



12/27/12

Technical Report for

XTO Energy

PCU 296-6A

1211-02

Accutest Job Number: D42001

Sampling Date: 12/17/12

Report to:

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Total number of pages in report: 146



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: D42001

PCU 296-6A
Project No: 1211-02

Sample Number	Collected		Time By	Received	Matrix		Client Sample ID
	Date				Code	Type	
D42001-1	12/17/12	09:45	DS	12/19/12	SO	Soil	RP POST SOLIDIFICATION
D42001-1A	12/17/12	09:45	DS	12/19/12	SO	Soil	RP POST SOLIDIFICATION

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



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: XTO Energy

Job No D42001

Site: PCU 296-6A

Report Date 12/27/2012 3:36:27 PM

On 12/19/2012, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D42001 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: V5V1528

- All samples were analyzed within the recommended method holding time.
- Sample(s) D41921-1MS, D41921-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO

Batch ID: OP7139

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) D42001-1MS, D42001-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Volatiles by GC By Method SW846 8015B

Matrix SO

Batch ID: GGB1031

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41998-1MS, D41998-1MSD were used as the QC samples indicated.

Extractables by GC By Method SW846-8015B

Matrix SO

Batch ID: OP7131

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) D41999-1MS, D41999-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- The RPD(s) for the MS and MSD recoveries of TPH-DRO (C10-C28) are outside control limits for sample OP7131-MSD. Variability of recovery may be due to sample matrix/homogeneity.

Metals By Method SW846 6010C

Matrix AQ

Batch ID: MP9138

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D42001-1AMS, D42001-1AMSD, D42001-1ASDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Magnesium are outside control limits for sample MP9138-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Matrix SO

Batch ID: MP9125

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D42001-1MSD, D42001-1SDL, D42001-1MS, D42001-1MSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Cadmium, Chromium, Lead, Zinc, Nickel are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- The matrix spike duplicate (MSD) recovery(s) of Nickel are outside control limits. Probable cause due to matrix interference.
- The matrix spike (MS) recovery(s) of Barium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The serial dilution RPD(s) for Cadmium, Lead, Selenium, Nickel, Zinc are outside control limits for sample MP9125-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP9125-S1 for Nickel: Spike recovery indicates possible matrix interference.
- MP9125-SD1 for Nickel: Serial dilution indicates possible matrix interference.
- MP9125-SD1 for Zinc: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix SO

Batch ID: MP9126

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D42001-1MS, D42001-1MSD, D42001-1SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471B

Matrix SO

Batch ID: MP9141

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D42001-1MS, D42001-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO

Batch ID: GN18175

- Sample(s) D41866-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM 2510B-2011 MOD

Matrix SO	Batch ID: GP8964
------------------	-------------------------

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

Wet Chemistry By Method SM19 2540B M

Matrix SO	Batch ID: GN18178
------------------	--------------------------

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

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO	Batch ID: GP8990
------------------	-------------------------

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D42001-1DUP, D42001-1MS, D42001-1MSD were used as the QC samples for the Chromium, Hexavalent analysis.
- D42001-1 for Chromium, Hexavalent: Dilution required due to matrix interference.

Wet Chemistry By Method SW846 3060A/7196A M

Matrix SO	Batch ID: R15591
------------------	-------------------------

- The data for SW846 3060A/7196A M meets quality control requirements.
- D42001-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 9045D

Matrix SO	Batch ID: GN18200
------------------	--------------------------

- The following samples were run outside of holding time for method SW846 9045D: D42001-1

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO	Batch ID: MP9138
------------------	-------------------------

- D42001-1A 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: D42001
Account: XTO Energy
Project: PCU 296-6A
Collected: 12/17/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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D42001-1 RP POST SOLIDIFICATION

Naphthalene	0.0384	0.021	0.019	mg/kg	SW846 8270C BY SIM
TPH-DRO (C10-C28)	738	12	7.2	mg/kg	SW846-8015B
Arsenic	14.2	0.18		mg/kg	SW846 6020A
Barium	8360	9.1		mg/kg	SW846 6010C
Chromium	14.4	1.8		mg/kg	SW846 6010C
Copper	17.7	1.8		mg/kg	SW846 6010C
Lead	10.0	9.1		mg/kg	SW846 6010C
Nickel	139	5.5		mg/kg	SW846 6010C
Zinc	32.4	5.5		mg/kg	SW846 6010C
Specific Conductivity	9990	1.0		umhos/cm	SM 2510B-2011 MOD
Chromium, Trivalent ^a	14.4	6.8		mg/kg	SW846 3060A/7196A M
Redox Potential Vs H2	95.5			mv	ASTM D1498-76M
pH	12.68			su	SW846 9045D

D42001-1A RP POST SOLIDIFICATION

Calcium	641	2.0		mg/l	SW846 6010C
Sodium	755	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^b	8.20			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:	RP POST SOLIDIFICATION			Date Sampled:	12/17/12
Lab Sample ID:	D42001-1			Date Received:	12/19/12
Matrix:	SO - Soil			Percent Solids:	55.2
Method:	SW846 8260B				
Project:	PCU 296-6A				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V25027.D	1	12/19/12	BD	n/a	n/a	V5V1528
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.01 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.13	0.066	mg/kg	
108-88-3	Toluene	ND	0.26	0.13	mg/kg	
100-41-4	Ethylbenzene	ND	0.26	0.050	mg/kg	
1330-20-7	Xylene (total)	ND	0.52	0.26	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	94%		64-130%
460-00-4	4-Bromofluorobenzene	96%		62-131%
17060-07-0	1,2-Dichloroethane-D4	101%		70-130%

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

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

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Report of Analysis

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Client Sample ID:	RP POST SOLIDIFICATION			Date Sampled:	12/17/12
Lab Sample ID:	D42001-1			Date Received:	12/19/12
Matrix:	SO - Soil			Percent Solids:	55.2
Method:	SW846 8270C BY SIM SW846 3546				
Project:	PCU 296-6A				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G12670.D	1	12/24/12	DC	12/24/12	OP7139	E3G604
Run #2							

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

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.015	0.0078	mg/kg	
120-12-7	Anthracene	ND	0.015	0.0078	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.015	0.0078	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.015	0.0078	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.015	0.0078	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.015	0.0078	mg/kg	
218-01-9	Chrysene	ND	0.015	0.0078	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.015	0.0078	mg/kg	
206-44-0	Fluoranthene	ND	0.015	0.0078	mg/kg	
86-73-7	Fluorene	ND	0.015	0.0078	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.015	0.0078	mg/kg	
91-20-3	Naphthalene	0.0384	0.021	0.019	mg/kg	
129-00-0	Pyrene	ND	0.015	0.0078	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	55%		10-159%
321-60-8	2-Fluorobiphenyl	56%		19-131%
1718-51-0	Terphenyl-d14	74%		18-150%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	RP POST SOLIDIFICATION					Date Sampled:	12/17/12
Lab Sample ID:	D42001-1					Date Received:	12/19/12
Matrix:	SO - Soil					Percent Solids:	55.2
Method:	SW846 8015B						
Project:	PCU 296-6A						

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB18934.D	1	12/20/12	SK	n/a	n/a	GGB1031
Run #2							

Run #	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	26	13	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	93%		60-140%		

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

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

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Report of Analysis

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Client Sample ID:	RP POST SOLIDIFICATION				Date Sampled:	12/17/12
Lab Sample ID:	D42001-1				Date Received:	12/19/12
Matrix:	SO - Soil				Percent Solids:	55.2
Method:	SW846-8015B SW846 3546					
Project:	PCU 296-6A					

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD20712.D	1	12/20/12	AV	12/20/12	OP7131	GFD1038
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	738	12	7.2	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	55%		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: RP POST SOLIDIFICATION

Lab Sample ID: D42001-1

Matrix: SO - Soil

Project: PCU 296-6A

Date Sampled: 12/17/12

Date Received: 12/19/12

Percent Solids: 55.2

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	14.2	0.18	mg/kg	5	12/21/12	12/27/12 JB	SW846 6020A ⁴	SW846 3050B ⁶
Barium	8360	9.1	mg/kg	5	12/21/12	12/26/12 JB	SW846 6010C ²	SW846 3050B ⁵
Cadmium	< 1.8	1.8	mg/kg	1	12/21/12	12/21/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Chromium	14.4	1.8	mg/kg	1	12/21/12	12/21/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Copper	17.7	1.8	mg/kg	1	12/21/12	12/21/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Lead	10.0	9.1	mg/kg	1	12/21/12	12/21/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Mercury	< 0.14	0.14	mg/kg	1	12/27/12	12/27/12 JB	SW846 7471B ³	SW846 7471B ⁷
Nickel	139	5.5	mg/kg	1	12/21/12	12/21/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Selenium	< 9.1	9.1	mg/kg	1	12/21/12	12/21/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Silver	< 5.5	5.5	mg/kg	1	12/21/12	12/21/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Zinc	32.4	5.5	mg/kg	1	12/21/12	12/21/12 JB	SW846 6010C ¹	SW846 3050B ⁵

(1) Instrument QC Batch: MA3114

(2) Instrument QC Batch: MA3120

(3) Instrument QC Batch: MA3123

(4) Instrument QC Batch: MA3124

(5) Prep QC Batch: MP9125

(6) Prep QC Batch: MP9126

(7) Prep QC Batch: MP9141

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RP POST SOLIDIFICATION	Date Sampled:	12/17/12
Lab Sample ID:	D42001-1	Date Received:	12/19/12
Matrix:	SO - Soil	Percent Solids:	55.2
Project:	PCU 296-6A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	9990	1.0	umhos/cm	1	12/20/12	JK	SM 2510B-2011 MOD
Chromium, Hexavalent ^a	< 5.0	5.0	mg/kg	5	12/26/12	KB	SW846 3060A/7196A
Chromium, Trivalent ^b	14.4	6.8	mg/kg	1	12/26/12	KB	SW846 3060A/7196A M
Redox Potential Vs H2	95.5		mv	1	12/19/12	CT	ASTM D1498-76M
Solids, Percent	55.2		%	1	12/20/12	SWT	SM19 2540B M
pH	12.68		su	1	12/20/12 13:30	JK	SW846 9045D

(a) Dilution required due to matrix interference.

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: RP POST SOLIDIFICATION

Lab Sample ID: D42001-1A

Matrix: SO - Soil

Project: PCU 296-6A

Date Sampled: 12/17/12

Date Received: 12/19/12

Percent Solids: 55.2

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	641	2.0	mg/l	1	12/26/12	12/26/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	< 1.0	1.0	mg/l	1	12/26/12	12/26/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Sodium	755	2.0	mg/l	1	12/26/12	12/26/12 JB	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA3120

(2) Prep QC Batch: MP9138

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RP POST SOLIDIFICATION	Date Sampled:	12/17/12
Lab Sample ID:	D42001-1A	Date Received:	12/19/12
Matrix:	SO - Soil	Percent Solids:	55.2
Project:	PCU 296-6A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	8.20		ratio	1	12/26/12 11:10	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



CHAIN OF CUSTODY

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4035 Youngfield Street, Wheat Ridge, CO 80033
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www.accutest.com

FED-EX Tracking #		Bottle Order Control #	
Accutest Quote #		Accutest Job # D42001	
Client / Reporting Information		Project Information	
Company Name KRW Consulting		Project Name: XTO PCW 296-6A	
Street Address 8000 West 14th Street, Suite 200		Street	
City Lakewood, CO 80214		Billing Information (if different from Report to)	
Project Contact Dwayne Knudson		City XTO Energy	
Phone # 970-488-1098		Street Address 21458 CR 5	
Sampler(s) Name(s) DAVID SANDERS		Client Purchase Order #	
970-488-1098		City Rifle, CO 81650	
Project Manager Joe Hess		Attention: Jessica Dooling	
Field ID / Point of Collection RP POST SOLIDIFICATION		Collection	
MECHDI Val #		Date 12-17-12	
Time 9:45		Sampled by DS	
Metric SO		# of bottles 5	
HCl		NaOH	
HNO3		H2SO4	
NONE		NONE	
DI Water		MECH	
ENCORE		Available	
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 type="checkbox"/> Commercial "A" (Level 1)	
<input checked="" type="checkbox"/> Std. 5 Business Days (By contract only)		<input type="checkbox"/> Commercial "B" (Level 2)	
<input type="checkbox"/> 3 Day Emergency		<input type="checkbox"/> COMMBN	
<input type="checkbox"/> 2 Day Emergency		<input type="checkbox"/> COMMBN+	
<input type="checkbox"/> 1 Day Emergency		<input type="checkbox"/> State Forms Required	
Emergency & Rush T/A data available VIA Lablink		<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 David A. Sanders		Received By: 2 FX	
Date Time: 12-18-12 3pm		Date Time:	
Relinquished by Sampler: 3		Received By: 4	
Date Time:		Date Time:	
Relinquished by: 5		Received By: 4	
Date Time:		Date Time:	
Custody Seal #		<input type="checkbox"/> Intact	
		<input type="checkbox"/> Not Intact	
Preserved where applicable		<input checked="" type="checkbox"/>	
Do for		Cooler Temp: 30	

D42001: Chain of Custody

Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D42001

Client: KRW

Immediate Client Services Action Required: No

Date / Time Received: 12/19/2012 3:00:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: PCU

Airbill #'s: FX

Cooler Security

Y or N

Y or N

- | | | | | | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler Temperature

Y or N

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

Quality Control Preservation

Y or N

N/A

- | | | | |
|---------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2. Trip Blank listed on COC: | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3. Samples preserved properly: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. VOCs headspace free: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Sample Integrity - Documentation

Y or N

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

Sample Integrity - Condition

Y or N

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

Sample Integrity - Instructions

Y or N N/A

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

Comments

Accutest Laboratories
V: (303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www.accutest.com

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D42001
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1528-MB	5V25014.D	1	12/19/12	BD	n/a	n/a	V5V1528

The QC reported here applies to the following samples:

Method: SW846 8260B

D42001-1

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	95% 64-130%
460-00-4	4-Bromofluorobenzene	93% 62-131%
17060-07-0	1,2-Dichloroethane-D4	102% 70-130%

Blank Spike Summary

Page 1 of 1

Job Number: D42001
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1528-BS	5V25015.D	1	12/19/12	BD	n/a	n/a	V5V1528

The QC reported here applies to the following samples:

Method: SW846 8260B

D42001-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	44.0	88	70-130
100-41-4	Ethylbenzene	50	43.2	86	70-130
108-88-3	Toluene	50	43.1	86	70-130
1330-20-7	Xylene (total)	150	134	89	70-130

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

* = Outside of Control Limits.

Blank Spike Summary

Page 1 of 1

Job Number: D42001
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1528-BS	5V25016.D	1	12/19/12	BD	n/a	n/a	V5V1528

The QC reported here applies to the following samples:

Method: SW846 8260B

D42001-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
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CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	99%	64-130%
460-00-4	4-Bromofluorobenzene	94%	62-131%
17060-07-0	1,2-Dichloroethane-D4	97%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D42001
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D41921-1MS	5V25018.D	1	12/19/12	BD	n/a	n/a	V5V1528
D41921-1MSD	5V25019.D	1	12/19/12	BD	n/a	n/a	V5V1528
D41921-1	5V25017.D	1	12/19/12	BD	n/a	n/a	V5V1528

The QC reported here applies to the following samples:

Method: SW846 8260B

D42001-1

CAS No.	Compound	D41921-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3140	3600	115	3430	109	5	64-139/30
100-41-4	Ethylbenzene	ND		3140	3430	109	3300	105	4	68-136/30
108-88-3	Toluene	ND		3140	3380	108	3260	104	4	60-130/30
1330-20-7	Xylene (total)	ND		9420	10700	114	10300	109	4	58-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D41921-1	Limits
2037-26-5	Toluene-D8	96%	97%	95%	64-130%
460-00-4	4-Bromofluorobenzene	104%	105%	100%	62-131%
17060-07-0	1,2-Dichloroethane-D4	97%	96%	102%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D42001
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D41921-1MS	5V25020.D	1	12/19/12	BD	n/a	n/a	V5V1528
D41921-1MSD	5V25021.D	1	12/19/12	BD	n/a	n/a	V5V1528
D41921-1	5V25017.D	1	12/19/12	BD	n/a	n/a	V5V1528

The QC reported here applies to the following samples:

Method: SW846 8260B

D42001-1

CAS No.	Compound	D41921-1 ug/kg	Spike Q	ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
---------	----------	-------------------	------------	-------	-------------	---------	--------------	----------	-----	-------------------

CAS No.	Surrogate Recoveries	MS	MSD	D41921-1	Limits
2037-26-5	Toluene-D8	98%	97%	95%	64-130%
460-00-4	4-Bromofluorobenzene	101%	101%	100%	62-131%
17060-07-0	1,2-Dichloroethane-D4	97%	96%	102%	70-130%

* = Outside of Control Limits.

GC/MS Volatiles

Raw Data

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5121912.S\
Data File : 5V25027.D
Acq On : 19 Dec 2012 7:45 pm
Operator : BRETD
Sample : D42001-1
Misc : MS5144,V5V1528,5.008,,100,5,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Dec 20 09:09:28 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1497TVH1497.M
Quant Title : 8260
QLast Update : Wed Nov 14 09:54:38 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.624	168	368939	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.423	114	466370	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.072	117	476009	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.036	152	359959	50.00	ug/l	0.00

System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.012	102	31607	50.33	ug/l	-0.01
Spiked Amount	50.000	Range	70 - 130	Recovery	=	100.66%
61) Toluene-d8	13.816	98	531883	47.17	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	94.34%
69) 4-Bromofluorobenzene	16.020	95	234127	48.17	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	96.34%

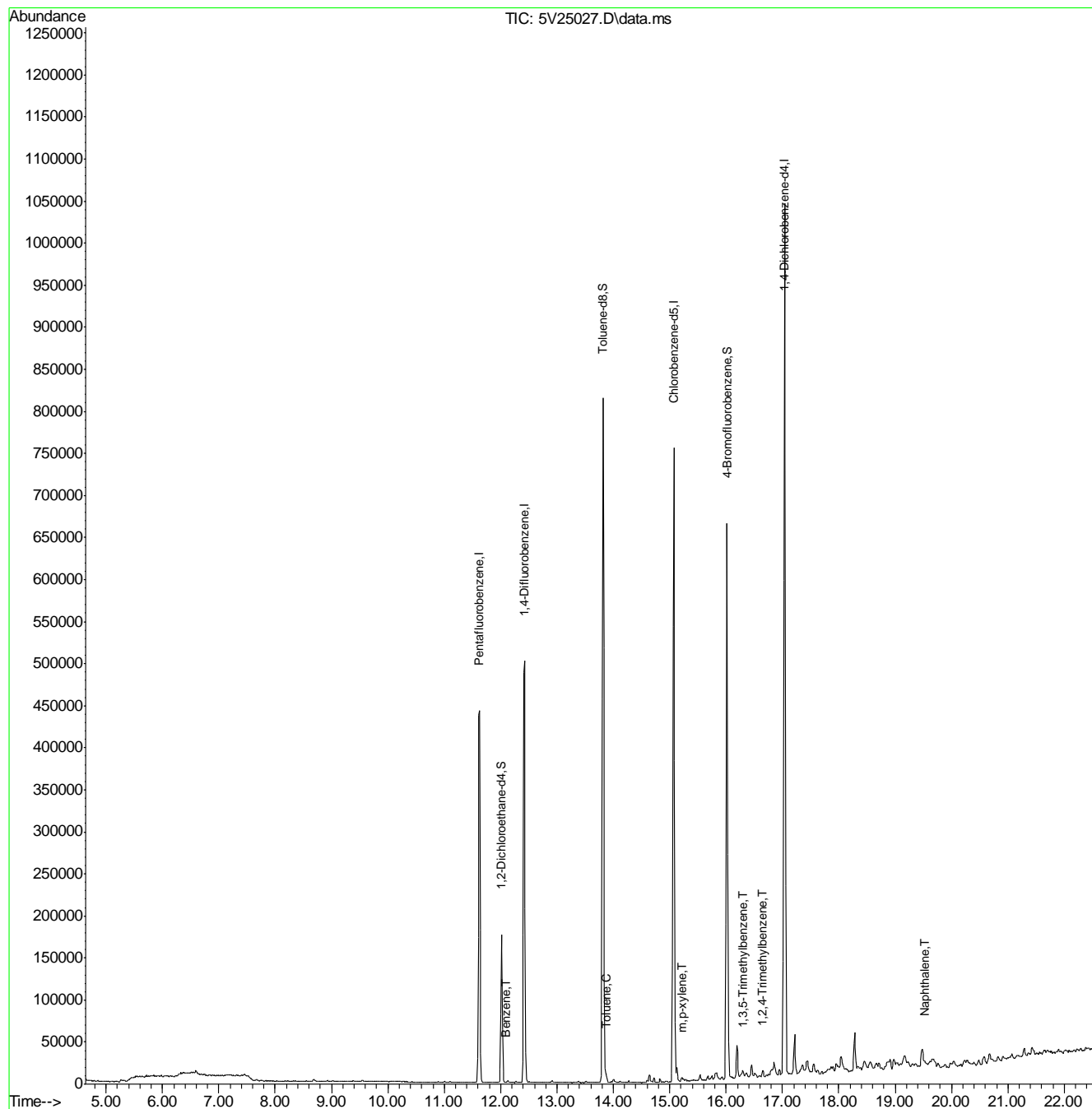
Target Compounds						Qvalue
50) Benzene	12.092	78	1299	0.10	ug/l	100
62) Toluene	13.873	92	2133	0.24	ug/l	92
72) m,p-xylene	15.220	106	1344	0.20	ug/l	92
80) 1,3,5-Trimethylbenzene	16.305	105	1159	0.07	ug/l	# 83
82) 1,2,4-Trimethylbenzene	16.648	105	2652	0.15	ug/l	85
91) Naphthalene	19.525	128	2998	0.17	ug/l	100

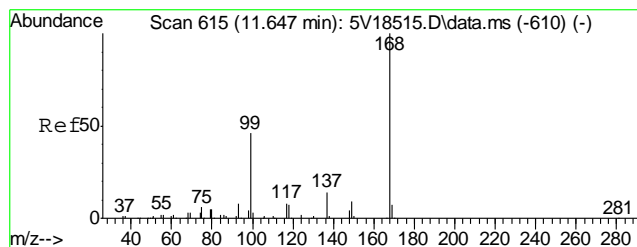
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5121912.S\
Data File : 5V25027.D
Acq On : 19 Dec 2012 7:45 pm
Operator : BRETD
Sample : D42001-1
Misc : MS5144,V5V1528,5.008,,100,5,1
ALS Vial : 18 Sample Multiplier: 1

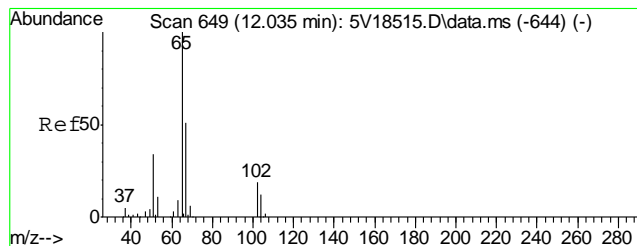
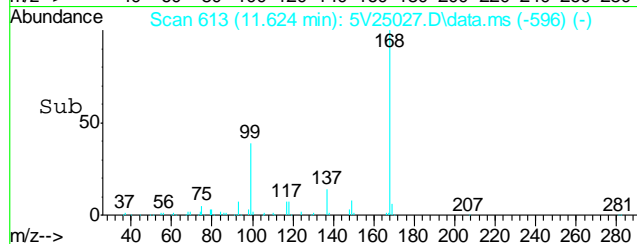
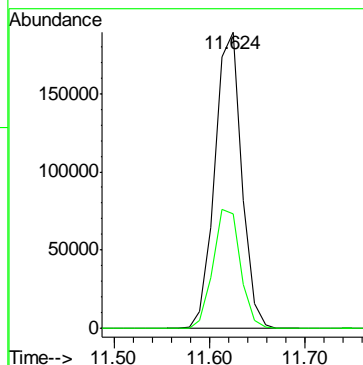
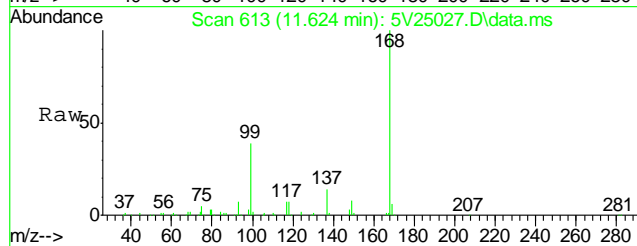
Quant Time: Dec 20 09:09:28 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1497TVH1497.M
Quant Title : 8260
QLast Update : Wed Nov 14 09:54:38 2012
Response via : Initial Calibration





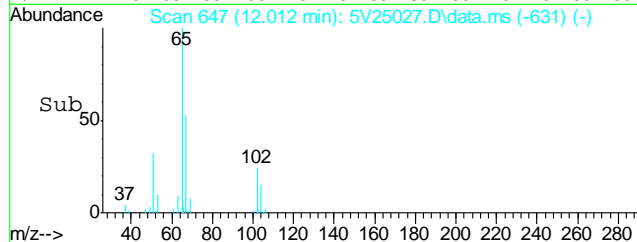
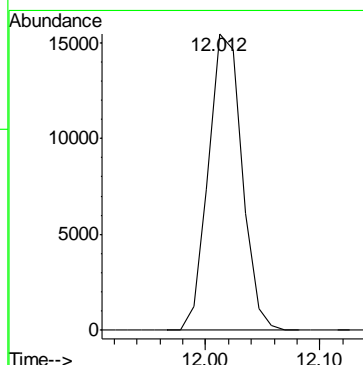
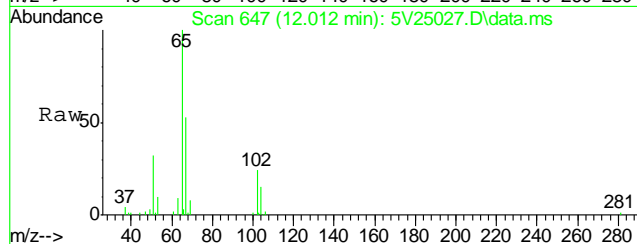
#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.624 min Scan# 613
Delta R.T. -0.000 min
Lab File: 5V25027.D
Acq: 19 Dec 2012 7:45 pm

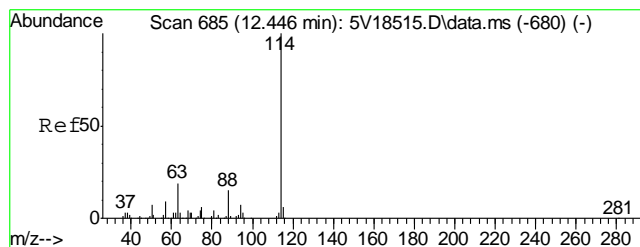
Tgt Ion:168 Resp: 368939
Ion Ratio Lower Upper
168 100
99 41.0 37.4 56.2



#33
1,2-Dichloroethane-d4
Concen: 50.33 ug/l
RT: 12.012 min Scan# 647
Delta R.T. -0.012 min
Lab File: 5V25027.D
Acq: 19 Dec 2012 7:45 pm

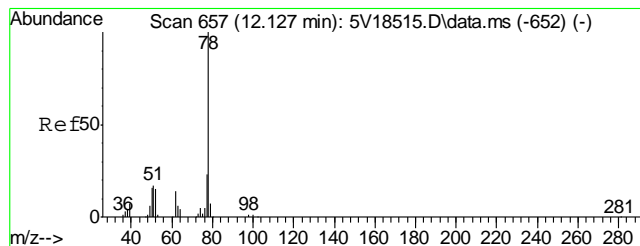
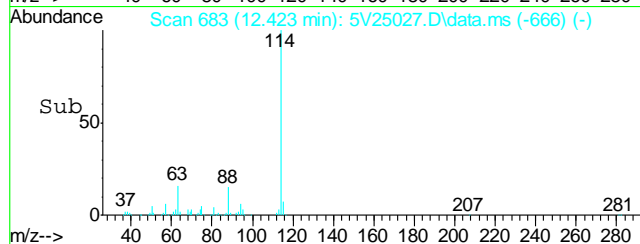
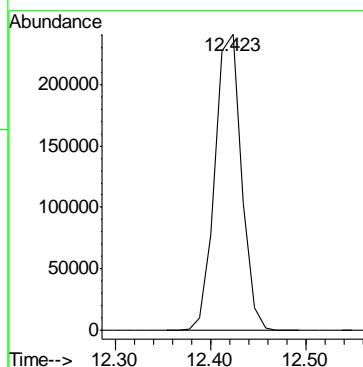
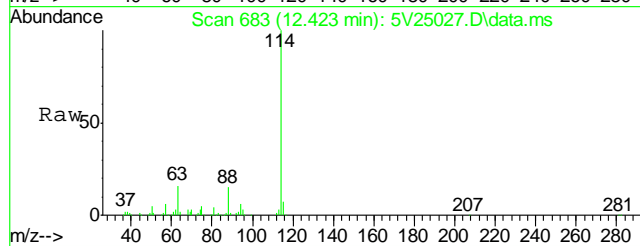
Tgt Ion:102 Resp: 31607





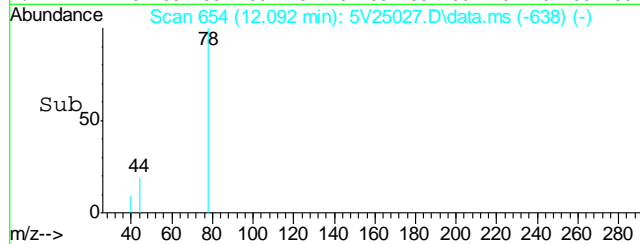
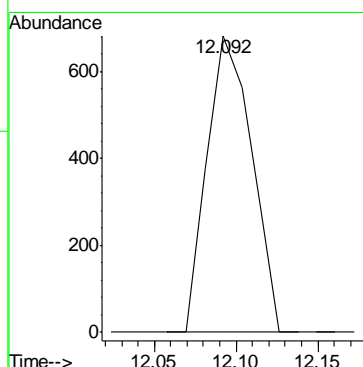
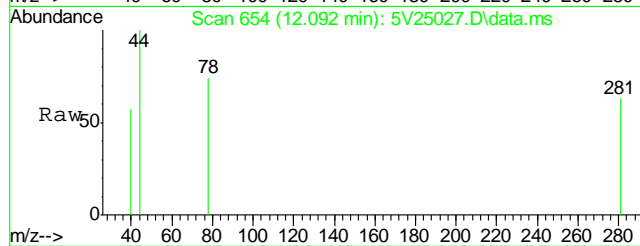
#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.423 min Scan# 683
Delta R.T. -0.000 min
Lab File: 5V25027.D
Acq: 19 Dec 2012 7:45 pm

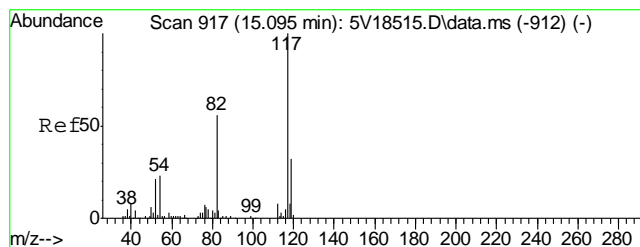
Tgt Ion: 114 Resp: 466370



#50
Benzene
Concen: 0.10 ug/l
RT: 12.092 min Scan# 654
Delta R.T. -0.012 min
Lab File: 5V25027.D
Acq: 19 Dec 2012 7:45 pm

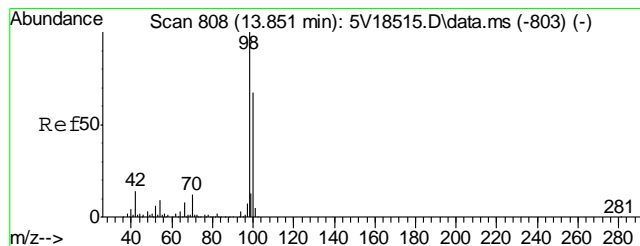
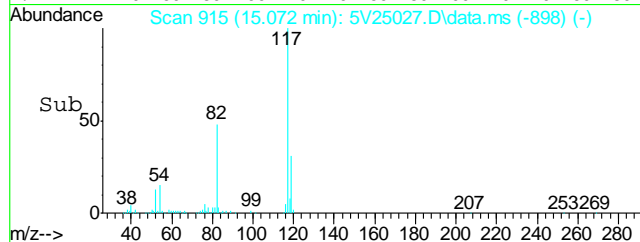
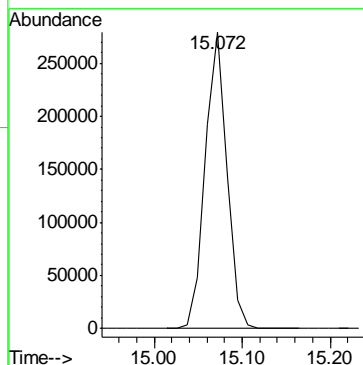
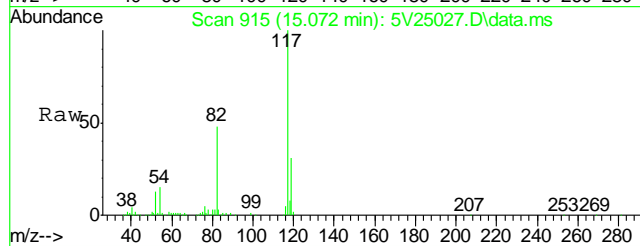
Tgt Ion: 78 Resp: 1299





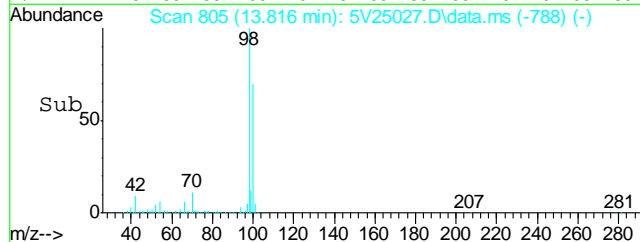
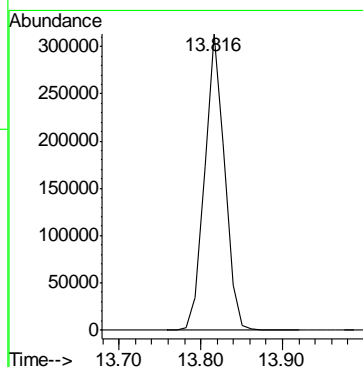
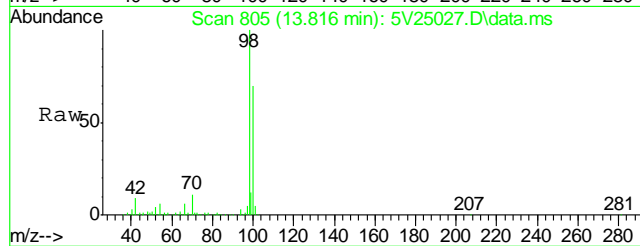
#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.072 min Scan# 915
Delta R.T. -0.000 min
Lab File: 5V25027.D
Acq: 19 Dec 2012 7:45 pm

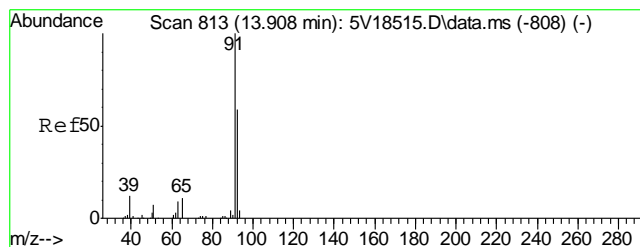
Tgt Ion:117 Resp: 476009



#61
Toluene-d8
Concen: 47.17 ug/l
RT: 13.816 min Scan# 805
Delta R.T. -0.000 min
Lab File: 5V25027.D
Acq: 19 Dec 2012 7:45 pm

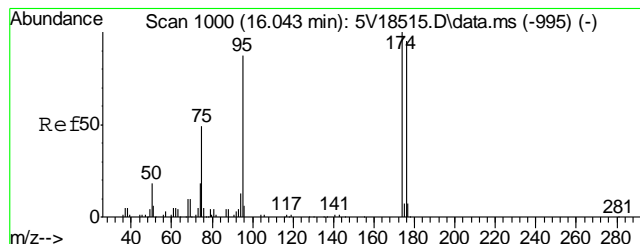
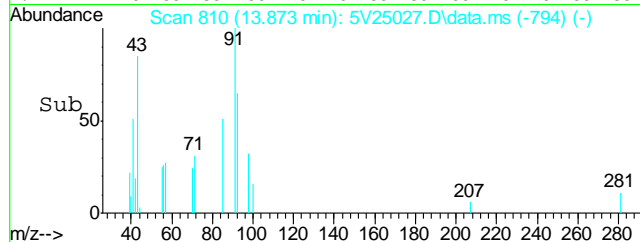
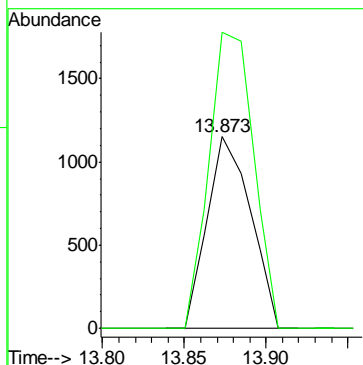
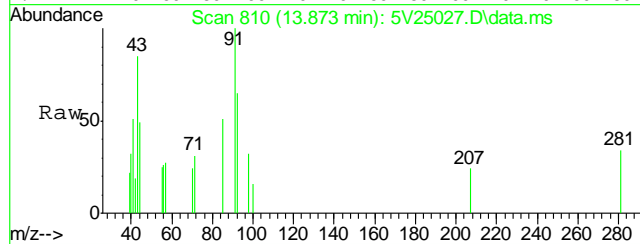
Tgt Ion: 98 Resp: 531883





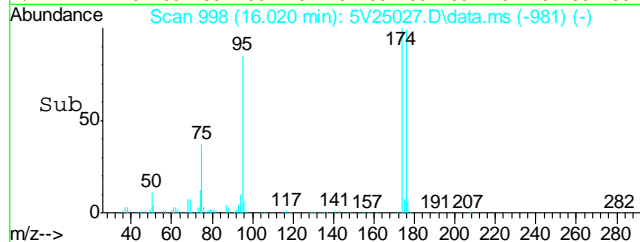
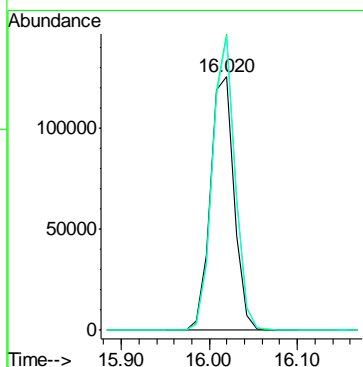
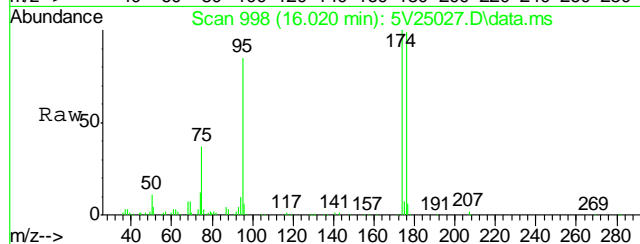
#62
Toluene
Concen: 0.24 ug/l
RT: 13.873 min Scan# 810
Delta R.T. -0.012 min
Lab File: 5V25027.D
Acq: 19 Dec 2012 7:45 pm

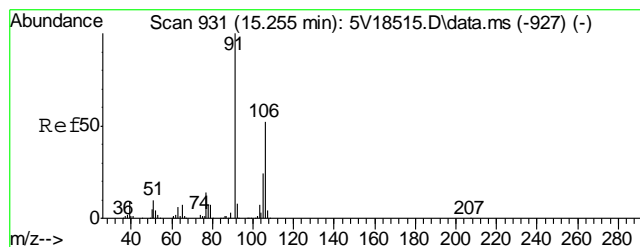
Tgt Ion: 92 Resp: 2133
Ion Ratio Lower Upper
92 100
91 158.4 149.8 189.8



#69
4-Bromofluorobenzene
Concen: 48.17 ug/l
RT: 16.020 min Scan# 998
Delta R.T. -0.000 min
Lab File: 5V25027.D
Acq: 19 Dec 2012 7:45 pm

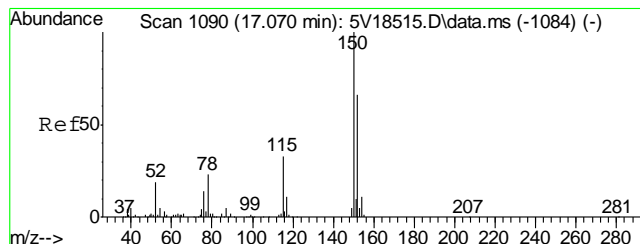
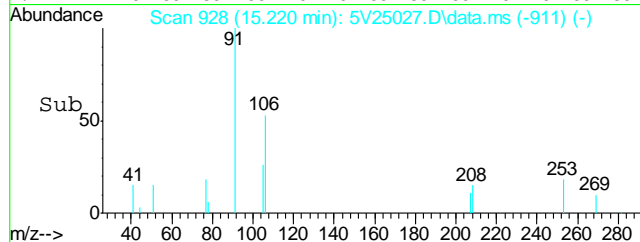
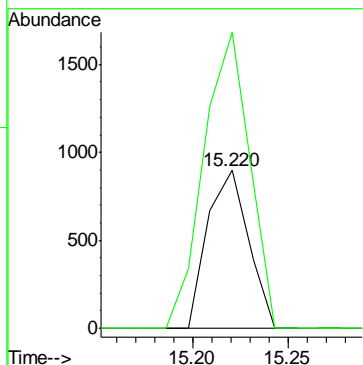
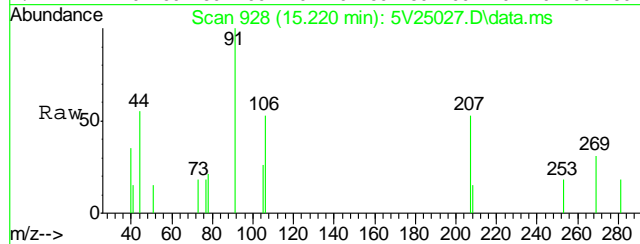
Tgt Ion: 95 Resp: 234127
Ion Ratio Lower Upper
95 100
174 111.2 77.1 117.1
176 109.6 73.4 113.4





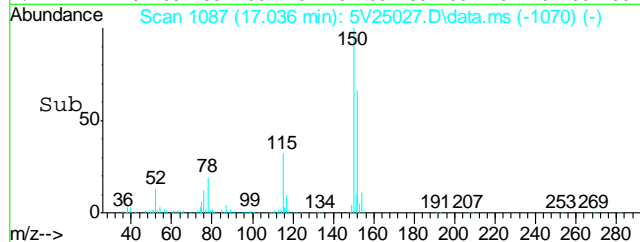
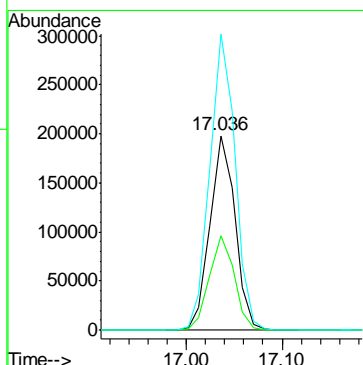
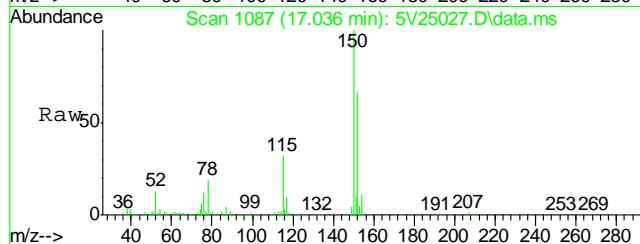
#72
m,p-xylene
Concen: 0.20 ug/l
RT: 15.220 min Scan# 928
Delta R.T. -0.000 min
Lab File: 5V25027.D
Acq: 19 Dec 2012 7:45 pm

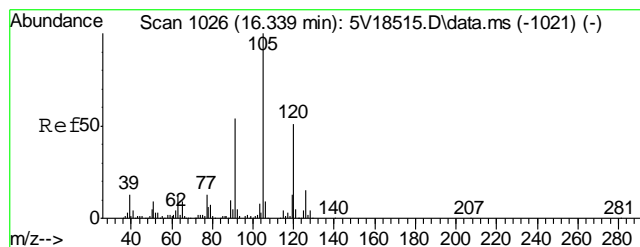
Tgt Ion:106 Resp: 1344
Ion Ratio Lower Upper
106 100
91 209.3 177.1 217.1



#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.036 min Scan# 1087
Delta R.T. -0.000 min
Lab File: 5V25027.D
Acq: 19 Dec 2012 7:45 pm

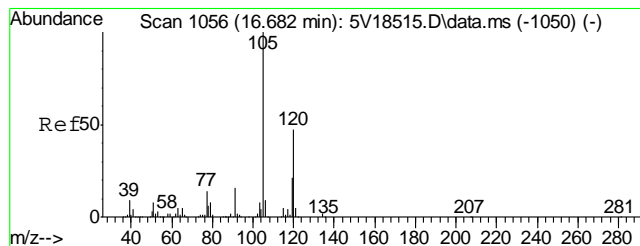
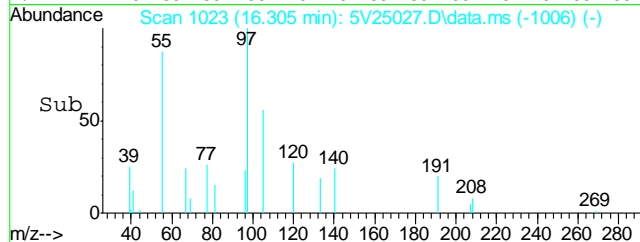
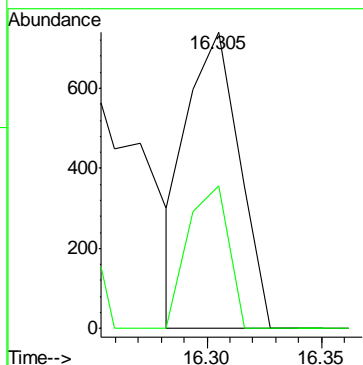
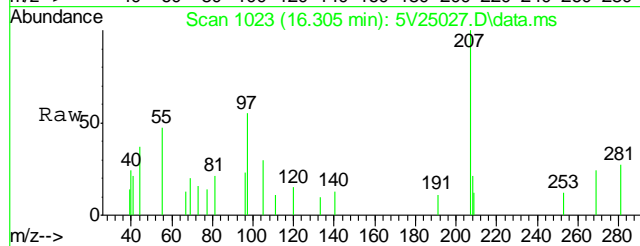
Tgt Ion:152 Resp: 359959
Ion Ratio Lower Upper
152 100
115 48.4 41.4 62.0
150 154.0 153.9 230.9





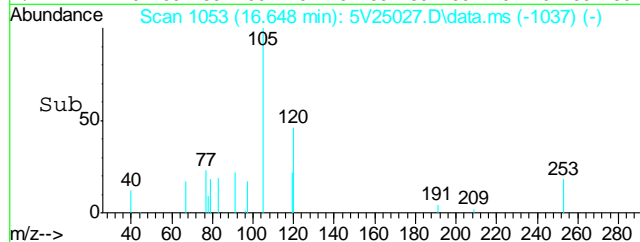
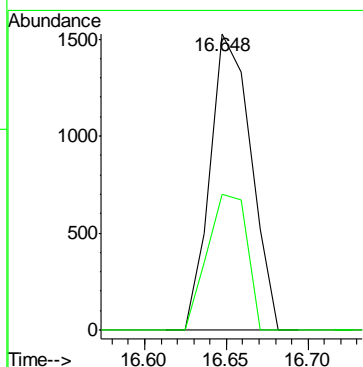
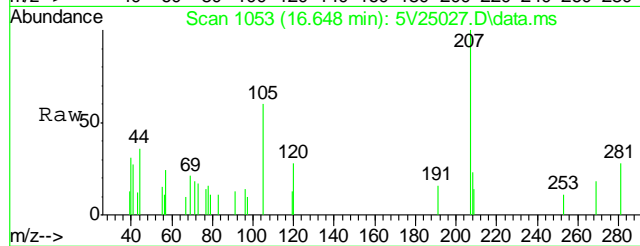
#80
1,3,5-Trimethylbenzene
Concen: 0.07 ug/l
RT: 16.305 min Scan# 1023
Delta R.T. -0.000 min
Lab File: 5V25027.D
Acq: 19 Dec 2012 7:45 pm

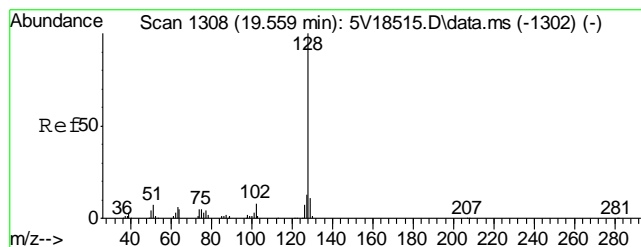
Tgt Ion	Ratio	Lower	Upper
105	100		
120	38.4	40.1	60.1#



#82
1,2,4-Trimethylbenzene
Concen: 0.15 ug/l
RT: 16.648 min Scan# 1053
Delta R.T. -0.012 min
Lab File: 5V25027.D
Acq: 19 Dec 2012 7:45 pm

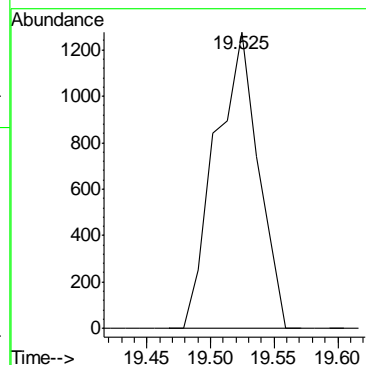
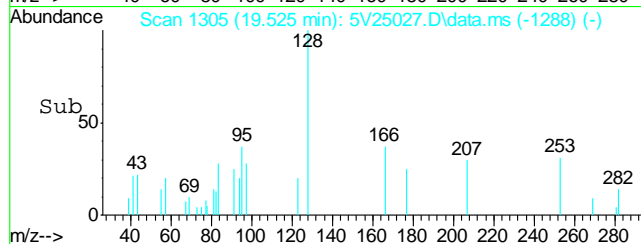
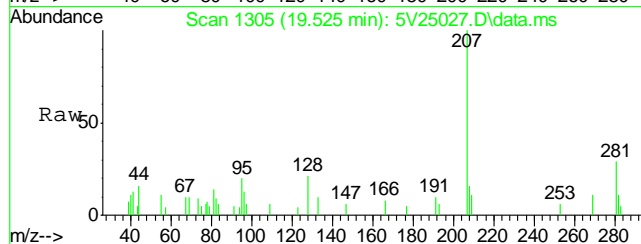
Tgt Ion	Ratio	Lower	Upper
105	100		
120	44.3	43.8	65.8





#91
Naphthalene
Concen: 0.17 ug/l
RT: 19.525 min Scan# 1305
Delta R.T. -0.000 min
Lab File: 5V25027.D
Acq: 19 Dec 2012 7:45 pm

Tgt Ion:128 Resp: 2998



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5121912.S\
Data File : 5V25014.D
Acq On : 19 Dec 2012 12:22 pm
Operator : BRETD
Sample : MB
Misc : MS5144,V5V1528,5.00,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 20 08:38:19 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1497TVH1497.M
Quant Title : 8260
QLast Update : Wed Nov 14 09:54:38 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.624	168	332685	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.423	114	409622	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.072	117	414377	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.036	152	299739	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.024	102	29017	51.25	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	102.50%
61) Toluene-d8	13.816	98	467981	47.67	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	95.34%
69) 4-Bromofluorobenzene	16.008	95	196026	46.33	ug/l	-0.01
Spiked Amount	50.000	Range	70 - 130	Recovery	=	92.66%

Target Compounds

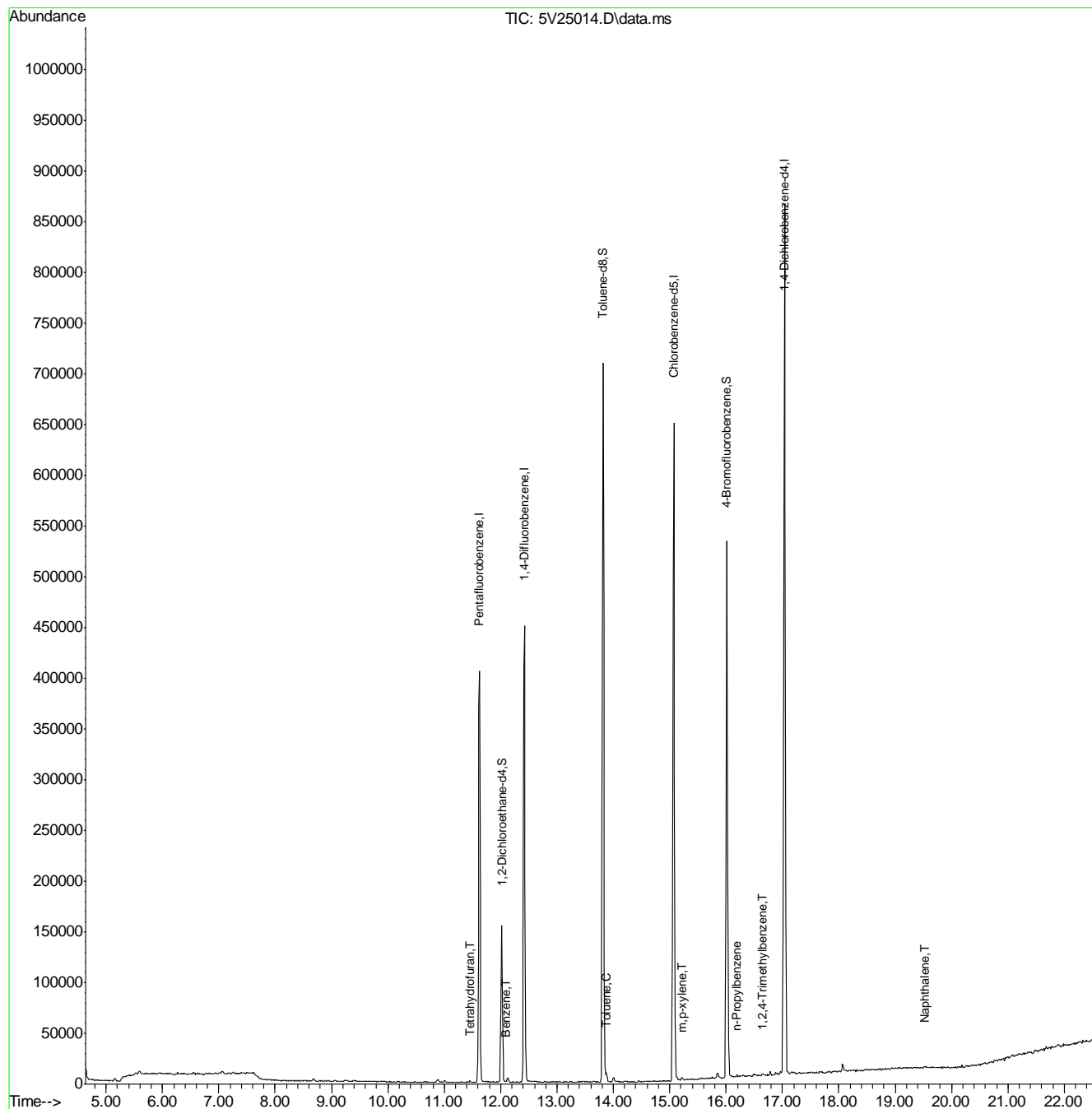
					Qvalue
1) TVH-Gasoline	13.816	TIC	6105400m	Below Cal	
31) Tetrahydrofuran	11.453	42	525	0.76 ug/l #	81
50) Benzene	12.092	78	1146	0.11 ug/l	100
62) Toluene	13.873	92	3500	0.46 ug/l	89
72) m,p-xylene	15.220	106	928	0.16 ug/l #	55
77) n-Propylbenzene	16.191	91	560	0.03 ug/l #	82
82) 1,2,4-Trimethylbenzene	16.648	105	1648	0.12 ug/l #	78
91) Naphthalene	19.525	128	2848	0.19 ug/l	100

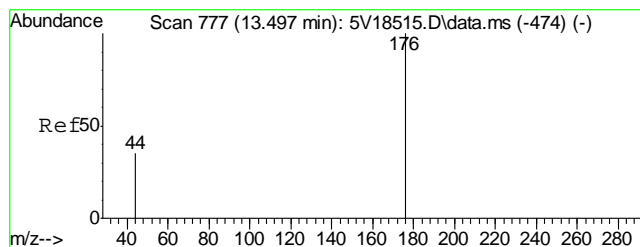
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5121912.S\
Data File : 5V25014.D
Acq On : 19 Dec 2012 12:22 pm
Operator : BRETD
Sample : MB
Misc : MS5144,V5V1528,5.00,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

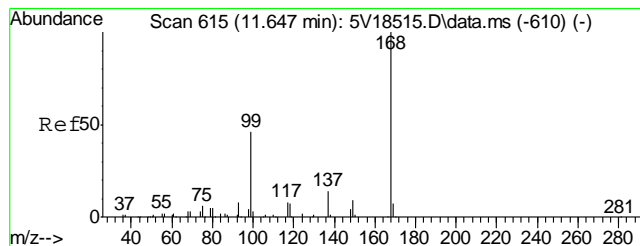
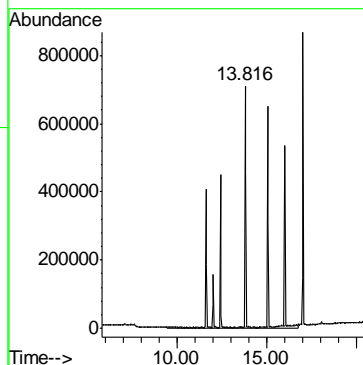
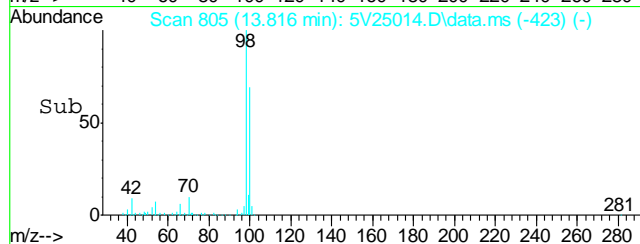
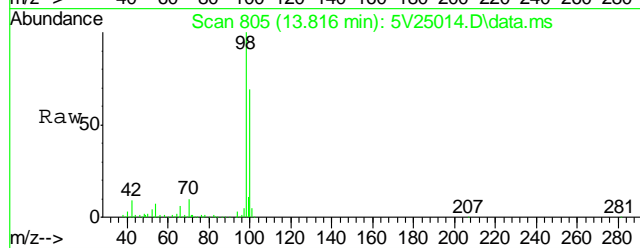
Quant Time: Dec 20 08:38:19 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1497TVH1497.M
Quant Title : 8260
QLast Update : Wed Nov 14 09:54:38 2012
Response via : Initial Calibration





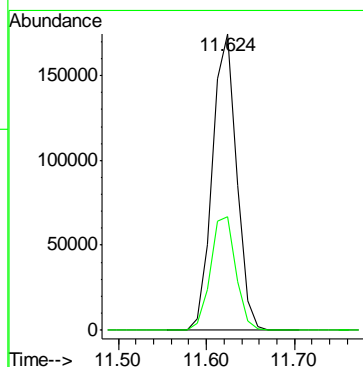
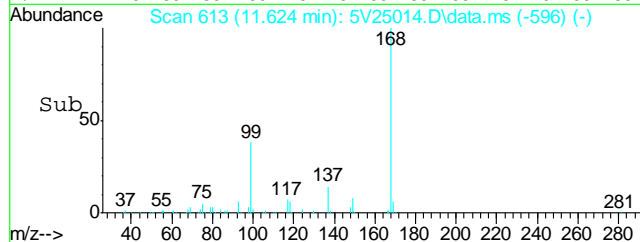
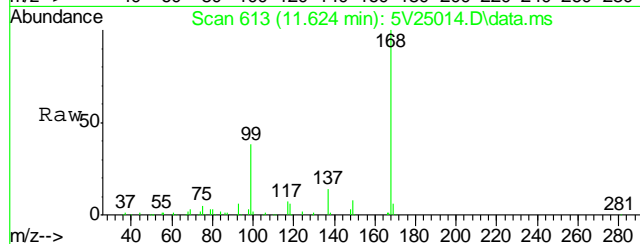
#1
TVH-Gasoline
Concen: Below Cal m
RT: 13.816 min Scan# 805
Delta R.T. 0.714 min
Lab File: 5V25014.D
Acq: 19 Dec 2012 12:22 pm

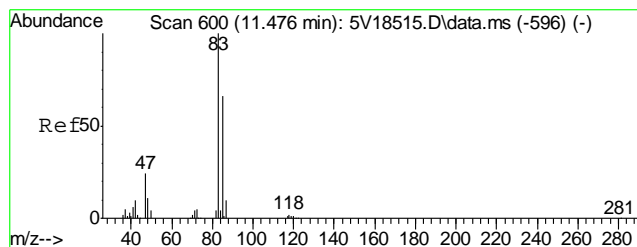
Tgt Ion:TIC Resp: 6105400



#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.624 min Scan# 613
Delta R.T. -0.000 min
Lab File: 5V25014.D
Acq: 19 Dec 2012 12:22 pm

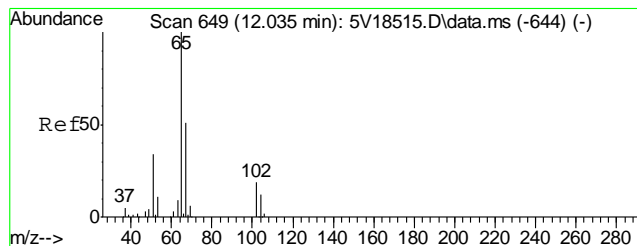
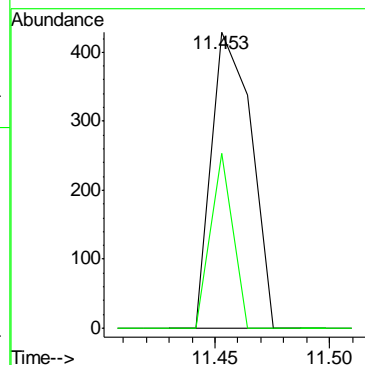
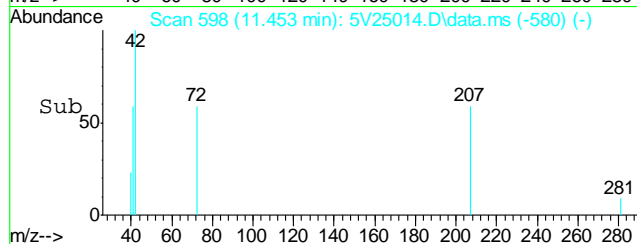
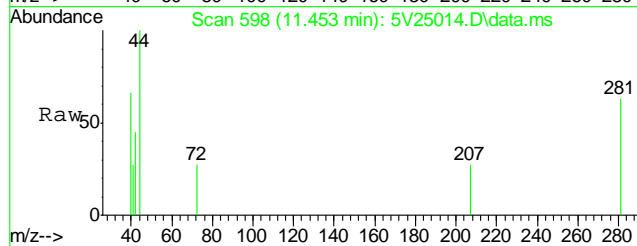
Tgt Ion:168 Resp: 332685
Ion Ratio Lower Upper
168 100
99 39.8 37.4 56.2





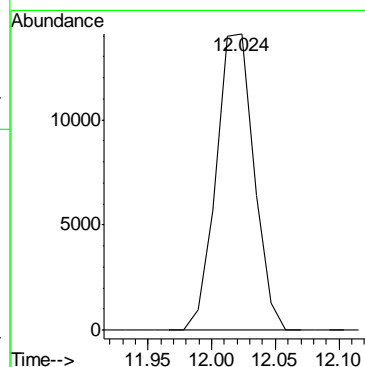
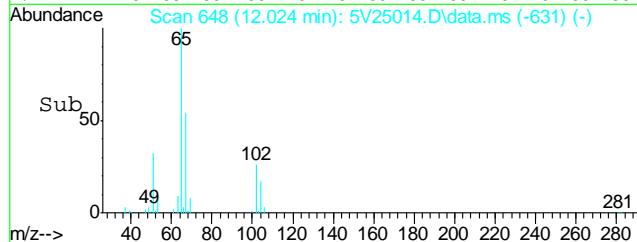
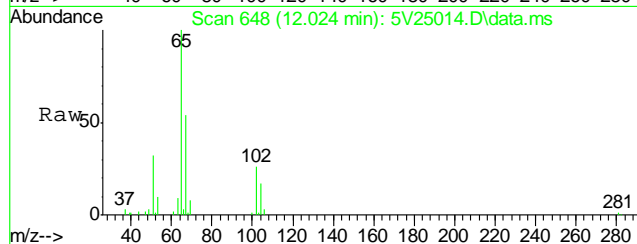
#31
Tetrahydrofuran
Concen: 0.76 ug/l
RT: 11.453 min Scan# 598
Delta R.T. -0.000 min
Lab File: 5V25014.D
Acq: 19 Dec 2012 12:22 pm

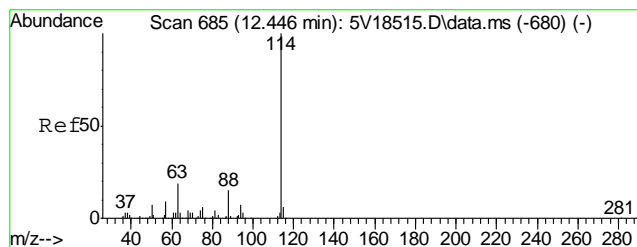
Tgt Ion: 42 Resp: 525
Ion Ratio Lower Upper
42 100
72 33.0 36.3 54.5#



#33
1,2-Dichloroethane-d4
Concen: 51.25 ug/l
RT: 12.024 min Scan# 648
Delta R.T. -0.000 min
Lab File: 5V25014.D
Acq: 19 Dec 2012 12:22 pm

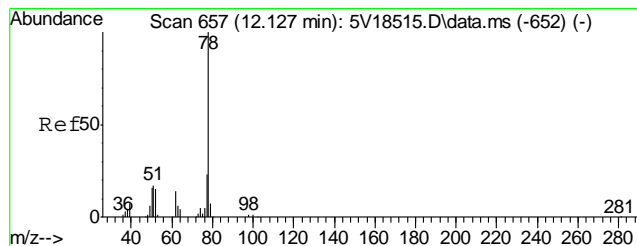
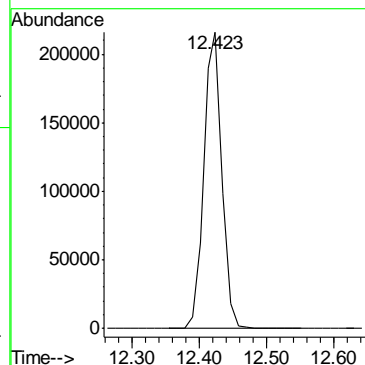
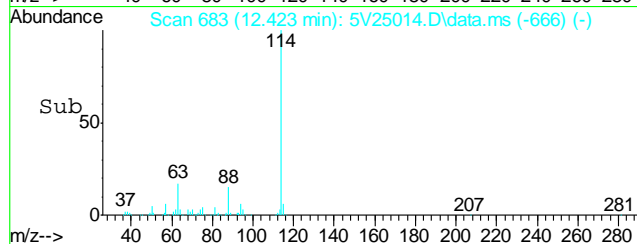
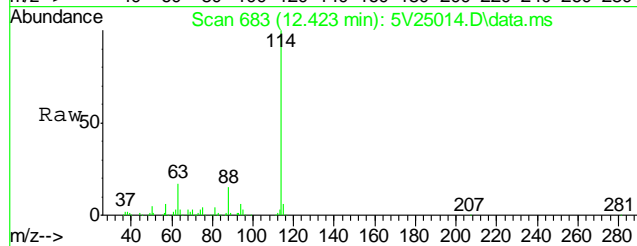
Tgt Ion: 102 Resp: 29017





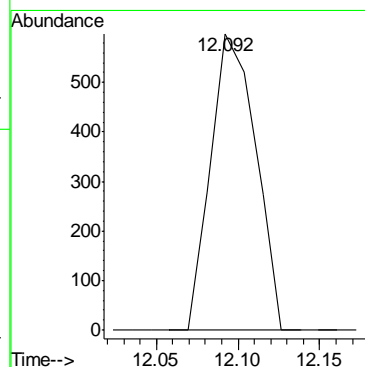
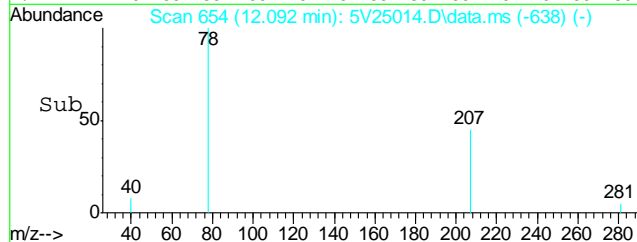
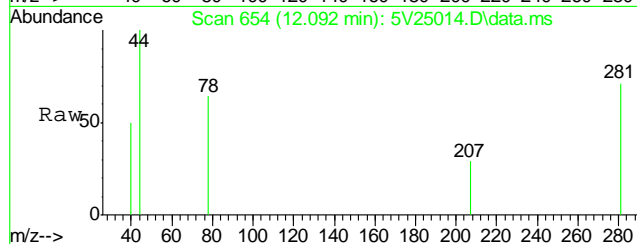
#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.423 min Scan# 683
Delta R.T. -0.000 min
Lab File: 5V25014.D
Acq: 19 Dec 2012 12:22 pm

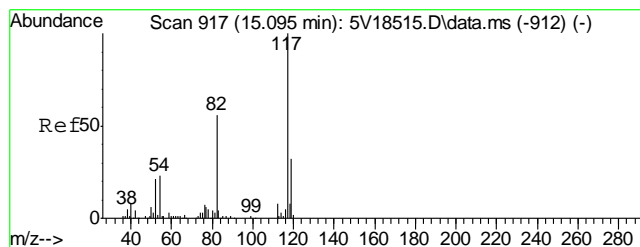
Tgt Ion: 114 Resp: 409622



#50
Benzene
Concen: 0.11 ug/l
RT: 12.092 min Scan# 654
Delta R.T. -0.012 min
Lab File: 5V25014.D
Acq: 19 Dec 2012 12:22 pm

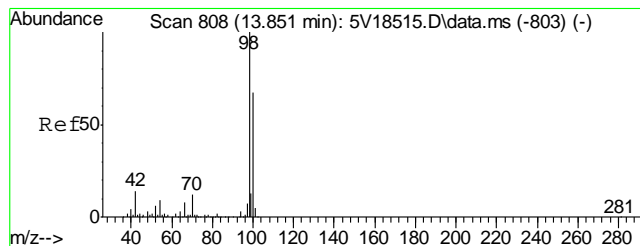
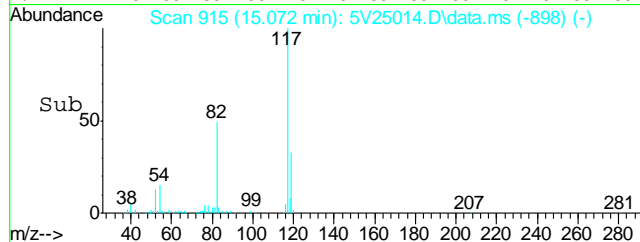
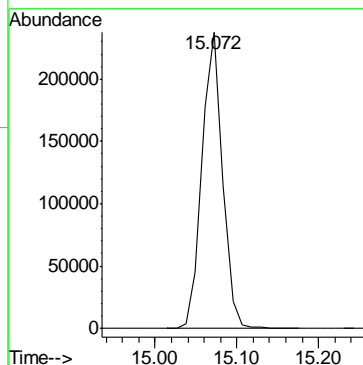
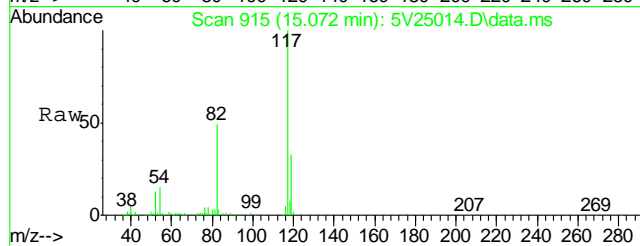
Tgt Ion: 78 Resp: 1146





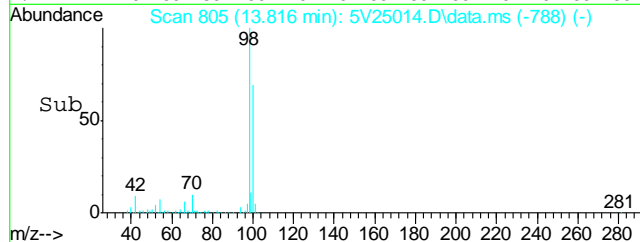
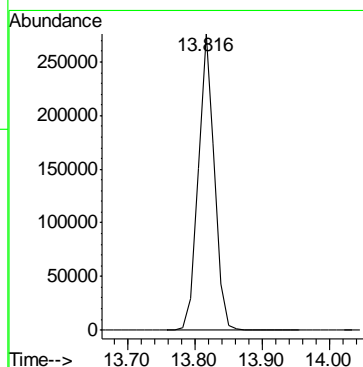
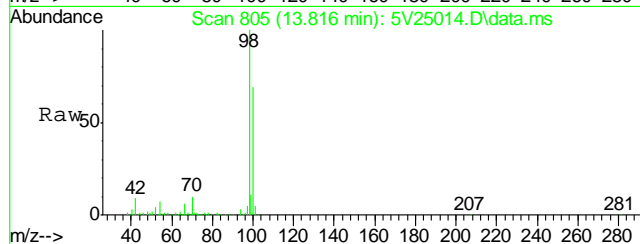
#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.072 min Scan# 915
Delta R.T. -0.000 min
Lab File: 5V25014.D
Acq: 19 Dec 2012 12:22 pm

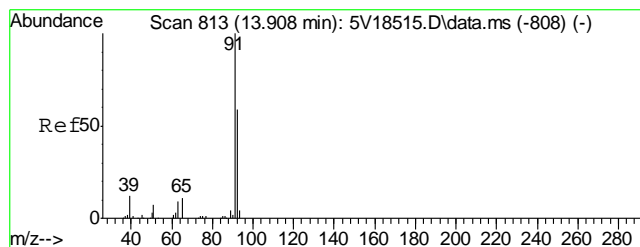
Tgt Ion: 117 Resp: 414377



#61
Toluene-d8
Concen: 47.67 ug/l
RT: 13.816 min Scan# 805
Delta R.T. -0.000 min
Lab File: 5V25014.D
Acq: 19 Dec 2012 12:22 pm

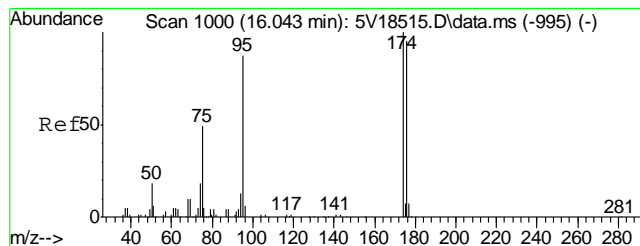
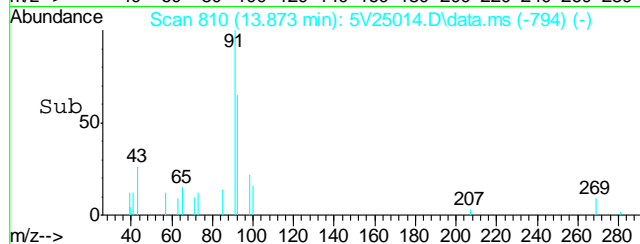
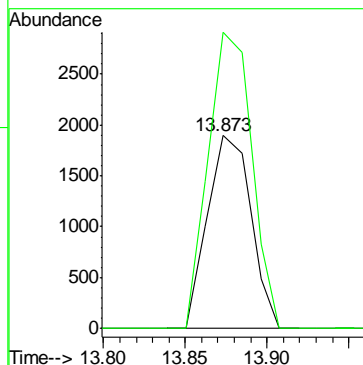
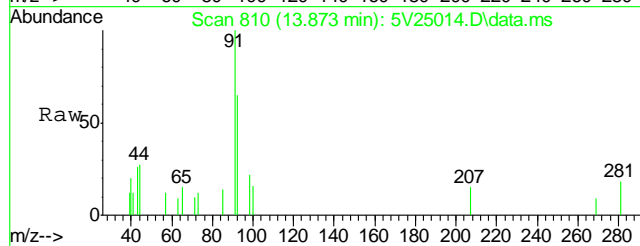
Tgt Ion: 98 Resp: 467981





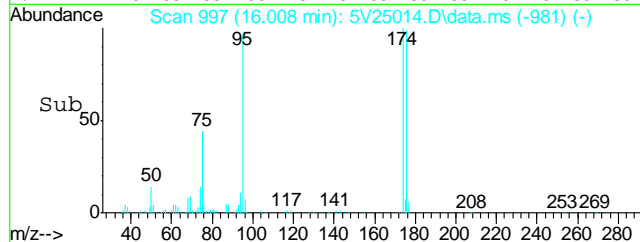
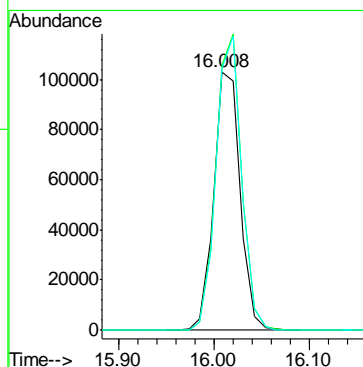
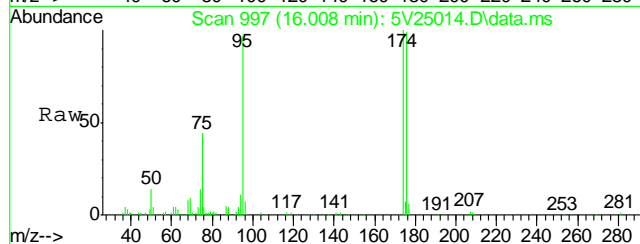
#62
Toluene
Concen: 0.46 ug/l
RT: 13.873 min Scan# 810
Delta R.T. -0.012 min
Lab File: 5V25014.D
Acq: 19 Dec 2012 12:22 pm

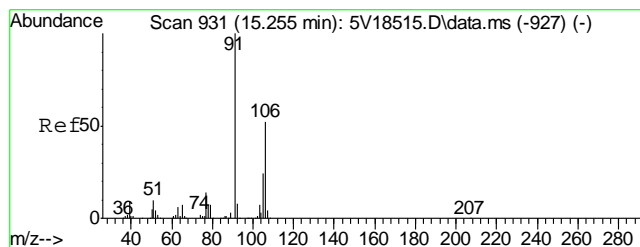
Tgt Ion: 92 Resp: 3500
Ion Ratio Lower Upper
92 100
91 154.8 149.8 189.8



#69
4-Bromofluorobenzene
Concen: 46.33 ug/l
RT: 16.008 min Scan# 997
Delta R.T. -0.012 min
Lab File: 5V25014.D
Acq: 19 Dec 2012 12:22 pm

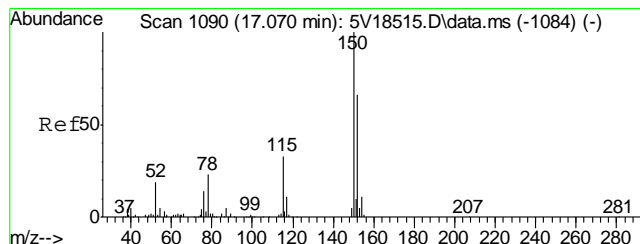
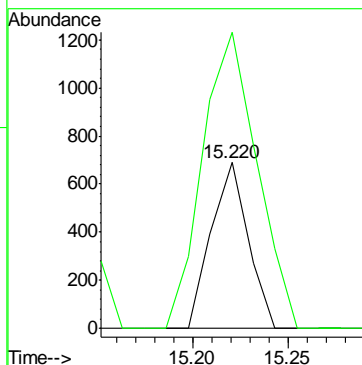
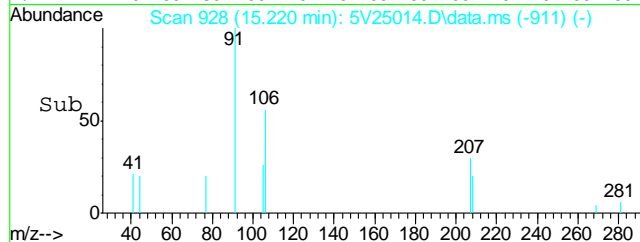
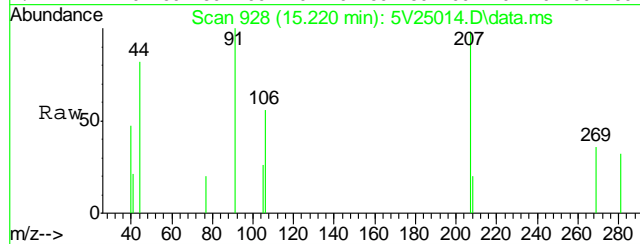
Tgt Ion: 95 Resp: 196026
Ion Ratio Lower Upper
95 100
174 112.1 77.1 117.1
176 110.4 73.4 113.4





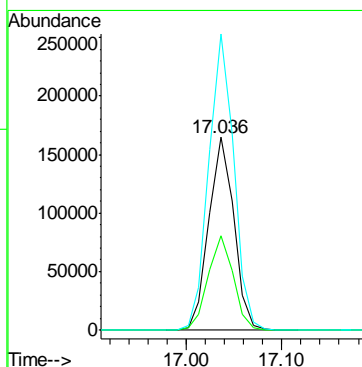
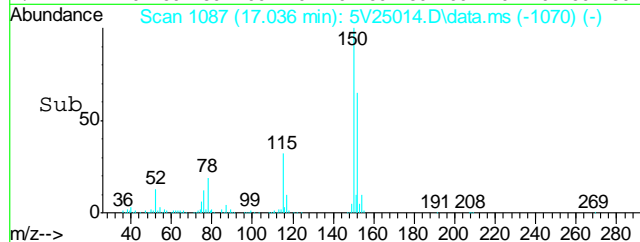
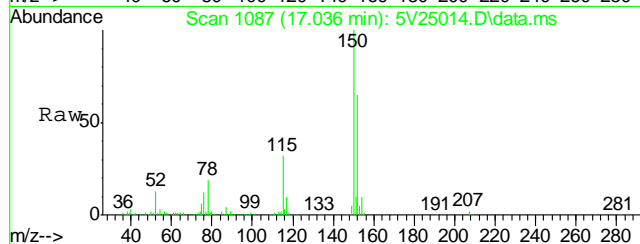
#72
m,p-xylene
Concen: 0.16 ug/l
RT: 15.220 min Scan# 928
Delta R.T. -0.000 min
Lab File: 5V25014.D
Acq: 19 Dec 2012 12:22 pm

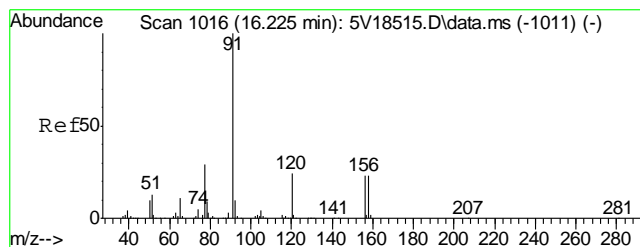
Tgt Ion: 106 Resp: 928
Ion Ratio Lower Upper
106 100
91 263.9 177.1 217.1#



#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.036 min Scan# 1087
Delta R.T. -0.000 min
Lab File: 5V25014.D
Acq: 19 Dec 2012 12:22 pm

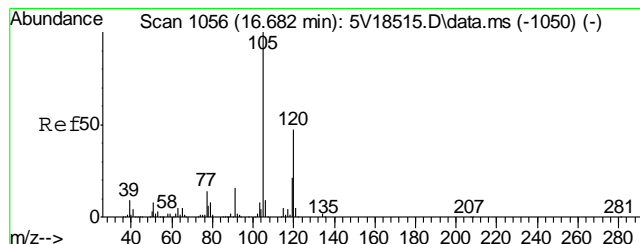
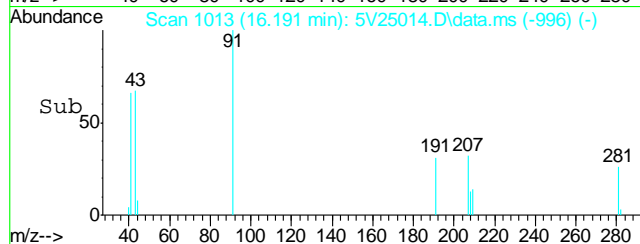
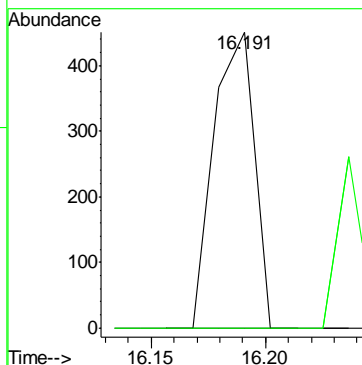
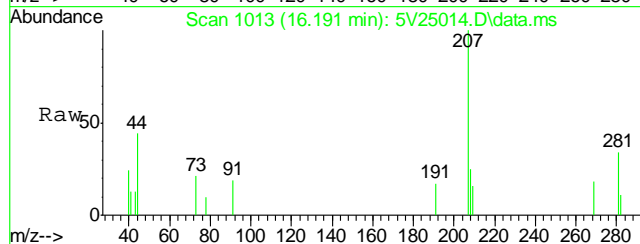
Tgt Ion: 152 Resp: 299739
Ion Ratio Lower Upper
152 100
115 48.9 41.4 62.0
150 153.0 153.9 230.9#





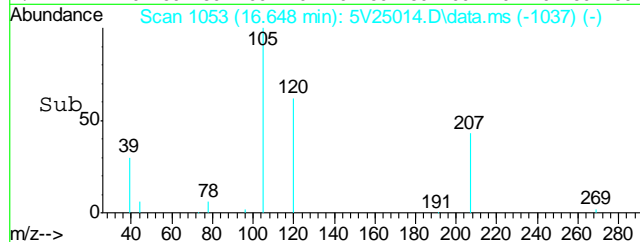
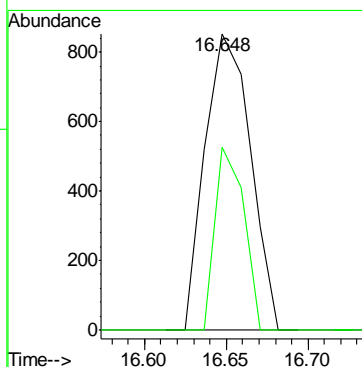
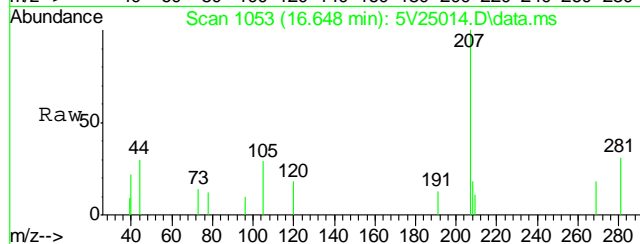
#77
n-Propylbenzene
Concen: 0.03 ug/l
RT: 16.191 min Scan# 1013
Delta R.T. -0.000 min
Lab File: 5V25014.D
Acq: 19 Dec 2012 12:22 pm

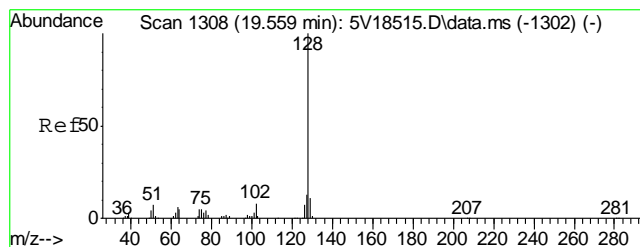
Tgt Ion: 91 Resp: 560
Ion Ratio Lower Upper
91 100
120 32.0 18.6 27.8#



#82
1,2,4-Trimethylbenzene
Concen: 0.12 ug/l
RT: 16.648 min Scan# 1053
Delta R.T. -0.012 min
Lab File: 5V25014.D
Acq: 19 Dec 2012 12:22 pm

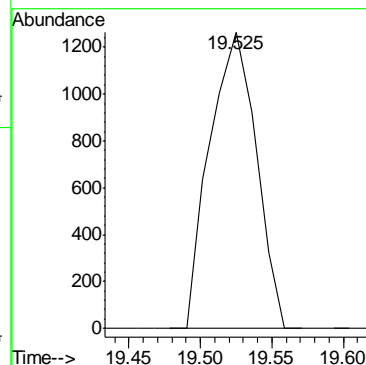
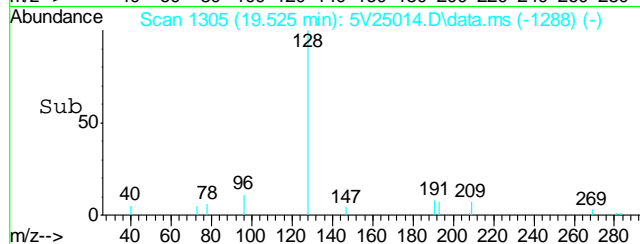
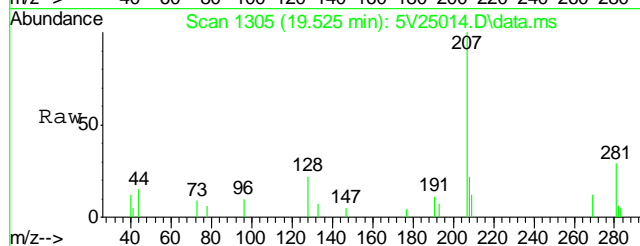
Tgt Ion: 105 Resp: 1648
Ion Ratio Lower Upper
105 100
120 38.8 43.8 65.8#





#91
Naphthalene
Concen: 0.19 ug/l
RT: 19.525 min Scan# 1305
Delta R.T. -0.000 min
Lab File: 5V25014.D
Acq: 19 Dec 2012 12:22 pm

Tgt Ion:128 Resp: 2848



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: D42001
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7139-MB	3G12668.D	1	12/24/12	DC	12/24/12	OP7139	E3G604

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D42001-1

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

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	85% 10-159%
321-60-8	2-Fluorobiphenyl	83% 19-131%
1718-51-0	Terphenyl-d14	95% 18-150%

8.1.1

8

Blank Spike Summary

Page 1 of 1

Job Number: D42001
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7139-BS	3G12669.D	1	12/24/12	DC	12/24/12	OP7139	E3G604

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D42001-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	64.8	78	68-130
120-12-7	Anthracene	83.3	61.8	74	67-130
56-55-3	Benzo(a)anthracene	83.3	63.3	76	65-130
205-99-2	Benzo(b)fluoranthene	83.3	54.8	66	44-130
207-08-9	Benzo(k)fluoranthene	83.3	83.7	100	56-131
50-32-8	Benzo(a)pyrene	83.3	75.2	90	62-130
218-01-9	Chrysene	83.3	74.3	89	70-130
53-70-3	Dibenzo(a,h)anthracene	83.3	60.4	72	55-130
206-44-0	Fluoranthene	83.3	61.4	74	70-130
86-73-7	Fluorene	83.3	63.6	76	70-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	62.2	75	56-130
91-20-3	Naphthalene	83.3	70.9	85	70-130
129-00-0	Pyrene	83.3	71.2	85	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	78%	10-159%
321-60-8	2-Fluorobiphenyl	85%	19-131%
1718-51-0	Terphenyl-d14	91%	18-150%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D42001
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7139-MS	3G12671.D	1	12/24/12	DC	12/24/12	OP7139	E3G604
OP7139-MSD	3G12672.D	1	12/24/12	DC	12/24/12	OP7139	E3G604
D42001-1	3G12670.D	1	12/24/12	DC	12/24/12	OP7139	E3G604

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D42001-1

CAS No.	Compound	D42001-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		151	88.4	59	96.8	65	9	25-151/30
120-12-7	Anthracene	ND		151	104	69	100	67	4	39-159/30
56-55-3	Benzo(a)anthracene	ND		151	119	79	114	76	4	39-168/30
205-99-2	Benzo(b)fluoranthene	ND		151	143	95	143	95	0	24-163/30
207-08-9	Benzo(k)fluoranthene	ND		151	101	67	96.6	64	4	10-188/30
50-32-8	Benzo(a)pyrene	ND		151	125	83	115	77	8	32-144/30
218-01-9	Chrysene	ND		151	123	82	118	79	4	43-150/30
53-70-3	Dibenzo(a,h)anthracene	ND		151	107	71	99.5	66	7	21-152/30
206-44-0	Fluoranthene	ND		151	103	68	99.0	66	4	36-157/30
86-73-7	Fluorene	ND		151	89.5	59	104	69	15	10-182/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		151	105	70	98.2	65	7	20-154/30
91-20-3	Naphthalene	38.4		151	166	85	157	79	6	10-163/30
129-00-0	Pyrene	ND		151	124	82	118	79	5	25-180/30

CAS No.	Surrogate Recoveries	MS	MSD	D42001-1	Limits
4165-60-0	Nitrobenzene-d5	43%	55%	55%	10-159%
321-60-8	2-Fluorobiphenyl	55%	64%	56%	19-131%
1718-51-0	Terphenyl-d14	82%	79%	74%	18-150%

* = Outside of Control Limits.

GC/MS Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\122412\
 Data File : 3g12670.D
 Acq On : 24 Dec 2012 12:23 pm
 Operator : DONC
 Sample : D42001-1
 Misc : OP7139,E3G604,30.01,,,1,1
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 24 14:15:19 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G586.M
 Quant Title : PAHSIM BASE
 QLast Update : Mon Dec 24 11:50:40 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.633	136	156730	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.349	164	117368	4.0000	ug/mL	0.00
15) Phenanthrene-d10	8.828	188	177404	4.0000	ug/mL	0.00
19) Chrysene-d12	11.463	240	132957	4.0000	ug/mL	0.00
24) Perylene-d12	12.831	264	111235	4.0000	ug/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	4.948	82	430493	27.4777	ug/mL	0.00
Spiked Amount 50.000	Range	25 - 135	Recovery	=	54.96%	
7) 2-Fluorobiphenyl	6.688	172	1474949	27.8011	ug/mL	0.00
Spiked Amount 50.000	Range	25 - 135	Recovery	=	55.60%	
21) Terphenyl-d14	10.418	244	719516	36.7647	ug/mL	0.00
Spiked Amount 50.000	Range	25 - 135	Recovery	=	73.52%	

Target Compounds

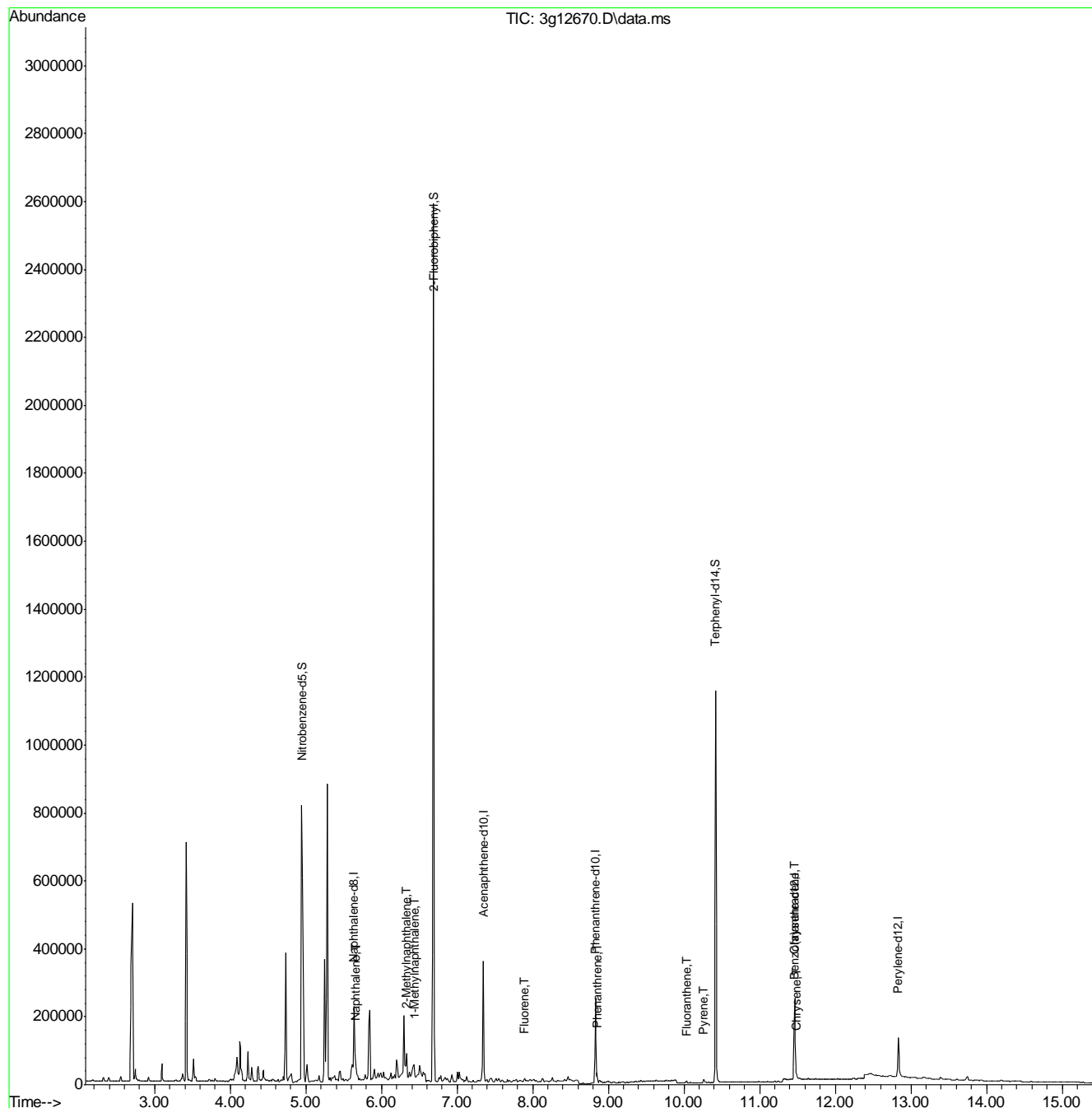
						Qvalue
3) N-Nitrosodimethylamine	0.000	74	0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d	
5) Naphthalene	5.658	128	30147	0.6358	ug/mL	86
8) 2-Methylnaphthalene	6.331	142	35647	0.8497	ug/mL	98
9) 1-Methylnaphthalene	6.431	142	18135m	0.4362	ug/mL	
10) Acenaphthylene	0.000	152	0	N.D.	d	
11) Acenaphthene	7.786	154	2700	N.D.		
12) Dibenzofuran	0.000	168	0	N.D.	d	
13) Fluorene	7.893	166	5129	0.0975	ug/mL#	52
14) Diphenylamine	0.000	169	0	N.D.	d	
16) Phenanthrene	8.851	178	15944	0.2190	ug/mL#	60
17) Anthracene	8.907	178	695	N.D.		
18) Fluoranthene	10.039	202	4535	0.0569	ug/mL	90
20) Pyrene	10.260	202	5380	0.0721	ug/mL	86
22) Benzo(a)anthracene	11.457	228	3271	0.0512	ug/mL	77
23) Chrysene	11.490	228	4696	0.0743	ug/mL	94
25) Benzo(b)fluoranthene	0.000	252	0	N.D.	d	
26) Benzo(k)fluoranthene	0.000	252	0	N.D.	d	
27) Benzo(a)pyrene	12.778	252	1680	N.D.		
28) Indeno(1,2,3-cd)pyrene	14.030	276	1080	N.D.		
29) Dibenz(a,h)anthracene	14.051	278	669	N.D.		
30) Benzo(g,h,i)perylene	14.377	276	1713	N.D.		

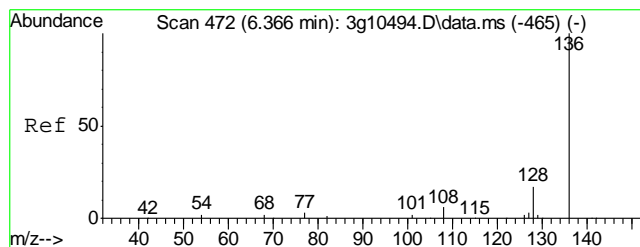
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\122412\
Data File : 3g12670.D
Acq On : 24 Dec 2012 12:23 pm
Operator : DONC
Sample : D42001-1
Misc : OP7139,E3G604,30.01,,,1,1
ALS Vial : 6 Sample Multiplier: 1

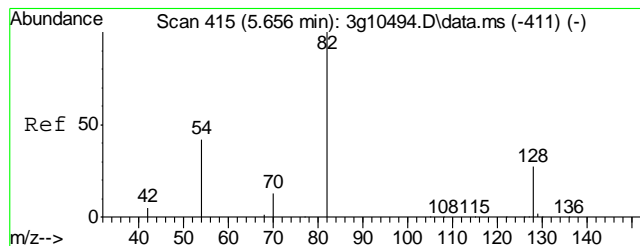
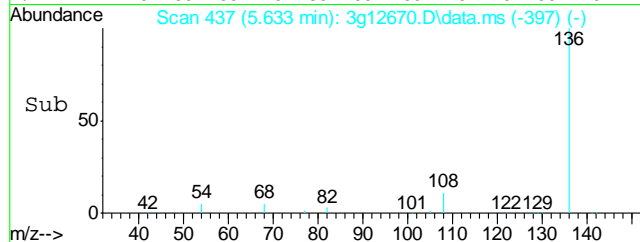
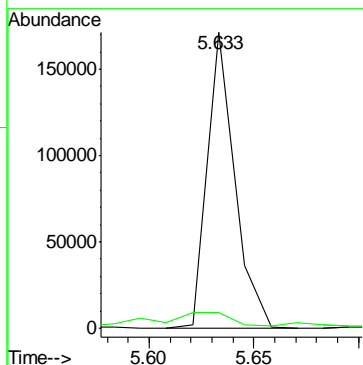
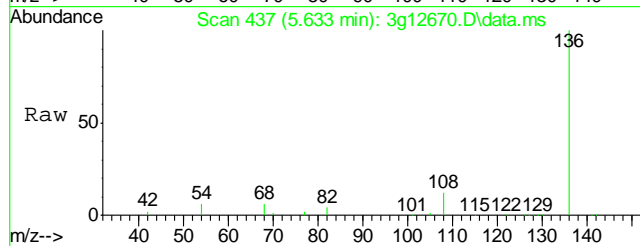
Quant Time: Dec 24 14:15:19 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G586.M
Quant Title : PAHSIM BASE
QLast Update : Mon Dec 24 11:50:40 2012
Response via : Initial Calibration





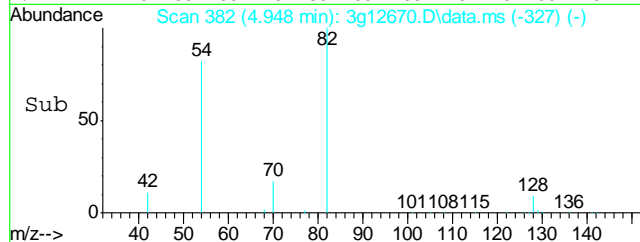
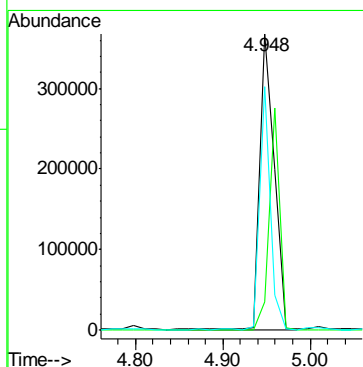
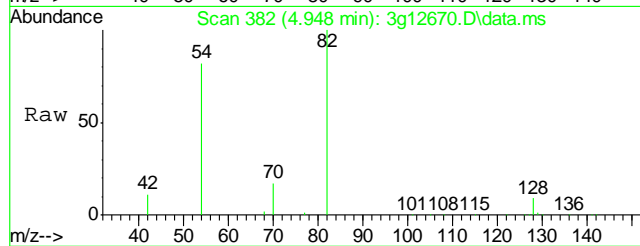
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.633 min Scan# 437
Delta R.T. 0.000 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

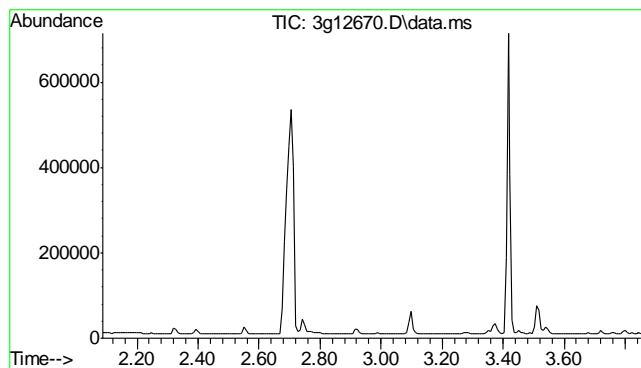
Tgt Ion	Ratio	Lower	Upper
136	100		
68	13.4	0.0	25.7



#2
Nitrobenzene-d5
Concen: 27.4777 ug/mL
RT: 4.948 min Scan# 382
Delta R.T. -0.006 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

Tgt Ion	Ratio	Lower	Upper
82	100		
128	54.5	31.8	71.8
54	61.7	29.2	69.2

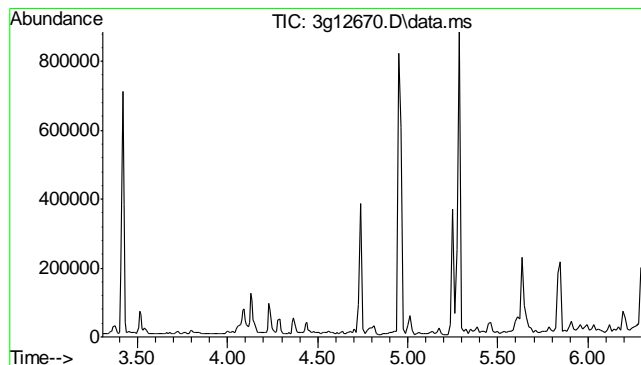
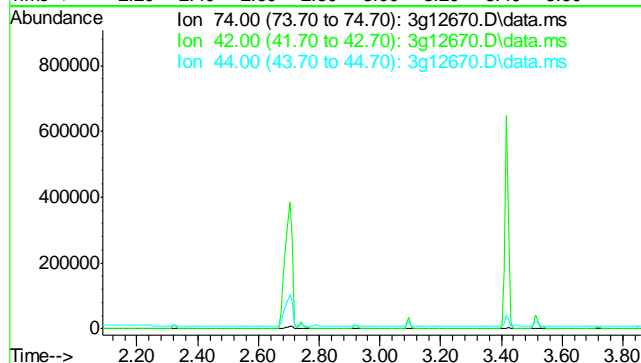




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.36 min

Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

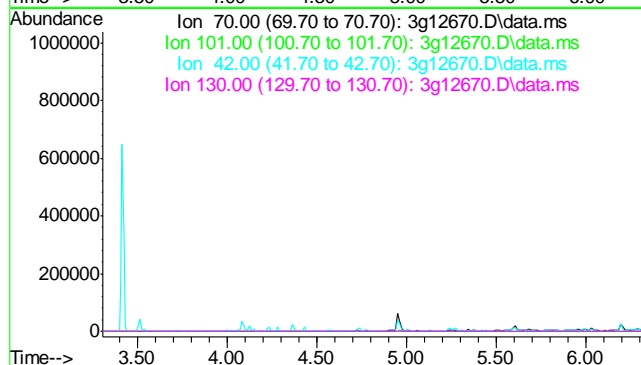
Tgt Ion	Exp Ratio
74	100
42	72.5
44	4.1

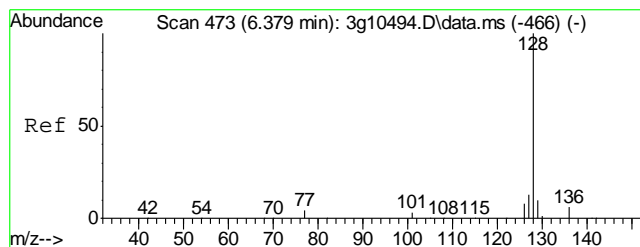


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 4.80 min

Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

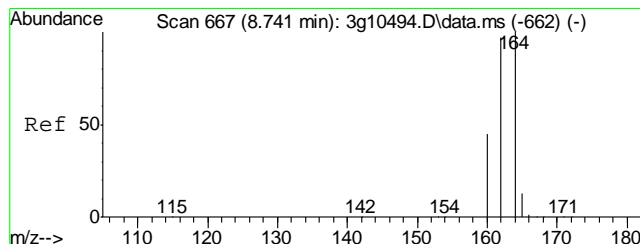
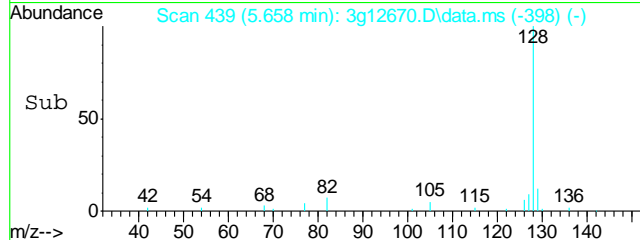
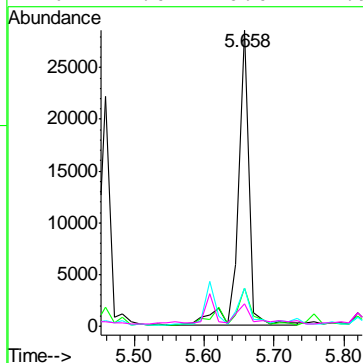
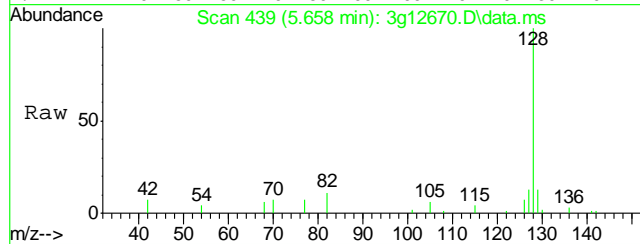
Tgt Ion	Exp Ratio
70	100
101	12.2
42	67.9
130	33.2





