75-125
Silicon					
Silver	0.0	22.5	24.4	92.1	75-125
Sodium					
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium					
Vanadium	anr				
Zinc	35.3	82.8	61.1	77.8	75-125

Associated samples MP8983: D41305-1

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

14.3.2
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/03/12

Metal	D41305-1 Original	MSD	Spikelot ICPAL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	8740	11000	239	944.0(a)	0.9	20
Beryllium	anr					
Boron						
Cadmium	0.0	49.6	59.9	82.9	4.9	20
Calcium						
Chromium	13.5	63.1	59.9	82.9	0.2	20
Cobalt	anr					
Copper	28.9	83.1	59.9	90.6	2.9	20
Iron						
Lead	30.2	125	120	79.9	0.8	20
Lithium						
Magnesium						
Manganese						
Molybdenum	anr					
Nickel	12.7	59.8	59.9	78.7	0.3	20
Phosphorus						
Potassium						
Selenium	1.1	111	120	91.8	0.0	20
Silicon						
Silver	0.0	22.3	23.9	93.1	0.9	20
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium						
Vanadium	anr					
Zinc	35.3	84.9	59.9	82.9	2.5	20

Associated samples MP8983: D41305-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/03/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	204	200	102.0	80-120
Beryllium	anr			
Boron				
Cadmium	46.1	50	92.2	80-120
Calcium				
Chromium	49.2	50	98.4	80-120
Cobalt	anr			
Copper	47.4	50	94.8	80-120
Iron				
Lead	94.9	100	94.9	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	46.7	50	93.4	80-120
Phosphorus				
Potassium				
Selenium	95.5	100	95.5	80-120
Silicon				
Silver	19.7	20	98.5	80-120
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	48.2	50	96.4	80-120

Associated samples MP8983: D41305-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 12/03/12

Metal	D41305-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	831000	66700	9.6	0-10
Beryllium	anr			
Boron				
Cadmium	48.4	0.00	NC	0-10
Calcium				
Chromium	114	124	9.0	0-10
Cobalt	anr			
Copper	244	243	0.5	0-10
Iron				
Lead	255	269	8.5	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	1140	123	14.5*(a)	0-10
Phosphorus				
Potassium				
Selenium	0.00	0.00	NC (b)	0-10
Silicon				
Silver	0.00	0.00	NC	0-10
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	2710	357	19.9*(a)	0-10

Associated samples MP8983: D41305-1

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

14.3.4
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8983
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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8984
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 12/03/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.006	.06	0.0041	<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 MP8984: D41305-1

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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8984
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 12/03/12

Metal	D41305-1 Original MS		Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	8.3	115	122	87.4	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 MP8984: D41305-1

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

14.4.2
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8984
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 12/03/12

Metal	D41305-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	8.3	119	120	92.5	3.4	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 MP8984: D41305-1

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

14.4.2
14

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP8984
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 12/03/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	95.0	100	95.0	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8984: D41305-1

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

14.4.3
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D41305
 Account: XTOKRWR - XTO Energy
 Project: PCU 296-5A

QC Batch ID: MP8984
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: ug/l

Prep Date: 12/03/12

Metal	D41305-1			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic	70.3	69.2	1.6	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 MP8984: D41305-1

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (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: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP8811/GN17932	1.0	0.0	mg/kg	176.0	171	97.0	80-120%
Specific Conductivity	GP8815/GN17934			umhos/cm	9992	9910	99.2	90-110%
pH	GN17890			su	8.00	8.00	100.0	99.3-100.7%

Associated Samples:
Batch GP8811: D41305-1
Batch GP8815: D41305-1
Batch GN17890: D41305-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP8811/GN17932	D41305-1	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN17892	D41266-1	mv	43.1	33.4	25.4* (a)	0-20%

Associated Samples:

Batch GP8811: D41305-1

Batch GN17892: D41305-1

(*) Outside of QC limits

(a) High RPD due to possible nonhomogeneity.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP8811/GN17932	D41305-1	mg/kg	0.0	40.0	35.8	89.6	75-125%

Associated Samples:

Batch GP8811: D41305-1

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D41305
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chromium, Hexavalent	GP8811/GN17932	D41305-1	mg/kg	0.0	40.0	37.1	3.5	20%

Associated Samples:
Batch GP8811: D41305-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits