



11/06/12

Technical Report for

XTO Energy

NPU 196-19B

1202-08

Accutest Job Number: D40379

Sampling Date: 10/26/12

Report to:

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Total number of pages in report: 140



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


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Laboratory Director

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Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP 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: D40379

NPU 196-19B
Project No: 1202-08

Sample Number	Collected		Time By	Received	Matrix		Client Sample ID
	Date				Code	Type	
D40379-1	10/26/12	13:00	DS	10/30/12	SO	Soil	FW SUBLINER COMP
D40379-1A	10/26/12	13:00	DS	10/30/12	SO	Soil	FW SUBLINER COMP

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



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: XTO Energy

Job No D40379

Site: NPU 196-19B

Report Date 11/6/2012 12:53:37 PM

On 10/30/2012, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3.6 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D40379 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: V5V1489
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D40347-1MS, D40347-1MSD were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO	Batch ID: OP6914
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D40438-1MS, D40438-1MSD were used as the QC samples indicated.
- The blank spike (BS) recovery(s) of Benzo(k)fluoranthene are outside control limits.
- OP6914-MS: Diluted at prep due to matrix.
- OP6914-MSD: Diluted at prep due to matrix.
- OP6914-BS for Benzo(k)fluoranthene: Compound ND in associated samples.

Volatiles by GC By Method SW846 8015B

Matrix SO	Batch ID: GGB999
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- Sample(s) D40382-1MS, D40382-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GC By Method SW846-8015B

Matrix SO	Batch ID: OP6889
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D40381-1MS, D40381-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Metals By Method SW846 6010C

Matrix AQ

Batch ID: MP8808

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D40350-1AMS, D40350-1AMSD, D40350-1ASDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Magnesium, Sodium are outside control limits for sample MP8808-SD1. Probable cause due to sample homogeneity.
- MP8808-SD1 for Magnesium: Serial dilution indicates possible matrix interference.
- MP8808-SD1 for Sodium: Serial dilution indicates possible matrix interference.

Matrix SO

Batch ID: MP8792

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D40379-1MS, D40379-1MSD, D40379-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Barium are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- The matrix spike duplicate (MSD) recovery(s) of Barium are outside control limits. Probable cause due to matrix interference.
- The serial dilution RPD(s) for Cadmium, Silver, Barium, Chromium, Nickel, Zinc are outside control limits for sample MP8792-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP8792-SD1 for Zinc: Serial dilution indicates possible matrix interference.
- MP8792-SD1 for Nickel: Serial dilution indicates possible matrix interference.
- MP8792-SD1 for Chromium: Serial dilution indicates possible matrix interference.
- MP8792-MB1 for Barium: All sample results >10x method blank concentration.
- MP8792-SD1 for Barium: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix SO

Batch ID: MP8793

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D40379-1MS, D40379-1MSD, D40379-1SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471B

Matrix SO

Batch ID: MP8794

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D40329-1MS, D40329-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO

Batch ID: GN17476

- Sample(s) D40350-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN17478

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

Wet Chemistry By Method SM2510B-1997 MOD

Matrix SO

Batch ID: GP8605

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO

Batch ID: R15013

- The data for SW846 3060/7196A M meets quality control requirements.
- D40379-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO

Batch ID: GP8586

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D40427-1DUP, D40427-1MS, D40427-1MSD were used as the QC samples for the Chromium, Hexavalent analysis.

Wet Chemistry By Method SW846 9045D

Matrix SO

Batch ID: GN17474

- The following samples were run outside of holding time for method SW846 9045D: D40379-1

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO

Batch ID: MP8808

- D40379-1A 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: D40379
Account: XTO Energy
Project: NPU 196-19B
Collected: 10/26/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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D40379-1 FW SUBLINER COMP

TPH-DRO (C10-C28)	24.0	17	11	mg/kg	SW846-8015B
Arsenic	9.7	0.13		mg/kg	SW846 6020A
Barium	341	1.3		mg/kg	SW846 6010C
Chromium	22.5	1.3		mg/kg	SW846 6010C
Copper	17.3	1.3		mg/kg	SW846 6010C
Lead	13.2	6.7		mg/kg	SW846 6010C
Nickel	14.5	4.0		mg/kg	SW846 6010C
Zinc	45.7	4.0		mg/kg	SW846 6010C
Specific Conductivity	1280	1.0		umhos/cm	SM2510B-1997 MOD
Chromium, Trivalent ^a	22.5	2.3		mg/kg	SW846 3060/7196A M
Redox Potential Vs H2	347			mv	ASTM D1498-76M
pH	8.96			su	SW846 9045D

D40379-1A FW SUBLINER COMP

Calcium	56.3	2.0		mg/l	SW846 6010C
Magnesium	60.0	1.0		mg/l	SW846 6010C
Sodium	150	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^b	3.32			ratio	USDA HANDBOOK 60

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

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

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

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Client Sample ID:	FW SUBLINER COMP	Date Sampled:	10/26/12
Lab Sample ID:	D40379-1	Date Received:	10/30/12
Matrix:	SO - Soil	Percent Solids:	76.9
Method:	SW846 8260B		
Project:	NPU 196-19B		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V24440.D	1	10/31/12	BD	n/a	n/a	V5V1489
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.02 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.080	0.040	mg/kg	
108-88-3	Toluene	ND	0.16	0.080	mg/kg	
100-41-4	Ethylbenzene	ND	0.16	0.030	mg/kg	
1330-20-7	Xylene (total)	ND	0.32	0.16	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	98%		64-130%
460-00-4	4-Bromofluorobenzene	95%		62-131%
17060-07-0	1,2-Dichloroethane-D4	97%		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:	FW SUBLINER COMP	Date Sampled:	10/26/12
Lab Sample ID:	D40379-1	Date Received:	10/30/12
Matrix:	SO - Soil	Percent Solids:	76.9
Method:	SW846 8270C BY SIM SW846 3546		
Project:	NPU 196-19B		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G11929.D	1	11/06/12	DC	11/05/12	OP6914	E3G563
Run #2							

	Initial Weight	Final Volume
Run #1	10.0 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.033	0.017	mg/kg	
120-12-7	Anthracene	ND	0.033	0.017	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.033	0.017	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.033	0.017	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.033	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.033	0.017	mg/kg	
218-01-9	Chrysene	ND	0.033	0.017	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.033	0.017	mg/kg	
206-44-0	Fluoranthene	ND	0.033	0.017	mg/kg	
86-73-7	Fluorene	ND	0.033	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.033	0.017	mg/kg	
91-20-3	Naphthalene	ND	0.046	0.040	mg/kg	
129-00-0	Pyrene	ND	0.033	0.017	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	67%		10-159%
321-60-8	2-Fluorobiphenyl	68%		19-131%
1718-51-0	Terphenyl-d14	73%		18-150%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

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Client Sample ID:	FW SUBLINER COMP			Date Sampled:	10/26/12
Lab Sample ID:	D40379-1			Date Received:	10/30/12
Matrix:	SO - Soil			Percent Solids:	76.9
Method:	SW846 8015B				
Project:	NPU 196-19B				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB18283.D	1	10/31/12	SK	n/a	n/a	GGB999
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	16	8.0	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	88%		60-140%		

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

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

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Report of Analysis

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Client Sample ID:	FW SUBLINER COMP			Date Sampled:	10/26/12
Lab Sample ID:	D40379-1			Date Received:	10/30/12
Matrix:	SO - Soil			Percent Solids:	76.9
Method:	SW846-8015B SW846 3546				
Project:	NPU 196-19B				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD19072.D	1	10/31/12	AV	10/31/12	OP6889	GFD963
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	24.0	17	11	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	92%		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:	FW SUBLINER COMP	Date Sampled:	10/26/12
Lab Sample ID:	D40379-1	Date Received:	10/30/12
Matrix:	SO - Soil	Percent Solids:	76.9
Project:	NPU 196-19B		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	9.7	0.13	mg/kg	5	11/01/12	11/03/12 JB	SW846 6020A ³	SW846 3050B ⁵
Barium	341	1.3	mg/kg	1	11/01/12	11/02/12 JM	SW846 6010C ²	SW846 3050B ⁴
Cadmium	< 1.3	1.3	mg/kg	1	11/01/12	11/02/12 JM	SW846 6010C ²	SW846 3050B ⁴
Chromium	22.5	1.3	mg/kg	1	11/01/12	11/02/12 JM	SW846 6010C ²	SW846 3050B ⁴
Copper	17.3	1.3	mg/kg	1	11/01/12	11/02/12 JM	SW846 6010C ²	SW846 3050B ⁴
Lead	13.2	6.7	mg/kg	1	11/01/12	11/02/12 JM	SW846 6010C ²	SW846 3050B ⁴
Mercury	< 0.11	0.11	mg/kg	1	11/01/12	11/01/12 JM	SW846 7471B ¹	SW846 7471B ⁶
Nickel	14.5	4.0	mg/kg	1	11/01/12	11/02/12 JM	SW846 6010C ²	SW846 3050B ⁴
Selenium	< 6.7	6.7	mg/kg	1	11/01/12	11/02/12 JM	SW846 6010C ²	SW846 3050B ⁴
Silver	< 4.0	4.0	mg/kg	1	11/01/12	11/02/12 JM	SW846 6010C ²	SW846 3050B ⁴
Zinc	45.7	4.0	mg/kg	1	11/01/12	11/02/12 JM	SW846 6010C ²	SW846 3050B ⁴

(1) Instrument QC Batch: MA2954

(2) Instrument QC Batch: MA2958

(3) Instrument QC Batch: MA2961

(4) Prep QC Batch: MP8792

(5) Prep QC Batch: MP8793

(6) Prep QC Batch: MP8794

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FW SUBLINER COMP	Date Sampled:	10/26/12
Lab Sample ID:	D40379-1	Date Received:	10/30/12
Matrix:	SO - Soil	Percent Solids:	76.9
Project:	NPU 196-19B		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	1280	1.0	umhos/cm	1	11/05/12	JK	SM2510B-1997 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	11/02/12	KB	SW846 3060A/7196A
Chromium, Trivalent ^a	22.5	2.3	mg/kg	1	11/02/12 11:42	JM	SW846 3060/7196A M
Redox Potential Vs H2	347		mv	1	10/30/12	CT	ASTM D1498-76M
Solids, Percent	76.9		%	1	10/31/12	SWT	SM19 2540B M
pH	8.96		su	1	10/30/12 16:00	CT	SW846 9045D

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: FW SUBLINER COMP
Lab Sample ID: D40379-1A
Matrix: SO - Soil
Project: NPU 196-19B

Date Sampled: 10/26/12
Date Received: 10/30/12
Percent Solids: 76.9

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	56.3	2.0	mg/l	1	11/02/12	11/02/12 JM	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	60.0	1.0	mg/l	1	11/02/12	11/02/12 JM	SW846 6010C ¹	SW846 3010A/M ²
Sodium	150	2.0	mg/l	1	11/02/12	11/02/12 JM	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA2958
(2) Prep QC Batch: MP8808

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FW SUBLINER COMP	Date Sampled:	10/26/12
Lab Sample ID:	D40379-1A	Date Received:	10/30/12
Matrix:	SO - Soil	Percent Solids:	76.9
Project:	NPU 196-19B		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	3.32		ratio	1	11/02/12 14:58	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



CHAIN OF CUSTODY

PAGE 1 OF 1

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

FED-EX Tracking #		Bottle Order Control #	
Accutest Quote #		Accutest Job # D40379	
Client / Reporting Information		Project Information	
Company Name KRW Consulting		Project Name XTO NPU 196-19B	
Street Address 8000 West 14th Street, Suite 200		Street	
City Lakewood, CO 80214		City	
Project Contact Dwayne Knudson		Project # 1202-08	
Phone # 970-488-1098		Client Purchase Order #	
Sampler(s) Name(s) DAVID SANDERS		Project Manager Joe Hess	
		Attention: Jessica Dooling	
Field ID / Point of Collection FW SUBLINER COMP		MECH/DI Vial #	
Date 10-26-12		Time 13:00	
Sampled by DS		Matrix SO	
# of bottles 5		Number of preserved bottles	
PC		NC	
HNC3		HNC4	
NONE		DI Water	
MECH		ENCORE	
Bottle		Bottle	
LAB USE ONLY		LAB USE ONLY	
Turnaround Time (Business days)		Data Deliverable Information	
Approved By (Accutest PM): / Date:		Comments / Special Instructions	
<input type="checkbox"/> Std. 10 Business Days <input checked="" type="checkbox"/> Std. 5 Business Days (By contract only) <input type="checkbox"/> 3 Day Emergency <input type="checkbox"/> 2 Day Emergency <input type="checkbox"/> 1 Day Emergency <input type="checkbox"/> Emergency & Rush T/A data available VIA Lablink		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> COMMBN <input type="checkbox"/> COMMBN+ <input type="checkbox"/> State Forms Required <input type="checkbox"/> Send Forms to State <input type="checkbox"/> Report by Fax <input checked="" type="checkbox"/> Report by PDF ONLY <input type="checkbox"/> EDD Format Commercial "A" = Results Only Commercial "B" = Results + QC Summary Commercial BN = Results/QC Narrative (+ = chromatograms)	
Relinquished by Sampler: 1 for Albin		Relinquished By: 2	
Date Time: 10/29/12 17:30		Date Time: 11/30/12 12:15	
Relinquished by Sampler: 3		Relinquished By: 4	
Date Time: 11/30/12 12:15		Date Time: 11/30/12 12:15	
Relinquished by: 5		Relinquished By: 5	
Date Time: 11/30/12 12:15		Date Time: 11/30/12 12:15	
Custody Seal # HDCO		Custody Seal # HDCO	
Intact <input checked="" type="checkbox"/> Not Intact <input type="checkbox"/>		Intact <input checked="" type="checkbox"/> Not Intact <input type="checkbox"/>	
Preserved where applicable <input checked="" type="checkbox"/>		Preserved where applicable <input checked="" type="checkbox"/>	
On Ice <input checked="" type="checkbox"/>		On Ice <input checked="" type="checkbox"/>	
Cooler Temp. 3.6		Cooler Temp. 3.6	

D40379: Chain of Custody

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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: D40379
Account: XTOKRWR XTO Energy
Project: NPU 196-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1489-MB	5V24428.D	1	10/31/12	BD	n/a	n/a	V5V1489

The QC reported here applies to the following samples:

Method: SW846 8260B

D40379-1

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	98% 64-130%
460-00-4	4-Bromofluorobenzene	89% 62-131%
17060-07-0	1,2-Dichloroethane-D4	103% 70-130%

Blank Spike Summary

Page 1 of 1

Job Number: D40379

Account: XTOKRWR XTO Energy

Project: NPU 196-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1489-BS	5V24429.D	1	10/31/12	BD	n/a	n/a	V5V1489

The QC reported here applies to the following samples:

Method: SW846 8260B

D40379-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	48.6	97	70-130
100-41-4	Ethylbenzene	50	49.0	98	70-130
108-88-3	Toluene	50	46.1	92	70-130
1330-20-7	Xylene (total)	150	150	100	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	100%	64-130%
460-00-4	4-Bromofluorobenzene	99%	62-131%
17060-07-0	1,2-Dichloroethane-D4	96%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D40379
Account: XTOKRWR XTO Energy
Project: NPU 196-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D40347-1MS	5V24431.D	1	10/31/12	BD	n/a	n/a	V5V1489
D40347-1MSD	5V24432.D	1	10/31/12	BD	n/a	n/a	V5V1489
D40347-1	5V24430.D	1	10/31/12	BD	n/a	n/a	V5V1489

The QC reported here applies to the following samples:

Method: SW846 8260B

D40379-1

CAS No.	Compound	D40347-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3540	3610	102	3190	90	12	64-139/30
100-41-4	Ethylbenzene	ND		3540	3640	103	3180	90	13	68-136/30
108-88-3	Toluene	ND		3540	3350	95	2980	84	12	60-130/30
1330-20-7	Xylene (total)	ND		10600	11200	105	9960	94	12	58-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D40347-1	Limits
2037-26-5	Toluene-D8	99%	98%	96%	64-130%
460-00-4	4-Bromofluorobenzene	109%	105%	95%	62-131%
17060-07-0	1,2-Dichloroethane-D4	96%	97%	100%	70-130%

* = Outside of Control Limits.

GC/MS Volatiles

Raw Data

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5103112.S\
Data File : 5V24440.D
Acq On : 31 Oct 2012 9:16 pm
Operator : BRETD
Sample : D40379-1
Misc : MS4884,V5V1489,5.017,,100,5,1
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 01 09:08:02 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1487TVH1487.M
Quant Title : 8260
QLast Update : Wed Oct 31 11:00:18 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	158133	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	200897	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	196378	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	142917	50.00	ug/l	0.00

System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.024	102	14212	48.74	ug/l	0.00
Spiked Amount	50.000	Range 70 - 130	Recovery	=	97.48%	
61) Toluene-d8	13.850	98	224688	48.90	ug/l	0.00
Spiked Amount	50.000	Range 70 - 130	Recovery	=	97.80%	
69) 4-Bromofluorobenzene	16.042	95	98402	47.52	ug/l	0.00
Spiked Amount	50.000	Range 70 - 130	Recovery	=	95.04%	

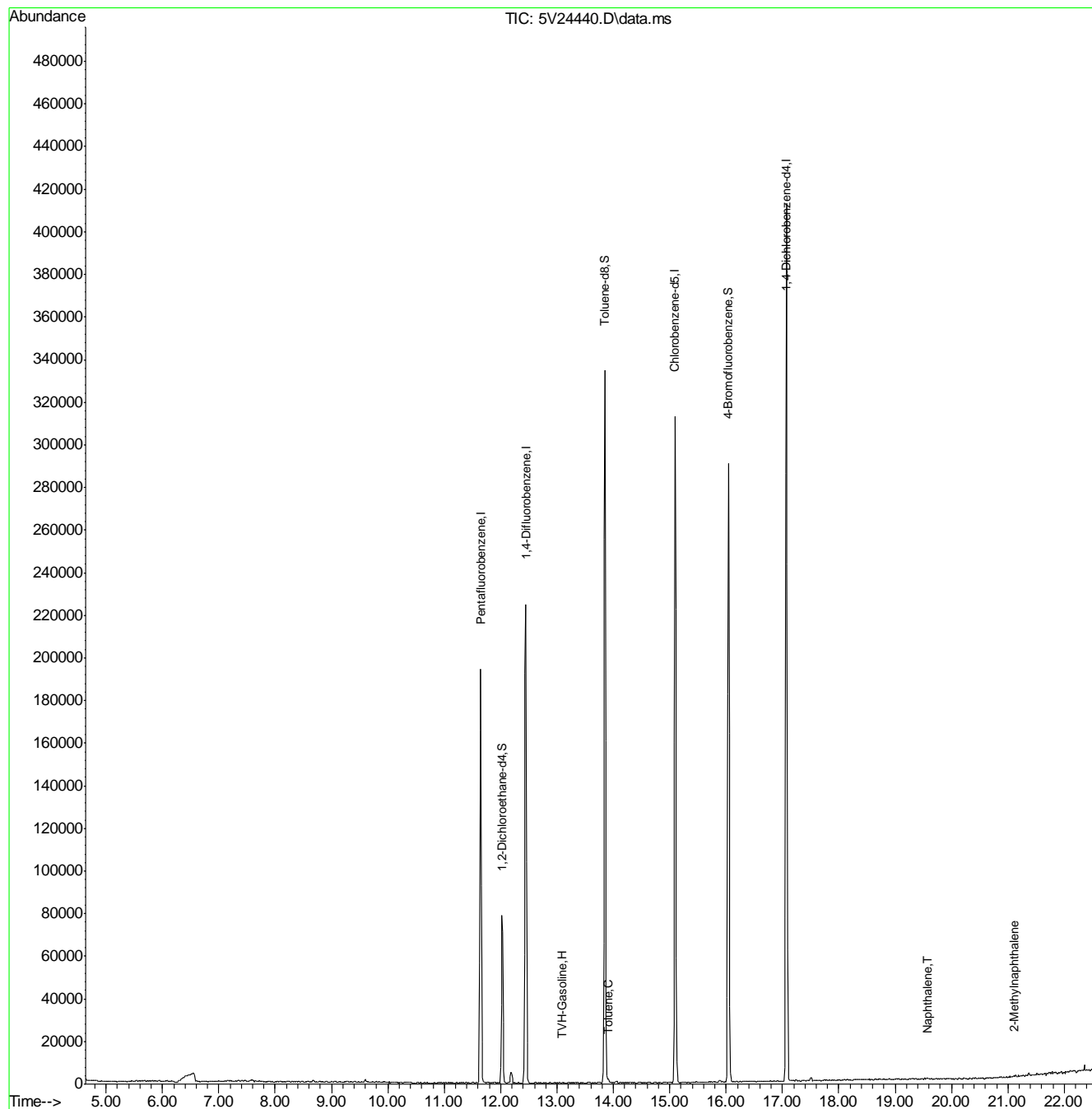
Target Compounds					Qvalue
1) TVH-Gasoline	13.102	TIC	6747m	42.81	ug/l
62) Toluene	13.907	92	1008	0.27	ug/l
91) Naphthalene	19.570	128	407	0.93	ug/l
94) 2-Methylnaphthalene	21.111	142	389	2.89	ug/l #

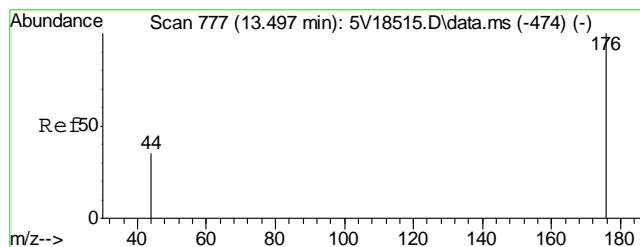
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5103112.S\
Data File : 5V24440.D
Acq On : 31 Oct 2012 9:16 pm
Operator : BRETD
Sample : D40379-1
Misc : MS4884,V5V1489,5.017,,100,5,1
ALS Vial : 16 Sample Multiplier: 1

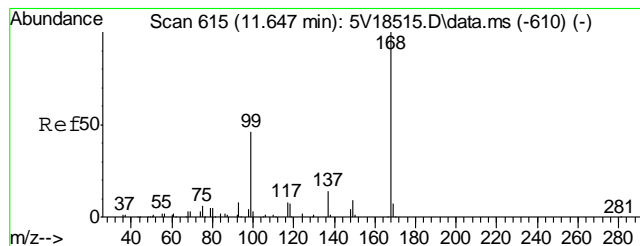
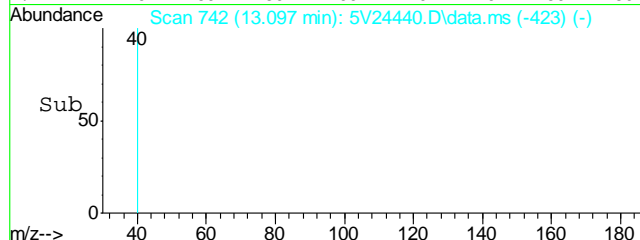
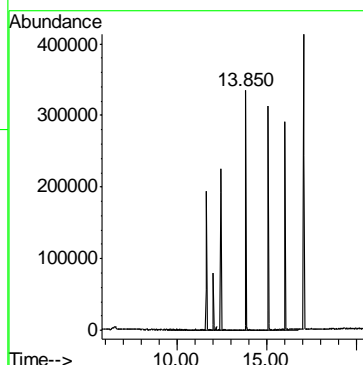
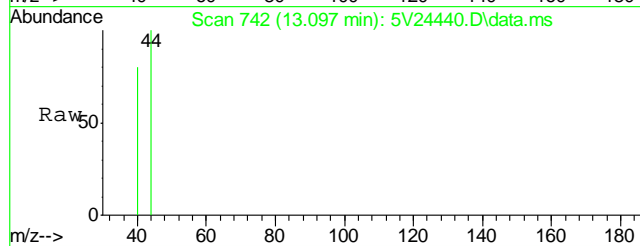
Quant Time: Nov 01 09:08:02 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1487TVH1487.M
Quant Title : 8260
QLast Update : Wed Oct 31 11:00:18 2012
Response via : Initial Calibration





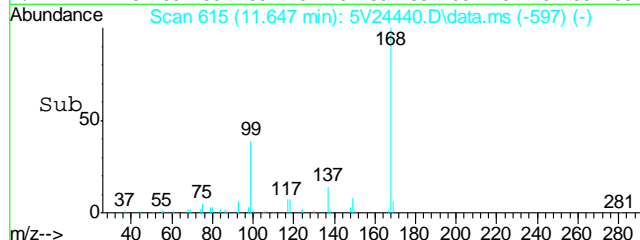
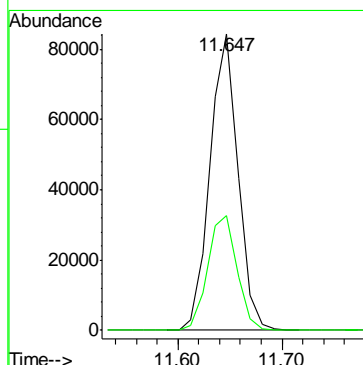
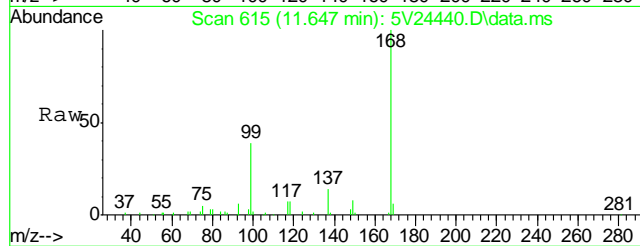
#1
TVH-Gasoline
Concen: 42.81 ug/l m
RT: 13.102 min Scan# 742
Delta R.T. 0.000 min
Lab File: 5V24440.D
Acq: 31 Oct 2012 9:16 pm

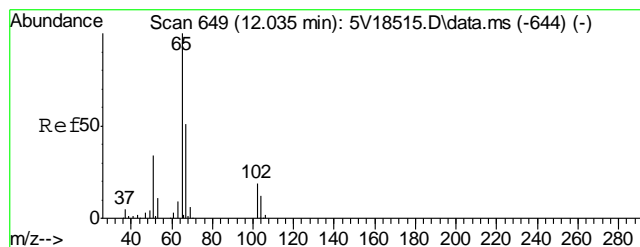
Tgt Ion:TIC Resp: 6747



#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.647 min Scan# 615
Delta R.T. -0.000 min
Lab File: 5V24440.D
Acq: 31 Oct 2012 9:16 pm

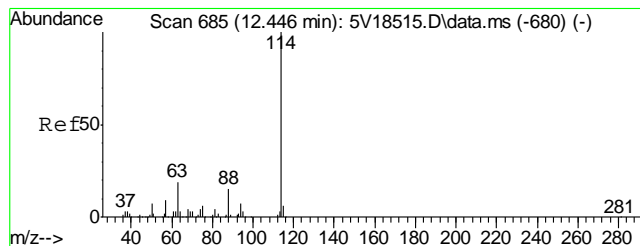
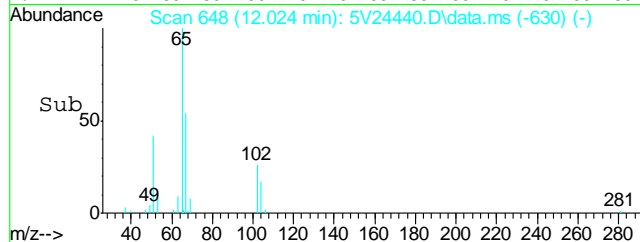
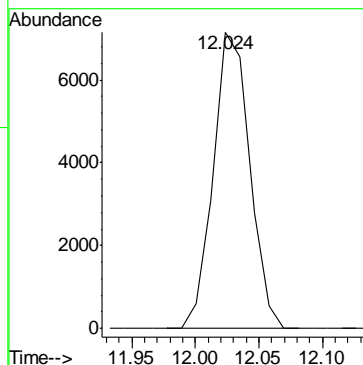
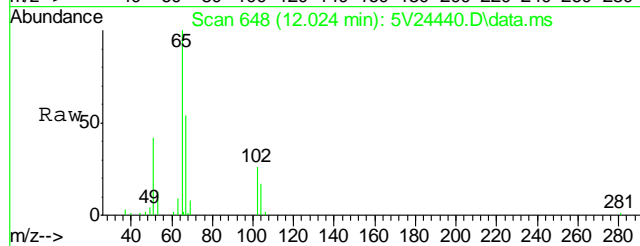
Tgt Ion:168 Resp: 158133
Ion Ratio Lower Upper
168 100
99 40.4 37.4 56.2





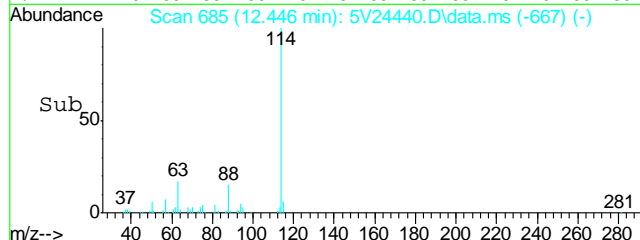
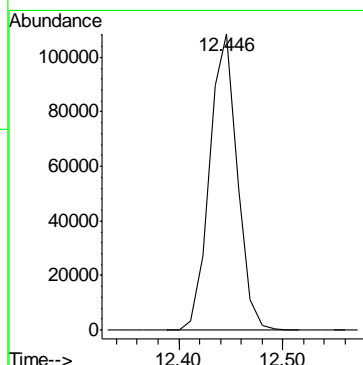
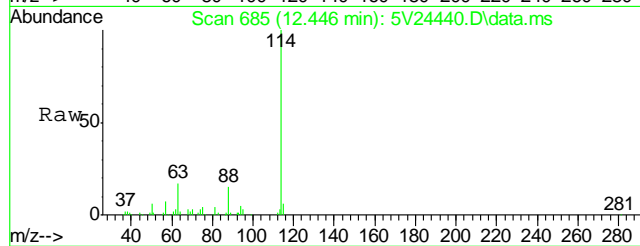
#33
1,2-Dichloroethane-d4
Concen: 48.74 ug/l
RT: 12.024 min Scan# 648
Delta R.T. -0.000 min
Lab File: 5V24440.D
Acq: 31 Oct 2012 9:16 pm

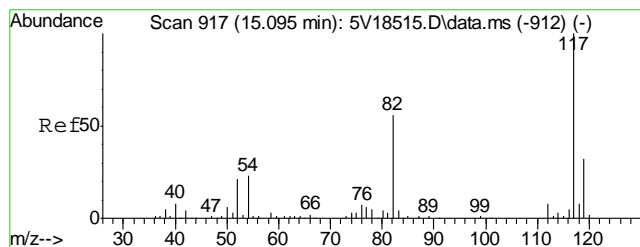
Tgt Ion:102 Resp: 14212



#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.446 min Scan# 685
Delta R.T. -0.000 min
Lab File: 5V24440.D
Acq: 31 Oct 2012 9:16 pm

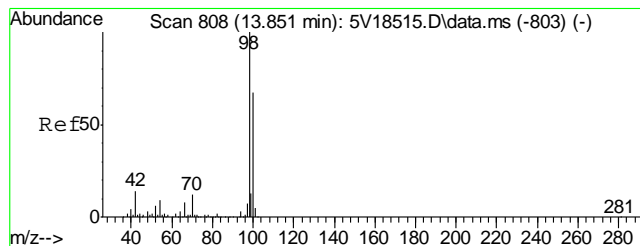
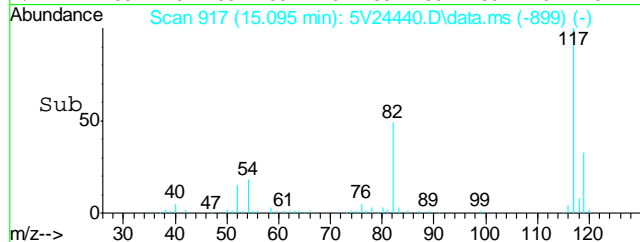
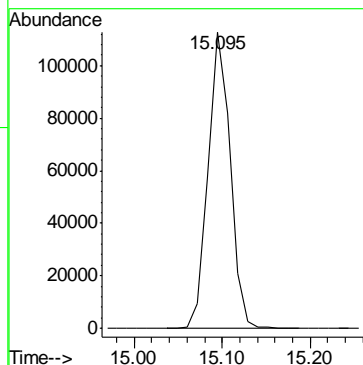
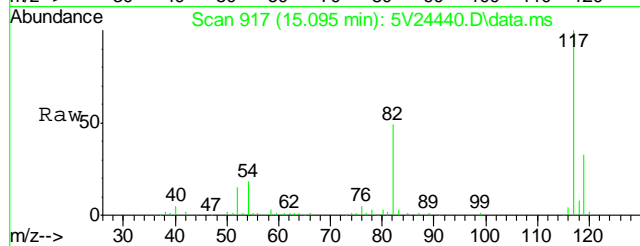
Tgt Ion:114 Resp: 200897





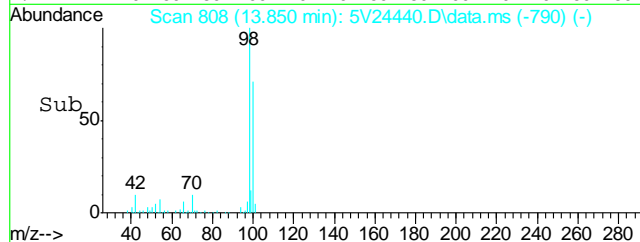
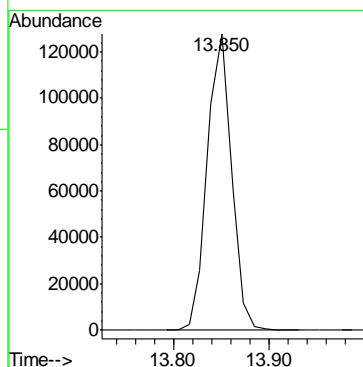
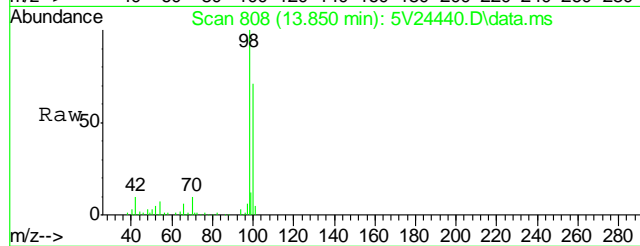
#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.095 min Scan# 917
Delta R.T. -0.000 min
Lab File: 5V24440.D
Acq: 31 Oct 2012 9:16 pm

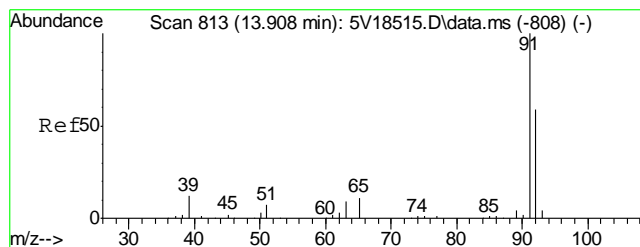
Tgt Ion:117 Resp: 196378



#61
Toluene-d8
Concen: 48.90 ug/l
RT: 13.850 min Scan# 808
Delta R.T. -0.000 min
Lab File: 5V24440.D
Acq: 31 Oct 2012 9:16 pm

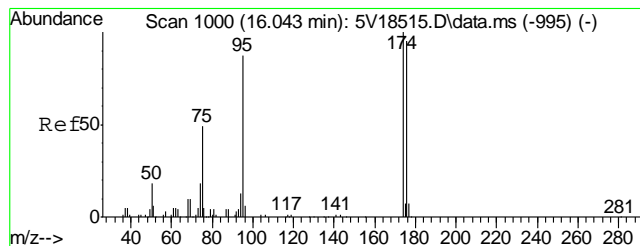
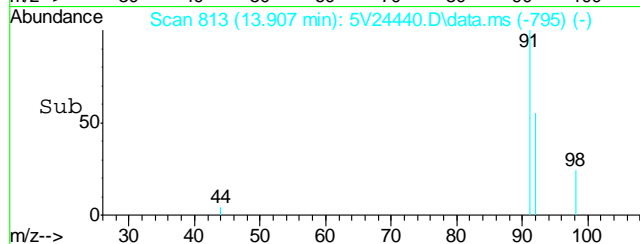
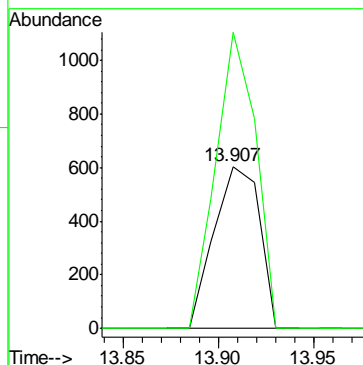
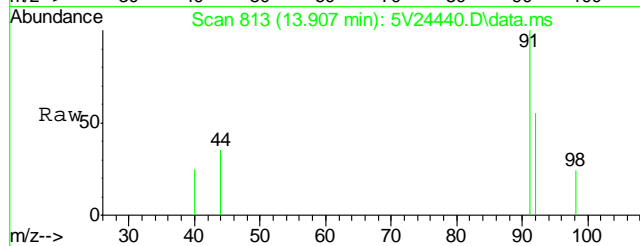
Tgt Ion: 98 Resp: 224688





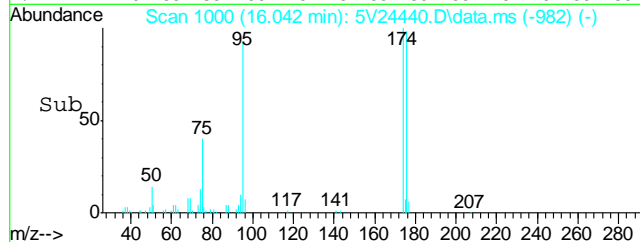
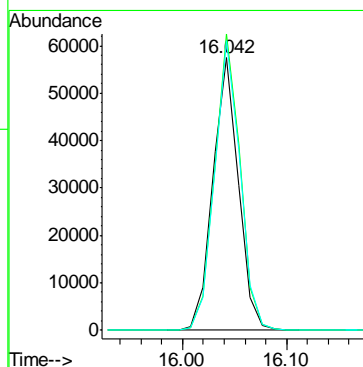
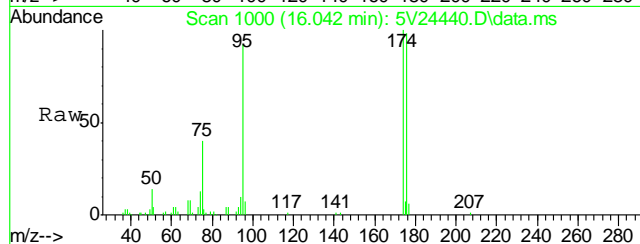
#62
Toluene
Concen: 0.27 ug/l
RT: 13.907 min Scan# 813
Delta R.T. -0.000 min
Lab File: 5V24440.D
Acq: 31 Oct 2012 9:16 pm

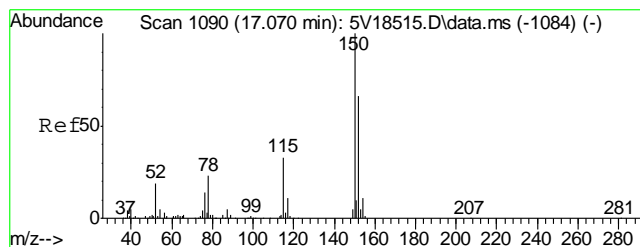
Tgt Ion: 92 Resp: 1008
Ion Ratio Lower Upper
92 100
91 161.0 149.8 189.8



#69
4-Bromofluorobenzene
Concen: 47.52 ug/l
RT: 16.042 min Scan# 1000
Delta R.T. -0.000 min
Lab File: 5V24440.D
Acq: 31 Oct 2012 9:16 pm

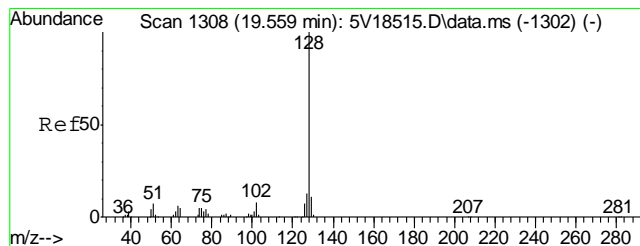
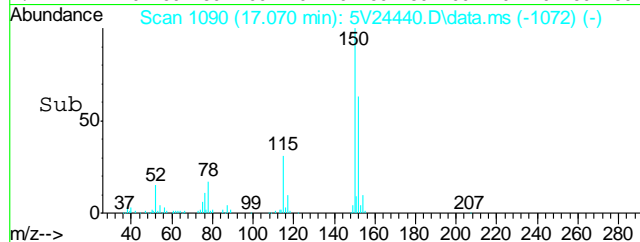
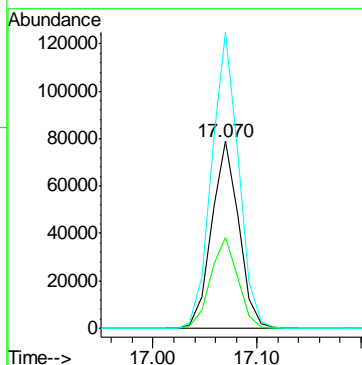
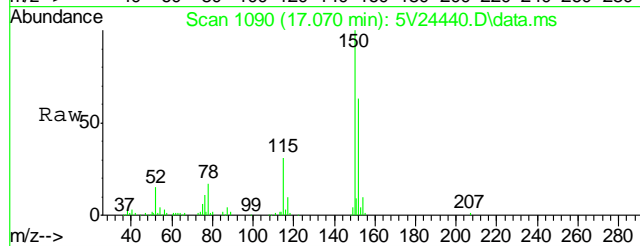
Tgt Ion: 95 Resp: 98402
Ion Ratio Lower Upper
95 100
174 108.1 77.1 117.1
176 106.0 73.4 113.4





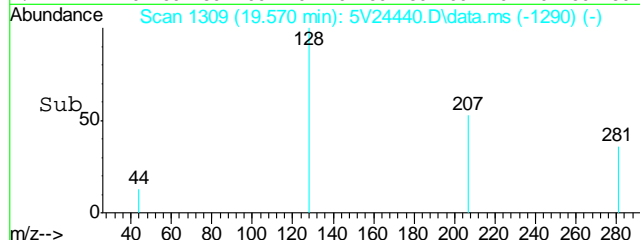
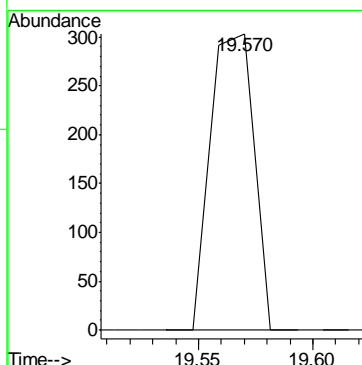
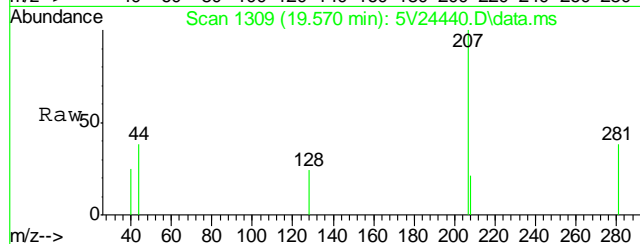
#74
 1,4-Dichlorobenzene-d4
 Concen: 50.00 ug/l
 RT: 17.070 min Scan# 1090
 Delta R.T. -0.000 min
 Lab File: 5V24440.D
 Acq: 31 Oct 2012 9:16 pm

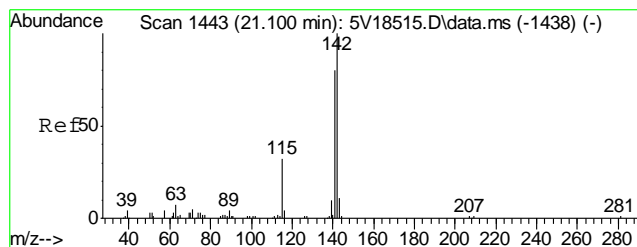
Tgt Ion	Ratio	Lower	Upper
152	100		
115	48.7	41.4	62.0
150	156.9	153.9	230.9



#91
 Naphthalene
 Concen: 0.93 ug/l
 RT: 19.570 min Scan# 1309
 Delta R.T. 0.012 min
 Lab File: 5V24440.D
 Acq: 31 Oct 2012 9:16 pm

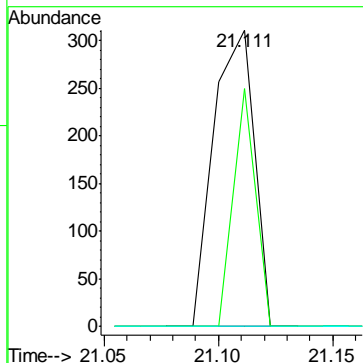
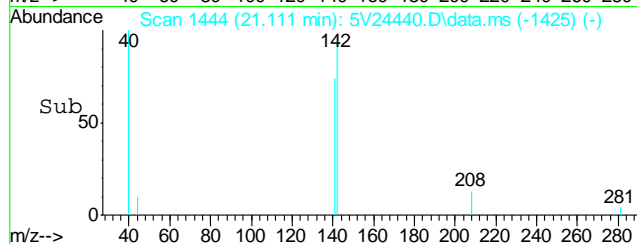
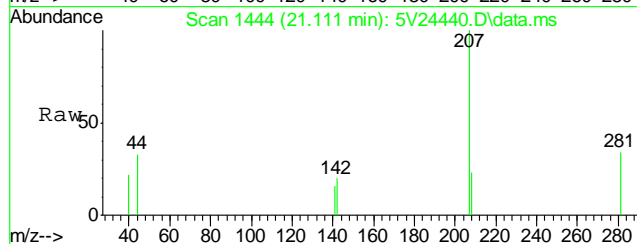
Tgt Ion:128 Resp: 407





#94
 2-Methylnaphthalene
 Concen: 2.89 ug/l
 RT: 21.111 min Scan# 1444
 Delta R.T. 0.011 min
 Lab File: 5V24440.D
 Acq: 31 Oct 2012 9:16 pm

Tgt Ion	Ratio	Lower	Upper
142	100		
141	44.0	66.2	99.4#
115	0.0	25.9	38.9#



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5103112.S\
Data File : 5V24428.D
Acq On : 31 Oct 2012 2:37 pm
Operator : BRETD
Sample : MB
Misc : MS4884,V5V1489,5.00,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 01 08:45:13 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1487TVH1487.M
Quant Title : 8260
QLast Update : Wed Oct 31 11:00:18 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	147117	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	195367	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	189498	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	125875	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.024	102	14027	51.70	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	103.40%
61) Toluene-d8	13.851	98	218211	49.22	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	98.44%
69) 4-Bromofluorobenzene	16.043	95	89036	44.56	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	89.12%

Target Compounds

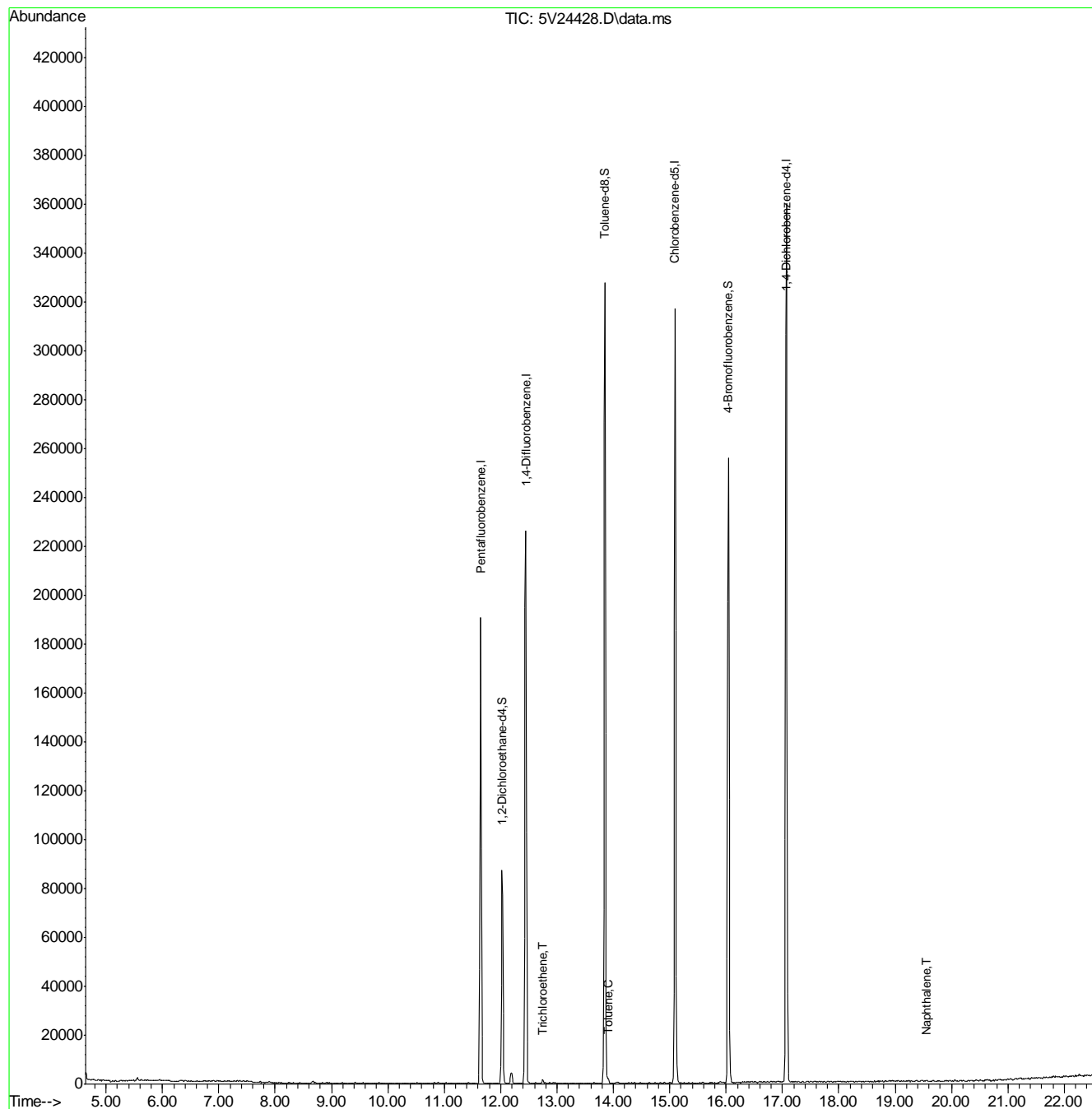
					Qvalue
1) TVH-Gasoline	13.102	TIC	-6904m	41.26	ug/l
48) Trichloroethene	12.743	95	710	0.53	ug/l # 84
62) Toluene	13.908	92	973	0.27	ug/l 97
91) Naphthalene	19.559	128	750	1.00	ug/l 100

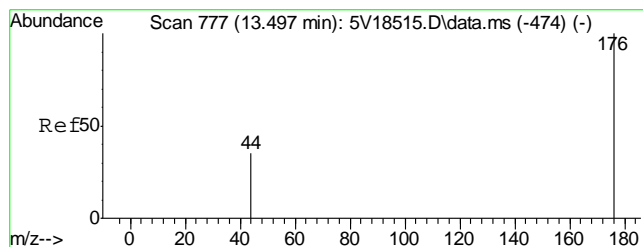
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5103112.S\
Data File : 5V24428.D
Acq On : 31 Oct 2012 2:37 pm
Operator : BRETD
Sample : MB
Misc : MS4884,V5V1489,5.00,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

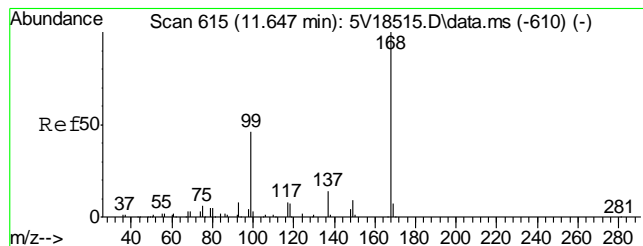
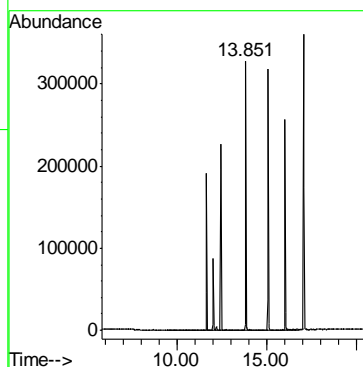
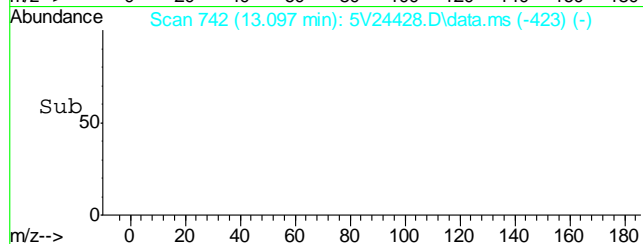
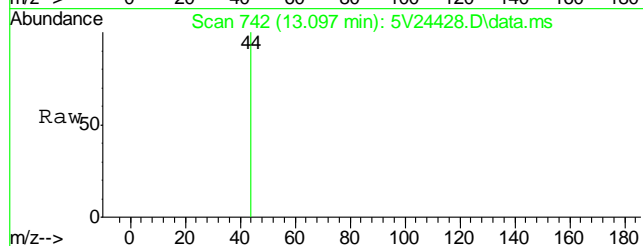
Quant Time: Nov 01 08:45:13 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1487TVH1487.M
Quant Title : 8260
QLast Update : Wed Oct 31 11:00:18 2012
Response via : Initial Calibration





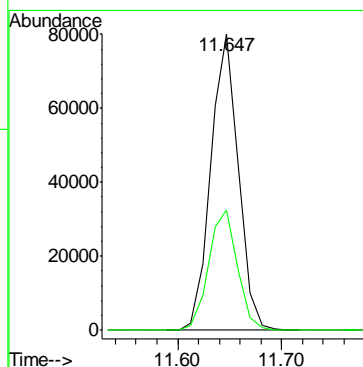
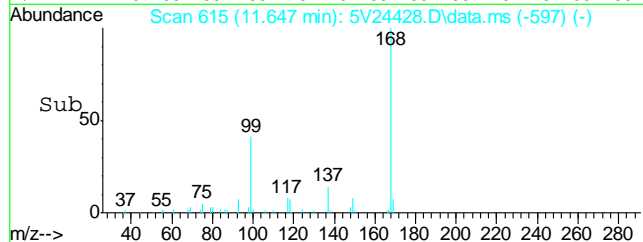
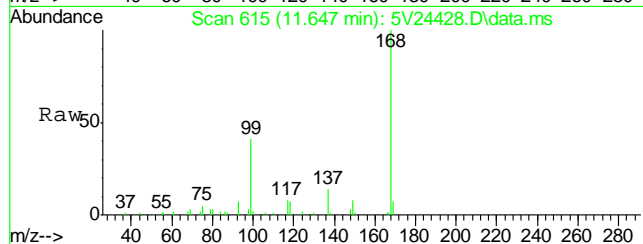
#1
TVH-Gasoline
Concen: 41.26 ug/l m
RT: 13.102 min Scan# 742
Delta R.T. 0.000 min
Lab File: 5V24428.D
Acq: 31 Oct 2012 2:37 pm

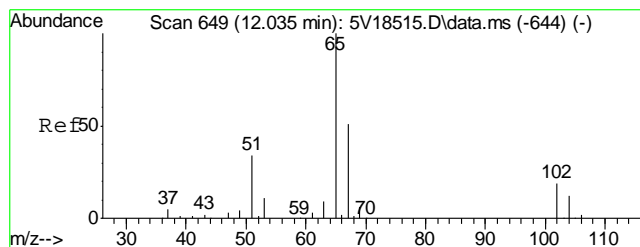
Tgt Ion:TIC Resp: -6904



#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.647 min Scan# 615
Delta R.T. 0.000 min
Lab File: 5V24428.D
Acq: 31 Oct 2012 2:37 pm

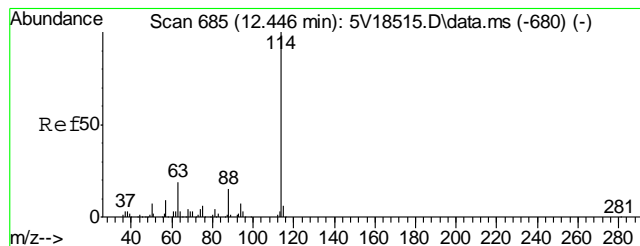
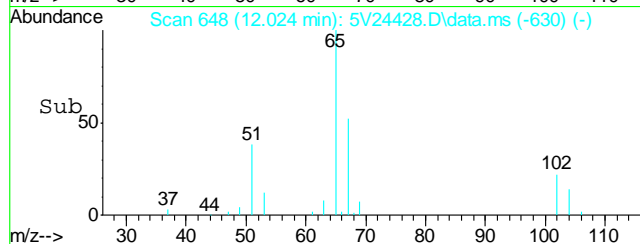
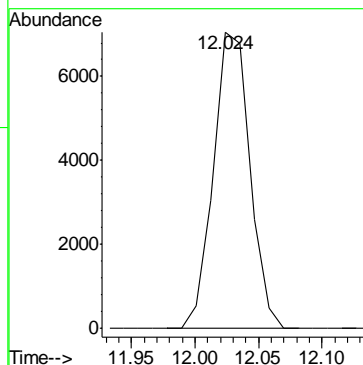
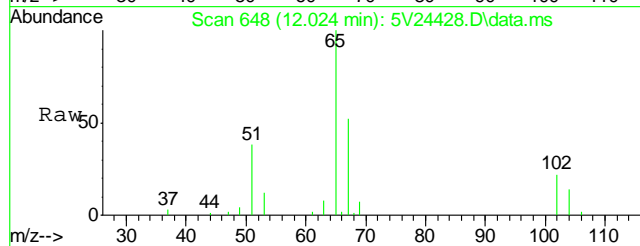
Tgt Ion:168 Resp: 147117
Ion Ratio Lower Upper
168 100
99 42.2 37.4 56.2





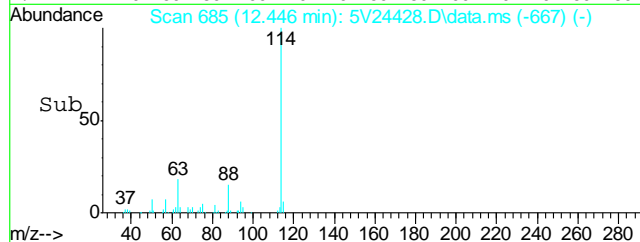
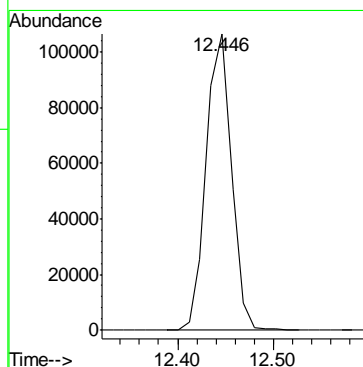
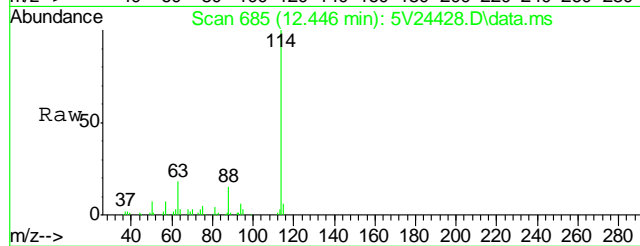
#33
1,2-Dichloroethane-d4
Concen: 51.70 ug/l
RT: 12.024 min Scan# 648
Delta R.T. 0.000 min
Lab File: 5V24428.D
Acq: 31 Oct 2012 2:37 pm

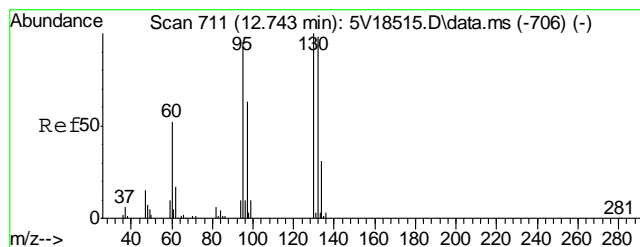
Tgt Ion:102 Resp: 14027



#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.446 min Scan# 685
Delta R.T. 0.000 min
Lab File: 5V24428.D
Acq: 31 Oct 2012 2:37 pm

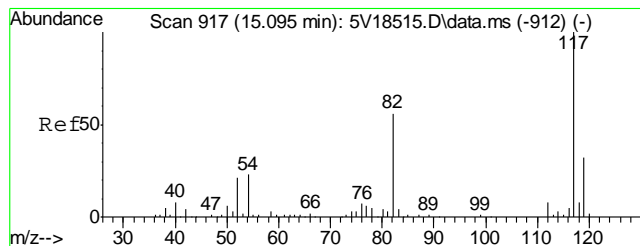
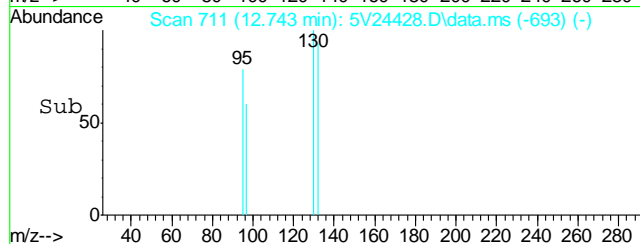
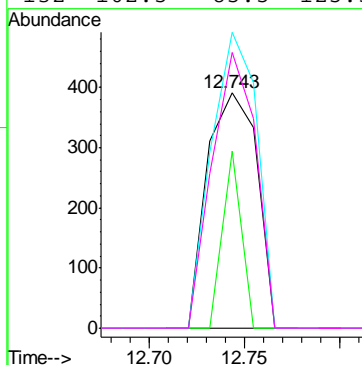
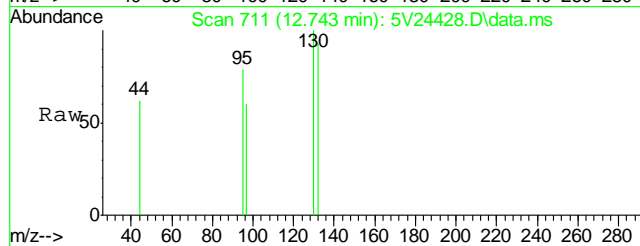
Tgt Ion:114 Resp: 195367





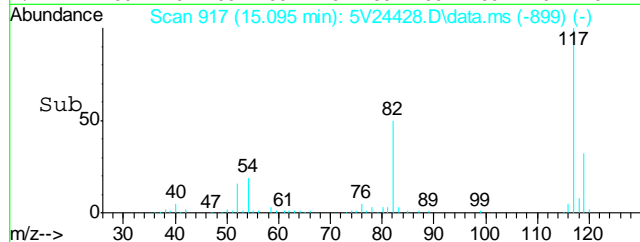
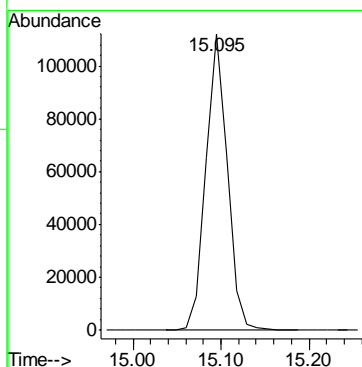
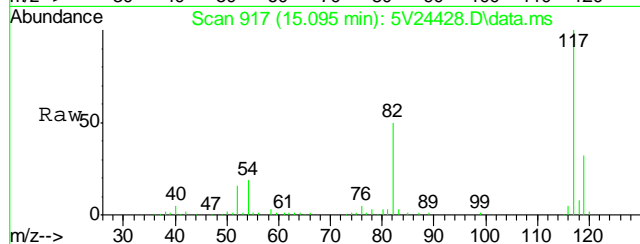
#48
Trichloroethene
Concen: 0.53 ug/l
RT: 12.743 min Scan# 711
Delta R.T. 0.000 min
Lab File: 5V24428.D
Acq: 31 Oct 2012 2:37 pm

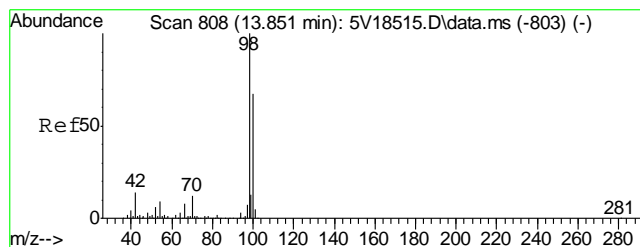
Tgt Ion	95	Resp	710
Ion Ratio	Lower	Upper	
95	100		
97	28.5	47.1	87.1#
130	115.1	85.2	125.2
132	102.5	85.5	125.5



#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.095 min Scan# 917
Delta R.T. 0.000 min
Lab File: 5V24428.D
Acq: 31 Oct 2012 2:37 pm

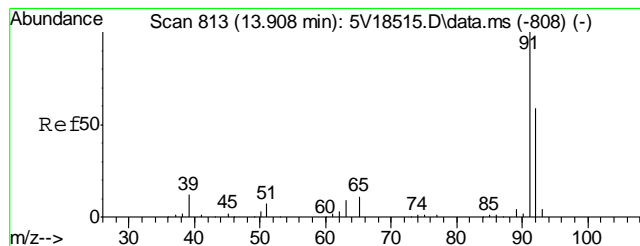
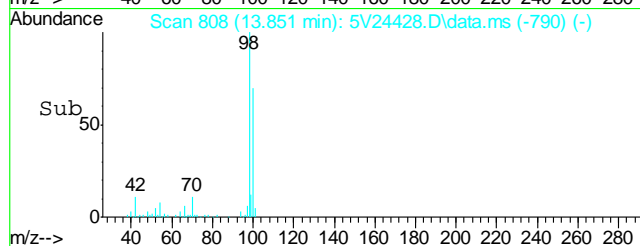
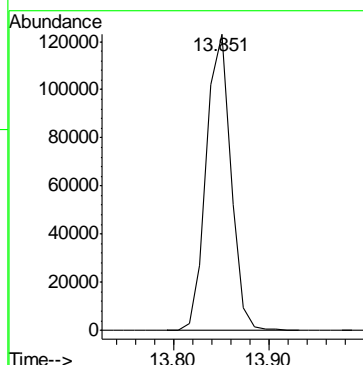
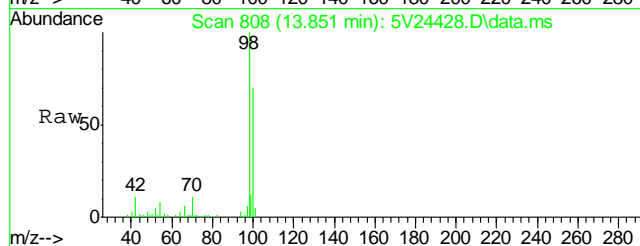
Tgt Ion: 117 Resp: 189498





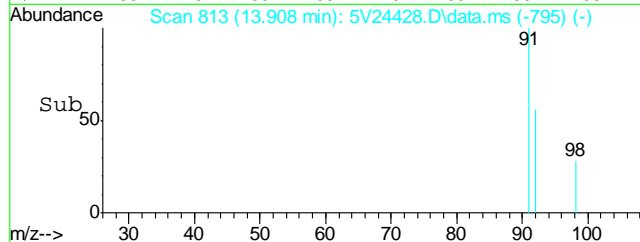
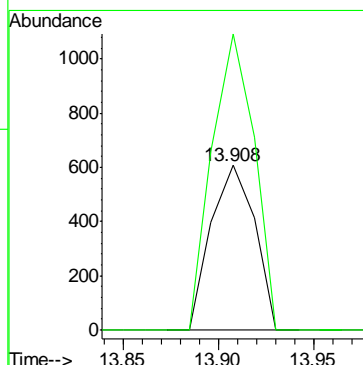
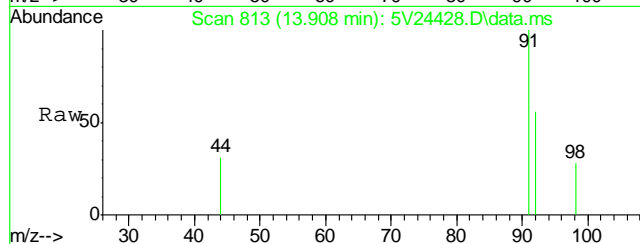
#61
Toluene-d8
Concen: 49.22 ug/l
RT: 13.851 min Scan# 808
Delta R.T. 0.000 min
Lab File: 5V24428.D
Acq: 31 Oct 2012 2:37 pm

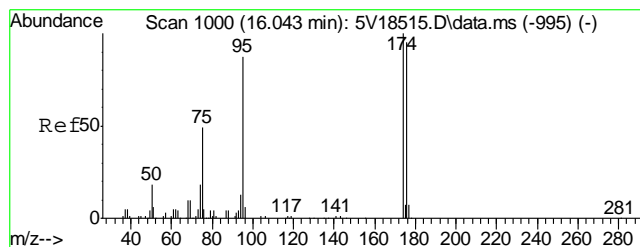
Tgt Ion: 98 Resp: 218211



#62
Toluene
Concen: 0.27 ug/l
RT: 13.908 min Scan# 813
Delta R.T. 0.000 min
Lab File: 5V24428.D
Acq: 31 Oct 2012 2:37 pm

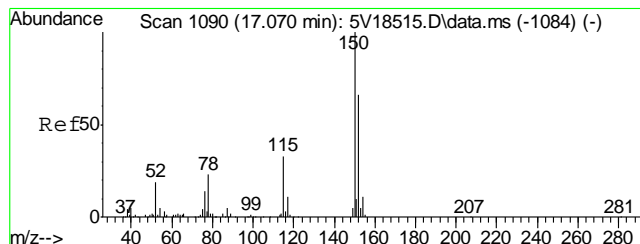
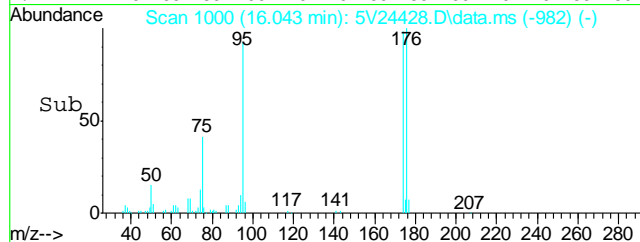
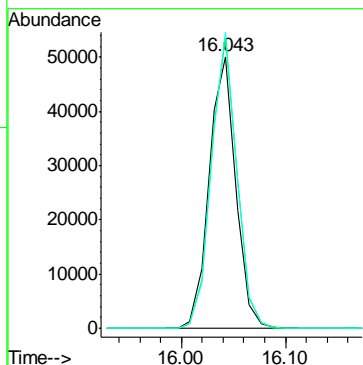
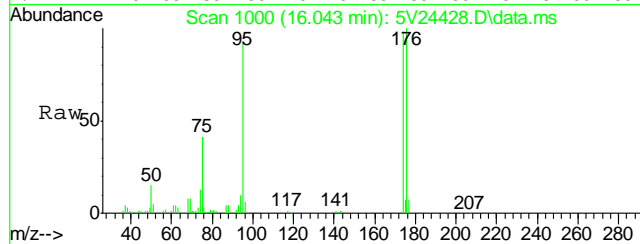
Tgt Ion: 92 Resp: 973
Ion Ratio Lower Upper
92 100
91 173.4 149.8 189.8





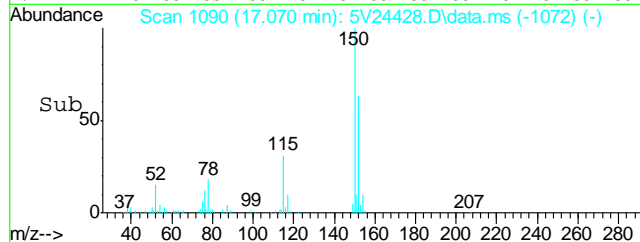
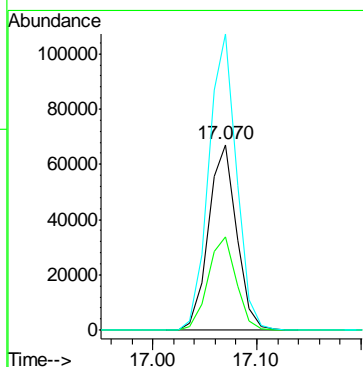
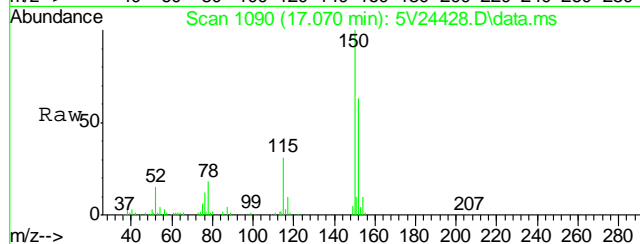
#69
4-Bromofluorobenzene
Concen: 44.56 ug/l
RT: 16.043 min Scan# 1000
Delta R.T. 0.000 min
Lab File: 5V24428.D
Acq: 31 Oct 2012 2:37 pm

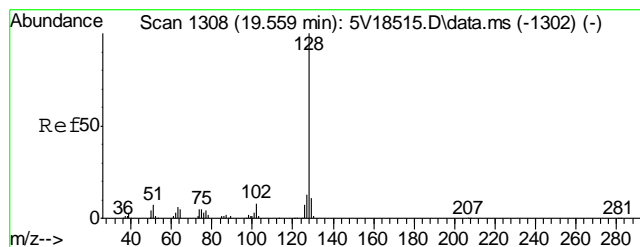
Tgt Ion	Ratio	Lower	Upper
95	100		
174	103.8	77.1	117.1
176	103.8	73.4	113.4



#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.070 min Scan# 1090
Delta R.T. 0.000 min
Lab File: 5V24428.D
Acq: 31 Oct 2012 2:37 pm

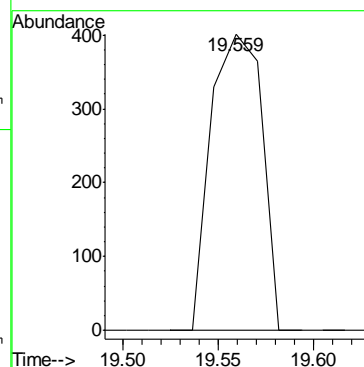
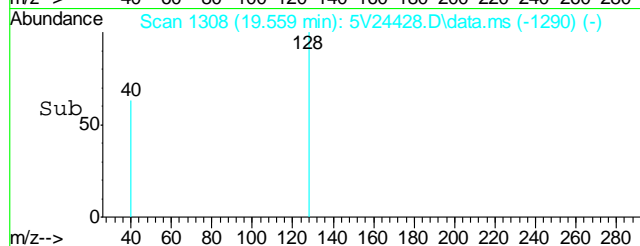
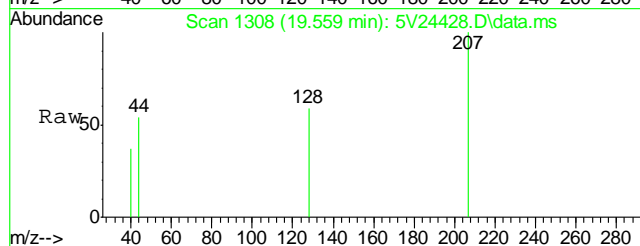
Tgt Ion	Ratio	Lower	Upper
152	100		
115	50.4	41.4	62.0
150	157.9	153.9	230.9





#91
Naphthalene
Concen: 1.00 ug/l
RT: 19.559 min Scan# 1308
Delta R.T. 0.001 min
Lab File: 5V24428.D
Acq: 31 Oct 2012 2:37 pm

Tgt Ion:128 Resp: 750



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: D40379
Account: XTOKRWR XTO Energy
Project: NPU 196-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6914-MB	3G11926.D	1	11/05/12	DC	11/05/12	OP6914	E3G563

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

D40379-1

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

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	78% 10-159%
321-60-8	2-Fluorobiphenyl	77% 19-131%
1718-51-0	Terphenyl-d14	90% 18-150%

8.1.1

8

Blank Spike Summary

Page 1 of 1

Job Number: D40379
Account: XTOKRWR XTO Energy
Project: NPU 196-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6914-BS	3G11927.D	1	11/05/12	DC	11/05/12	OP6914	E3G563

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D40379-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	68.3	82	68-130
120-12-7	Anthracene	83.3	75.8	91	67-130
56-55-3	Benzo(a)anthracene	83.3	75.2	90	65-130
50-32-8	Benzo(a)pyrene	83.3	85.1	102	62-130
205-99-2	Benzo(b)fluoranthene	83.3	65.5	79	44-130
207-08-9	Benzo(k)fluoranthene	83.3	112	134* a	56-131
218-01-9	Chrysene	83.3	84.2	101	70-130
53-70-3	Dibenzo(a,h)anthracene	83.3	75.6	91	55-130
206-44-0	Fluoranthene	83.3	73.0	88	70-130
86-73-7	Fluorene	83.3	75.3	90	70-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	80.4	96	56-130
91-20-3	Naphthalene	83.3	64.8	78	70-130
129-00-0	Pyrene	83.3	84.4	101	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	74%	10-159%
321-60-8	2-Fluorobiphenyl	73%	19-131%
1718-51-0	Terphenyl-d14	83%	18-150%

(a) Compound ND in associated samples.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D40379
Account: XTOKRWR XTO Energy
Project: NPU 196-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6914-MS ^a	3G11934.D	1	11/06/12	DC	11/05/12	OP6914	E3G563
OP6914-MSD ^a	3G11935.D	1	11/06/12	DC	11/05/12	OP6914	E3G563
D40438-1 ^a	3G11933.D	1	11/06/12	DC	11/05/12	OP6914	E3G563

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D40379-1

CAS No.	Compound	D40438-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		1130	777	68	757	66	3	25-151/30
120-12-7	Anthracene	ND		1130	936	82	946	82	1	39-159/30
56-55-3	Benzo(a)anthracene	ND		1130	950	84	942	82	1	39-168/30
50-32-8	Benzo(a)pyrene	ND		1130	993	88	1030	89	4	32-144/30
205-99-2	Benzo(b)fluoranthene	ND		1130	768	68	797	69	4	24-163/30
207-08-9	Benzo(k)fluoranthene	ND		1130	1230	108	1260	109	2	10-188/30
218-01-9	Chrysene	ND		1130	1020	90	1030	89	1	43-150/30
53-70-3	Dibenzo(a,h)anthracene	ND		1130	880	78	892	77	1	21-152/30
206-44-0	Fluoranthene	ND		1130	933	82	918	80	2	36-157/30
86-73-7	Fluorene	ND		1130	935	82	925	80	1	10-182/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		1130	922	81	925	80	0	20-154/30
91-20-3	Naphthalene	ND		1130	835	74	636	55	27	10-163/30
129-00-0	Pyrene	ND		1130	1060	93	1080	94	2	25-180/30

CAS No.	Surrogate Recoveries	MS	MSD	D40438-1	Limits
4165-60-0	Nitrobenzene-d5	54%	46%	52%	10-159%
321-60-8	2-Fluorobiphenyl	58%	53%	57%	19-131%
1718-51-0	Terphenyl-d14	67%	68%	69%	18-150%

(a) Diluted at prep due to matrix.

* = Outside of Control Limits.

GC/MS Semi-volatiles

Raw Data

6

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\110512\
 Data File : 3g11929.D
 Acq On : 6 Nov 2012 12:31 am
 Operator : DONC
 Sample : D40379-1
 Misc : OP6914,E3G563,10.00,,,1,1
 ALS Vial : 23 Sample Multiplier: 1

Quant Time: Nov 06 09:03:44 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G558.M
 Quant Title : PAHSIM BASE
 QLast Update : Wed Oct 31 14:49:52 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.789	136	198595	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.507	164	120648	4.0000	ug/mL	0.00
15) Phenanthrene-d10	8.987	188	199416	4.0000	ug/mL	0.00
19) Chrysene-d12	11.630	240	141019	4.0000	ug/mL	0.00
24) Perylene-d12	13.035	264	97210	4.0000	ug/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	5.103	82	817285	33.2844	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	66.56%		
7) 2-Fluorobiphenyl	6.846	172	1704386	34.0256	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	68.06%		
21) Terphenyl-d14	10.578	244	736579	36.7270	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	73.46%		

Target Compounds

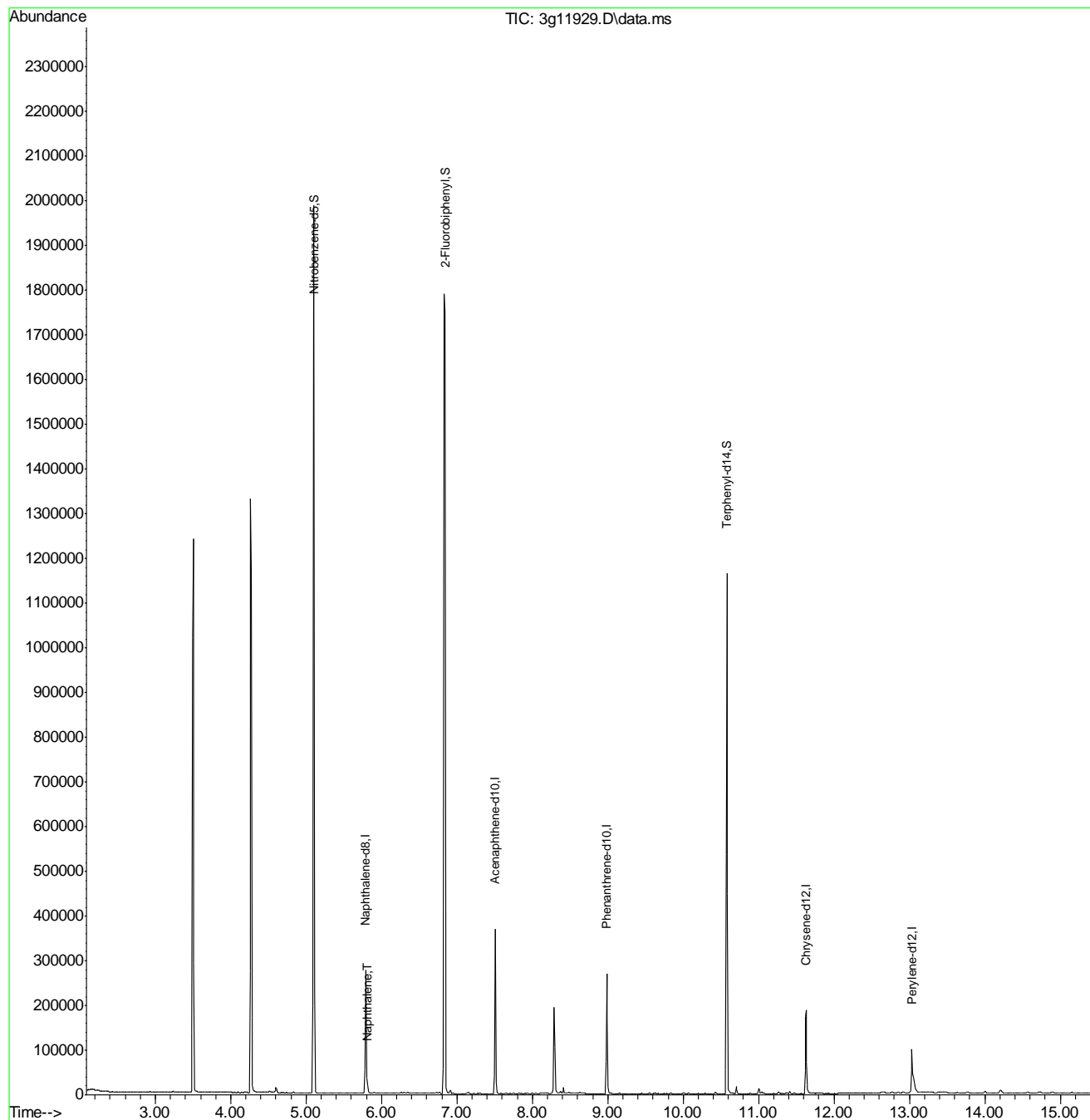
					Qvalue
3) N-Nitrosodimethylamine	2.487	74	91	N.D.	
4) N-Nitrosodi-propylamine	0.000	70	0	N.D. d	
5) Naphthalene	5.814	128	14912	0.2362	ug/mL 99
8) 2-Methylnaphthalene	6.487	142	428	N.D.	
9) 1-Methylnaphthalene	6.574	142	357	N.D.	
10) Acenaphthylene	7.365	152	362	N.D.	
11) Acenaphthene	7.507	154	629	N.D.	
12) Dibenzofuran	7.708	168	265	N.D.	
13) Fluorene	0.000	166	0	N.D. d	
14) Diphenylamine	8.157	169	1540	N.D.	
16) Phenanthrene	9.011	178	2330	N.D.	
17) Anthracene	9.011	178	2330	N.D.	
18) Fluoranthene	10.428	202	2090	N.D.	
20) Pyrene	10.428	202	2090	N.D.	
22) Benzo(a)anthracene	11.623	228	1477	N.D.	
23) Chrysene	11.623	228	1477	N.D.	
25) Benzo(b)fluoranthene	0.000	252	0	N.D. d	
26) Benzo(k)fluoranthene	12.635	252	665	N.D.	
27) Benzo(a)pyrene	0.000	252	0	N.D. d	
28) Indeno(1,2,3-cd)pyrene	14.318	276	219	N.D.	
29) Dibenz(a,h)anthracene	14.318	278	124	N.D.	
30) Benzo(g,h,i)perylene	14.675	276	755	N.D.	

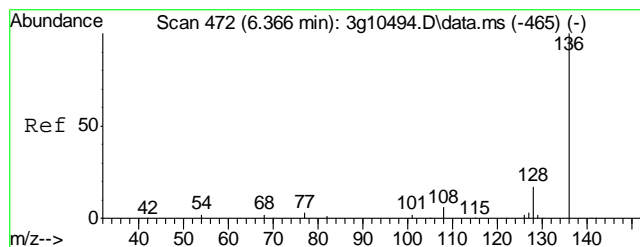
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\110512\
Data File : 3g11929.D
Acq On : 6 Nov 2012 12:31 am
Operator : DONC
Sample : D40379-1
Misc : OP6914,E3G563,10.00,,,1,1
ALS Vial : 23 Sample Multiplier: 1

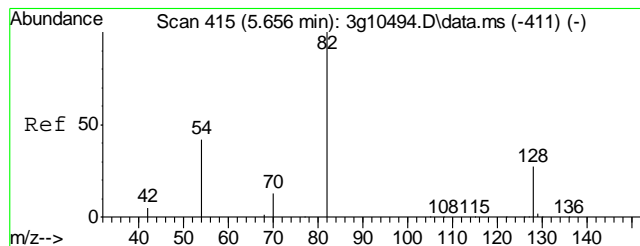
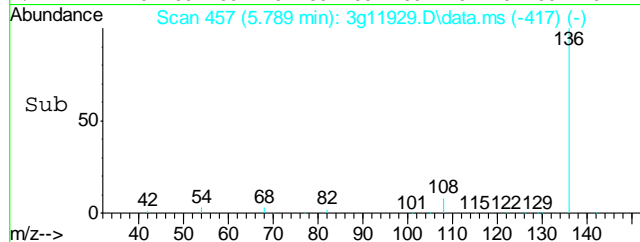
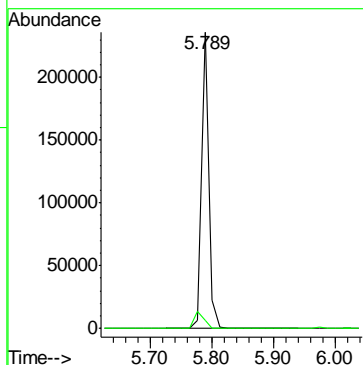
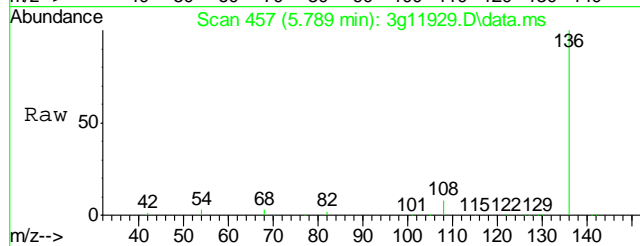
Quant Time: Nov 06 09:03:44 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G558.M
Quant Title : PAHSIM BASE
QLast Update : Wed Oct 31 14:49:52 2012
Response via : Initial Calibration





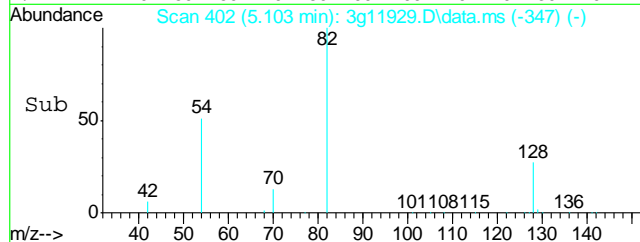
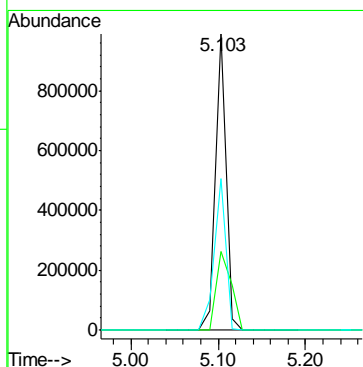
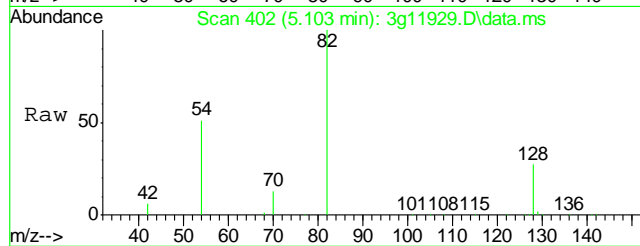
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.789 min Scan# 457
Delta R.T. -0.000 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

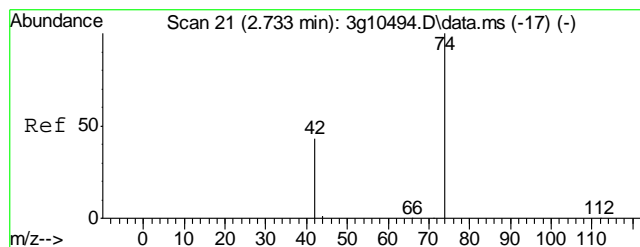
Tgt Ion	Ratio	Lower	Upper
136	100		
68	7.5	0.0	28.7



#2
Nitrobenzene-d5
Concen: 33.2844 ug/mL
RT: 5.103 min Scan# 402
Delta R.T. -0.000 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

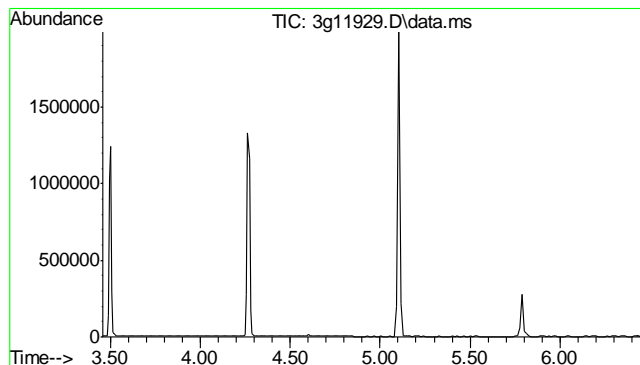
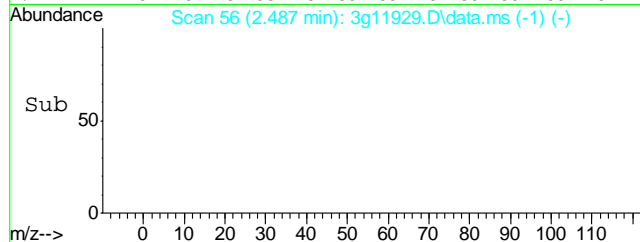
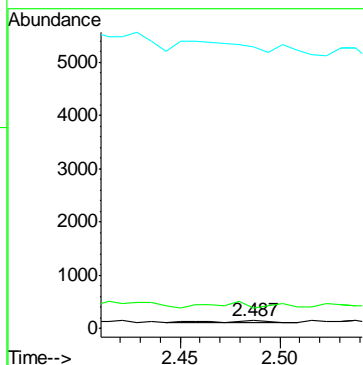
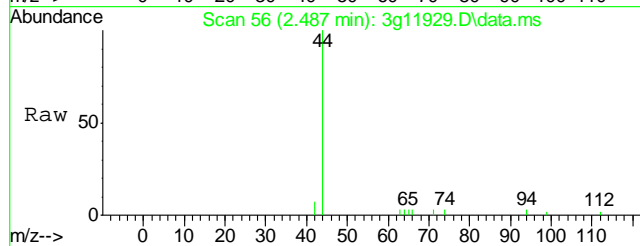
Tgt Ion	Ratio	Lower	Upper
82	100		
128	38.3	17.4	57.4
54	56.1	32.8	72.8





#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.487 min Scan# 56
Delta R.T. -0.000 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

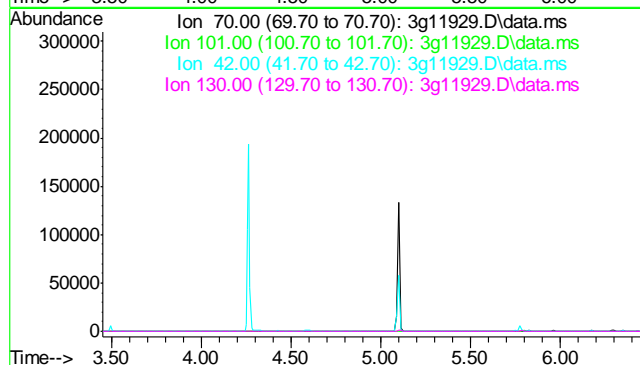
Tgt Ion:	74	Resp:	91
Ion Ratio	Lower	Upper	
74	100		
42	83.5	53.7	93.7
44	0.0	0.0	24.1

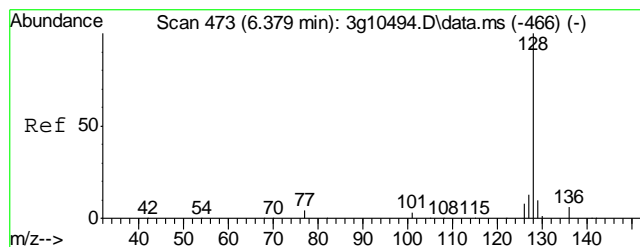


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 4.95 min

Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

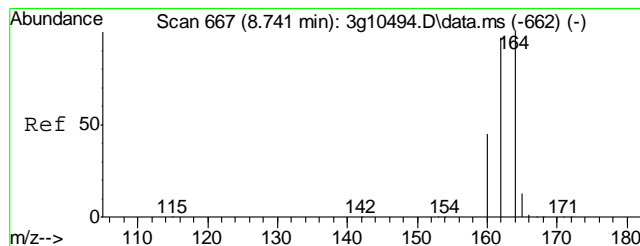
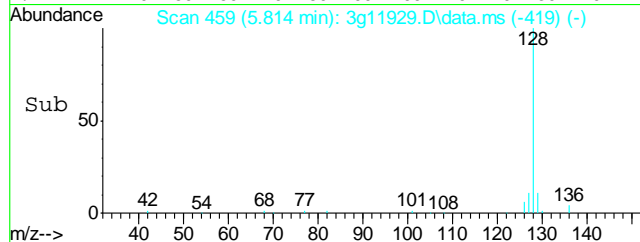
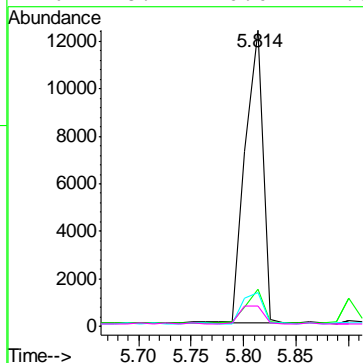
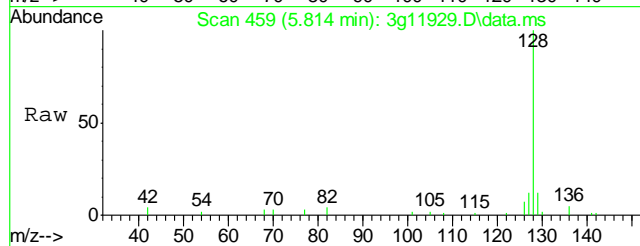
Tgt Ion:	70
Sig	Exp Ratio
70	100
101	12.3
42	51.9
130	24.1





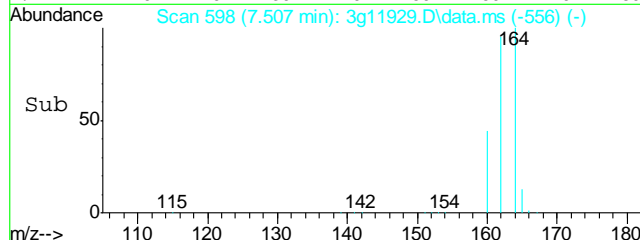
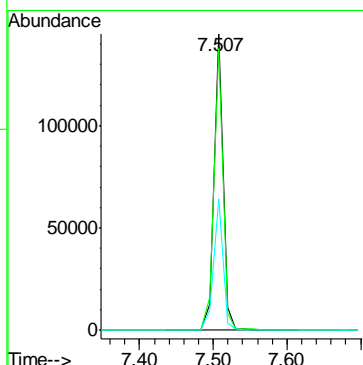
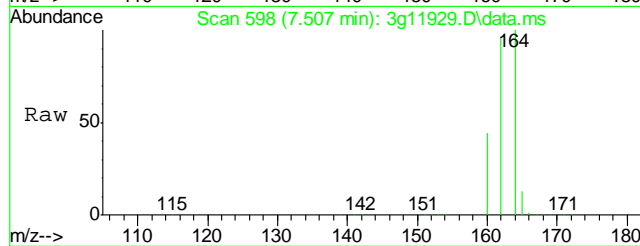
#5
Naphthalene
Concen: 0.2362 ug/mL
RT: 5.814 min Scan# 459
Delta R.T. -0.000 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

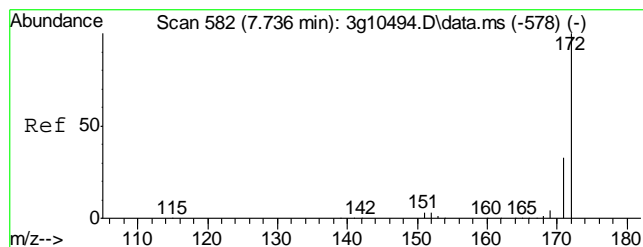
Tgt Ion	Ratio	Lower	Upper
128	100		
129	11.5	0.0	31.1
127	12.8	0.0	32.6
126	8.4	0.0	27.3



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.507 min Scan# 598
Delta R.T. -0.000 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

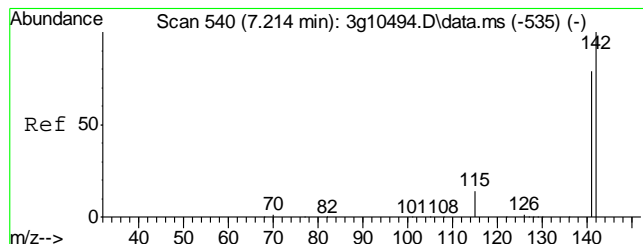
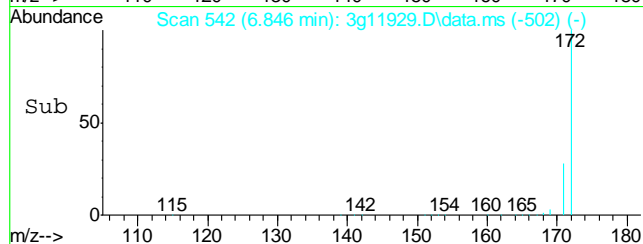
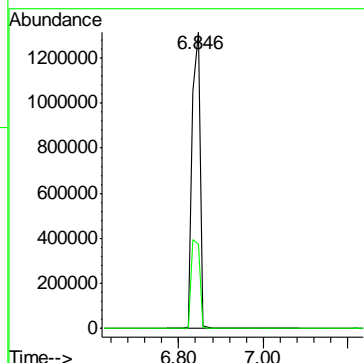
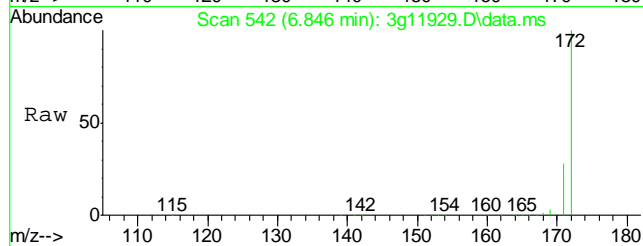
Tgt Ion	Ratio	Lower	Upper
164	100		
162	96.1	77.7	117.7
160	46.0	26.6	66.6





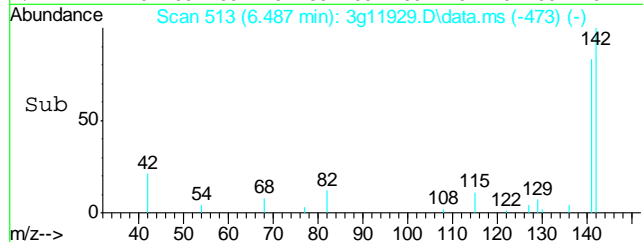
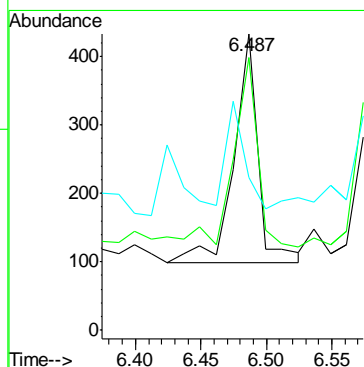
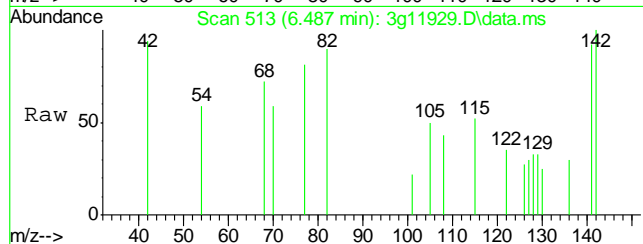
#7
2-Fluorobiphenyl
Concen: 34.0256 ug/mL
RT: 6.846 min Scan# 542
Delta R.T. -0.000 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

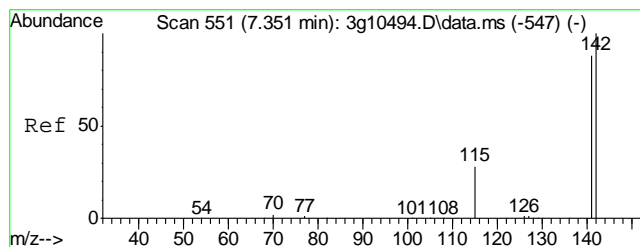
Tgt Ion	Ratio	Lower	Upper
172	100		
171	32.6	12.9	52.9



#8
2-Methylnaphthalene
Concen: Below ug/mL
RT: 6.487 min Scan# 513
Delta R.T. -0.000 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

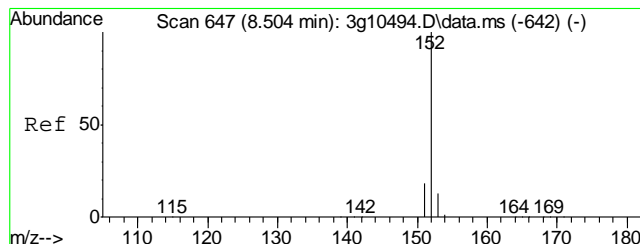
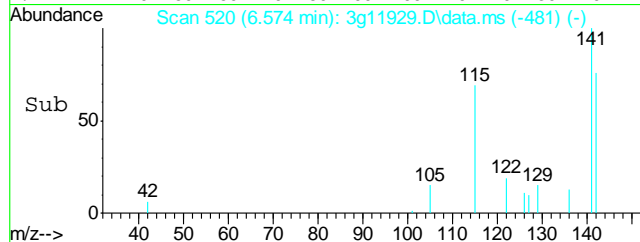
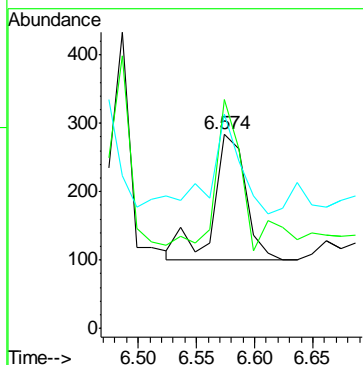
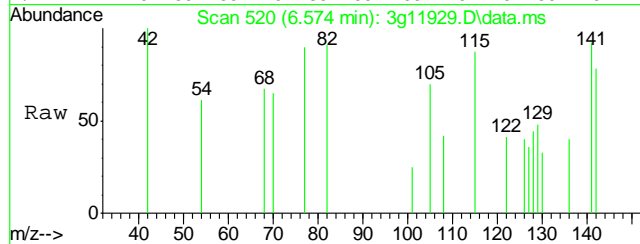
Tgt Ion	Ratio	Lower	Upper
142	100		
141	81.3	62.7	102.7
115	0.0	8.3	48.3#





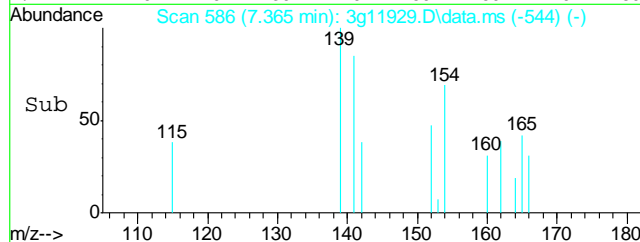
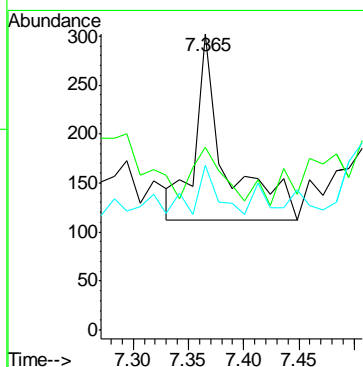
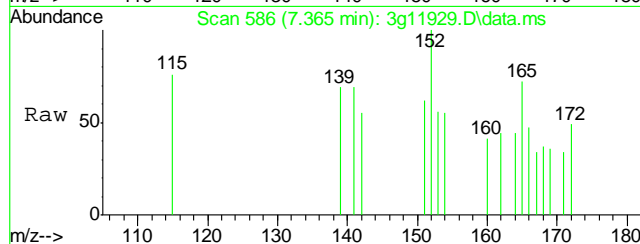
#9
1-Methylnaphthalene
Concen: Below ug/mL
RT: 6.574 min Scan# 520
Delta R.T. -0.013 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

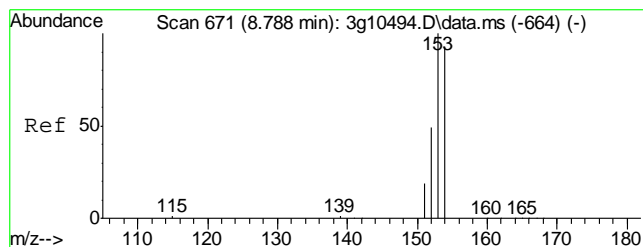
Tgt Ion	Ratio	Lower	Upper
142	100		
141	101.4	65.6	105.6
115	76.2	14.0	54.0



#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.365 min Scan# 586
Delta R.T. -0.000 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

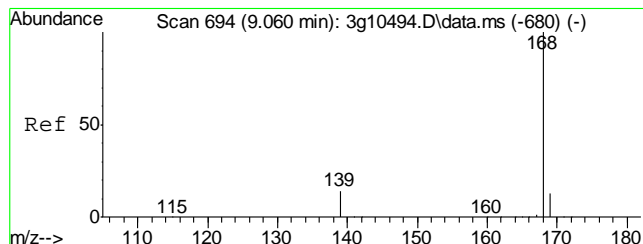
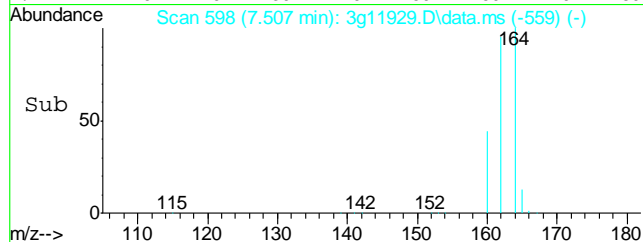
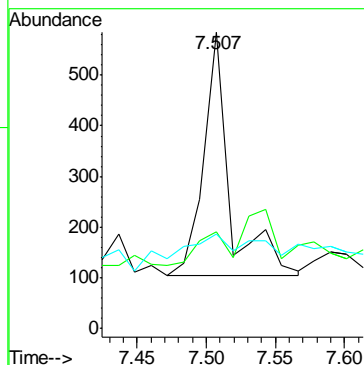
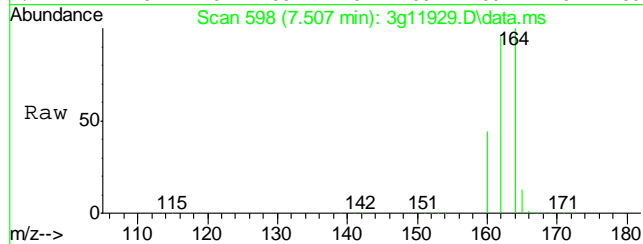
Tgt Ion	Ratio	Lower	Upper
152	100		
151	26.2	0.0	39.6
153	18.8	0.0	33.0





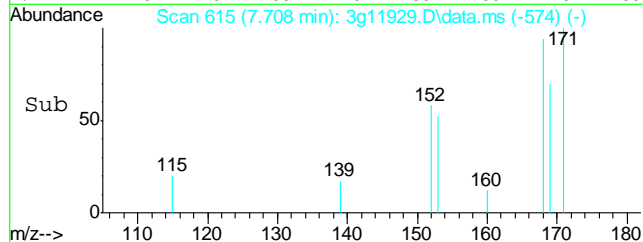
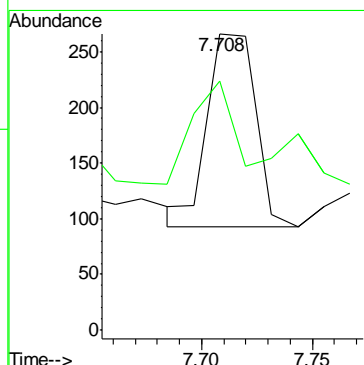
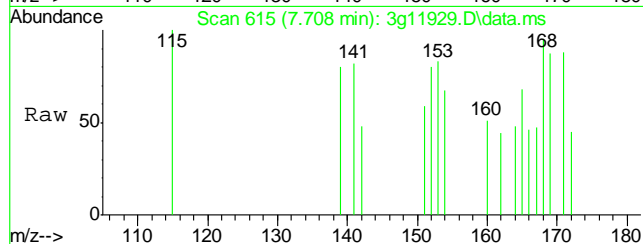
#11
Acenaphthene
Concen: Below ug/mL
RT: 7.507 min Scan# 598
Delta R.T. -0.036 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

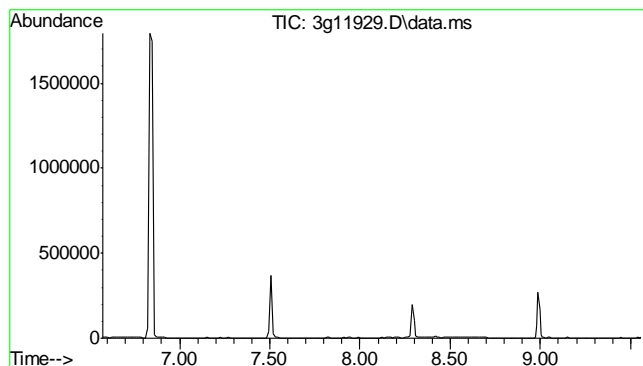
Tgt Ion	Ratio	Lower	Upper
154	100		
153	45.8	83.1	123.1#
152	31.8	29.1	69.1



#12
Dibenzofuran
Concen: Below ug/mL
RT: 7.708 min Scan# 615
Delta R.T. -0.012 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

Tgt Ion	Ratio	Lower	Upper
168	100		
139	52.5	14.1	54.1

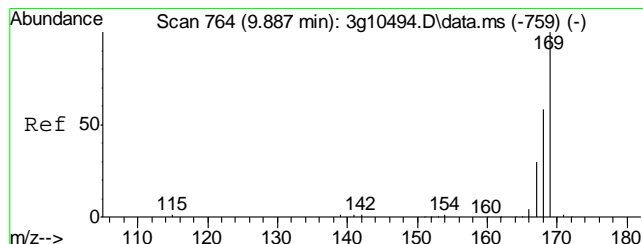
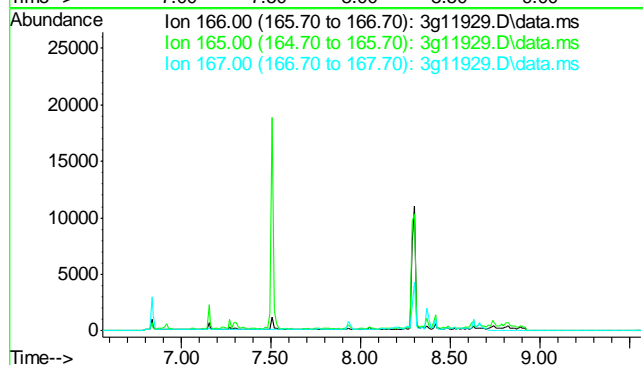




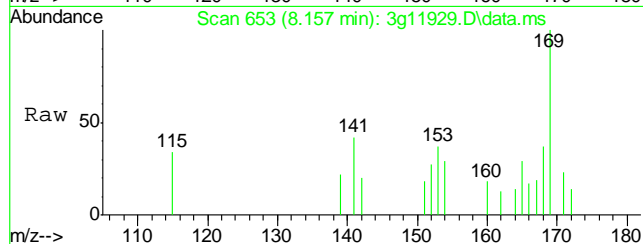
#13
 Fluorene
 Concen: N.D. ug/mL
 Expected RT: 8.06 min

 Lab File: 3g11929.D
 Acq: 6 Nov 12 12:31 am

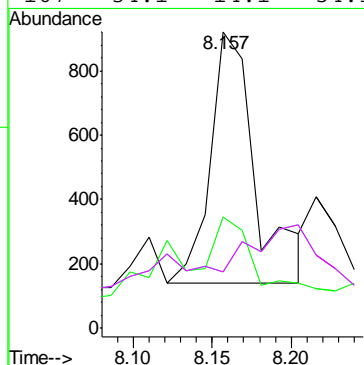
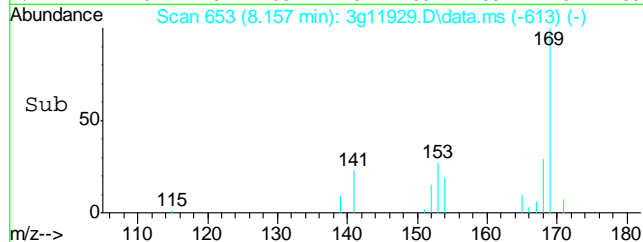
Tgt Ion: 166
 Sig Exp Ratio
 166 100
 165 92.9
 167 13.2

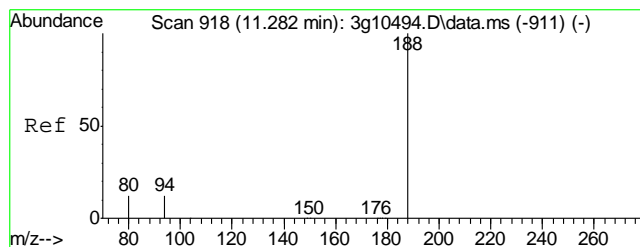


#14
 Diphenylamine
 Concen: Below ug/mL
 RT: 8.157 min Scan# 653
 Delta R.T. -0.024 min
 Lab File: 3g11929.D
 Acq: 6 Nov 12 12:31 am



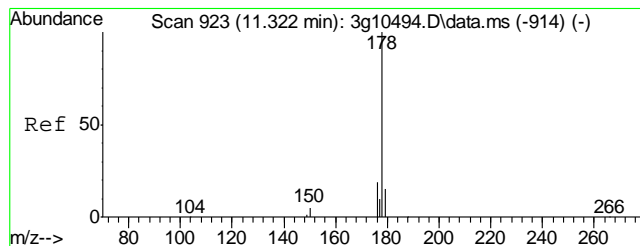
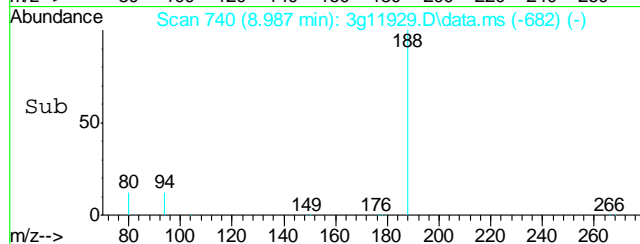
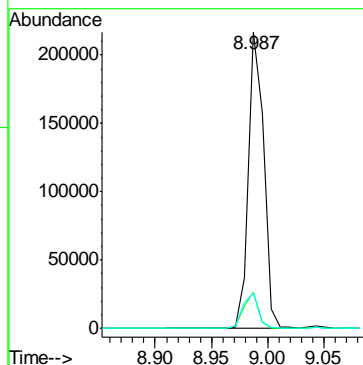
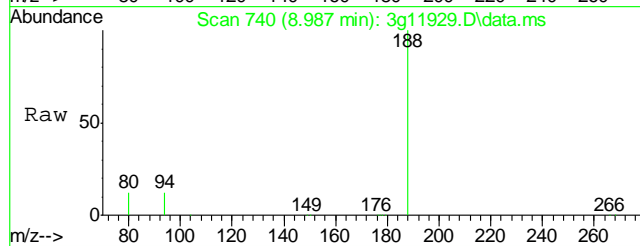
Tgt Ion: 169 Resp: 1540
 Ion Ratio Lower Upper
 169 100
 168 27.4 42.0 82.0#
 167 34.1 14.1 54.1
 167 34.1 14.1 54.1





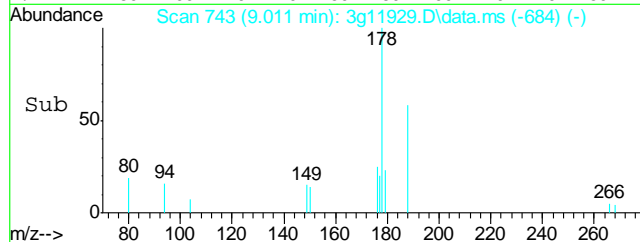
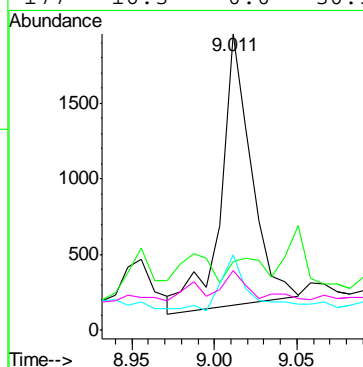
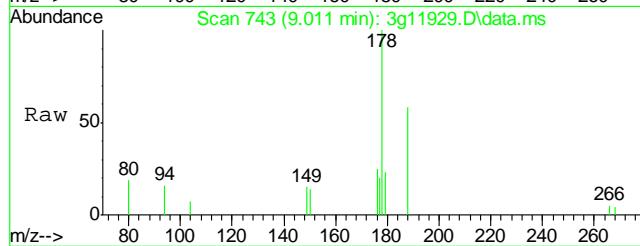
#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.987 min Scan# 740
Delta R.T. -0.008 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

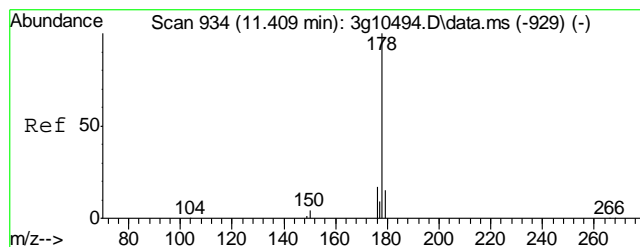
Tgt Ion:188	Resp:	199416
Ion Ratio	Lower	Upper
188	100	
94	11.6	0.0 33.4
80	12.2	0.0 34.7



#16
Phenanthrene
Concen: Below ug/mL
RT: 9.011 min Scan# 743
Delta R.T. -0.008 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

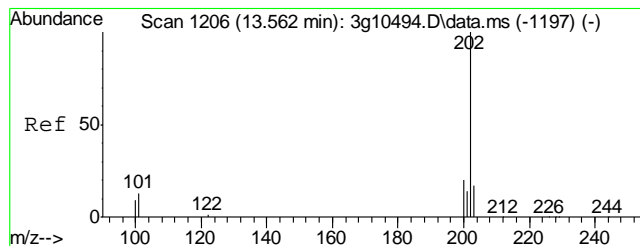
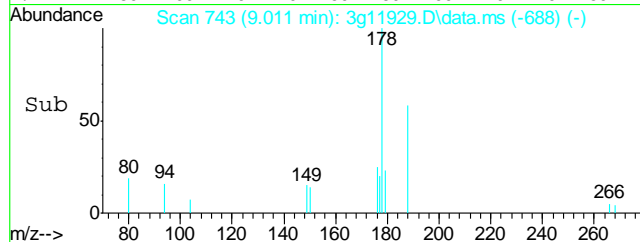
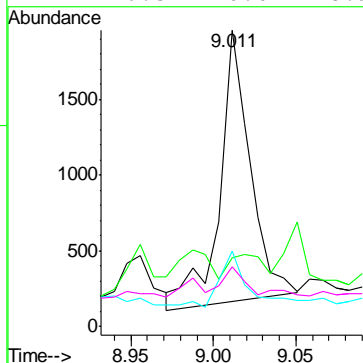
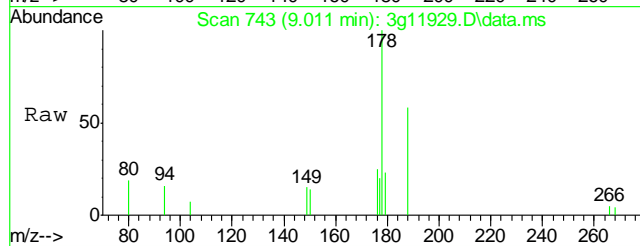
Tgt Ion:178	Resp:	2330
Ion Ratio	Lower	Upper
178	100	
179	25.7	0.0 35.2
176	28.7	0.0 38.9
177	16.3	0.0 30.3





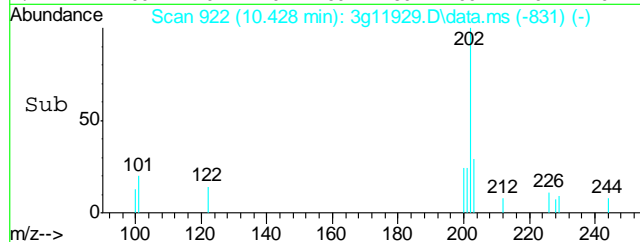
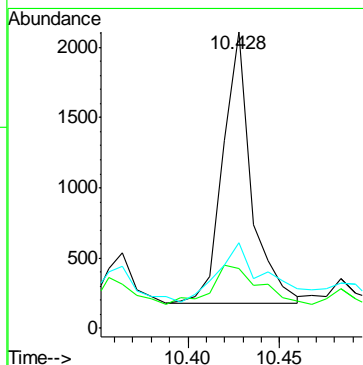
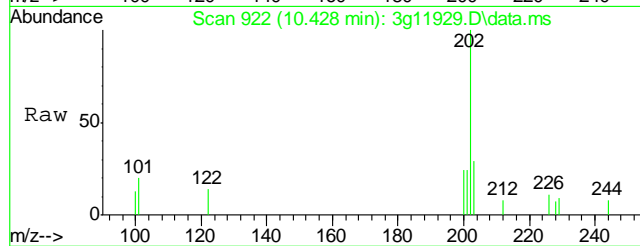
#17
 Anthracene
 Concen: Below ug/mL
 RT: 9.011 min Scan# 743
 Delta R.T. -0.063 min
 Lab File: 3g11929.D
 Acq: 6 Nov 12 12:31 am

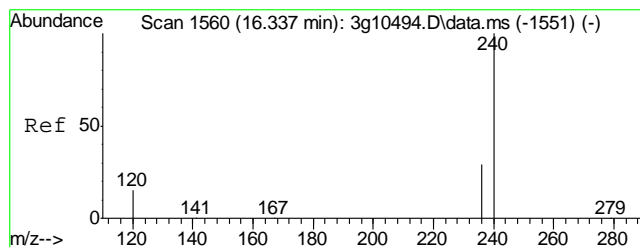
Tgt Ion:	178	Resp:	2330
Ion Ratio	Lower	Upper	
178	100		
179	25.7	0.0	35.1
176	28.7	0.0	38.3
177	16.3	0.0	28.9



#18
 Fluoranthene
 Concen: Below ug/mL
 RT: 10.428 min Scan# 922
 Delta R.T. 0.222 min
 Lab File: 3g11929.D
 Acq: 6 Nov 12 12:31 am

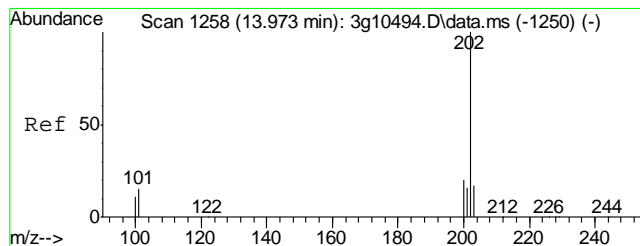
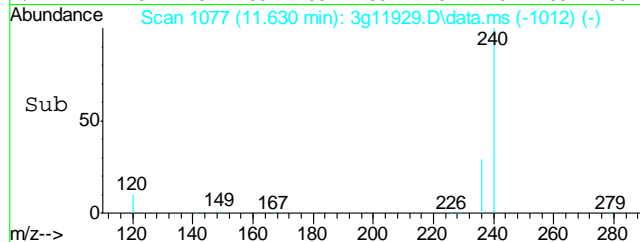
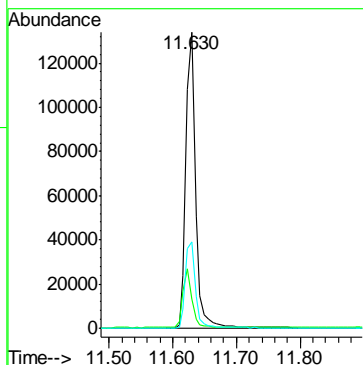
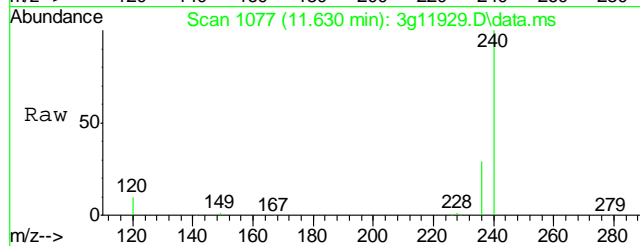
Tgt Ion:	202	Resp:	2090
Ion Ratio	Lower	Upper	
202	100		
101	23.1	0.0	33.9
203	36.2	0.0	37.2





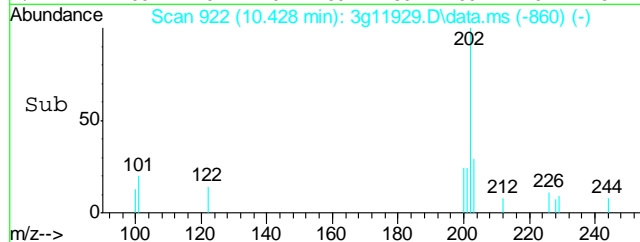
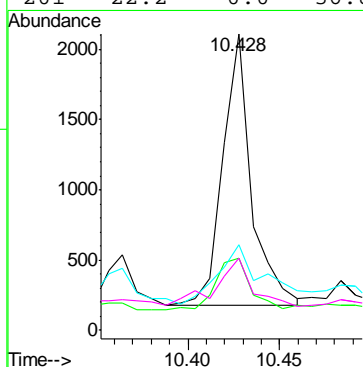
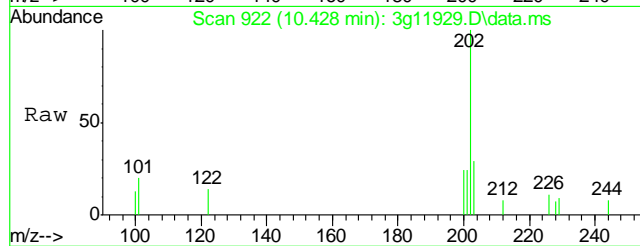
#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.630 min Scan# 1077
Delta R.T. -0.007 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

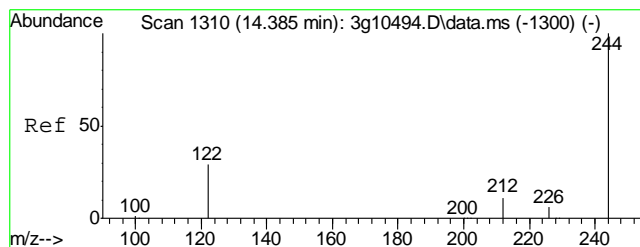
Tgt Ion	Ratio	Lower	Upper
240	100		
120	18.7	1.4	41.4
236	30.8	9.7	49.7



#20
Pyrene
Concen: Below ug/mL
RT: 10.428 min Scan# 922
Delta R.T. -0.008 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

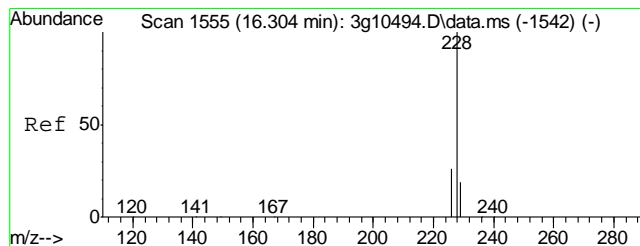
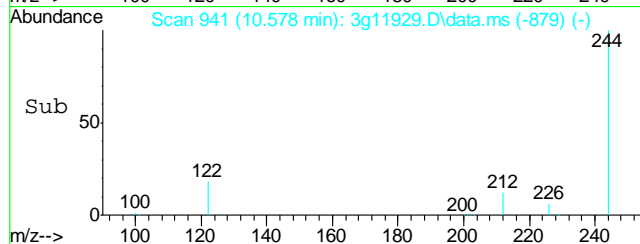
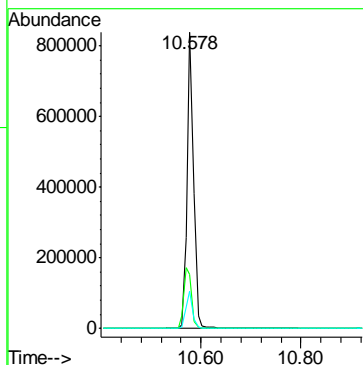
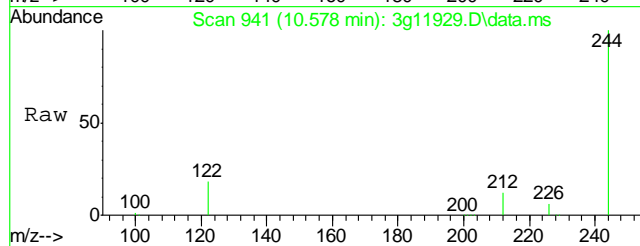
Tgt Ion	Ratio	Lower	Upper
202	100		
200	24.2	0.8	40.8
203	36.2	0.0	37.9
201	22.2	0.0	36.8





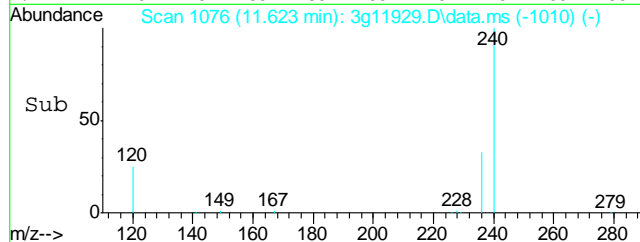
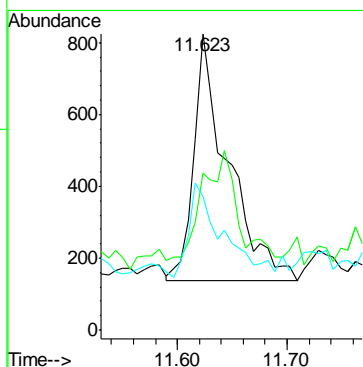
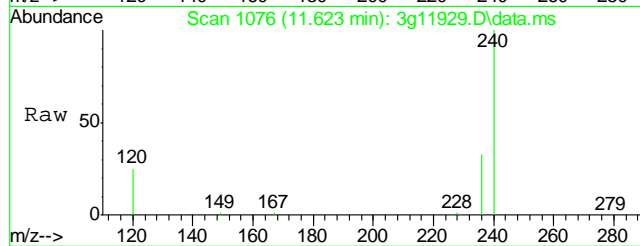
#21
Terphenyl-d14
Concen: 36.7270 ug/mL
RT: 10.578 min Scan# 941
Delta R.T. -0.008 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

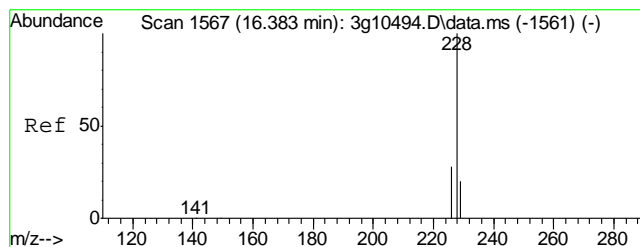
Tgt Ion	Ratio	Lower	Upper
244	100		
122	24.9	6.6	46.6
212	13.1	0.0	31.7



#22
Benzo(a)anthracene
Concen: Below ug/mL
RT: 11.623 min Scan# 1076
Delta R.T. -0.000 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

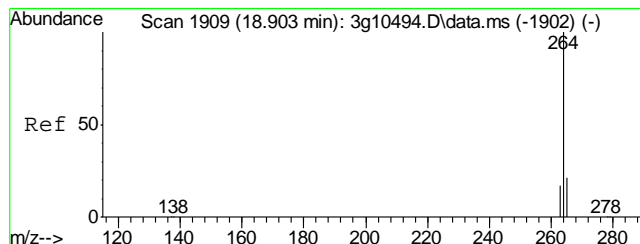
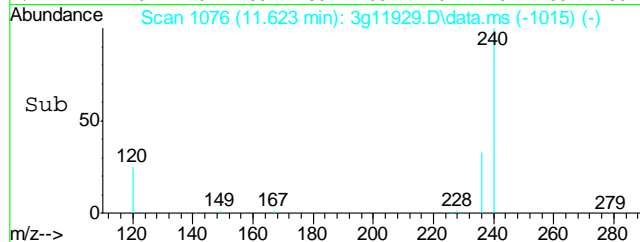
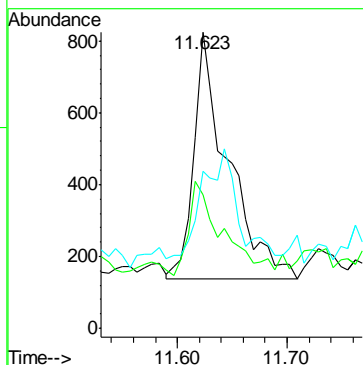
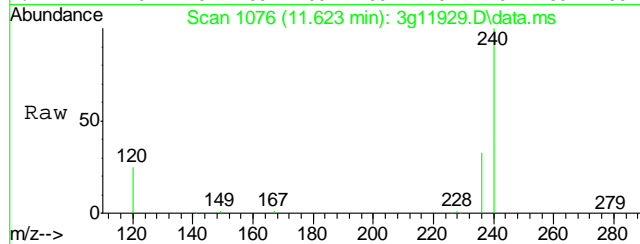
Tgt Ion	Ratio	Lower	Upper
228	100		
229	41.8	0.0	39.5#
226	36.6	7.1	47.1





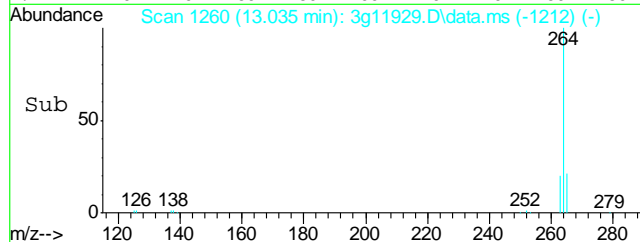
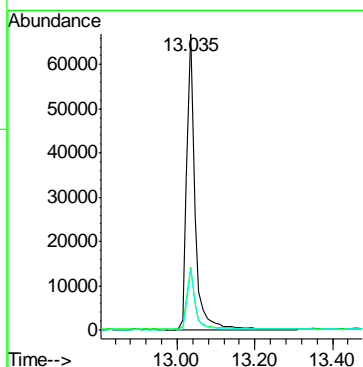
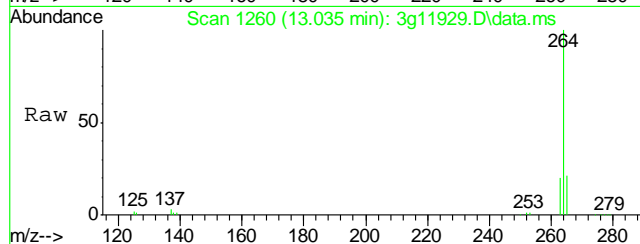
#23
Chrysene
Concen: Below ug/mL
RT: 11.623 min Scan# 1076
Delta R.T. -0.040 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

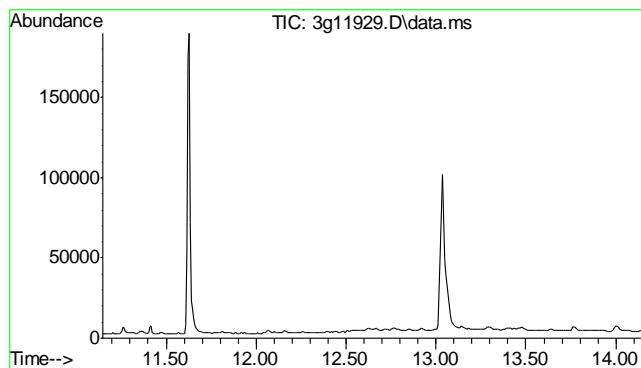
Tgt Ion:	228	Resp:	1477
Ion Ratio	Lower	Upper	
228	100		
226	36.6	9.6	49.6
229	41.8	0.0	39.3



#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 13.035 min Scan# 1260
Delta R.T. -0.000 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

Tgt Ion:	264	Resp:	97210
Ion Ratio	Lower	Upper	
264	100		
265	20.6	1.2	41.2
263	20.2	0.0	39.6

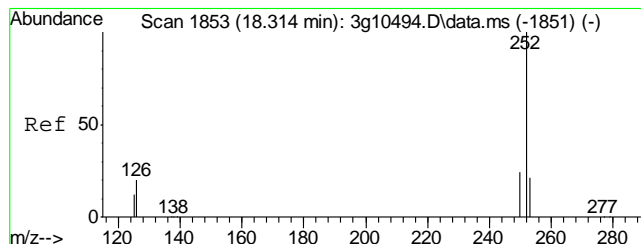
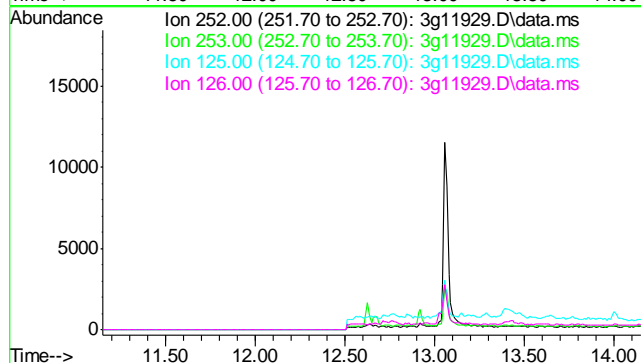