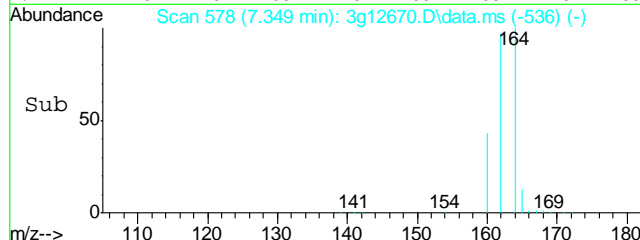
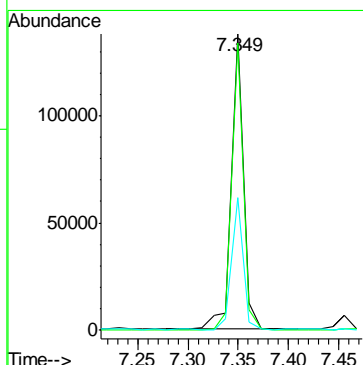
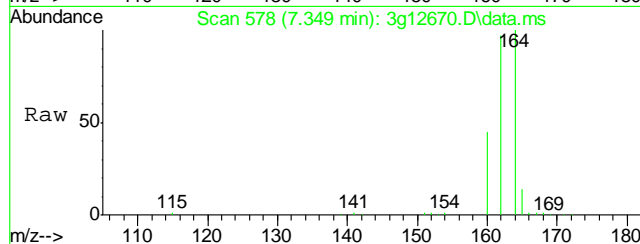
#5
Naphthalene
Concen: 0.6358 ug/mL
RT: 5.658 min Scan# 439
Delta R.T. 0.013 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

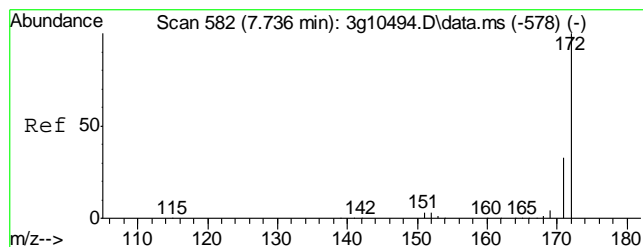
Tgt Ion	128	Ratio	100	Resp	30147
Ion	128	100			
	129	24.8	0.0	30.7	
	127	14.0	0.0	33.2	
	126	7.0	0.0	27.9	



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.349 min Scan# 578
Delta R.T. 0.000 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

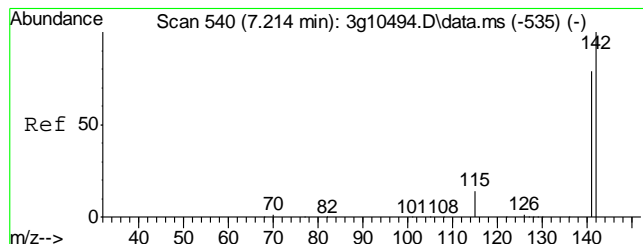
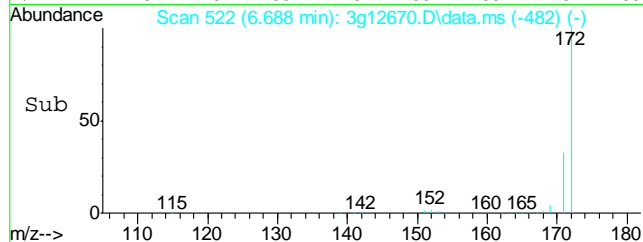
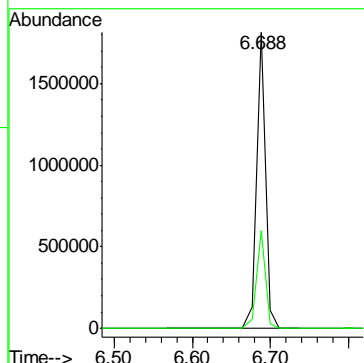
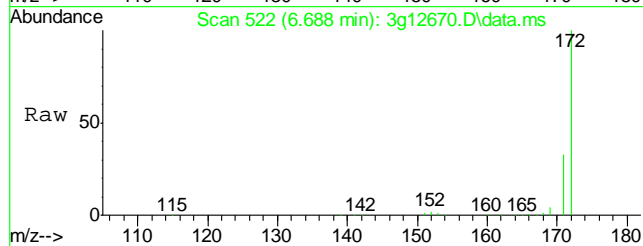
Tgt Ion	164	Ratio	100	Resp	117368
Ion	164	100			
	162	91.6	79.7	119.7	
	160	42.7	28.3	68.3	





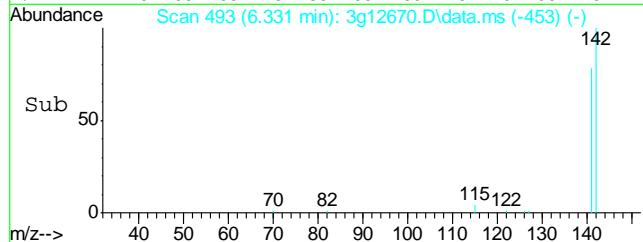
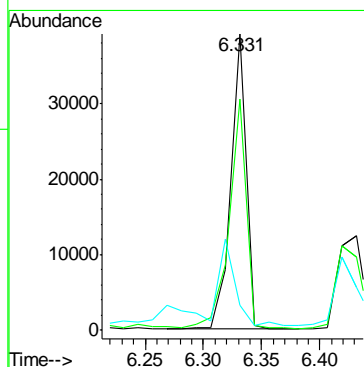
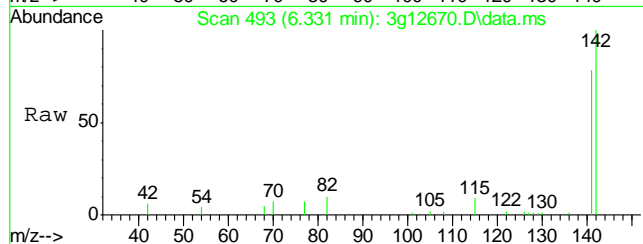
#7
2-Fluorobiphenyl
Concen: 27.8011 ug/mL
RT: 6.688 min Scan# 522
Delta R.T. -0.003 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

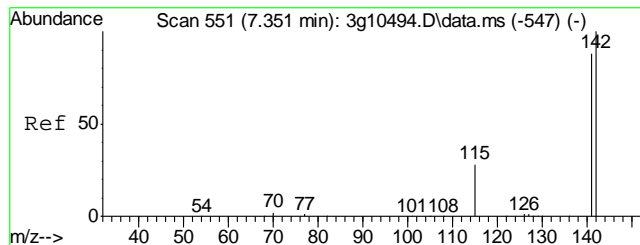
Tgt Ion	Ratio	Lower	Upper
172	100		
171	33.0	13.7	53.7



#8
2-Methylnaphthalene
Concen: 0.8497 ug/mL
RT: 6.331 min Scan# 493
Delta R.T. -0.002 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

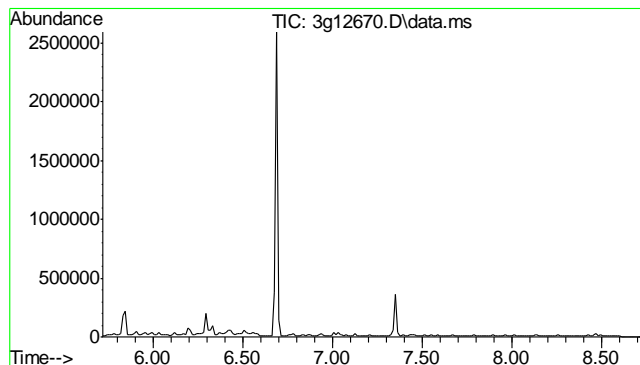
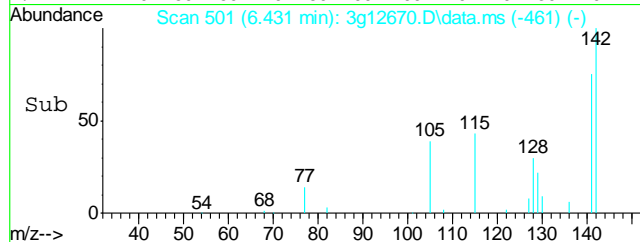
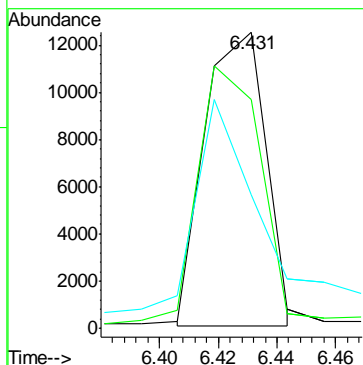
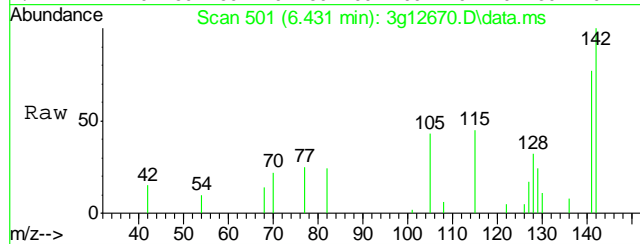
Tgt Ion	Ratio	Lower	Upper
142	100		
141	87.4	65.6	105.6
115	31.3	12.2	52.2





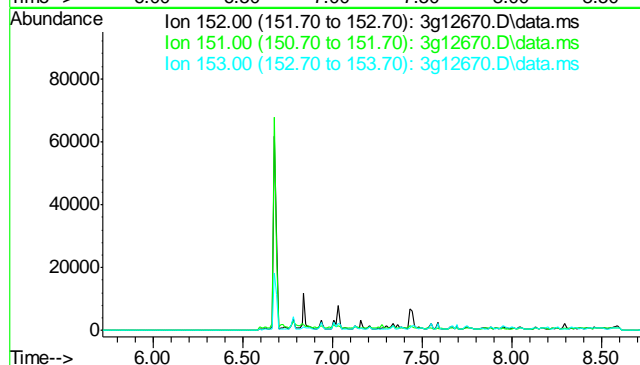
#9
1-Methylnaphthalene
Concen: 0.4362 ug/mL m
RT: 6.431 min Scan# 501
Delta R.T. -0.002 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

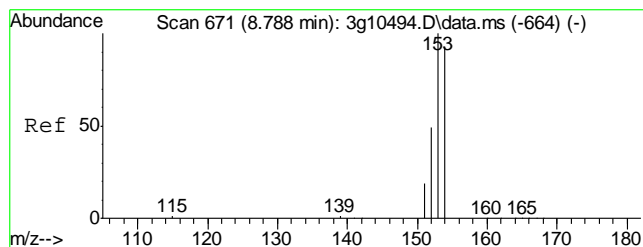
Tgt Ion	Ratio	Lower	Upper
142	100		
141	171.7	67.0	107.0#
115	61.5	9.3	49.3#



#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 7.22 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

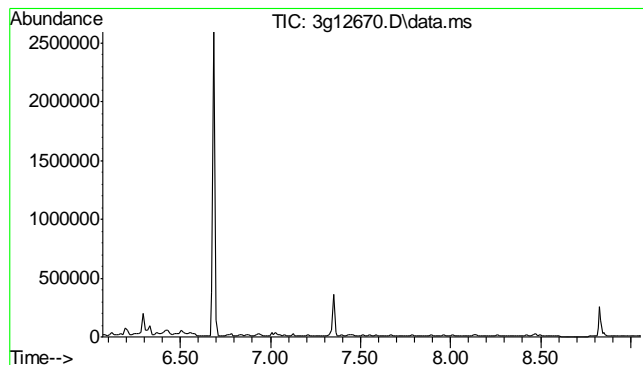
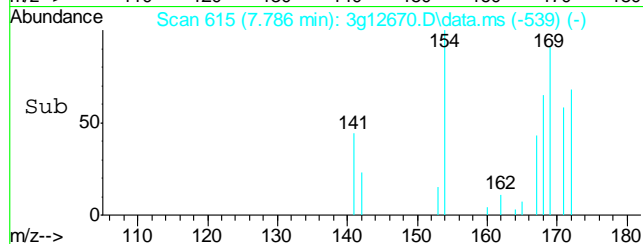
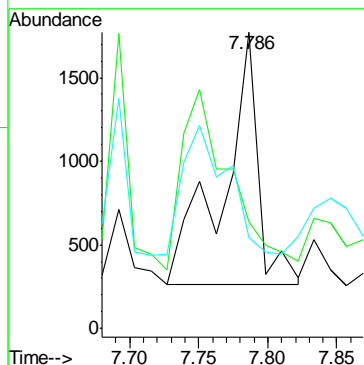
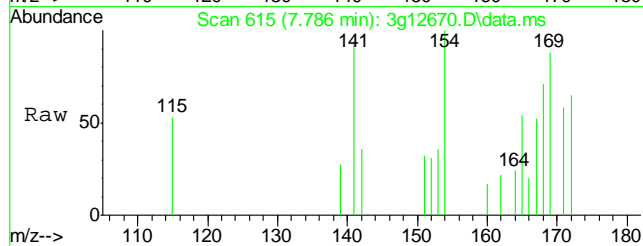
Tgt Ion	Sig	Exp Ratio
152	100	
151	19.5	
153	13.0	





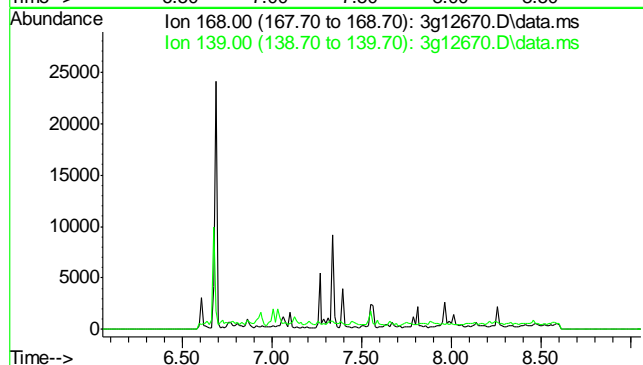
#11
Acenaphthene
Concen: Below ug/mL
RT: 7.786 min Scan# 615
Delta R.T. 0.402 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

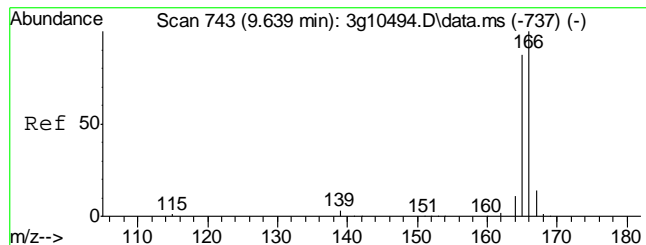
Tgt Ion	Ratio	Lower	Upper
154	100		
153	96.8	84.7	124.7
152	65.3	30.2	70.2



#12
Dibenzofuran
Concen: N.D. ug/mL
Expected RT: 7.56 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

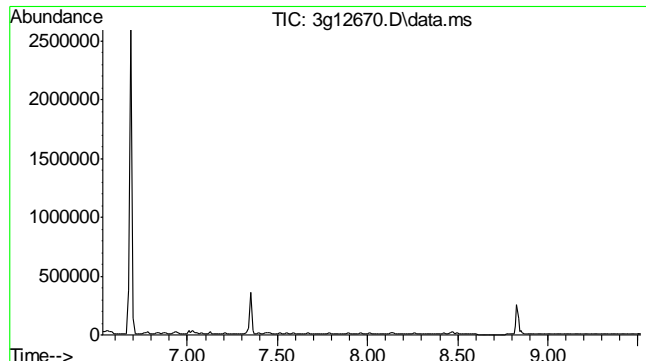
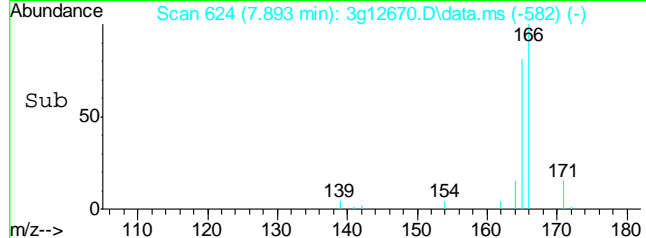
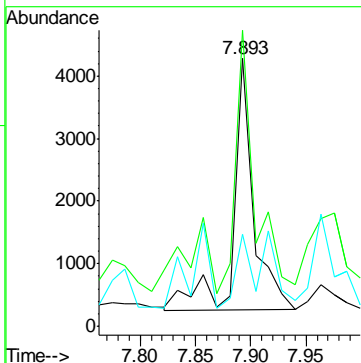
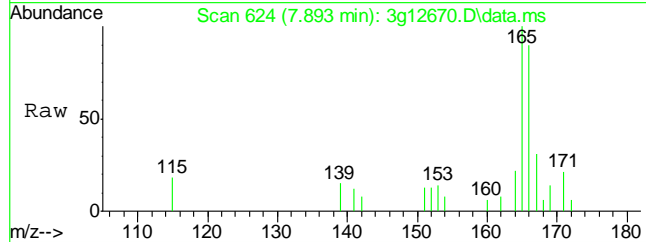
Tgt Ion	Sig	Exp Ratio
168	100	
139	32.0	





#13
Fluorene
Concen: 0.0975 ug/mL
RT: 7.893 min Scan# 624
Delta R.T. -0.009 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

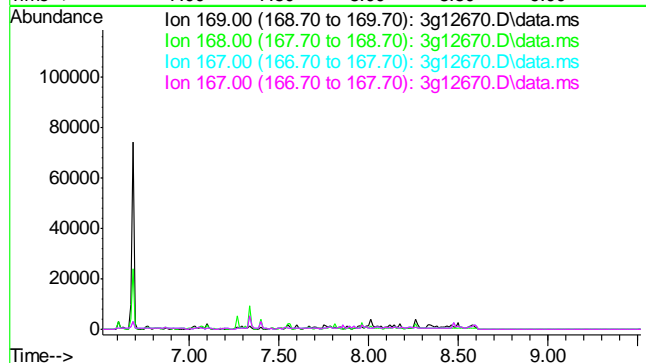
Tgt Ion:	166	Resp:	5129
Ion Ratio	Lower	Upper	
166	100		
165	132.9	70.1	110.1#
167	39.8	0.0	33.4#

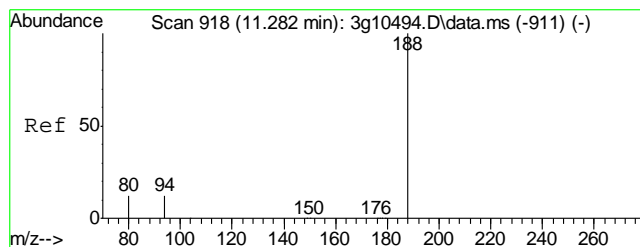


#14
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 8.02 min

Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

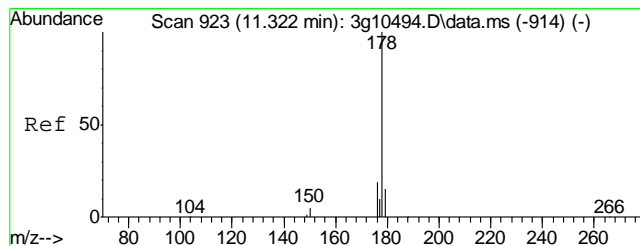
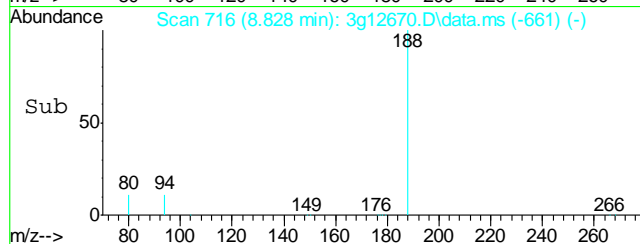
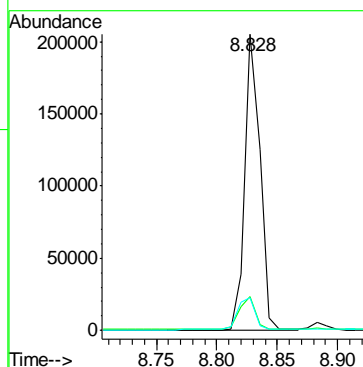
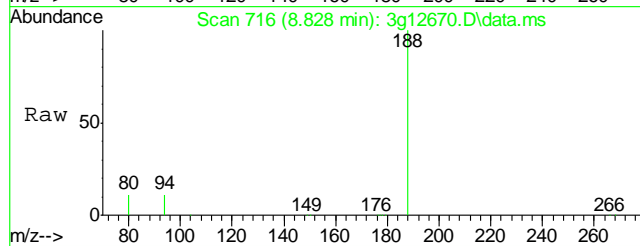
Tgt Ion:	169
Sig	Exp Ratio
169	100
168	60.1
167	32.1
167	32.1





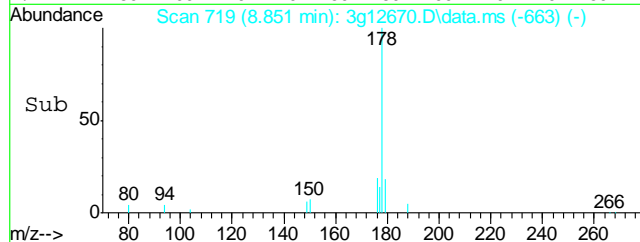
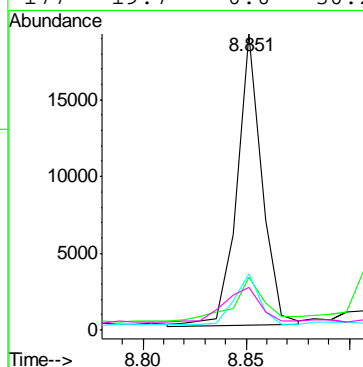
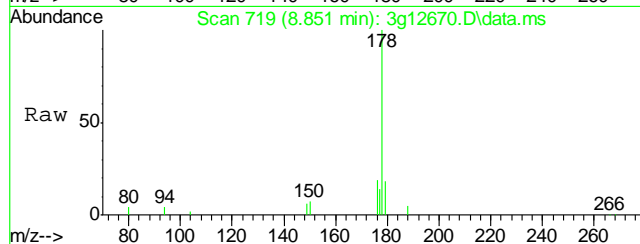
#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.828 min Scan# 716
Delta R.T. 0.000 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

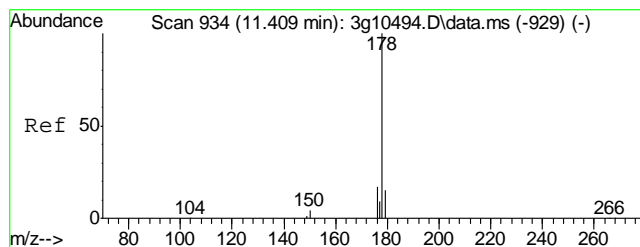
Tgt Ion	Ratio	Lower	Upper
188	100		
94	11.6	0.0	32.3
80	13.5	0.0	32.6



#16
Phenanthrene
Concen: 0.2190 ug/mL
RT: 8.851 min Scan# 719
Delta R.T. 0.000 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

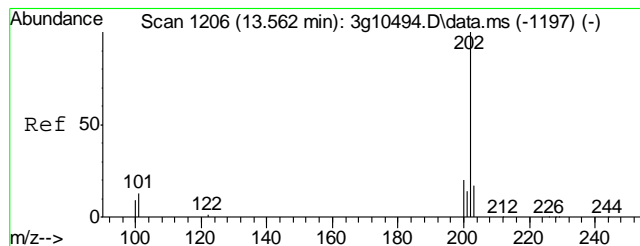
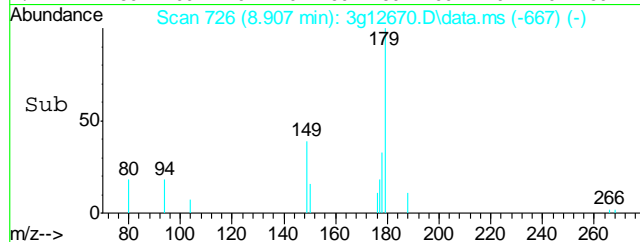
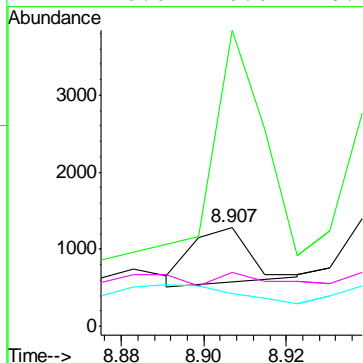
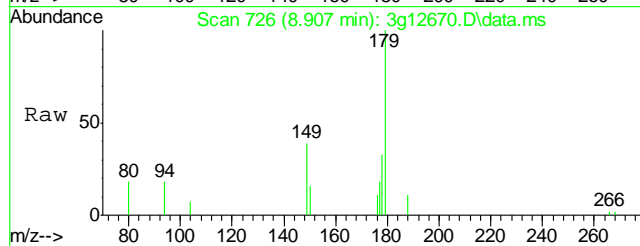
Tgt Ion	Ratio	Lower	Upper
178	100		
179	41.6	0.0	35.3#
176	31.2	0.0	38.6
177	19.7	0.0	30.2





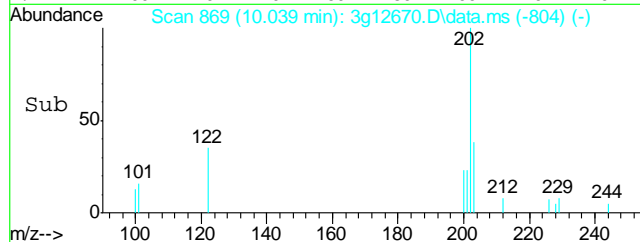
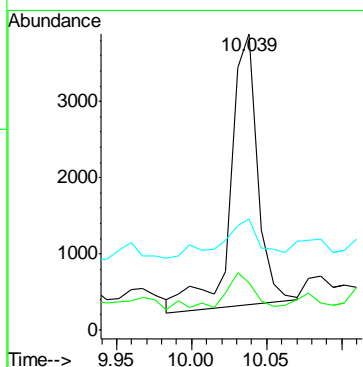
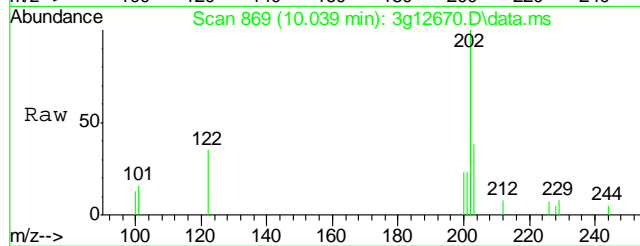
#17
 Anthracene
 Concen: Below ug/mL
 RT: 8.907 min Scan# 726
 Delta R.T. 0.008 min
 Lab File: 3g12670.D
 Acq: 24 Dec 12 12:23 pm

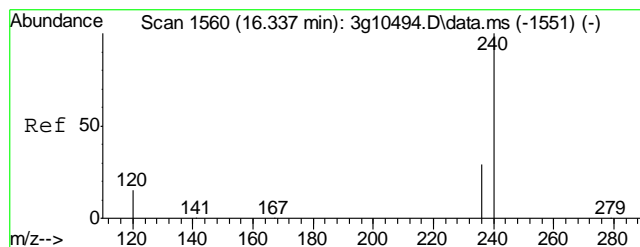
Tgt Ion:	178	Resp:	695
Ion Ratio	Lower	Upper	
178	100		
179	579.4	0.0	35.1#
176	71.9	0.0	38.2#
177	0.0	0.0	28.8



#18
 Fluoranthene
 Concen: 0.0569 ug/mL
 RT: 10.039 min Scan# 869
 Delta R.T. 0.015 min
 Lab File: 3g12670.D
 Acq: 24 Dec 12 12:23 pm

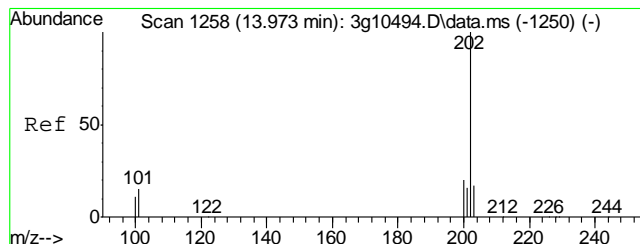
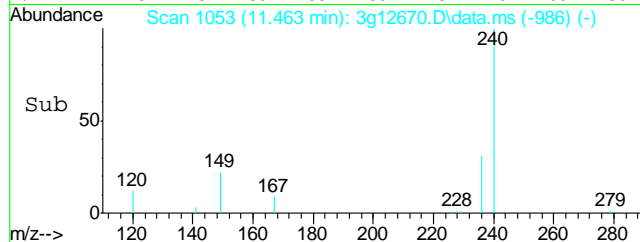
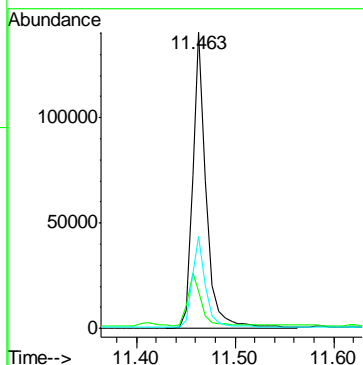
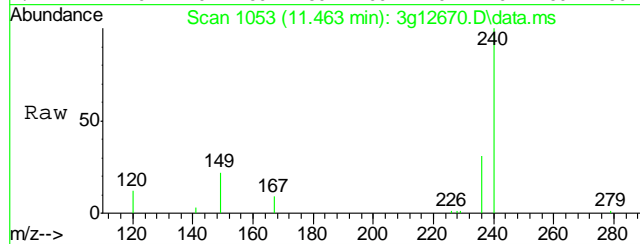
Tgt Ion:	202	Resp:	4535
Ion Ratio	Lower	Upper	
202	100		
101	11.0	0.0	32.5
203	11.2	0.0	37.3





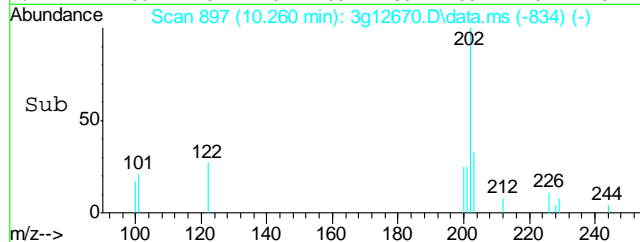
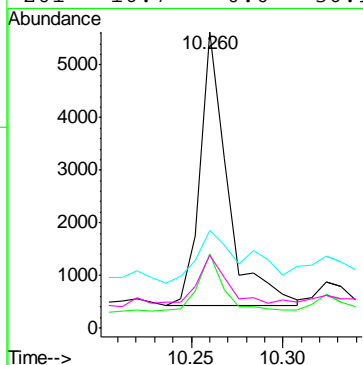
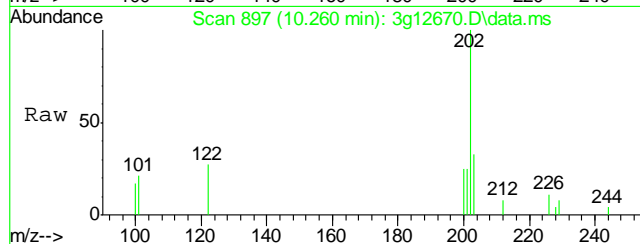
#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.463 min Scan# 1053
Delta R.T. 0.000 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

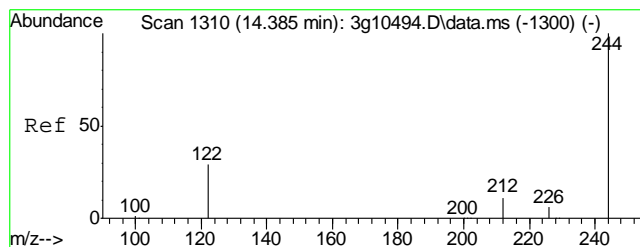
Tgt Ion:	240	Resp:	132957
Ion Ratio	Lower	Upper	
240	100		
120	19.3	0.0	35.5
236	31.4	12.0	52.0



#20
Pyrene
Concen: 0.0721 ug/mL
RT: 10.260 min Scan# 897
Delta R.T. -0.004 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

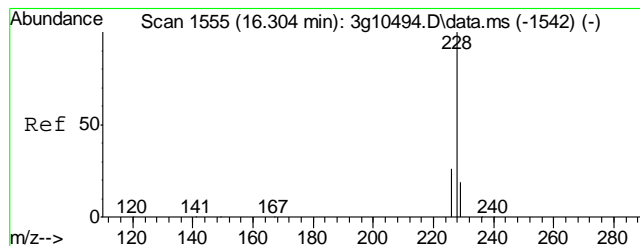
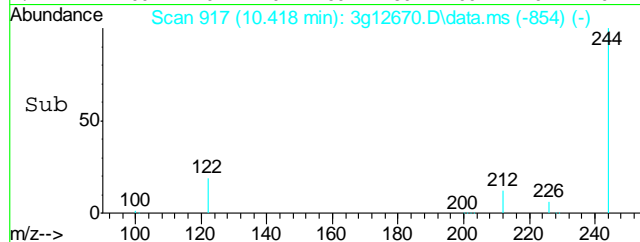
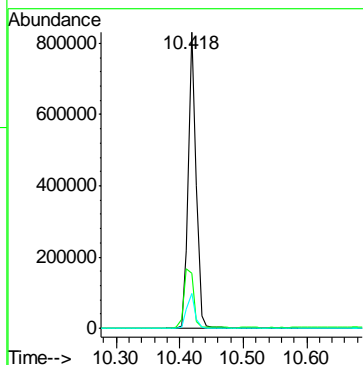
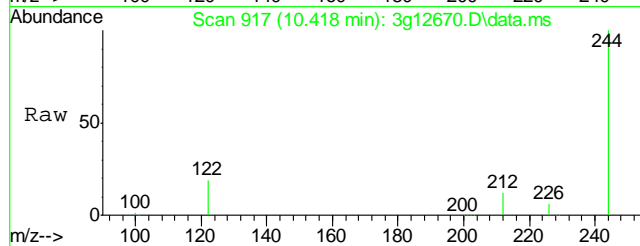
Tgt Ion:	202	Resp:	5380
Ion Ratio	Lower	Upper	
202	100		
200	19.4	0.7	40.7
203	34.9	0.0	37.8
201	16.7	0.0	36.9





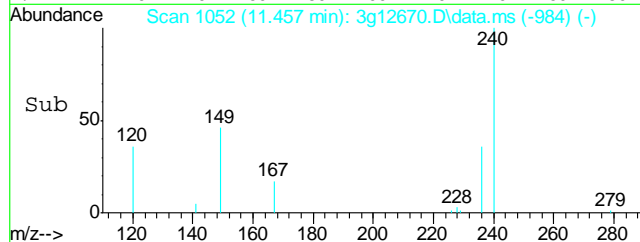
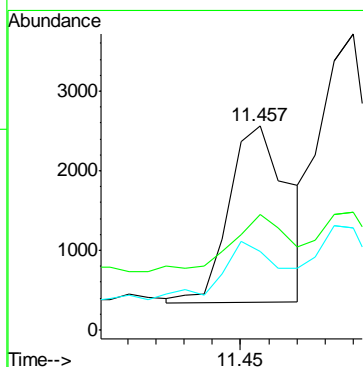
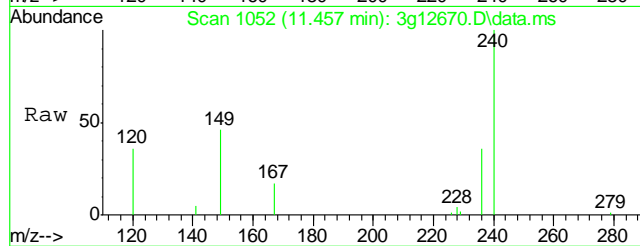
#21
Terphenyl-d14
Concen: 36.7647 ug/mL
RT: 10.418 min Scan# 917
Delta R.T. -0.003 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

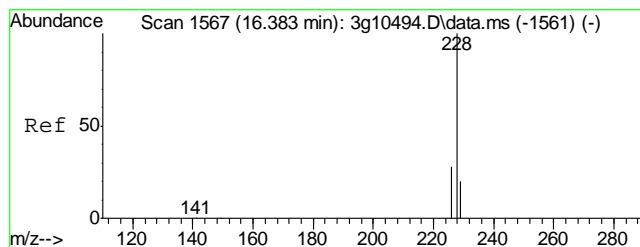
Tgt Ion:	244	Resp:	719516
Ion Ratio	Lower	Upper	
244	100		
122	24.7	6.8	46.8
212	12.2	0.0	32.3



#22
Benzo(a)anthracene
Concen: 0.0512 ug/mL
RT: 11.457 min Scan# 1052
Delta R.T. 0.007 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

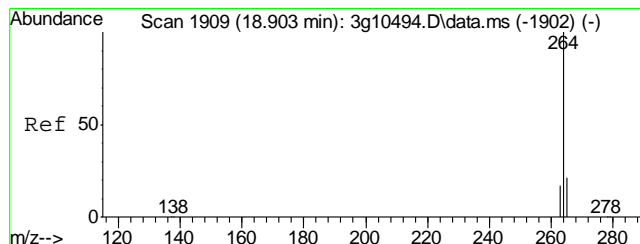
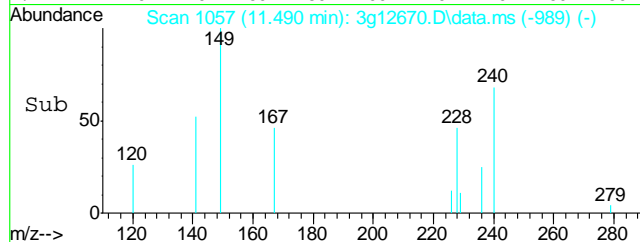
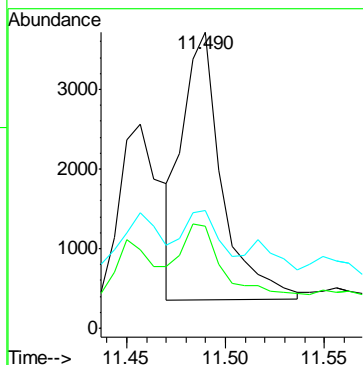
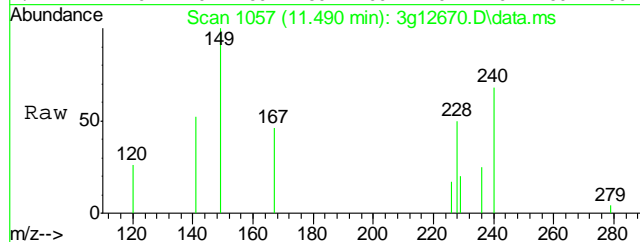
Tgt Ion:	228	Resp:	3271
Ion Ratio	Lower	Upper	
228	100		
229	29.8	0.0	39.4
226	38.8	6.8	46.8





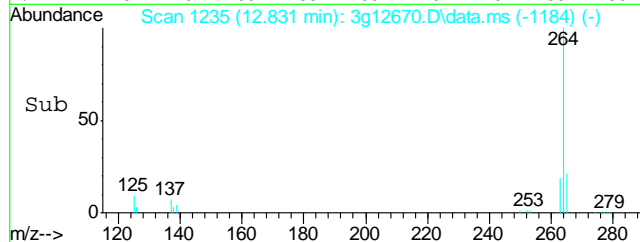
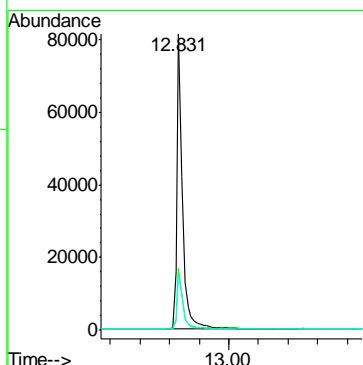
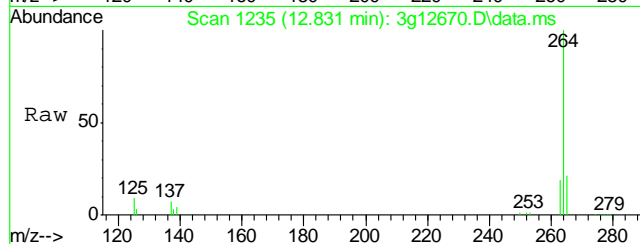
#23
Chrysene
Concen: 0.0743 ug/mL
RT: 11.490 min Scan# 1057
Delta R.T. 0.000 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

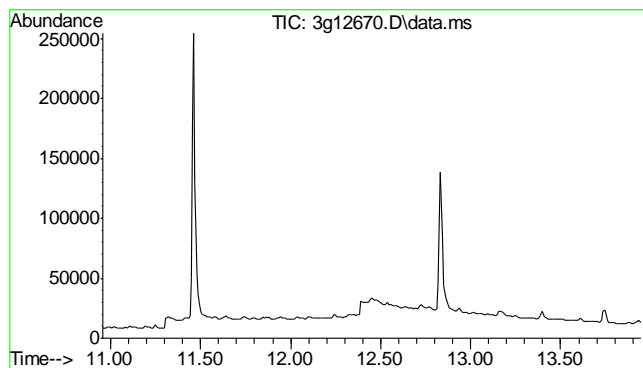
Tgt Ion:	228	Resp:	4696
Ion Ratio	100	Lower	Upper
228	100		
226	30.1	9.2	49.2
229	14.0	0.0	39.4



#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 12.831 min Scan# 1235
Delta R.T. 0.000 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

Tgt Ion:	264	Resp:	111235
Ion Ratio	100	Lower	Upper
264	100		
265	20.6	0.5	40.5
263	19.8	0.0	38.6

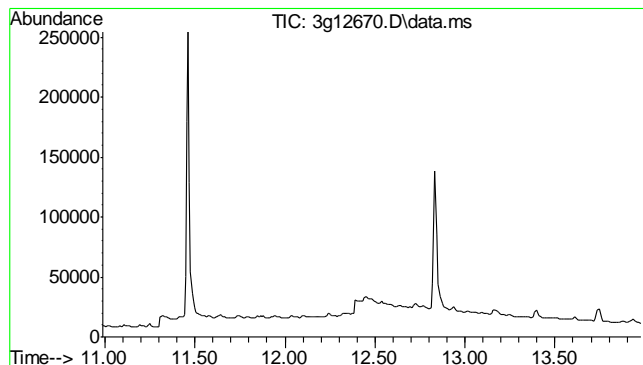
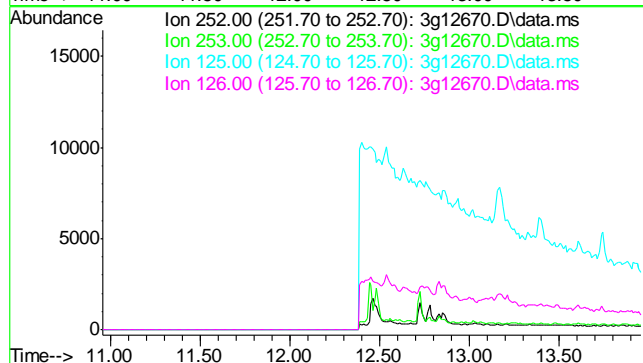




#25
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.45 min

Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

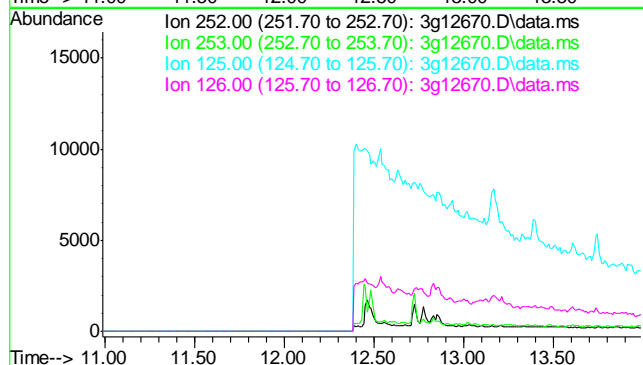
Tgt Ion	Sig	Exp Ratio
252	100	
253	27.0	
125	29.0	
126	41.6	

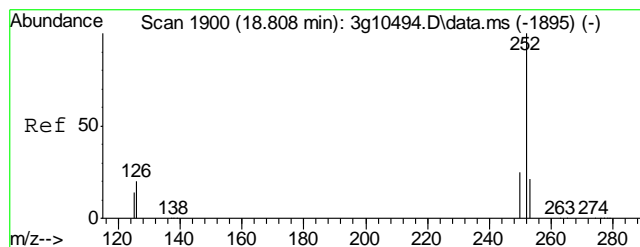


#26
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.49 min

Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

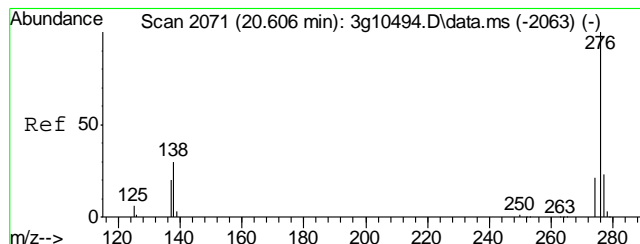
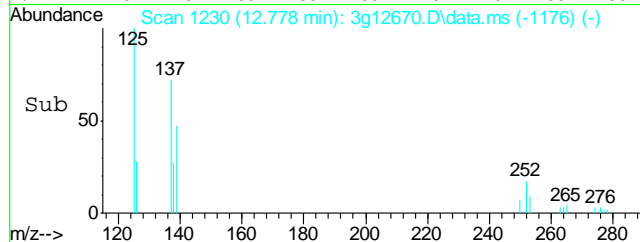
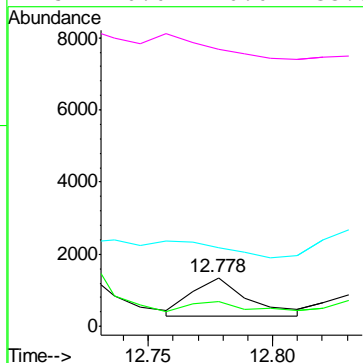
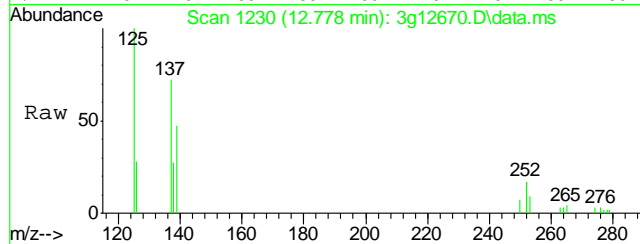
Tgt Ion	Sig	Exp Ratio
252	100	
253	24.0	
125	15.3	
126	20.8	





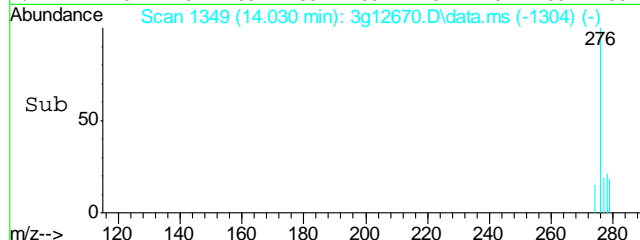
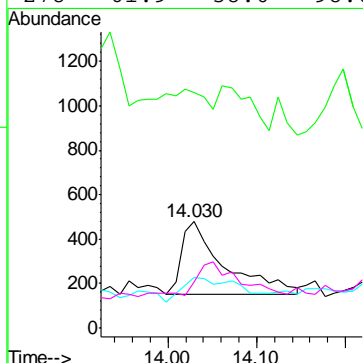
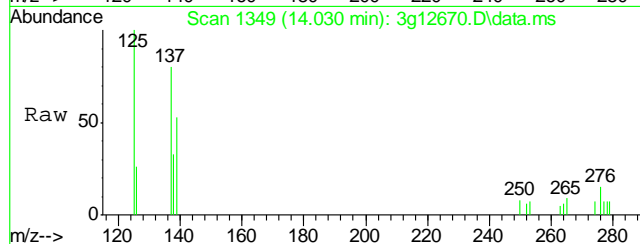
#27
Benzo(a)pyrene
Concen: Below ug/mL
RT: 12.778 min Scan# 1230
Delta R.T. -0.000 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

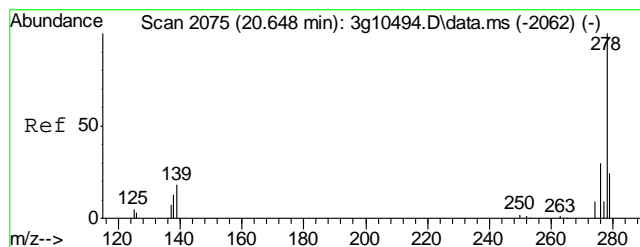
Tgt Ion:	252	Resp:	1680
Ion Ratio	100	Lower	Upper
252	100		
253	26.1	1.5	41.5
126	0.0	0.0	38.4
125	0.0	0.0	33.5



#28
Indeno(1,2,3-cd)pyrene
Concen: Below ug/mL
RT: 14.030 min Scan# 1349
Delta R.T. -0.026 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

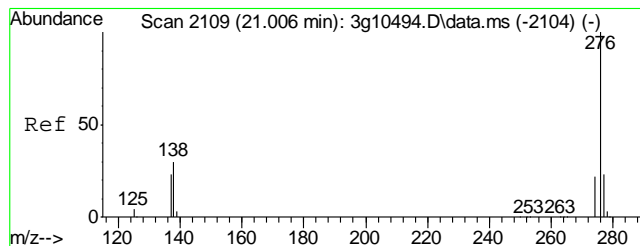
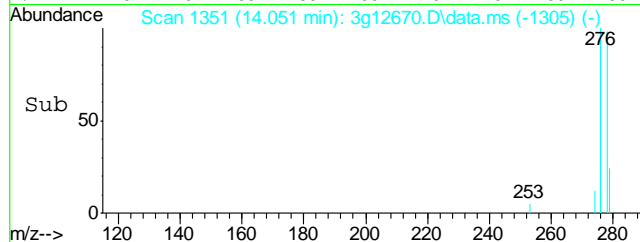
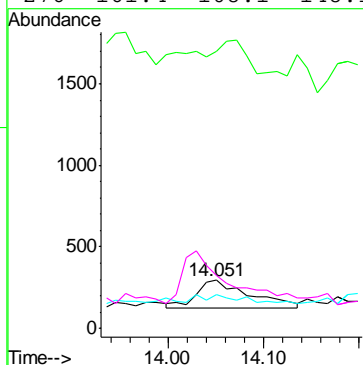
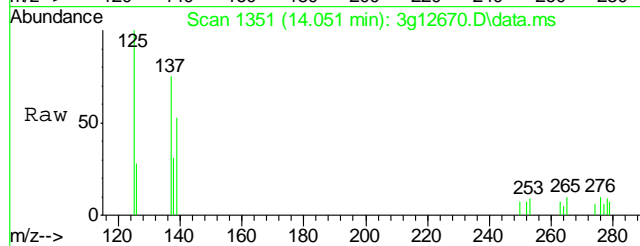
Tgt Ion:	276	Resp:	1080
Ion Ratio	100	Lower	Upper
276	100		
138	43.4	16.0	56.0
277	42.2	4.9	44.9
278	61.9	58.0	98.0





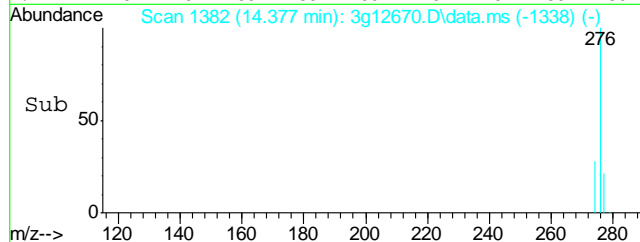
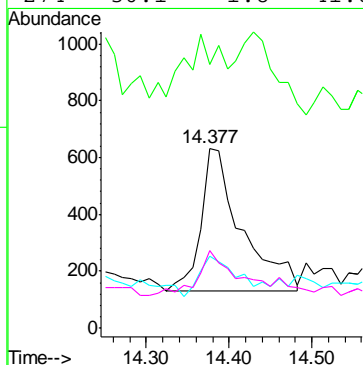
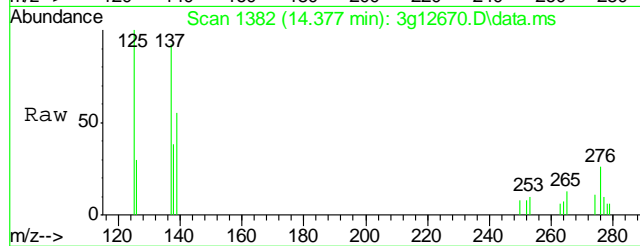
#29
Dibenz(a,h)anthracene
Concen: Below ug/mL
RT: 14.051 min Scan# 1351
Delta R.T. -0.015 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

Tgt Ion:	278	Resp:	669
Ion Ratio	Lower	Upper	
278	100		
139	0.0	7.4	47.4#
279	51.1	2.8	42.8#
276	161.4	108.1	148.1#



#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.377 min Scan# 1382
Delta R.T. -0.034 min
Lab File: 3g12670.D
Acq: 24 Dec 12 12:23 pm

Tgt Ion:	276	Resp:	1713
Ion Ratio	Lower	Upper	
276	100		
138	35.3	10.9	50.9
277	27.9	3.2	43.2
274	30.1	1.8	41.8



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\122412\
Data File : 3g12668.D
Acq On : 24 Dec 2012 11:35 am
Operator : DONC
Sample : OP7139-MB
Misc : OP7139,E3G604,30.00,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 24 14:12:05 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G586.M
Quant Title : PAHSIM BASE
QLast Update : Mon Dec 24 11:50:40 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.633	136	114756	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.349	164	75765	4.0000	ug/mL	0.00
15) Phenanthrene-d10	8.827	188	133702	4.0000	ug/mL	0.00
19) Chrysene-d12	11.463	240	97747	4.0000	ug/mL	0.00
24) Perylene-d12	12.831	264	75579	4.0000	ug/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	4.960	82	486042	42.3706	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	84.74%		
7) 2-Fluorobiphenyl	6.688	172	1364852	41.5185	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	83.04%		
21) Terphenyl-d14	10.418	244	681948	47.3969	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	94.80%		

Target Compounds

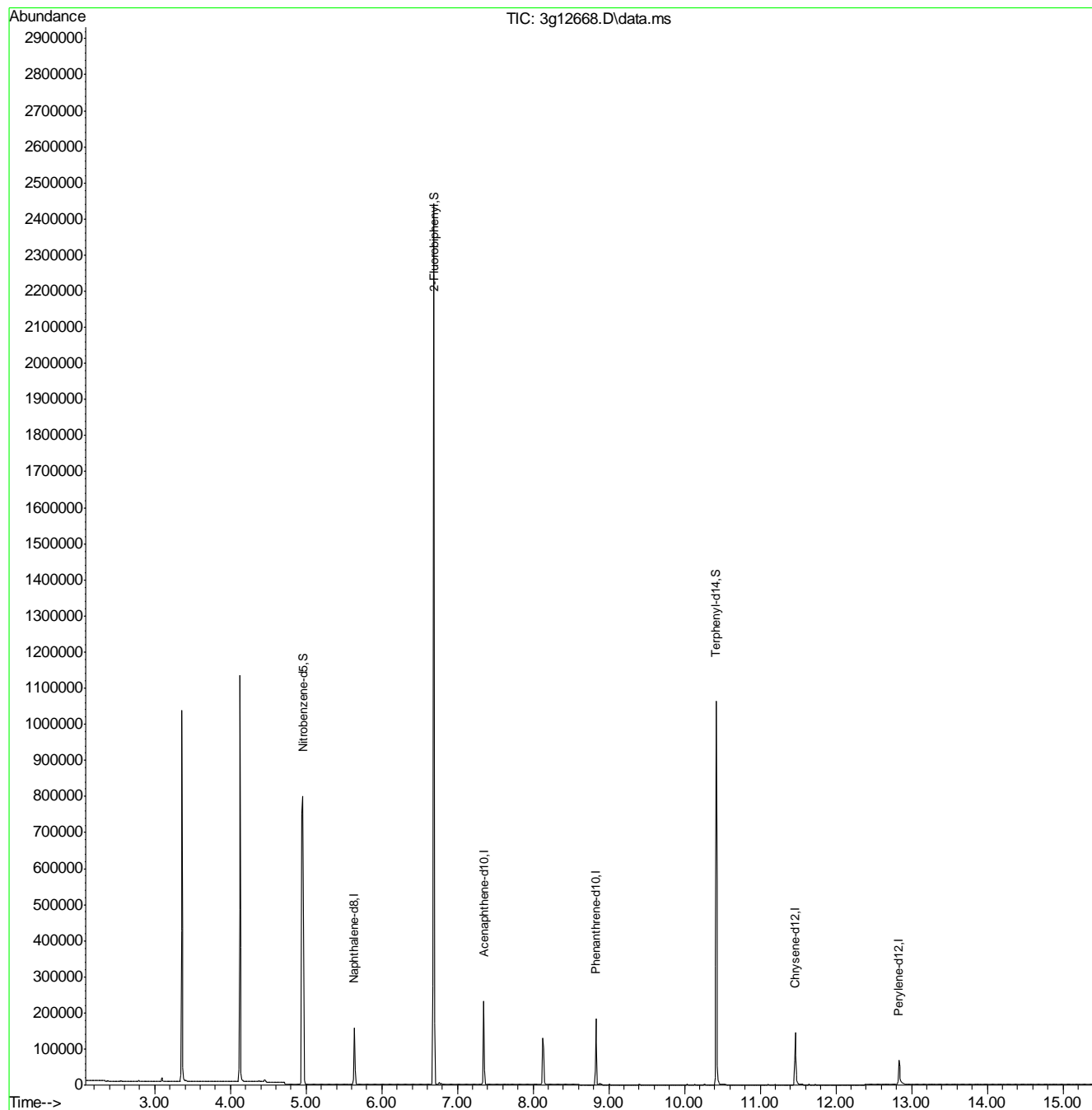
					Qvalue
3) N-Nitrosodimethylamine	2.371	74	10	N.D.	
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d
5) Naphthalene	5.658	128	333	N.D.	
8) 2-Methylnaphthalene	6.331	142	111	N.D.	
9) 1-Methylnaphthalene	6.431	142	80	N.D.	
10) Acenaphthylene	7.219	152	114	N.D.	
11) Acenaphthene	7.349	154	370	Below Cal # 20	
12) Dibenzofuran	7.739	168	50	N.D.	
13) Fluorene	0.000	166	0	N.D.	d
14) Diphenylamine	0.000	169	0	N.D.	d
16) Phenanthrene	8.851	178	432	N.D.	
17) Anthracene	8.907	178	250	N.D.	
18) Fluoranthene	10.038	202	495	N.D.	
20) Pyrene	10.268	202	476	N.D.	
22) Benzo(a)anthracene	11.463	228	840	N.D.	
23) Chrysene	11.490	228	593	N.D.	
25) Benzo(b)fluoranthene	12.484	252	1047	N.D.	
26) Benzo(k)fluoranthene	12.484	252	1047	N.D.	
27) Benzo(a)pyrene	12.778	252	204	N.D.	
28) Indeno(1,2,3-cd)pyrene	14.030	276	196	N.D.	
29) Dibenz(a,h)anthracene	14.051	278	121	N.D.	
30) Benzo(g,h,i)perylene	14.030	276	196	N.D.	

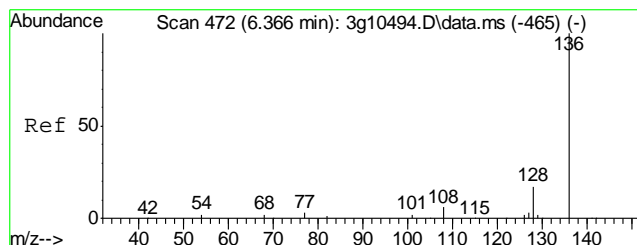
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\122412\
Data File : 3g12668.D
Acq On : 24 Dec 2012 11:35 am
Operator : DONC
Sample : OP7139-MB
Misc : OP7139,E3G604,30.00,,,1,1
ALS Vial : 4 Sample Multiplier: 1

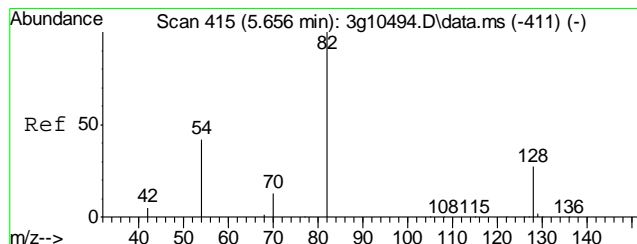
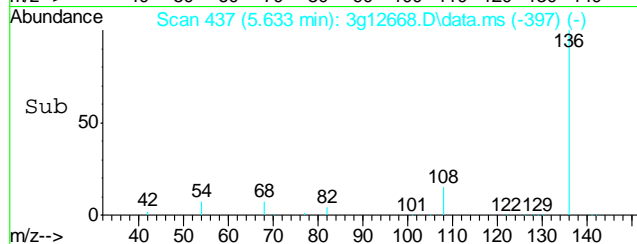
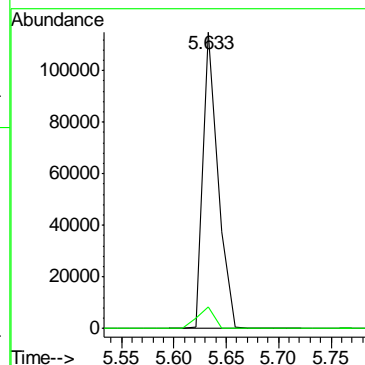
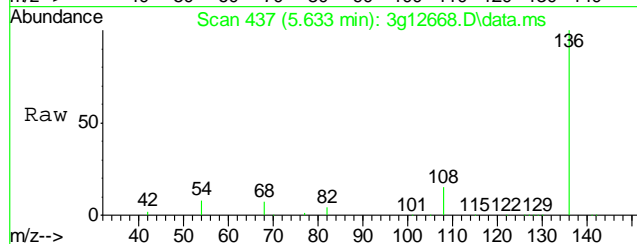
Quant Time: Dec 24 14:12:05 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G586.M
Quant Title : PAHSIM BASE
QLast Update : Mon Dec 24 11:50:40 2012
Response via : Initial Calibration





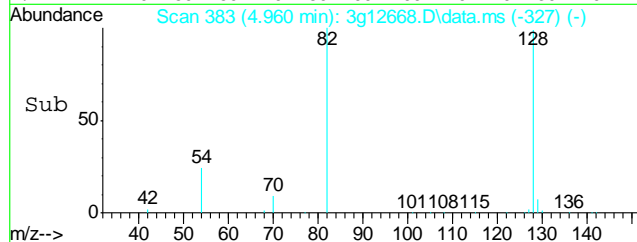
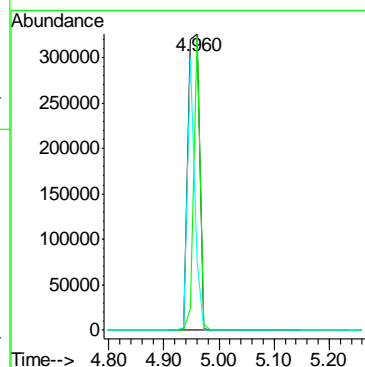
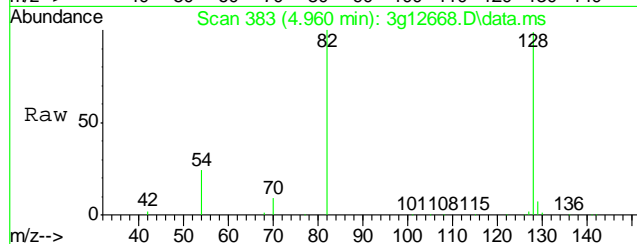
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.633 min Scan# 437
Delta R.T. -0.000 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

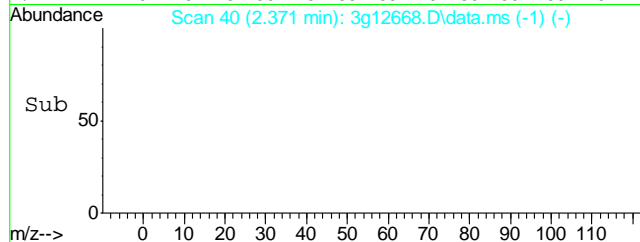
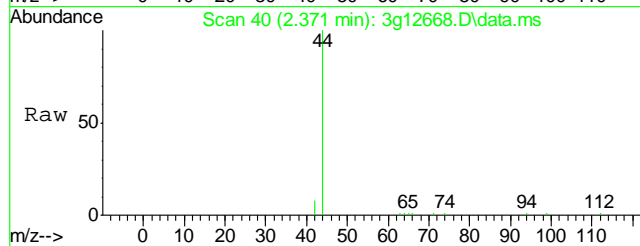
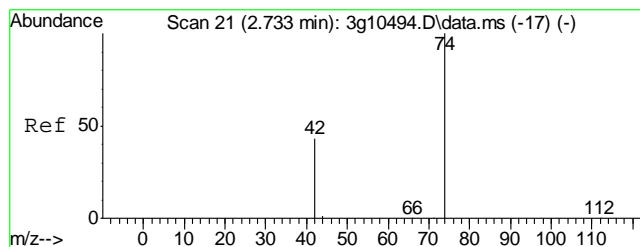
Tgt Ion:	136	Resp:	114756
Ion Ratio	Lower	Upper	
136	100		
68	7.9	0.0	25.7



#2
Nitrobenzene-d5
Concen: 42.3706 ug/mL
RT: 4.960 min Scan# 383
Delta R.T. 0.007 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

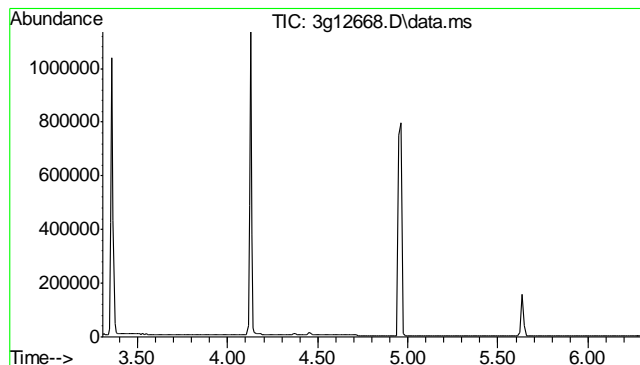
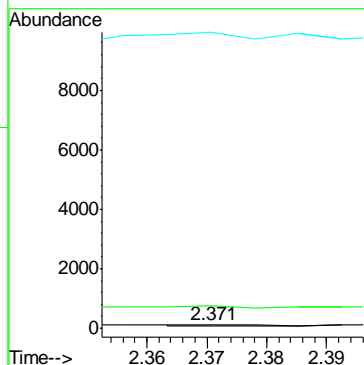
Tgt Ion:	82	Resp:	486042
Ion Ratio	Lower	Upper	
82	100		
128	54.2	31.8	71.8
54	58.6	29.2	69.2





#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.371 min Scan# 40
Delta R.T. 0.013 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

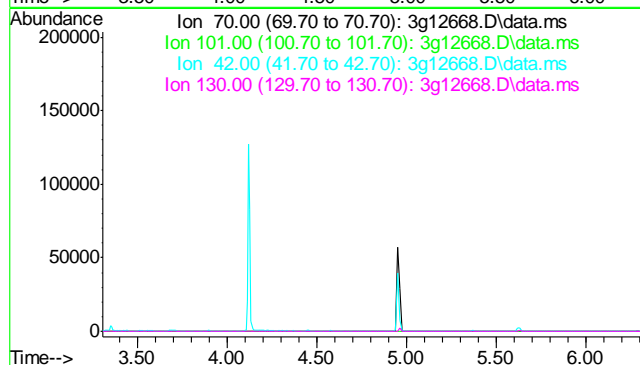
Tgt Ion: 74 Resp: 10
Ion Ratio Lower Upper
74 100
42 0.0 52.5 92.5#
44 10470.0 0.0 24.1#

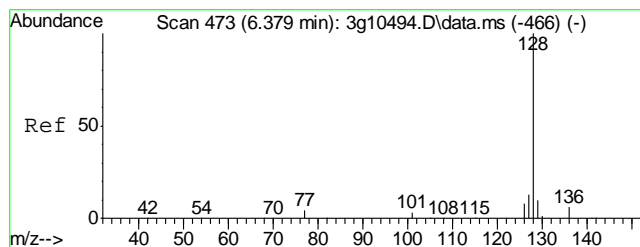


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 4.80 min

Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

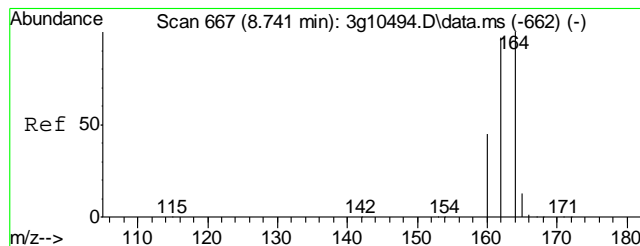
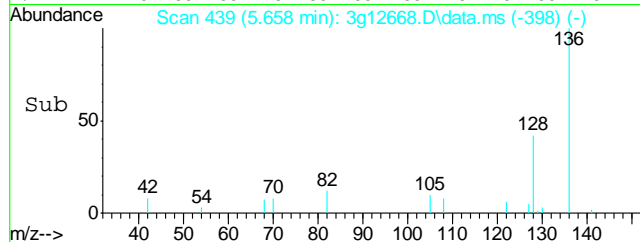
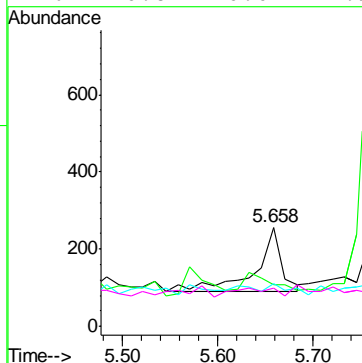
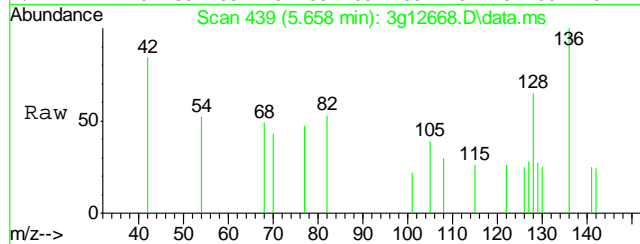
Tgt Ion: 70
Sig Exp Ratio
70 100
101 12.2
42 67.9
130 33.2





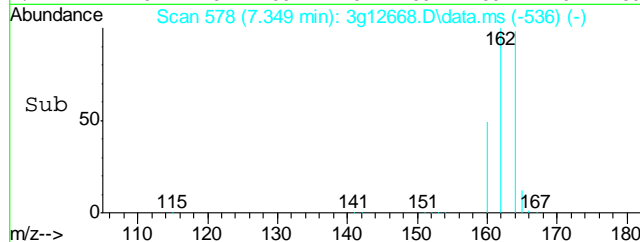
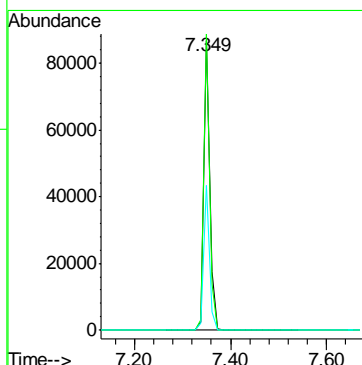
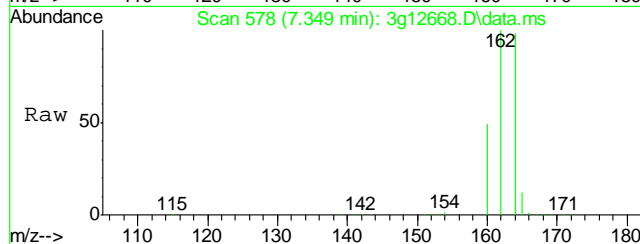
#5
Naphthalene
Concen: Below ug/mL
RT: 5.658 min Scan# 439
Delta R.T. 0.013 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

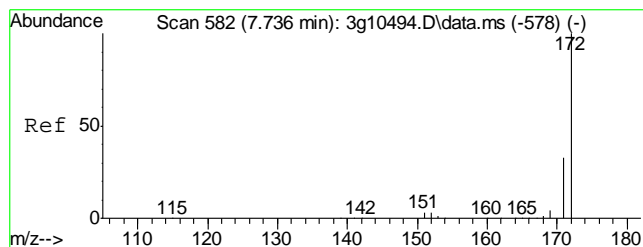
Tgt Ion	128	129	127	126
Resp	333	0.0	0.0	10.8
Ratio	100	0.0	0.0	10.8
Lower		0.0	0.0	0.0
Upper		30.7	33.2	27.9