#25
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.65 min

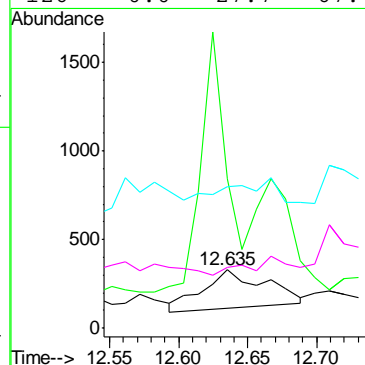
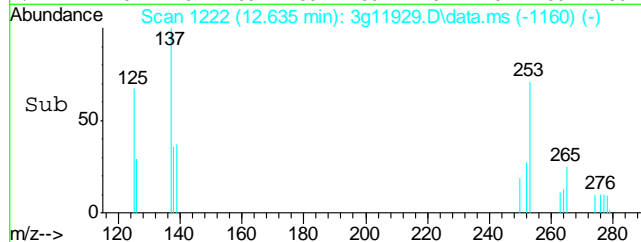
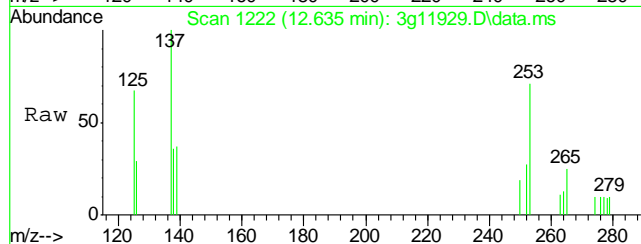
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

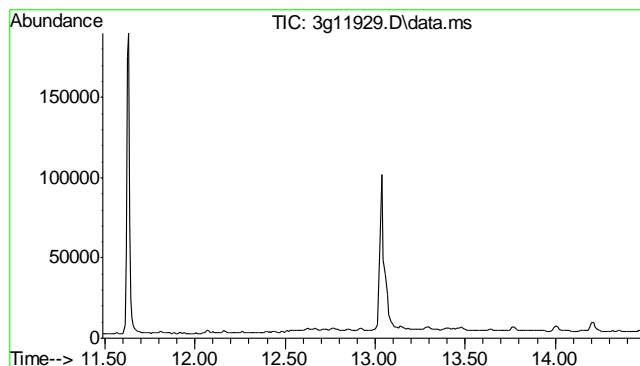
Tgt Ion: 252
Sig Exp Ratio
252 100
253 21.0
125 26.5
126 38.4



#26
Benzo(k)fluoranthene
Concen: Below ug/mL
RT: 12.635 min Scan# 1222
Delta R.T. -0.042 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

Tgt Ion: 252 Resp: 665
Ion Ratio Lower Upper
252 100
253 330.4 6.1 46.1#
125 0.0 12.9 52.9#
126 0.0 27.7 67.7#

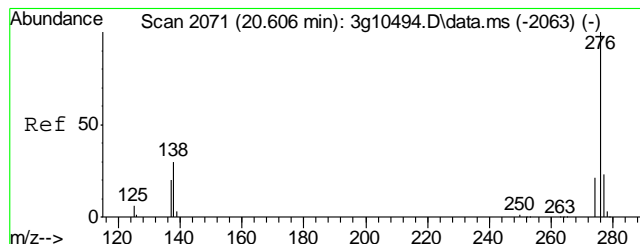
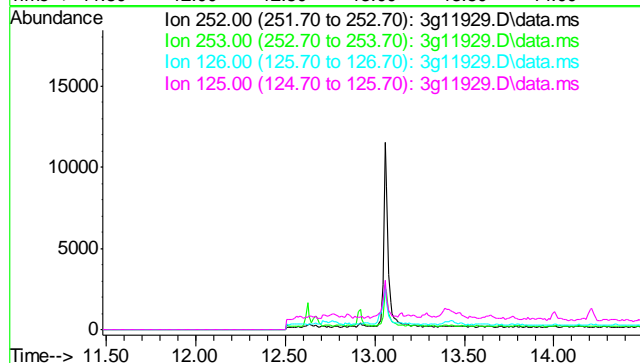




#27
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 12.98 min

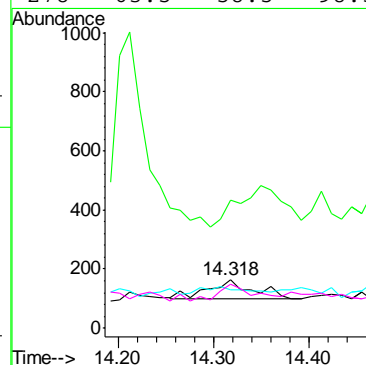
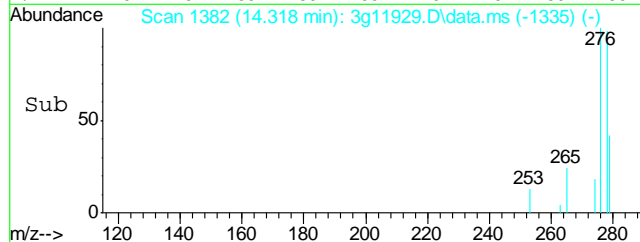
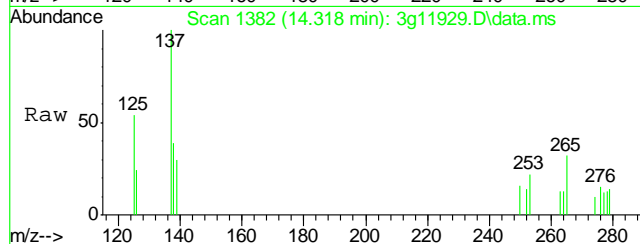
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

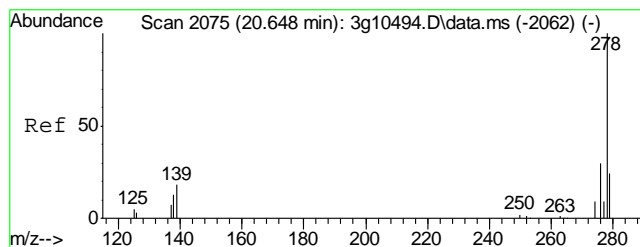
Tgt Ion: 252
Sig Exp Ratio
252 100
253 21.7
126 21.5
125 16.0



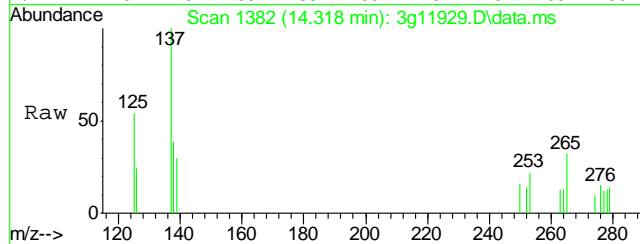
#28
Indeno(1,2,3-cd)pyrene
Concen: Below ug/mL
RT: 14.318 min Scan# 1382
Delta R.T. -0.011 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am

Tgt Ion: 276 Resp: 219
Ion Ratio Lower Upper
276 100
138 210.0 24.2 64.2#
277 26.9 5.0 45.0
278 63.5 58.5 98.5

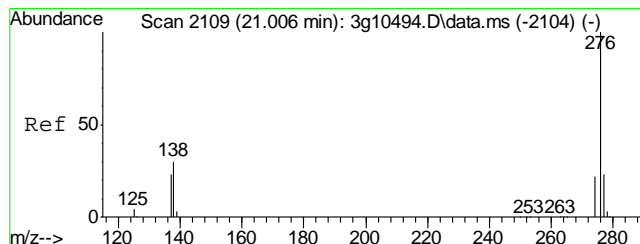
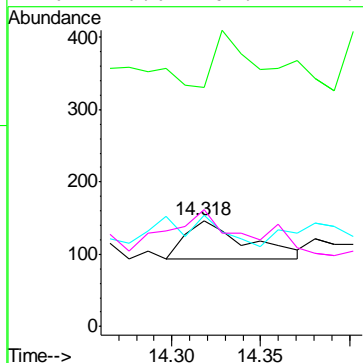
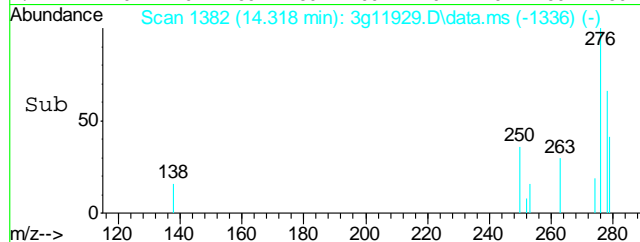




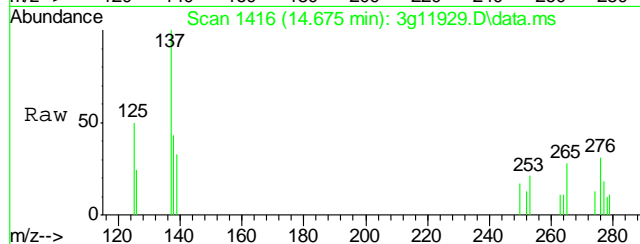
#29
Dibenz(a,h)anthracene
Concen: Below ug/mL
RT: 14.318 min Scan# 1382
Delta R.T. -0.021 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am



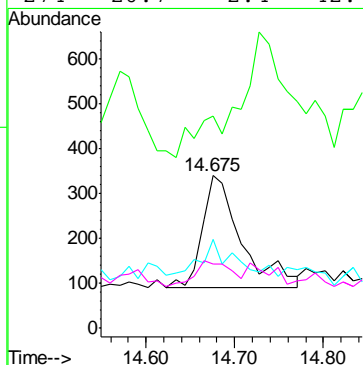
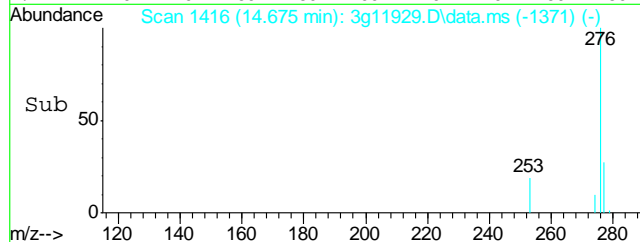
Tgt Ion: 278 Resp: 124
Ion Ratio Lower Upper
278 100
139 128.2 13.5 53.5#
279 64.5 3.1 43.1#
276 176.6 107.4 147.4#



#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.675 min Scan# 1416
Delta R.T. -0.032 min
Lab File: 3g11929.D
Acq: 6 Nov 12 12:31 am



Tgt Ion: 276 Resp: 755
Ion Ratio Lower Upper
276 100
138 28.6 18.4 58.4
277 26.8 3.6 43.6
274 20.7 2.4 42.4



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\110512\
 Data File : 3g11926.D
 Acq On : 5 Nov 2012 11:20 pm
 Operator : DONC
 Sample : OP6914-MB
 Misc : OP6914,E3G563,30.00,,,1,1
 ALS Vial : 20 Sample Multiplier: 1

Quant Time: Nov 06 09:00:49 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G558.M
 Quant Title : PAHSIM BASE
 QLast Update : Wed Oct 31 14:49:52 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.789	136	184347	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.507	164	108595	4.0000	ug/mL	0.00
15) Phenanthrene-d10	8.987	188	178677	4.0000	ug/mL	0.00
19) Chrysene-d12	11.630	240	124333	4.0000	ug/mL	0.00
24) Perylene-d12	13.035	264	82449	4.0000	ug/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	5.103	82	889770	39.0371	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	78.08%		
7) 2-Fluorobiphenyl	6.846	172	1746036	38.7259	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	77.46%		
21) Terphenyl-d14	10.578	244	798448	45.1549	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	90.30%		

Target Compounds

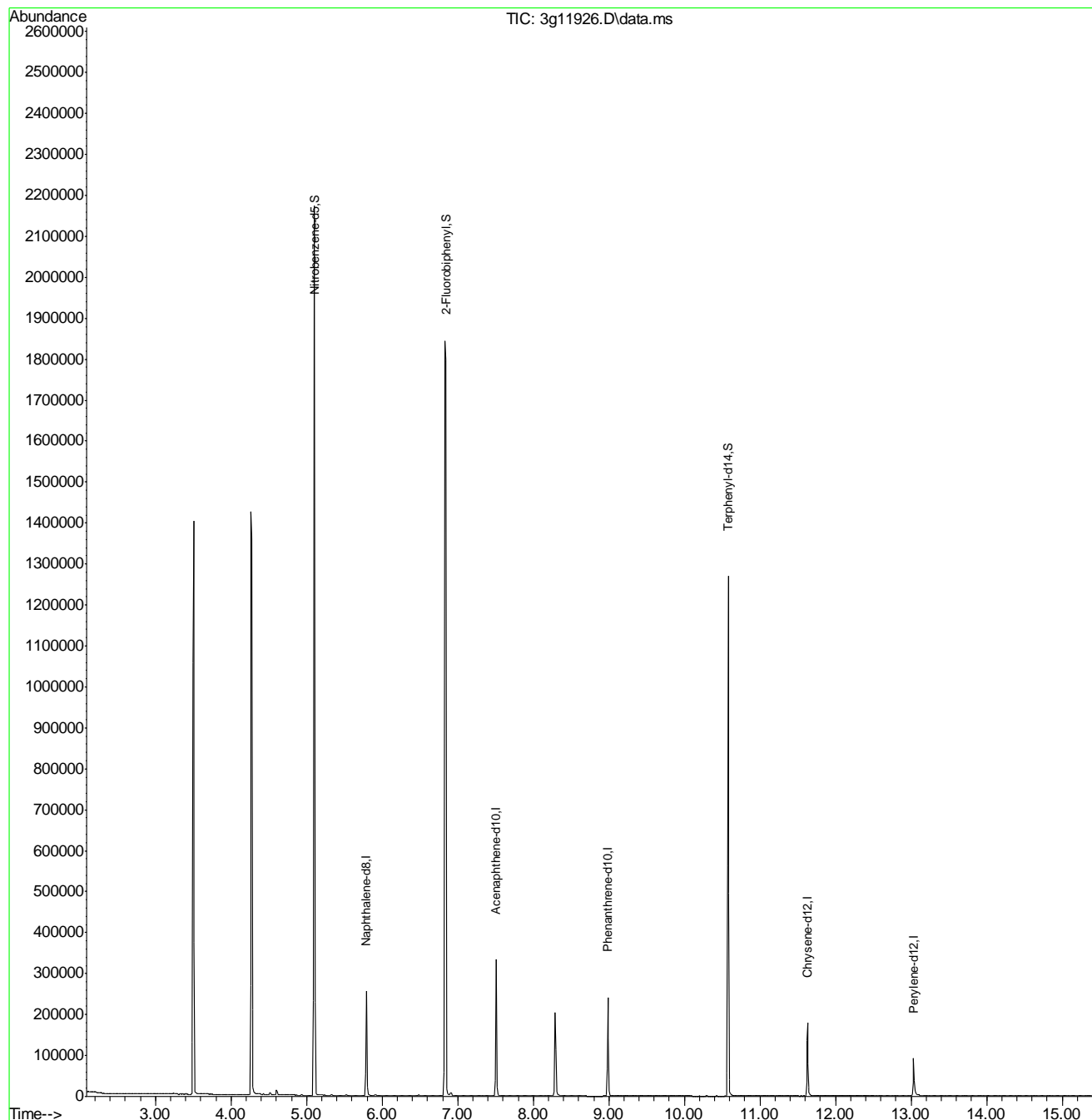
					Qvalue
3) N-Nitrosodimethylamine	2.501	74	119	N.D.	
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d
5) Naphthalene	5.814	128	660	N.D.	
8) 2-Methylnaphthalene	6.487	142	346	N.D.	
9) 1-Methylnaphthalene	6.574	142	185	N.D.	
10) Acenaphthylene	7.366	152	46	N.D.	
11) Acenaphthene	7.507	154	522	N.D.	
12) Dibenzofuran	7.566	168	67	N.D.	
13) Fluorene	0.000	166	0	N.D.	d
14) Diphenylamine	0.000	169	0	N.D.	d
16) Phenanthrene	8.987	178	129	N.D.	
17) Anthracene	9.067	178	107	N.D.	
18) Fluoranthene	10.293	202	369	N.D.	
20) Pyrene	10.293	202	369	N.D.	
22) Benzo(a)anthracene	11.630	228	604	N.D.	
23) Chrysene	11.630	228	604	N.D.	
25) Benzo(b)fluoranthene	12.562	252	711	N.D.	
26) Benzo(k)fluoranthene	12.562	252	711	N.D.	
27) Benzo(a)pyrene	13.035	252	413	N.D.	
28) Indeno(1,2,3-cd)pyrene	14.308	276	73	N.D.	
29) Dibenz(a,h)anthracene	14.339	278	14	N.D.	
30) Benzo(g,h,i)perylene	14.676	276	86	N.D.	

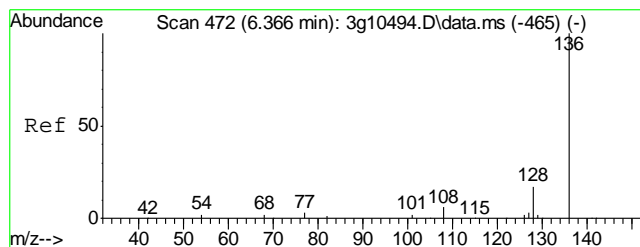
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\110512\
Data File : 3g11926.D
Acq On : 5 Nov 2012 11:20 pm
Operator : DONC
Sample : OP6914-MB
Misc : OP6914,E3G563,30.00,,,1,1
ALS Vial : 20 Sample Multiplier: 1

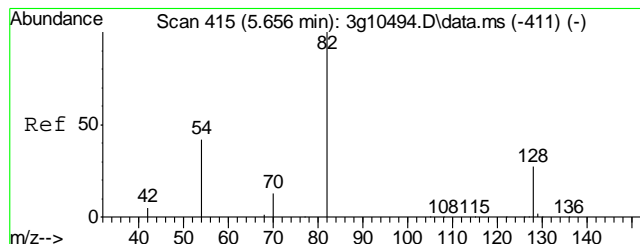
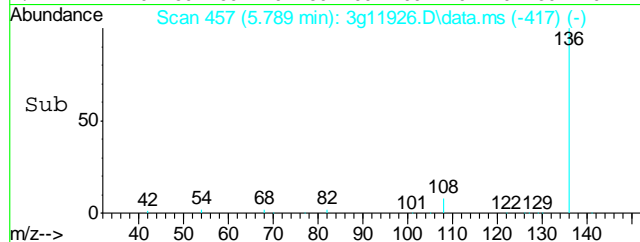
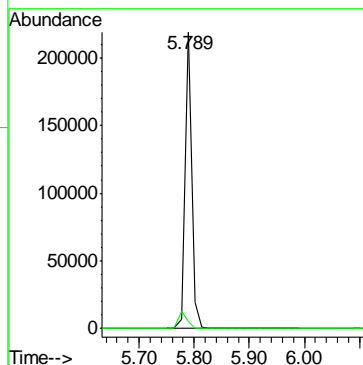
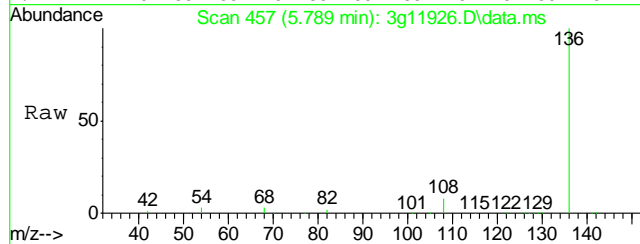
Quant Time: Nov 06 09:00:49 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G558.M
Quant Title : PAHSIM BASE
QLast Update : Wed Oct 31 14:49:52 2012
Response via : Initial Calibration





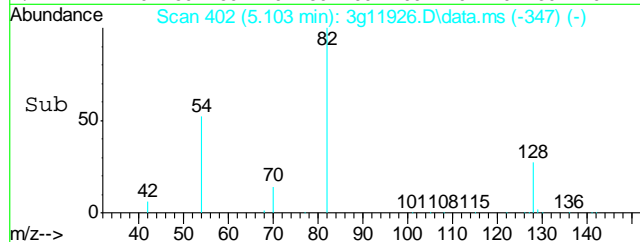
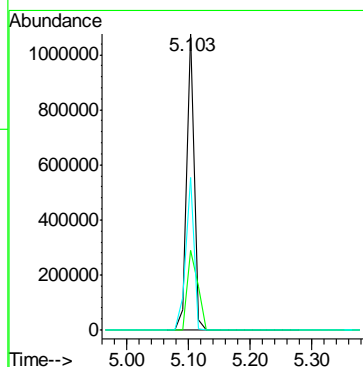
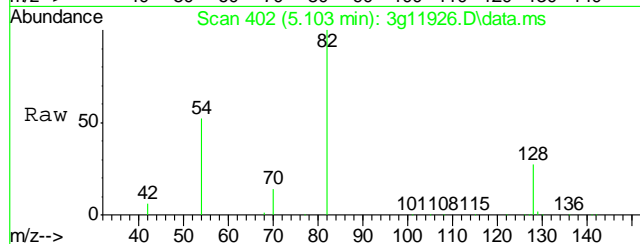
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.789 min Scan# 457
Delta R.T. 0.000 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

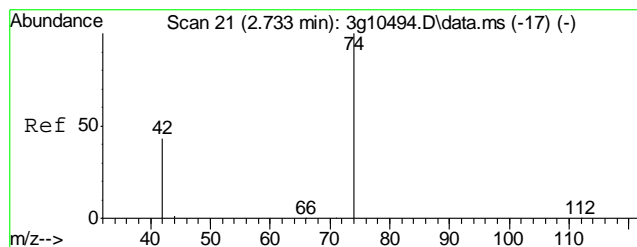
Tgt Ion: 136 Resp: 184347
Ion Ratio Lower Upper
136 100
68 7.5 0.0 28.7



#2
Nitrobenzene-d5
Concen: 39.0371 ug/mL
RT: 5.103 min Scan# 402
Delta R.T. 0.000 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

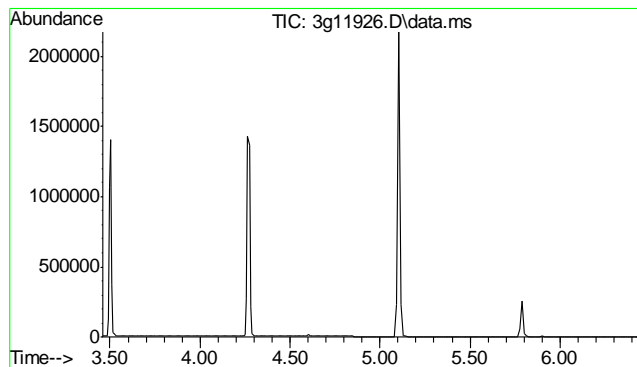
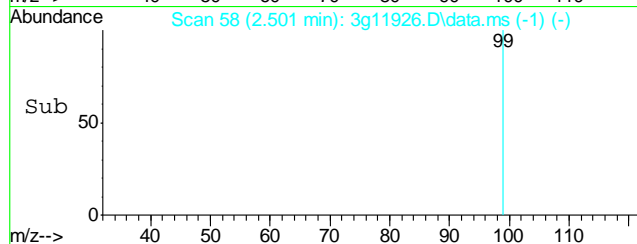
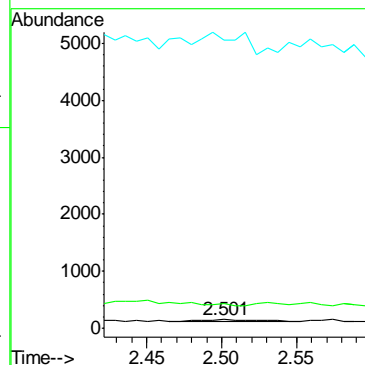
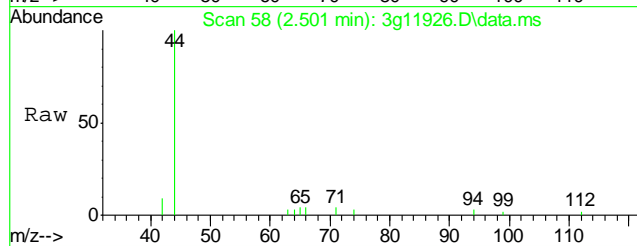
Tgt Ion: 82 Resp: 889770
Ion Ratio Lower Upper
82 100
128 38.2 17.4 57.4
54 57.1 32.8 72.8





#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.501 min Scan# 58
Delta R.T. 0.015 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

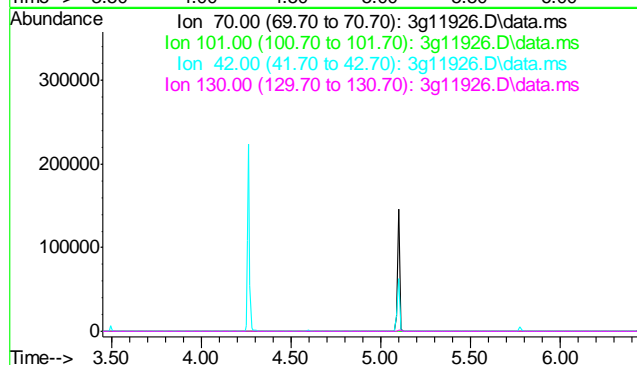
Tgt Ion: 74 Resp: 119
Ion Ratio Lower Upper
74 100
42 49.6 53.7 93.7#
44 0.0 0.0 24.1

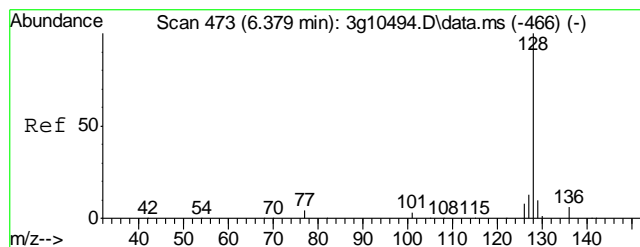


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 4.95 min

Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

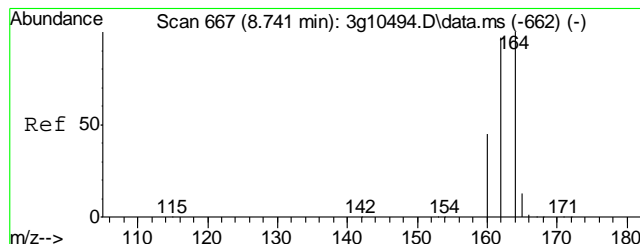
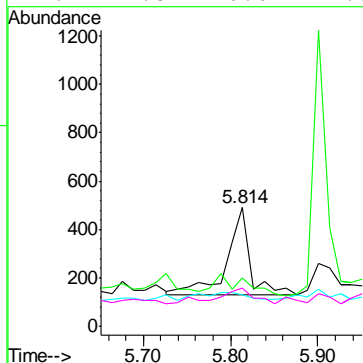
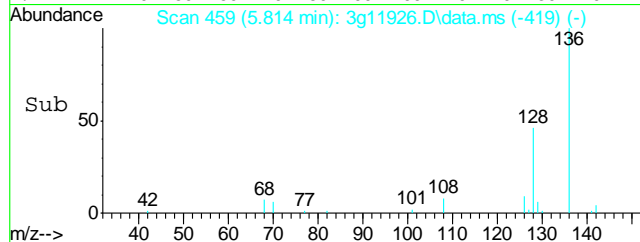
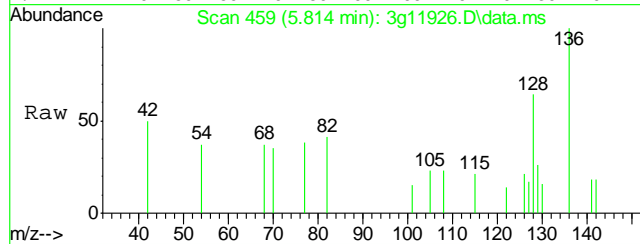
Tgt Ion: 70
Sig Exp Ratio
70 100
101 12.3
42 51.9
130 24.1





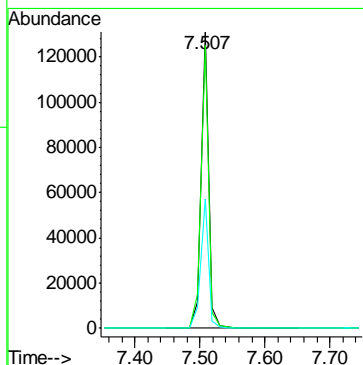
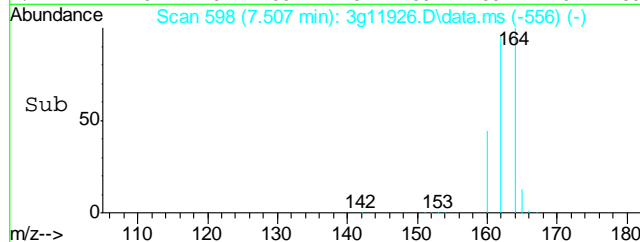
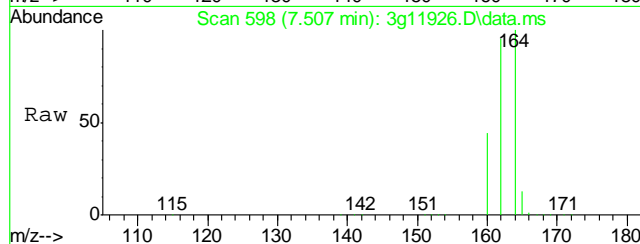
#5
Naphthalene
Concen: Below ug/mL
RT: 5.814 min Scan# 459
Delta R.T. 0.000 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

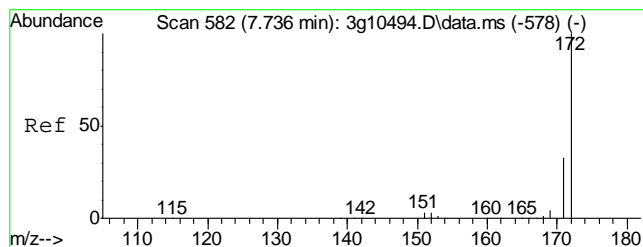
Tgt Ion:	128	Resp:	660
Ion Ratio	Lower	Upper	
128	100		
129	34.4	0.0	31.1#
127	19.2	0.0	32.6
126	21.5	0.0	27.3



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.507 min Scan# 598
Delta R.T. 0.000 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

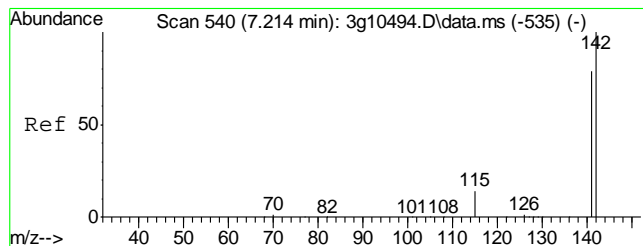
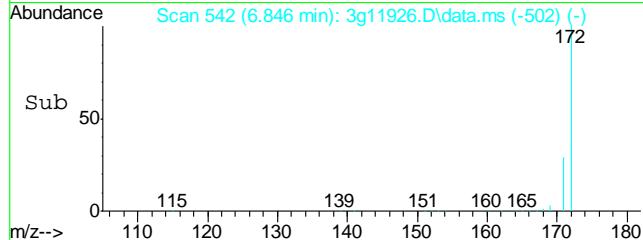
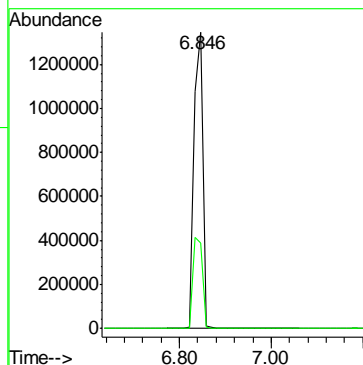
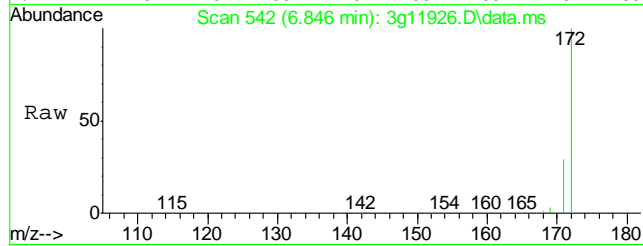
Tgt Ion:	164	Resp:	108595
Ion Ratio	Lower	Upper	
164	100		
162	97.0	77.7	117.7
160	45.5	26.6	66.6





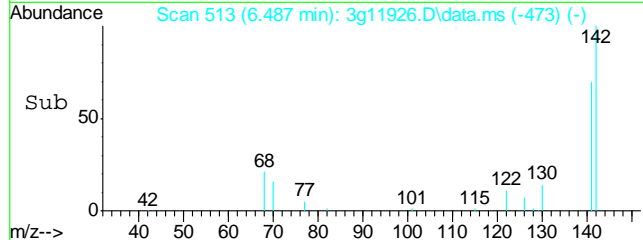
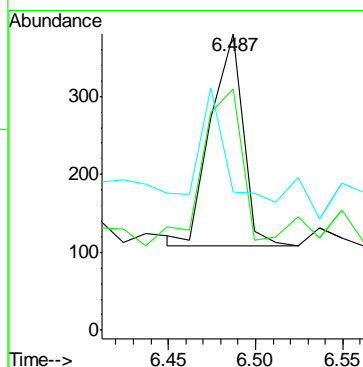
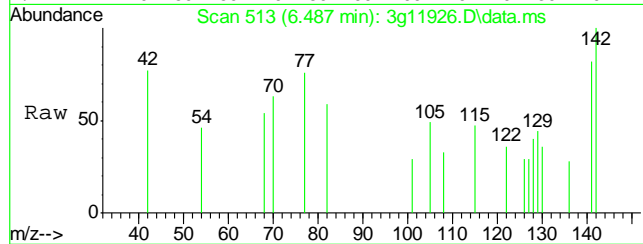
#7
2-Fluorobiphenyl
Concen: 38.7259 ug/mL
RT: 6.846 min Scan# 542
Delta R.T. 0.000 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

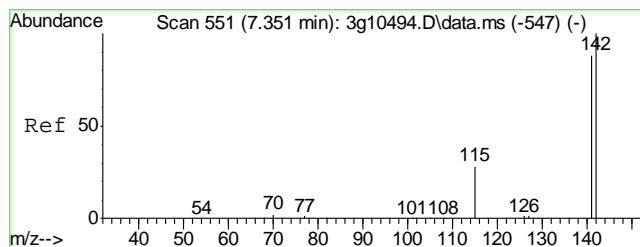
Tgt Ion:172 Resp: 1746036
Ion Ratio Lower Upper
172 100
171 33.1 12.9 52.9



#8
2-Methylnaphthalene
Concen: Below ug/mL
RT: 6.487 min Scan# 513
Delta R.T. 0.000 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

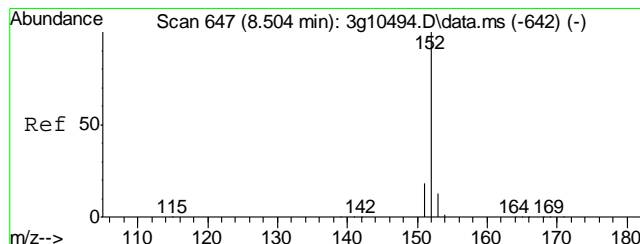
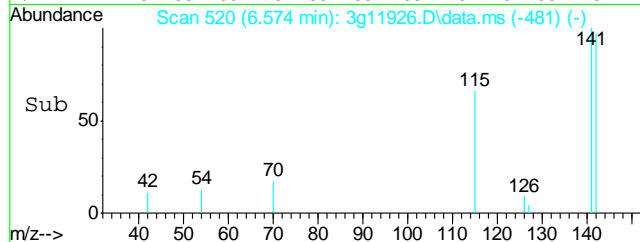
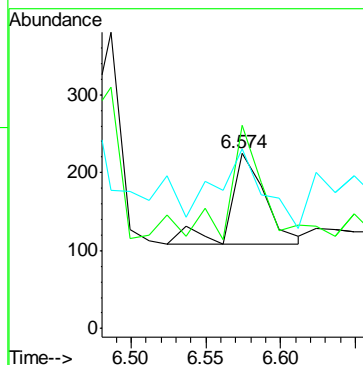
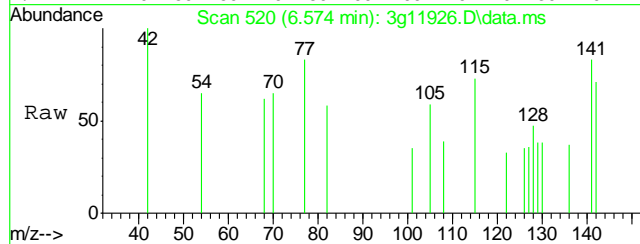
Tgt Ion:142 Resp: 346
Ion Ratio Lower Upper
142 100
141 93.6 62.7 102.7
115 0.0 8.3 48.3#





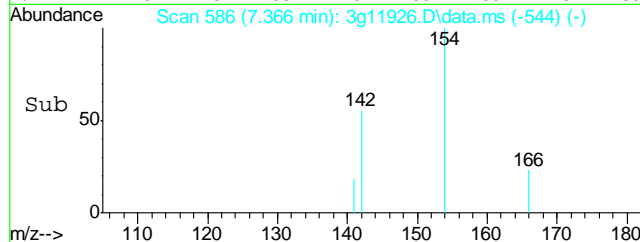
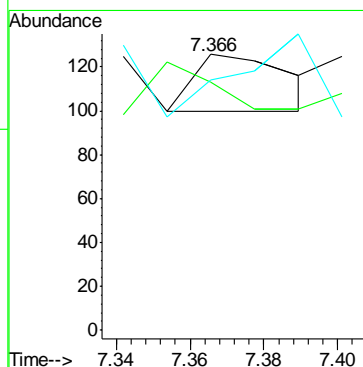
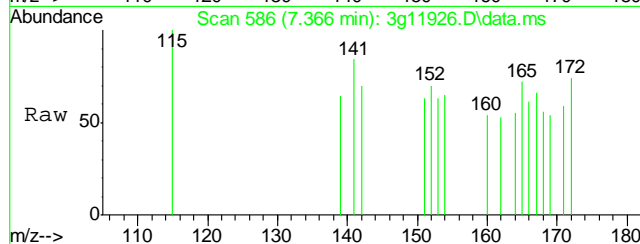
#9
1-Methylnaphthalene
Concen: Below ug/mL
RT: 6.574 min Scan# 520
Delta R.T. -0.012 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

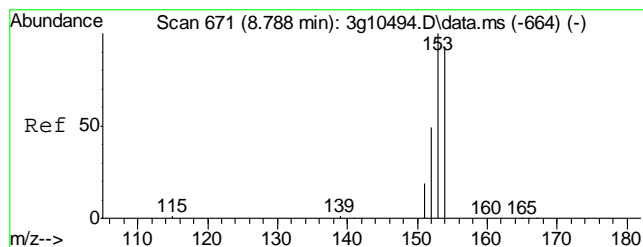
Tgt Ion	Ratio	Lower	Upper
142	100		
141	113.5	65.6	105.6#
115	0.0	14.0	54.0#



#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.366 min Scan# 586
Delta R.T. 0.000 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

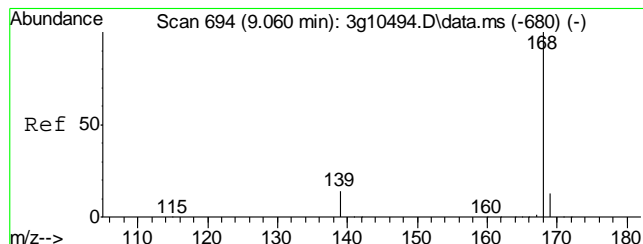
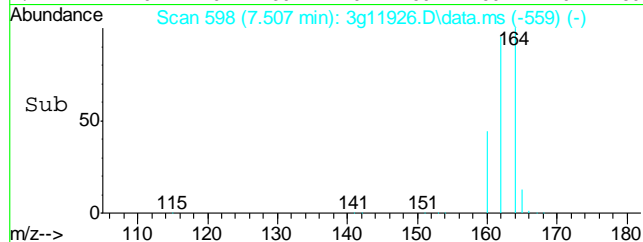
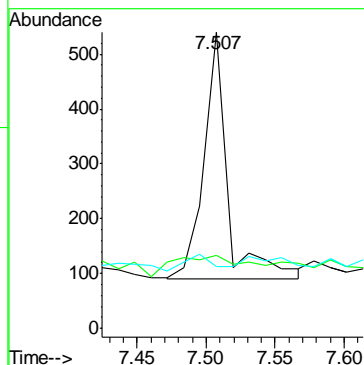
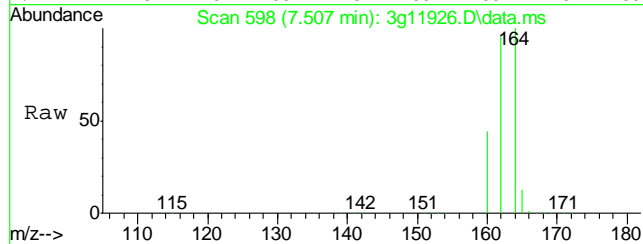
Tgt Ion	Ratio	Lower	Upper
152	100		
151	69.6	0.0	39.6#
153	126.1	0.0	33.0#





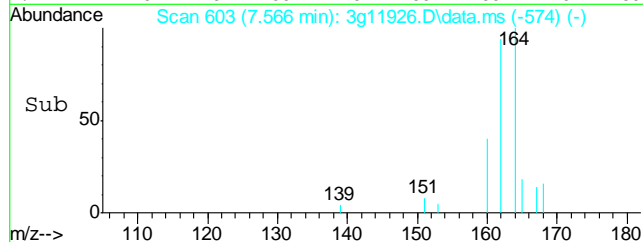
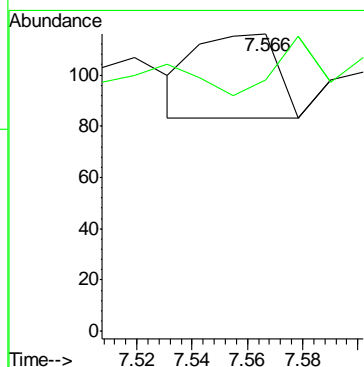
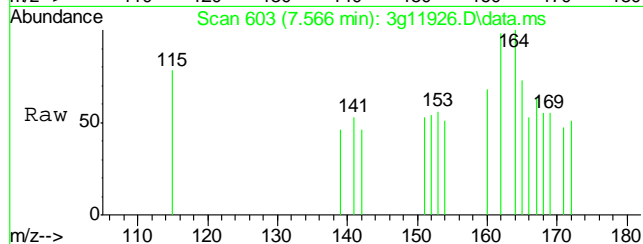
#11
Acenaphthene
Concen: Below ug/mL
RT: 7.507 min Scan# 598
Delta R.T. -0.035 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

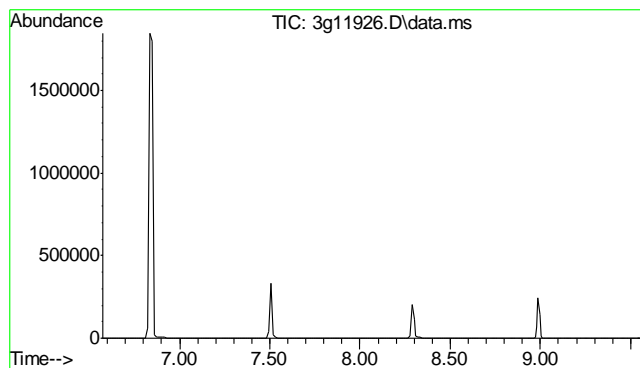
Tgt Ion:	154	Resp:	522
Ion Ratio	Lower	Upper	
154	100		
153	37.0	83.1	123.1#
152	7.9	29.1	69.1#



#12
Dibenzofuran
Concen: Below ug/mL
RT: 7.566 min Scan# 603
Delta R.T. -0.154 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

Tgt Ion:	168	Resp:	67
Ion Ratio	Lower	Upper	
168	100		
139	35.8	14.1	54.1

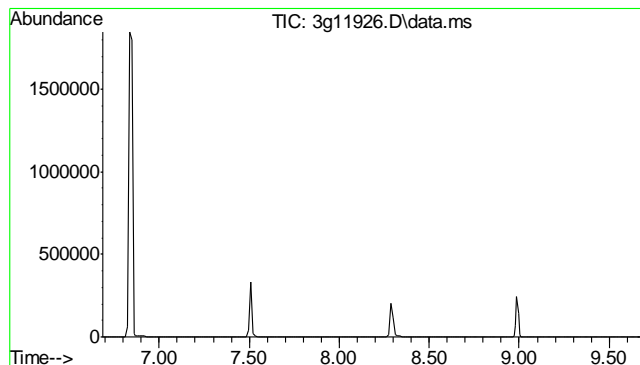
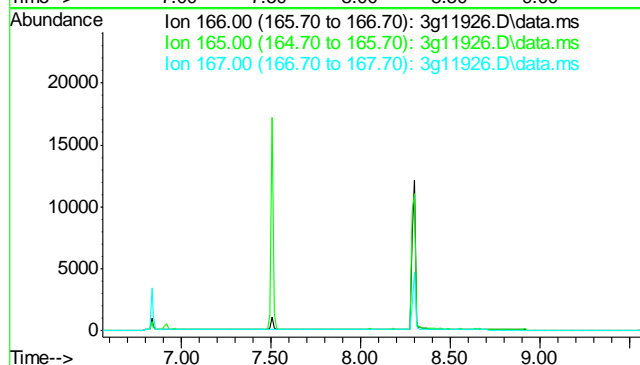




#13
Fluorene
Concen: N.D. ug/mL
Expected RT: 8.06 min

Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

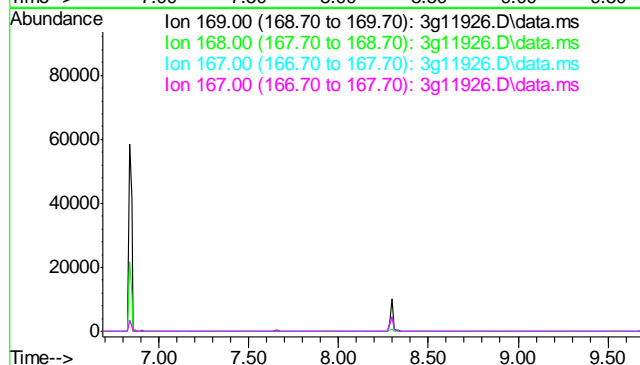
Tgt Ion: 166
Sig Exp Ratio
166 100
165 92.9
167 13.2

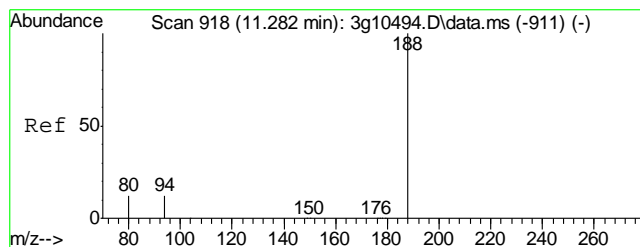


#14
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 8.18 min

Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

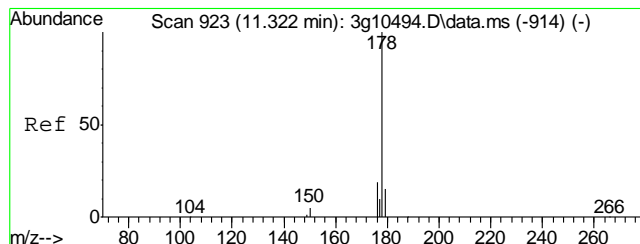
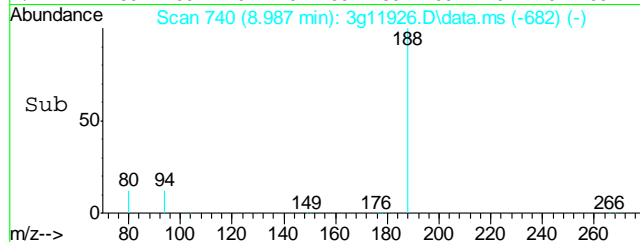
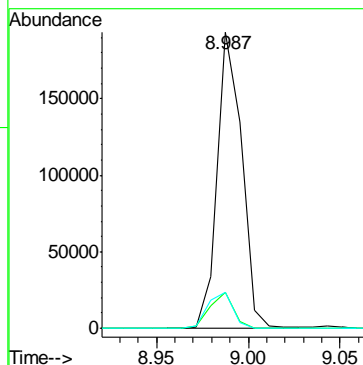
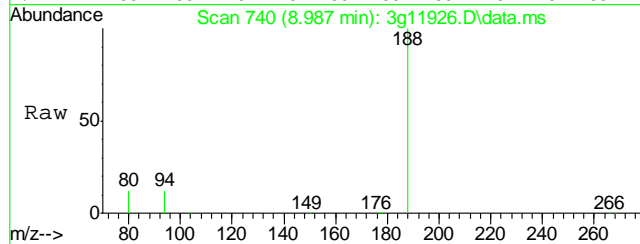
Tgt Ion: 169
Sig Exp Ratio
169 100
168 62.0
167 34.1
167 34.1





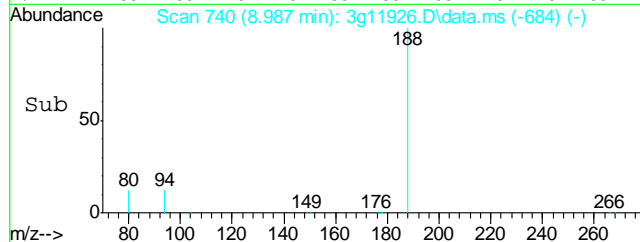
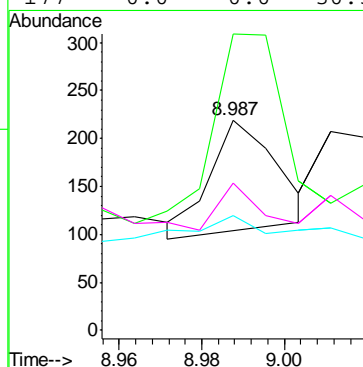
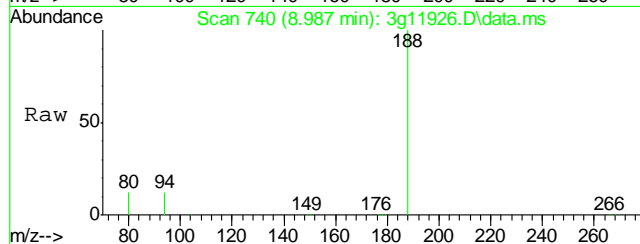
#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.987 min Scan# 740
Delta R.T. -0.008 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

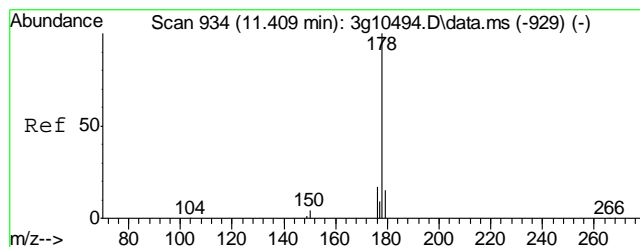
Tgt Ion	Ratio	Lower	Upper
188	100		
94	11.8	0.0	33.4
80	12.4	0.0	34.7



#16
Phenanthrene
Concen: Below ug/mL
RT: 8.987 min Scan# 740
Delta R.T. -0.032 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

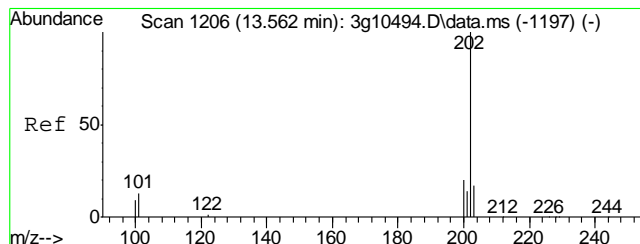
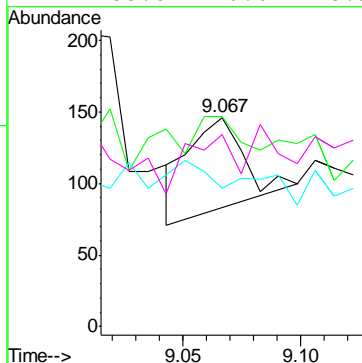
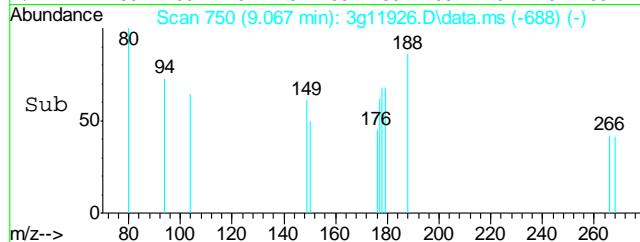
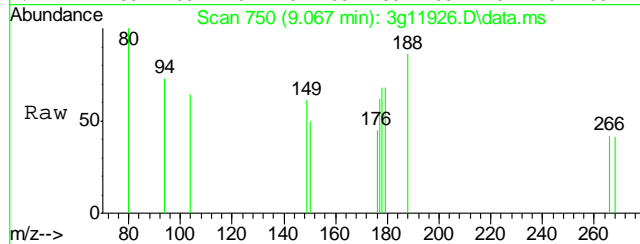
Tgt Ion	Ratio	Lower	Upper
178	100		
179	293.8	0.0	35.2#
176	0.0	0.0	38.9
177	0.0	0.0	30.3





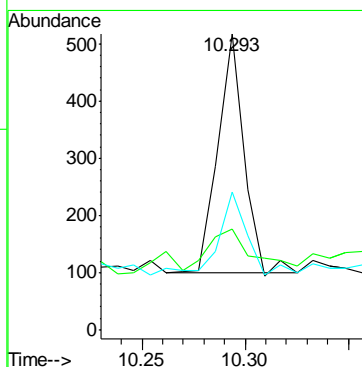
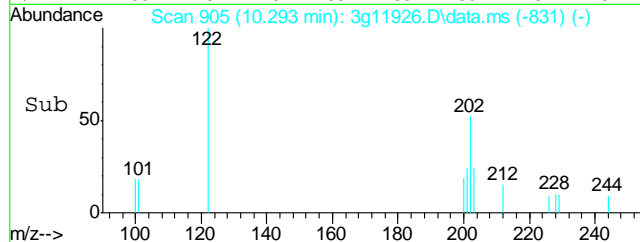
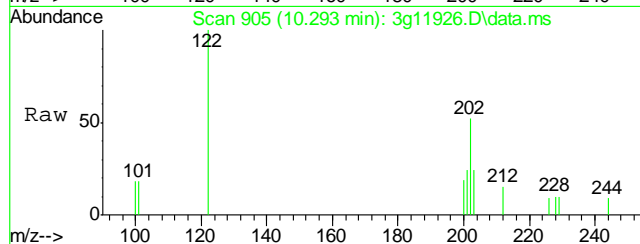
#17
Anthracene
Concen: Below ug/mL
RT: 9.067 min Scan# 750
Delta R.T. -0.008 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

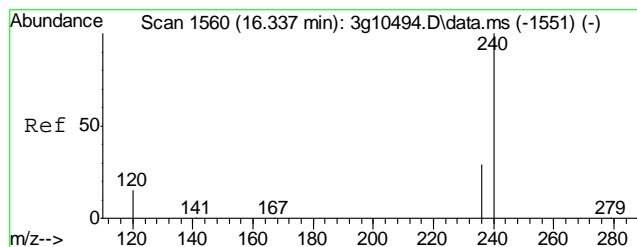
Tgt Ion	178	179	176	177
Resp	107	0.0	0.0	53.3
Ratio	100	0.0	0.0	53.3
Lower		0.0	0.0	0.0
Upper		35.1	38.3	28.9



#18
Fluoranthene
Concen: Below ug/mL
RT: 10.293 min Scan# 905
Delta R.T. 0.087 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

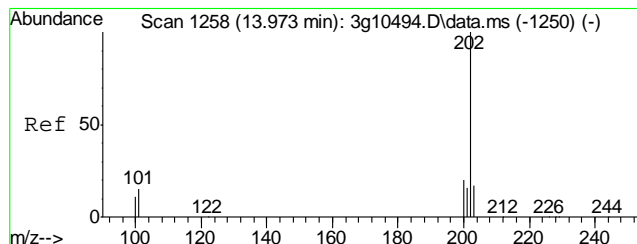
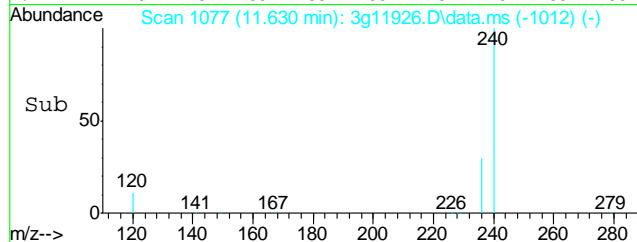
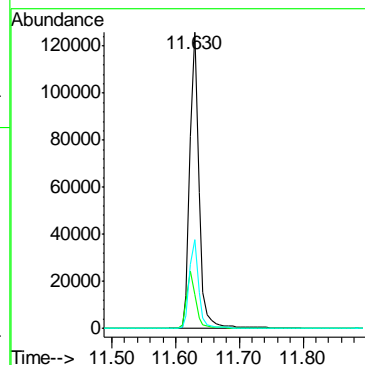
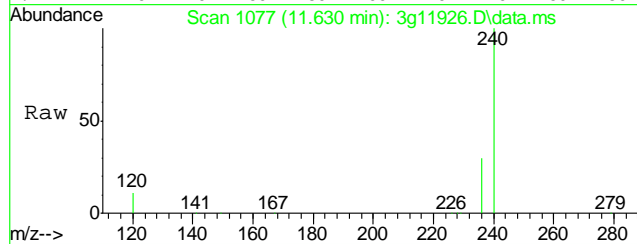
Tgt Ion	202	101	203
Resp	369	28.5	33.1
Ratio	100	28.5	33.1
Lower		0.0	0.0
Upper		33.9	37.2





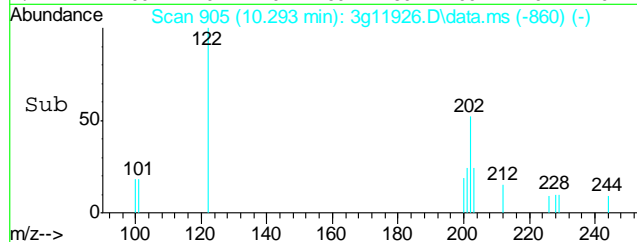
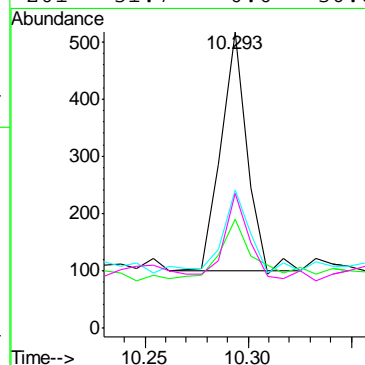
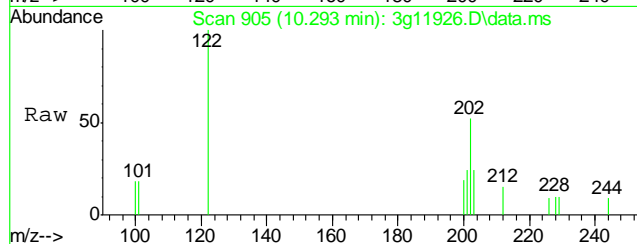
#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.630 min Scan# 1077
Delta R.T. -0.007 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

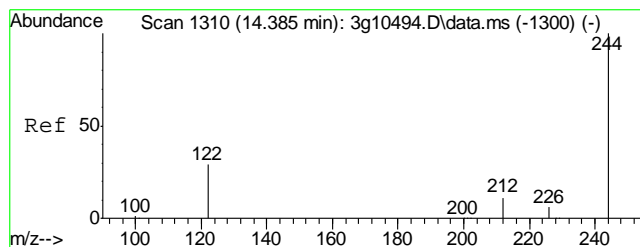
Tgt Ion:	240	Resp:	124333
Ion Ratio	Lower	Upper	
240	100		
120	18.8	1.4	41.4
236	30.5	9.7	49.7



#20
Pyrene
Concen: Below ug/mL
RT: 10.293 min Scan# 905
Delta R.T. -0.142 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

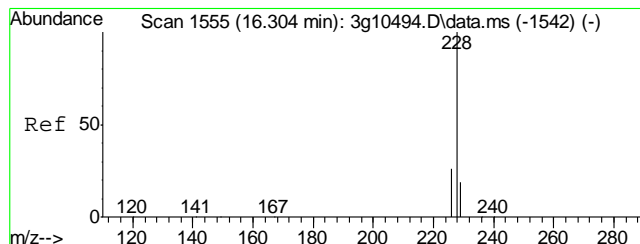
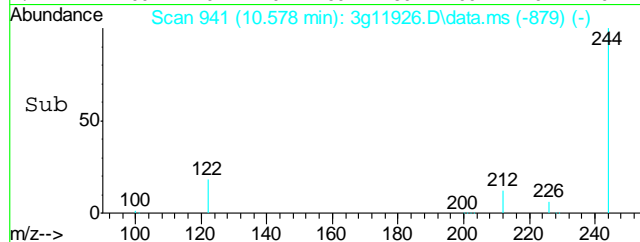
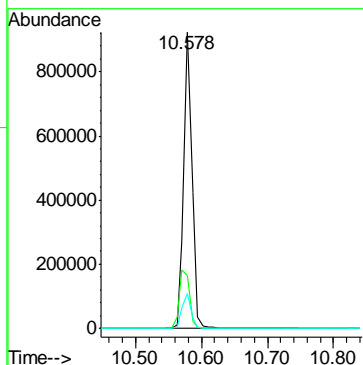
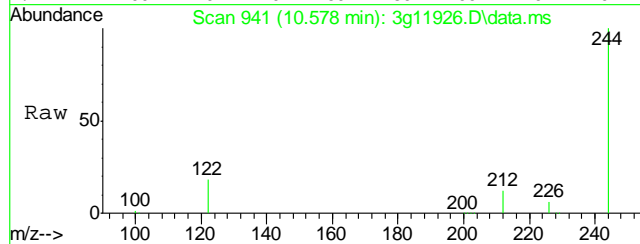
Tgt Ion:	202	Resp:	369
Ion Ratio	Lower	Upper	
202	100		
200	28.2	0.8	40.8
203	33.1	0.0	37.9
201	31.7	0.0	36.8





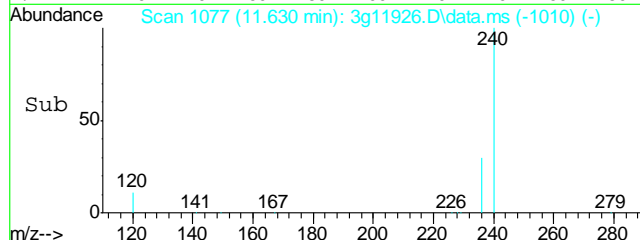
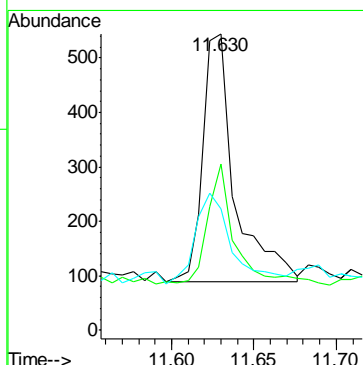
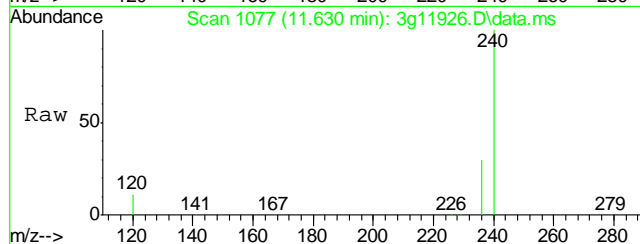
#21
Terphenyl-d14
Concen: 45.1549 ug/mL
RT: 10.578 min Scan# 941
Delta R.T. -0.008 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

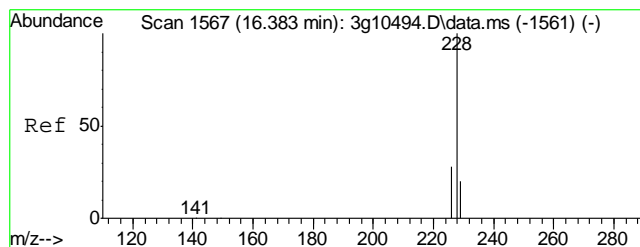
Tgt Ion:	244	Resp:	798448
Ion Ratio	Lower	Upper	
244	100		
122	24.3	6.6	46.6
212	12.5	0.0	31.7



#22
Benzo(a)anthracene
Concen: Below ug/mL
RT: 11.630 min Scan# 1077
Delta R.T. 0.007 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

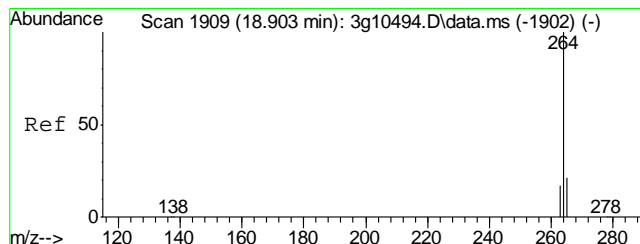
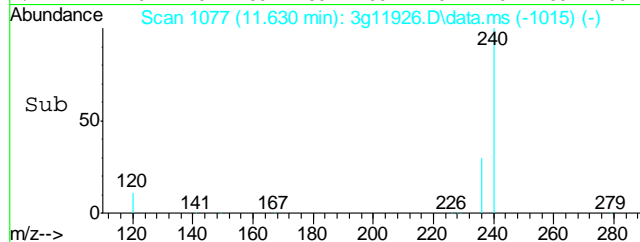
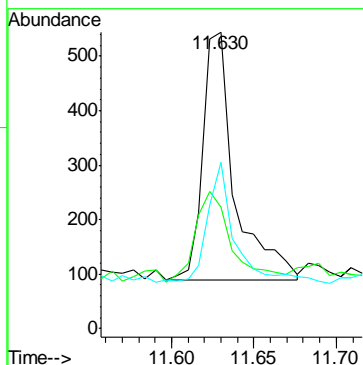
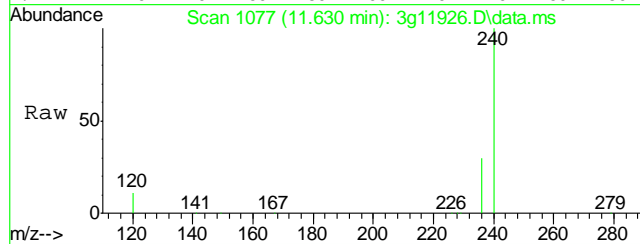
Tgt Ion:	228	Resp:	604
Ion Ratio	Lower	Upper	
228	100		
229	42.2	0.0	39.5#
226	42.9	7.1	47.1





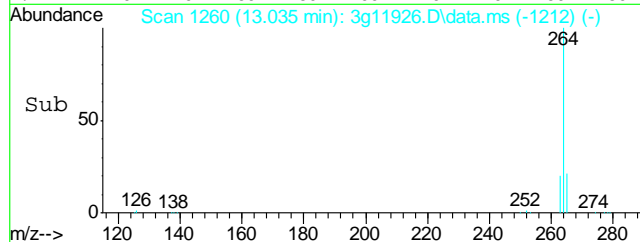
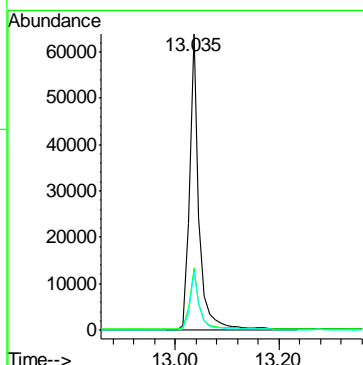
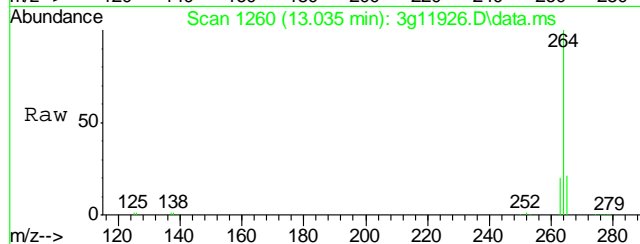
#23
Chrysene
Concen: Below ug/mL
RT: 11.630 min Scan# 1077
Delta R.T. -0.033 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

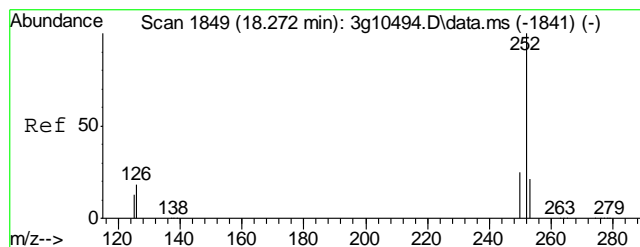
Tgt Ion:	228	Resp:	604
Ion Ratio	100	Lower	Upper
228	100		
226	42.9	9.6	49.6
229	42.2	0.0	39.3



#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 13.035 min Scan# 1260
Delta R.T. 0.000 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

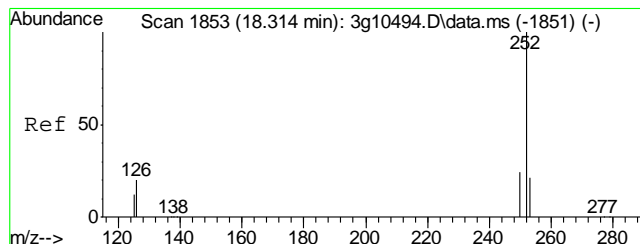
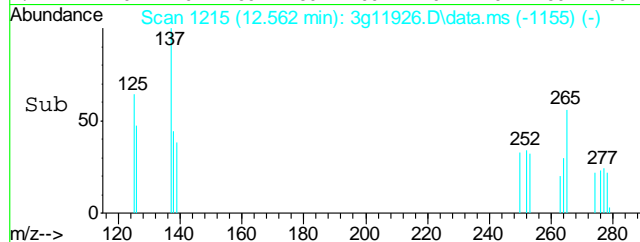
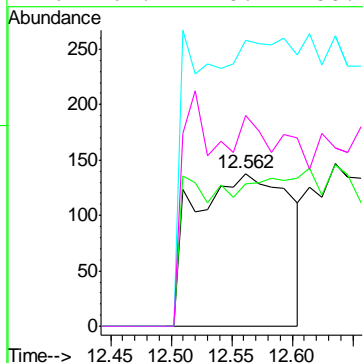
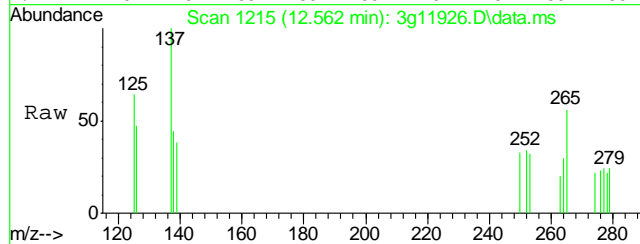
Tgt Ion:	264	Resp:	82449
Ion Ratio	100	Lower	Upper
264	100		
265	20.3	1.2	41.2
263	20.0	0.0	39.6





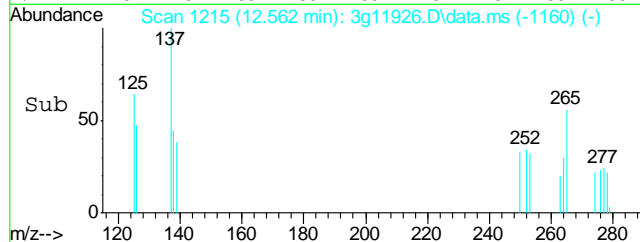
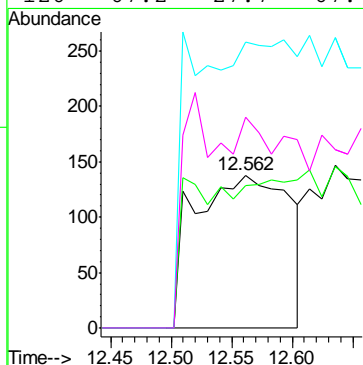
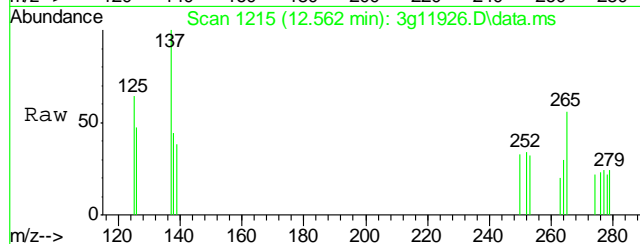
#25
Benzo(b)fluoranthene
Concen: Below ug/mL
RT: 12.562 min Scan# 1215
Delta R.T. -0.084 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

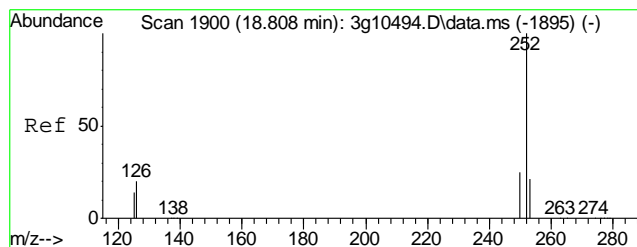
Tgt Ion	Ratio	Lower	Upper
252	100		
253	27.3	1.0	41.0
125	73.0	6.5	46.5#
126	67.2	18.4	58.4#



#26
Benzo(k)fluoranthene
Concen: Below ug/mL
RT: 12.562 min Scan# 1215
Delta R.T. -0.115 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

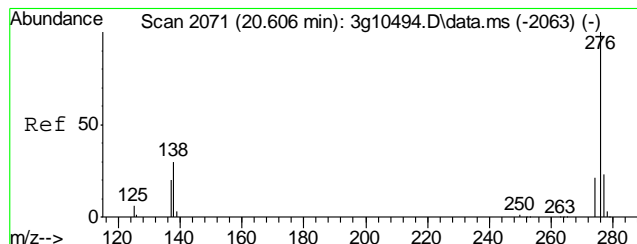
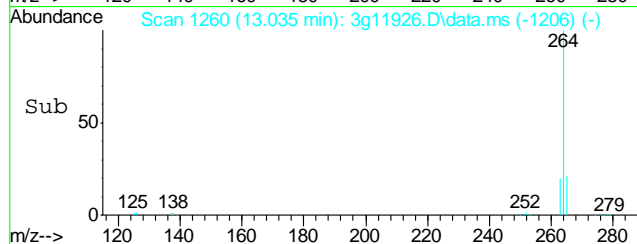
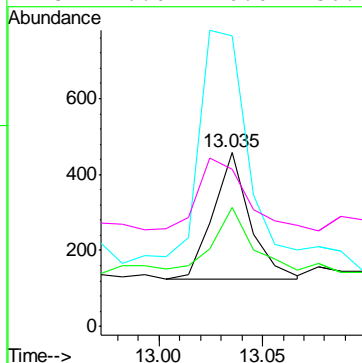
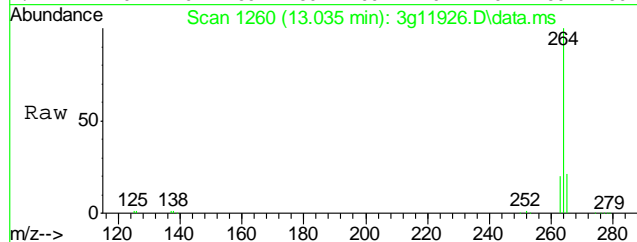
Tgt Ion	Ratio	Lower	Upper
252	100		
253	27.3	6.1	46.1
125	73.0	12.9	52.9#
126	67.2	27.7	67.7





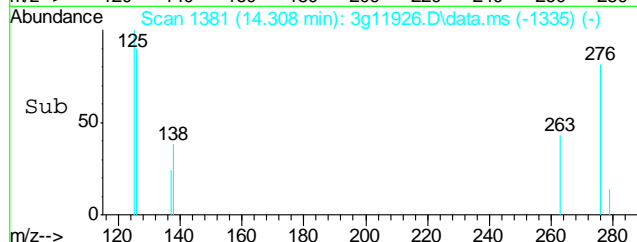
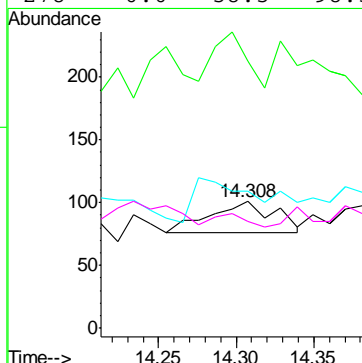
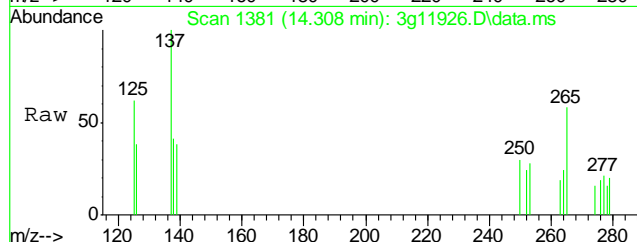
#27
Benzo(a)pyrene
Concen: Below ug/mL
RT: 13.035 min Scan# 1260
Delta R.T. 0.053 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

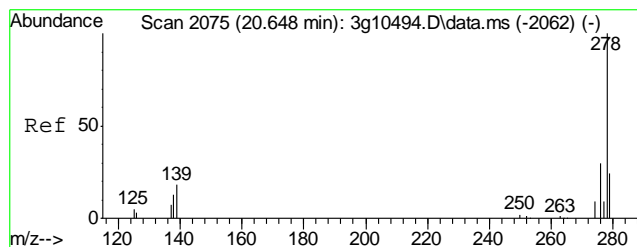
Tgt Ion	Ratio	Lower	Upper
252	100		
253	57.4	1.7	41.7#
126	269.0	1.5	41.5#
125	76.0	0.0	36.0#



#28
Indeno(1,2,3-cd)pyrene
Concen: Below ug/mL
RT: 14.308 min Scan# 1381
Delta R.T. -0.021 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

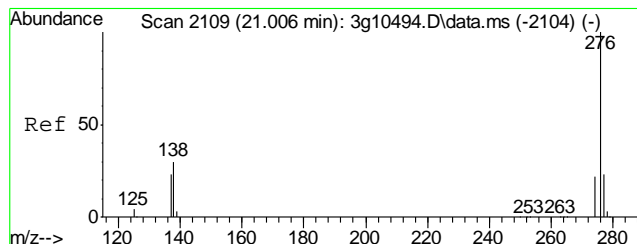
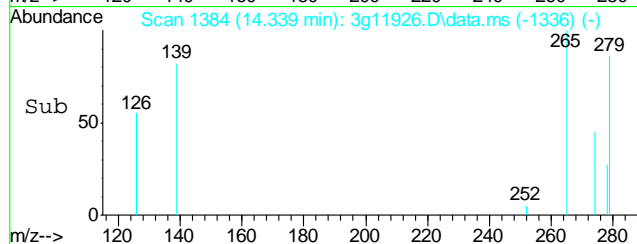
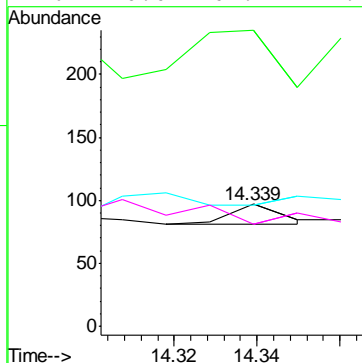
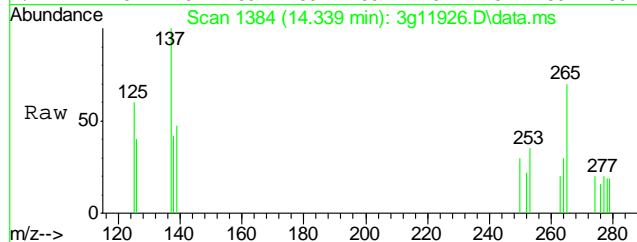
Tgt Ion	Ratio	Lower	Upper
276	100		
138	87.7	24.2	64.2#
277	116.4	5.0	45.0#
278	0.0	58.5	98.5#





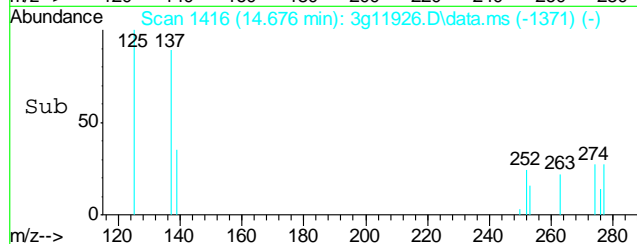
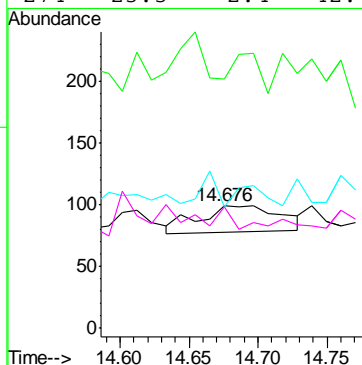
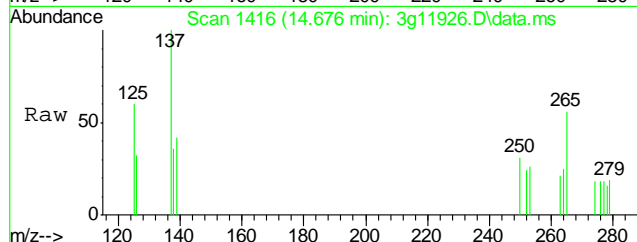
#29
Dibenzo(a,h)anthracene
Concen: Below ug/mL
RT: 14.339 min Scan# 1384
Delta R.T. 0.000 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

Tgt Ion: 278 Resp: 14
Ion Ratio Lower Upper
278 100
139 457.1 13.5 53.5#
279 0.0 3.1 43.1#
276 0.0 107.4 147.4#



#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.676 min Scan# 1416
Delta R.T. -0.031 min
Lab File: 3g11926.D
Acq: 5 Nov 12 11:20 pm

Tgt Ion: 276 Resp: 86
Ion Ratio Lower Upper
276 100
138 79.1 18.4 58.4#
277 51.2 3.6 43.6#
274 23.3 2.4 42.4



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: D40379
Account: XTOKRWR XTO Energy
Project: NPU 196-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB999-MB	GB18278.D	1	10/31/12	SK	n/a	n/a	GGB999

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

D40379-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	10	5.0	mg/kg	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	91% 60-140%

10.1.1
10

Blank Spike Summary

Job Number: D40379
Account: XTOKRWR XTO Energy
Project: NPU 196-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB999-BS	GB18279.D	1	10/31/12	SK	n/a	n/a	GGB999

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

D40379-1

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

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D40379
Account: XTOKRWR XTO Energy
Project: NPU 196-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D40382-1MS	GB18281.D	1	10/31/12	SK	n/a	n/a	GGB999
D40382-1MSD	GB18282.D	1	10/31/12	SK	n/a	n/a	GGB999
D40382-1	GB18280.D	1	10/31/12	SK	n/a	n/a	GGB999

The QC reported here applies to the following samples:

Method: SW846 8015B

D40379-1

CAS No.	Compound	D40382-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		130	147	113	148	114	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D40382-1	Limits
120-82-1	1,2,4-Trichlorobenzene	106%	103%	89%	60-140%

* = Outside of Control Limits.

GC Volatiles

Raw Data



Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\103112\GB18283.D\FID1A.CH Vial: 8
Signal #2 : Y:\1\DATA\103112\GB18283.D\FID2B.CH
Acq On : 31 Oct 2012 1:01 pm Operator: StephK
Sample : D40379-1, 50X Inst : GC/MS Ins
Misc : GC3210,GGB999,5.017,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Oct 31 13:34:09 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Wed Oct 31 10:51:14 2012
Response via : Initial Calibration
DataAcq Meth : TVB4.M

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

Compound		R.T.	Response	Conc	Units

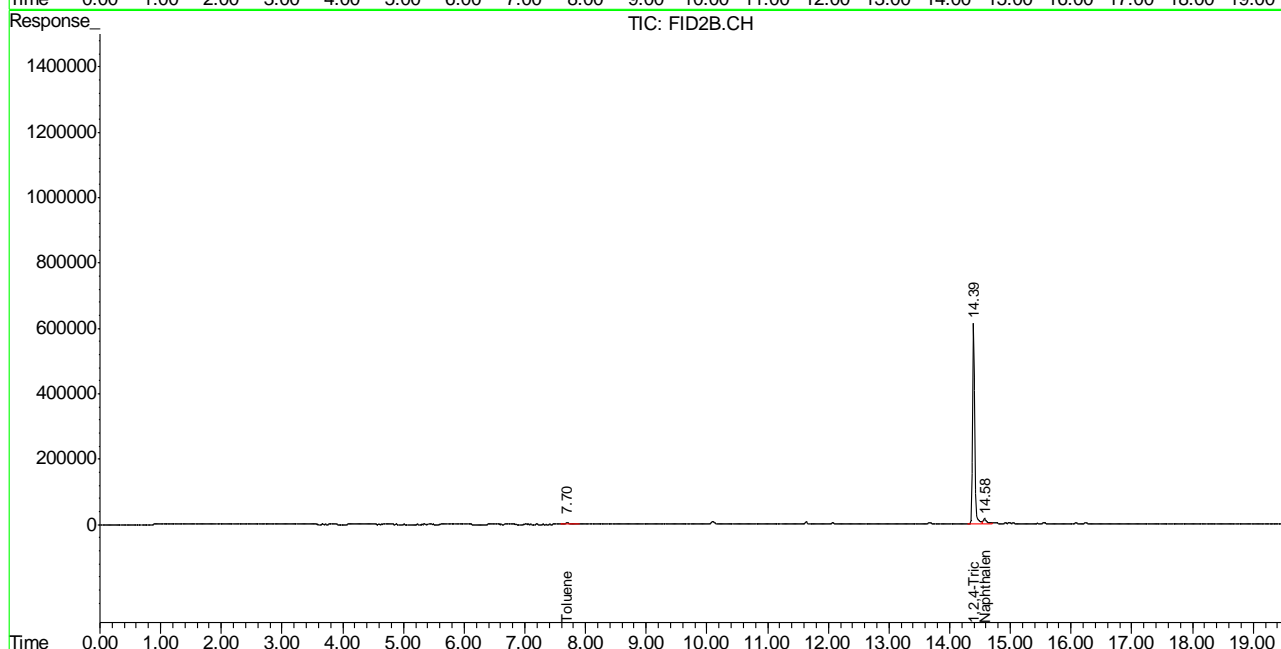
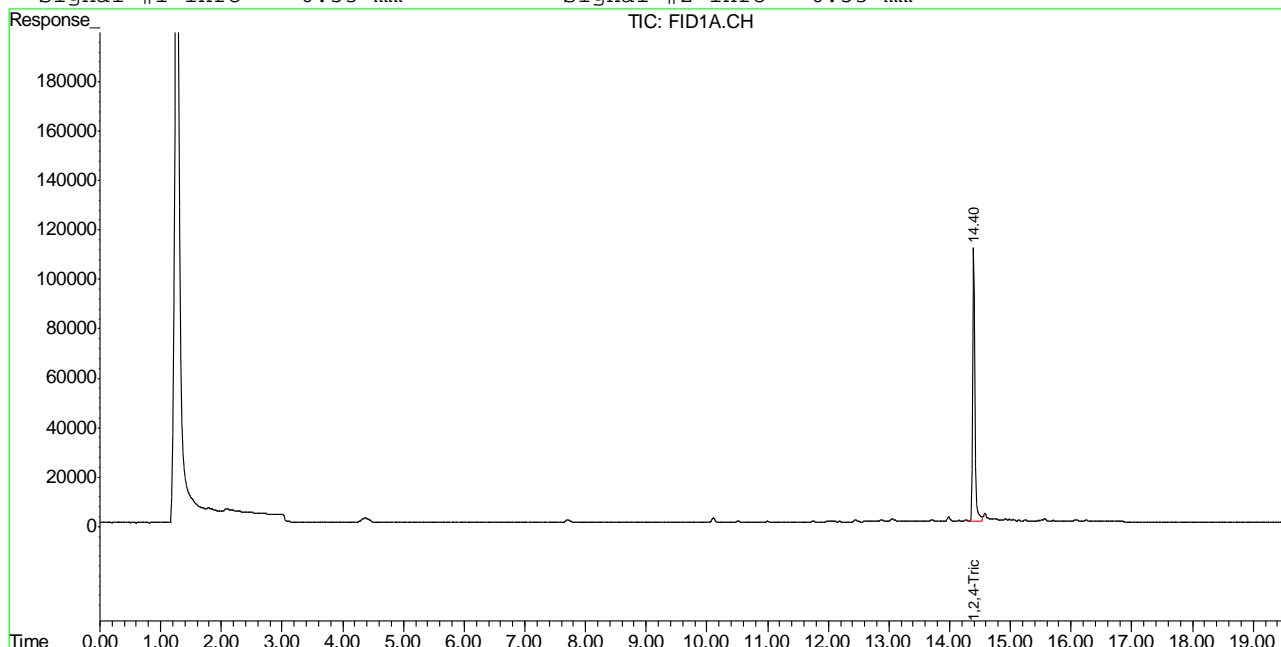
System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.40	2771376	88.446	%
10) S	1,2,4-Trichlorobenzene (P)	14.40	14878820	91.546	%
Target Compounds					
1) H	TVH-Gasoline	7.23	4180245	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	7.70	219099	0.553	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	0.00	0	N.D.	ug/L d
9) T	o-Xylene	0.00	0	N.D.	ug/L d
11) T	Naphthalene	14.58	580311	2.941	ug/L

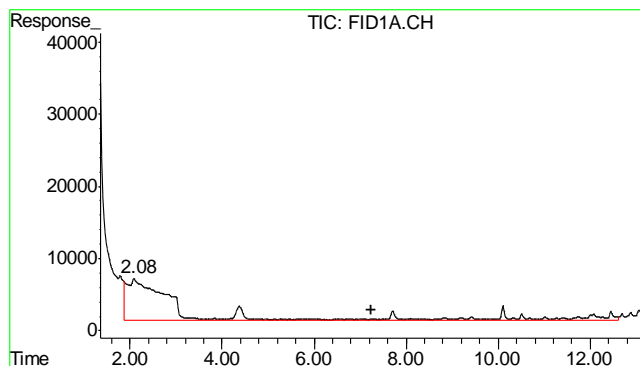
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\103112\GB18283.D\FID1A.CH Vial: 8
 Signal #2 : Y:\1\DATA\103112\GB18283.D\FID2B.CH
 Acq On : 31 Oct 2012 1:01 pm Operator: StephK
 Sample : D40379-1, 50X Inst : GC/MS Ins
 Misc : GC3210,GGB999,5.017,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Oct 31 13:43 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Wed Oct 31 10:51:14 2012
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

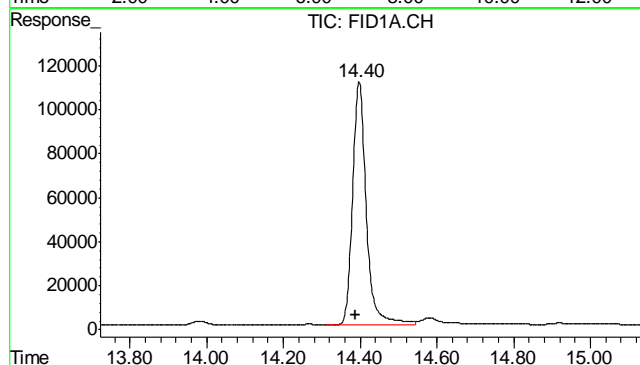
Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





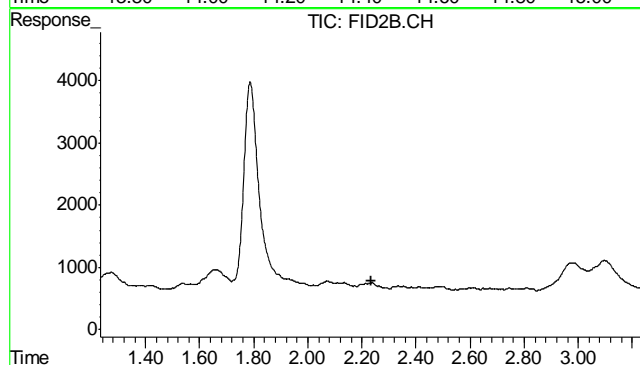
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 4180245
Conc: N.D.



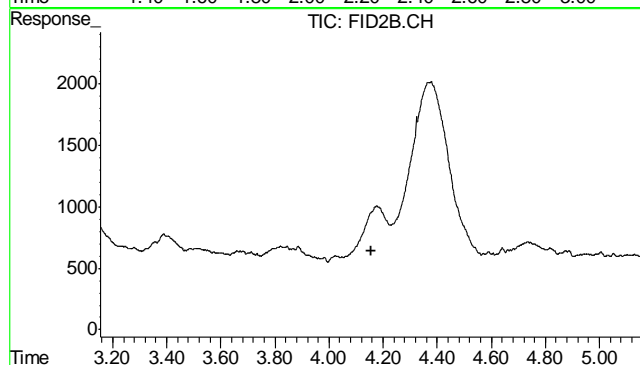
#2 1,2,4-Trichlorobenzene

R.T.: 14.398 min
Delta R.T.: 0.011 min
Response: 2771376
Conc: 88.45 %



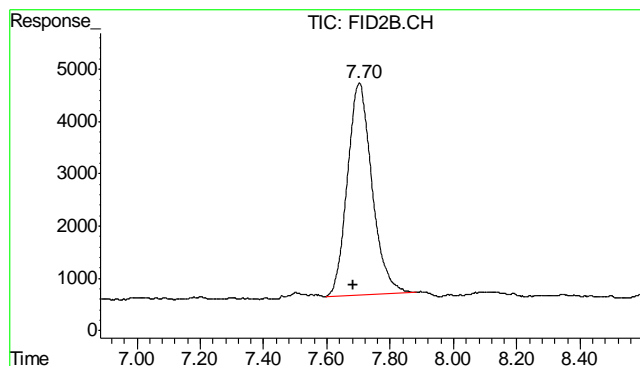
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T.: 2.233 min
Response: 0
Conc: N.D.

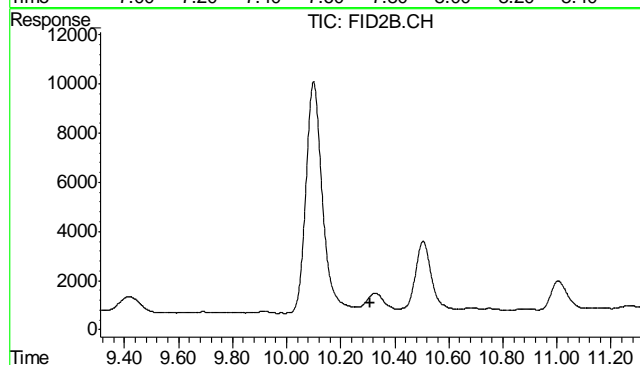


#5 Benzene

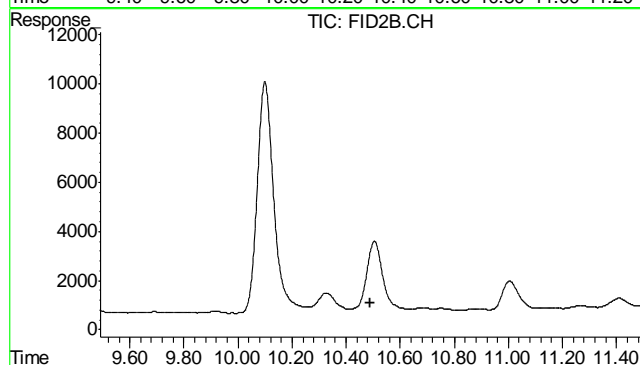
R.T.: 0.000 min
Exp R.T.: 4.154 min
Response: 0
Conc: N.D.



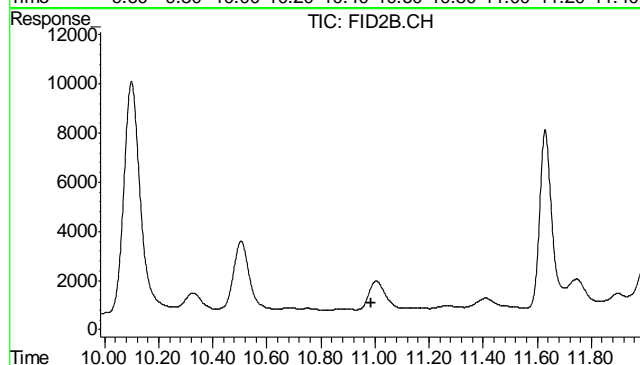
#6 Toluene
R.T.: 7.703 min
Delta R.T.: 0.018 min
Response: 219099
Conc: 0.55 ug/L



#7 Ethylbenzene
R.T.: 0.000 min
Exp R.T. : 10.311 min
Response: 0
Conc: N.D.

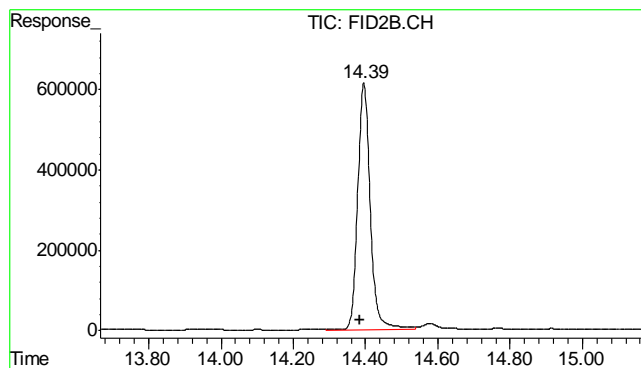


#8 m,p-Xylene
R.T.: 0.000 min
Exp R.T. : 10.491 min
Response: 0
Conc: N.D.



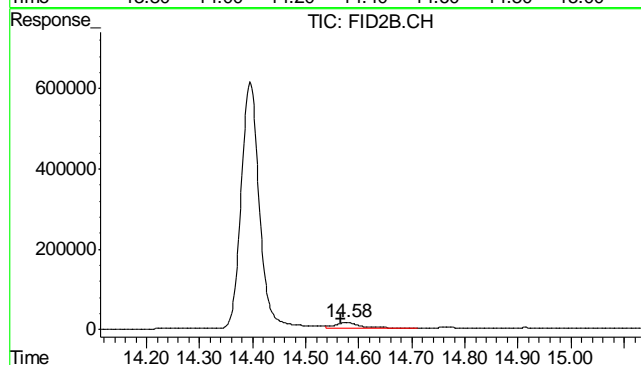
#9 o-Xylene
R.T.: 0.000 min
Exp R.T. : 10.985 min
Response: 0
Conc: N.D.

11.1.1
11



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

R.T.: 14.396 min
 Delta R.T.: 0.011 min
 Response: 14878820
 Conc: 91.55 %



#11 Naphthalene

R.T.: 14.577 min
 Delta R.T.: 0.011 min
 Response: 580311
 Conc: 2.94 ug/L

11.1.1
11

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\103112\GB18278.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\103112\GB18278.D\FID2B.CH
Acq On : 31 Oct 2012 10:04 am Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3210,GGB999,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Oct 31 10:51:35 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Wed Oct 31 10:51:14 2012
Response via : Initial Calibration
DataAcq Meth : TVB4.M

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

Compound		R.T.	Response	Conc	Units

System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.38	2864399	91.415	%
10) S	1,2,4-Trichlorobenzene (P)	14.38	15403207	94.773	%
Target Compounds					
1) H	TVH-Gasoline	7.23	4396783	<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	7.68	239483	0.604	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	14.56	233326	1.183	ug/L

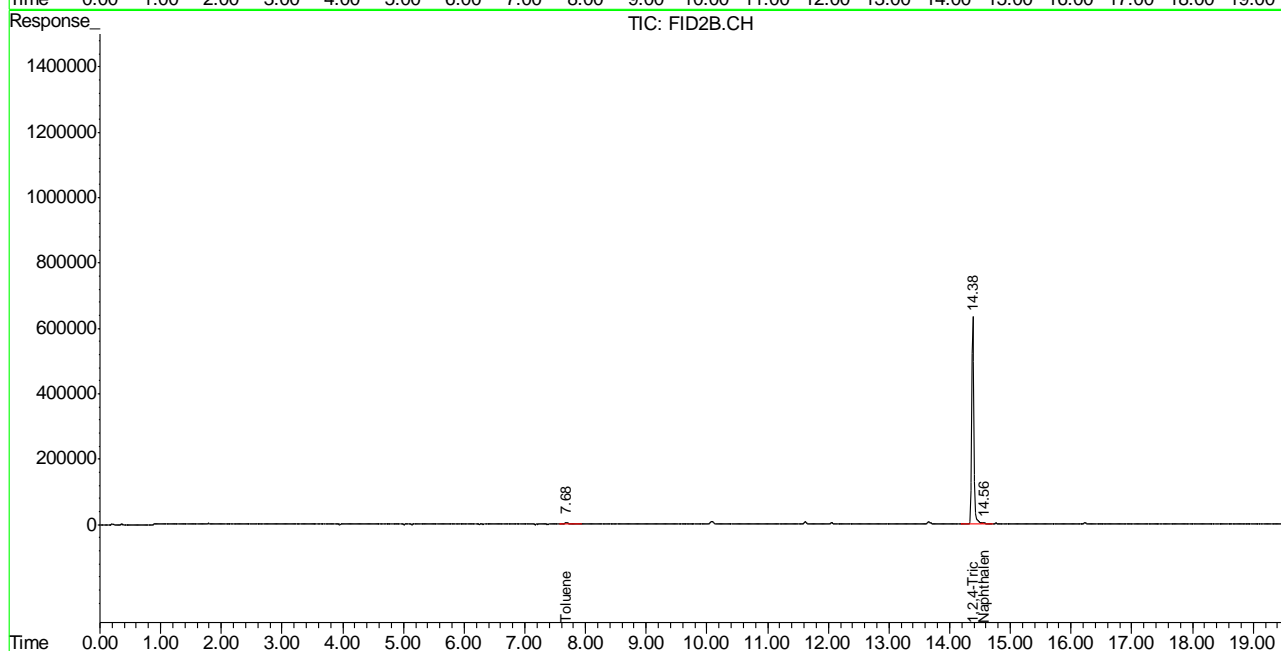
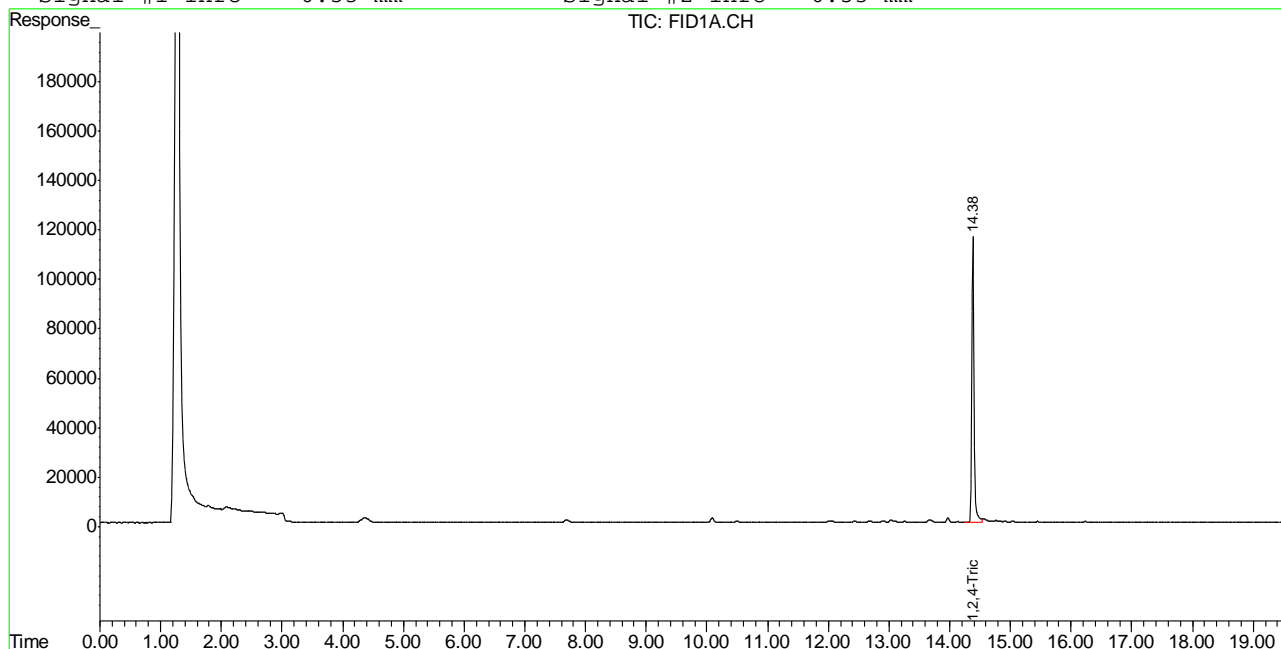
(f)=RT Delta > 1/2 Window (m)=manual int.
GB18278.D TB868GB868SOIL.M Thu Nov 01 09:22:49 2012 GC

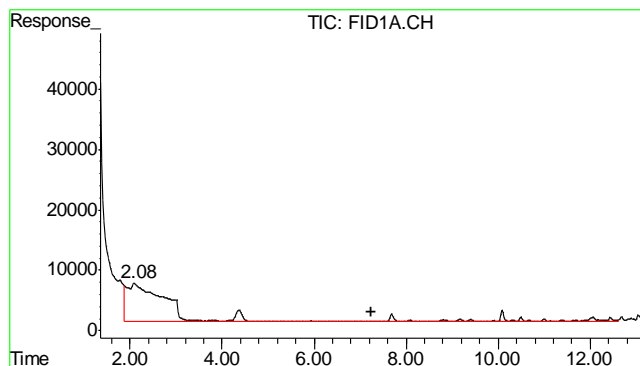
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\103112\GB18278.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\103112\GB18278.D\FID2B.CH
Acq On : 31 Oct 2012 10:04 am Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3210,GGB999,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Oct 31 11:01 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Wed Oct 31 10:51:14 2012
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

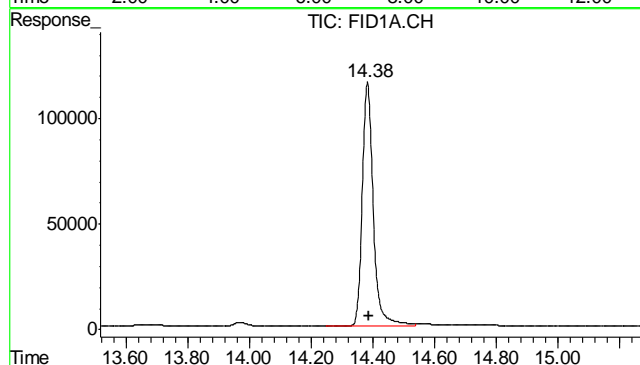
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





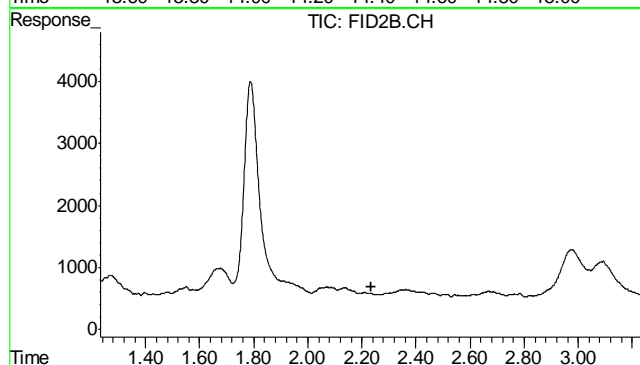
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 4396783
Conc: N.D.



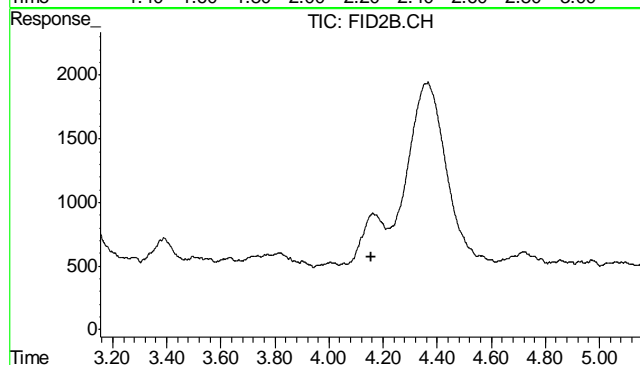
#2 1,2,4-Trichlorobenzene

R.T.: 14.382 min
Delta R.T.: -0.004 min
Response: 2864399
Conc: 91.42 %



#4 Methyl-t-butyl-ether

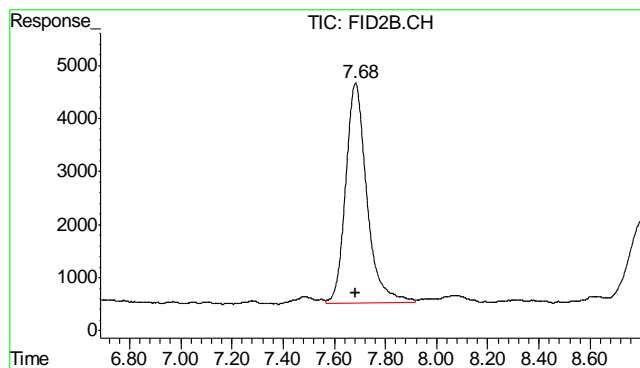
R.T.: 0.000 min
Exp R.T.: 2.233 min
Response: 0
Conc: N.D.



#5 Benzene

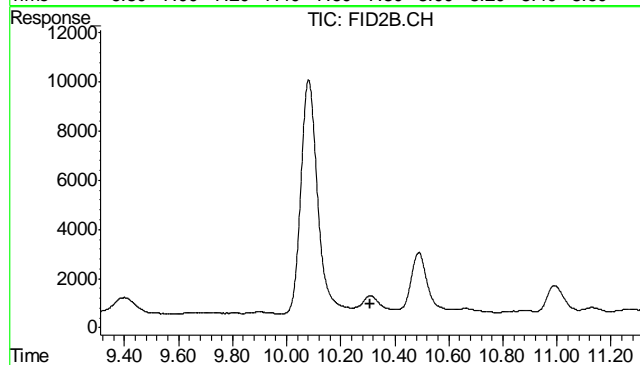
R.T.: 0.000 min
Exp R.T.: 4.154 min
Response: 0
Conc: N.D.

11.21
11



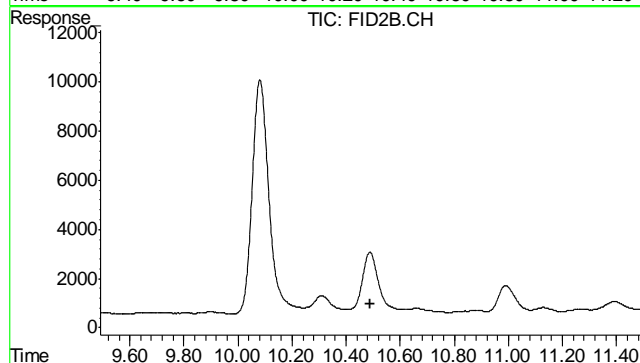
#6 Toluene

R.T.: 7.684 min
Delta R.T.: -0.001 min
Response: 239483
Conc: 0.60 ug/L



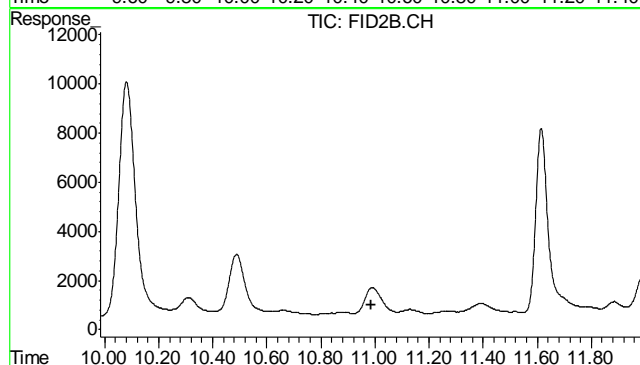
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.311 min
Response: 0
Conc: N.D.



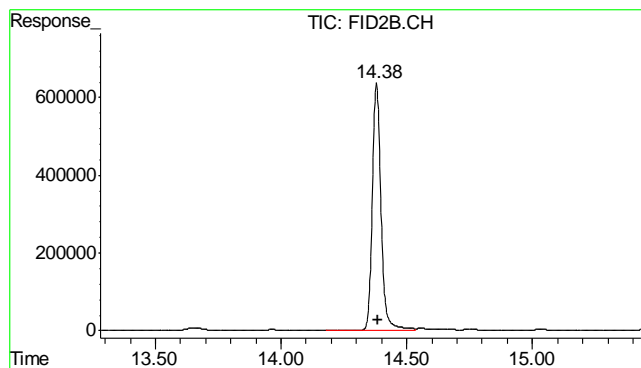
#8 m,p-Xylene

R.T.: 0.000 min
Exp R.T. : 10.491 min
Response: 0
Conc: N.D.



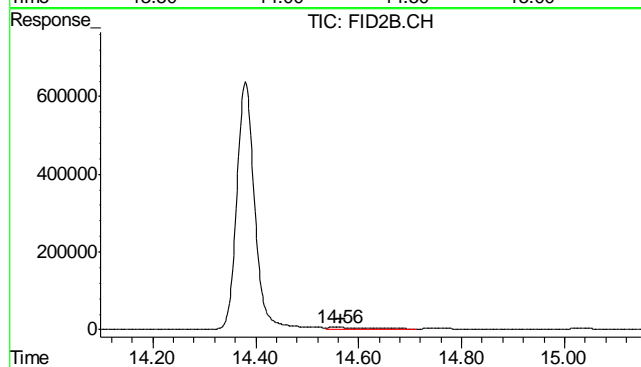
#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 10.985 min
Response: 0
Conc: N.D.



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

R.T.: 14.380 min
Delta R.T.: -0.004 min
Response: 15403207
Conc: 94.77 %



#11 Naphthalene

R.T.: 14.559 min
Delta R.T.: -0.008 min
Response: 233326
Conc: 1.18 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: D40379
Account: XTOKRWR XTO Energy
Project: NPU 196-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6889-MB	FD19059.D	1	10/31/12	AV	10/31/12	OP6889	GFD963

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

D40379-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	13	8.7	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	92% 35-130%

Blank Spike Summary

Page 1 of 1

Job Number: D40379
Account: XTOKRWR XTO Energy
Project: NPU 196-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6889-BS	FD19060.D	1	10/31/12	AV	10/31/12	OP6889	GFD963

The QC reported here applies to the following samples:

Method: SW846-8015B

D40379-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	592	89	48-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	96%	35-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D40379
Account: XTOKRWR XTO Energy
Project: NPU 196-19B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6889-MS	FD19061.D	1	10/31/12	AV	10/31/12	OP6889	GFD963
OP6889-MSD	FD19062.D	1	10/31/12	AV	10/31/12	OP6889	GFD963
D40381-1	FD19070.D	1	10/31/12	AV	10/31/12	OP6889	GFD963

The QC reported here applies to the following samples:

Method: SW846-8015B

D40379-1

CAS No.	Compound	D40381-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	1500		707	1940	62	1970	66	2	20-168/30

CAS No.	Surrogate Recoveries	MS	MSD	D40381-1	Limits
84-15-1	o-Terphenyl	80%	81%	81%	35-130%

* = Outside of Control Limits.

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\OCT\FD103112\FD19072.D Vial: 16
Acq On : 10-31-2012 07:46:44 PM Operator: ashleyv
Sample : D40379-1 Inst : FID5
Misc : OP6889,GFD963,30.06,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Nov 01 08:33:56 2012 Quant Results File: DRO-GFD823F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD823F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Wed Oct 31 08:22:37 2012
Response via : Initial Calibration
DataAcq Meth : DRO_FR.M

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

Compound	R.T.	Response	Conc Units

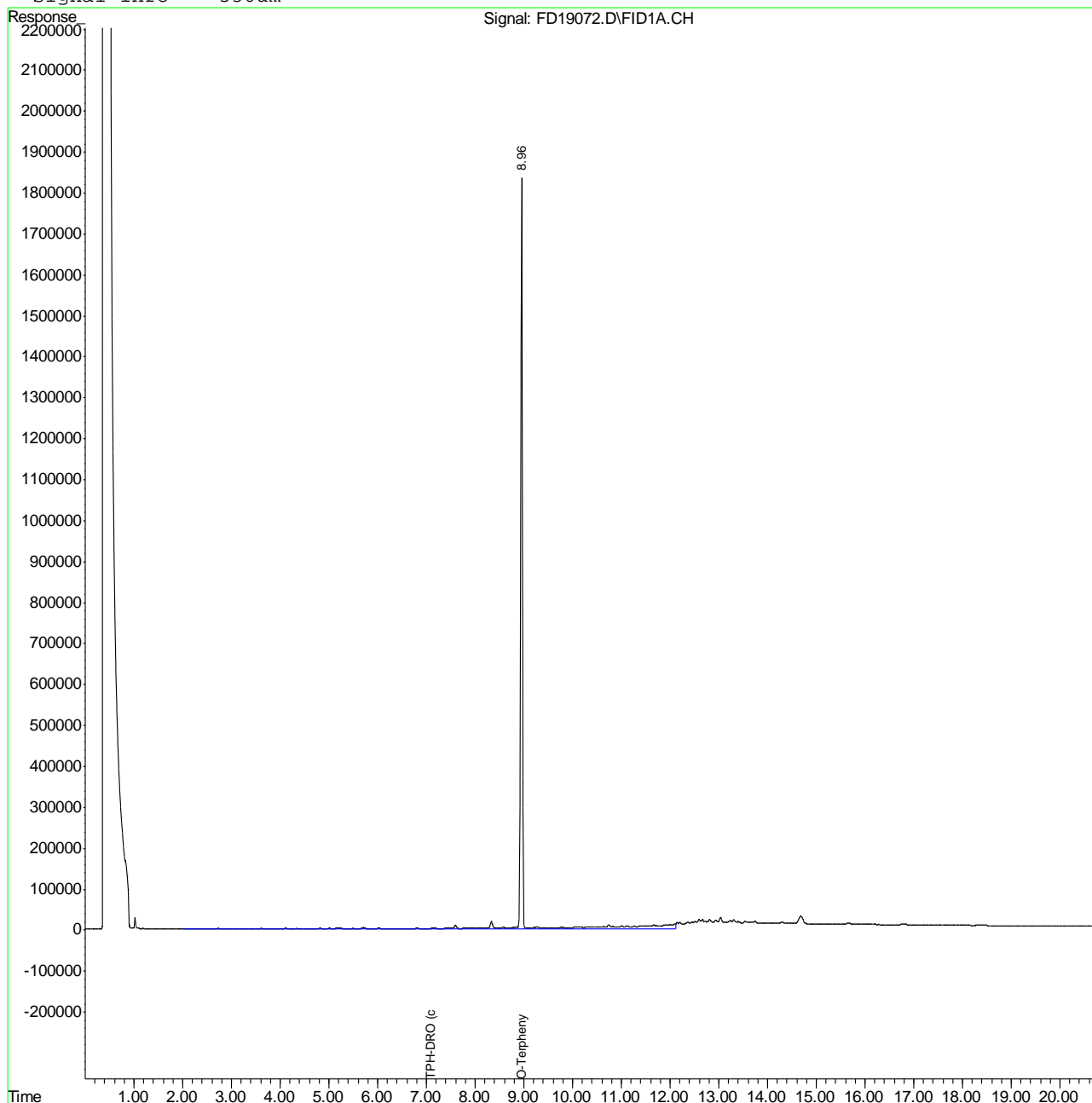
System Monitoring Compounds			
1) S O-Terphenyl	8.96	43267102	915.928 mg/L
Target Compounds			
2) H TPH-DRO (c10-c28)	7.08	10685518	277.508 mg/L

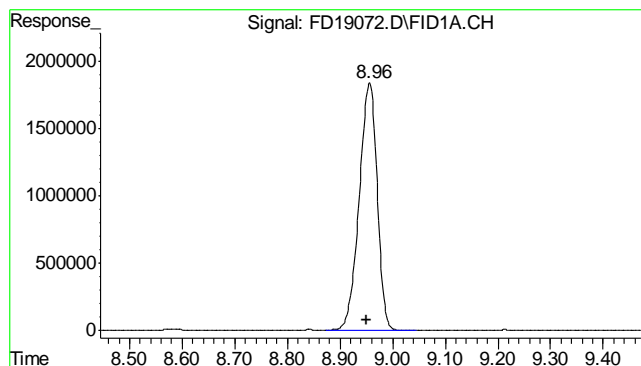
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\OCT\FD103112\FD19072.D Vial: 16
 Acq On : 10-31-2012 07:46:44 PM Operator: ashleyv
 Sample : D40379-1 Inst : FID5
 Misc : OP6889,GFD963,30.06,,,2,1 Multiplr: 1.00
 IntFile : autoint1.e
 Quant Time: Nov 1 8:33 2012 Quant Results File: DRO-GFD823F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD823F.M (Chemstation Integrator)
 Title : 8015B TEH
 Last Update : Wed Oct 31 08:22:37 2012
 Response via : Multiple Level Calibration
 DataAcq Meth : DRO_FR.M

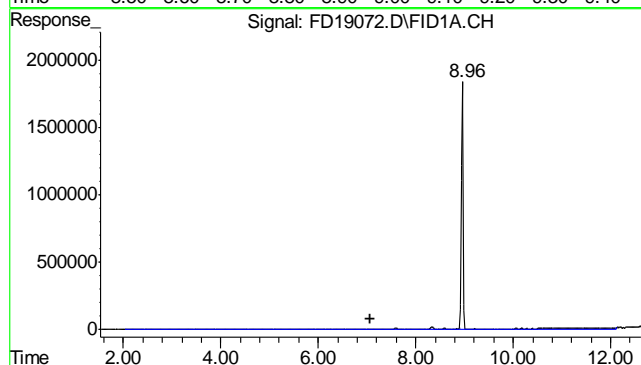
Volume Inj. : 1ul
 Signal Phase : RTX-5
 Signal Info : 530um





#1 O-Terphenyl

R.T.: 8.956 min
 Delta R.T.: 0.006 min
 Response: 43267102
 Conc: 915.93 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 7.075 min
 Delta R.T.: 0.000 min
 Response: 10685518
 Conc: 277.51 mg/L m

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\OCT\FD103112\FD19059.D Vial: 3
Acq On : 10-31-2012 01:56:06 PM Operator: ashleyv
Sample : OP6889-MB Inst : FID5
Misc : OP6889,GFD963,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Oct 31 15:22:37 2012 Quant Results File: DRO-GFD823F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD823F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Wed Oct 31 08:22:37 2012
Response via : Initial Calibration
DataAcq Meth : DRO_FR.M

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

Compound	R.T.	Response	Conc Units

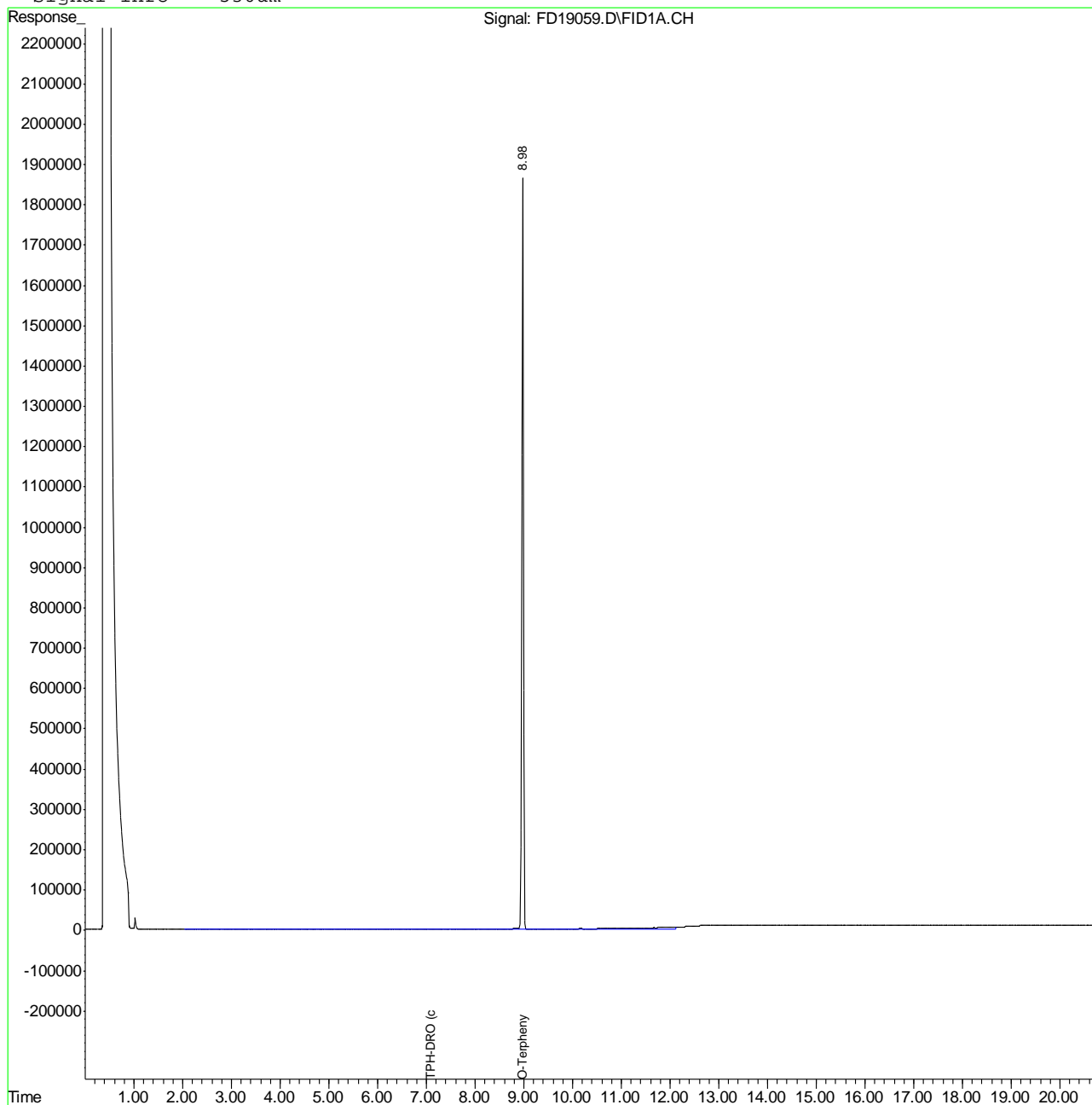
System Monitoring Compounds			
1) S O-Terphenyl	8.98	43558404	922.095 mg/L
Target Compounds			
2) H TPH-DRO (c10-c28)	7.08	3146563	81.718 mg/L

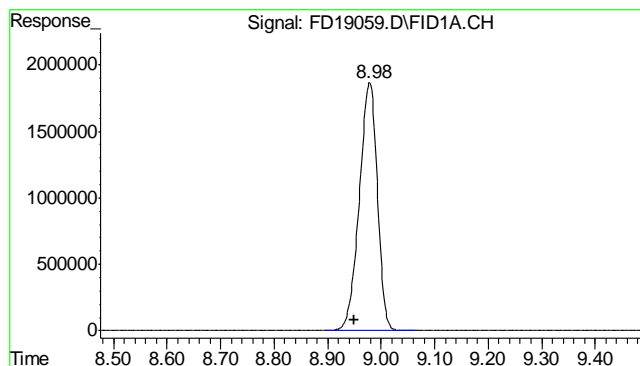
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\OCT\FD103112\FD19059.D Vial: 3
Acq On : 10-31-2012 01:56:06 PM Operator: ashleyv
Sample : OP6889-MB Inst : FID5
Misc : OP6889,GFD963,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Oct 31 15:22 2012 Quant Results File: DRO-GFD823F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD823F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Wed Oct 31 08:22:37 2012
Response via : Multiple Level Calibration
DataAcq Meth : DRO_FR.M

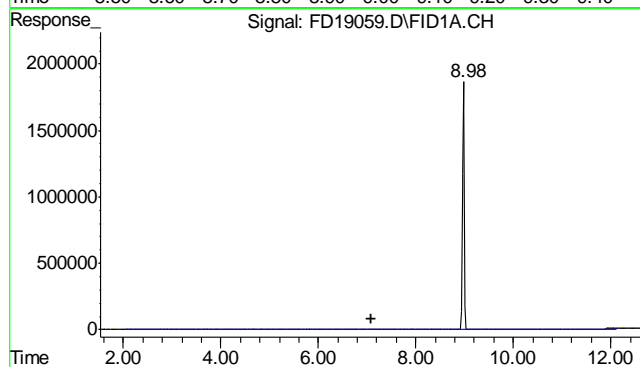
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 8.979 min
Delta R.T.: 0.029 min
Response: 43558404
Conc: 922.09 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 7.075 min
Delta R.T.: 0.000 min
Response: 3146563
Conc: 81.72 mg/L m

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8792
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 11/01/12

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	0.63	* (a)
Beryllium	1.0	.13	.15		
Boron	5.0	.1	.06		
Cadmium	1.0	.06	.036	-0.010	<1.0
Calcium	40	.54	9		
Chromium	1.0	.03	.03	0.030	<1.0
Cobalt	0.50	.04	.07		
Copper	1.0	.12	.15	0.19	<1.0
Iron	7.0	.12	.87		
Lead	5.0	.19	.24	0.0	<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	0.040	<3.0
Phosphorus	10	1.4	1.9		
Potassium	200	6.1	7		
Selenium	5.0	.48	.36	-0.41	<5.0
Silicon	5.0	.29	.37		
Silver	3.0	.04	.06	0.0	<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	0.18	<3.0

Associated samples MP8792: D40379-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8792
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested
(a) All sample results >10x method blank concentration.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8792
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 11/01/12

Metal	D40379-1 Original MS		SpikeLot ICPALL2	% Rec	QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	341	526	263	70.4N(a)	75-125
Beryllium	anr				
Boron	anr				
Cadmium	0.27	55.2	65.7	83.6	75-125
Calcium	anr				
Chromium	22.5	77.3	65.7	83.4	75-125
Cobalt	anr				
Copper	17.3	79.9	65.7	95.3	75-125
Iron	anr				
Lead	13.2	124	131	84.4	75-125
Lithium					
Magnesium	anr				
Manganese	anr				
Molybdenum	anr				
Nickel	14.5	66.8	65.7	79.6	75-125
Phosphorus					
Potassium	anr				
Selenium	0.0	111	131	84.5	75-125
Silicon					
Silver	0.17	23.4	26.3	88.4	75-125
Sodium	anr				
Strontium	anr				
Thallium	anr				
Tin	anr				
Titanium	anr				
Uranium					
Vanadium	anr				
Zinc	45.7	103	65.7	87.2	75-125

Associated samples MP8792: D40379-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8792
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8792
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 11/01/12

Metal	D40379-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	341	496	248	62.6N(a)	5.9	20
Beryllium	anr					
Boron	anr					
Cadmium	0.27	51.2	61.9	82.2	7.5	20
Calcium	anr					
Chromium	22.5	74.4	61.9	83.8	3.8	20
Cobalt	anr					
Copper	17.3	71.6	61.9	87.7	11.0	20
Iron	anr					
Lead	13.2	112	124	79.8	10.2	20
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum	anr					
Nickel	14.5	63.3	61.9	78.8	5.4	20
Phosphorus						
Potassium	anr					
Selenium	0.0	103	124	83.2	7.5	20
Silicon						
Silver	0.17	21.5	24.8	86.1	8.5	20
Sodium	anr					
Strontium	anr					
Thallium	anr					
Tin	anr					
Titanium	anr					
Uranium						
Vanadium	anr					
Zinc	45.7	93.9	61.9	77.8	9.2	20

Associated samples MP8792: D40379-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8792
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D40379
 Account: XTOKRWR - XTO Energy
 Project: NPU 196-19B

QC Batch ID: MP8792
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 11/01/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	186	200	93.0	80-120
Beryllium	anr			
Boron	anr			
Cadmium	43.4	50	86.8	80-120
Calcium	anr			
Chromium	45.7	50	91.4	80-120
Cobalt	anr			
Copper	44.3	50	88.6	80-120
Iron	anr			
Lead	89.3	100	89.3	80-120
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	43.5	50	87.0	80-120
Phosphorus				
Potassium	anr			
Selenium	88.7	100	88.7	80-120
Silicon				
Silver	18.4	20	92.0	80-120
Sodium	anr			
Strontium	anr			
Thallium	anr			
Tin	anr			
Titanium	anr			
Uranium				
Vanadium	anr			
Zinc	44.3	50	88.6	80-120

Associated samples MP8792: D40379-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8792
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8792
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 11/01/12

Metal	D40379-1 Original SDL 1:5		%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	2540	2970	17.0*(a)	0-10
Beryllium	anr			
Boron	anr			
Cadmium	2.00	0.00	100.0(b)	0-10
Calcium	anr			
Chromium	168	194	15.4*(a)	0-10
Cobalt	anr			
Copper	129	130	0.9	0-10
Iron	anr			
Lead	98.2	107	9.0	0-10
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	108	128	18.2*(a)	0-10
Phosphorus				
Potassium	anr			
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver	1.30	3.00	130.8(b)	0-10
Sodium	anr			
Strontium	anr			
Thallium	anr			
Tin	anr			
Titanium	anr			
Uranium				
Vanadium	anr			
Zinc	341	420	23.1*(a)	0-10

Associated samples MP8792: D40379-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8792
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: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8793
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 11/01/12

Metal	RL	IDL	MDL	MB raw	final
Arsenic	0.10	.006	.06	0.022	<0.10
Calcium	200	7.9	8		
Chromium	1.0	.033	.19		
Cobalt	0.10	.0012	.015		
Copper	1.0	.017	.065		
Manganese	0.50	.0043	.02		
Molybdenum	0.50	.018	.018		
Nickel	1.0	.0049	.011		
Selenium	0.20	.029	.14		
Silver	0.050	.0009	.0065		
Strontium	10	.036	.036		
Tin	5.0	.023	.34		
Zinc	5.0	.033	.35		

Associated samples MP8793: D40379-1

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: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8793
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 11/01/12

Metal	D40379-1 Original MS		Spikelot ICPALL2	% Rec	QC Limits
Arsenic	9.7	152	131	108.3	75-125
Chromium	anr				
Cobalt	anr				
Copper	anr				
Manganese	anr				
Molybdenum	anr				
Nickel	anr				
Selenium	anr				
Silver	anr				
Strontium					
Tin					
Zinc					

Associated samples MP8793: D40379-1

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: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8793
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 11/01/12

Metal	D40379-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Arsenic	9.7	134	124	100.4	12.6	20
Chromium	anr					
Cobalt	anr					
Copper	anr					
Manganese	anr					
Molybdenum	anr					
Nickel	anr					
Selenium	anr					
Silver	anr					
Strontium						
Tin						
Zinc						

Associated samples MP8793: D40379-1

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: D40379
 Account: XTOKRWR - XTO Energy
 Project: NPU 196-19B

QC Batch ID: MP8793
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: mg/kg

Prep Date: 11/01/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Arsenic	94.2	100	94.2	80-120
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	anr			
Selenium	anr			
Silver	anr			
Strontium				
Tin				
Zinc				

Associated samples MP8793: D40379-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D40379
 Account: XTOKRWR - XTO Energy
 Project: NPU 196-19B

QC Batch ID: MP8793
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: ug/l

Prep Date: 11/01/12

Metal	D40379-1			QC Limits
	Original	SDL 5:25	%DIF	
Arsenic	72.0	72.3	0.3	0-10
Chromium	anr			
Cobalt	anr			
Copper	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	anr			
Selenium	anr			
Silver	anr			
Strontium				
Tin				
Zinc				

Associated samples MP8793: D40379-1

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: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8794
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 11/01/12

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.083	.00088	.00075	0.0027	<0.083

Associated samples MP8794: D40379-1

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: D40379
 Account: XTOKRWR - XTO Energy
 Project: NPU 196-19B

QC Batch ID: MP8794
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 11/01/12

Metal	D40329-1 Original MS		Spikelot HGWSR1	% Rec	QC Limits
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Mercury	0.055	0.44	0.396	97.3	75-125
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Associated samples MP8794: D40379-1

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: D40379
 Account: XTOKRWR - XTO Energy
 Project: NPU 196-19B

QC Batch ID: MP8794
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 11/01/12

Metal	D40329-1		Spikelot		MSD	QC
	Original	MSD	HGWSR1	% Rec		
Mercury	0.055	0.45	0.396	99.8	2.2	

Associated samples MP8794: D40379-1

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: D40379
 Account: XTOKRWR - XTO Energy
 Project: NPU 196-19B

QC Batch ID: MP8794
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 11/01/12

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.34	0.333	102.0	80-120

Associated samples MP8794: D40379-1

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: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8808
Matrix Type: AQUEOUS

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

Prep Date: 11/02/12

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	3.0	<2000
Chromium	50	1.5	2.8		
Cobalt	25	2	2.1		
Copper	50	6	15		
Iron	350	6	100		
Lead	250	9.5	15		
Lithium	10	2.5			
Magnesium	1000	33	110	5.5	<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	317	<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 MP8808: D40379-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8808
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: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8808
Matrix Type: AQUEOUS

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

Prep Date: 11/02/12

Metal	D40350-1A Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	49800	186000	125000	109.0	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	11700	132000	125000	96.2	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	9670	132000	125000	97.9	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP8808: D40379-1A

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

14.4.2
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8808
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: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8808
Matrix Type: AQUEOUS

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

Prep Date: 11/02/12

Metal	D40350-1A Original	MSD	SpikeLot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	49800	177000	125000	101.8	5.0	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	11700	131000	125000	95.4	0.8	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	9670	131000	125000	97.1	0.8	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP8808: D40379-1A

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

14.4.2
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8808
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: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8808
Matrix Type: AQUEOUS

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

Prep Date: 11/02/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	130000	125000	104.0	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	119000	125000	95.2	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	122000	125000	97.6	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8808: D40379-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8808
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: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8808
Matrix Type: AQUEOUS

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

Prep Date: 11/02/12

D40350-1A		QC	
Metal	Original	SDL 1:5	%DIF Limits
Aluminum			
Antimony			
Arsenic			
Barium			
Beryllium			
Boron			
Cadmium			
Calcium	9970	10000	0.7 0-10
Chromium			
Cobalt			
Copper			
Iron			
Lead			
Lithium			
Magnesium	2340	2680	14.6*(a) 0-10
Manganese			
Molybdenum			
Nickel			
Phosphorus			
Potassium			
Selenium			
Silicon			
Silver			
Sodium	1930	2250	16.6*(a) 0-10
Strontium			
Thallium			
Tin			
Titanium			
Uranium			
Vanadium			
Zinc			

Associated samples MP8808: D40379-1A

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

14.4.4
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SERIAL DILUTION RESULTS SUMMARY

Login Number: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

QC Batch ID: MP8808
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.

14.4.4
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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: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP8586/GN17528	1.0	0.0	mg/kg	176	179	102.0	80-120%
Specific Conductivity	GP8605/GN17535	1.0	<1.0	umhos/cm	9992	9760	97.7	90-110%
pH	GN17474			su	8.00	7.98	99.8	99.3-100.7%

Associated Samples:
Batch GP8586: D40379-1
Batch GP8605: D40379-1
Batch GN17474: D40379-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP8586/GN17528	D40427-1	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN17476	D40350-1	mv	336	344	2.4	0-20%

Associated Samples:
Batch GP8586: D40379-1
Batch GN17476: D40379-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP8586/GN17528	D40427-1	mg/kg	0.0	0.40	35.8	89.5	75-125%

Associated Samples:
Batch GP8586: D40379-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D40379
Account: XTOKRWR - XTO Energy
Project: NPU 196-19B

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chromium, Hexavalent	GP8586/GN17528	D40427-1	mg/kg	0.0	0.40	36.5	1.9	

Associated Samples:
Batch GP8586: D40379-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

15.4
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