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.349 min Scan# 578
Delta R.T. -0.000 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

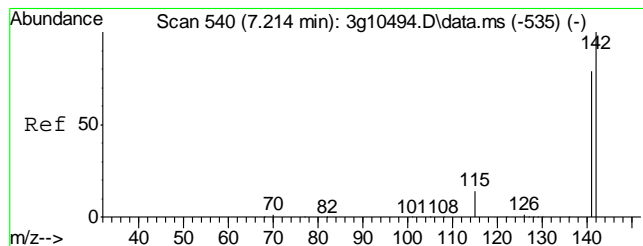
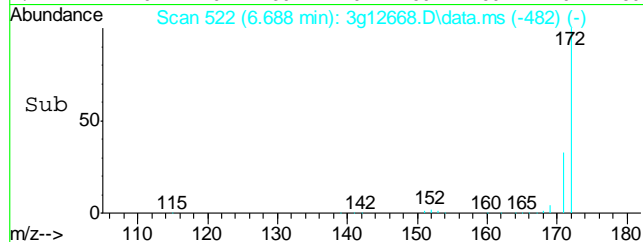
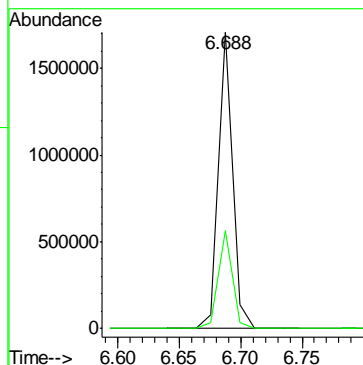
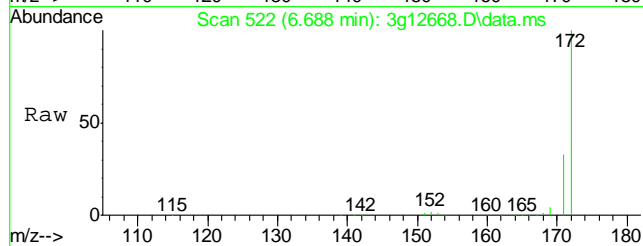
Tgt Ion	164	162	160
Resp	75765	99.0	47.6
Ratio	100	99.0	47.6
Lower		79.7	28.3
Upper		119.7	68.3





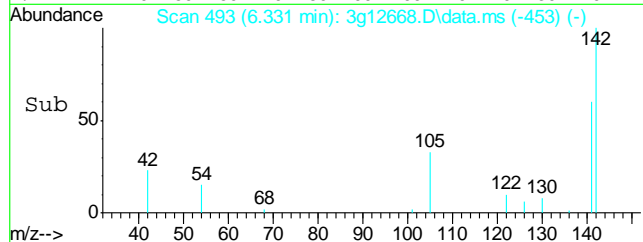
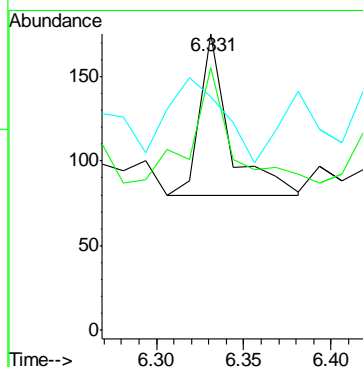
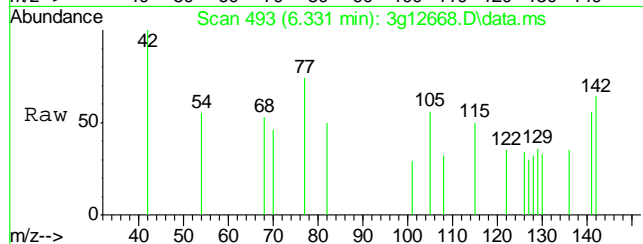
#7
2-Fluorobiphenyl
Concen: 41.5185 ug/mL
RT: 6.688 min Scan# 522
Delta R.T. -0.004 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

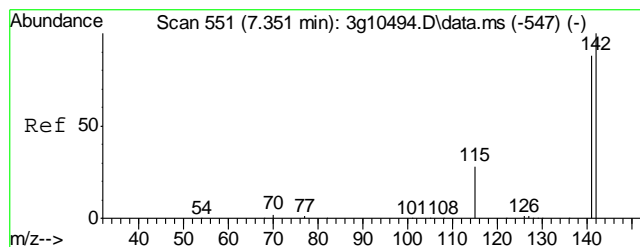
Tgt Ion:172 Resp: 1364852
Ion Ratio Lower Upper
172 100
171 33.0 13.7 53.7



#8
2-Methylnaphthalene
Concen: Below ug/mL
RT: 6.331 min Scan# 493
Delta R.T. -0.002 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

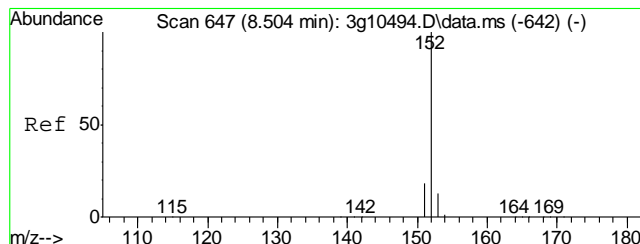
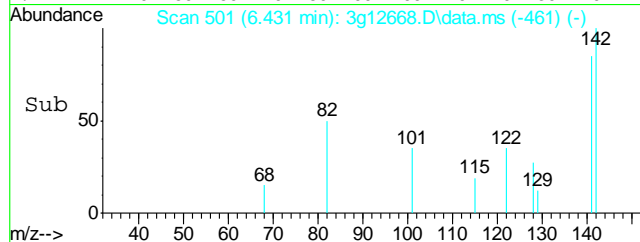
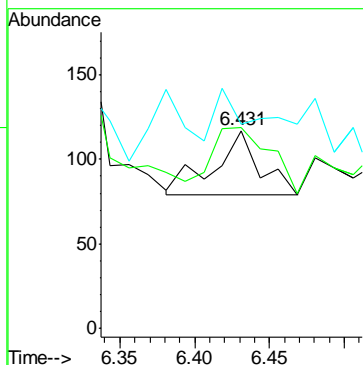
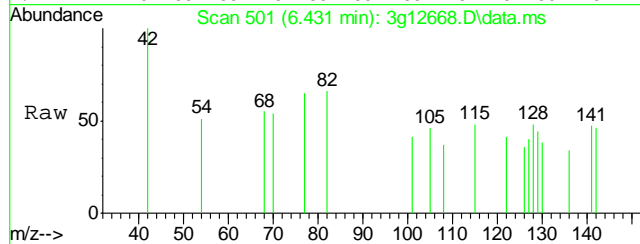
Tgt Ion:142 Resp: 111
Ion Ratio Lower Upper
142 100
141 103.6 65.6 105.6
115 0.0 12.2 52.2#





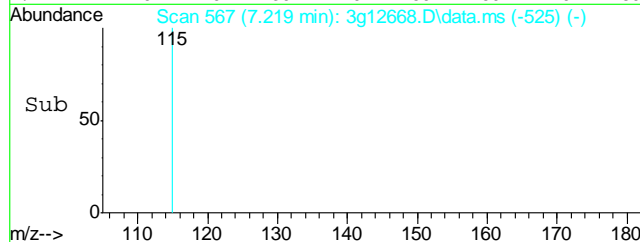
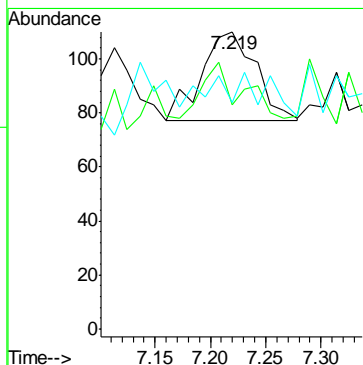
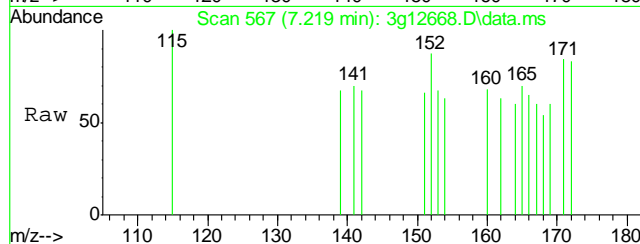
#9
1-Methylnaphthalene
Concen: Below ug/mL
RT: 6.431 min Scan# 501
Delta R.T. -0.002 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

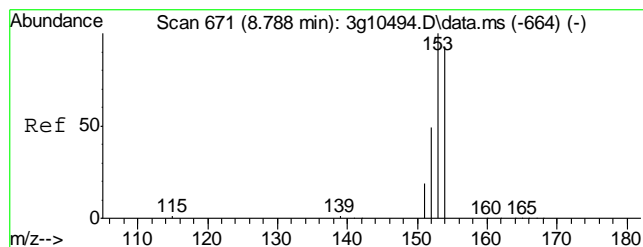
Tgt Ion:142	Resp:	80
Ion Ratio	Lower	Upper
142	100	
141	131.3	67.0 107.0#
115	0.0	9.3 49.3#



#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.219 min Scan# 567
Delta R.T. -0.001 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

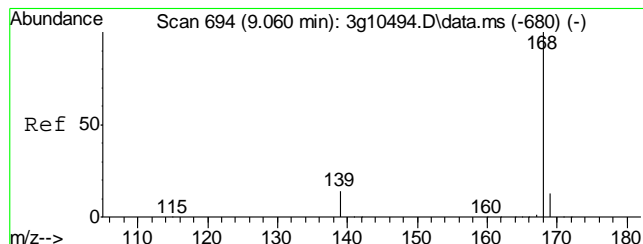
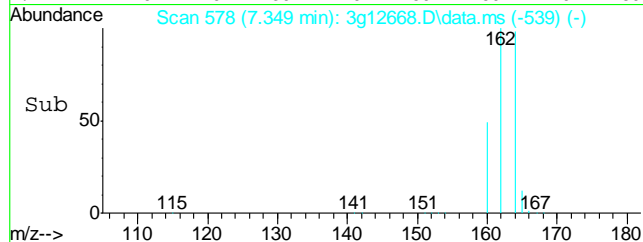
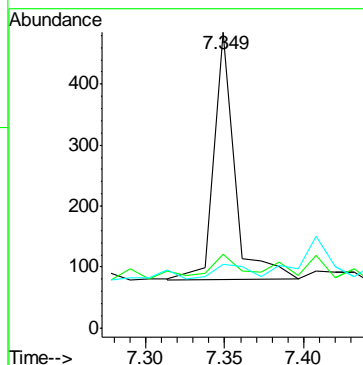
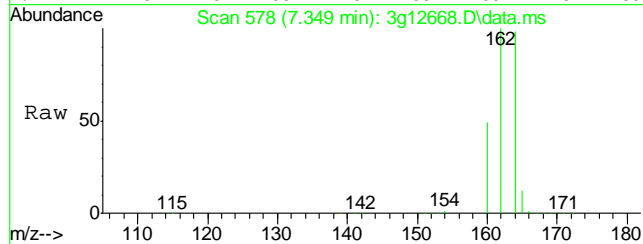
Tgt Ion:152	Resp:	114
Ion Ratio	Lower	Upper
152	100	
151	75.4	0.0 39.5#
153	15.8	0.0 33.0





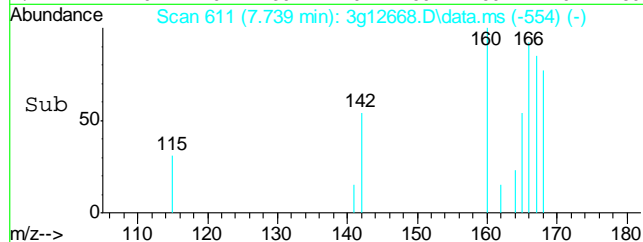
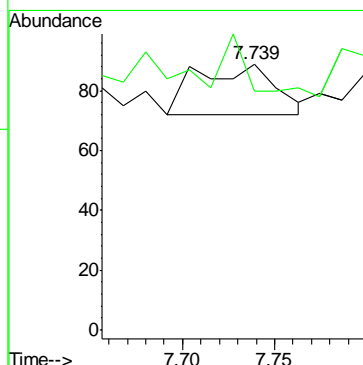
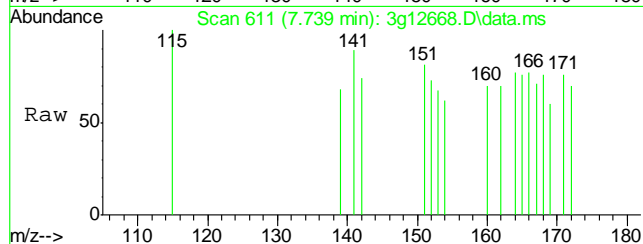
#11
Acenaphthene
Concen: Below ug/mL
RT: 7.349 min Scan# 578
Delta R.T. -0.035 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

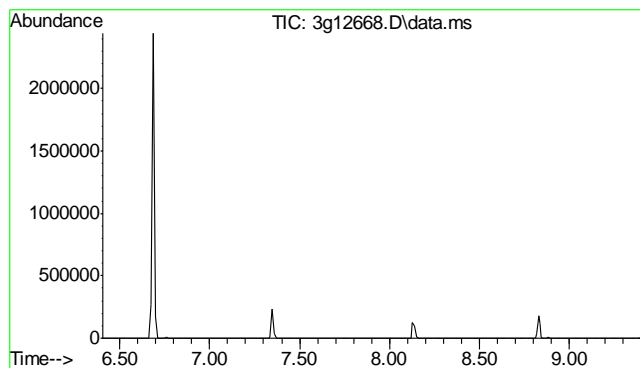
Tgt Ion:	154	Resp:	370
Ion Ratio	Lower	Upper	
154	100		
153	11.1	84.7	124.7#
152	11.6	30.2	70.2#



#12
Dibenzofuran
Concen: Below ug/mL
RT: 7.739 min Scan# 611
Delta R.T. 0.178 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

Tgt Ion:	168	Resp:	50
Ion Ratio	Lower	Upper	
168	100		
139	36.0	12.0	52.0

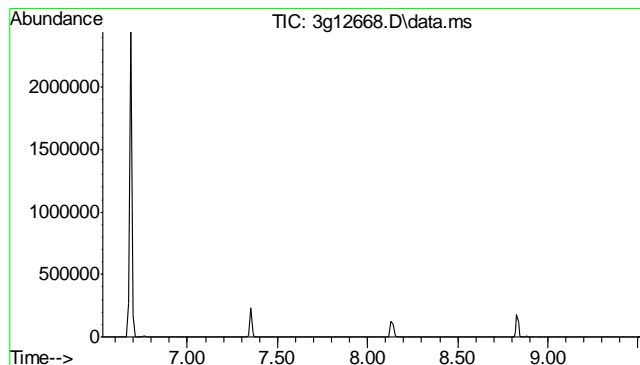
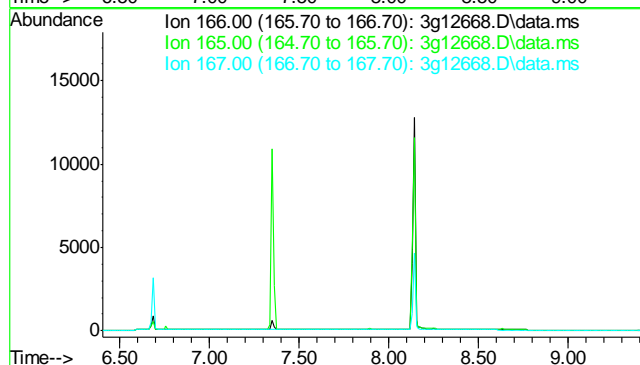




#13
Fluorene
Concen: N.D. ug/mL
Expected RT: 7.90 min

Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

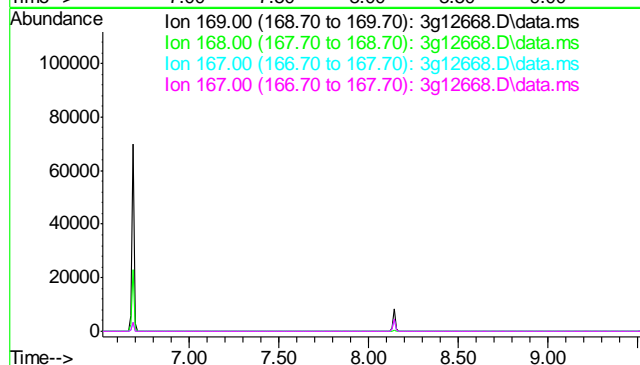
Tgt Ion:	166
Sig	Exp Ratio
166	100
165	90.1
167	13.4

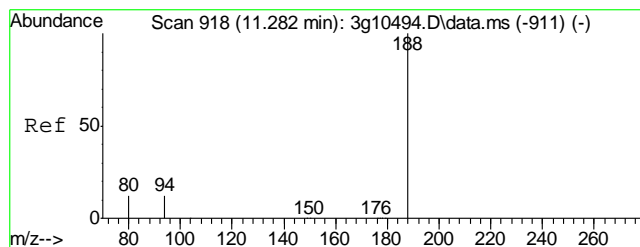


#14
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 8.02 min

Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

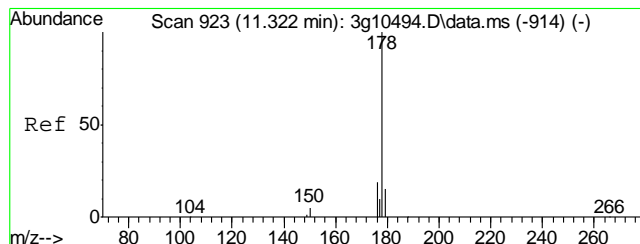
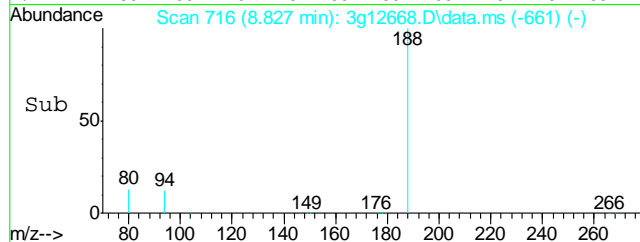
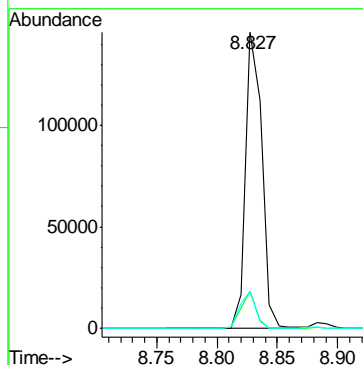
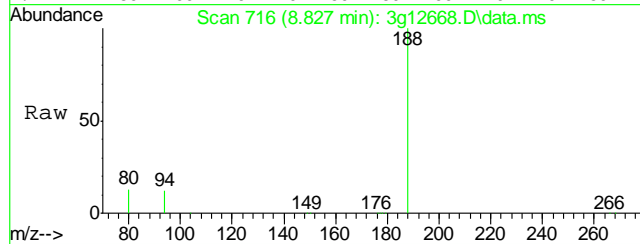
Tgt Ion:	169
Sig	Exp Ratio
169	100
168	60.1
167	32.1
167	32.1





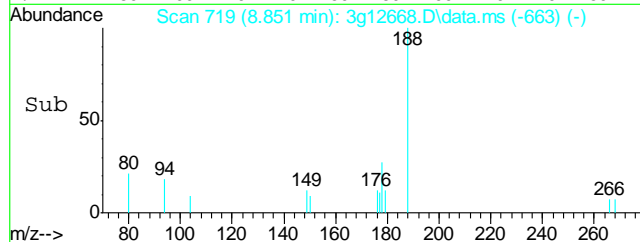
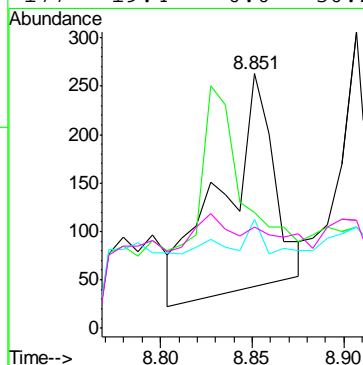
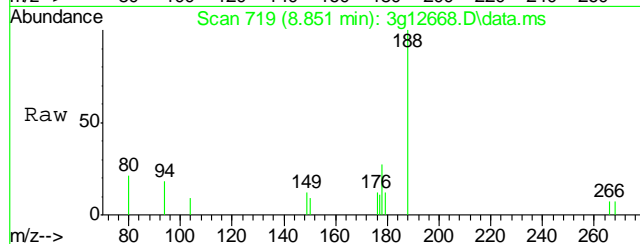
#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.827 min Scan# 716
Delta R.T. -0.000 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

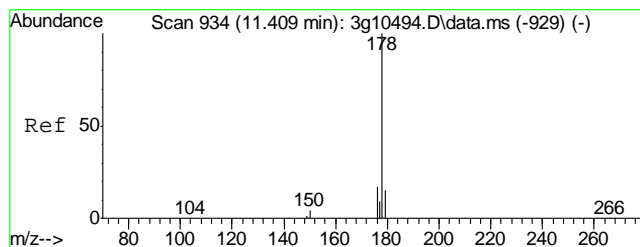
Tgt Ion:188	Resp:	133702
Ion Ratio	Lower	Upper
188	100	
94	11.6	0.0 32.3
80	12.7	0.0 32.6



#16
Phenanthrene
Concen: Below ug/mL
RT: 8.851 min Scan# 719
Delta R.T. 0.000 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

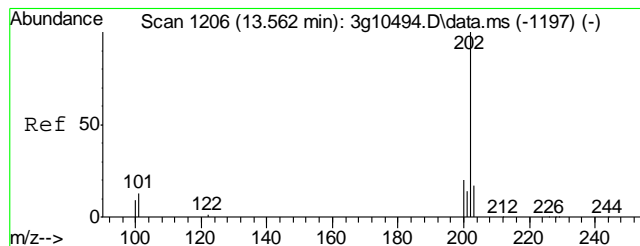
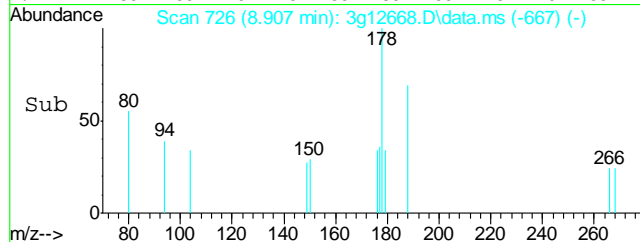
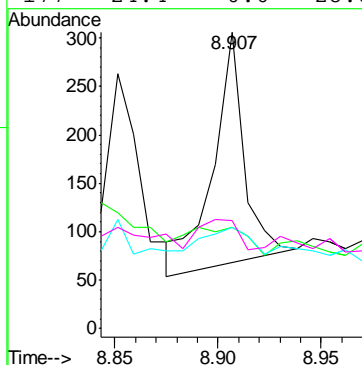
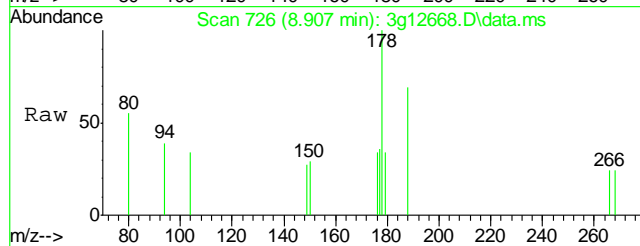
Tgt Ion:178	Resp:	432
Ion Ratio	Lower	Upper
178	100	
179	75.9	0.0 35.3#
176	0.0	0.0 38.6
177	19.4	0.0 30.2





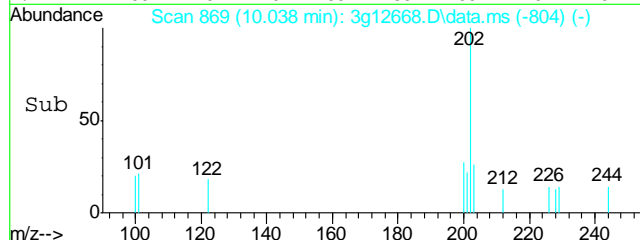
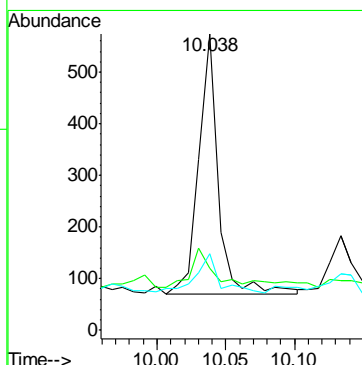
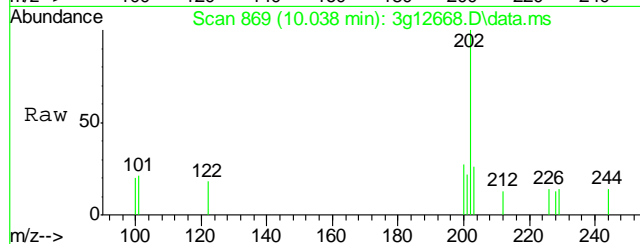
#17
 Anthracene
 Concen: Below ug/mL
 RT: 8.907 min Scan# 726
 Delta R.T. 0.008 min
 Lab File: 3g12668.D
 Acq: 24 Dec 12 11:35 am

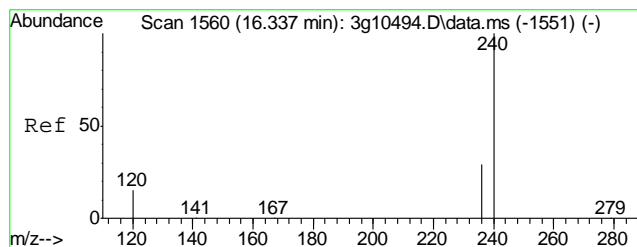
Tgt Ion	Ratio	Lower	Upper
178	100		
179	0.0	0.0	35.1
176	22.0	0.0	38.2
177	24.4	0.0	28.8



#18
 Fluoranthene
 Concen: Below ug/mL
 RT: 10.038 min Scan# 869
 Delta R.T. 0.015 min
 Lab File: 3g12668.D
 Acq: 24 Dec 12 11:35 am

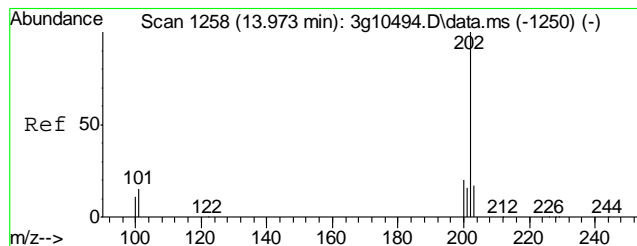
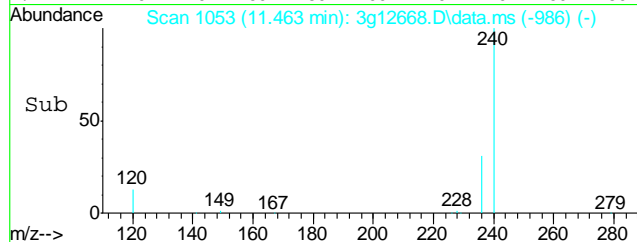
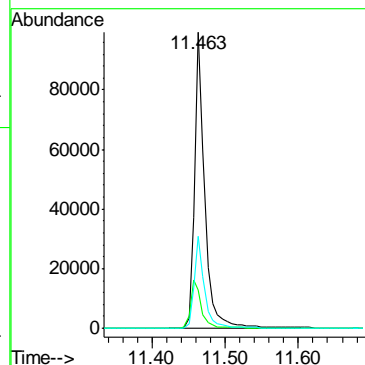
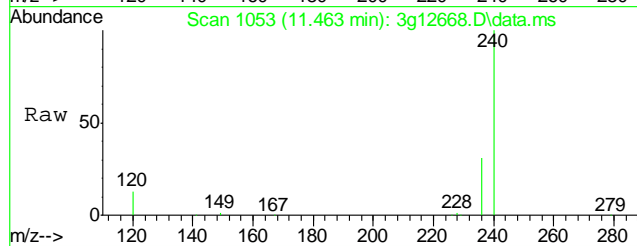
Tgt Ion	Ratio	Lower	Upper
202	100		
101	24.2	0.0	32.5
203	15.6	0.0	37.3





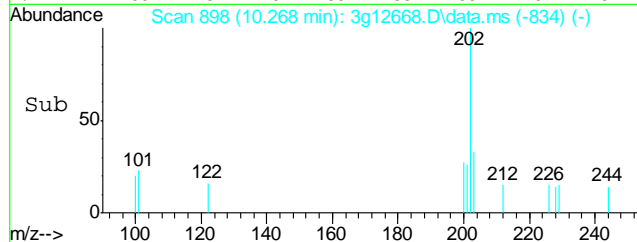
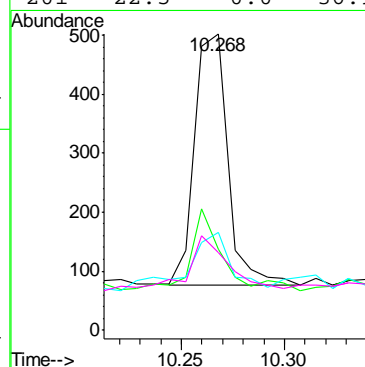
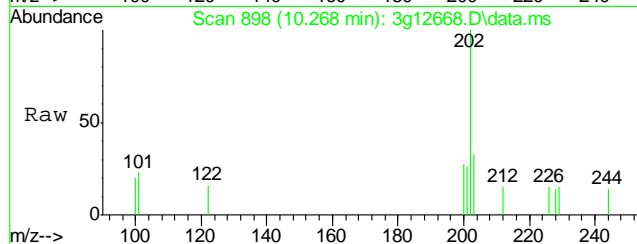
#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.463 min Scan# 1053
Delta R.T. -0.000 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

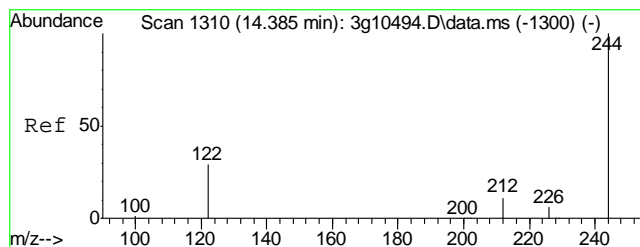
Tgt Ion:	240	Resp:	97747
Ion Ratio	Lower	Upper	
240	100		
120	17.6	0.0	35.5
236	31.0	12.0	52.0



#20
Pyrene
Concen: Below ug/mL
RT: 10.268 min Scan# 898
Delta R.T. 0.004 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

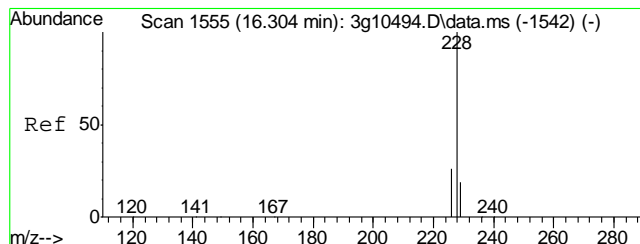
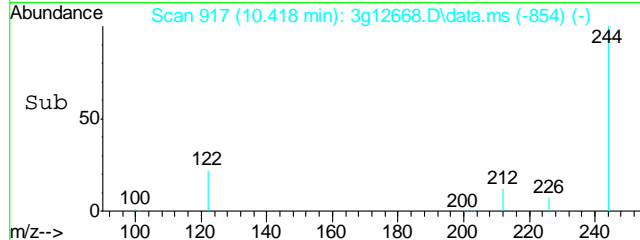
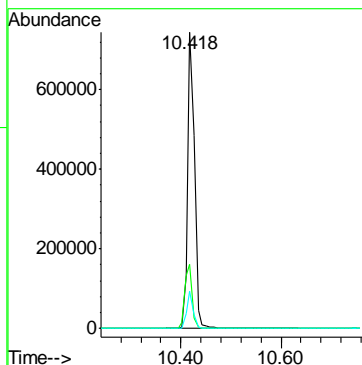
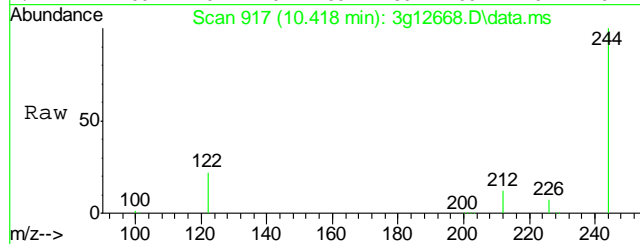
Tgt Ion:	202	Resp:	476
Ion Ratio	Lower	Upper	
202	100		
200	29.2	0.7	40.7
203	31.5	0.0	37.8
201	22.5	0.0	36.9





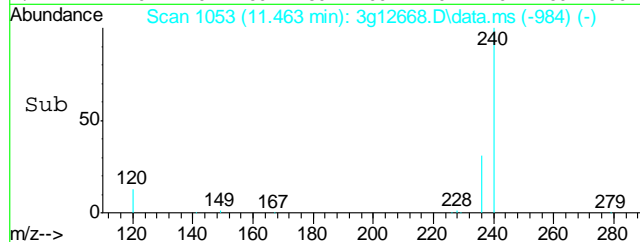
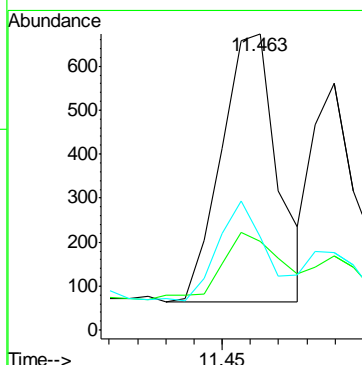
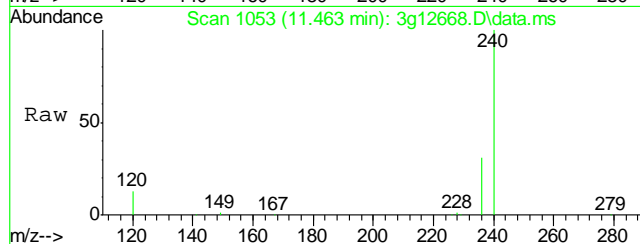
#21
Terphenyl-d14
Concen: 47.3969 ug/mL
RT: 10.418 min Scan# 917
Delta R.T. -0.004 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

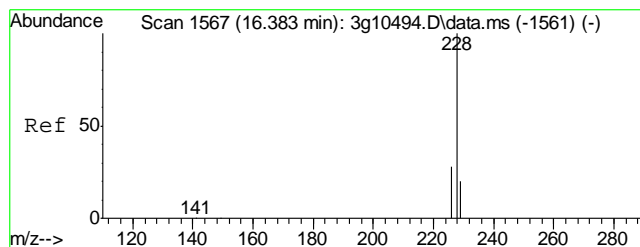
Tgt Ion:	244	Resp:	681948
Ion Ratio	Lower	Upper	
244	100		
122	23.5	6.8	46.8
212	11.8	0.0	32.3



#22
Benzo(a)anthracene
Concen: Below ug/mL
RT: 11.463 min Scan# 1053
Delta R.T. 0.013 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

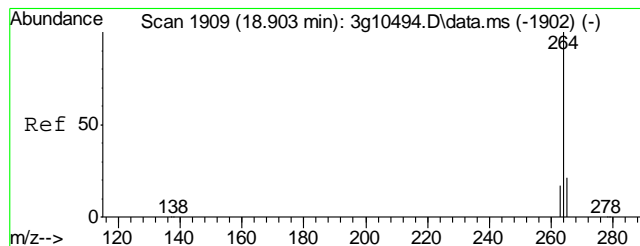
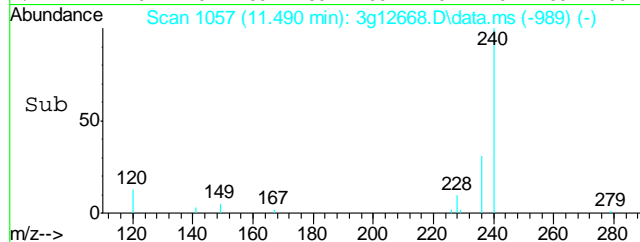
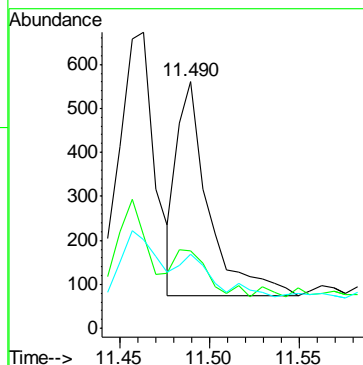
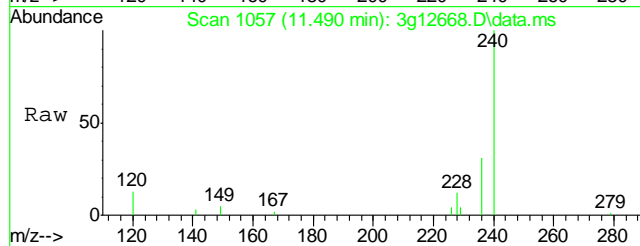
Tgt Ion:	228	Resp:	840
Ion Ratio	Lower	Upper	
228	100		
229	26.4	0.0	39.4
226	32.4	6.8	46.8





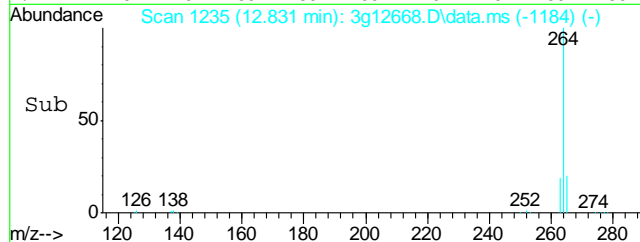
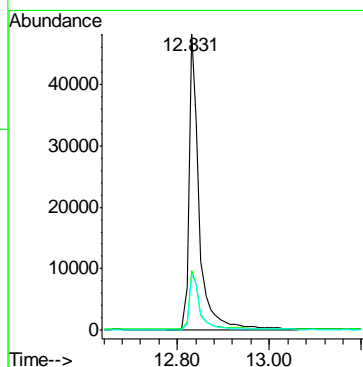
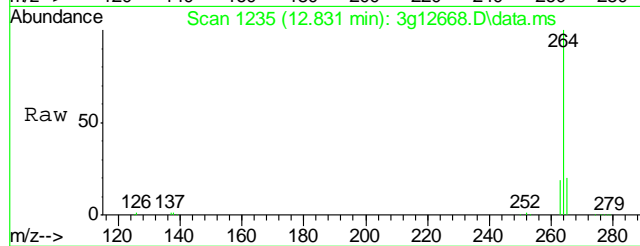
#23
Chrysene
Concen: Below ug/mL
RT: 11.490 min Scan# 1057
Delta R.T. 0.000 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

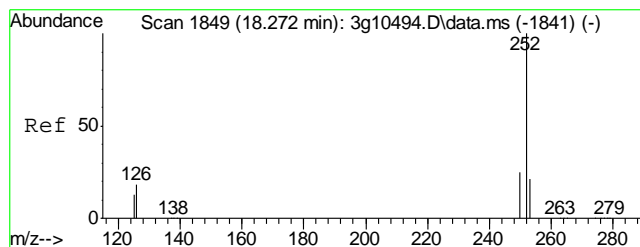
Tgt Ion:	228	Resp:	593
Ion Ratio	100	Lower	Upper
228	100		
226	23.4	9.2	49.2
229	2.5	0.0	39.4



#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 12.831 min Scan# 1235
Delta R.T. -0.000 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

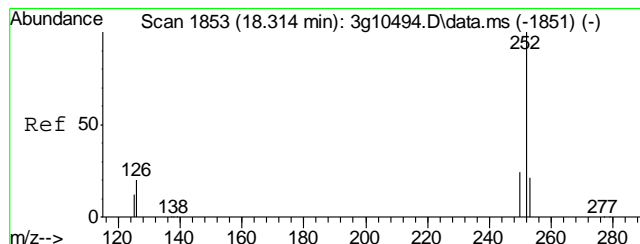
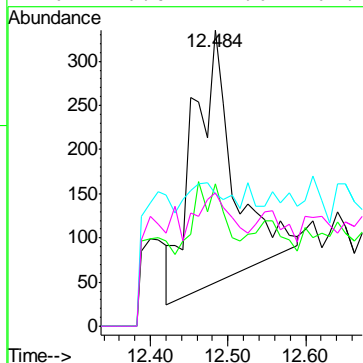
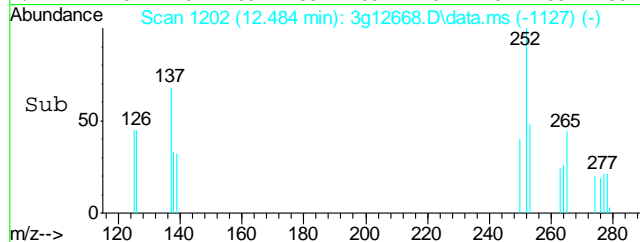
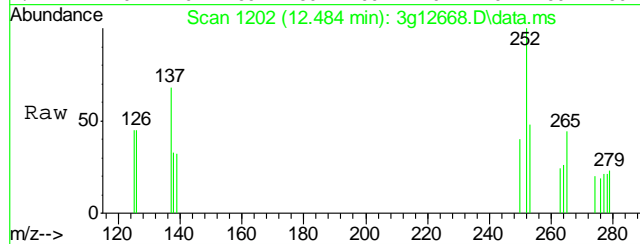
Tgt Ion:	264	Resp:	75579
Ion Ratio	100	Lower	Upper
264	100		
265	20.2	0.5	40.5
263	20.6	0.0	38.6





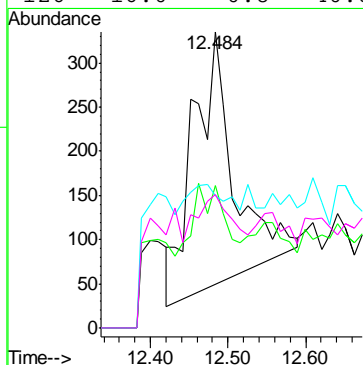
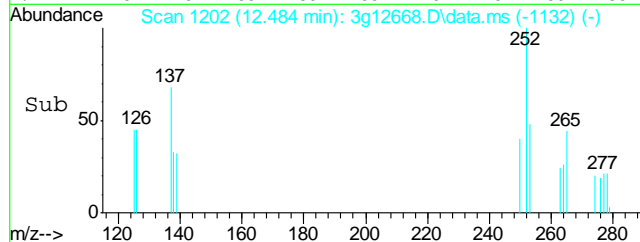
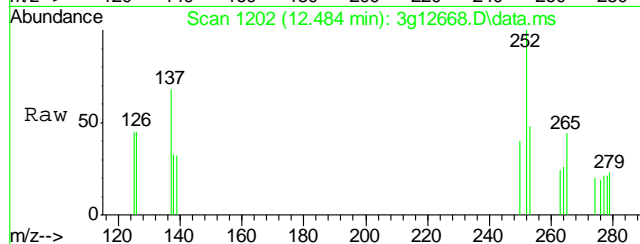
#25
Benzo(b)fluoranthene
Concen: Below ug/mL
RT: 12.484 min Scan# 1202
Delta R.T. 0.030 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

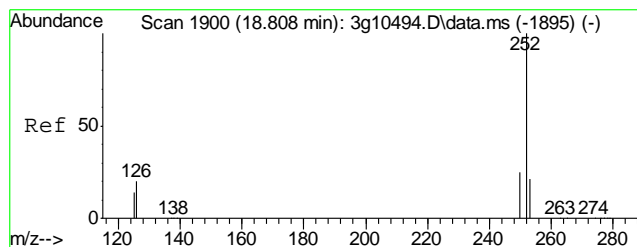
Tgt Ion	Ratio	Lower	Upper
252	100		
253	29.8	7.0	47.0
125	0.0	9.0	49.0#
126	16.0	21.6	61.6#



#26
Benzo(k)fluoranthene
Concen: Below ug/mL
RT: 12.484 min Scan# 1202
Delta R.T. -0.002 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

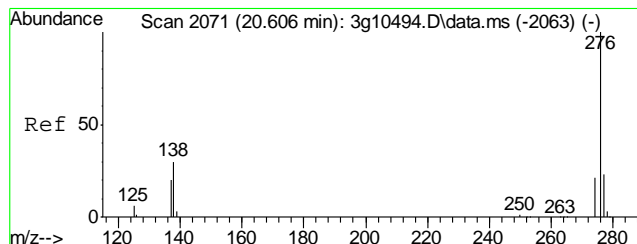
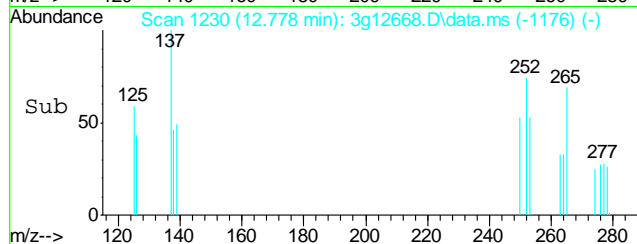
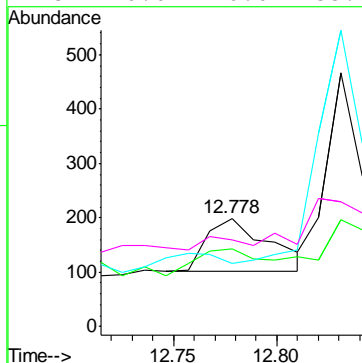
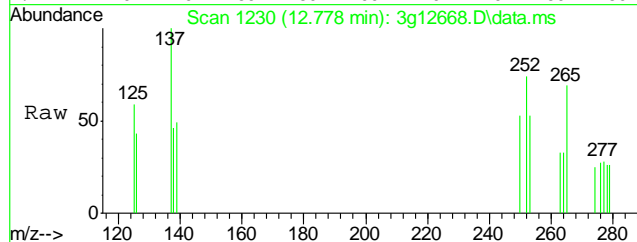
Tgt Ion	Ratio	Lower	Upper
252	100		
253	29.8	4.0	44.0
125	0.0	0.0	35.3
126	16.0	0.8	40.8





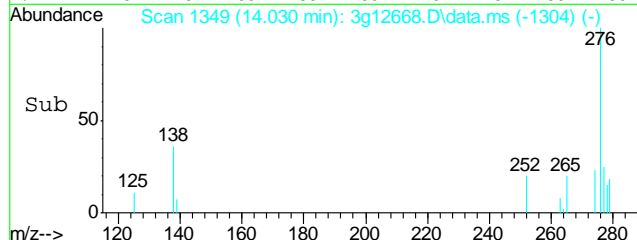
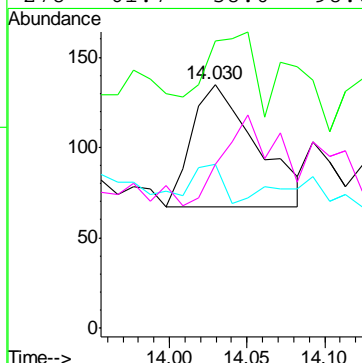
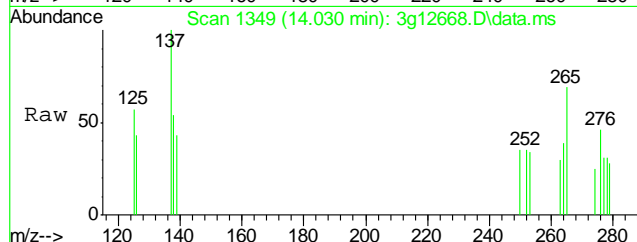
#27
Benzo(a)pyrene
Concen: Below ug/mL
RT: 12.778 min Scan# 1230
Delta R.T. -0.000 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

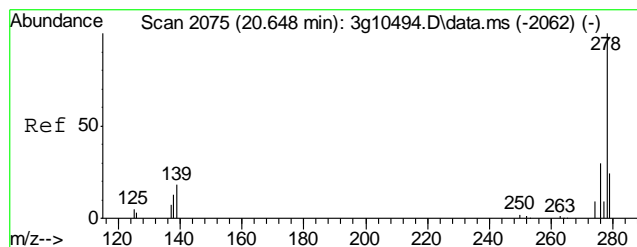
Tgt Ion:	252	Resp:	204
Ion Ratio	100	Lower	Upper
252	100		
253	53.9	1.5	41.5#
126	23.5	0.0	38.4
125	0.0	0.0	33.5



#28
Indeno(1,2,3-cd)pyrene
Concen: Below ug/mL
RT: 14.030 min Scan# 1349
Delta R.T. -0.026 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

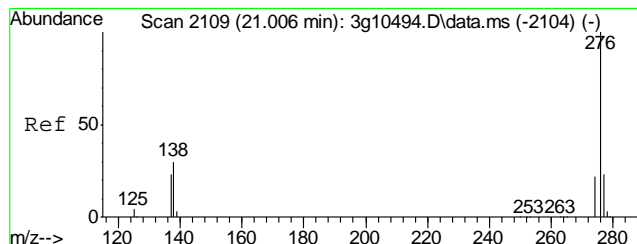
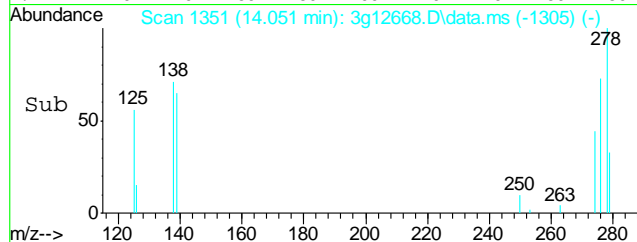
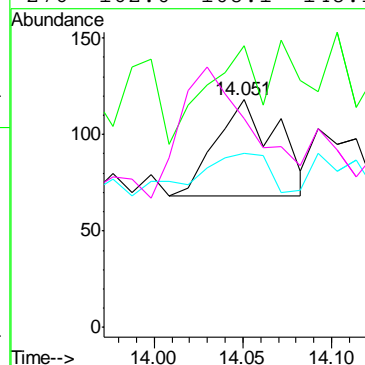
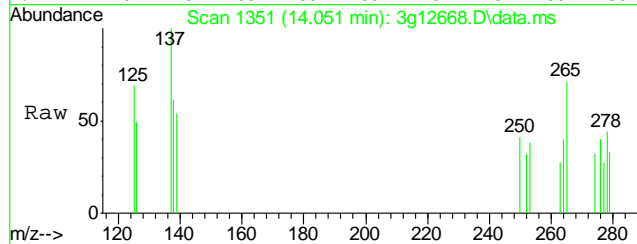
Tgt Ion:	276	Resp:	196
Ion Ratio	100	Lower	Upper
276	100		
138	48.5	16.0	56.0
277	10.7	4.9	44.9
278	61.7	58.0	98.0





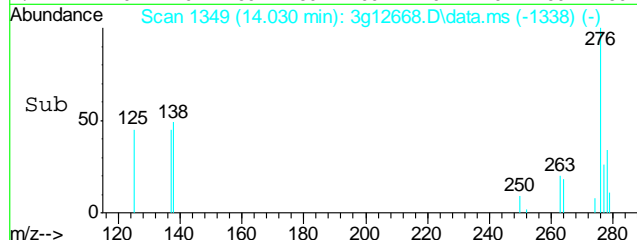
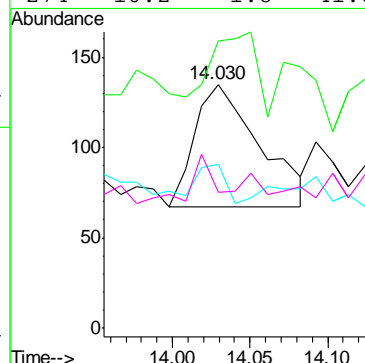
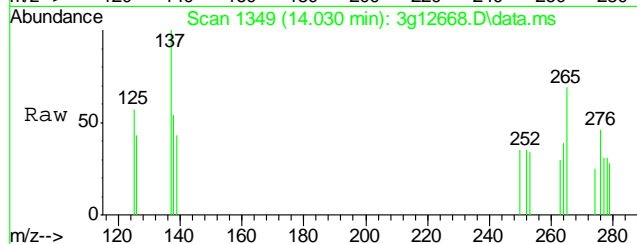
#29
Dibenz(a,h)anthracene
Concen: Below ug/mL
RT: 14.051 min Scan# 1351
Delta R.T. -0.015 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

Tgt Ion: 278 Resp: 121
Ion Ratio Lower Upper
278 100
139 82.6 7.4 47.4#
279 52.9 2.8 42.8#
276 162.0 108.1 148.1#



#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.030 min Scan# 1349
Delta R.T. -0.382 min
Lab File: 3g12668.D
Acq: 24 Dec 12 11:35 am

Tgt Ion: 276 Resp: 196
Ion Ratio Lower Upper
276 100
138 48.5 10.9 50.9
277 15.3 3.2 43.2
274 10.2 1.8 41.8



GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D42001
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1031-MB	GB18925.D	1	12/20/12	SK	n/a	n/a	GGB1031

The QC reported here applies to the following samples:

Method: SW846 8015B

D42001-1

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	92% 60-140%

10.1.1
10

Blank Spike Summary

Page 1 of 1

Job Number: D42001
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1031-BS	GB18926.D	1	12/20/12	SK	n/a	n/a	GGB1031

The QC reported here applies to the following samples:

Method: SW846 8015B

D42001-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	122	111	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	106%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D42001
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D41998-1MS	GB18928.D	1	12/20/12	SK	n/a	n/a	GGB1031
D41998-1MSD	GB18929.D	1	12/20/12	SK	n/a	n/a	GGB1031
D41998-1	GB18927.D	1	12/20/12	SK	n/a	n/a	GGB1031

The QC reported here applies to the following samples:

Method: SW846 8015B

D42001-1

CAS No.	Compound	D41998-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		137	150	110	150	110	0	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D41998-1	Limits
120-82-1	1,2,4-Trichlorobenzene	96%	101%	97%	60-140%

* = Outside of Control Limits.

GC Volatiles

Raw Data



Judy Melson
12/21/12 11:53

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\122012\GB18934.D\FID1A.CH Vial: 12
 Signal #2 : Y:\1\DATA\122012\GB18934.D\FID2B.CH
 Acq On : 20 Dec 2012 4:09 pm Operator: StephK
 Sample : D42001-1, 50X Inst : GC/MS Ins
 Misc : GC3312,GGB1031,5.008,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Dec 21 09:46:31 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Dec 20 10:45:38 2012
 Response via : Initial Calibration
 DataAcq Meth : TVB4.M

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

Compound	R.T.	Response	Conc	Units

System Monitoring Compounds				
2) S 1,2,4-Trichlorobenzene	14.36	2911465	92.917 %	m
10) S 1,2,4-Trichlorobenzene (P)	14.36	14642362	90.092 %	
Target Compounds				
1) H TVH-Gasoline	7.23	4821724	<MDL	mg/L
4) T Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T Benzene	0.00	0	N.D.	ug/L d
6) T Toluene	7.67	119621	0.302	ug/L m
7) T Ethylbenzene	0.00	0	N.D.	ug/L d
8) T m,p-Xylene	10.47	183482	0.129	ug/L
9) T o-Xylene	0.00	0	N.D.	ug/L d
11) T Naphthalene	14.56	266118	1.349	ug/L m

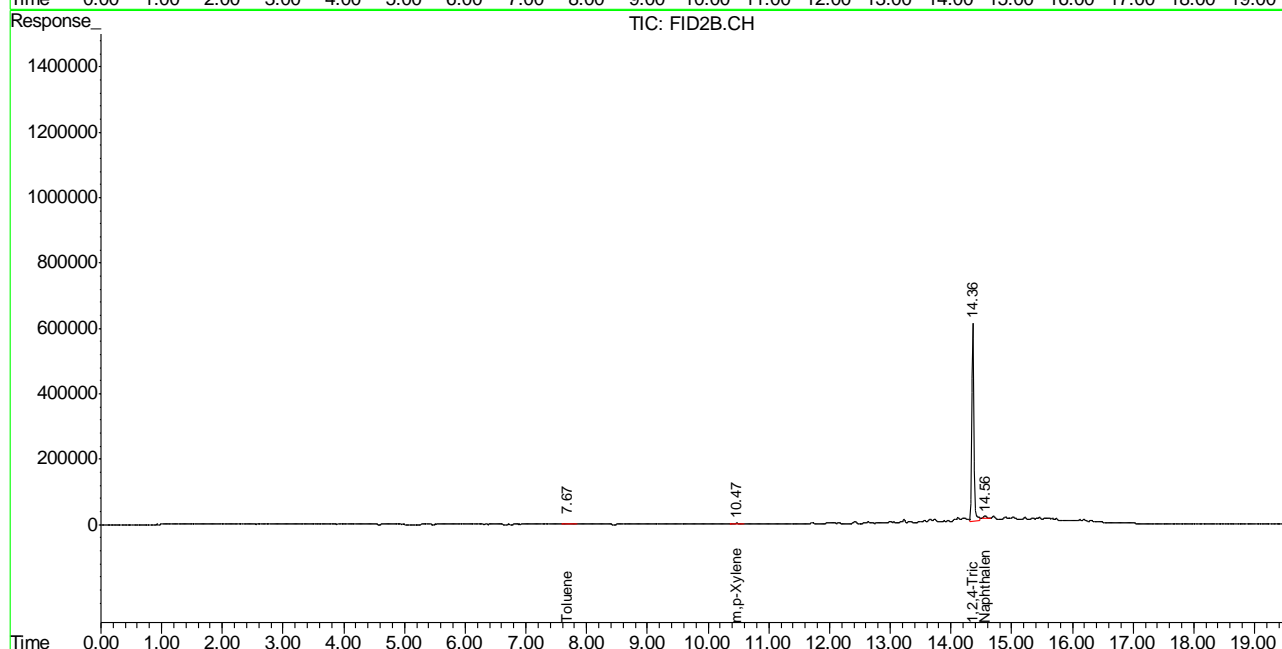
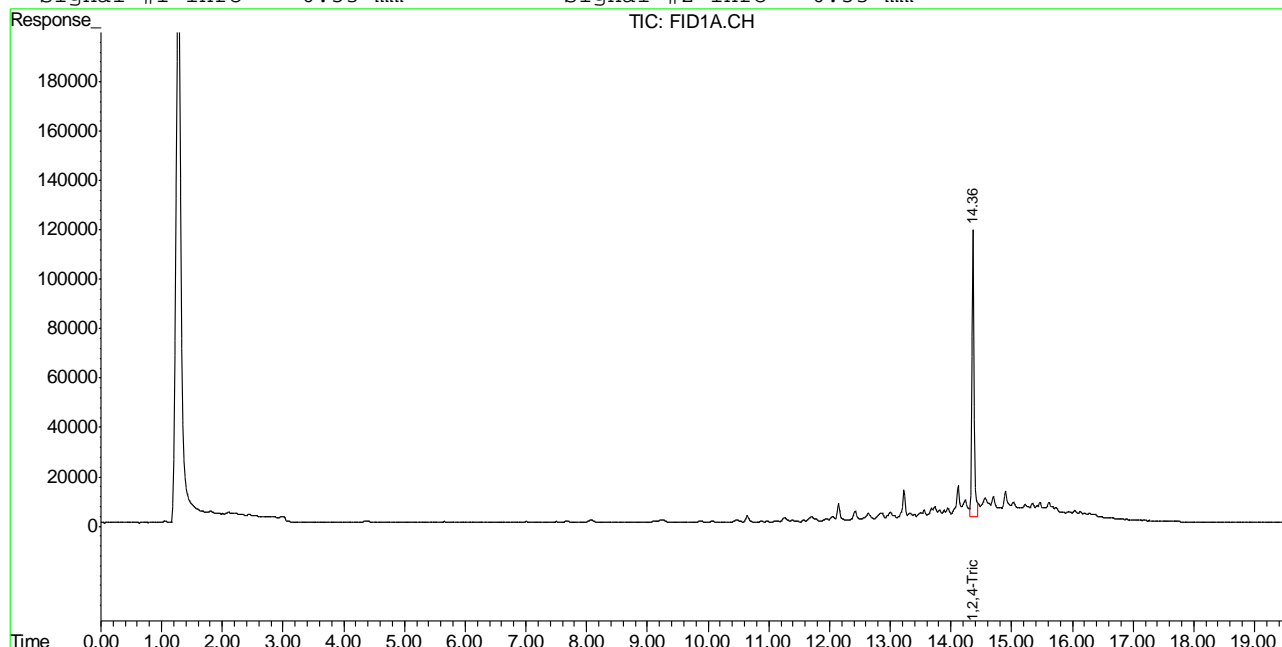
(f)=RT Delta > 1/2 Window (m)=manual int.
 GB18934.D TB868GB868SOIL.M Fri Dec 21 11:44:50 2012 GC

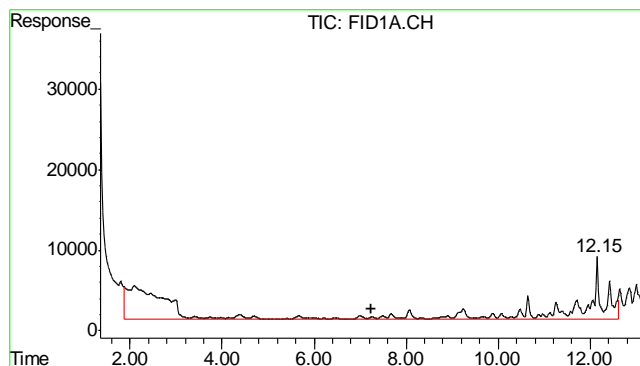
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\122012\GB18934.D\FID1A.CH Vial: 12
 Signal #2 : Y:\1\DATA\122012\GB18934.D\FID2B.CH
 Acq On : 20 Dec 2012 4:09 pm Operator: StephK
 Sample : D42001-1, 50X Inst : GC/MS Ins
 Misc : GC3312,GGB1031,5.008,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Dec 21 9:51 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Dec 20 10:45:38 2012
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

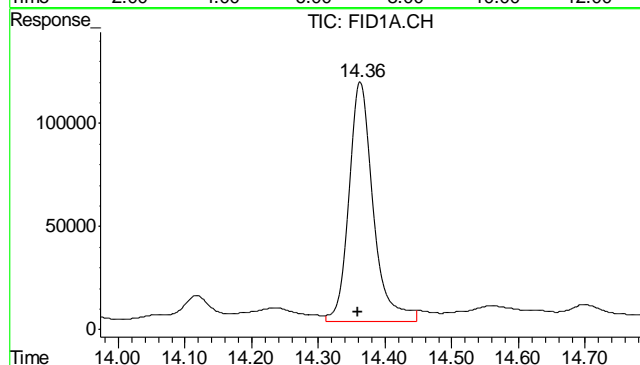
Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





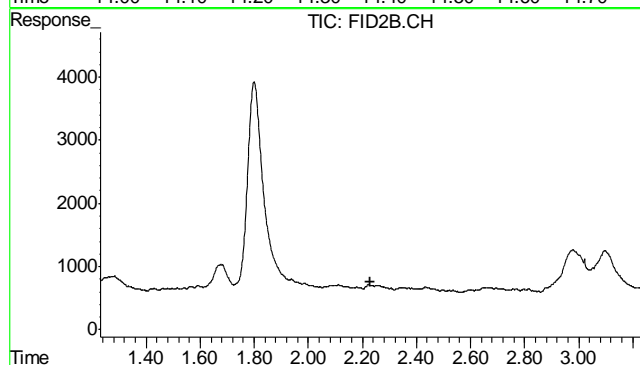
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 4821724
Conc: N.D.



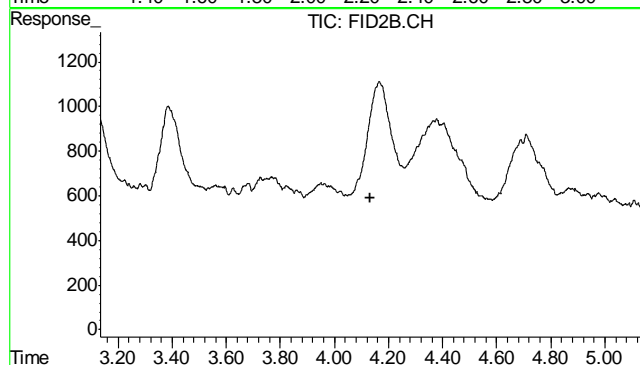
#2 1,2,4-Trichlorobenzene

R.T.: 14.362 min
Delta R.T.: 0.003 min
Response: 2911465
Conc: 92.92 % m



#4 Methyl-t-butyl-ether

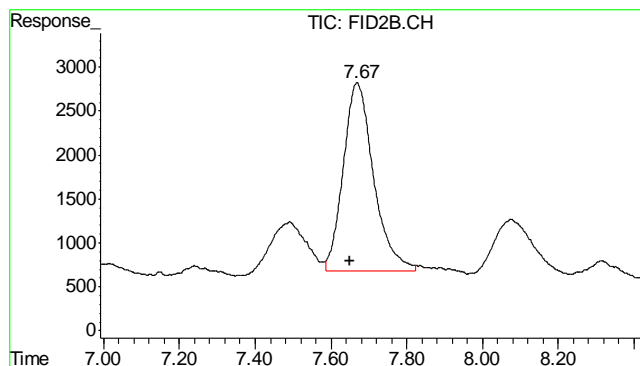
R.T.: 0.000 min
Exp R.T.: 2.231 min
Response: 0
Conc: N.D.



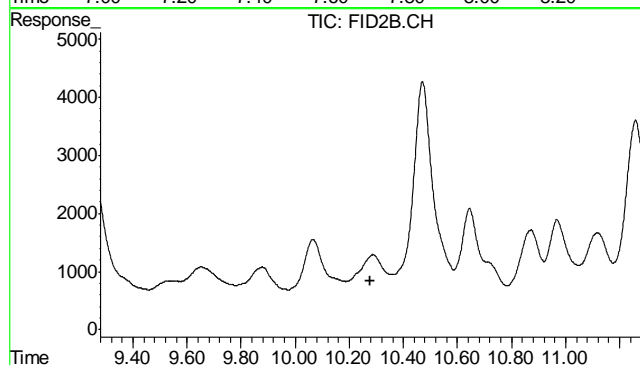
#5 Benzene

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

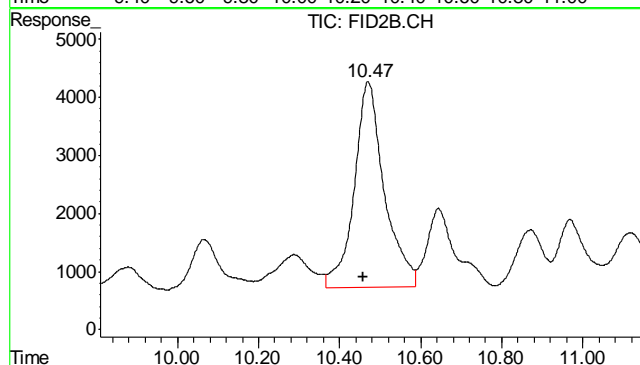
11.11



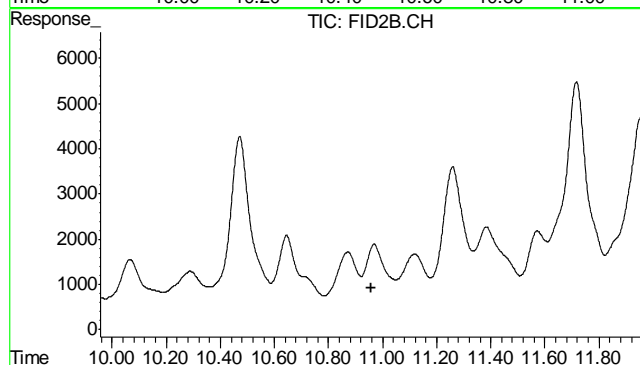
#6 Toluene
 R.T.: 7.667 min
 Delta R.T.: 0.017 min
 Response: 119621
 Conc: 0.30 ug/L m



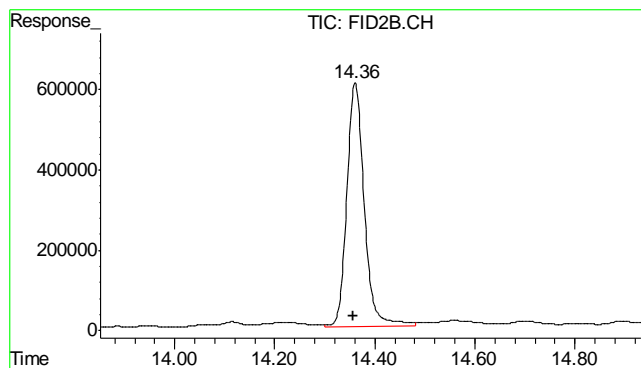
#7 Ethylbenzene
 R.T.: 0.000 min
 Exp R.T.: 10.279 min
 Response: 0
 Conc: N.D.



#8 m,p-Xylene
 R.T.: 10.471 min
 Delta R.T.: 0.012 min
 Response: 183482
 Conc: 0.13 ug/L

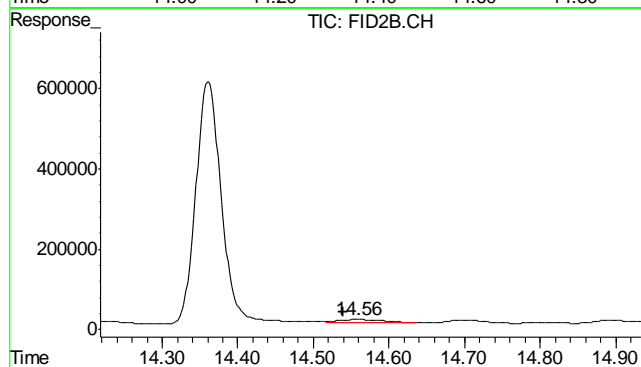


#9 o-Xylene
 R.T.: 0.000 min
 Exp R.T.: 10.956 min
 Response: 0
 Conc: N.D.



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

R.T.: 14.361 min
Delta R.T.: 0.004 min
Response: 14642362
Conc: 90.09 %



#11 Naphthalene

R.T.: 14.557 min
Delta R.T.: 0.018 min
Response: 266118
Conc: 1.35 ug/L m

11.1.1
11

Judy Melson
12/21/12 11:53

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\122012\GB18925.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\122012\GB18925.D\FID2B.CH
Acq On : 20 Dec 2012 10:49 am Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3312,GGB1031,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Dec 20 11:13:14 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Dec 20 10:45:38 2012
Response via : Initial Calibration
DataAcq Meth : TVB4.M

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

Compound		R.T.	Response	Conc	Units

System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.37	2892331	92.306 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.36	14854929	91.399 %	
Target Compounds					
1) H	TVH-Gasoline	7.23	3036600	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	7.67	156128	0.394	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	0.00	0	N.D.	ug/L d
9) T	o-Xylene	0.00	0	N.D.	ug/L d
11) T	Naphthalene	14.55	27710	0.140	ug/L m

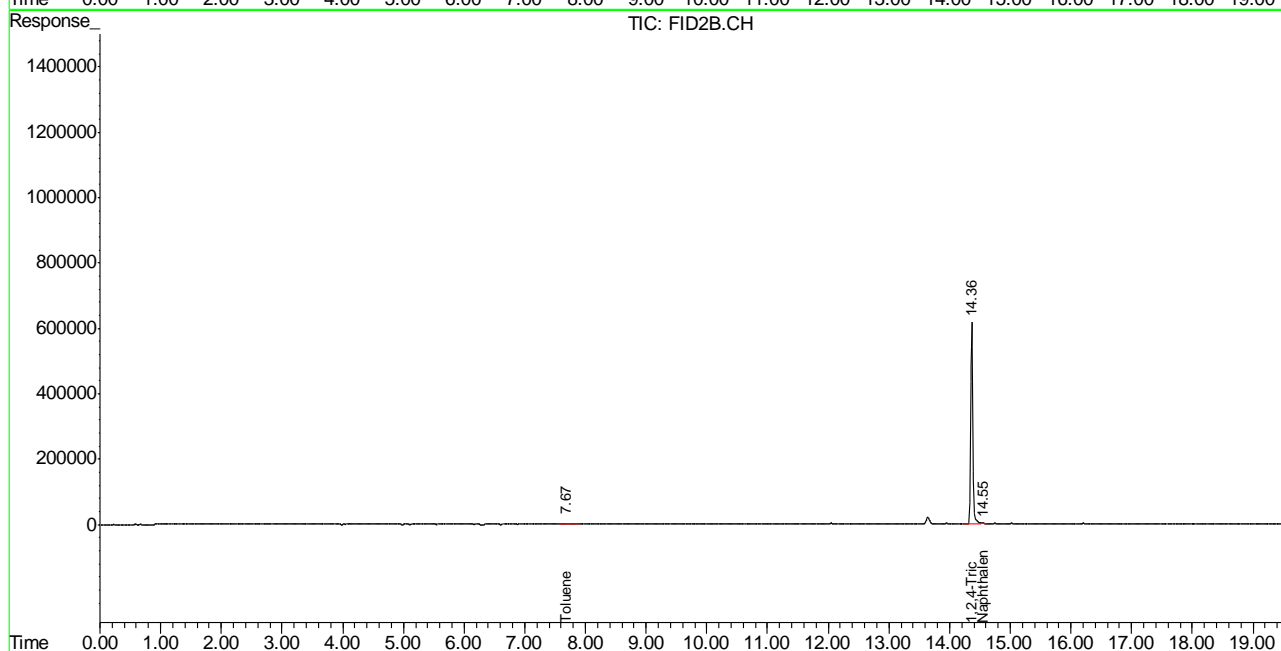
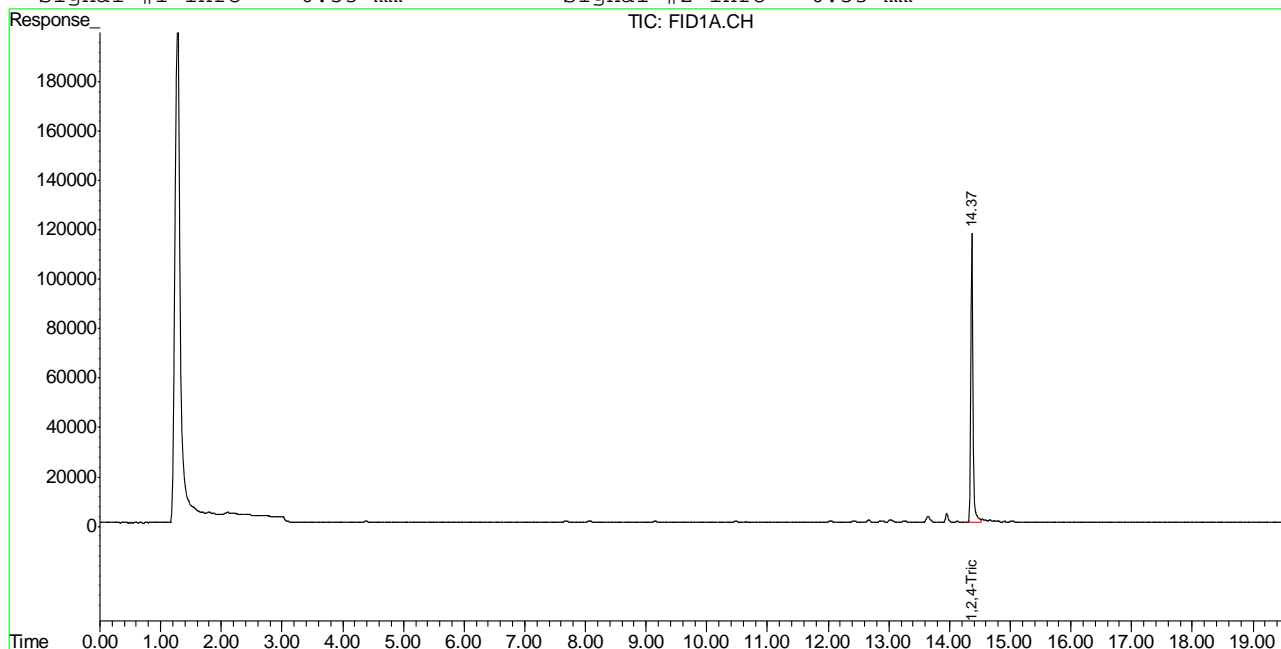
(f)=RT Delta > 1/2 Window (m)=manual int.
GB18925.D TB868GB868SOIL.M Fri Dec 21 09:52:29 2012 GC

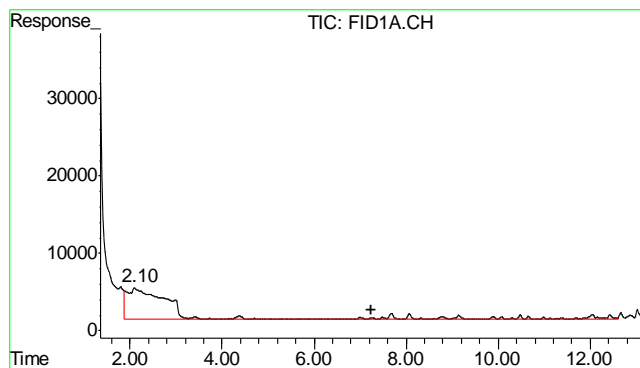
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\122012\GB18925.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\122012\GB18925.D\FID2B.CH
Acq On : 20 Dec 2012 10:49 am Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3312,GGB1031,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Dec 20 11:13 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Dec 20 10:45:38 2012
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

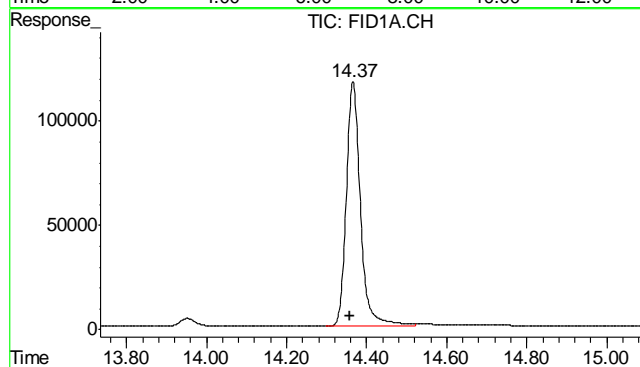
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





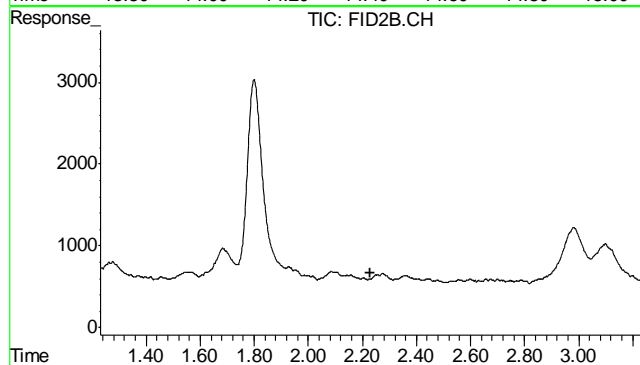
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 3036600
Conc: N.D.



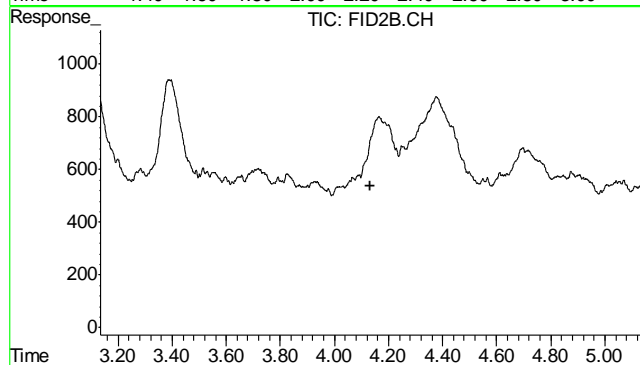
#2 1,2,4-Trichlorobenzene

R.T.: 14.365 min
Delta R.T.: 0.006 min
Response: 2892331
Conc: 92.31 % m



#4 Methyl-t-butyl-ether

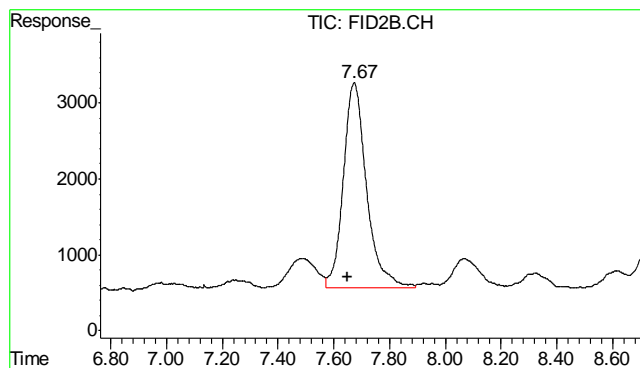
R.T.: 0.000 min
Exp R.T.: 2.231 min
Response: 0
Conc: N.D.



#5 Benzene

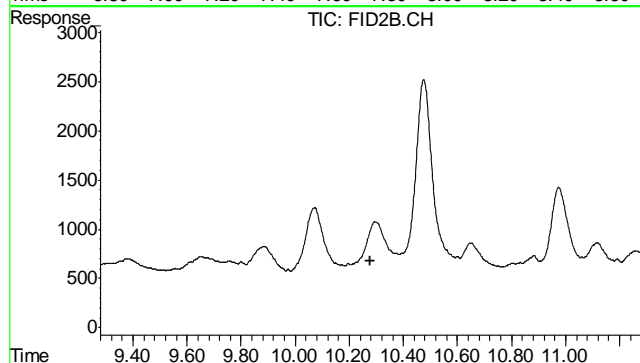
R.T.: 0.000 min
Exp R.T.: 4.134 min
Response: 0
Conc: N.D.

11.21 11



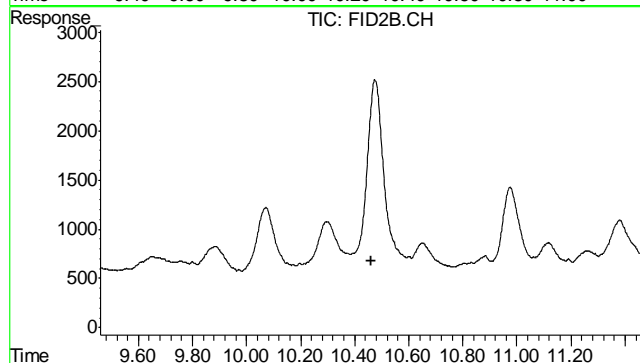
#6 Toluene

R.T.: 7.674 min
Delta R.T.: 0.024 min
Response: 156128
Conc: 0.39 ug/L



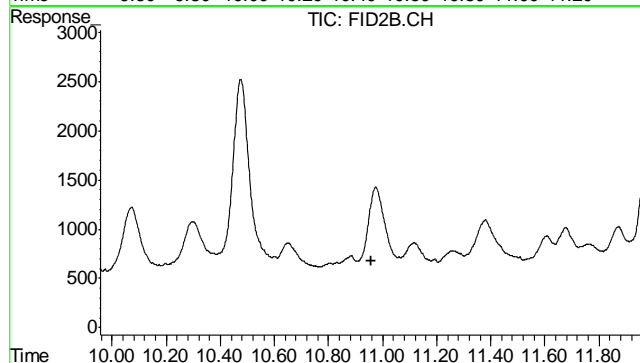
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T.: 10.279 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

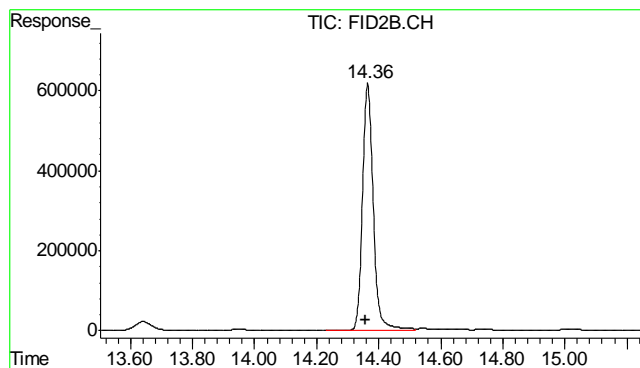
R.T.: 0.000 min
Exp R.T.: 10.459 min
Response: 0
Conc: N.D.



#9 o-Xylene

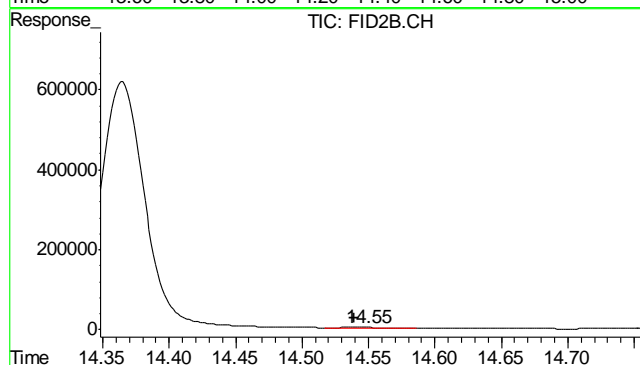
R.T.: 0.000 min
Exp R.T.: 10.956 min
Response: 0
Conc: N.D.

11.21
11



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

R.T.: 14.365 min
Delta R.T.: 0.007 min
Response: 14854929
Conc: 91.40 %



#11 Naphthalene

R.T.: 14.548 min
Delta R.T.: 0.009 min
Response: 27710
Conc: 0.14 ug/L m

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

Page 1 of 1

Job Number: D42001
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7131-MB	FD20702.D	1	12/20/12	AV	12/20/12	OP7131	GFD1038

The QC reported here applies to the following samples:

Method: SW846-8015B

D42001-1

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

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

12.1.1
12

Blank Spike Summary

Page 1 of 1

Job Number: D42001
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7131-BS	FD20703.D	1	12/20/12	AV	12/20/12	OP7131	GFD1038

The QC reported here applies to the following samples:

Method: SW846-8015B

D42001-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	601	90	48-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	75%	35-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D42001
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7131-MS	FD20714.D	20	12/20/12	AV	12/20/12	OP7131	GFD1038
OP7131-MSD	FD20715.D	20	12/20/12	AV	12/20/12	OP7131	GFD1038
D41999-1	FD20710.D	20	12/20/12	AV	12/20/12	OP7131	GFD1038

The QC reported here applies to the following samples:

Method: SW846-8015B

D42001-1

CAS No.	Compound	D41999-1 mg/kg	Spike Q	mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	7550	760	8090	71	5350	-289* a	41* a		20-168/30

CAS No.	Surrogate Recoveries	MS	MSD	D41999-1	Limits
84-15-1	o-Terphenyl	41%	36%	50%	35-130%

(a) Variability of recovery may be due to sample matrix/homogeneity.

* = Outside of Control Limits.

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\DEC\FD122012\FD20712.D Vial: 12
Acq On : 12-20-2012 07:34:49 PM Operator: ashleyv
Sample : D42001-1 Inst : FID5
Misc : OP7131,GFD1038,30.05,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Dec 21 08:16:35 2012 Quant Results File: DRO-GFD982F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD982F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Thu Dec 20 16:48:27 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	8.84	60844968	1099.666 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	6.89	465187647	12249.619 mg/L

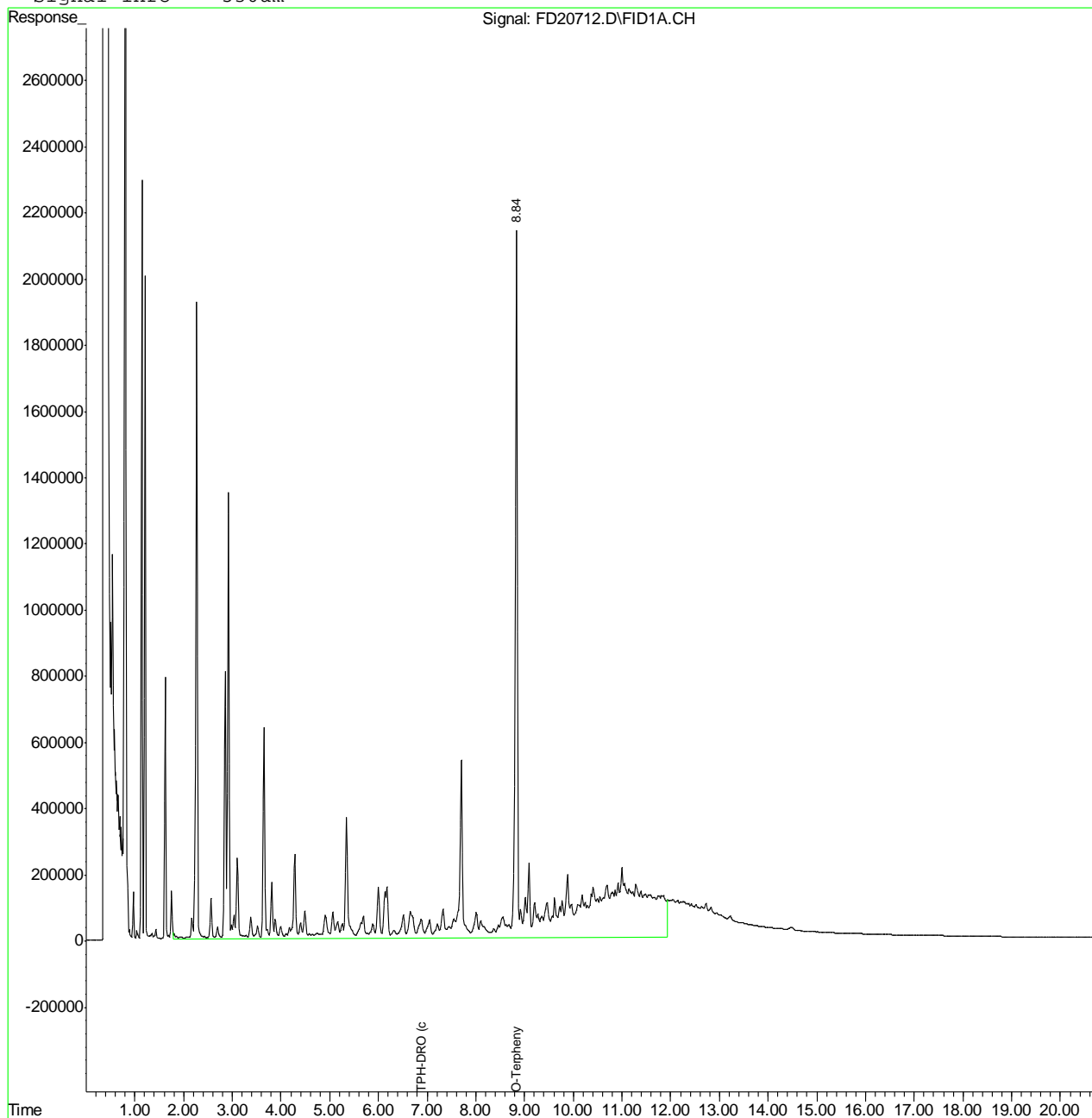
13.1.1
13

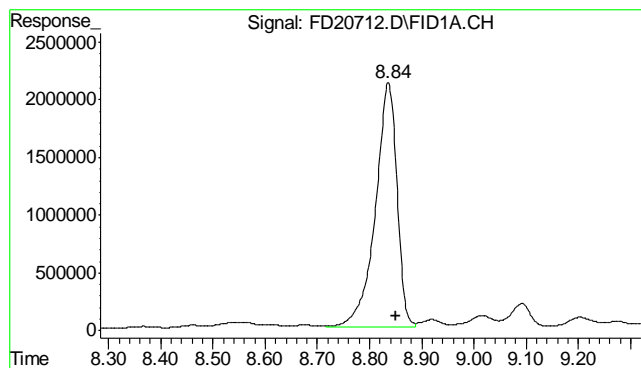
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\DEC\FD122012\FD20712.D Vial: 12
Acq On : 12-20-2012 07:34:49 PM Operator: ashleyv
Sample : D42001-1 Inst : FID5
Misc : OP7131,GFD1038,30.05,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Dec 21 8:26 2012 Quant Results File: DRO-GFD982F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD982F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Thu Dec 20 16:48:27 2012
Response via : Multiple Level Calibration
DataAcq Meth : DRO_FR.M

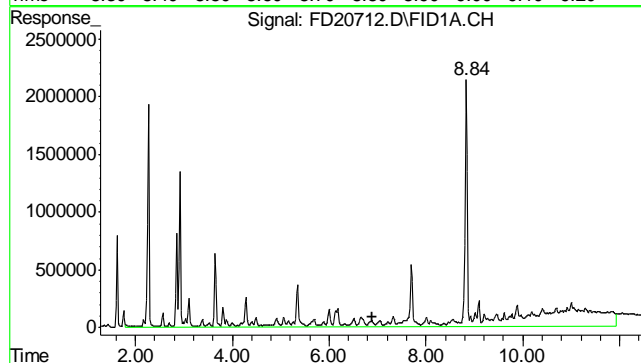
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 8.835 min
 Delta R.T.: -0.015 min
 Response: 60844968
 Conc: 1099.67 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 6.895 min
 Delta R.T.: 0.000 min
 Response: 465187647
 Conc: 12249.62 mg/L m

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\DEC\FD122012\FD20702.D Vial: 3
Acq On : 12-20-2012 03:09:36 PM Operator: ashleyv
Sample : OP7131-MB Inst : FID5
Misc : OP7131,GFD1038,30.00,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Dec 20 16:48:46 2012 Quant Results File: DRO-GFD982F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD982F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Thu Dec 20 16:48:27 2012
Response via : Initial Calibration
DataAcq Meth : DRODUAL.M

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

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
1) S O-Terphenyl	8.87	72754986	1314.919 mg/L
Target Compounds			
2) H TPH-DRO (c10-c28)	6.89	1791341	47.171 mg/L

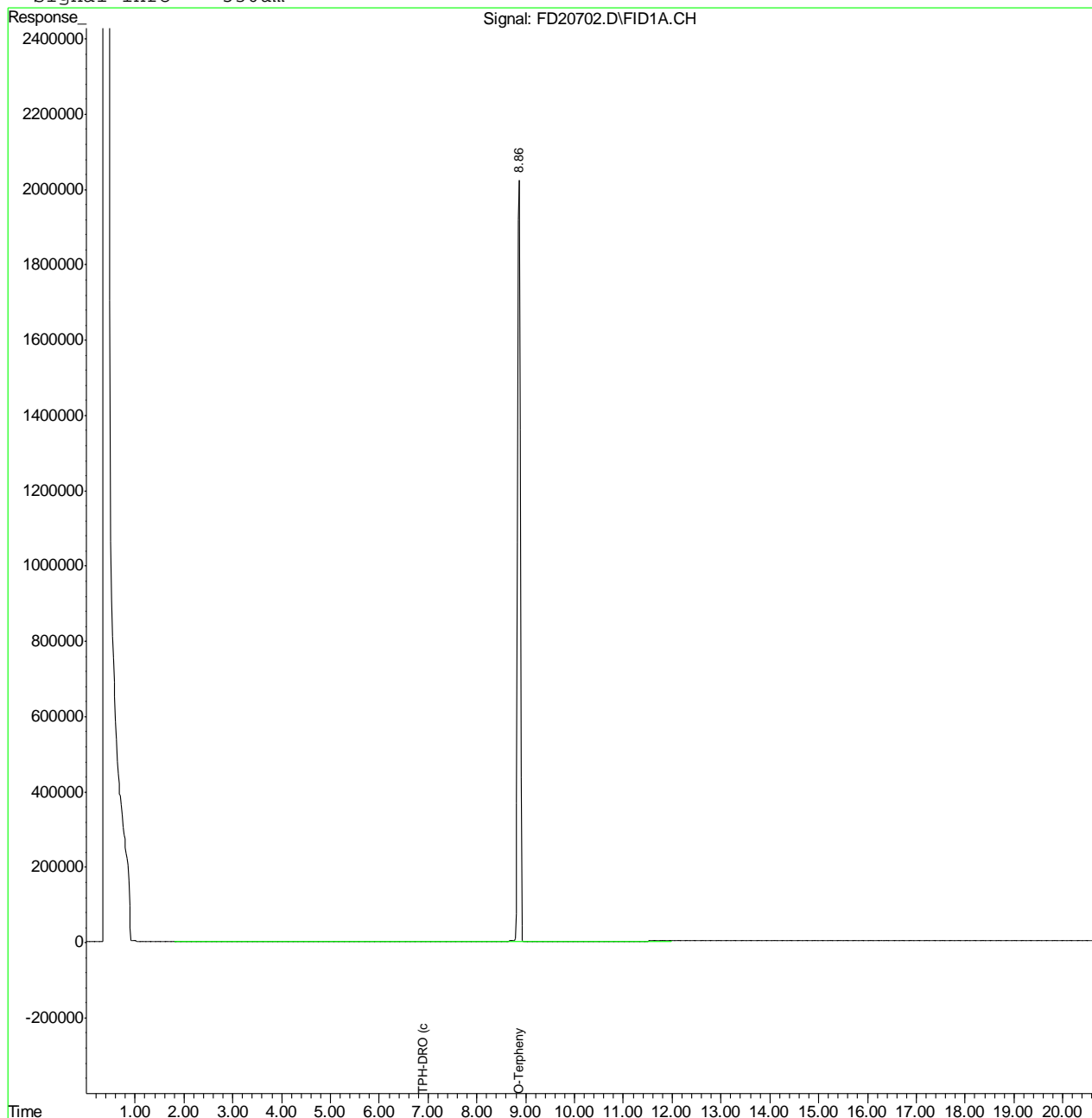
(f)=RT Delta > 1/2 Window (m)=manual int.
FD20702.D DRO-GFD982F.M Fri Dec 21 08:34:10 2012 GC

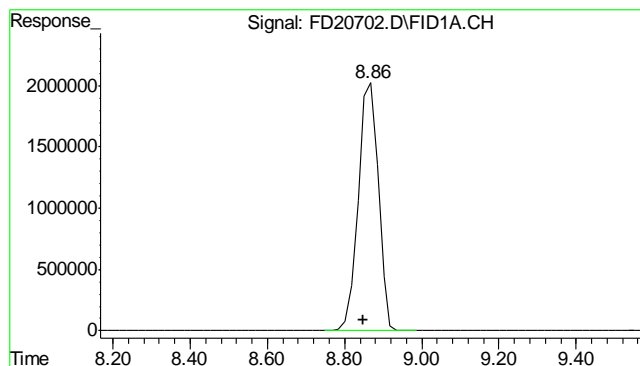
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\DEC\FD122012\FD20702.D Vial: 3
Acq On : 12-20-2012 03:09:36 PM Operator: ashleyv
Sample : OP7131-MB Inst : FID5
Misc : OP7131,GFD1038,30.00,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Dec 20 16:48 2012 Quant Results File: DRO-GFD982F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD982F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Thu Dec 20 16:48:27 2012
Response via : Multiple Level Calibration
DataAcq Meth : DRODUAL.M

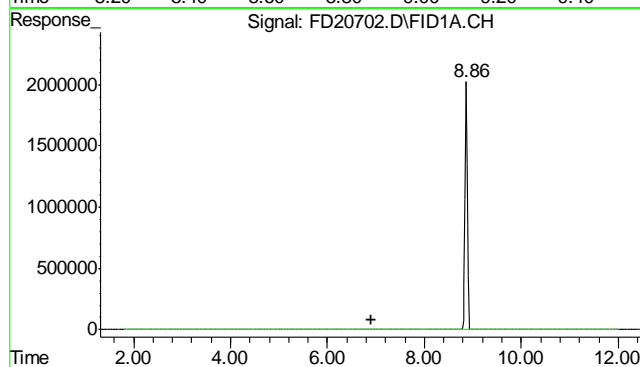
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 8.868 min
Delta R.T.: 0.018 min
Response: 72754986
Conc: 1314.92 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 6.895 min
Delta R.T.: 0.000 min
Response: 1791341
Conc: 47.17 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: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9125
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/21/12

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	0.050	<1.0
Beryllium	1.0	.13	.15		
Boron	5.0	.1	.06		
Cadmium	1.0	.06	.036	0.030	<1.0
Calcium	40	.54	9		
Chromium	1.0	.03	.03	0.070	<1.0
Cobalt	0.50	.04	.07		
Copper	1.0	.12	.15	-0.060	<1.0
Iron	7.0	.12	.87		
Lead	5.0	.19	.24	-0.030	<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	0.32	<5.0
Silicon	5.0	.29	.37		
Silver	3.0	.04	.06	-0.040	<3.0
Sodium	40	.59	1.9		
Strontium	5.0	.004	.017		
Thallium	1.0	.29	.53		
Tin	5.0	1.2	2		
Titanium	1.0	.01	.038		
Uranium	5.0	.22	.26		
Vanadium	1.0	.02	.036		
Zinc	3.0	.05	.37	0.76	<3.0

Associated samples MP9125: D42001-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9125
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9125
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/21/12

Metal	D42001-1 Original MS		Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	8360	9260	359	250.9(a)	75-125
Beryllium	anr				
Boron	anr				
Cadmium	0.0	65.3	89.7	72.6N(b)	75-125
Calcium	anr				
Chromium	14.6	78.0	89.7	70.9N(b)	75-125
Cobalt	anr				
Copper	17.7	86.4	89.7	76.6	75-125
Iron	anr				
Lead	9.1	140	179	72.5N(b)	75-125
Lithium					
Magnesium	anr				
Manganese	anr				
Molybdenum	anr				
Nickel	139	176	89.7	41.3N(c)	75-125
Phosphorus	anr				
Potassium	anr				
Selenium	0.0	141	179	77.8	75-125
Silicon	anr				
Silver	0.0	29.0	35.9	80.8	75-125
Sodium	anr				
Strontium	anr				
Thallium	anr				
Tin	anr				
Titanium	anr				
Uranium					
Vanadium	anr				
Zinc	32.4	90.7	89.7	65.0N(b)	75-125

Associated samples MP9125: D42001-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9125
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

- (N) Matrix Spike Rec. outside of QC limits
- (anr) Analyte not requested
- (a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- (b) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- (c) Spike recovery indicates possible matrix interference.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9125
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/21/12

Metal	D42001-1 Original MSD		Spikelot ICPAL2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	8360	9970	352	457.7(a)	7.4	20
Beryllium	anr					
Boron	anr					
Cadmium	0.0	69.7	87.9	79.0	6.5	20
Calcium	anr					
Chromium	14.6	82.8	87.9	77.8	6.0	20
Cobalt	anr					
Copper	17.7	90.6	87.9	82.9	4.7	20
Iron	anr					
Lead	9.1	148	176	78.5	5.6	20
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum	anr					
Nickel	139	185	87.9	52.3N(b)	5.0	20
Phosphorus	anr					
Potassium	anr					
Selenium	0.0	151	176	85.0	6.8	20
Silicon	anr					
Silver	0.0	31.1	35.2	88.4	7.0	20
Sodium	anr					
Strontium	anr					
Thallium	anr					
Tin	anr					
Titanium	anr					
Uranium						
Vanadium	anr					
Zinc	32.4	104	87.9	81.4	13.7	20

Associated samples MP9125: D42001-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9125
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9125
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/21/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	197	200	98.5	80-120
Beryllium	anr			
Boron	anr			
Cadmium	47.0	50	94.0	80-120
Calcium	anr			
Chromium	50.2	50	100.4	80-120
Cobalt	anr			
Copper	47.5	50	95.0	80-120
Iron	anr			
Lead	97.8	100	97.8	80-120
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	47.2	50	94.4	80-120
Phosphorus	anr			
Potassium	anr			
Selenium	97.3	100	97.3	80-120
Silicon	anr			
Silver	20.5	20	102.5	80-120
Sodium	anr			
Strontium	anr			
Thallium	anr			
Tin	anr			
Titanium	anr			
Uranium				
Vanadium	anr			
Zinc	48.6	50	97.2	80-120

Associated samples MP9125: D42001-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9125
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9125
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 12/21/12

Metal	D42001-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	45700	41500	9.1	0-10
Beryllium	anr			
Boron	anr			
Cadmium	0.00	0.00	NC (a)	0-10
Calcium	anr			
Chromium	80.0	84.0	6.9	0-10
Cobalt	anr			
Copper	96.8	93.5	3.4	0-10
Iron	anr			
Lead	50.0	49.0	10.6 (a)	0-10
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	761	855	12.4*(b)	0-10
Phosphorus	anr			
Potassium	anr			
Selenium	0.00	0.00	NC (a)	0-10
Silicon	anr			
Silver	0.00	0.00	NC	0-10
Sodium	anr			
Strontium	anr			
Thallium	anr			
Tin	anr			
Titanium	anr			
Uranium				
Vanadium	anr			
Zinc	177	203	14.8*(b)	0-10

Associated samples MP9125: D42001-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9125
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

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

(b) Serial dilution indicates possible matrix interference.

14.1.4
14

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9126
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 12/21/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.006	.06	0.0011	<0.10
Barium	1.0	.0065	.037		
Beryllium	0.10	.016	.09		
Boron	20	1.2	1.2		
Cadmium	0.050	.014	.021		
Calcium	200	7.9	8		
Chromium	1.0	.033	.19		
Cobalt	0.10	.0012	.015		
Copper	1.0	.017	.065		
Iron	20	.8	5		
Lead	0.25	.0011	.024		
Magnesium	50	.44	.85		
Manganese	0.50	.0043	.02		
Molybdenum	0.50	.018	.018		
Nickel	1.0	.0049	.011		
Phosphorus	30	1.4	3.6		
Potassium	100	9.8	10		
Selenium	0.20	.029	.14		
Silver	0.050	.0009	.0065		
Sodium	250	1.5	2.3		
Strontium	10	.036	.036		
Thallium	0.10	.00095	.0095		
Tin	5.0	.023	.34		
Titanium	1.0	.044	.1		
Uranium	0.25	.00085	.001		
Vanadium	2.0	.12	.21		
Zinc	5.0	.033	.35		

Associated samples MP9126: D42001-1

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: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9126
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 12/21/12

Metal	D42001-1 Original MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	14.2	166	179	84.6
Barium				75-125
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP9126: D42001-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

14.2.2
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9126
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 12/21/12

Metal	D42001-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	14.2	169	176	88.0	1.8	20
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP9126: D42001-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

14.2.2
14

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9126
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 12/21/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	106	100	106.0	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP9126: D42001-1

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

14.2.3
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9126
Matrix Type: SOLID

Methods: SW846 6020A
Units: ug/l

Prep Date: 12/21/12

Metal	D42001-1			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic	77.5	73.3	5.4	0-10	
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP9126: D42001-1

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

14.2.4
14

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9138
Matrix Type: AQUEOUS

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

Prep Date: 12/26/12

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	12.0	<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	36.0	<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	-40	<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 MP9138: D42001-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9138
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: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9138
Matrix Type: AQUEOUS

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

Prep Date: 12/26/12

Metal	D42001-1A Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	641000	765000	125000	99.2	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	95.5	131000	125000	104.7	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	755000	852000	125000	77.6	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP9138: D42001-1A

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

14.3.2
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9138
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: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9138
Matrix Type: AQUEOUS

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

Prep Date: 12/26/12

Metal	D42001-1A Original	MSD	SpikeLot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	641000	789000	125000	118.4	3.1	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	95.5	131000	125000	104.7	0.0	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	755000	875000	125000	96.0	2.7	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP9138: D42001-1A

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

14.3.2
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9138
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: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9138
Matrix Type: AQUEOUS

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

Prep Date: 12/26/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	142000	125000	113.6	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	131000	125000	104.8	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	128000	125000	102.4	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP9138: D42001-1A

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

14.3.3
14

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9138
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: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9138
Matrix Type: AQUEOUS

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

Prep Date: 12/26/12

Metal	D42001-1A Original SDL 1:5		%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	128000	132000	2.9	0-10
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	19.1	38.5	101.6(a)	0-10
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	151000	154000	2.1	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP9138: D42001-1A

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

14.3.4
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9138
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

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

14.3.4
14

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9141
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 12/27/12

Metal	RL	IDL	MDL	MB raw	final
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Mercury	0.10	.0011	.0009	0.00052	<0.10
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Associated samples MP9141: D42001-1

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: D42001
 Account: XTOKRWR - XTO Energy
 Project: PCU 296-6A

QC Batch ID: MP9141
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 12/27/12

Metal	D42001-1		Spikelot		QC
	Original	MS	HGWSR1	% Rec	Limits
Mercury	0.017	0.59	0.594	96.5	75-125

Associated samples MP9141: D42001-1

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: D42001
 Account: XTOKRWR - XTO Energy
 Project: PCU 296-6A

QC Batch ID: MP9141
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 12/27/12

Metal	D42001-1 Original MSD		Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.017	0.57	0.584	94.6	3.4	20

Associated samples MP9141: D42001-1

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: D42001
 Account: XTOKRWR - XTO Energy
 Project: PCU 296-6A

QC Batch ID: MP9141
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 12/27/12

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

Associated samples MP9141: D42001-1

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

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: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP8990/GN18245	1.0	0.0	mg/kg	176.0	171	97.3	80-120%
Specific Conductivity	GP8964/GN18187	1.0	<1.0	umhos/cm	9992	9940	99.5	90-110%
pH	GN18200			su	8.00	8.01	100.1	99.3-100.7%

Associated Samples:
Batch GP8964: D42001-1
Batch GP8990: D42001-1
Batch GN18200: D42001-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP8990/GN18245	D42001-1	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN18175	D41866-1	mv	189	188	0.5	0-20%

Associated Samples:
Batch GP8990: D42001-1
Batch GN18175: D42001-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP8990/GN18245	D42001-1	mg/kg	0.0	40.0	41.9	104.7	75-125%

Associated Samples:

Batch GP8990: D42001-1

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D42001
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chromium, Hexavalent	GP8990/GN18245	D42001-1	mg/kg	0.0	40.0	41.4	1.3	20%

Associated Samples:
Batch GP8990: D42001-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits