



01/17/13

Technical Report for

XTO Energy

PCU 296-5A

1210-04

Accutest Job Number: D42556

Sampling Date: 01/08/13

Report to:

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Total number of pages in report: 193



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: D42556

PCU 296-5A
Project No: 1210-04

Sample Number	Collected		Time By	Received	Matrix		Client Sample ID
	Date				Code	Type	
D42556-1	01/08/13	13:00	DS	01/11/13	SO	Soil	CUT 1 OVERBURDEN
D42556-1A	01/08/13	13:00	DS	01/11/13	SO	Soil	CUT 1 OVERBURDEN
D42556-2	01/08/13	13:10	DS	01/11/13	SO	Soil	CUT 1 CONTENTS
D42556-2A	01/08/13	13:10	DS	01/11/13	SO	Soil	CUT 1 CONTENTS

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



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: XTO Energy

Job No D42556

Site: PCU 296-5A

Report Date 1/17/2013 3:09:26 PM

On 01/11/2013, 2 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D42556 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: V3V1327

- All samples were analyzed within the recommended method holding time.
- Sample(s) D42512-1MS, D42512-1MSD 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: OP7223

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D42510-1MS, D42510-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- The matrix spike (MS) recovery(s) of Naphthalene are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- The RPD(s) for the MS and MSD recoveries of Naphthalene are outside control limits for sample OP7223-MSD. Variability of recovery may be due to sample matrix/homogeneity.

Volatiles by GC By Method SW846 8015B

Matrix SO

Batch ID: GGB1045

- All samples were analyzed within the recommended method holding time.
- Sample(s) D42466-11MS, D42466-11MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GC By Method SW846-8015B

Matrix SO

Batch ID: OP7232

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D42562-1MS, D42562-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Metals By Method SW846 6010C

Matrix AQ

Batch ID: MP9251

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D42556-1AMS, D42556-1AMSD, D42556-1ASDL were used as the QC samples for the metals analysis.

Matrix SO

Batch ID: MP9242

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D42510-1MS, D42510-1MSD, D42510-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Barium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The serial dilution RPD(s) for Chromium, Lead, Zinc are outside control limits for sample MP9242-SD1. Probable cause due to sample homogeneity.
- MP9242-SD1 for Chromium: Serial dilution indicates possible matrix interference.
- MP9242-SD1 for Lead: Serial dilution indicates possible matrix interference.
- MP9242-SD1 for Zinc: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix SO

Batch ID: MP9243

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D42510-1MS, D42510-1SDL, D42510-1MSD were used as the QC samples for the metals analysis.

Metals By Method SW846 7471B

Matrix SO

Batch ID: MP9244

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D42445-1MS, D42445-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO

Batch ID: GN18422

- Sample(s) D42337-20DUP 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: GP9098

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

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN18412

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

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO

Batch ID: GP9086

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D42556-1DUP, D42556-1MS, D42556-1MSD were used as the QC samples for the Chromium, Hexavalent analysis.

Wet Chemistry By Method SW846 3060A/7196A M

Matrix SO

Batch ID: R15681

- The data for SW846 3060A/7196A M meets quality control requirements.
- D42556-2 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix SO

Batch ID: R15684

- The data for SW846 3060A/7196A M meets quality control requirements.
- D42556-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 9045D

Matrix SO

Batch ID: GN18424

- The following samples were run outside of holding time for method SW846 9045D: D42556-1

Matrix SO

Batch ID: GN18426

- The following samples were run outside of holding time for method SW846 9045D: D42556-2

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO

Batch ID: MP9251

- D42556-1A for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$
- D42556-2A 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

Job Number: D42556
Account: XTO Energy
Project: PCU 296-5A
Collected: 01/08/13



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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D42556-1 CUT 1 OVERBURDEN

TPH-DRO (C10-C28)	45.6	7.5	4.5	mg/kg	SW846-8015B
Arsenic	4.4	0.11		mg/kg	SW846 6020A
Barium	679	1.1		mg/kg	SW846 6010C
Chromium	32.7	1.1		mg/kg	SW846 6010C
Copper	11.8	1.1		mg/kg	SW846 6010C
Lead	10.1	5.7		mg/kg	SW846 6010C
Nickel	17.0	3.4		mg/kg	SW846 6010C
Zinc	36.1	3.4		mg/kg	SW846 6010C
Specific Conductivity	1050	1.0		umhos/cm	SM 2510B-2011 MOD
Chromium, Trivalent ^a	32.7	2.1		mg/kg	SW846 3060A/7196A M
Redox Potential Vs H2	176			mv	ASTM D1498-76M
pH	9.54			su	SW846 9045D

D42556-1A CUT 1 OVERBURDEN

Calcium	92.3	2.0		mg/l	SW846 6010C
Magnesium	26.0	1.0		mg/l	SW846 6010C
Sodium	107	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^b	2.53			ratio	USDA HANDBOOK 60

D42556-2 CUT 1 CONTENTS

Toluene	0.396	0.14	0.072	mg/kg	SW846 8260B
Ethylbenzene	0.179	0.14	0.027	mg/kg	SW846 8260B
Xylene (total)	0.854	0.29	0.14	mg/kg	SW846 8260B
Naphthalene	0.185	0.014	0.013	mg/kg	SW846 8270C BY SIM
Pyrene	0.0270	0.010	0.0053	mg/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)	24.9	14	7.2	mg/kg	SW846 8015B
TPH-DRO (C10-C28)	604	8.1	4.9	mg/kg	SW846-8015B
Arsenic	10.2	0.12		mg/kg	SW846 6020A
Barium	1640	1.2		mg/kg	SW846 6010C
Chromium	24.1	1.2		mg/kg	SW846 6010C
Copper	24.8	1.2		mg/kg	SW846 6010C
Lead	39.4	6.1		mg/kg	SW846 6010C
Nickel	15.4	3.7		mg/kg	SW846 6010C
Zinc	51.3	3.7		mg/kg	SW846 6010C
Specific Conductivity	8300	1.0		umhos/cm	SM 2510B-2011 MOD
Chromium, Trivalent ^a	24.1	2.2		mg/kg	SW846 3060A/7196A M
Redox Potential Vs H2	135			mv	ASTM D1498-76M
pH	10.66			su	SW846 9045D

Summary of Hits

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Job Number: D42556
Account: XTO Energy
Project: PCU 296-5A
Collected: 01/08/13



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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D42556-2A CUT 1 CONTENTS

Calcium	43.8	2.0		mg/l	SW846 6010C
Sodium	1440	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^b	59.2			ratio	USDA HANDBOOK 60

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

(b) Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

Sample Results

Report of Analysis

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Report of Analysis

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Client Sample ID:	CUT 1 OVERBURDEN	
Lab Sample ID:	D42556-1	Date Sampled: 01/08/13
Matrix:	SO - Soil	Date Received: 01/11/13
Method:	SW846 8260B	Percent Solids: 88.2
Project:	PCU 296-5A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V22570.D	1	01/12/13	BD	n/a	n/a	V3V1327
Run #2							

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.063	0.031	mg/kg	
108-88-3	Toluene	ND	0.13	0.063	mg/kg	
100-41-4	Ethylbenzene	ND	0.13	0.024	mg/kg	
1330-20-7	Xylene (total)	ND	0.25	0.13	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	86%		64-130%
460-00-4	4-Bromofluorobenzene	104%		62-131%
17060-07-0	1,2-Dichloroethane-D4	91%		70-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 1

Client Sample ID:	CUT 1 OVERBURDEN	
Lab Sample ID:	D42556-1	Date Sampled: 01/08/13
Matrix:	SO - Soil	Date Received: 01/11/13
Method:	SW846 8270C BY SIM SW846 3546	Percent Solids: 88.2
Project:	PCU 296-5A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G12980.D	1	01/15/13	DC	01/14/13	OP7223	E3G621
Run #2							

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

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.0094	0.0049	mg/kg	
120-12-7	Anthracene	ND	0.0094	0.0049	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.0094	0.0049	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.0094	0.0049	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.0094	0.0049	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.0094	0.0049	mg/kg	
218-01-9	Chrysene	ND	0.0094	0.0049	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0094	0.0049	mg/kg	
206-44-0	Fluoranthene	ND	0.0094	0.0049	mg/kg	
86-73-7	Fluorene	ND	0.0094	0.0049	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.0094	0.0049	mg/kg	
91-20-3	Naphthalene	ND	0.013	0.012	mg/kg	
129-00-0	Pyrene	ND	0.0094	0.0049	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	83%		10-159%
321-60-8	2-Fluorobiphenyl	87%		19-131%
1718-51-0	Terphenyl-d14	108%		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:	CUT 1 OVERBURDEN	Date Sampled:	01/08/13
Lab Sample ID:	D42556-1	Date Received:	01/11/13
Matrix:	SO - Soil	Percent Solids:	88.2
Method:	SW846 8015B		
Project:	PCU 296-5A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB19132.D	1	01/11/13	SK	n/a	n/a	GGB1045
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	13	6.3	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:	CUT 1 OVERBURDEN	
Lab Sample ID:	D42556-1	Date Sampled: 01/08/13
Matrix:	SO - Soil	Date Received: 01/11/13
Method:	SW846-8015B SW846 3546	Percent Solids: 88.2
Project:	PCU 296-5A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD21152.D	1	01/15/13	AV	01/15/13	OP7232	GFD1064
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)	45.6	7.5	4.5	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	70%		35-130%		

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

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

Report of Analysis

Client Sample ID: CUT 1 OVERBURDEN
Lab Sample ID: D42556-1
Matrix: SO - Soil
Project: PCU 296-5A

Date Sampled: 01/08/13
Date Received: 01/11/13
Percent Solids: 88.2

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	4.4	0.11	mg/kg	5	01/14/13	01/17/13 JB	SW846 6020A ³	SW846 3050B ⁵
Barium	679	1.1	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C ¹	SW846 3050B ⁴
Cadmium	< 1.1	1.1	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C ¹	SW846 3050B ⁴
Chromium	32.7	1.1	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C ¹	SW846 3050B ⁴
Copper	11.8	1.1	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C ¹	SW846 3050B ⁴
Lead	10.1	5.7	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C ¹	SW846 3050B ⁴
Mercury	< 0.094	0.094	mg/kg	1	01/15/13	01/15/13 JB	SW846 7471B ²	SW846 7471B ⁶
Nickel	17.0	3.4	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C ¹	SW846 3050B ⁴
Selenium	< 5.7	5.7	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C ¹	SW846 3050B ⁴
Silver	< 3.4	3.4	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C ¹	SW846 3050B ⁴
Zinc	36.1	3.4	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C ¹	SW846 3050B ⁴

- (1) Instrument QC Batch: MA3169
 (2) Instrument QC Batch: MA3177
 (3) Instrument QC Batch: MA3182
 (4) Prep QC Batch: MP9242
 (5) Prep QC Batch: MP9243
 (6) Prep QC Batch: MP9244

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUT 1 OVERBURDEN	Date Sampled:	01/08/13
Lab Sample ID:	D42556-1	Date Received:	01/11/13
Matrix:	SO - Soil	Percent Solids:	88.2
Project:	PCU 296-5A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	1050	1.0	umhos/cm	1	01/15/13	KB	SM 2510B-2011 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	01/14/13	KB	SW846 3060A/7196A
Chromium, Trivalent ^a	32.7	2.1	mg/kg	1	01/14/13 17:24	JB	SW846 3060A/7196A M
Redox Potential Vs H2	176		mv	1	01/14/13	JD	ASTM D1498-76M
Solids, Percent	88.2		%	1	01/14/13	SWT	SM19 2540B M
pH	9.54		su	1	01/14/13 14:20	JD	SW846 9045D

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

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUT 1 OVERBURDEN	Date Sampled:	01/08/13
Lab Sample ID:	D42556-1A	Date Received:	01/11/13
Matrix:	SO - Soil	Percent Solids:	88.2
Project:	PCU 296-5A		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	92.3	2.0	mg/l	1	01/15/13	01/16/13 JB	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	26.0	1.0	mg/l	1	01/15/13	01/16/13 JB	SW846 6010C ¹	SW846 3010A/M ²
Sodium	107	2.0	mg/l	1	01/15/13	01/16/13 JB	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA3180
(2) Prep QC Batch: MP9251

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUT 1 OVERBURDEN
Lab Sample ID: D42556-1A
Matrix: SO - Soil
Project: PCU 296-5A

Date Sampled: 01/08/13
Date Received: 01/11/13
Percent Solids: 88.2

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	2.53		ratio	1	01/16/13 12:27	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

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Client Sample ID:	CUT 1 CONTENTS	
Lab Sample ID:	D42556-2	Date Sampled: 01/08/13
Matrix:	SO - Soil	Date Received: 01/11/13
Method:	SW846 8260B	Percent Solids: 81.8
Project:	PCU 296-5A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V22571.D	1	01/12/13	BD	n/a	n/a	V3V1327
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.06 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.072	0.036	mg/kg	
108-88-3	Toluene	0.396	0.14	0.072	mg/kg	
100-41-4	Ethylbenzene	0.179	0.14	0.027	mg/kg	
1330-20-7	Xylene (total)	0.854	0.29	0.14	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	87%		64-130%
460-00-4	4-Bromofluorobenzene	105%		62-131%
17060-07-0	1,2-Dichloroethane-D4	87%		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

Report of Analysis

Client Sample ID:	CUT 1 CONTENTS	
Lab Sample ID:	D42556-2	Date Sampled: 01/08/13
Matrix:	SO - Soil	Date Received: 01/11/13
Method:	SW846 8270C BY SIM SW846 3546	Percent Solids: 81.8
Project:	PCU 296-5A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G12987.D	1	01/15/13	DC	01/14/13	OP7223	E3G621
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	0.010	0.0053	mg/kg	
120-12-7	Anthracene	ND	0.010	0.0053	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.010	0.0053	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.010	0.0053	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.010	0.0053	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.010	0.0053	mg/kg	
218-01-9	Chrysene	ND	0.010	0.0053	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.010	0.0053	mg/kg	
206-44-0	Fluoranthene	ND	0.010	0.0053	mg/kg	
86-73-7	Fluorene	ND	0.010	0.0053	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.010	0.0053	mg/kg	
91-20-3	Naphthalene	0.185	0.014	0.013	mg/kg	
129-00-0	Pyrene	0.0270	0.010	0.0053	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	58%		10-159%
321-60-8	2-Fluorobiphenyl	82%		19-131%
1718-51-0	Terphenyl-d14	89%		18-150%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	CUT 1 CONTENTS	Date Sampled:	01/08/13
Lab Sample ID:	D42556-2	Date Received:	01/11/13
Matrix:	SO - Soil	Percent Solids:	81.8
Method:	SW846 8015B		
Project:	PCU 296-5A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB19133.D	1	01/11/13	SK	n/a	n/a	GGB1045
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	24.9	14	7.2	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	85%		60-140%		

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

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

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	CUT 1 CONTENTS	Date Sampled:	01/08/13
Lab Sample ID:	D42556-2	Date Received:	01/11/13
Matrix:	SO - Soil	Percent Solids:	81.8
Method:	SW846-8015B SW846 3546		
Project:	PCU 296-5A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD21153.D	1	01/15/13	AV	01/15/13	OP7232	GFD1064
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	604	8.1	4.9	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	81%		35-130%		

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

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

Report of Analysis

Client Sample ID:	CUT 1 CONTENTS	Date Sampled:	01/08/13
Lab Sample ID:	D42556-2	Date Received:	01/11/13
Matrix:	SO - Soil	Percent Solids:	81.8
Project:	PCU 296-5A		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	10.2	0.12	mg/kg	5	01/14/13	01/17/13 JB	SW846 6020A ³	SW846 3050B ⁵
Barium	1640	1.2	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C ¹	SW846 3050B ⁴
Cadmium	< 1.2	1.2	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C ¹	SW846 3050B ⁴
Chromium	24.1	1.2	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C ¹	SW846 3050B ⁴
Copper	24.8	1.2	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C ¹	SW846 3050B ⁴
Lead	39.4	6.1	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C ¹	SW846 3050B ⁴
Mercury	< 0.10	0.10	mg/kg	1	01/15/13	01/15/13 JB	SW846 7471B ²	SW846 7471B ⁶
Nickel	15.4	3.7	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C ¹	SW846 3050B ⁴
Selenium	< 6.1	6.1	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C ¹	SW846 3050B ⁴
Silver	< 3.7	3.7	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C ¹	SW846 3050B ⁴
Zinc	51.3	3.7	mg/kg	1	01/14/13	01/14/13 JB	SW846 6010C ¹	SW846 3050B ⁴

(1) Instrument QC Batch: MA3169

(2) Instrument QC Batch: MA3177

(3) Instrument QC Batch: MA3182

(4) Prep QC Batch: MP9242

(5) Prep QC Batch: MP9243

(6) Prep QC Batch: MP9244

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUT 1 CONTENTS	Date Sampled:	01/08/13
Lab Sample ID:	D42556-2	Date Received:	01/11/13
Matrix:	SO - Soil	Percent Solids:	81.8
Project:	PCU 296-5A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	8300	1.0	umhos/cm	1	01/15/13	KB	SM 2510B-2011 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	01/14/13	KB	SW846 3060A/7196A
Chromium, Trivalent ^a	24.1	2.2	mg/kg	1	01/14/13 17:34	JB	SW846 3060A/7196A M
Redox Potential Vs H2	135		mv	1	01/14/13	JD	ASTM D1498-76M
Solids, Percent	81.8		%	1	01/14/13	SWT	SM19 2540B M
pH	10.66		su	1	01/14/13 14:20	JD	SW846 9045D

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

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUT 1 CONTENTS	Date Sampled:	01/08/13
Lab Sample ID:	D42556-2A	Date Received:	01/11/13
Matrix:	SO - Soil	Percent Solids:	81.8
Project:	PCU 296-5A		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	43.8	2.0	mg/l	1	01/15/13	01/16/13 JB	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	< 1.0	1.0	mg/l	1	01/15/13	01/16/13 JB	SW846 6010C ¹	SW846 3010A/M ²
Sodium	1440	2.0	mg/l	1	01/15/13	01/16/13 JB	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA3180
(2) Prep QC Batch: MP9251

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUT 1 CONTENTS	Date Sampled:	01/08/13
Lab Sample ID:	D42556-2A	Date Received:	01/11/13
Matrix:	SO - Soil	Percent Solids:	81.8
Project:	PCU 296-5A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	59.2		ratio	1	01/16/13 13:14	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

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D42556

Client: KRW

Immediate Client Services Action Required: No

Date / Time Received: 1/11/2013 3:30:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XTO PCU 296-5A

Airbill #'s: HDCO

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

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

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

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

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

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

Comments

 Accutest Laboratories
 V: (303) 425-6021

 4036 Youngfield Street
 F: (303) 425-6854

 Wheat Ridge, CO
 www.accutest.com

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D42556
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1327-MB	3V22560.D	1	01/12/13	BD	n/a	n/a	V3V1327

The QC reported here applies to the following samples: Method: SW846 8260B
D42556-1, D42556-2

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	89% 64-130%
460-00-4	4-Bromofluorobenzene	97% 62-131%
17060-07-0	1,2-Dichloroethane-D4	98% 70-130%

Blank Spike Summary

Page 1 of 1

Job Number: D42556
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1327-BS	3V22561.D	1	01/12/13	BD	n/a	n/a	V3V1327

The QC reported here applies to the following samples:

Method: SW846 8260B

D42556-1, D42556-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	47.4	95	70-130
100-41-4	Ethylbenzene	50	48.7	97	70-130
108-88-3	Toluene	50	47.3	95	70-130
1330-20-7	Xylene (total)	150	149	99	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	91%	64-130%
460-00-4	4-Bromofluorobenzene	109%	62-131%
17060-07-0	1,2-Dichloroethane-D4	88%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D42556
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D42512-1MS	3V22564.D	1	01/12/13	BD	n/a	n/a	V3V1327
D42512-1MSD	3V22565.D	1	01/12/13	BD	n/a	n/a	V3V1327
D42512-1	3V22563.D	1	01/12/13	BD	n/a	n/a	V3V1327

The QC reported here applies to the following samples:

Method: SW846 8260B

D42556-1, D42556-2

CAS No.	Compound	D42512-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	72.3		3580	3400	93	3340	91	2	64-139/30
100-41-4	Ethylbenzene	35.0	J	3580	3530	98	3500	97	1	68-136/30
108-88-3	Toluene	138	J	3580	3330	89	3300	88	1	60-130/30
1330-20-7	Xylene (total)	212	J	10700	10800	99	10800	99	0	58-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D42512-1	Limits
2037-26-5	Toluene-D8	86%	87%	84%	64-130%
460-00-4	4-Bromofluorobenzene	113%	112%	104%	62-131%
17060-07-0	1,2-Dichloroethane-D4	90%	86%	90%	70-130%

* = Outside of Control Limits.

GC/MS Volatiles

Raw Data

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3011113.S\
Data File : 3V22570.D
Acq On : 12 Jan 2013 7:13 am
Operator : BRETD
Sample : D42556-1
Misc : MS5218,V3V1327,5.066,,100,5,1
ALS Vial : 37 Sample Multiplier: 1

Quant Time: Jan 15 08:28:51 2013
Quant Method : C:\msdchem\1\METHODS\V3AP1299TVH1299SOIL.M
Quant Title : 8260
QLast Update : Thu Jan 03 11:40:16 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.861	168	340365	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.656	114	527966	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.296	117	592540	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.285	152	351094	50.00	ug/l	0.00

System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.245	102	34738	45.60	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	91.20%
61) Toluene-d8	14.051	98	612876	42.96	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	85.92%
69) 4-Bromofluorobenzene	16.246	95	320780	52.20	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	104.40%

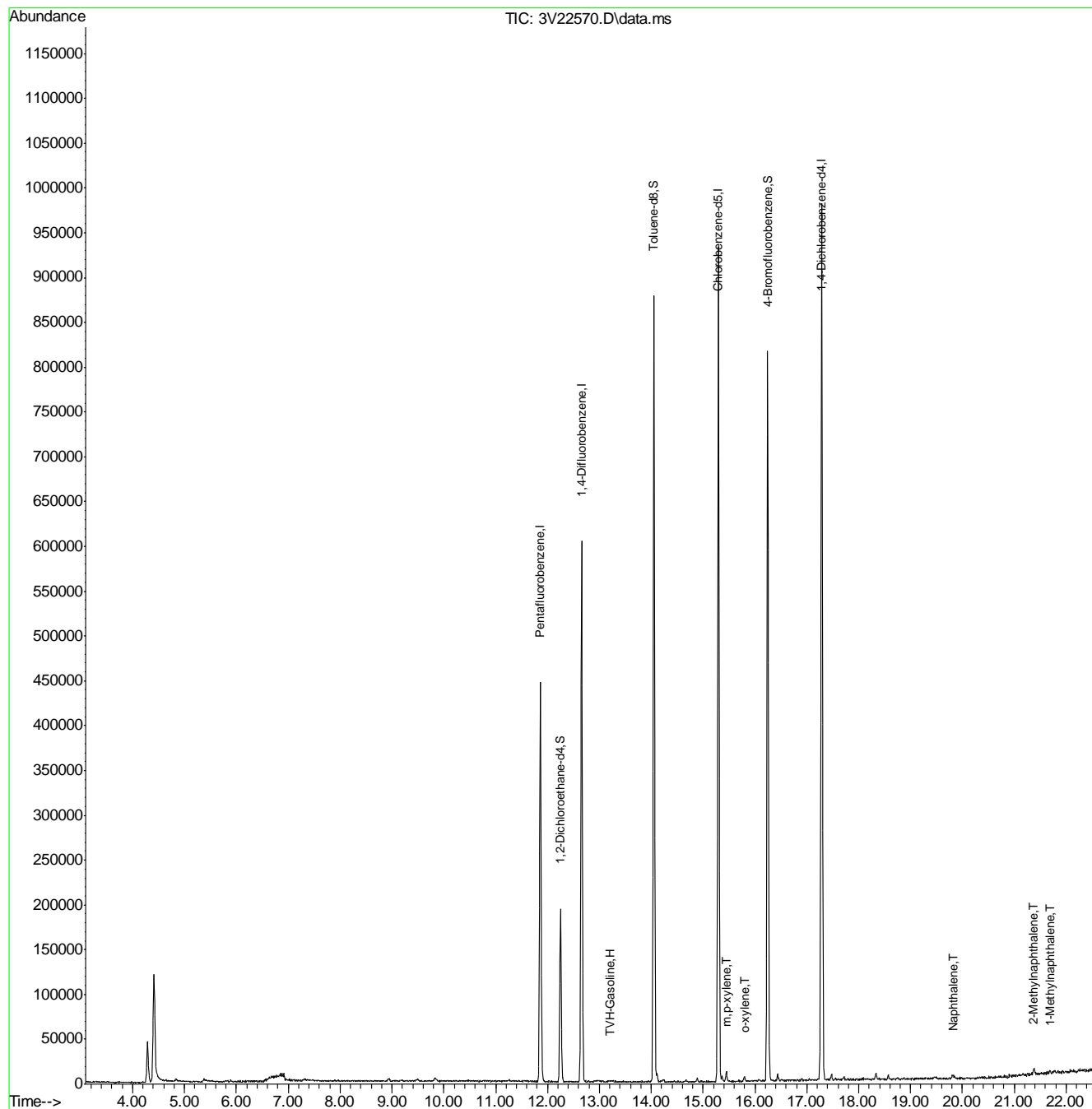
Target Compounds					Qvalue
1) TVH-Gasoline	13.200	TIC	63343m	2.16	ug/l
72) m,p-xylene	15.453	106	4231	0.47	ug/l
73) o-xylene	15.796	106	1803	0.20	ug/l
91) Naphthalene	19.841	128	3513	1.21	ug/l
94) 2-Methylnaphthalene	21.381	142	4567	0.56	ug/l
95) 1-Methylnaphthalene	21.689	142	2164	0.28	ug/l

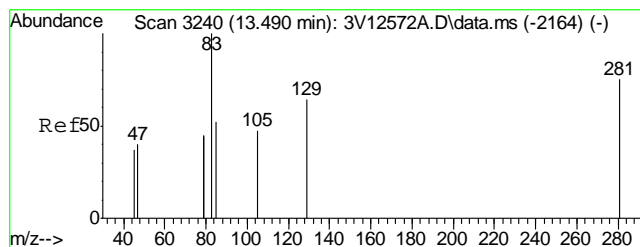
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3011113.S\
Data File : 3V22570.D
Acq On : 12 Jan 2013 7:13 am
Operator : BRETD
Sample : D42556-1
Misc : MS5218,V3V1327,5.066,,100,5,1
ALS Vial : 37 Sample Multiplier: 1

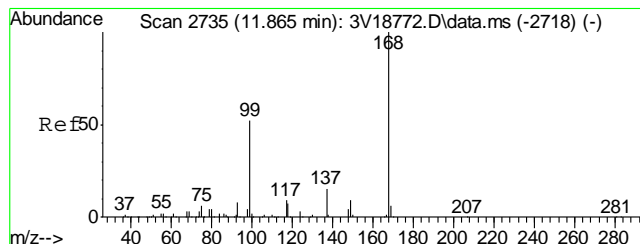
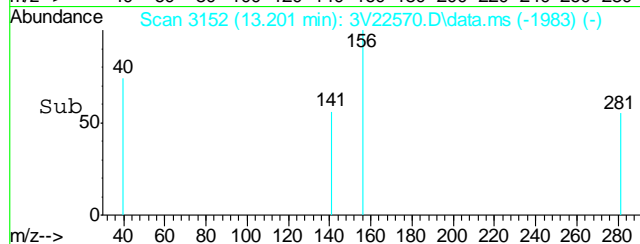
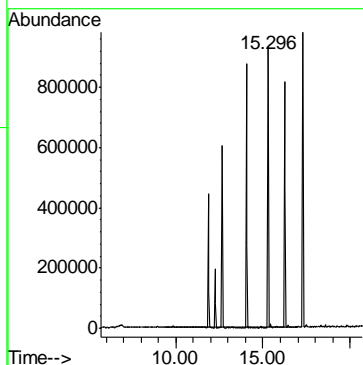
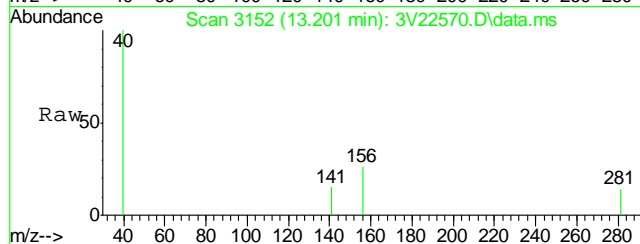
Quant Time: Jan 15 08:28:51 2013
Quant Method : C:\msdchem\1\METHODS\V3AP1299TVH1299SOIL.M
Quant Title : 8260
QLast Update : Thu Jan 03 11:40:16 2013
Response via : Initial Calibration





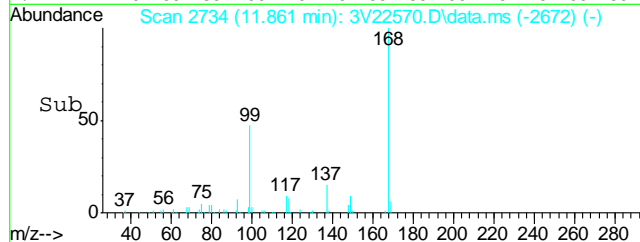
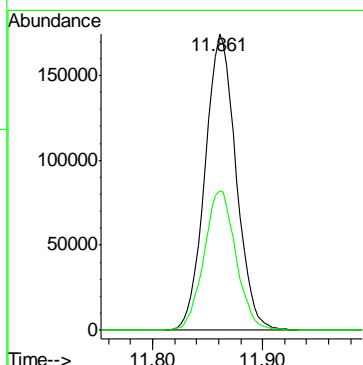
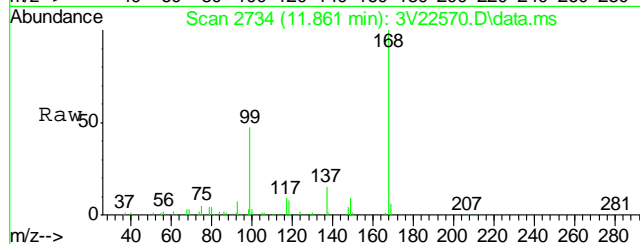
#1
TVH-Gasoline
Concen: 2.16 ug/l m
RT: 13.200 min Scan# 3152
Delta R.T. 0.000 min
Lab File: 3V22570.D
Acq: 12 Jan 2013 7:13 am

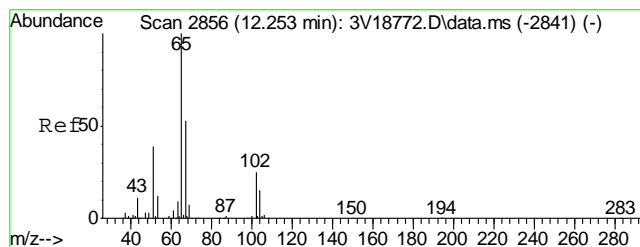
Tgt Ion:TIC Resp: 63343



#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.861 min Scan# 2734
Delta R.T. -0.002 min
Lab File: 3V22570.D
Acq: 12 Jan 2013 7:13 am

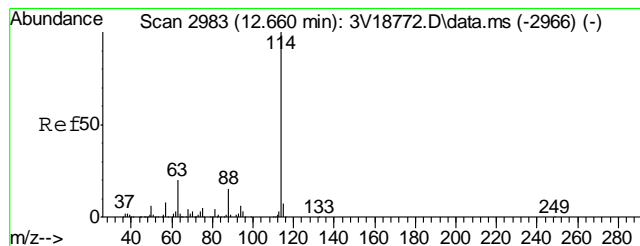
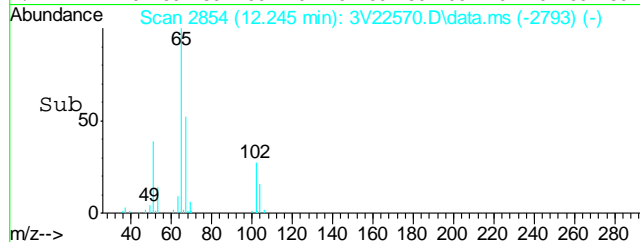
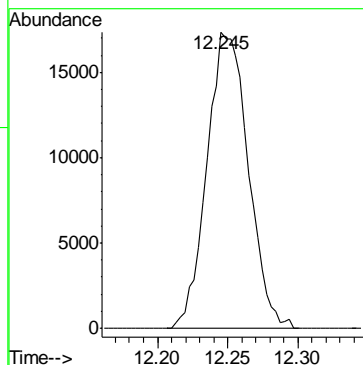
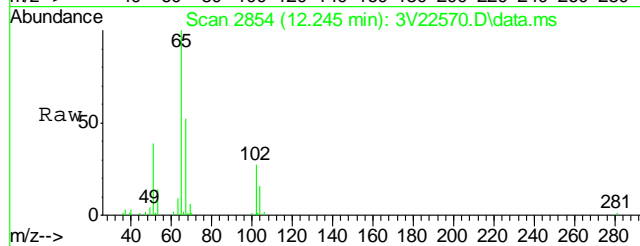
Tgt Ion:168 Resp: 340365
Ion Ratio Lower Upper
168 100
99 48.5 29.0 69.0





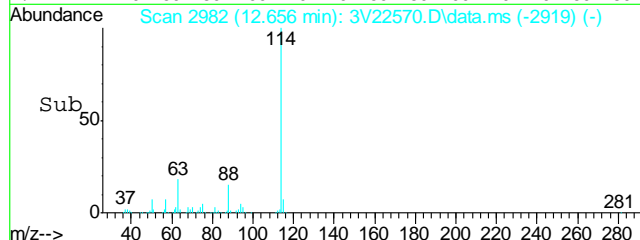
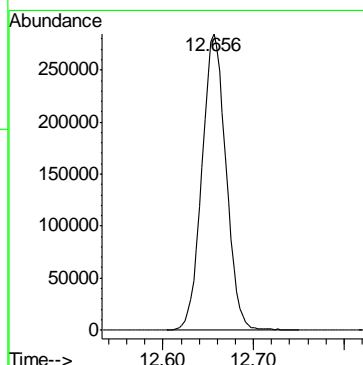
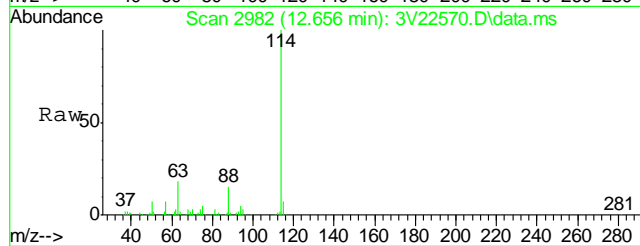
#33
1,2-Dichloroethane-d4
Concen: 45.60 ug/l
RT: 12.245 min Scan# 2854
Delta R.T. -0.006 min
Lab File: 3V22570.D
Acq: 12 Jan 2013 7:13 am

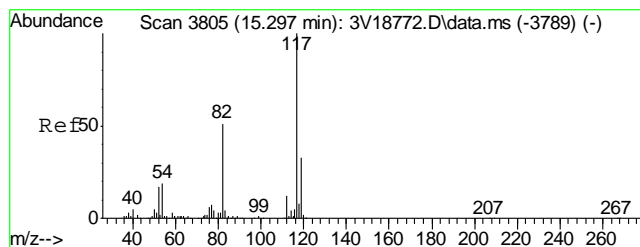
Tgt Ion:102 Resp: 34738



#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.656 min Scan# 2982
Delta R.T. 0.001 min
Lab File: 3V22570.D
Acq: 12 Jan 2013 7:13 am

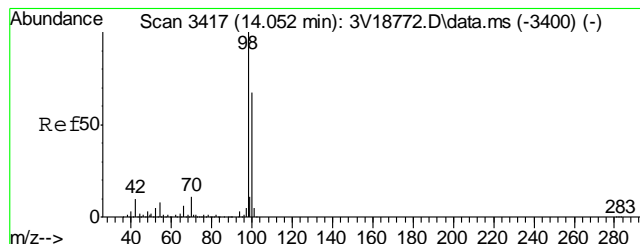
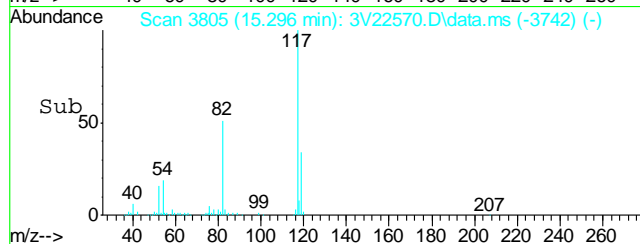
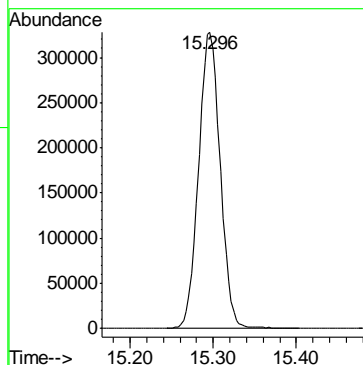
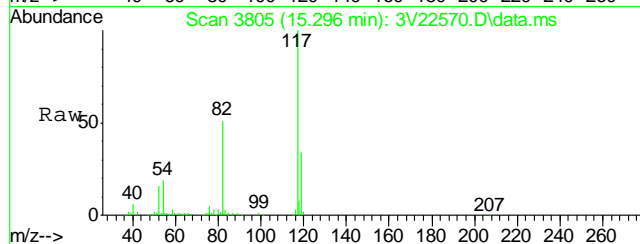
Tgt Ion:114 Resp: 527966





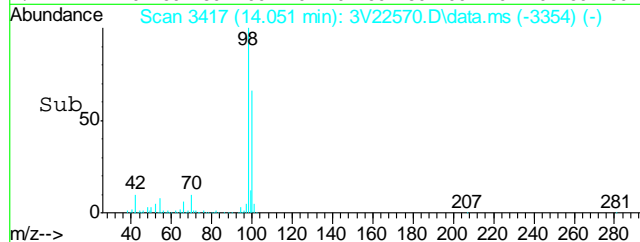
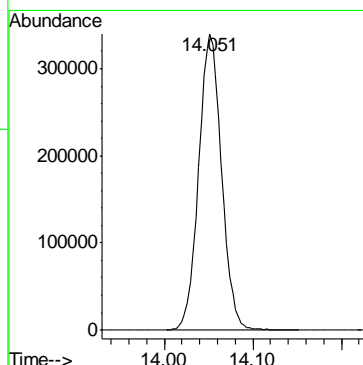
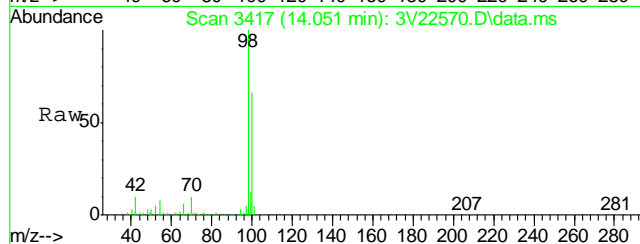
#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.296 min Scan# 3805
Delta R.T. 0.001 min
Lab File: 3V22570.D
Acq: 12 Jan 2013 7:13 am

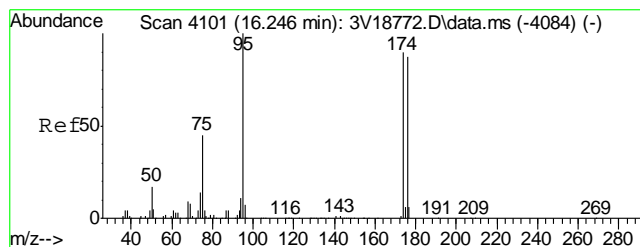
Tgt Ion:117 Resp: 592540



#61
Toluene-d8
Concen: 42.96 ug/l
RT: 14.051 min Scan# 3417
Delta R.T. 0.001 min
Lab File: 3V22570.D
Acq: 12 Jan 2013 7:13 am

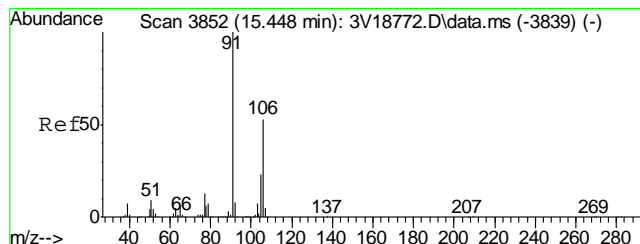
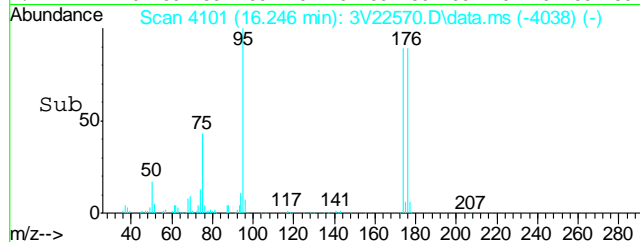
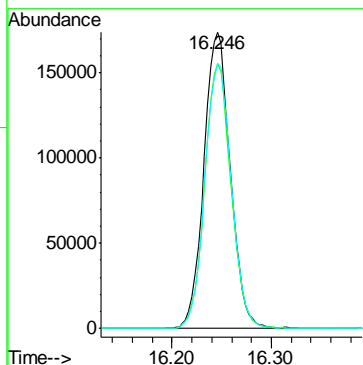
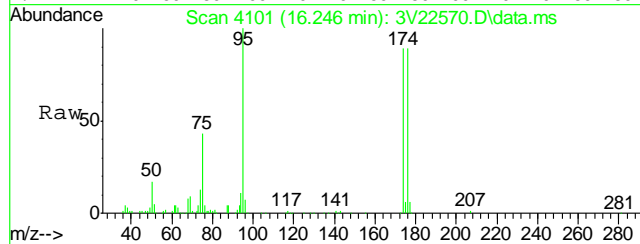
Tgt Ion: 98 Resp: 612876





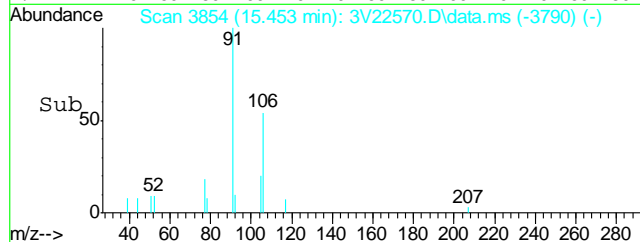
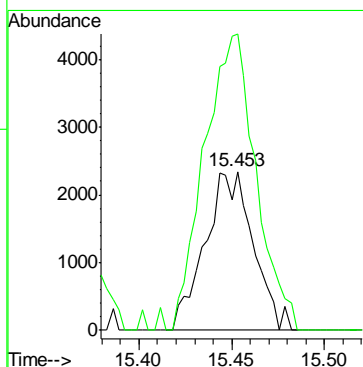
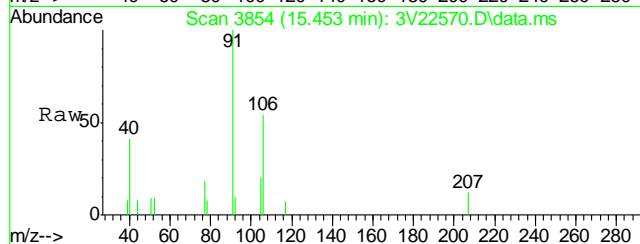
#69
4-Bromofluorobenzene
Concen: 52.20 ug/l
RT: 16.246 min Scan# 4101
Delta R.T. 0.001 min
Lab File: 3V22570.D
Acq: 12 Jan 2013 7:13 am

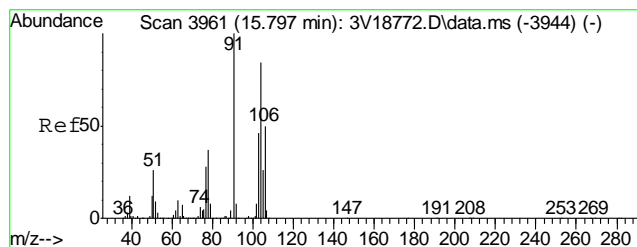
Tgt Ion	Resp	Lower	Upper
95	320780		
174	89.1	0.0	20.0#
176	90.2	0.0	20.0#



#72
m,p-xylene
Concen: 0.47 ug/l
RT: 15.453 min Scan# 3854
Delta R.T. 0.004 min
Lab File: 3V22570.D
Acq: 12 Jan 2013 7:13 am

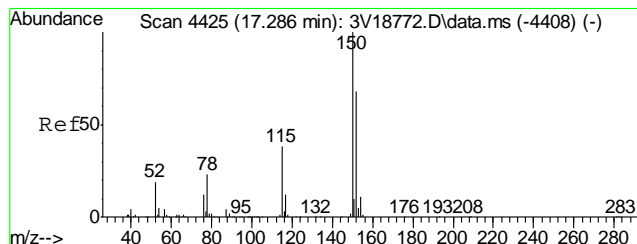
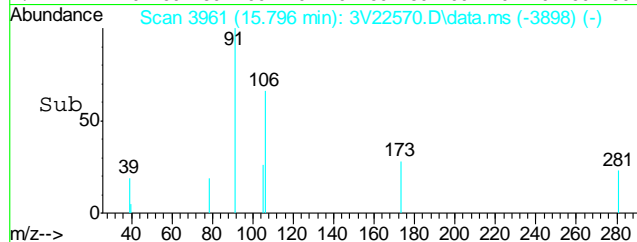
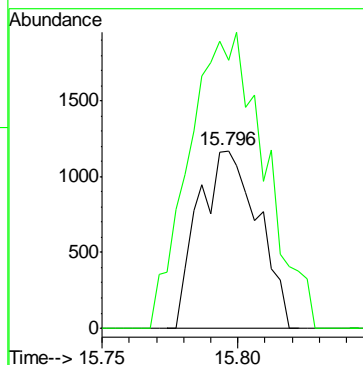
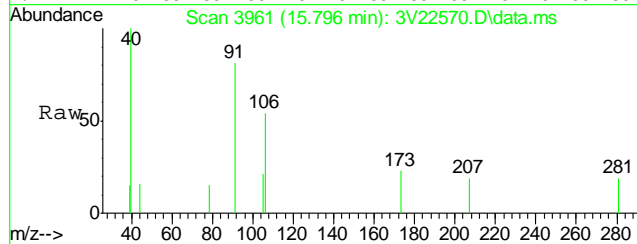
Tgt Ion	Resp	Lower	Upper
106	4231		
91	200.4	168.1	208.1





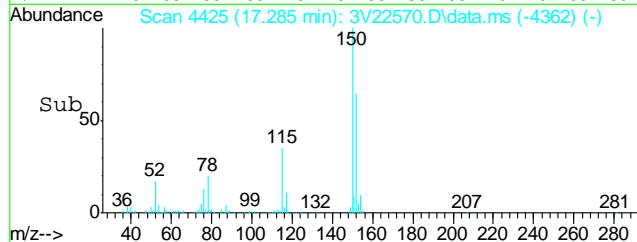
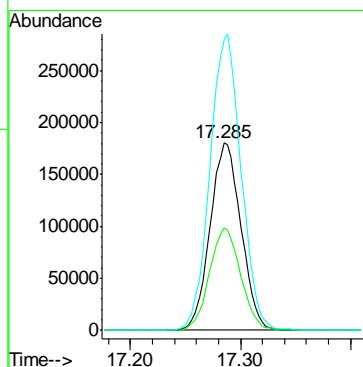
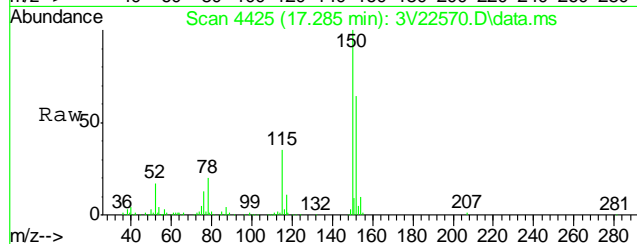
#73
o-xylene
Concen: 0.20 ug/l
RT: 15.796 min Scan# 3961
Delta R.T. 0.001 min
Lab File: 3V22570.D
Acq: 12 Jan 2013 7:13 am

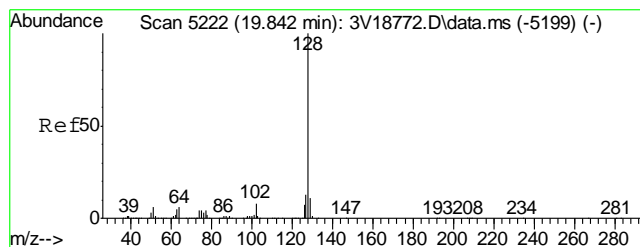
Tgt Ion	Ratio	Lower	Upper
106	100		
91	209.2	180.3	220.3



#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.285 min Scan# 4425
Delta R.T. 0.001 min
Lab File: 3V22570.D
Acq: 12 Jan 2013 7:13 am

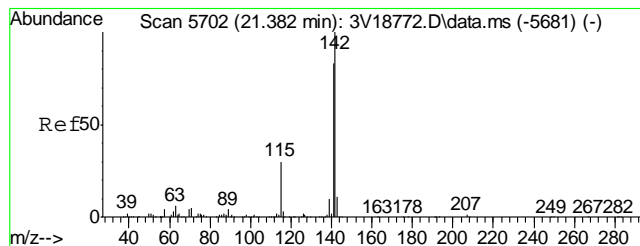
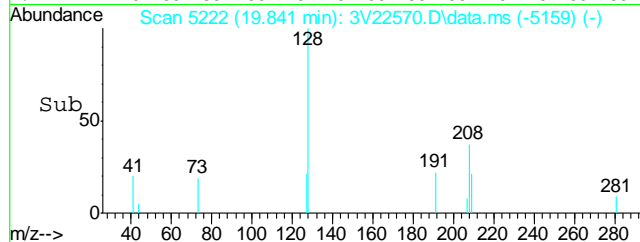
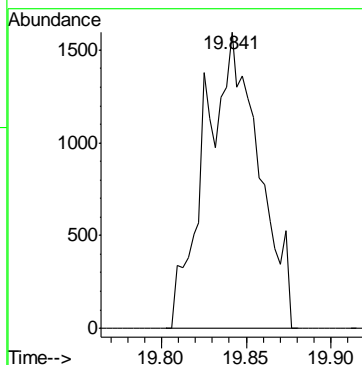
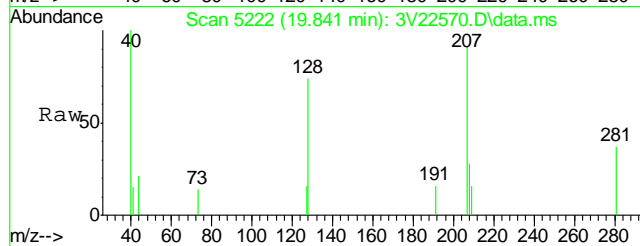
Tgt Ion	Ratio	Lower	Upper
152	100		
115	54.8	34.6	74.6
150	158.7	152.1	192.1





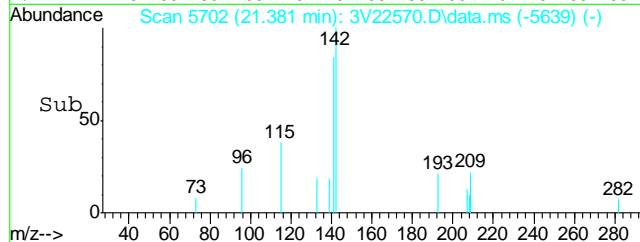
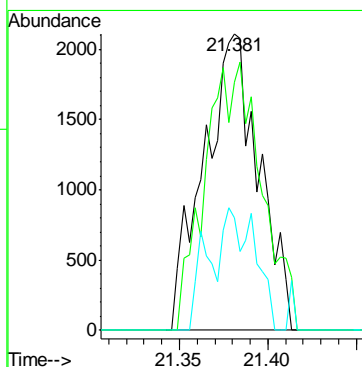
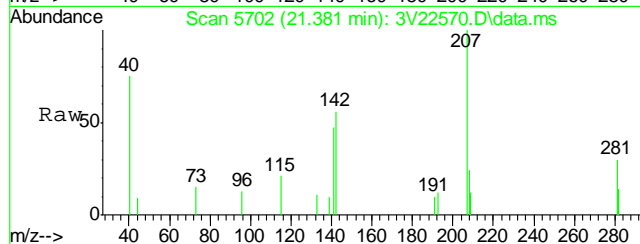
#91
Naphthalene
Concen: 1.21 ug/l
RT: 19.841 min Scan# 5222
Delta R.T. 0.001 min
Lab File: 3V22570.D
Acq: 12 Jan 2013 7:13 am

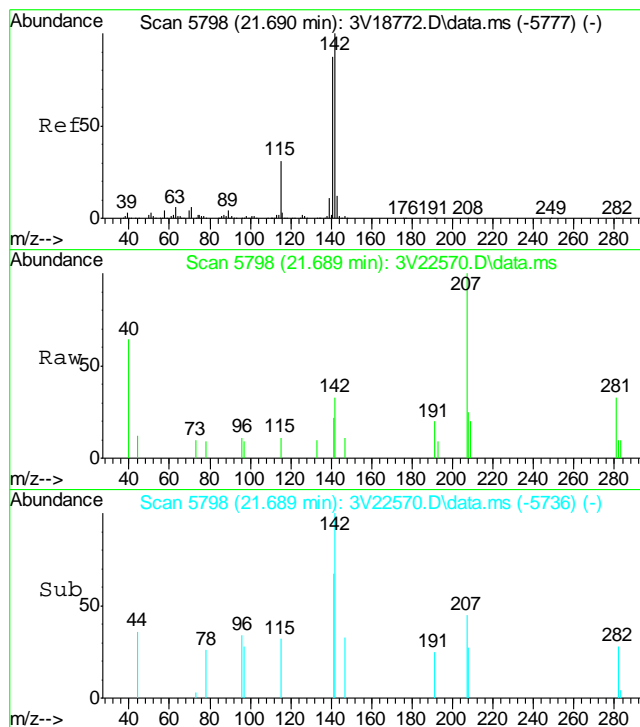
Tgt Ion:128 Resp: 3513



#94
2-Methylnaphthalene
Concen: 0.56 ug/l
RT: 21.381 min Scan# 5702
Delta R.T. 0.001 min
Lab File: 3V22570.D
Acq: 12 Jan 2013 7:13 am

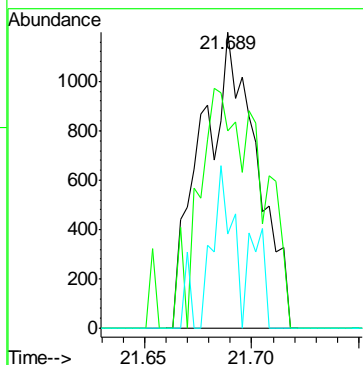
Tgt Ion:142 Resp: 4567
Ion Ratio Lower Upper
142 100
141 93.1 65.8 105.8
115 23.9 9.7 49.7





#95
 1-Methylnaphthalene
 Concen: 0.28 ug/l
 RT: 21.689 min Scan# 5798
 Delta R.T. -0.002 min
 Lab File: 3V22570.D
 Acq: 12 Jan 2013 7:13 am

Tgt Ion:	142	Resp:	2164
Ion Ratio	Lower	Upper	
142	100		
141	89.9	68.3	108.3
115	19.1	11.8	51.8



7.1.1
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3011113.S\
 Data File : 3V22571.D
 Acq On : 12 Jan 2013 7:45 am
 Operator : BRETD
 Sample : D42556-2
 Misc : MS5218,V3V1327,5.060,,100,5,1
 ALS Vial : 38 Sample Multiplier: 1

Quant Time: Jan 15 08:31:05 2013
 Quant Method : C:\msdchem\1\METHODS\V3AP1299TVH1299SOIL.M
 Quant Title : 8260
 QLast Update : Thu Jan 03 11:40:16 2013
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.859	168	333289	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.655	114	530134	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.295	117	595022	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.283	152	357062	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.250	102	32371	43.40	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	86.80%
61) Toluene-d8	14.050	98	620064	43.28	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	86.56%
69) 4-Bromofluorobenzene	16.244	95	324673	52.61	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	105.22%

Target Compounds

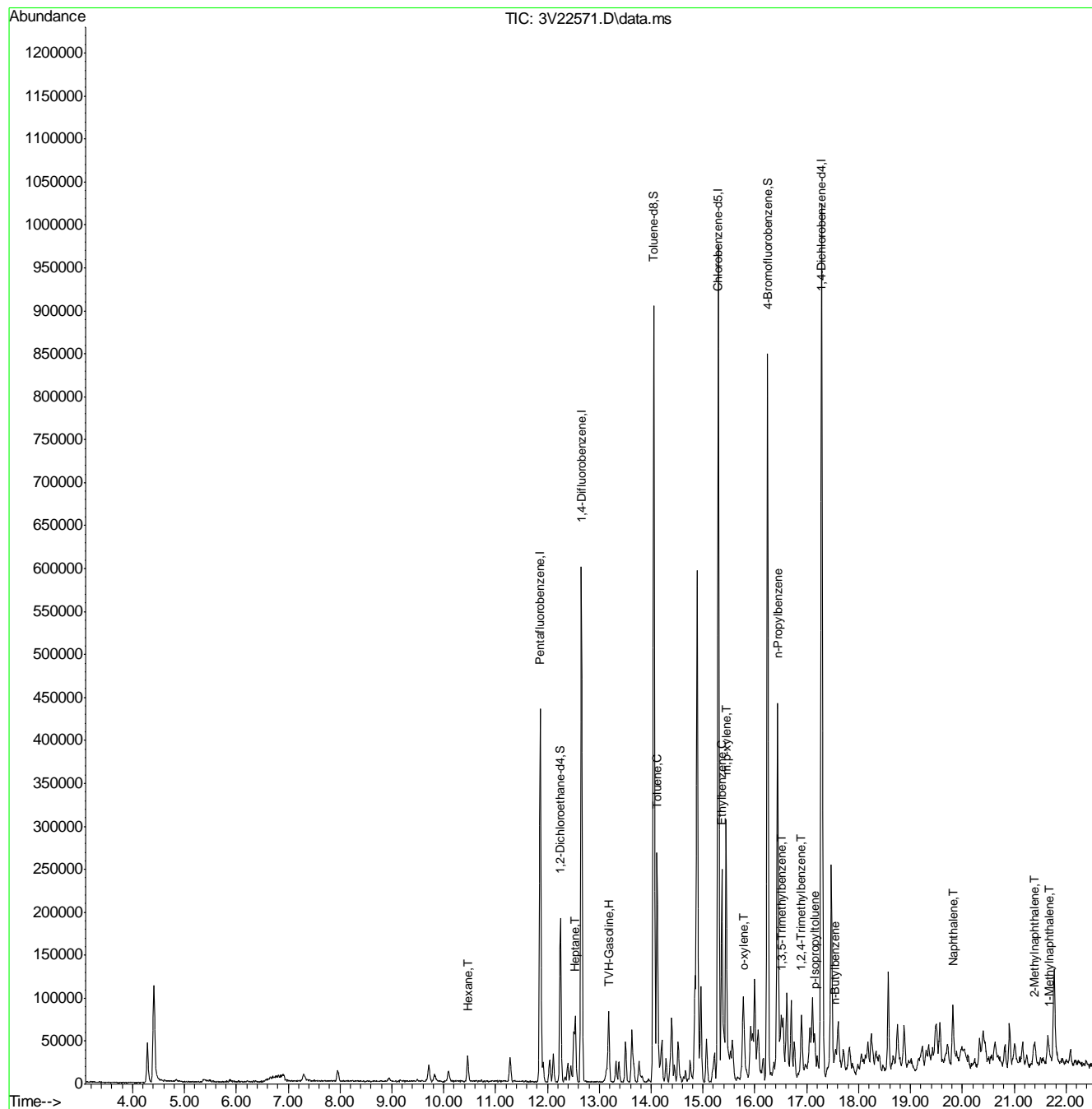
					Qvalue
1) TVH-Gasoline	13.200	TIC	7998907m	272.57	ug/l
41) Hexane	10.460	57	14962	2.41	ug/l 100
43) Heptane	12.536	43	30804	4.33	ug/l 92
62) Toluene	14.114	92	68281	5.53	ug/l 97
66) Ethylbenzene	15.362	91	54248	2.50	ug/l 97
72) m,p-xylene	15.445	106	97828	10.71	ug/l 99
73) o-xylene	15.798	106	10886	1.23	ug/l 99
77) n-Propylbenzene	16.427	91	15879	0.65	ug/l 100
80) 1,3,5-Trimethylbenzene	16.510	105	29541m	1.61	ug/l
82) 1,2,4-Trimethylbenzene	16.898	105	24027	1.28	ug/l 91
86) p-Isopropyltoluene	17.155	119	23185	1.11	ug/l 96
88) n-Butylbenzene	17.540	91	8553	0.50	ug/l # 73
91) Naphthalene	19.833	128	10434	1.57	ug/l 100
94) 2-Methylnaphthalene	21.376	142	15889	1.92	ug/l 94
95) 1-Methylnaphthalene	21.691	142	6363	0.81	ug/l 96

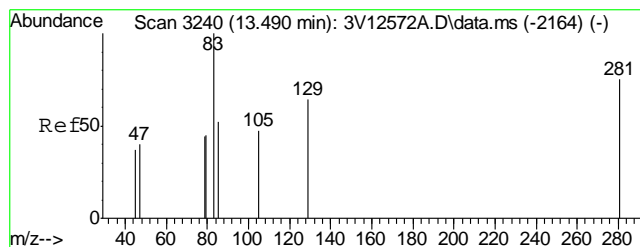
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3011113.S\
Data File : 3V22571.D
Acq On : 12 Jan 2013 7:45 am
Operator : BRETD
Sample : D42556-2
Misc : MS5218,V3V1327,5.060,,100,5,1
ALS Vial : 38 Sample Multiplier: 1

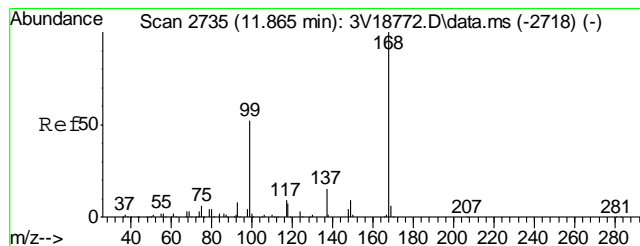
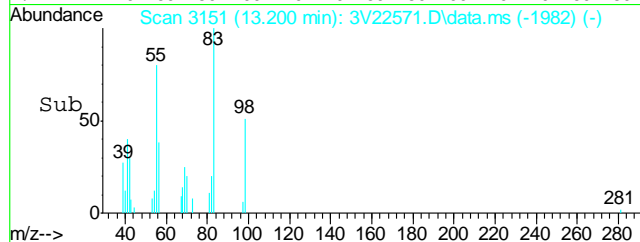
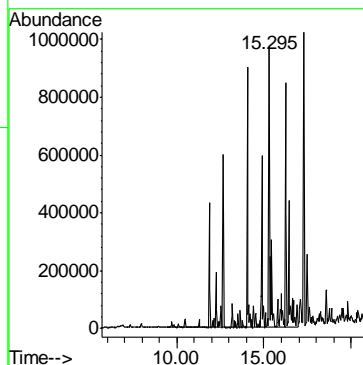
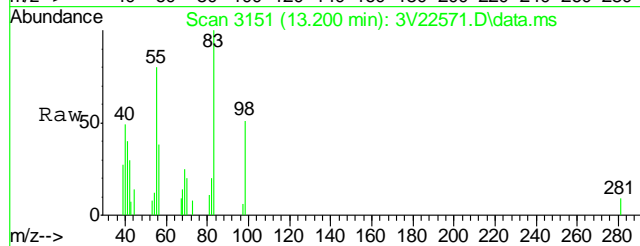
Quant Time: Jan 15 08:31:05 2013
Quant Method : C:\msdchem\1\METHODS\V3AP1299TVH1299SOIL.M
Quant Title : 8260
QLast Update : Thu Jan 03 11:40:16 2013
Response via : Initial Calibration





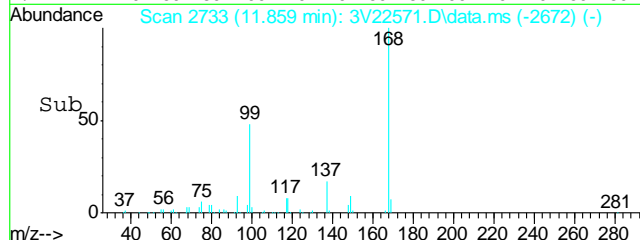
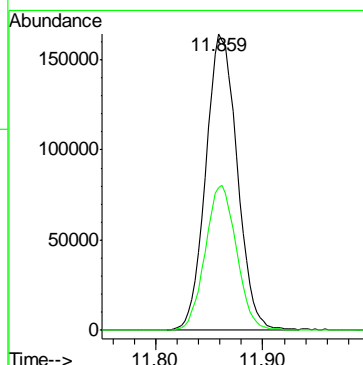
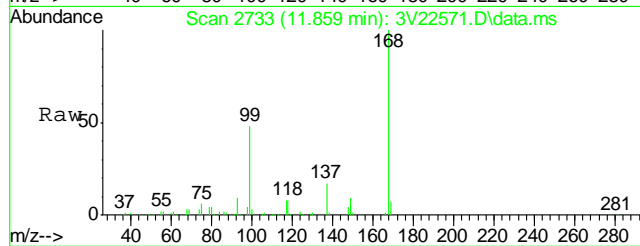
#1
TVH-Gasoline
Concen: 272.57 ug/l m
RT: 13.200 min Scan# 3151
Delta R.T. 0.000 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

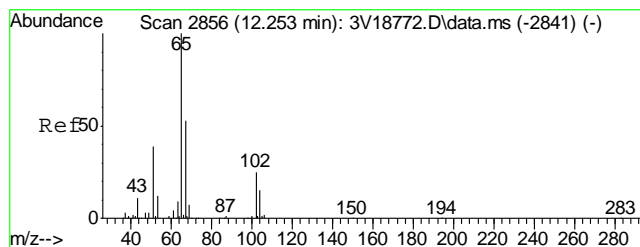
Tgt Ion:TIC Resp: 7998907



#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.859 min Scan# 2733
Delta R.T. -0.004 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

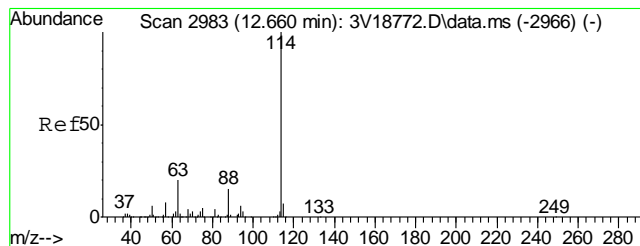
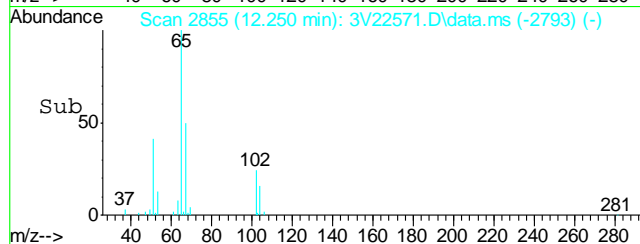
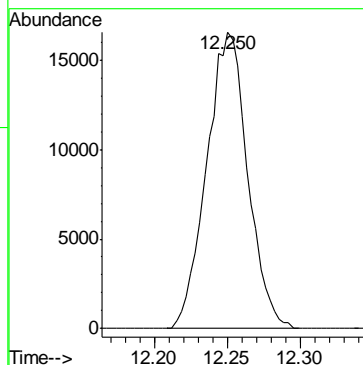
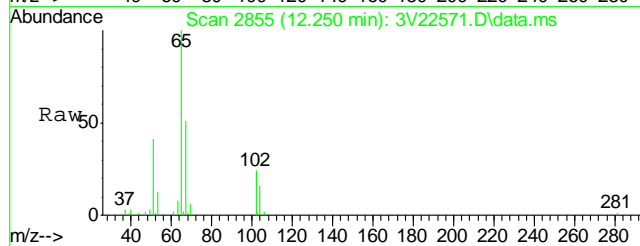
Tgt Ion:168 Resp: 333289
Ion Ratio Lower Upper
168 100
99 48.6 29.0 69.0





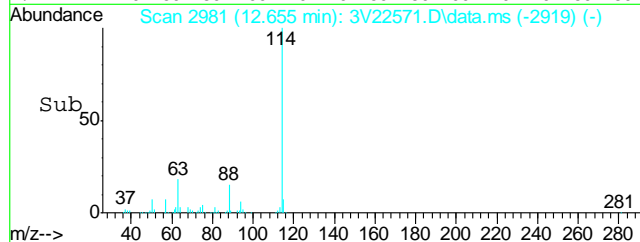
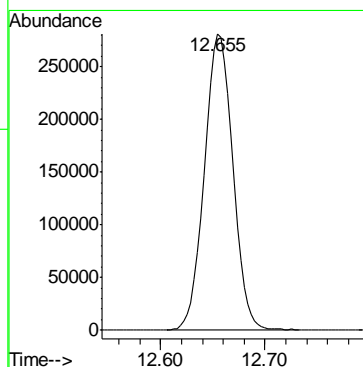
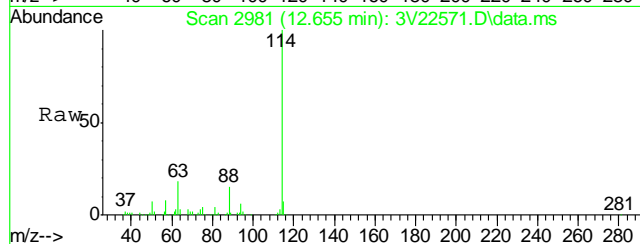
#33
1,2-Dichloroethane-d4
Concen: 43.40 ug/l
RT: 12.250 min Scan# 2855
Delta R.T. -0.001 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

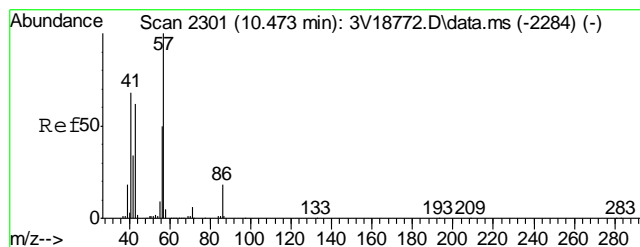
Tgt Ion:102 Resp: 32371



#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.655 min Scan# 2981
Delta R.T. -0.001 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

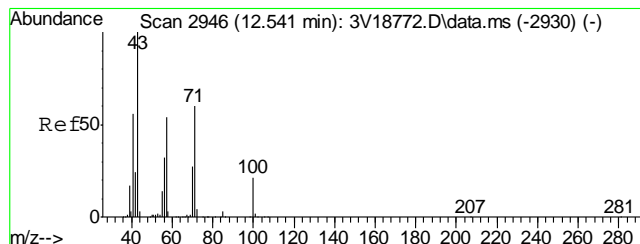
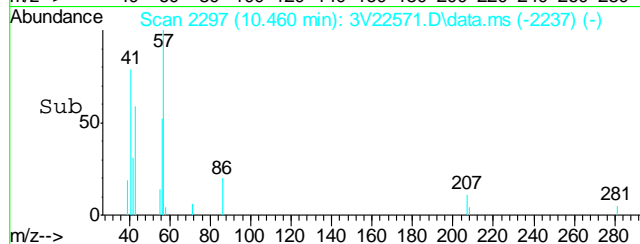
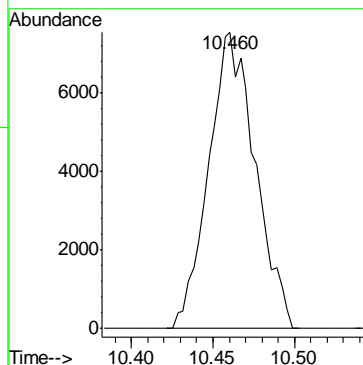
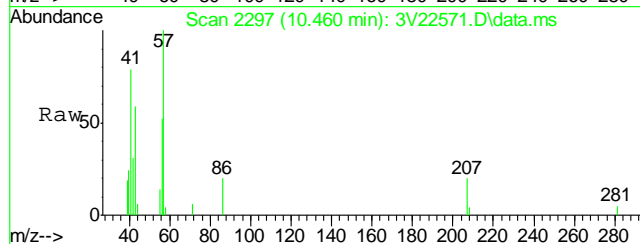
Tgt Ion:114 Resp: 530134





#41
Hexane
Concen: 2.41 ug/l
RT: 10.460 min Scan# 2297
Delta R.T. -0.007 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

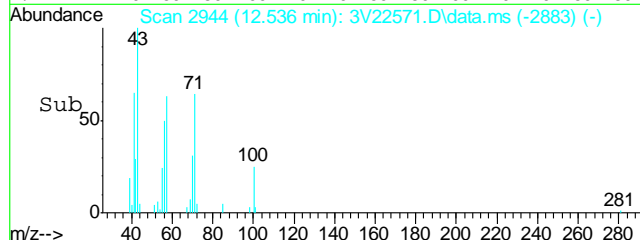
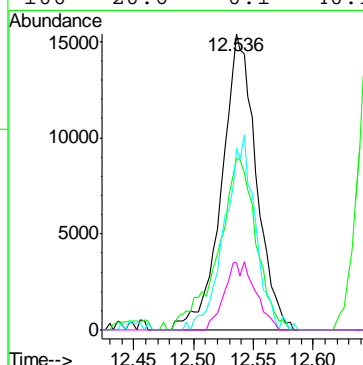
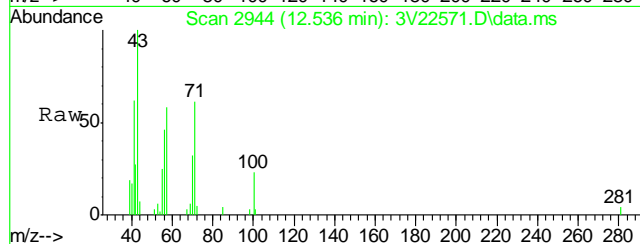
Tgt Ion: 57 Resp: 14962

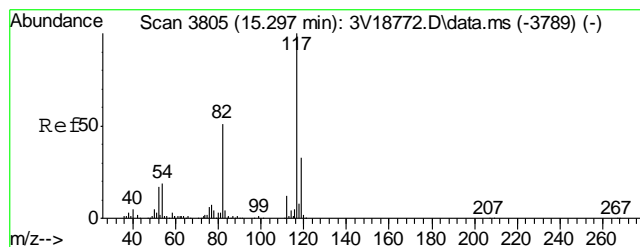


#43
Heptane
Concen: 4.33 ug/l
RT: 12.536 min Scan# 2944
Delta R.T. -0.004 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

Tgt Ion: 43 Resp: 30804

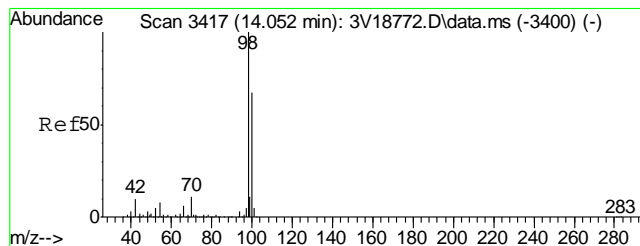
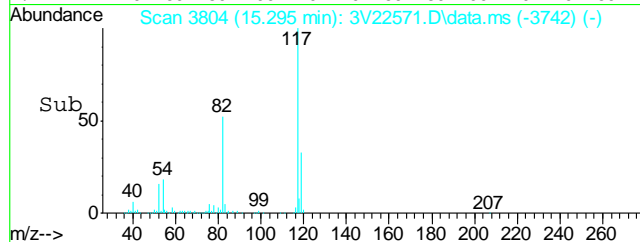
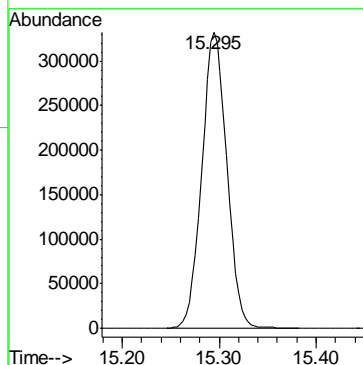
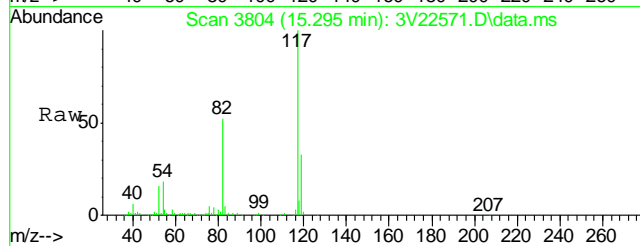
Ion	Ratio	Lower	Upper
43	100		
57	63.9	32.1	72.1
71	57.9	39.6	79.6
100	20.6	0.1	40.1





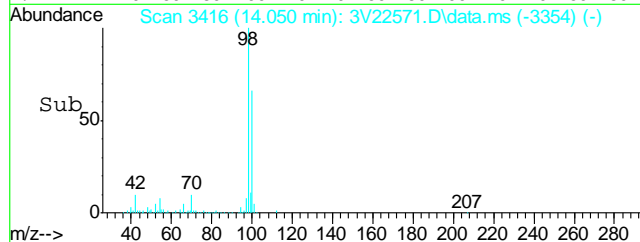
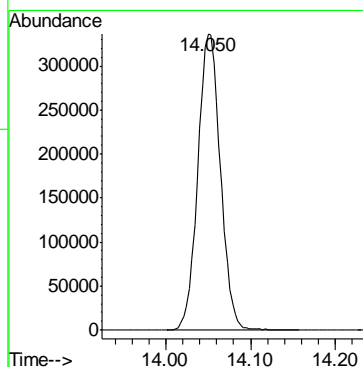
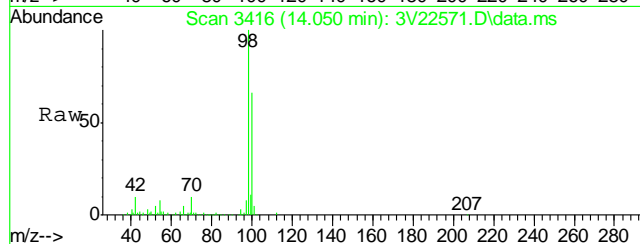
#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.295 min Scan# 3804
Delta R.T. -0.001 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

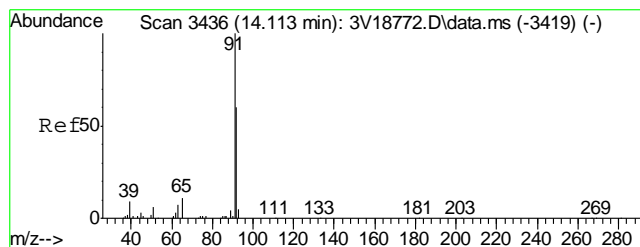
Tgt Ion:117 Resp: 595022



#61
Toluene-d8
Concen: 43.28 ug/l
RT: 14.050 min Scan# 3416
Delta R.T. -0.001 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

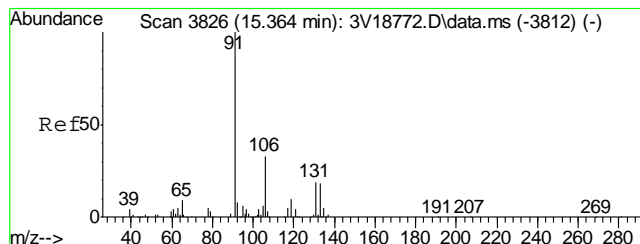
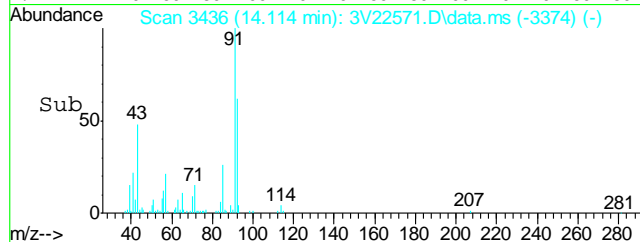
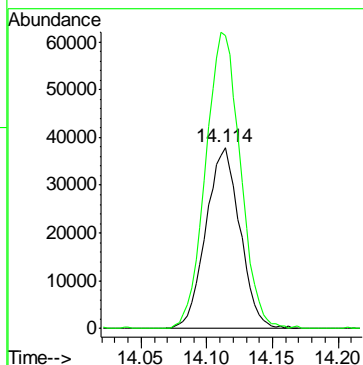
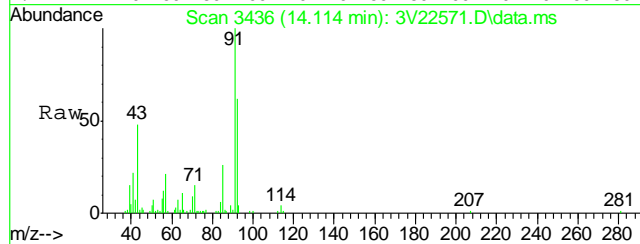
Tgt Ion: 98 Resp: 620064





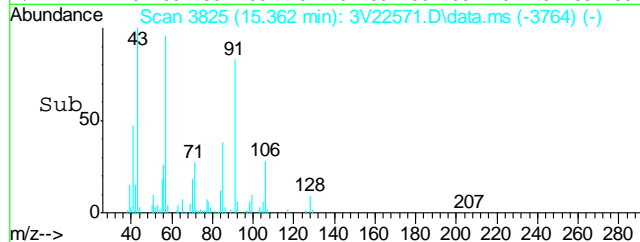
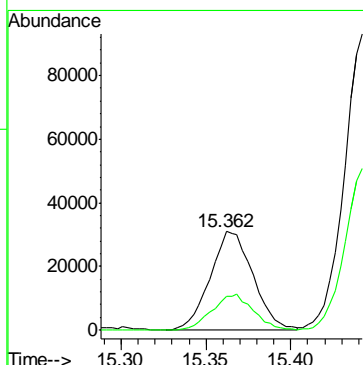
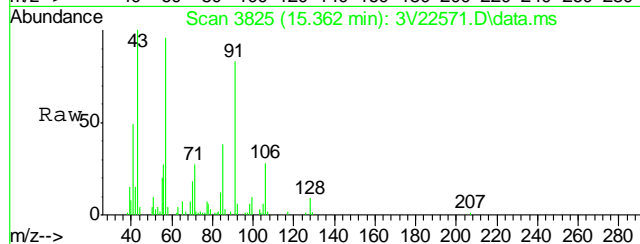
#62
Toluene
Concen: 5.53 ug/l
RT: 14.114 min Scan# 3436
Delta R.T. 0.000 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

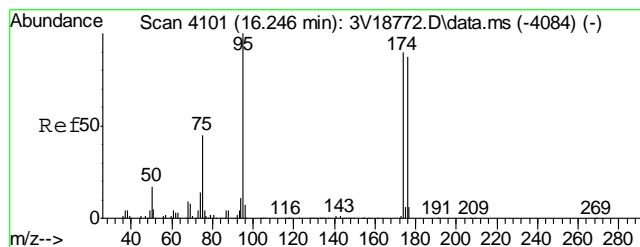
Tgt Ion: 92 Resp: 68281
Ion Ratio Lower Upper
92 100
91 166.7 150.2 190.2



#66
Ethylbenzene
Concen: 2.50 ug/l
RT: 15.362 min Scan# 3825
Delta R.T. -0.004 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

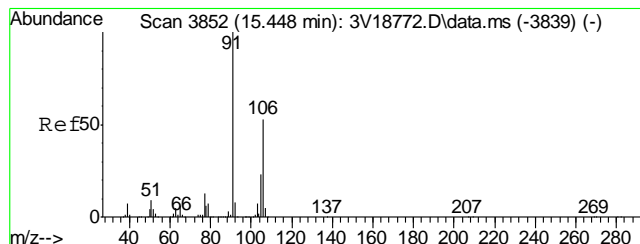
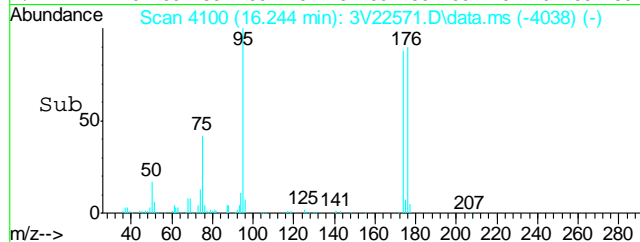
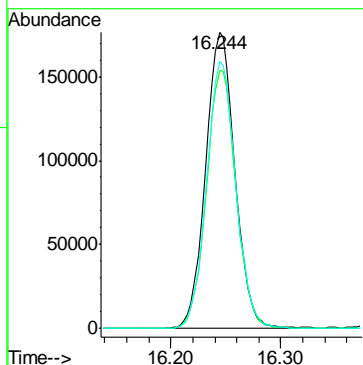
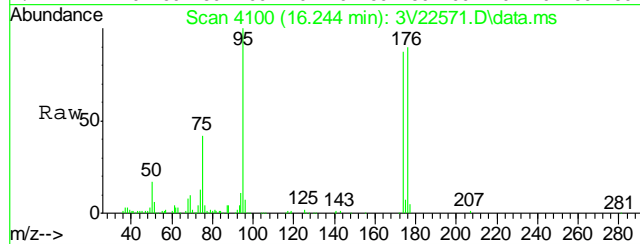
Tgt Ion: 91 Resp: 54248
Ion Ratio Lower Upper
91 100
106 34.8 13.2 53.2





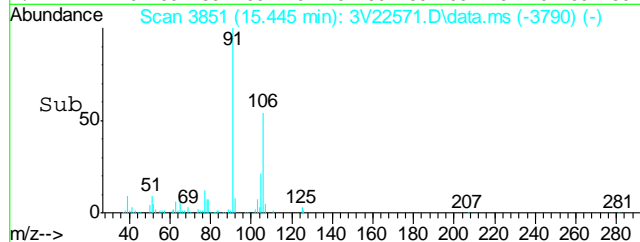
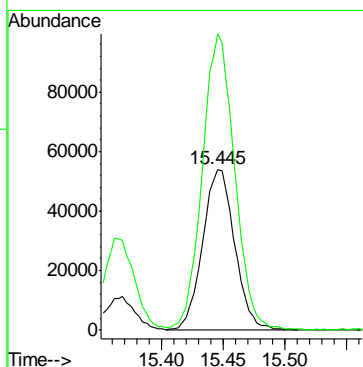
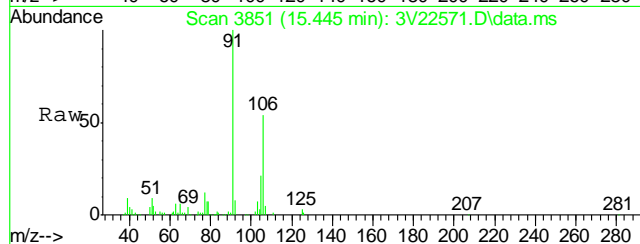
#69
4-Bromofluorobenzene
Concen: 52.61 ug/l
RT: 16.244 min Scan# 4100
Delta R.T. -0.001 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

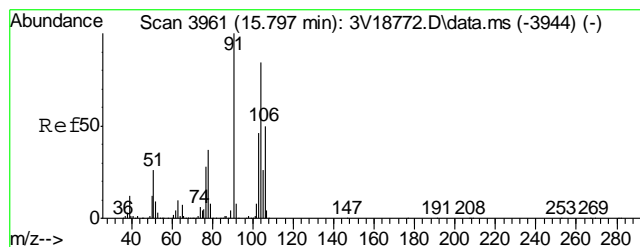
Tgt Ion	Ratio	Lower	Upper
95	100		
174	88.3	0.0	20.0#
176	90.2	0.0	20.0#



#72
m,p-xylene
Concen: 10.71 ug/l
RT: 15.445 min Scan# 3851
Delta R.T. -0.004 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

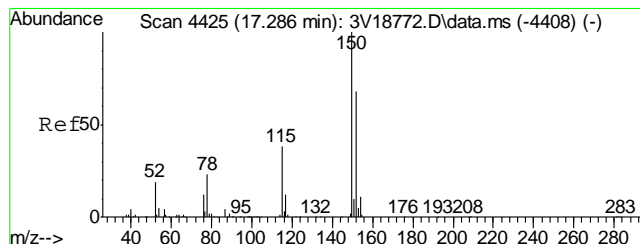
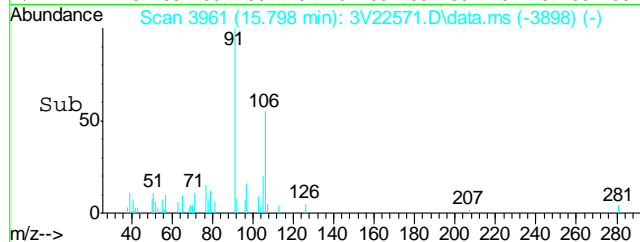
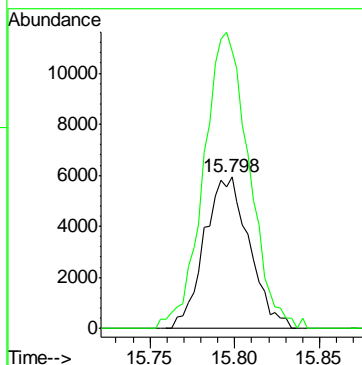
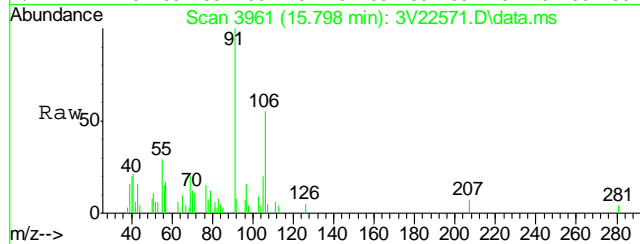
Tgt Ion	Ratio	Lower	Upper
106	100		
91	186.2	168.1	208.1





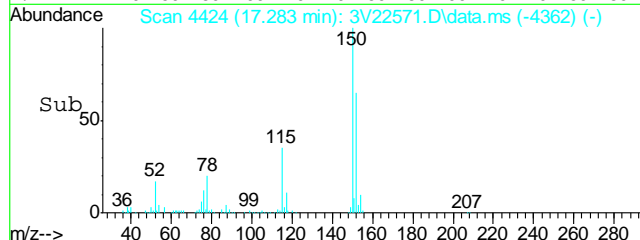
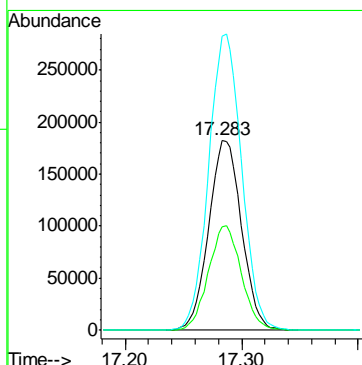
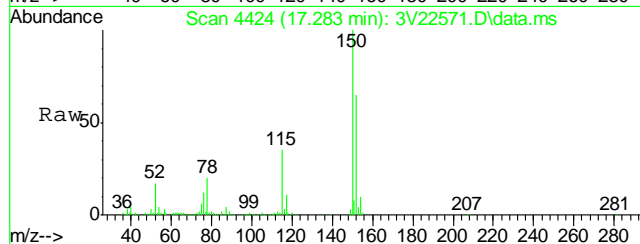
#73
o-xylene
Concen: 1.23 ug/l
RT: 15.798 min Scan# 3961
Delta R.T. 0.002 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

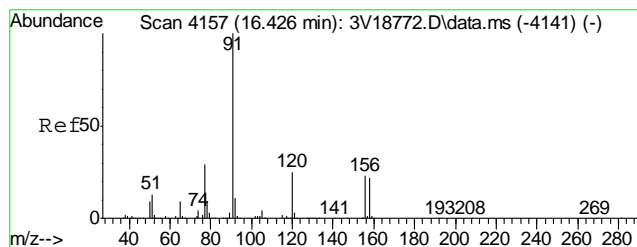
Tgt Ion	Ratio	Lower	Upper
106	100		
91	198.6	180.3	220.3



#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.283 min Scan# 4424
Delta R.T. -0.001 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

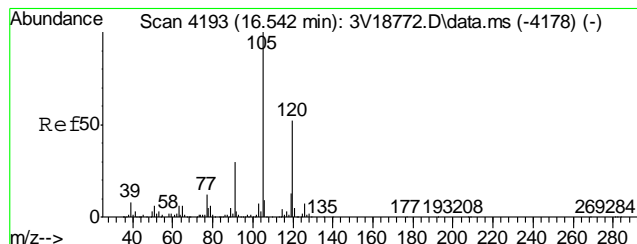
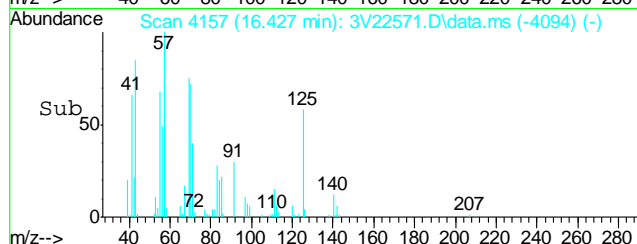
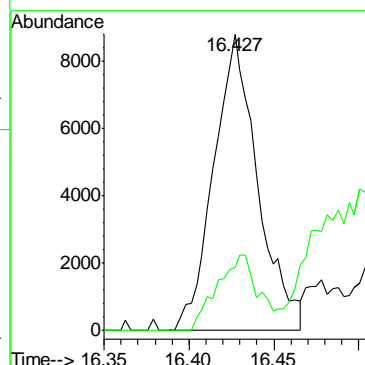
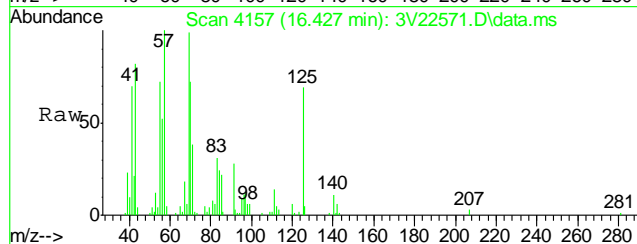
Tgt Ion	Ratio	Lower	Upper
152	100		
115	55.0	34.6	74.6
150	156.6	152.1	192.1





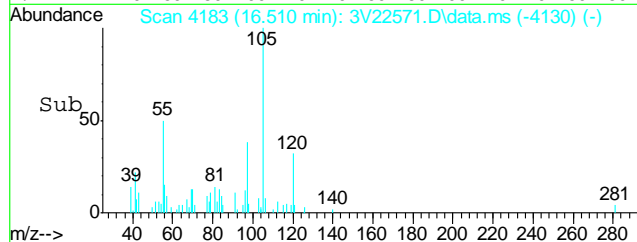
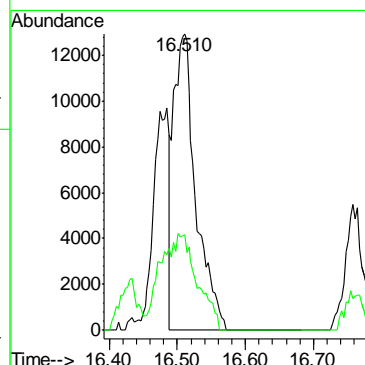
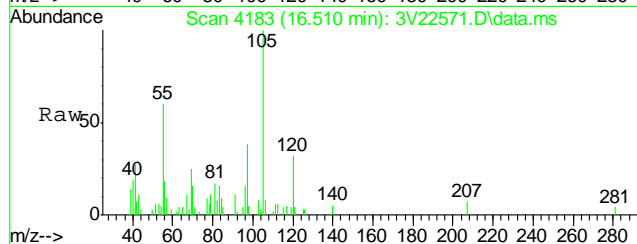
#77
n-Propylbenzene
Concen: 0.65 ug/l
RT: 16.427 min Scan# 4157
Delta R.T. 0.002 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

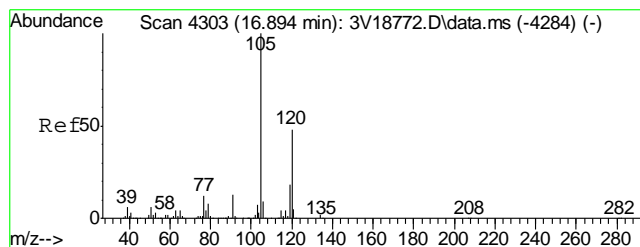
Tgt Ion: 91 Resp: 15879
Ion Ratio Lower Upper
91 100
120 25.1 4.9 44.9



#80
1,3,5-Trimethylbenzene
Concen: 1.61 ug/l m
RT: 16.510 min Scan# 4183
Delta R.T. -0.030 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

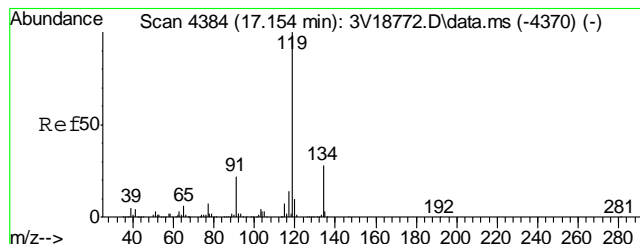
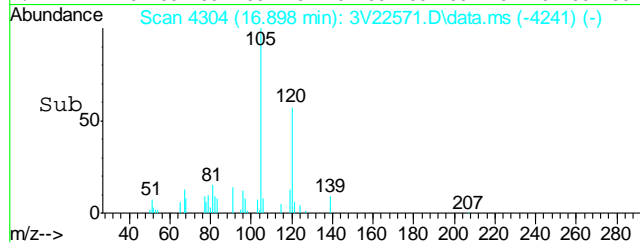
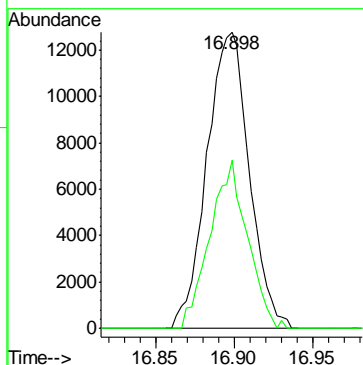
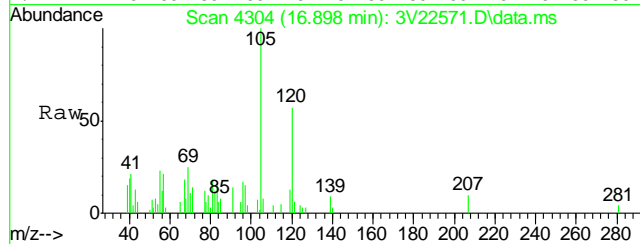
Tgt Ion: 105 Resp: 29541
Ion Ratio Lower Upper
105 100
120 52.9 31.8 71.8





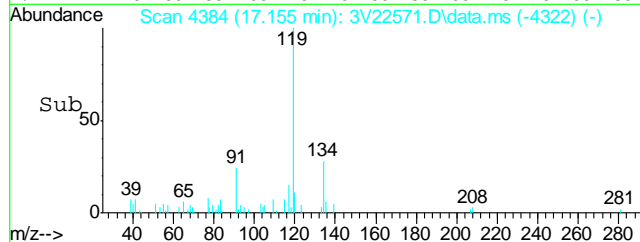
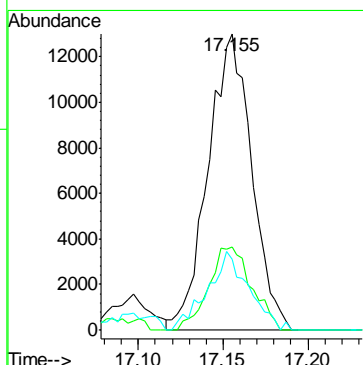
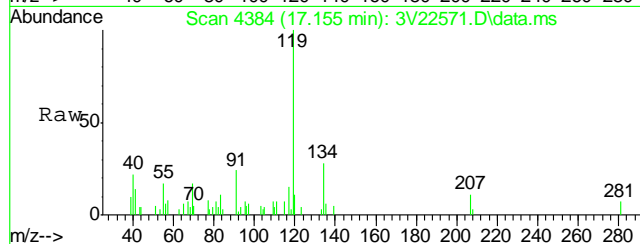
#82
1,2,4-Trimethylbenzene
Concen: 1.28 ug/l
RT: 16.898 min Scan# 4304
Delta R.T. 0.002 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

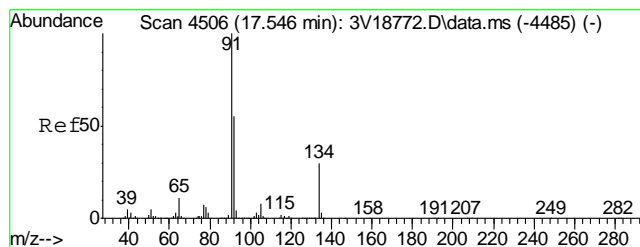
Tgt Ion	Ratio	Lower	Upper
105	100		
120	50.1	36.4	76.4



#86
p-Isopropyltoluene
Concen: 1.11 ug/l
RT: 17.155 min Scan# 4384
Delta R.T. -0.001 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

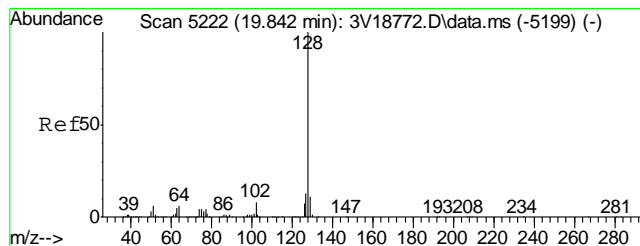
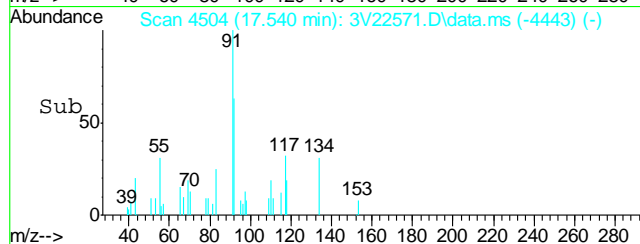
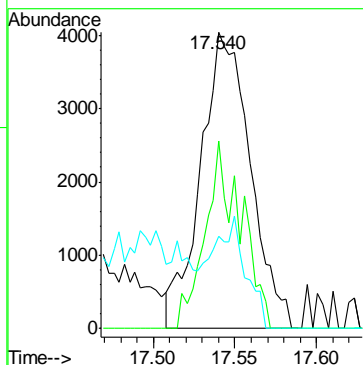
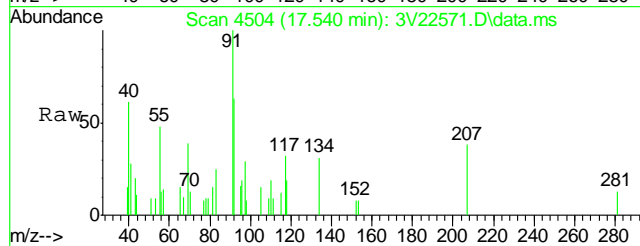
Tgt Ion	Ratio	Lower	Upper
119	100		
134	27.5	7.9	47.9
91	25.1	1.8	41.8





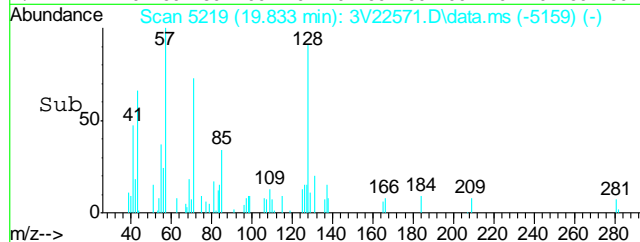
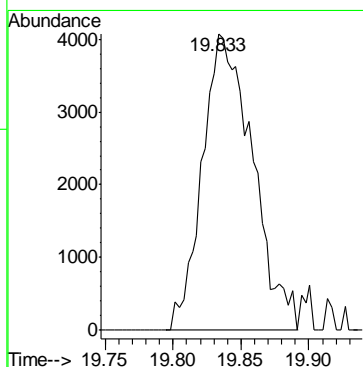
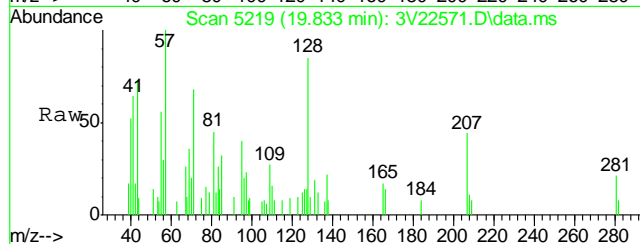
#88
n-Butylbenzene
Concen: 0.50 ug/l
RT: 17.540 min Scan# 4504
Delta R.T. -0.004 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

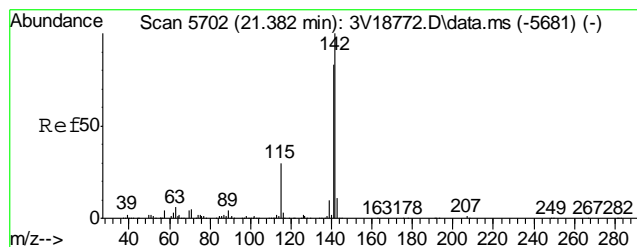
Tgt Ion	Resp	Lower	Upper
91	100		
92	45.7	34.8	74.8
134	0.0	8.9	48.9#



#91
Naphthalene
Concen: 1.57 ug/l
RT: 19.833 min Scan# 5219
Delta R.T. -0.007 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

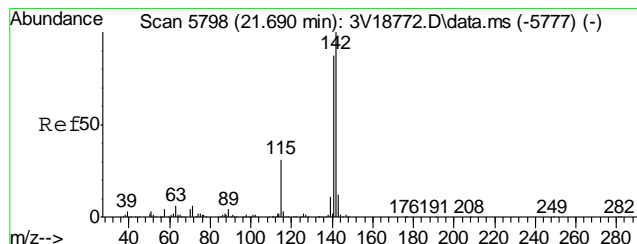
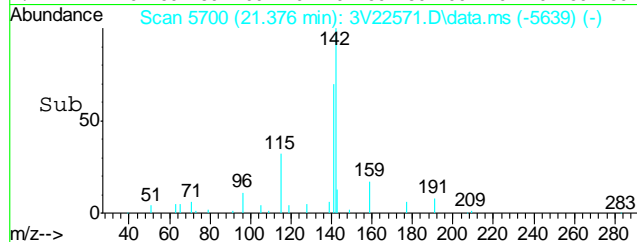
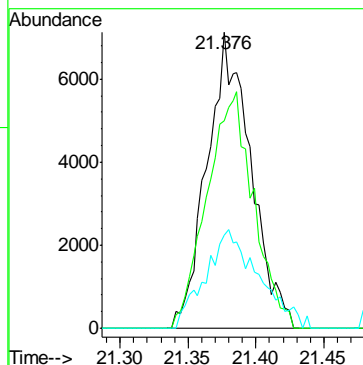
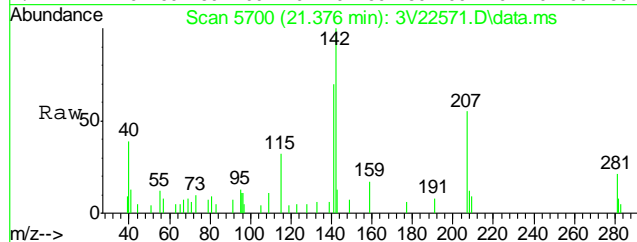
Tgt Ion: 128 Resp: 10434





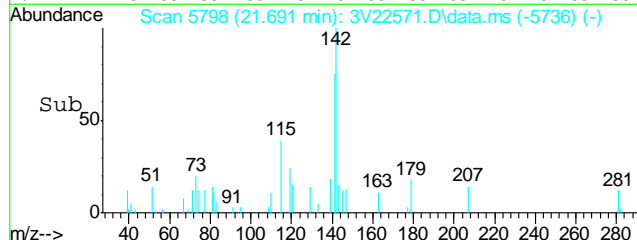
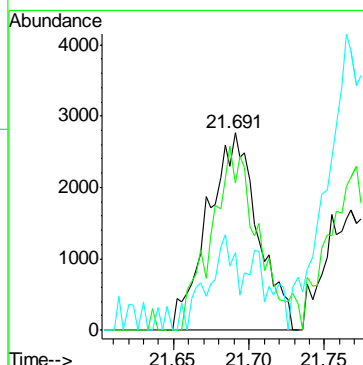
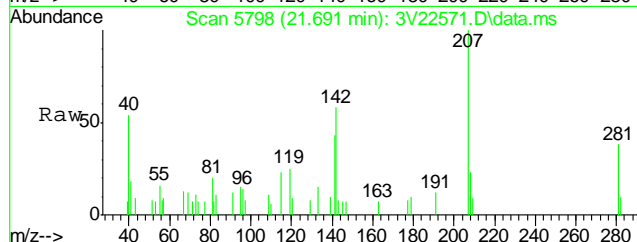
#94
2-Methylnaphthalene
Concen: 1.92 ug/l
RT: 21.376 min Scan# 5700
Delta R.T. -0.004 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

Tgt Ion	Ratio	Lower	Upper
142	100		
141	85.5	65.8	105.8
115	40.8	9.7	49.7



#95
1-Methylnaphthalene
Concen: 0.81 ug/l
RT: 21.691 min Scan# 5798
Delta R.T. -0.001 min
Lab File: 3V22571.D
Acq: 12 Jan 2013 7:45 am

Tgt Ion	Ratio	Lower	Upper
142	100		
141	87.6	68.3	108.3
115	24.0	11.8	51.8



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3011113.S\
 Data File : 3V22560.D
 Acq On : 12 Jan 2013 2:00 am
 Operator : BRETD
 Sample : MB
 Misc : MS5218,V3V1327,5.00,,100,5,1
 ALS Vial : 27 Sample Multiplier: 1

Quant Time: Jan 15 08:11:29 2013
 Quant Method : C:\msdchem\1\METHODS\V3AP1299TVH1299SOIL.M
 Quant Title : 8260
 QLast Update : Thu Jan 03 11:40:16 2013
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.863	168	308471	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.659	114	500082	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.295	117	525362	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.287	152	304372	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.251	102	33686	48.79	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	97.58%
61) Toluene-d8	14.054	98	562082	44.44	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	88.88%
69) 4-Bromofluorobenzene	16.245	95	265181	48.67	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	97.34%

Target Compounds

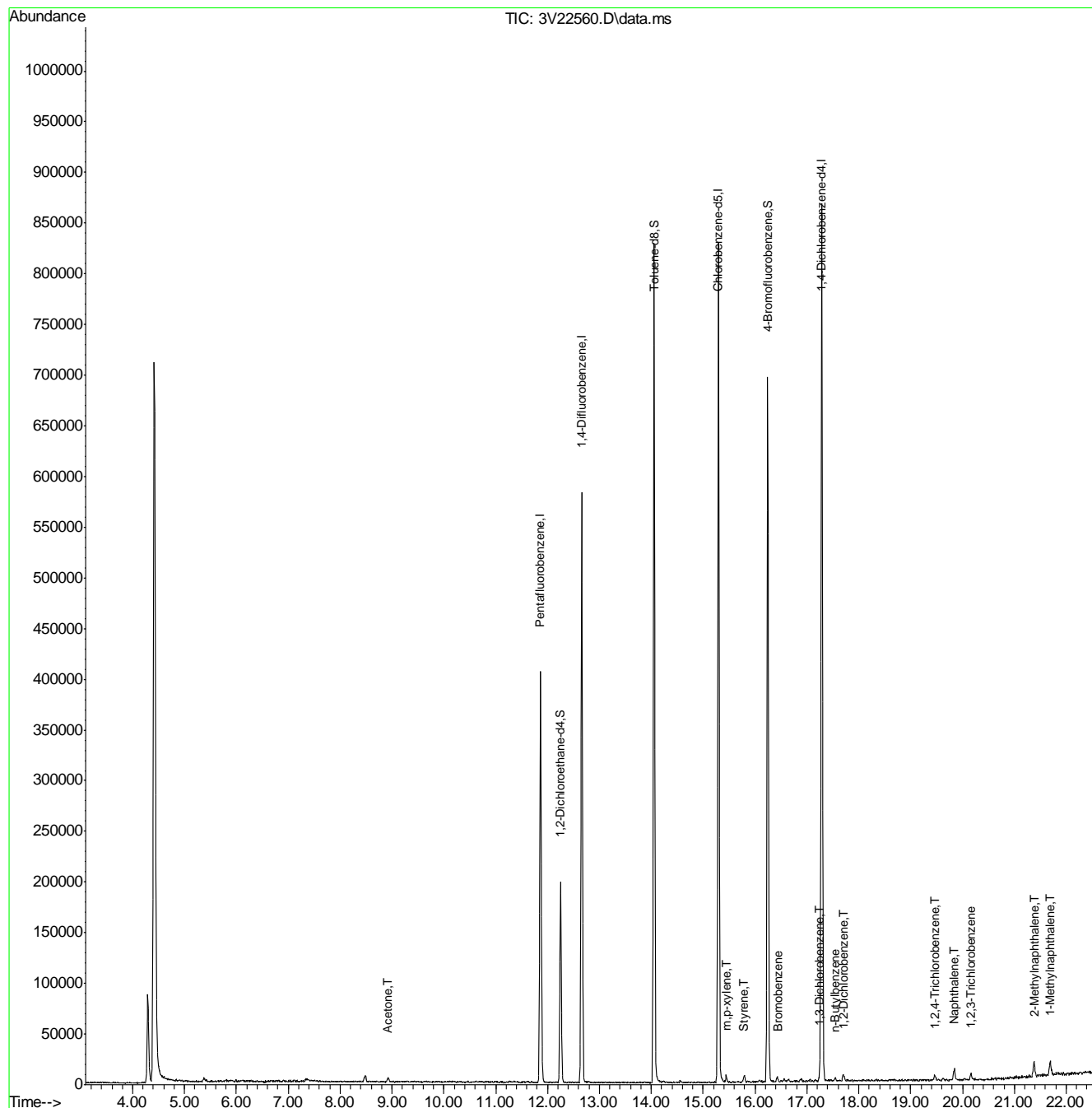
						Qvalue
15) Acetone	8.925	43	6973	0.73	ug/l	100
70) Bromobenzene	16.441	156	1174	0.21	ug/l	90
71) Styrene	15.796	104	1960	0.56	ug/l	86
72) m,p-xylene	15.453	106	2503	0.31	ug/l	90
84) 1,3-Dichlorobenzene	17.239	146	3019	0.28	ug/l	96
87) 1,2-Dichlorobenzene	17.704	146	3319	0.32	ug/l	96
88) n-Butylbenzene	17.541	91	3129	0.22	ug/l	88
90) 1,2,4-Trichlorobenzene	19.462	180	3118	0.48	ug/l	92
91) Naphthalene	19.838	128	16063	2.00	ug/l	100
93) 1,2,3-Trichlorobenzene	20.168	180	3642	0.57	ug/l	94
94) 2-Methylnaphthalene	21.384	142	13326	1.89	ug/l	97
95) 1-Methylnaphthalene	21.692	142	11465	1.71	ug/l	98

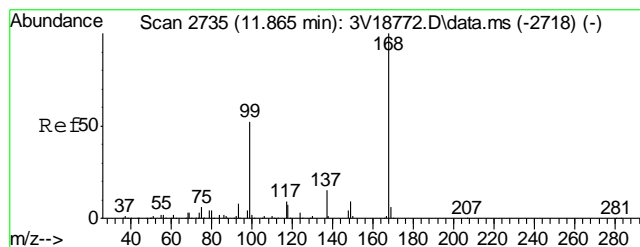
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3011113.S\
Data File : 3V22560.D
Acq On : 12 Jan 2013 2:00 am
Operator : BRETD
Sample : MB
Misc : MS5218,V3V1327,5.00,,100,5,1
ALS Vial : 27 Sample Multiplier: 1

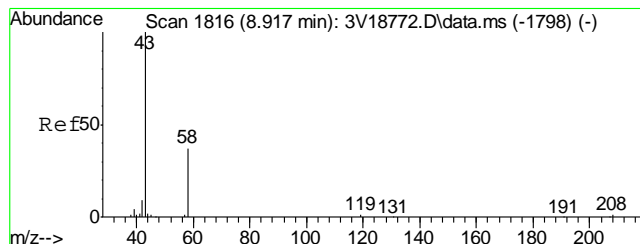
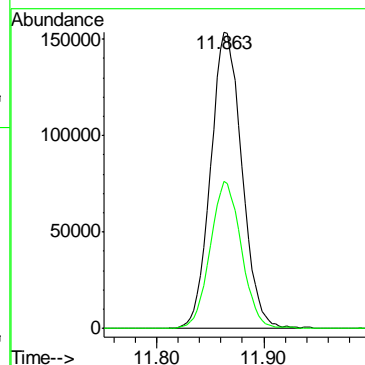
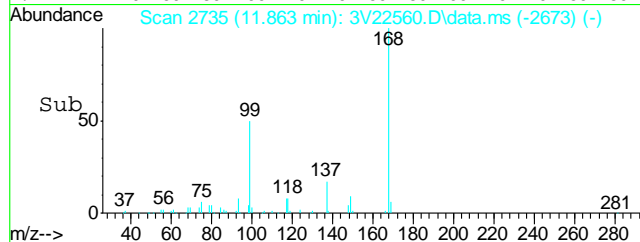
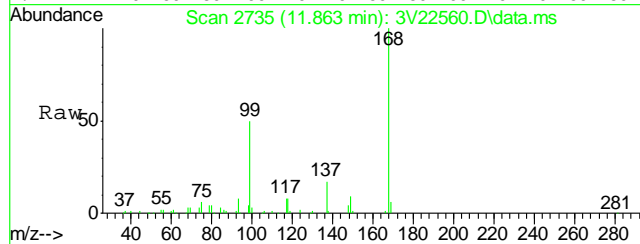
Quant Time: Jan 15 08:11:29 2013
Quant Method : C:\msdchem\1\METHODS\V3AP1299TVH1299SOIL.M
Quant Title : 8260
QLast Update : Thu Jan 03 11:40:16 2013
Response via : Initial Calibration





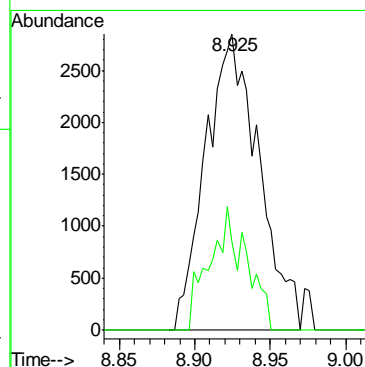
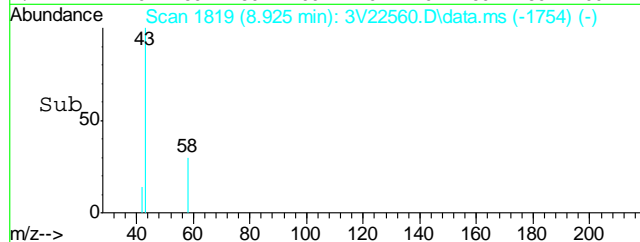
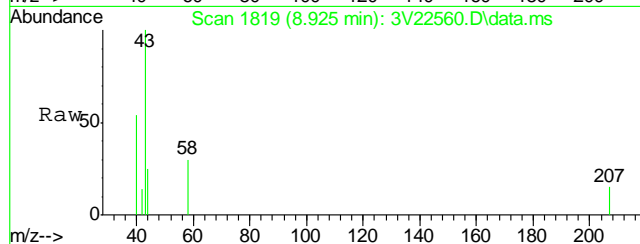
#2
Pentafluorobenzene
Concen: 50.00 ug/l
RT: 11.863 min Scan# 2735
Delta R.T. 0.000 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am

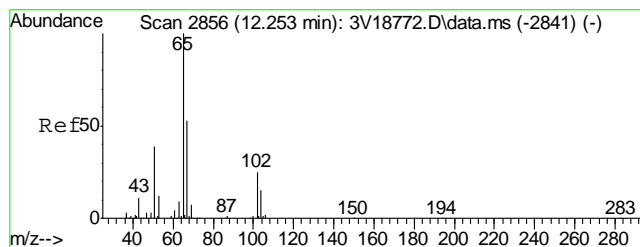
Tgt Ion: 168 Resp: 308471
Ion Ratio Lower Upper
168 100
99 49.5 29.0 69.0



#15
Acetone
Concen: 0.73 ug/l
RT: 8.925 min Scan# 1819
Delta R.T. 0.010 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am

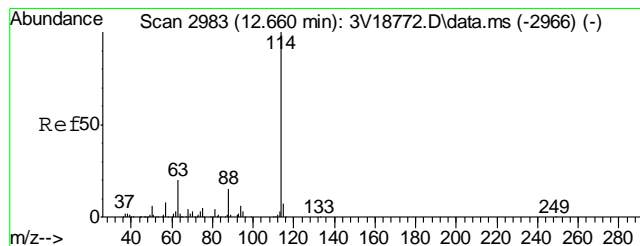
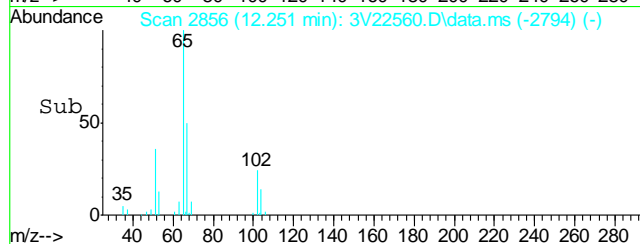
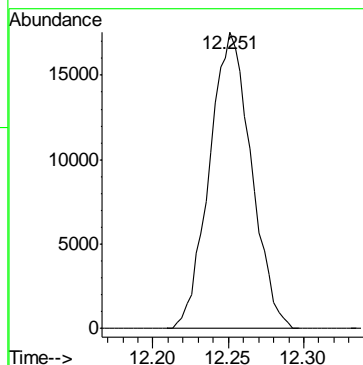
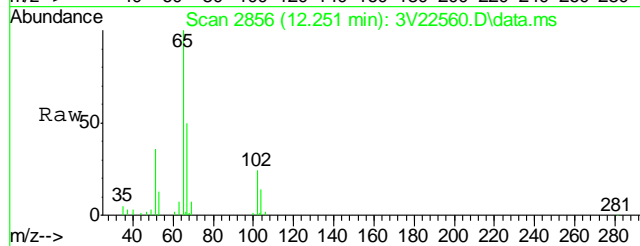
Tgt Ion: 43 Resp: 6973
Ion Ratio Lower Upper
43 100
58 29.0 8.7 48.7





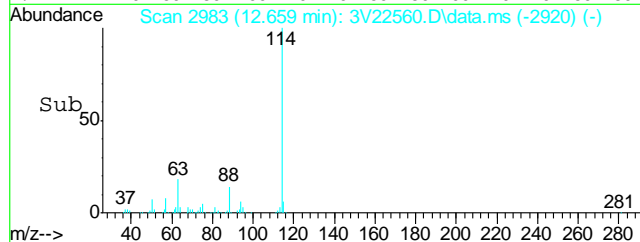
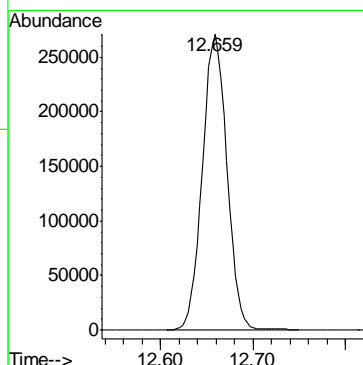
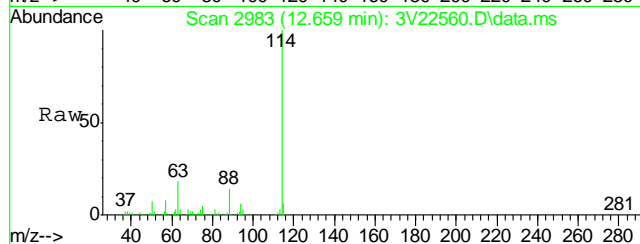
#33
1,2-Dichloroethane-d4
Concen: 48.79 ug/l
RT: 12.251 min Scan# 2856
Delta R.T. 0.000 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am

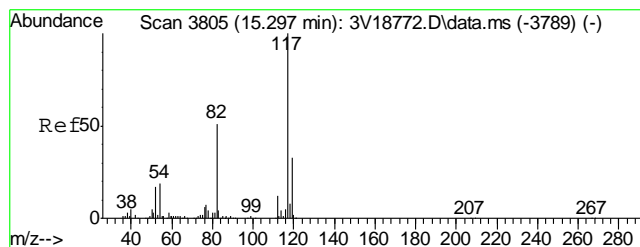
Tgt Ion:102 Resp: 33686



#35
1,4-Difluorobenzene
Concen: 50.00 ug/l
RT: 12.659 min Scan# 2983
Delta R.T. 0.003 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am

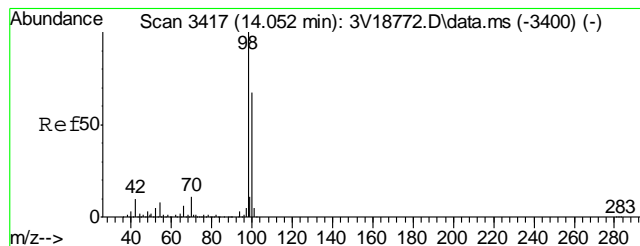
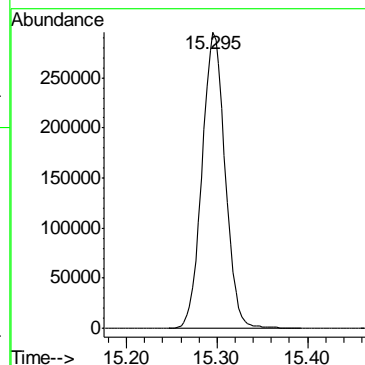
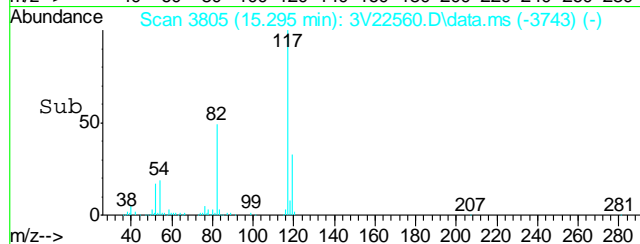
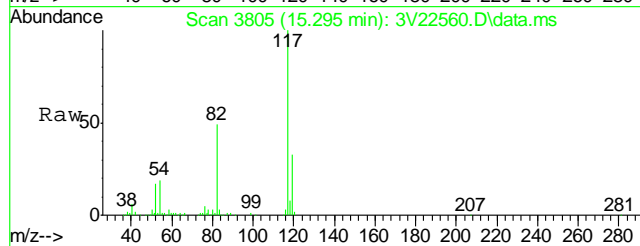
Tgt Ion:114 Resp: 500082





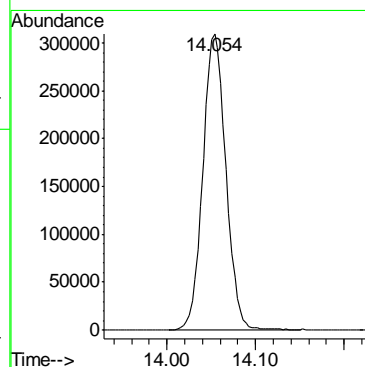
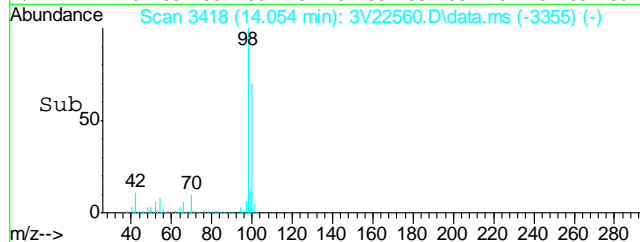
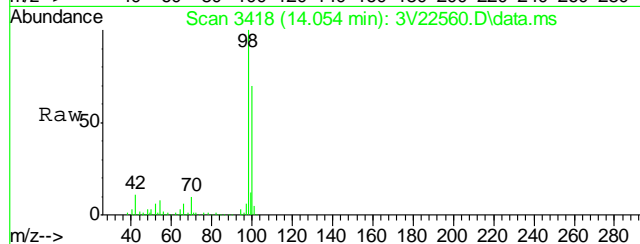
#53
Chlorobenzene-d5
Concen: 50.00 ug/l
RT: 15.295 min Scan# 3805
Delta R.T. 0.000 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am

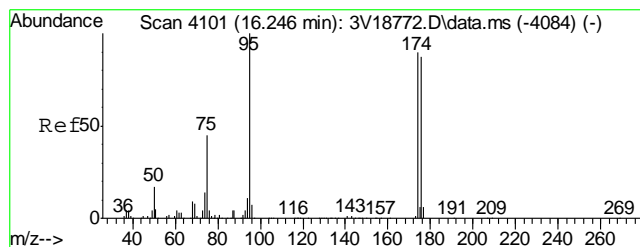
Tgt Ion: 117 Resp: 525362



#61
Toluene-d8
Concen: 44.44 ug/l
RT: 14.054 min Scan# 3418
Delta R.T. 0.003 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am

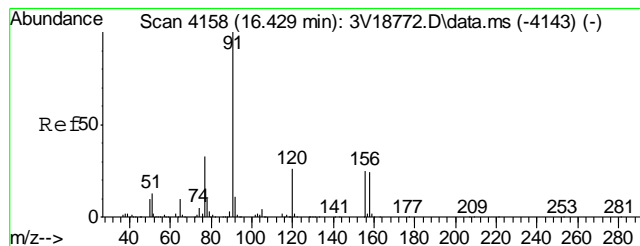
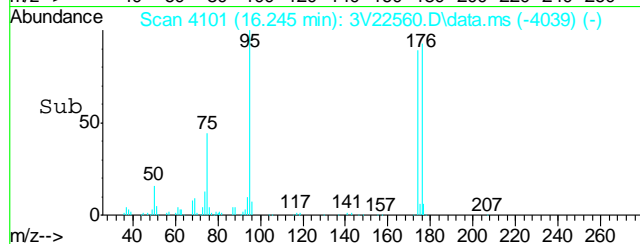
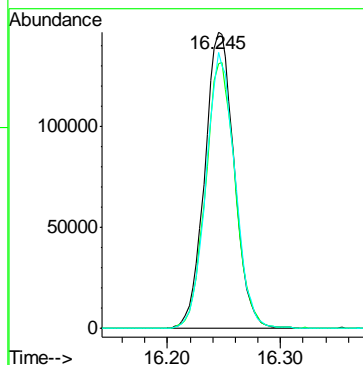
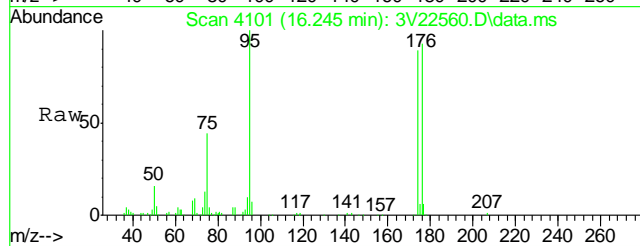
Tgt Ion: 98 Resp: 562082





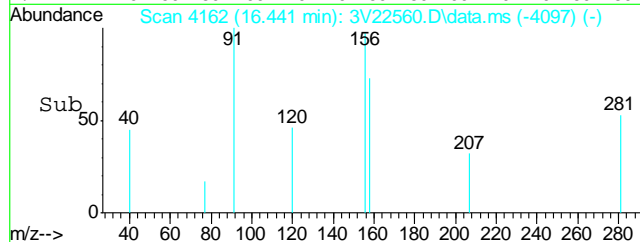
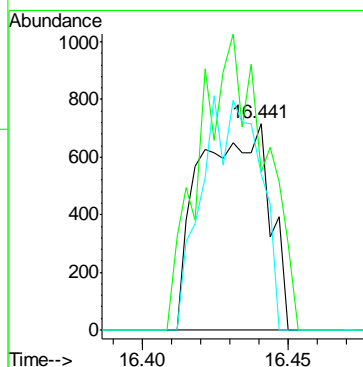
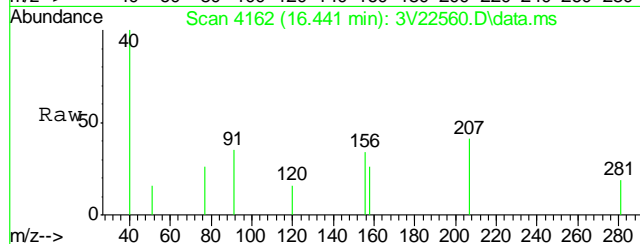
#69
4-Bromofluorobenzene
Concen: 48.67 ug/l
RT: 16.245 min Scan# 4101
Delta R.T. 0.000 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am

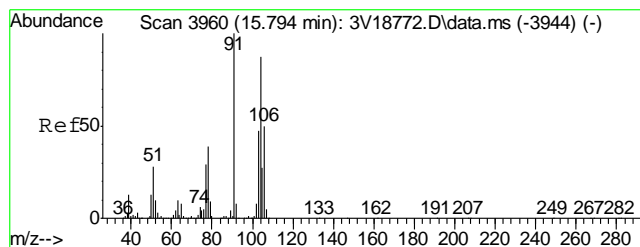
Tgt Ion	Ratio	Lower	Upper
95	100		
174	89.9	0.0	20.0#
176	91.3	0.0	20.0#



#70
Bromobenzene
Concen: 0.21 ug/l
RT: 16.441 min Scan# 4162
Delta R.T. 0.010 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am

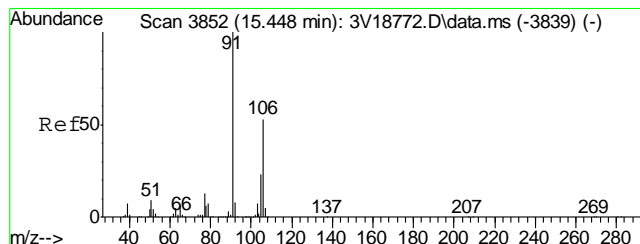
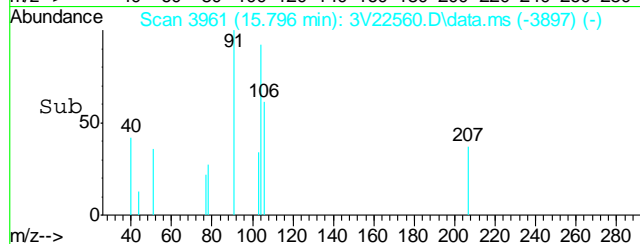
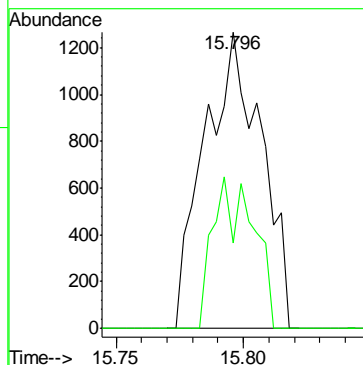
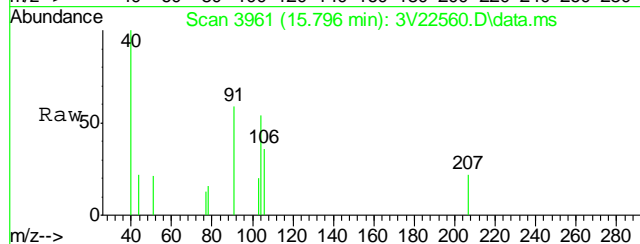
Tgt Ion	Ratio	Lower	Upper
156	100		
77	136.3	135.4	175.4
158	95.1	77.3	117.3





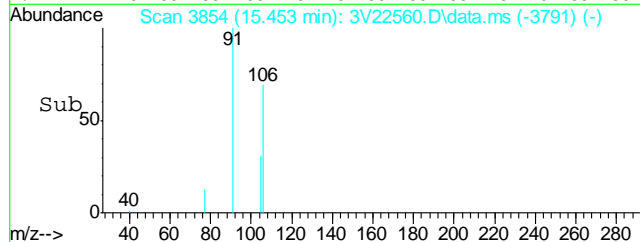
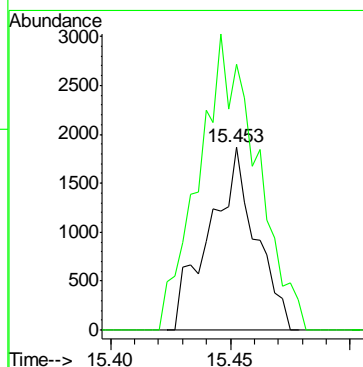
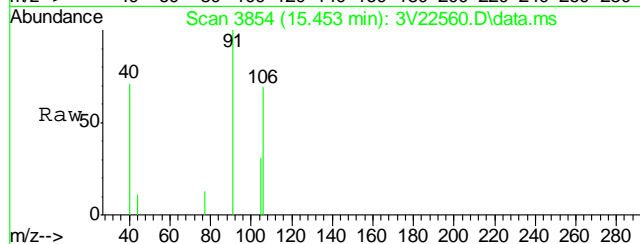
#71
Styrene
Concen: 0.56 ug/l
RT: 15.796 min Scan# 3961
Delta R.T. 0.004 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am

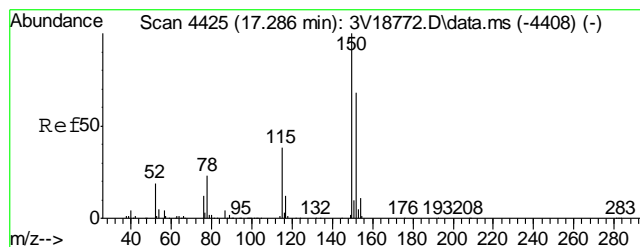
Tgt Ion:104 Resp: 1960
Ion Ratio Lower Upper
104 100
78 36.5 25.4 65.4



#72
m,p-xylene
Concen: 0.31 ug/l
RT: 15.453 min Scan# 3854
Delta R.T. 0.003 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am

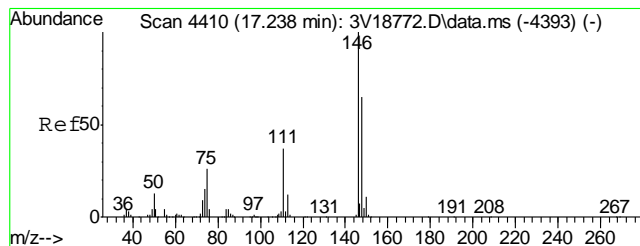
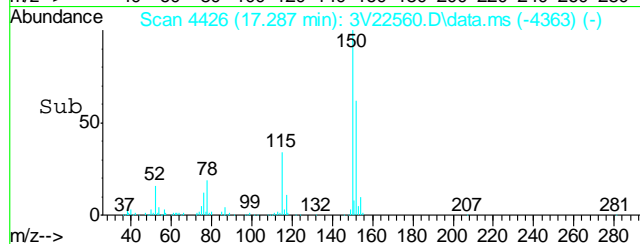
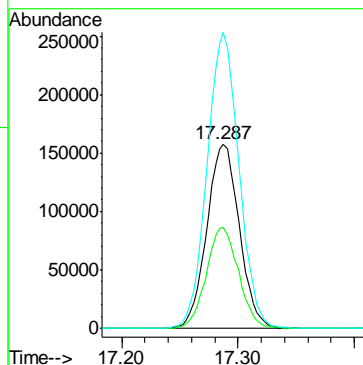
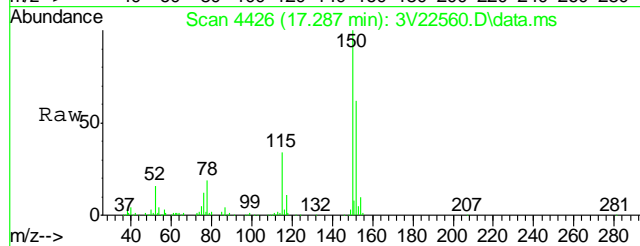
Tgt Ion:106 Resp: 2503
Ion Ratio Lower Upper
106 100
91 202.3 168.1 208.1





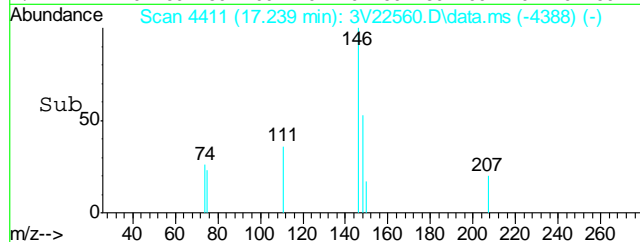
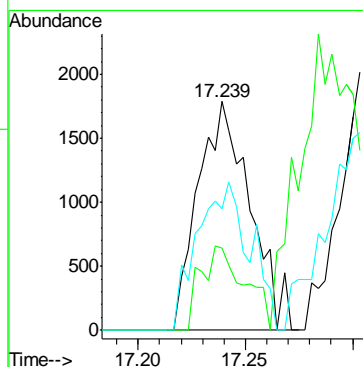
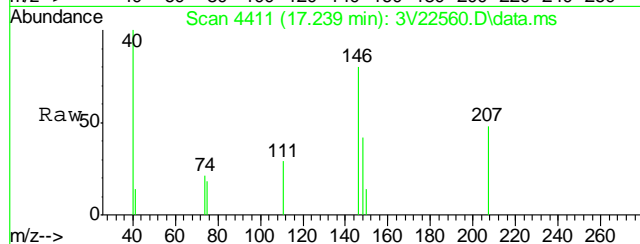
#74
1,4-Dichlorobenzene-d4
Concen: 50.00 ug/l
RT: 17.287 min Scan# 4426
Delta R.T. 0.003 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am

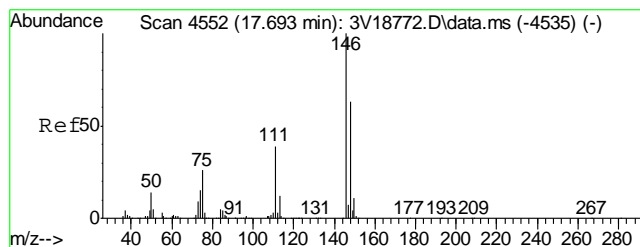
Tgt Ion	Ratio	Lower	Upper
152	100		
115	54.2	34.6	74.6
150	158.2	152.1	192.1



#84
1,3-Dichlorobenzene
Concen: 0.28 ug/l
RT: 17.239 min Scan# 4411
Delta R.T. 0.004 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am

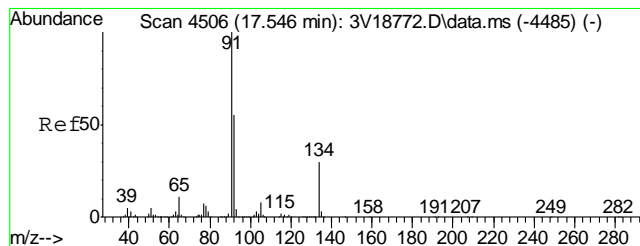
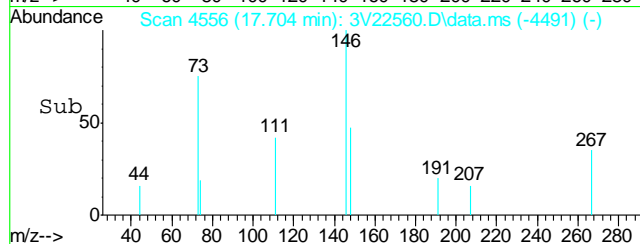
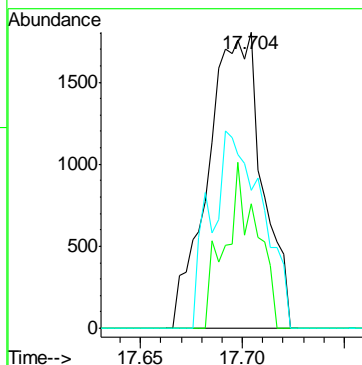
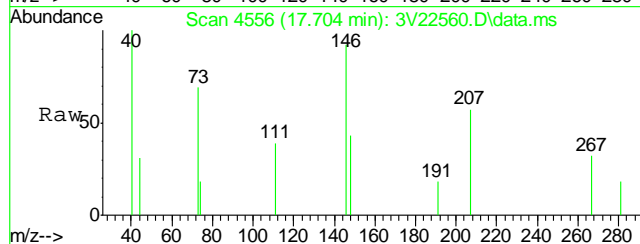
Tgt Ion	Ratio	Lower	Upper
146	100		
111	31.2	17.1	57.1
148	64.9	44.2	84.2





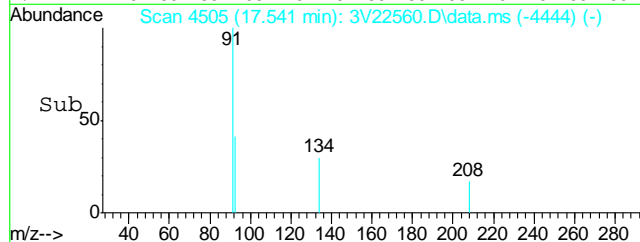
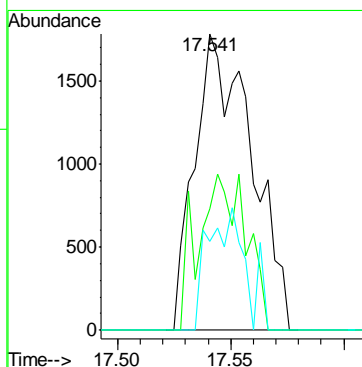
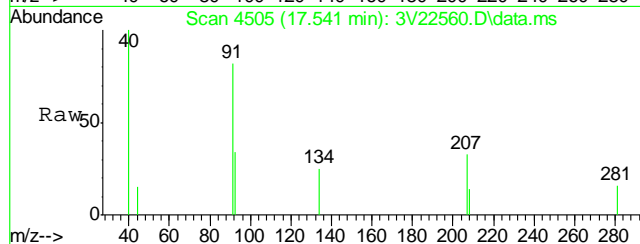
#87
1,2-Dichlorobenzene
Concen: 0.32 ug/l
RT: 17.704 min Scan# 4556
Delta R.T. 0.010 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am

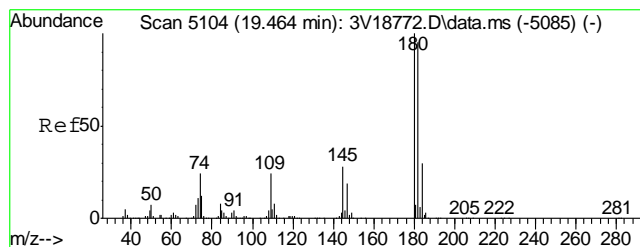
Tgt Ion	Ratio	Lower	Upper
146	100		
111	33.4	18.8	58.8
148	63.2	44.3	84.3



#88
n-Butylbenzene
Concen: 0.22 ug/l
RT: 17.541 min Scan# 4505
Delta R.T. -0.003 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am

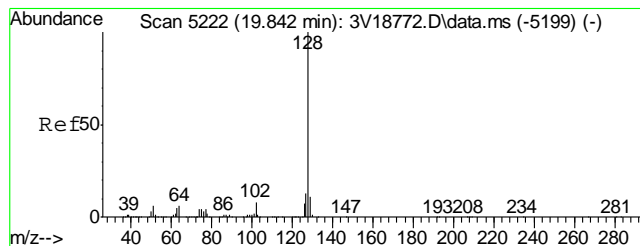
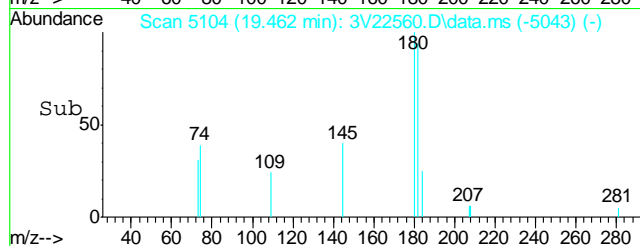
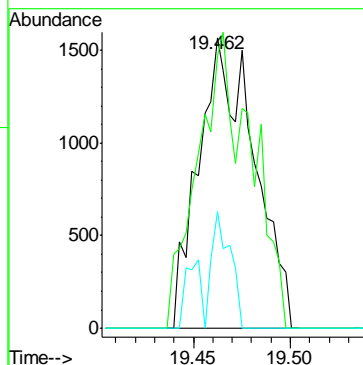
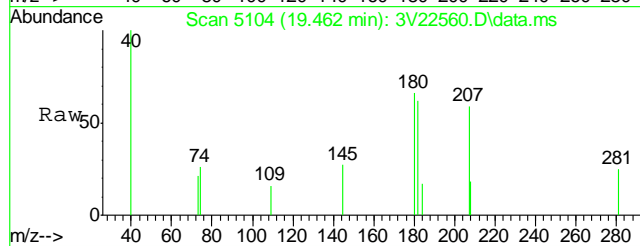
Tgt Ion	Ratio	Lower	Upper
91	100		
92	44.4	34.8	74.8
134	24.3	8.9	48.9





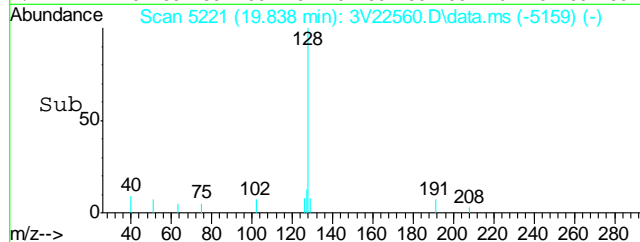
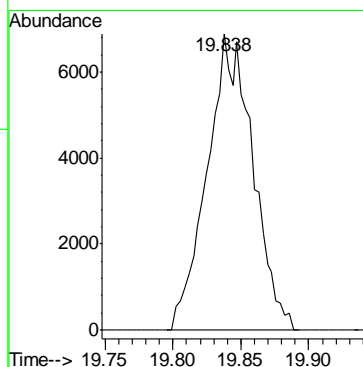
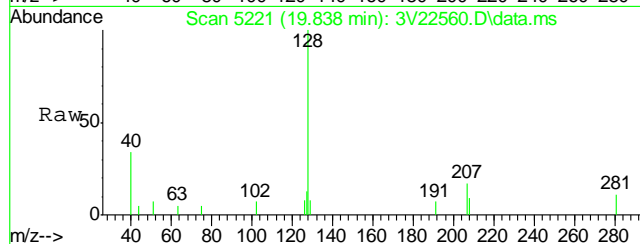
#90
1,2,4-Trichlorobenzene
Concen: 0.48 ug/l
RT: 19.462 min Scan# 5104
Delta R.T. -0.003 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am

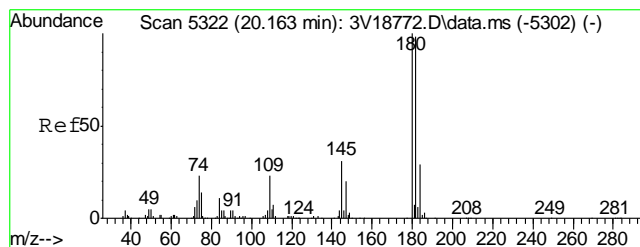
Tgt Ion	Ratio	Lower	Upper
180	100		
182	98.0	75.5	115.5
145	13.6	8.6	48.6



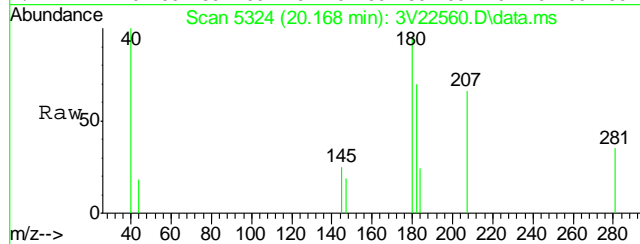
#91
Naphthalene
Concen: 2.00 ug/l
RT: 19.838 min Scan# 5221
Delta R.T. -0.002 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am

Tgt Ion:128 Resp: 16063

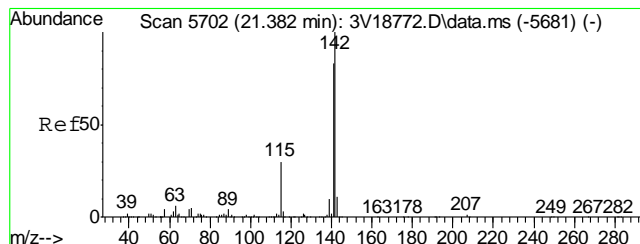
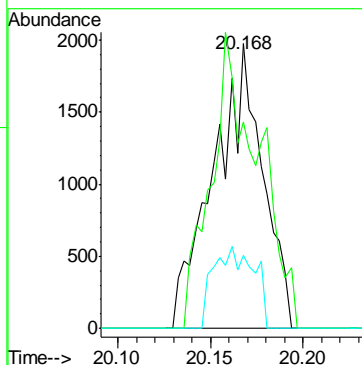
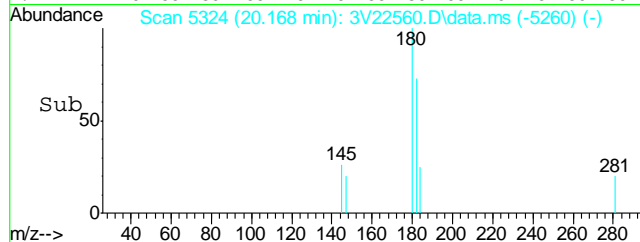




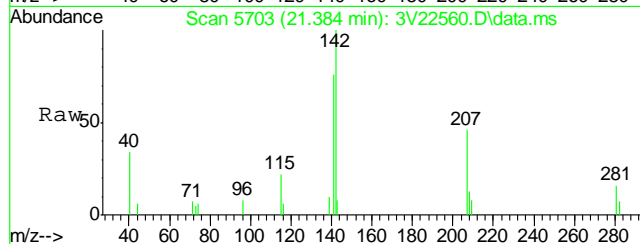
#93
1,2,3-Trichlorobenzene
Concen: 0.57 ug/l
RT: 20.168 min Scan# 5324
Delta R.T. 0.006 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am



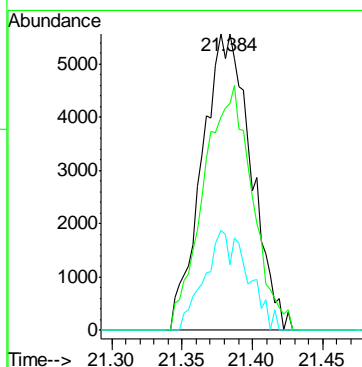
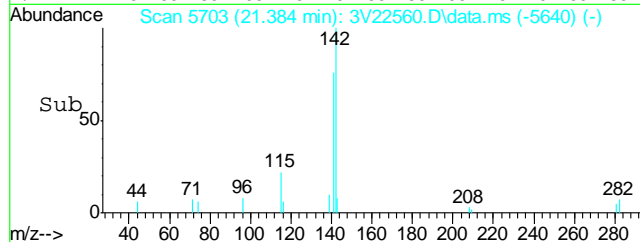
Tgt Ion	Ratio	Lower	Upper
180	100		
182	99.5	75.6	115.6
145	23.7	10.3	50.3

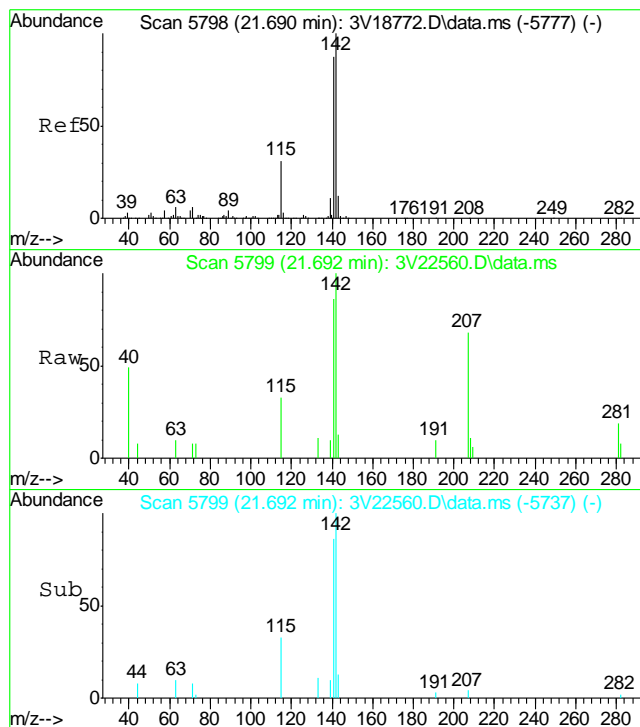


#94
2-Methylnaphthalene
Concen: 1.89 ug/l
RT: 21.384 min Scan# 5703
Delta R.T. 0.003 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am



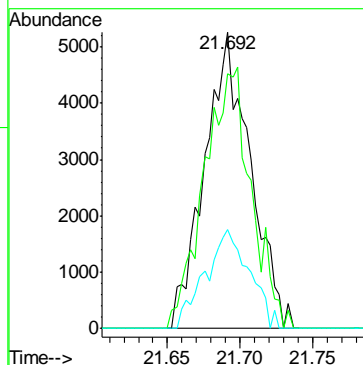
Tgt Ion	Ratio	Lower	Upper
142	100		
141	82.0	65.8	105.8
115	29.4	9.7	49.7





#95
1-Methylnaphthalene
Concen: 1.71 ug/l
RT: 21.692 min Scan# 5799
Delta R.T. 0.000 min
Lab File: 3V22560.D
Acq: 12 Jan 2013 2:00 am

Tgt Ion	Ratio	Lower	Upper
142	100		
141	90.8	68.3	108.3
115	32.2	11.8	51.8



7.2.1

7

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: D42556
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7223-MB	3G12973.D	1	01/15/13	DC	01/14/13	OP7223	E3G621

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

D42556-1, D42556-2

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	81% 10-159%
321-60-8	2-Fluorobiphenyl	85% 19-131%
1718-51-0	Terphenyl-d14	105% 18-150%

8.1.1

8

Blank Spike Summary

Page 1 of 1

Job Number: D42556
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7223-BS	3G12974.D	1	01/15/13	DC	01/14/13	OP7223	E3G621

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D42556-1, D42556-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	87.0	104	68-130
120-12-7	Anthracene	83.3	75.1	90	67-130
56-55-3	Benzo(a)anthracene	83.3	79.3	95	65-130
205-99-2	Benzo(b)fluoranthene	83.3	79.2	95	44-130
207-08-9	Benzo(k)fluoranthene	83.3	65.4	78	56-131
50-32-8	Benzo(a)pyrene	83.3	70.8	85	62-130
218-01-9	Chrysene	83.3	70.3	84	70-130
53-70-3	Dibenzo(a,h)anthracene	83.3	79.8	96	55-130
206-44-0	Fluoranthene	83.3	76.4	92	70-130
86-73-7	Fluorene	83.3	80.9	97	70-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	77.2	93	56-130
91-20-3	Naphthalene	83.3	71.1	85	70-130
129-00-0	Pyrene	83.3	74.5	89	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	103%	10-159%
321-60-8	2-Fluorobiphenyl	97%	19-131%
1718-51-0	Terphenyl-d14	107%	18-150%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D42556
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7223-MS	3G12984.D	1	01/15/13	DC	01/14/13	OP7223	E3G621
OP7223-MSD	3G12985.D	1	01/15/13	DC	01/14/13	OP7223	E3G621
D42510-1	3G12983.D	1	01/15/13	DC	01/14/13	OP7223	E3G621

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D42556-1, D42556-2

CAS No.	Compound	D42510-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		98.3	76.7	78	76.8	78	0	25-151/30
120-12-7	Anthracene	ND		98.3	93.2	95	95.1	97	2	39-159/30
56-55-3	Benzo(a)anthracene	ND		98.3	107	109	109	111	2	39-168/30
205-99-2	Benzo(b)fluoranthene	ND		98.3	109	111	110	112	1	24-163/30
207-08-9	Benzo(k)fluoranthene	ND		98.3	70.7	72	74.9	76	6	10-188/30
50-32-8	Benzo(a)pyrene	ND		98.3	77.1	78	79.0	80	2	32-144/30
218-01-9	Chrysene	25.4		98.3	97.1	73	101	77	4	43-150/30
53-70-3	Dibenzo(a,h)anthracene	ND		98.3	76.5	78	79.8	81	4	21-152/30
206-44-0	Fluoranthene	ND		98.3	101	103	102	104	1	36-157/30
86-73-7	Fluorene	198		98.3	260	63	249	52	4	10-182/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		98.3	73.2	74	76.2	77	4	20-154/30
91-20-3	Naphthalene	1070		98.3	1400	336* a	909	-164* a	43* b	10-163/30
129-00-0	Pyrene	31.3		98.3	126	96	127	97	1	25-180/30

CAS No.	Surrogate Recoveries	MS	MSD	D42510-1	Limits
4165-60-0	Nitrobenzene-d5	141%	110%	141%	10-159%
321-60-8	2-Fluorobiphenyl	63%	56%	61%	19-131%
1718-51-0	Terphenyl-d14	98%	96%	91%	18-150%

(a) Outside control limits due to high level in sample relative to spike amount.

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

* = Outside of Control Limits.

GC/MS Semi-volatiles

Raw Data

6

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\011513\
 Data File : 3g12980.D
 Acq On : 15 Jan 2013 1:06 pm
 Operator : DONC
 Sample : D42556-1
 Misc : OP7223,E3G621,30.06,,,1,1
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 15 13:59:15 2013
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G611.M
 Quant Title : PAHSIM BASE
 QLast Update : Thu Jan 10 14:18:35 2013
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.620	136	132711	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.337	164	78214	4.0000	ug/mL	0.01
15) Phenanthrene-d10	8.812	188	131819	4.0000	ug/mL	0.00
19) Chrysene-d12	11.443	240	97134	4.0000	ug/mL	0.00
24) Perylene-d12	12.810	264	80773	4.0000	ug/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	4.935	82	495666	41.5235	ug/mL	-0.01
Spiked Amount 50.000	Range 25 - 135		Recovery =	83.04%		
7) 2-Fluorobiphenyl	6.664	172	1296043	43.4882	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	86.98%		
21) Terphenyl-d14	10.402	244	714045	54.0249	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	108.04%		

Target Compounds

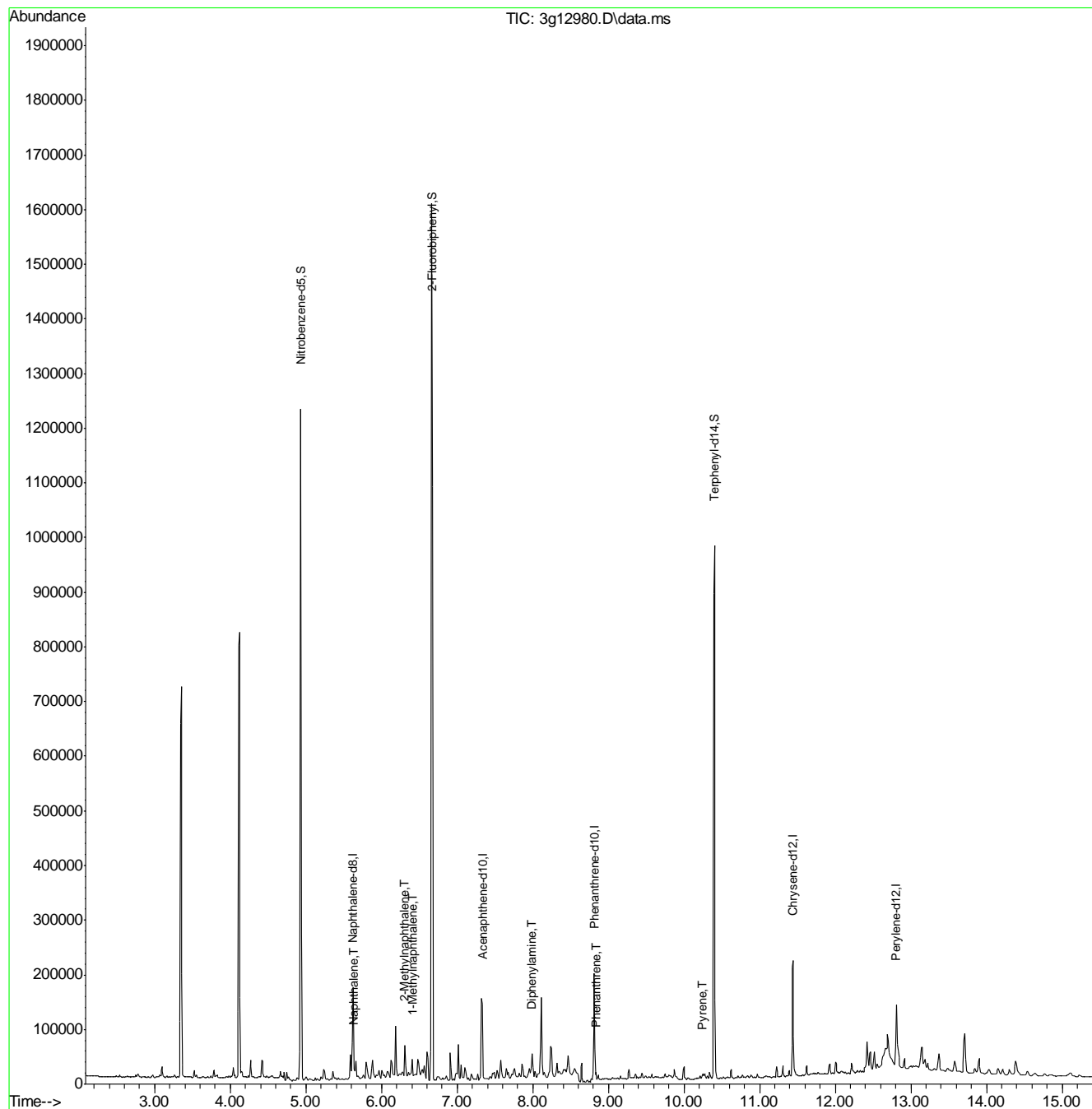
					Qvalue
3) N-Nitrosodimethylamine	2.312	74	50	N.D.	
4) N-Nitrosodi-propylamine	0.000	70	0	N.D. d	
5) Naphthalene	5.633	128	10781	0.2694 ug/mL#	50
8) 2-Methylnaphthalene	6.306	142	23572	0.9379 ug/mL	90
9) 1-Methylnaphthalene	6.406	142	11401	0.5186 ug/mL	88
10) Acenaphthylene	7.184	152	825	N.D.	
11) Acenaphthene	7.361	154	327	N.D.	
12) Dibenzofuran	0.000	168	0	N.D. d	
13) Fluorene	7.869	166	1274	N.D.	
14) Diphenylamine	7.987	169	24537m	0.9998 ug/mL	
16) Phenanthrene	8.835	178	12035	0.2363 ug/mL#	60
17) Anthracene	8.922	178	452	N.D.	
18) Fluoranthene	10.015	202	986	N.D.	
20) Pyrene	10.244	202	5583	0.1076 ug/mL#	61
22) Benzo(a)anthracene	11.437	228	1261	N.D.	
23) Chrysene	11.463	228	1173	N.D.	
25) Benzo(b)fluoranthene	0.000	252	0	N.D. d	
26) Benzo(k)fluoranthene	0.000	252	0	N.D. d	
27) Benzo(a)pyrene	0.000	252	0	N.D. d	
28) Indeno(1,2,3-cd)pyrene	0.000	276	0	N.D. d	
29) Dibenz(a,h)anthracene	0.000	278	0	N.D. d	
30) Benzo(g,h,i)perylene	14.408	276	469	N.D.	

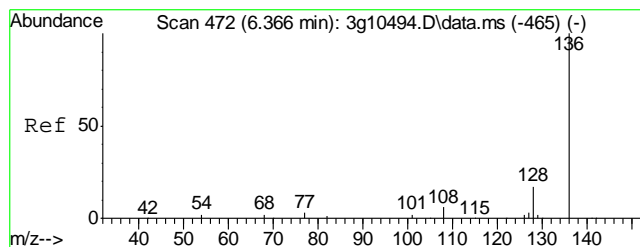
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\011513\
Data File : 3g12980.D
Acq On : 15 Jan 2013 1:06 pm
Operator : DONC
Sample : D42556-1
Misc : OP7223,E3G621,30.06,,,1,1
ALS Vial : 11 Sample Multiplier: 1

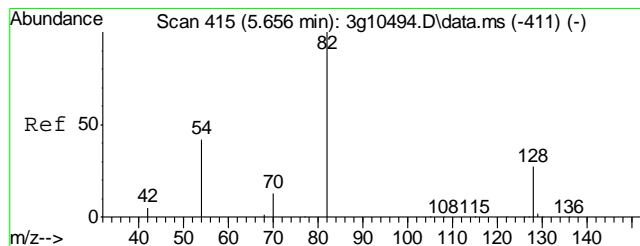
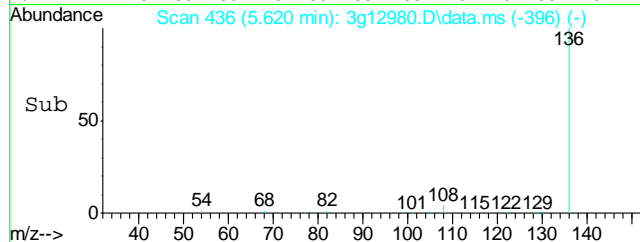
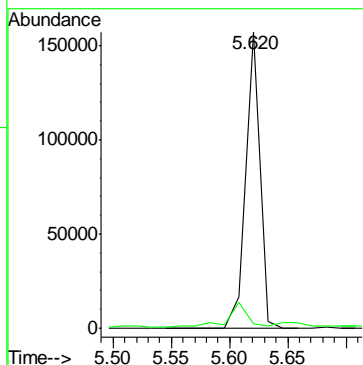
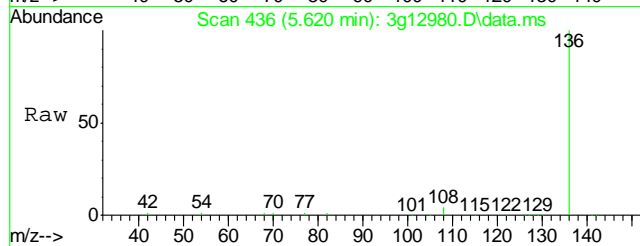
Quant Time: Jan 15 13:59:15 2013
Quant Method : C:\msdchem\1\METHODS\SIMPE3G611.M
Quant Title : PAHSIM BASE
QLast Update : Thu Jan 10 14:18:35 2013
Response via : Initial Calibration





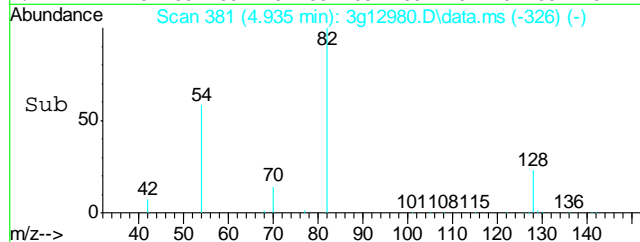
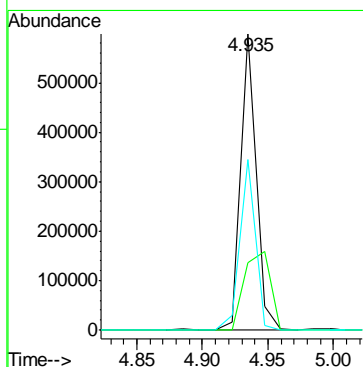
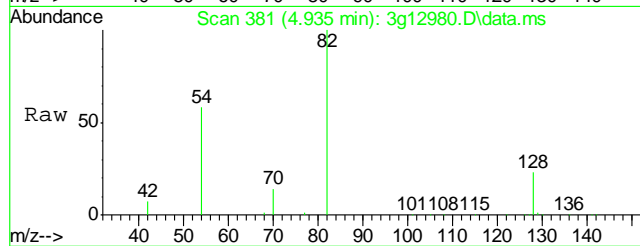
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.620 min Scan# 436
Delta R.T. -0.000 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

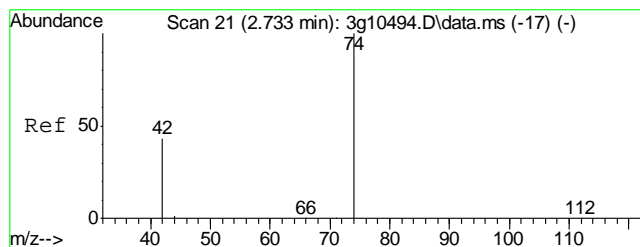
Tgt Ion	Ratio	Lower	Upper
136	100		
68	10.3	0.0	20.8



#2
Nitrobenzene-d5
Concen: 41.5235 ug/mL
RT: 4.935 min Scan# 381
Delta R.T. -0.014 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

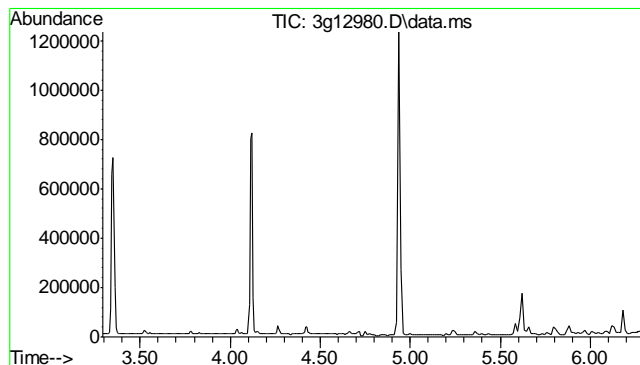
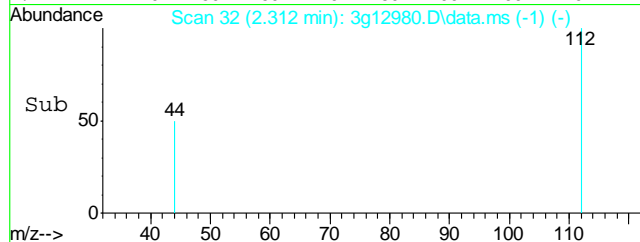
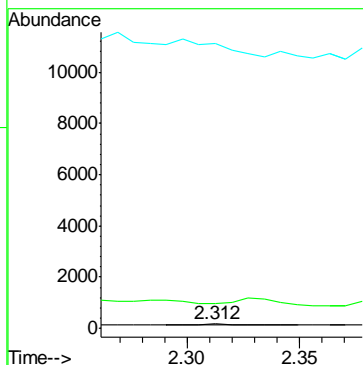
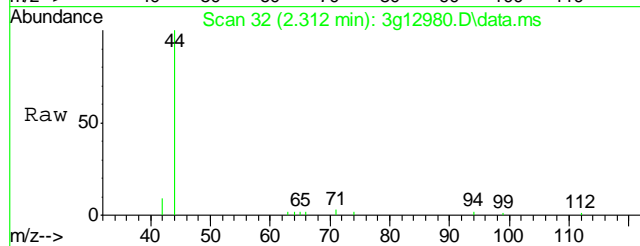
Tgt Ion	Ratio	Lower	Upper
82	100		
128	44.8	36.8	76.8
54	57.9	40.5	80.5





#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.312 min Scan# 32
Delta R.T. -0.024 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

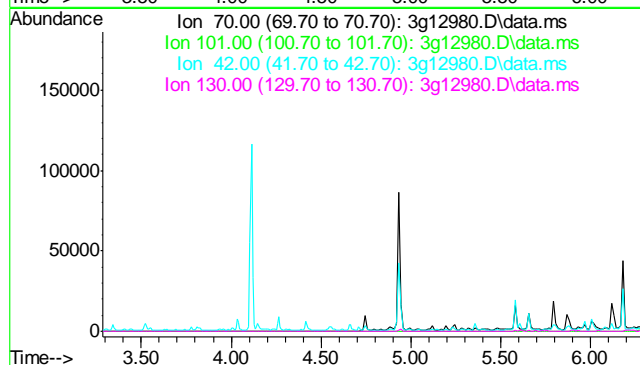
Tgt Ion	Ratio	Lower	Upper
74	100		
42	742.0	58.5	98.5#
44	0.0	0.0	24.0

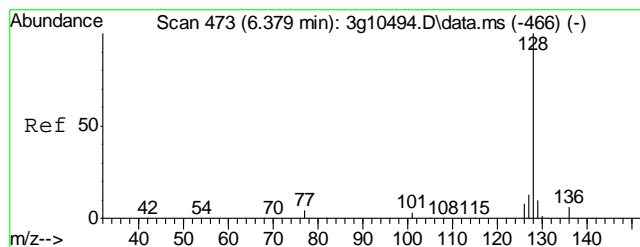


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 4.79 min

Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

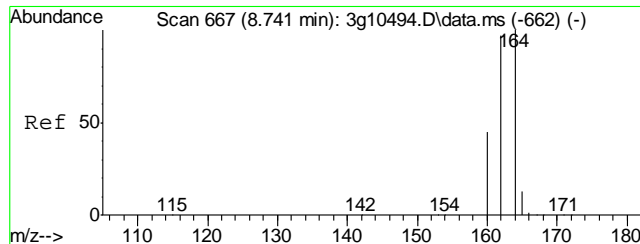
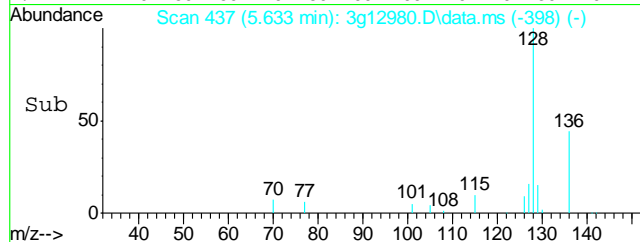
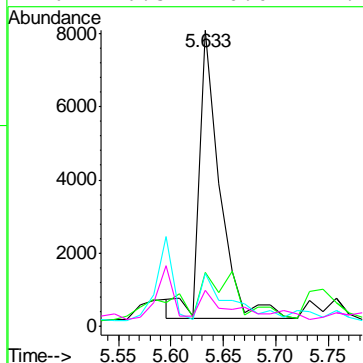
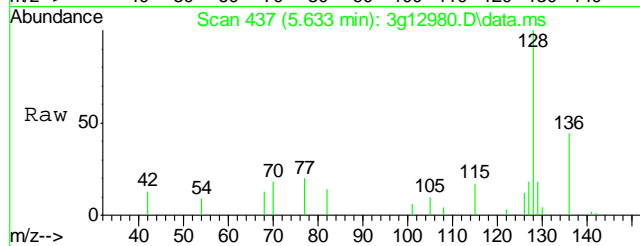
Tgt Ion	Sig	Exp Ratio
70	100	
101	11.9	
42	57.4	
130	21.7	





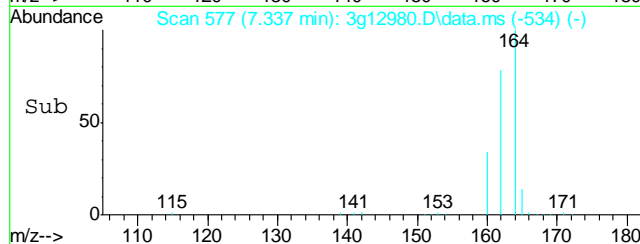
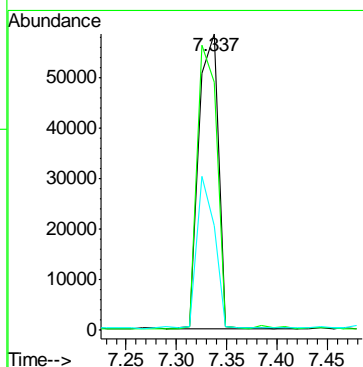
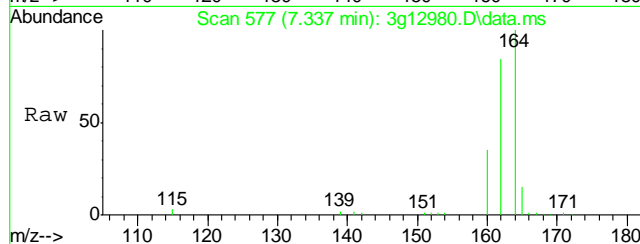
#5
Naphthalene
Concen: 0.2694 ug/mL
RT: 5.633 min Scan# 437
Delta R.T. -0.012 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

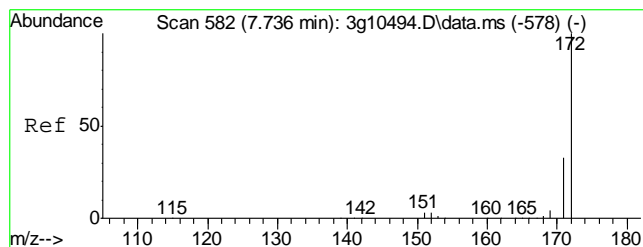
Tgt Ion:	128	Resp:	10781
Ion Ratio	Lower	Upper	
128	100		
129	46.9	0.0	31.2#
127	22.3	0.0	32.4
126	16.5	0.0	27.2



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.337 min Scan# 577
Delta R.T. 0.012 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

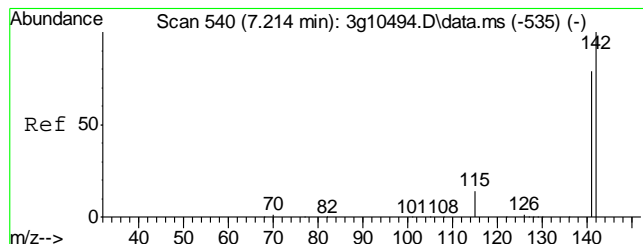
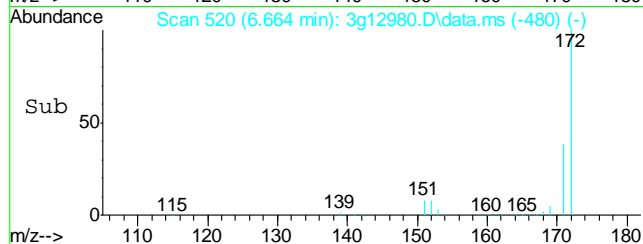
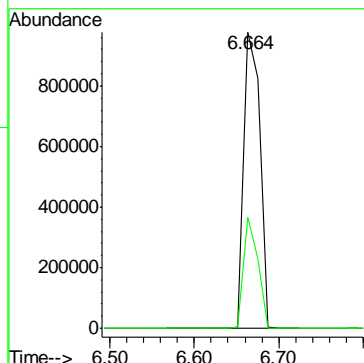
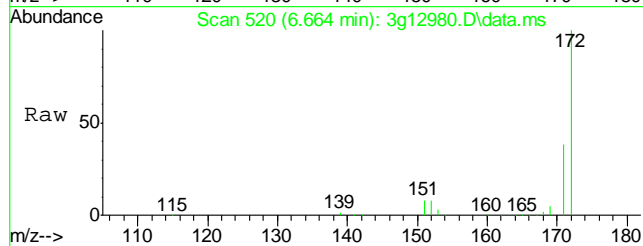
Tgt Ion:	164	Resp:	78214
Ion Ratio	Lower	Upper	
164	100		
162	96.6	88.1	128.1
160	47.0	38.8	78.8





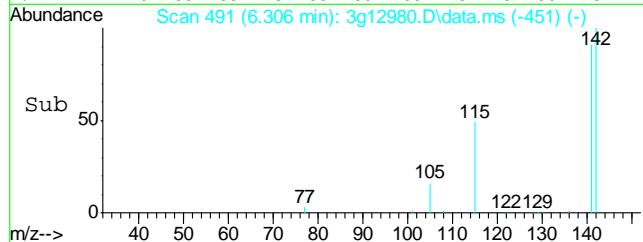
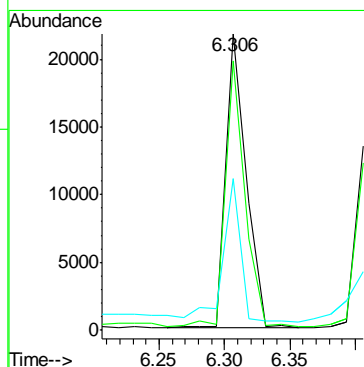
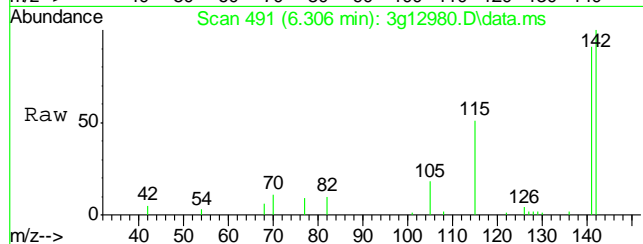
#7
2-Fluorobiphenyl
Concen: 43.4882 ug/mL
RT: 6.664 min Scan# 520
Delta R.T. -0.002 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

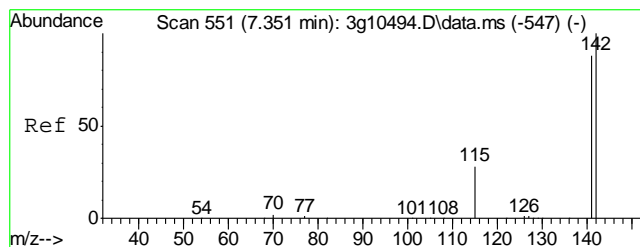
Tgt Ion	Ratio	Lower	Upper
172	100		
171	33.1	12.2	52.2



#8
2-Methylnaphthalene
Concen: 0.9379 ug/mL
RT: 6.306 min Scan# 491
Delta R.T. -0.005 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

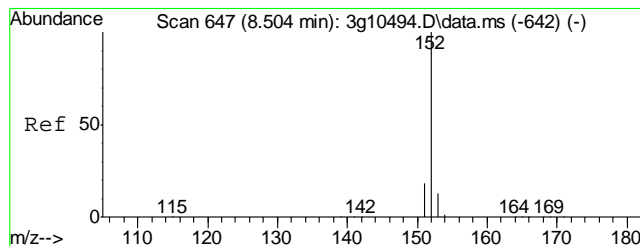
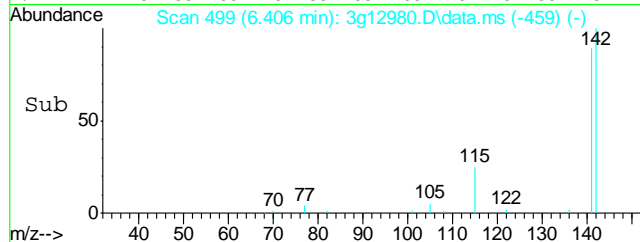
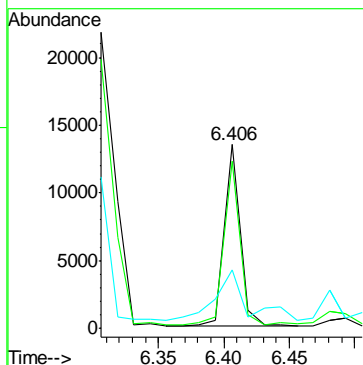
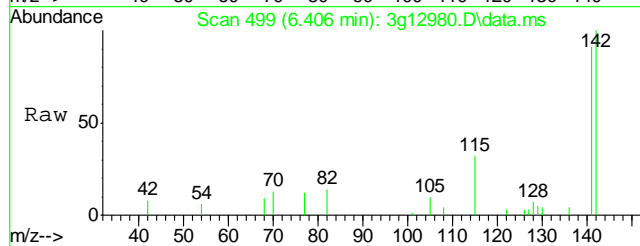
Tgt Ion	Ratio	Lower	Upper
142	100		
141	86.9	62.0	102.0
115	42.8	11.3	51.3





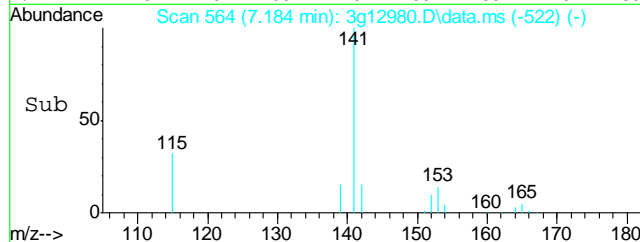
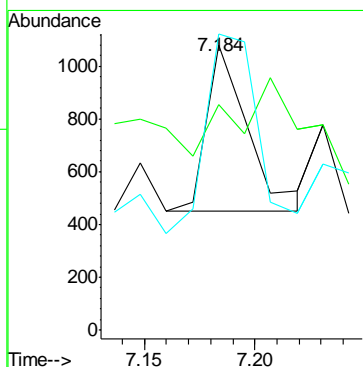
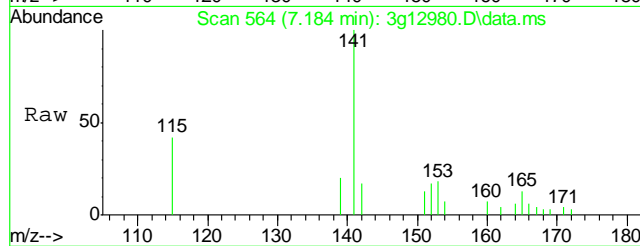
#9
1-Methylnaphthalene
Concen: 0.5186 ug/mL
RT: 6.406 min Scan# 499
Delta R.T. -0.004 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

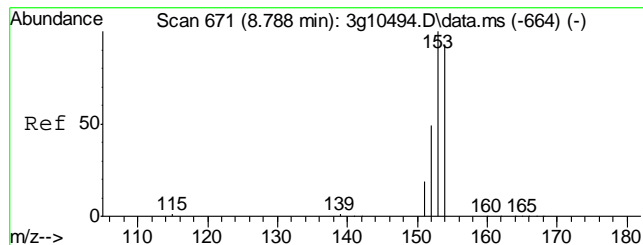
Tgt Ion:	142	Resp:	11401
Ion Ratio	100	Lower	Upper
142	100		
141	92.4	67.5	107.5
115	56.8	19.4	59.4



#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.184 min Scan# 564
Delta R.T. -0.001 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

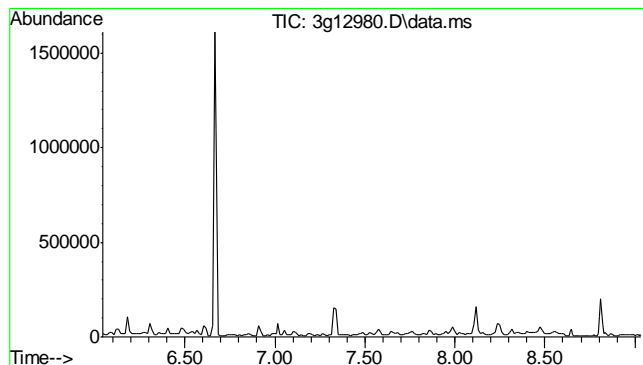
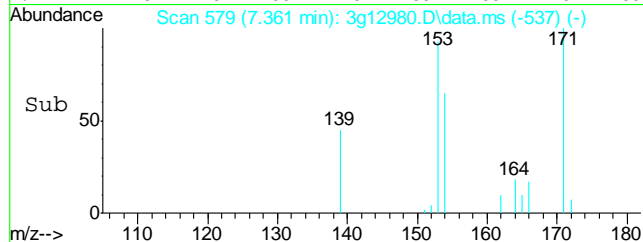
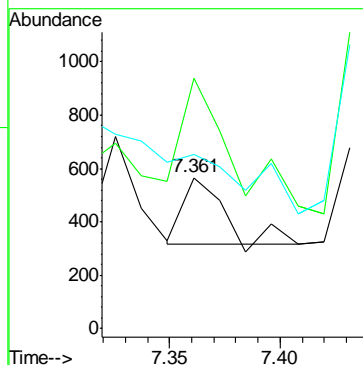
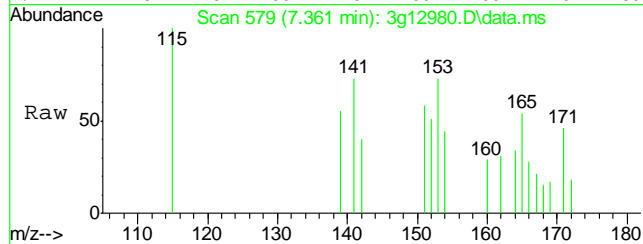
Tgt Ion:	152	Resp:	825
Ion Ratio	100	Lower	Upper
152	100		
151	0.0	0.0	39.2
153	151.8	0.0	32.9#





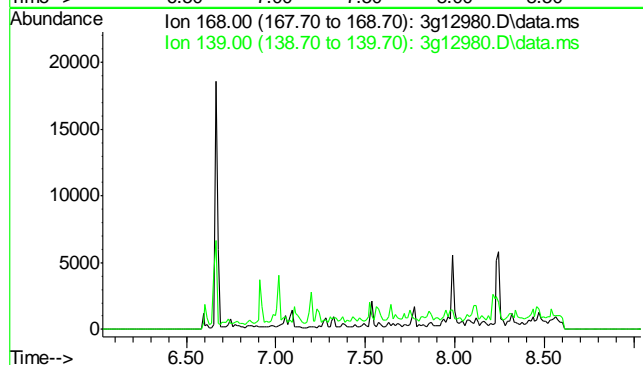
#11
Acenaphthene
Concen: Below ug/mL
RT: 7.361 min Scan# 579
Delta R.T. 0.001 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

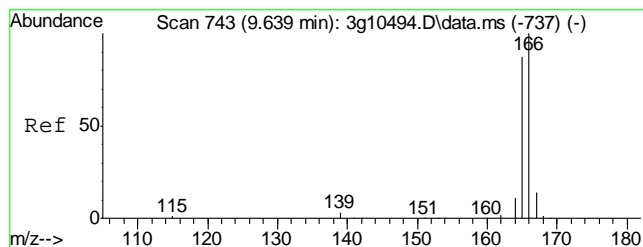
Tgt Ion	Ratio	Lower	Upper
154	100		
153	211.3	82.4	122.4#
152	0.0	30.0	70.0#



#12
Dibenzofuran
Concen: N.D. ug/mL
Expected RT: 7.54 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

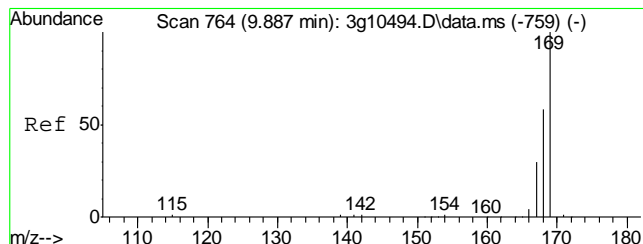
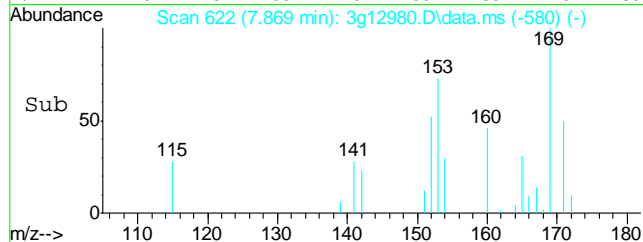
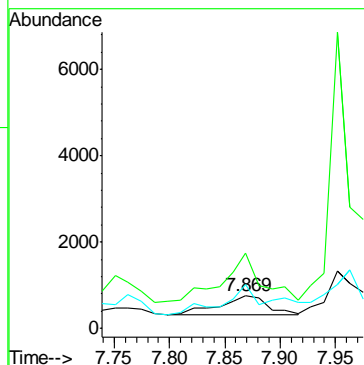
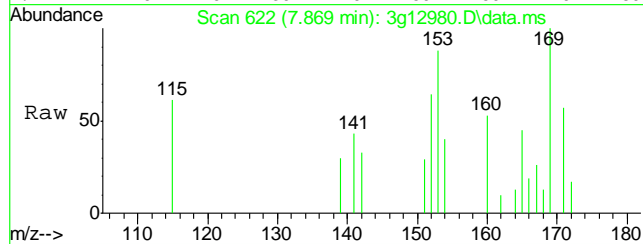
Tgt Ion	Sig	Exp Ratio
168	100	
139	33.4	





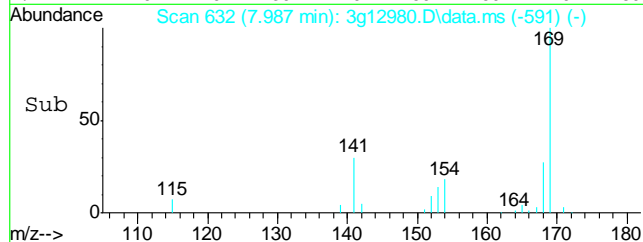
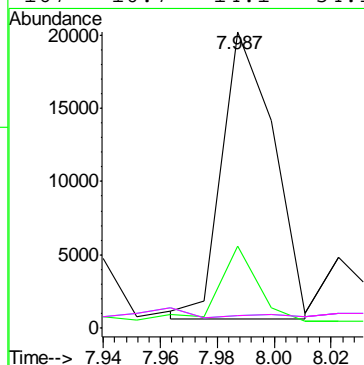
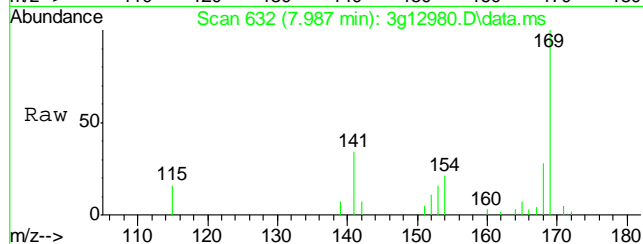
#13
Fluorene
Concen: Below ug/mL
RT: 7.869 min Scan# 622
Delta R.T. 0.002 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

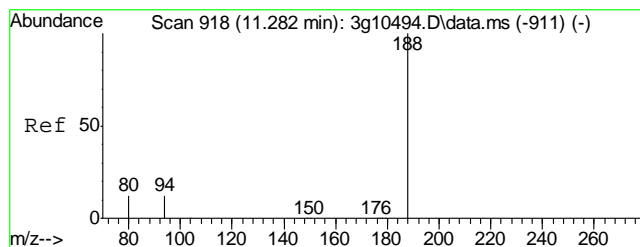
Tgt Ion:166 Resp: 1274
Ion Ratio Lower Upper
166 100
165 211.2 72.0 112.0#
167 130.6 0.0 33.1#



#14
Diphenylamine
Concen: 0.9998 ug/mL m
RT: 7.987 min Scan# 632
Delta R.T. -0.010 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

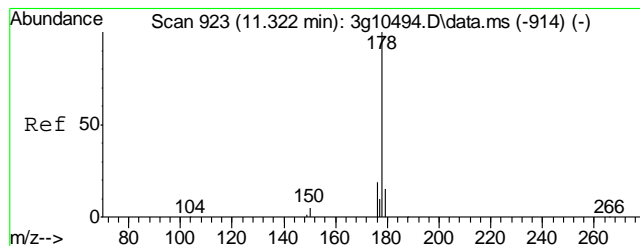
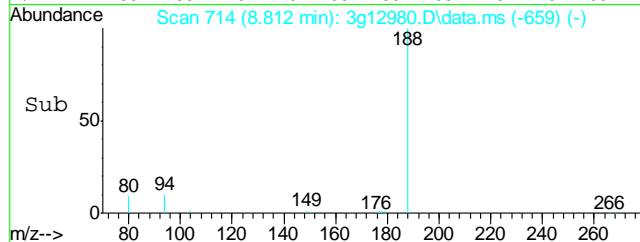
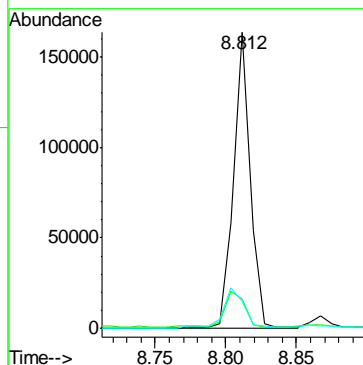
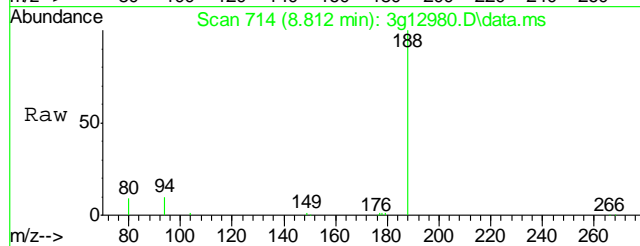
Tgt Ion:169 Resp: 24537
Ion Ratio Lower Upper
169 100
168 33.4 41.7 81.7#
167 10.7 14.1 54.1#
167 10.7 14.1 54.1#





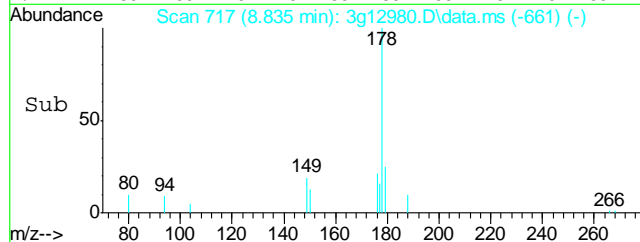
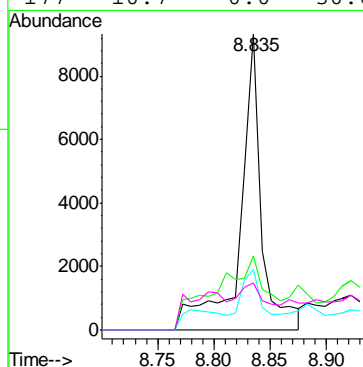
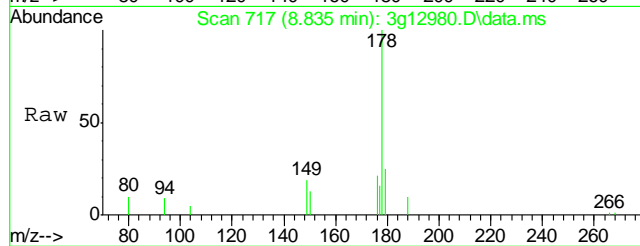
#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.812 min Scan# 714
Delta R.T. -0.000 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

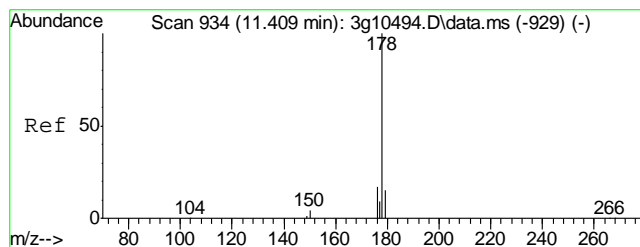
Tgt Ion:188	Resp:	131819
Ion Ratio	Lower	Upper
188 100		
94 14.4	0.0	26.9
80 17.5	0.0	26.3



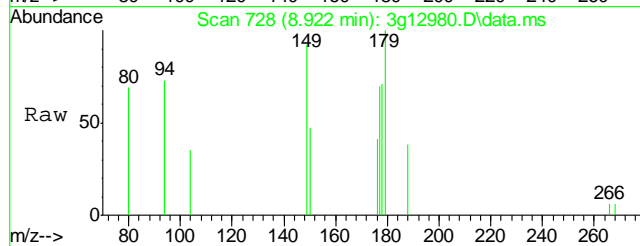
#16
Phenanthrene
Concen: 0.2363 ug/mL
RT: 8.835 min Scan# 717
Delta R.T. -0.000 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

Tgt Ion:178	Resp:	12035
Ion Ratio	Lower	Upper
178 100		
179 61.4	0.0	35.2#
176 17.5	0.0	38.6
177 10.7	0.0	30.0

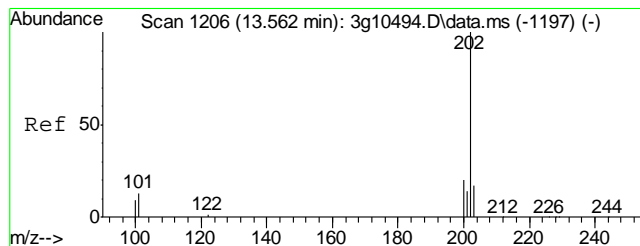
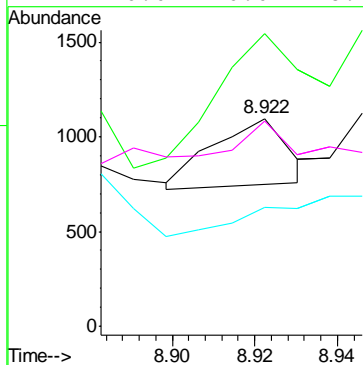
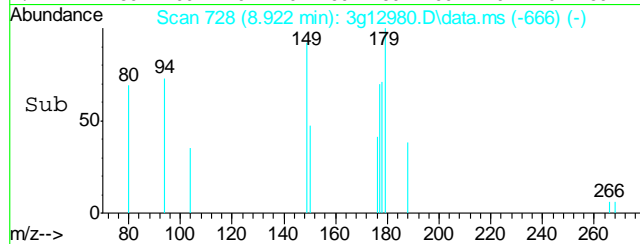




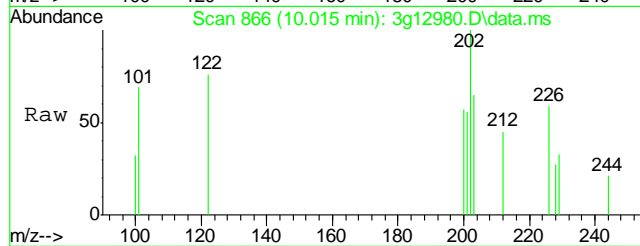
#17
 Anthracene
 Concen: Below ug/mL
 RT: 8.922 min Scan# 728
 Delta R.T. 0.032 min
 Lab File: 3g12980.D
 Acq: 15 Jan 13 1:06 pm



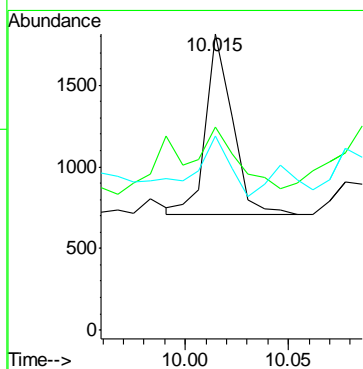
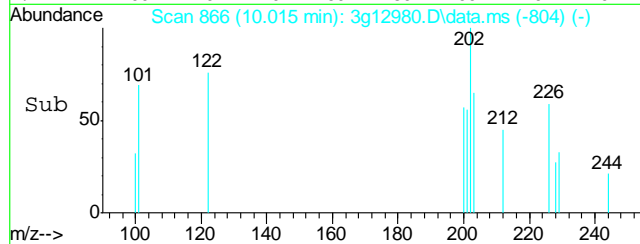
Tgt Ion: 178 Resp: 452
 Ion Ratio Lower Upper
 178 100
 179 320.6 0.0 35.1#
 176 116.2 0.0 38.2#
 177 0.0 0.0 28.7

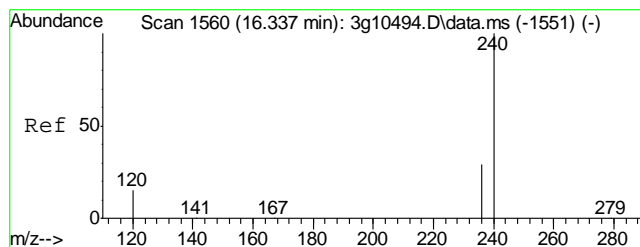


#18
 Fluoranthene
 Concen: Below ug/mL
 RT: 10.015 min Scan# 866
 Delta R.T. -0.006 min
 Lab File: 3g12980.D
 Acq: 15 Jan 13 1:06 pm



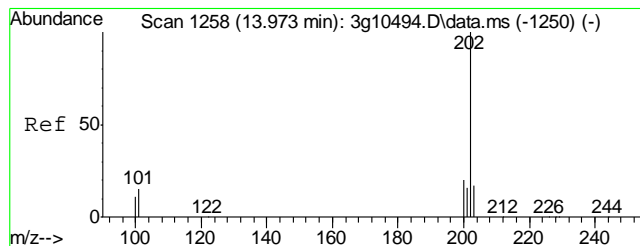
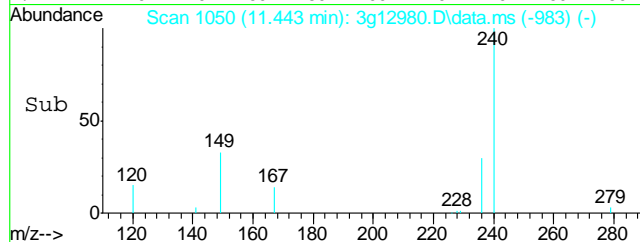
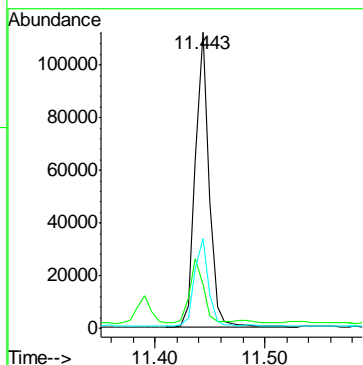
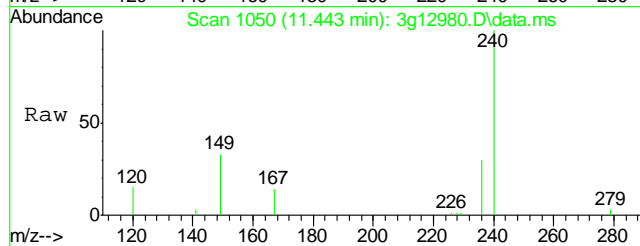
Tgt Ion: 202 Resp: 986
 Ion Ratio Lower Upper
 202 100
 101 29.3 0.0 32.6
 203 85.5 0.0 37.4#





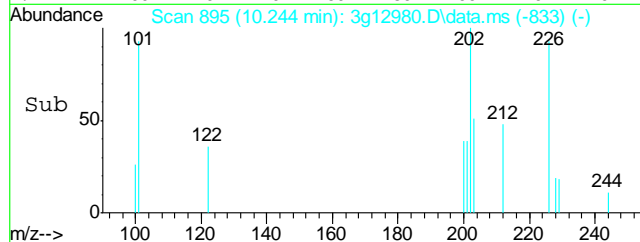
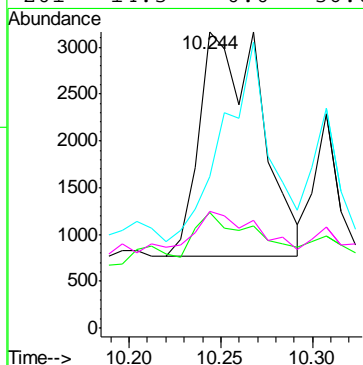
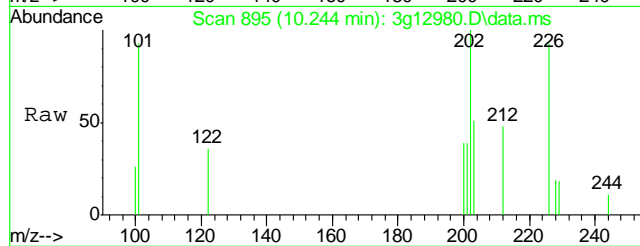
#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.443 min Scan# 1050
Delta R.T. -0.000 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

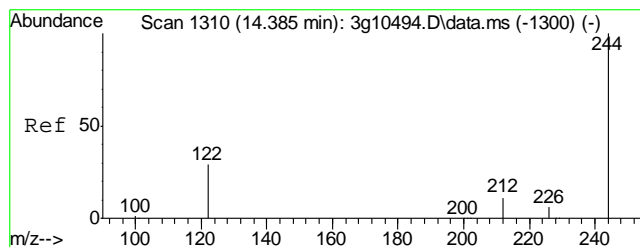
Tgt Ion:	240	Resp:	97134
Ion Ratio	Lower	Upper	
240	100		
120	22.0	0.0	37.3
236	29.9	11.2	51.2



#20
Pyrene
Concen: 0.1076 ug/mL
RT: 10.244 min Scan# 895
Delta R.T. -0.006 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

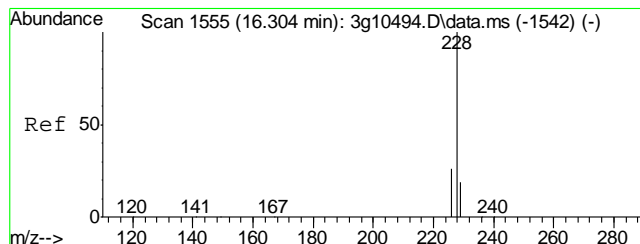
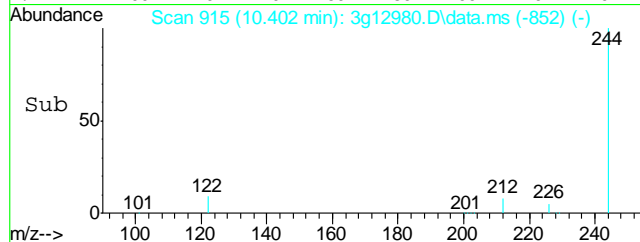
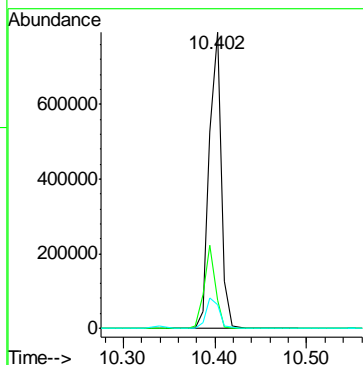
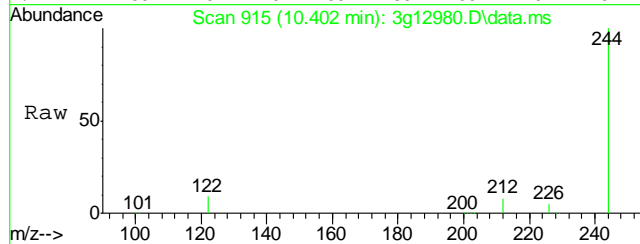
Tgt Ion:	202	Resp:	5583
Ion Ratio	Lower	Upper	
202	100		
200	18.8	0.2	40.2
203	67.0	0.0	37.8#
201	14.3	0.0	36.6





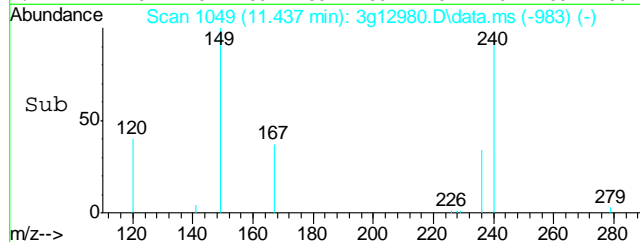
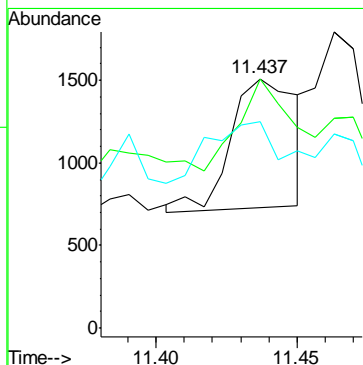
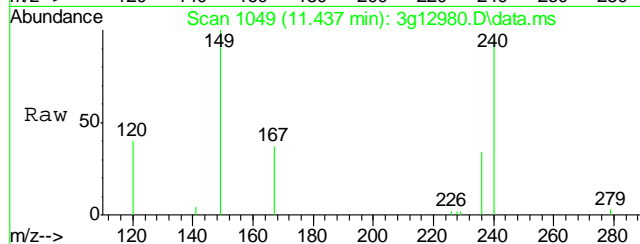
#21
Terphenyl-d14
Concen: 54.0249 ug/mL
RT: 10.402 min Scan# 915
Delta R.T. 0.002 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

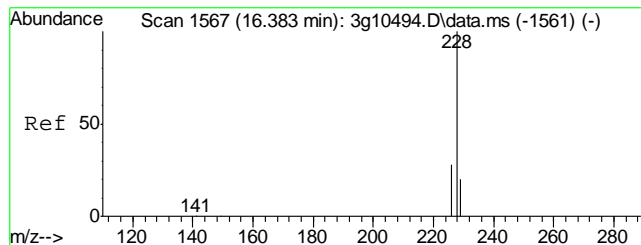
Tgt Ion:	244	Resp:	714045
Ion Ratio	Lower	Upper	
244	100		
122	26.4	7.8	47.8
212	11.1	0.0	32.8



#22
Benzo(a)anthracene
Concen: Below ug/mL
RT: 11.437 min Scan# 1049
Delta R.T. -0.000 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

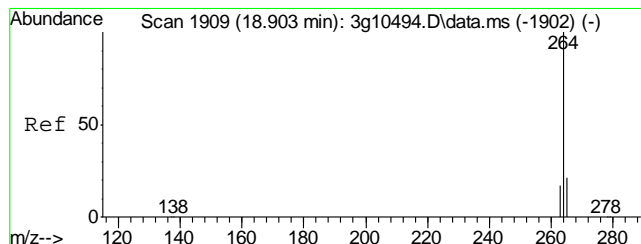
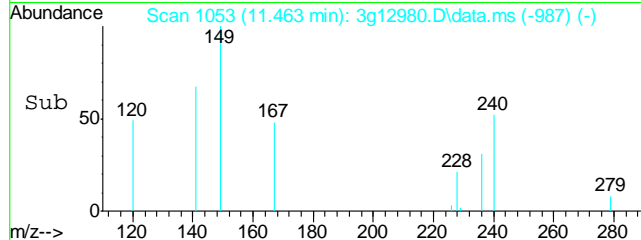
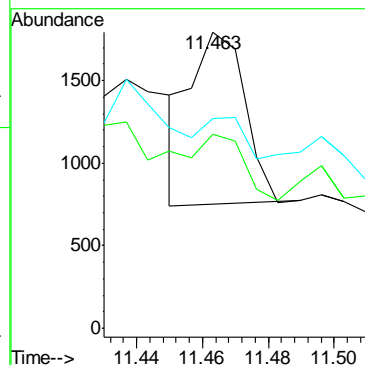
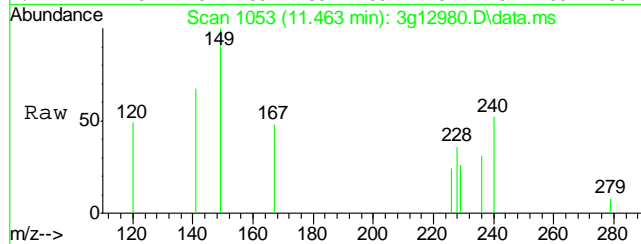
Tgt Ion:	228	Resp:	1261
Ion Ratio	Lower	Upper	
228	100		
229	60.0	0.0	39.4#
226	56.3	6.6	46.6#





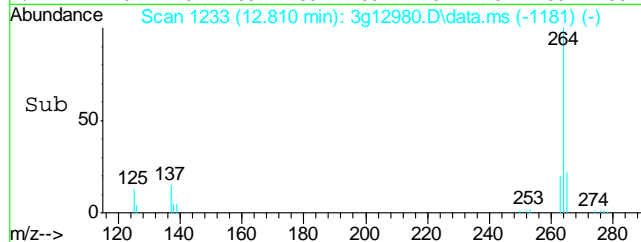
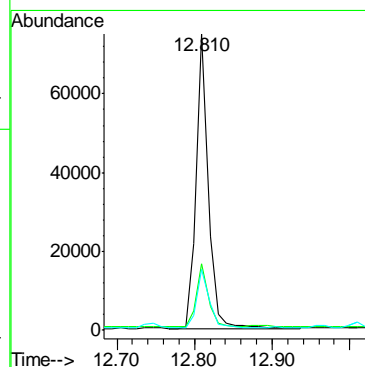
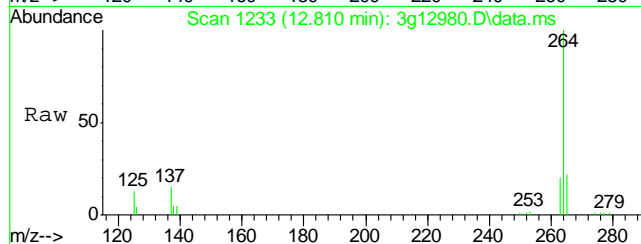
#23
Chrysene
Concen: Below ug/mL
RT: 11.463 min Scan# 1053
Delta R.T. -0.007 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

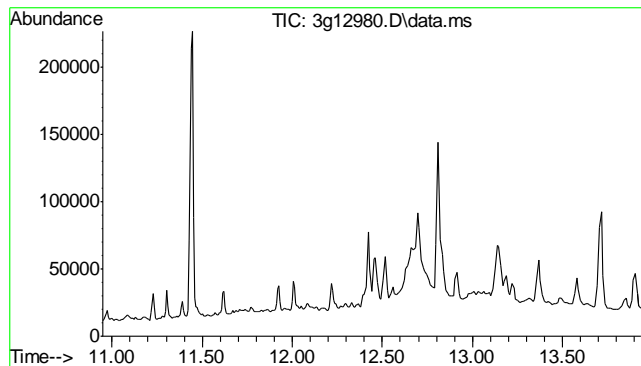
Tgt Ion: 228 Resp: 1173
Ion Ratio Lower Upper
228 100
226 28.0 8.6 48.6
229 0.0 0.0 39.4



#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 12.810 min Scan# 1233
Delta R.T. -0.000 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

Tgt Ion: 264 Resp: 80773
Ion Ratio Lower Upper
264 100
265 21.1 0.6 40.6
263 20.4 0.0 38.8

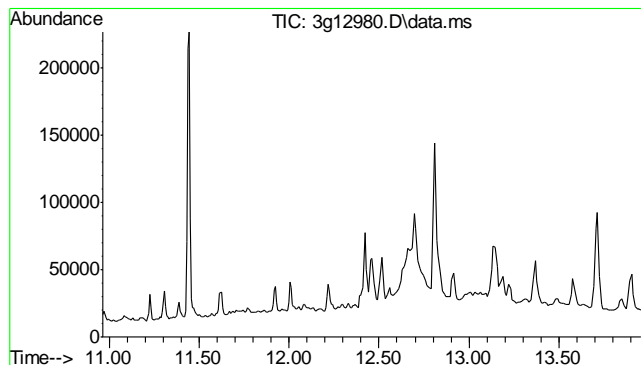
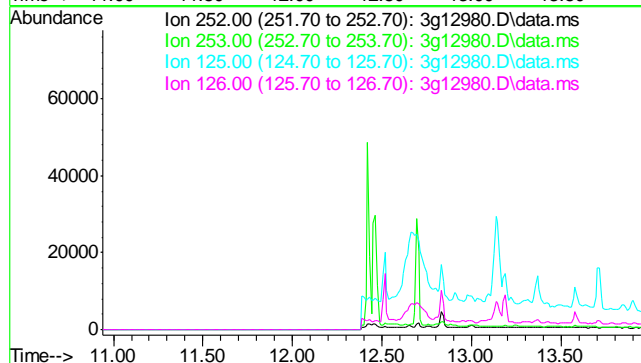




#25
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.44 min

Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

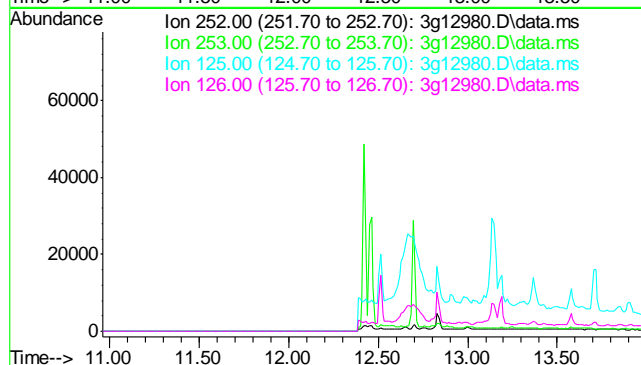
Tgt Ion: 252	
Sig	Exp Ratio
252	100
253	51.5
125	13.2
126	46.9

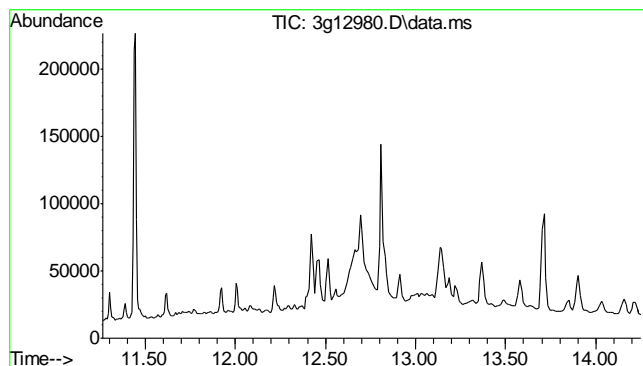


#26
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.46 min

Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

Tgt Ion: 252	
Sig	Exp Ratio
252	100
253	37.3
125	9.6
126	34.1

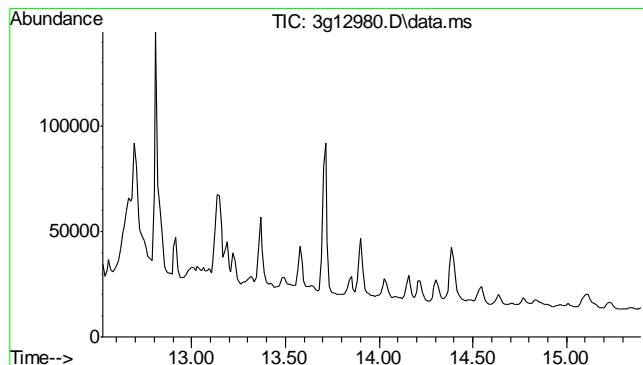
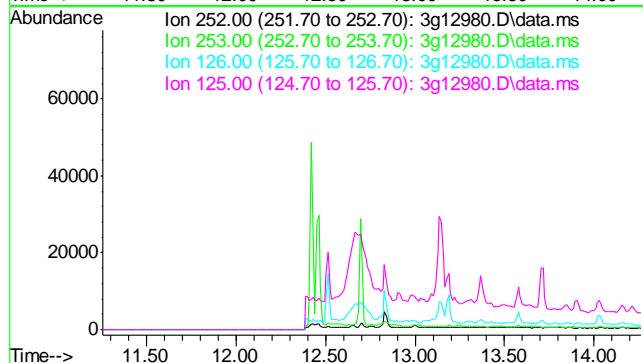




#27
 Benzo(a)pyrene
 Concen: N.D. ug/mL
 Expected RT: 12.76 min

 Lab File: 3g12980.D
 Acq: 15 Jan 13 1:06 pm

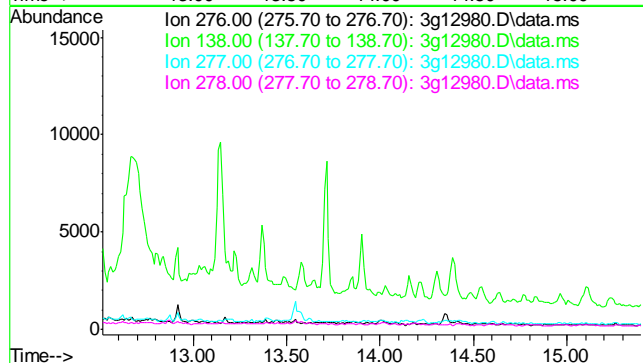
Tgt Ion	Sig	Exp Ratio
252	100	
253	21.5	
126	20.4	
125	14.5	

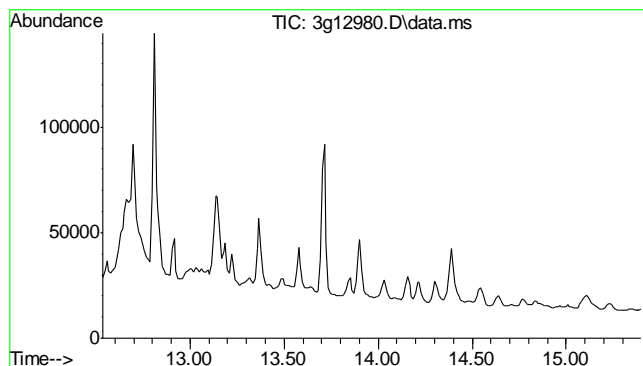


#28
 Indeno(1,2,3-cd)pyrene
 Concen: N.D. ug/mL
 Expected RT: 14.02 min

 Lab File: 3g12980.D
 Acq: 15 Jan 13 1:06 pm

Tgt Ion	Sig	Exp Ratio
276	100	
138	40.0	
277	24.8	
278	76.2	

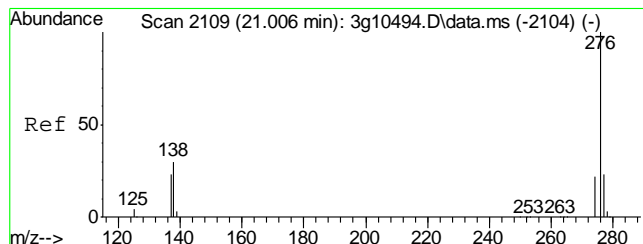
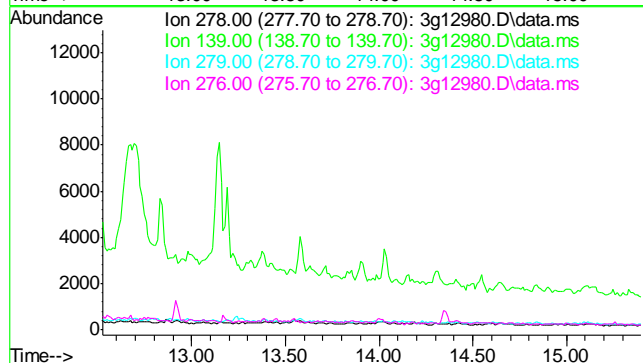




#29
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 14.03 min

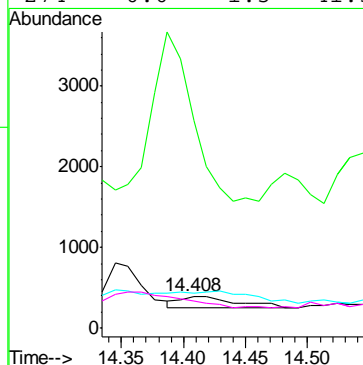
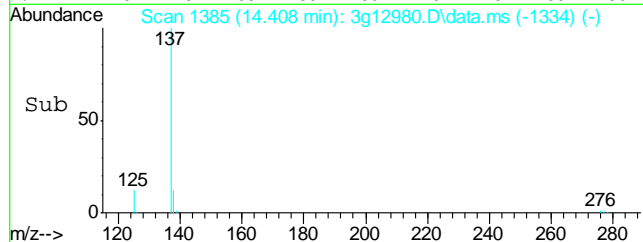
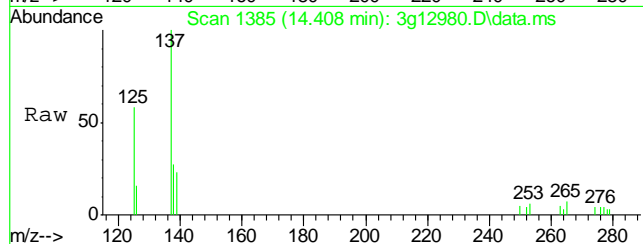
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

Tgt Ion: 278
Sig Exp Ratio
278 100
139 30.8
279 22.9
276 131.2



#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.408 min Scan# 1385
Delta R.T. 0.034 min
Lab File: 3g12980.D
Acq: 15 Jan 13 1:06 pm

Tgt Ion: 276 Resp: 469
Ion Ratio Lower Upper
276 100
138 1032.0 15.1 55.1#
277 0.0 3.3 43.3#
274 0.0 1.5 41.5#



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\011513\
 Data File : 3g12987.D
 Acq On : 15 Jan 2013 3:52 pm
 Operator : DONC
 Sample : D42556-2
 Misc : OP7223,E3G621,30.02,,,1,1
 ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jan 16 09:11:53 2013
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G611.M
 Quant Title : PAHSIM BASE
 QLast Update : Thu Jan 10 14:18:35 2013
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.620	136	162561	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.337	164	89868	4.0000	ug/mL	0.01
15) Phenanthrene-d10	8.819	188	154602	4.0000	ug/mL	0.00
19) Chrysene-d12	11.450	240	89179	4.0000	ug/mL	0.00
24) Perylene-d12	12.820	264	62316	4.0000	ug/mL	0.01

System Monitoring Compounds

2) Nitrobenzene-d5	4.935	82	427246	29.2195	ug/mL	-0.01
Spiked Amount 50.000	Range 25 - 135		Recovery =	58.44%		
7) 2-Fluorobiphenyl	6.676	172	1417101	41.0897	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	82.18%		
21) Terphenyl-d14	10.402	244	538734	44.3967	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	88.80%		

Target Compounds

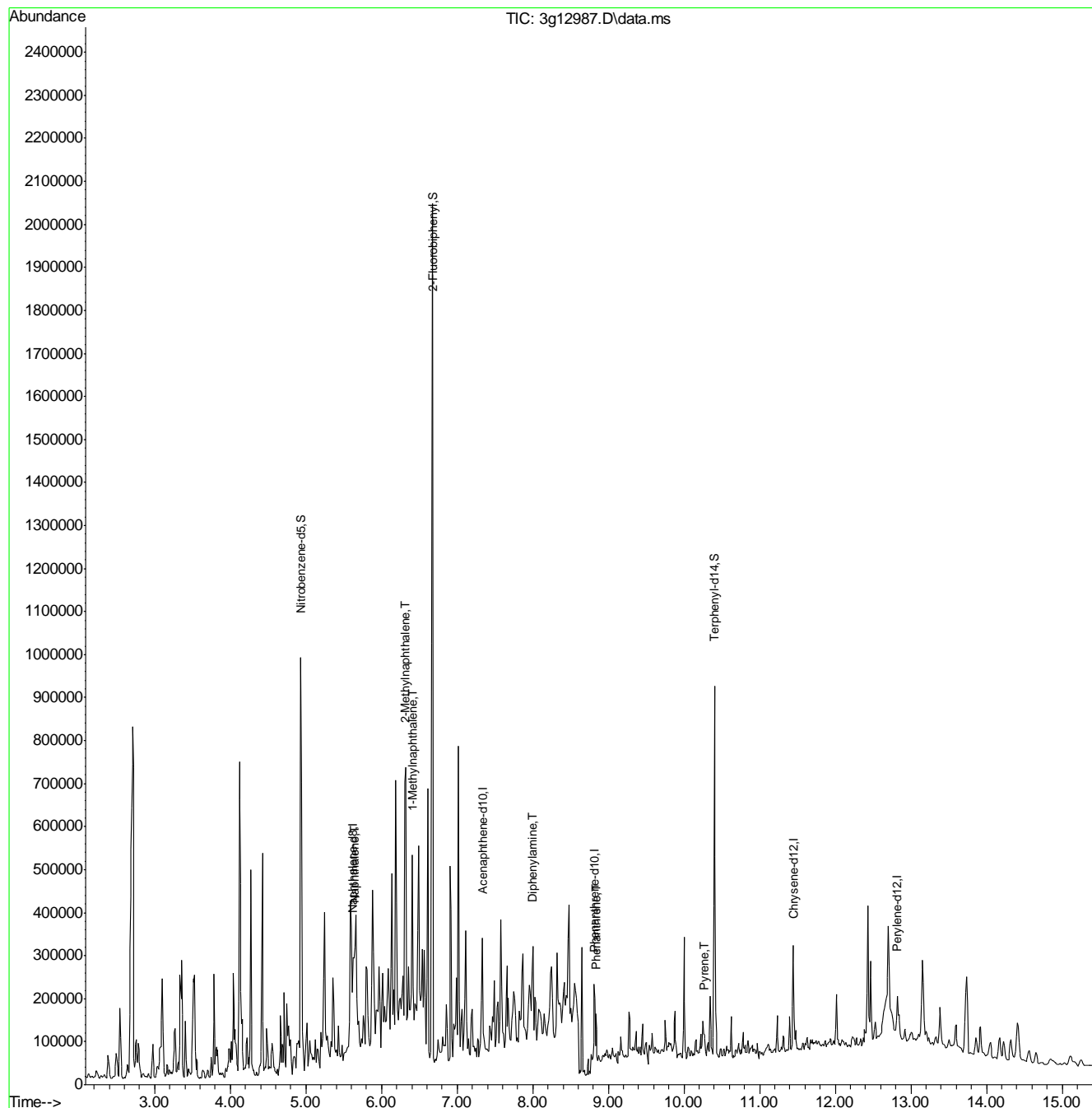
						Qvalue
3) N-Nitrosodimethylamine	0.000	74	0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d	
5) Naphthalene	5.645	128	212128	4.5354	ug/mL	72
8) 2-Methylnaphthalene	6.319	142	378787	13.1167	ug/mL	93
9) 1-Methylnaphthalene	6.406	142	155245m	6.1464	ug/mL	
10) Acenaphthylene	0.000	152	0	N.D.	d	
11) Acenaphthene	0.000	154	0	N.D.	d	
12) Dibenzofuran	0.000	168	0	N.D.	d	
13) Fluorene	0.000	166	0	N.D.	d	
14) Diphenylamine	7.999	169	142230m	5.0440	ug/mL	
16) Phenanthrene	8.835	178	75722	1.2674	ug/mL#	44
17) Anthracene	0.000	178	0	N.D.	d	
18) Fluoranthene	0.000	202	0	N.D.	d	
20) Pyrene	10.268	202	31604	0.6636	ug/mL#	58
22) Benzo(a)anthracene	0.000	228	0	N.D.	d	
23) Chrysene	0.000	228	0	N.D.	d	
25) Benzo(b)fluoranthene	0.000	252	0	N.D.	d	
26) Benzo(k)fluoranthene	0.000	252	0	N.D.	d	
27) Benzo(a)pyrene	0.000	252	0	N.D.	d	
28) Indeno(1,2,3-cd)pyrene	0.000	276	0	N.D.	d	
29) Dibenz(a,h)anthracene	0.000	278	0	N.D.	d	
30) Benzo(g,h,i)perylene	0.000	276	0	N.D.	d	

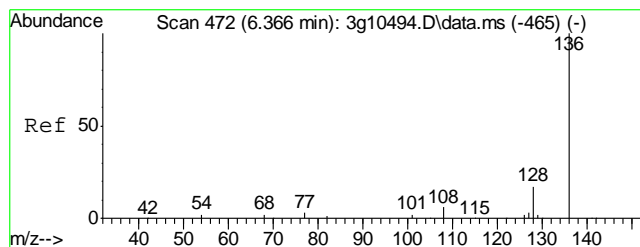
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\011513\
Data File : 3g12987.D
Acq On : 15 Jan 2013 3:52 pm
Operator : DONC
Sample : D42556-2
Misc : OP7223,E3G621,30.02,,,1,1
ALS Vial : 18 Sample Multiplier: 1

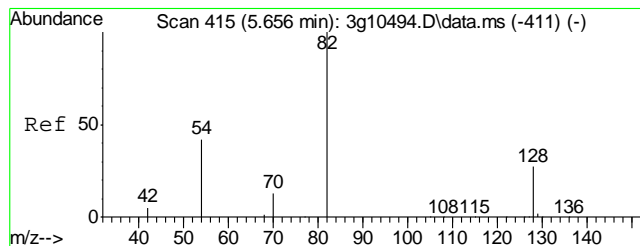
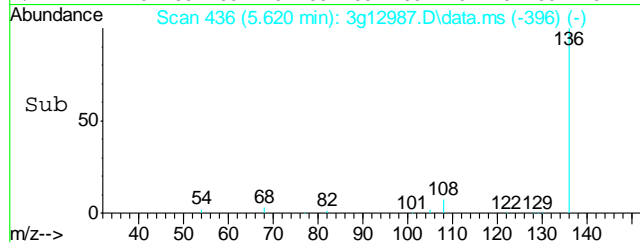
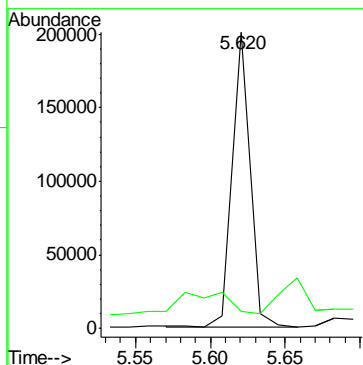
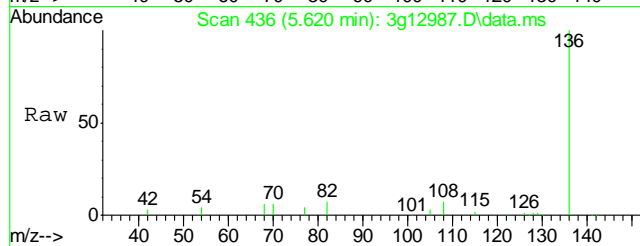
Quant Time: Jan 16 09:11:53 2013
Quant Method : C:\msdchem\1\METHODS\SIMPE3G611.M
Quant Title : PAHSIM BASE
QLast Update : Thu Jan 10 14:18:35 2013
Response via : Initial Calibration





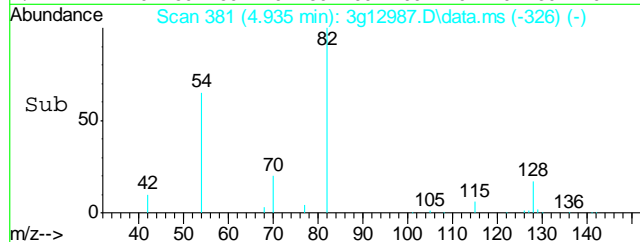
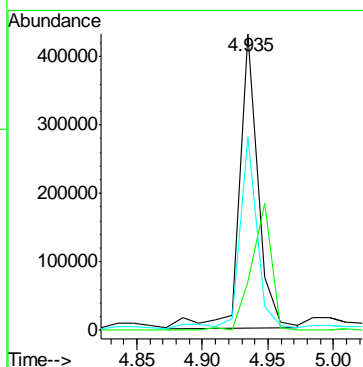
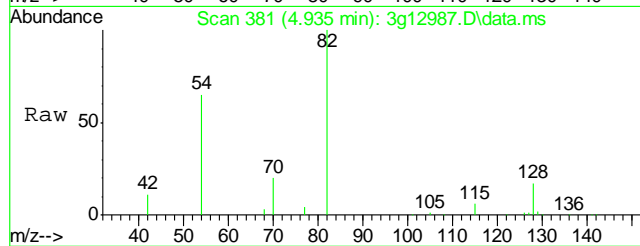
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.620 min Scan# 436
Delta R.T. -0.000 min
Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

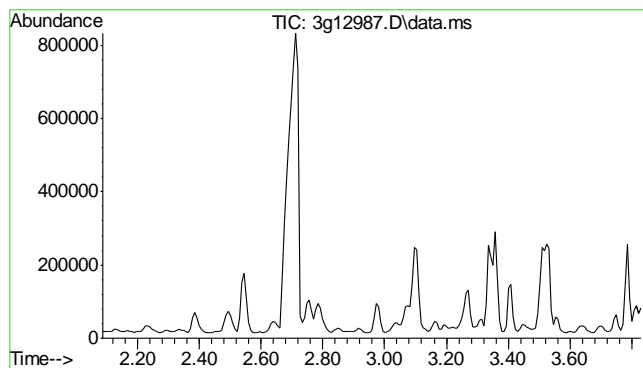
Tgt Ion	Ratio	Lower	Upper
136	100		
68	30.0	0.0	20.8#



#2
Nitrobenzene-d5
Concen: 29.2195 ug/mL
RT: 4.935 min Scan# 381
Delta R.T. -0.014 min
Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

Tgt Ion	Ratio	Lower	Upper
82	100		
128	46.0	36.8	76.8
54	60.4	40.5	80.5

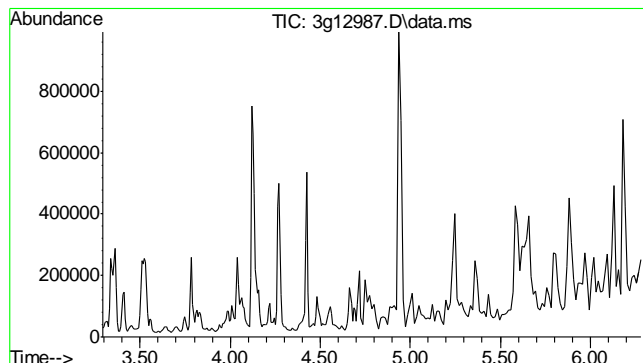
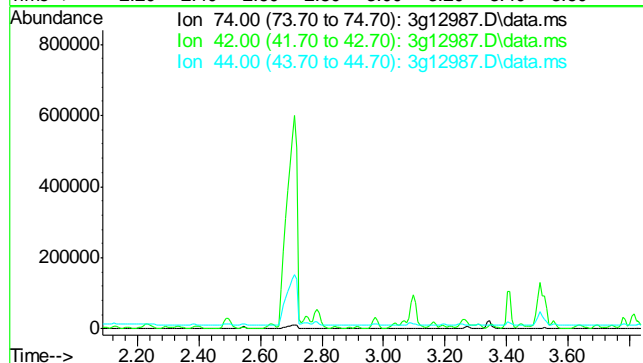




#3
 N-Nitrosodimethylamine
 Concen: N.D. ug/mL
 Expected RT: 2.34 min

Lab File: 3g12987.D
 Acq: 15 Jan 13 3:52 pm

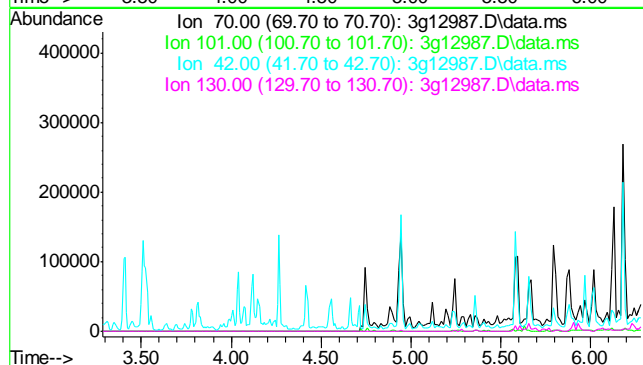
Tgt Ion	Exp Ratio
74	100
42	78.5
44	4.0

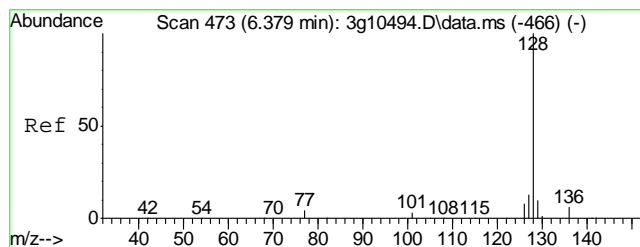


#4
 N-Nitrosodi-propylamine
 Concen: N.D. ug/mL
 Expected RT: 4.79 min

Lab File: 3g12987.D
 Acq: 15 Jan 13 3:52 pm

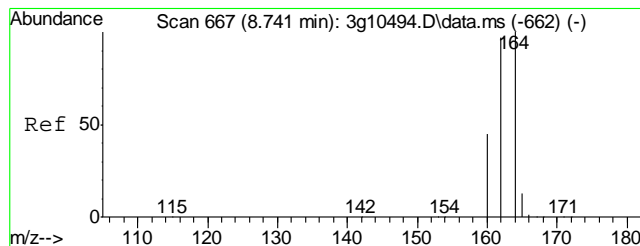
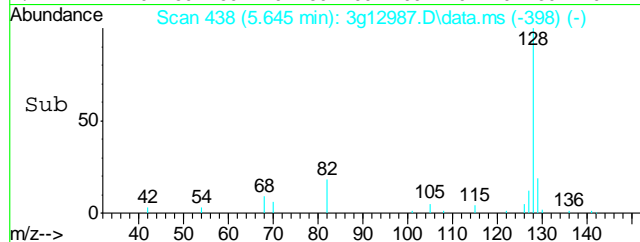
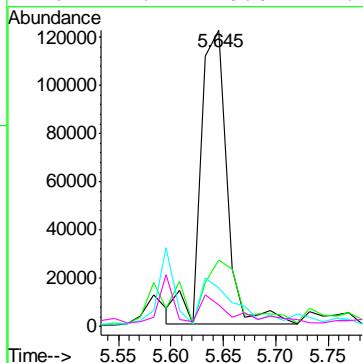
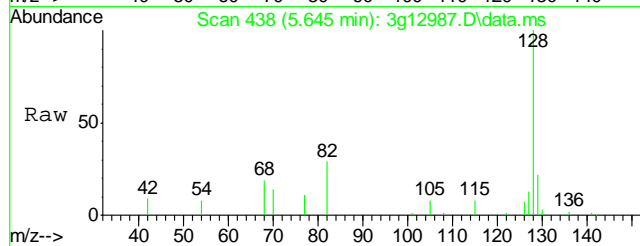
Tgt Ion	Exp Ratio
70	100
101	11.9
42	57.4
130	21.7





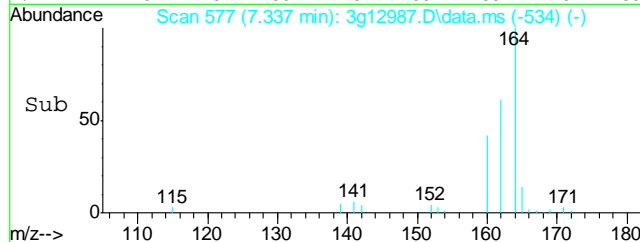
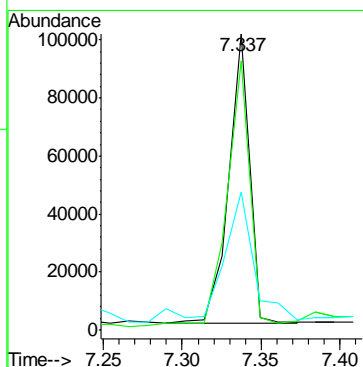
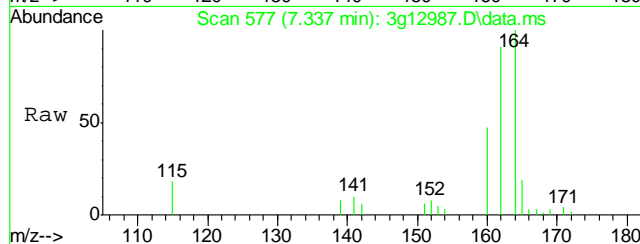
#5
Naphthalene
Concen: 4.5354 ug/mL
RT: 5.645 min Scan# 438
Delta R.T. 0.001 min
Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

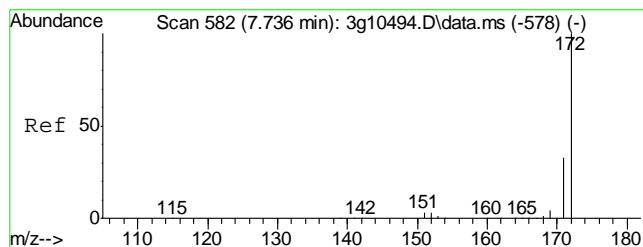
Tgt Ion:128	Resp:	212128
Ion Ratio	Lower	Upper
128	100	
129	28.5	0.0 31.2
127	20.2	0.0 32.4
126	12.1	0.0 27.2



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.337 min Scan# 577
Delta R.T. 0.012 min
Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

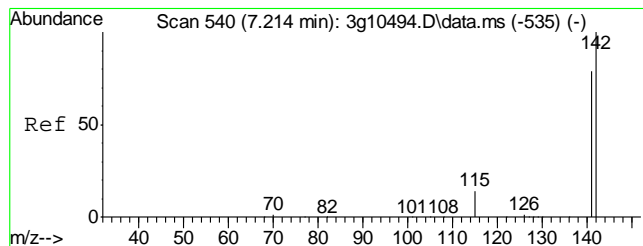
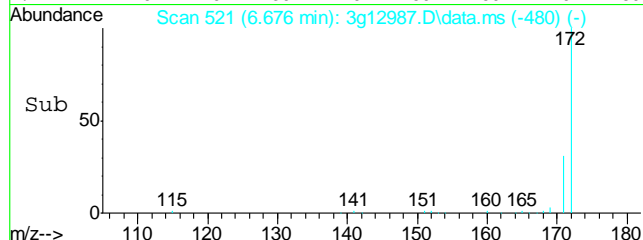
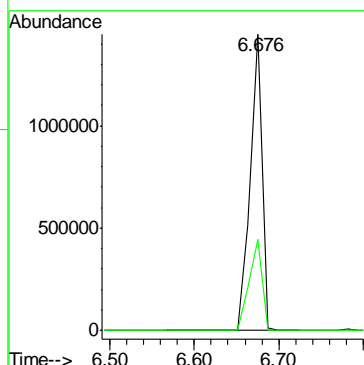
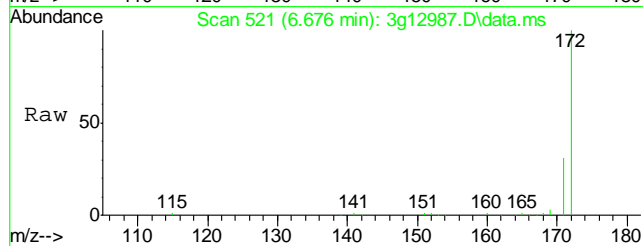
Tgt Ion:164	Resp:	89868
Ion Ratio	Lower	Upper
164	100	
162	100.6	88.1 128.1
160	68.7	38.8 78.8





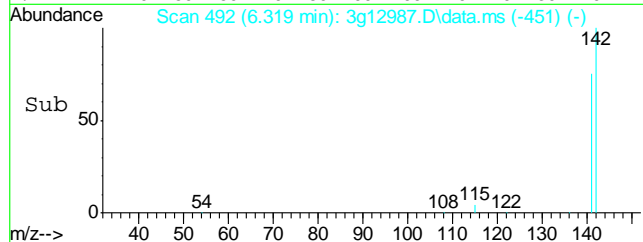
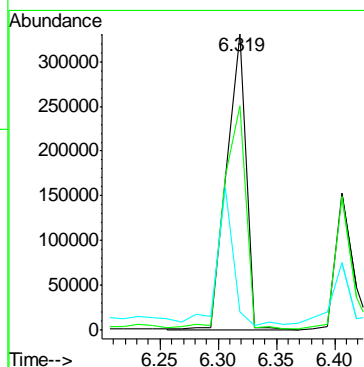
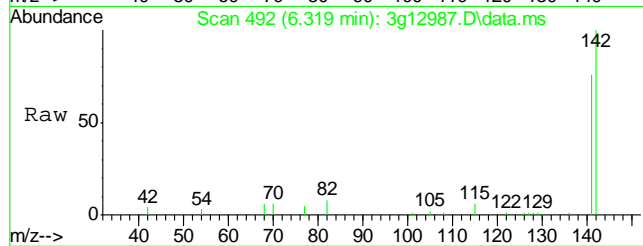
#7
2-Fluorobiphenyl
Concen: 41.0897 ug/mL
RT: 6.676 min Scan# 521
Delta R.T. 0.010 min
Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

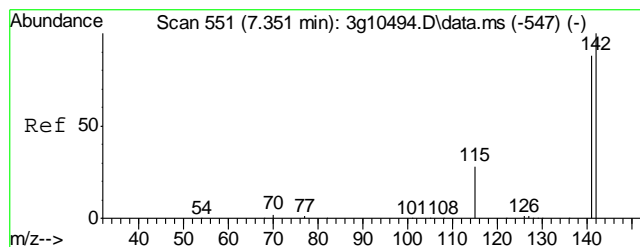
Tgt Ion	Ratio	Lower	Upper
172	100		
171	33.4	12.2	52.2



#8
2-Methylnaphthalene
Concen: 13.1167 ug/mL
RT: 6.319 min Scan# 492
Delta R.T. 0.008 min
Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

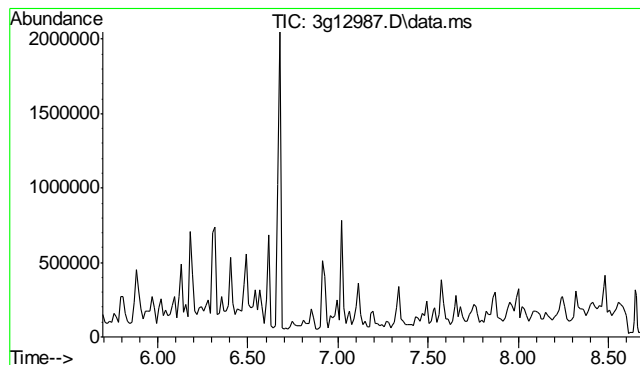
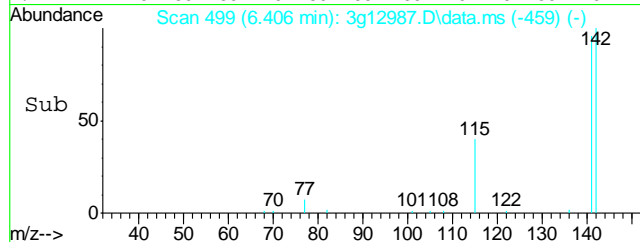
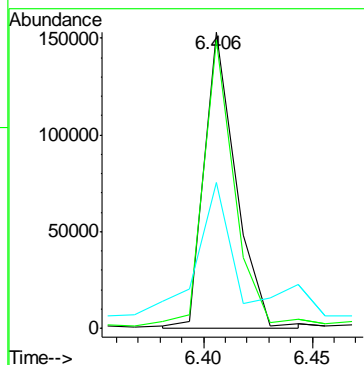
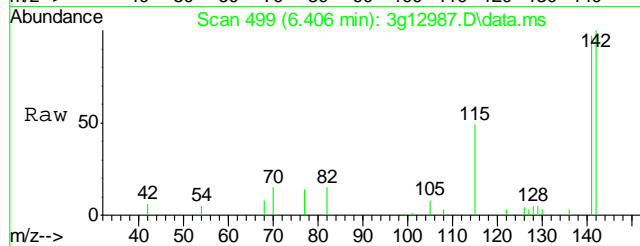
Tgt Ion	Ratio	Lower	Upper
142	100		
141	85.9	62.0	102.0
115	39.0	11.3	51.3





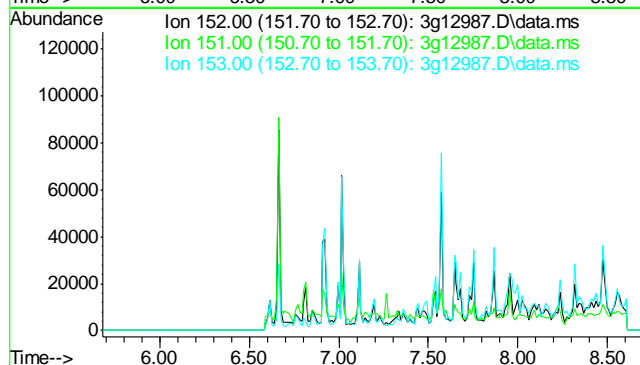
#9
1-Methylnaphthalene
Concen: 6.1464 ug/mL m
RT: 6.406 min Scan# 499
Delta R.T. -0.004 min
Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

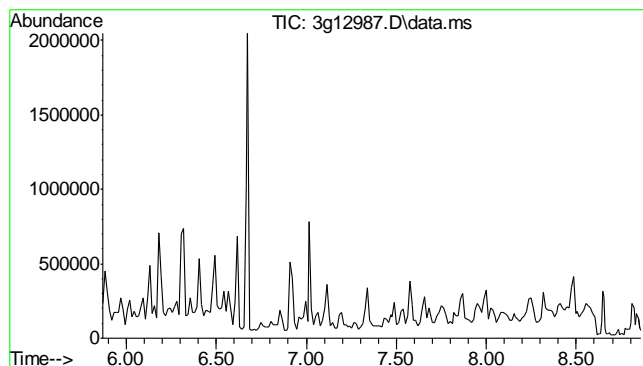
Tgt Ion	Ratio	Lower	Upper
142	100		
141	209.6	67.5	107.5#
115	99.7	19.4	59.4#



#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 7.18 min
Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

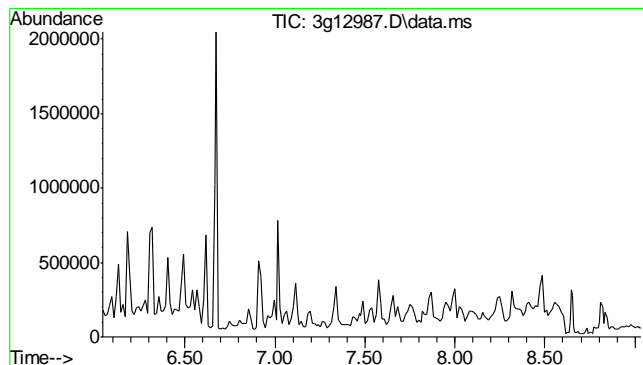
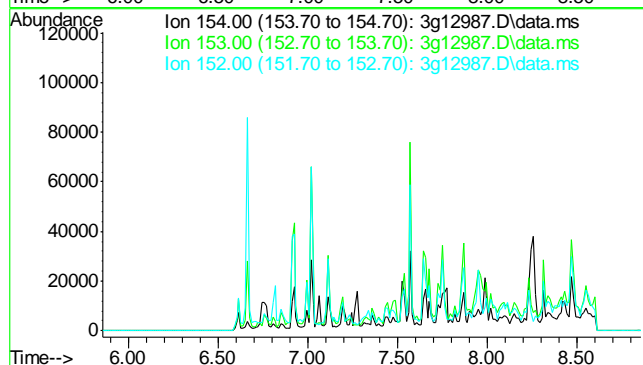
Tgt Ion	Exp Ratio
152	100
151	19.2
153	12.9





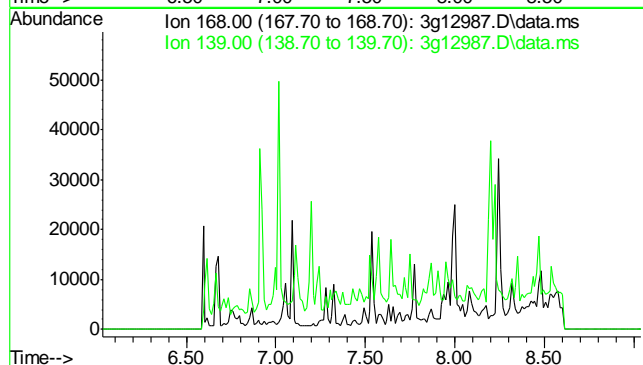
#11
 Acenaphthene
 Concen: N.D. ug/mL
 Expected RT: 7.36 min
 Lab File: 3g12987.D
 Acq: 15 Jan 13 3:52 pm

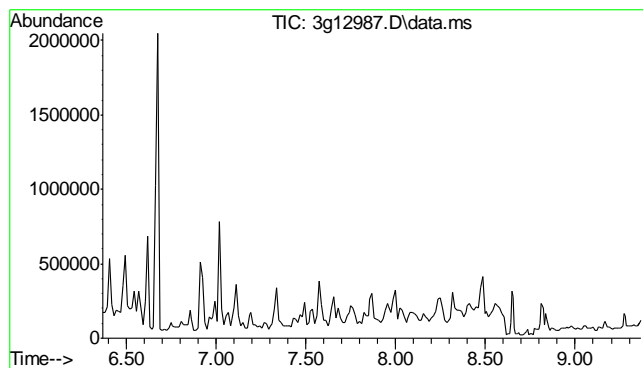
Tgt Ion	Sig	Exp Ratio
154	100	
153	102.4	
152	50.0	



#12
 Dibenzofuran
 Concen: N.D. ug/mL
 Expected RT: 7.54 min
 Lab File: 3g12987.D
 Acq: 15 Jan 13 3:52 pm

Tgt Ion	Sig	Exp Ratio
168	100	
139	33.4	

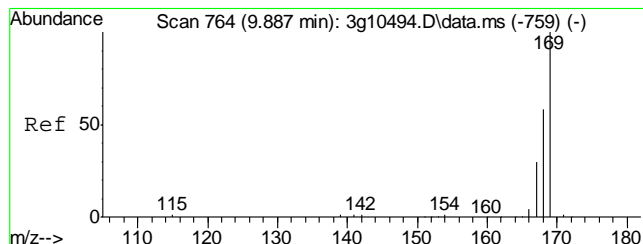
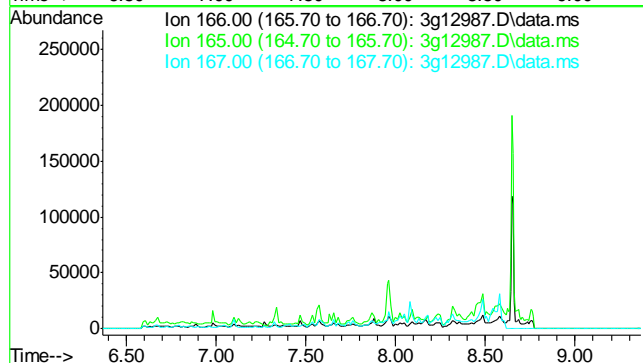




#13
 Fluorene
 Concen: N.D. ug/mL
 Expected RT: 7.87 min

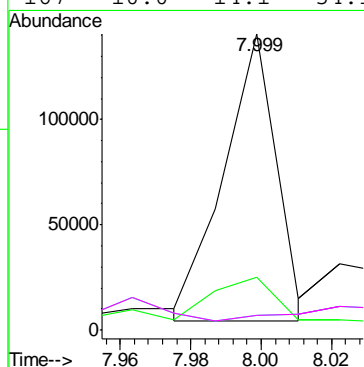
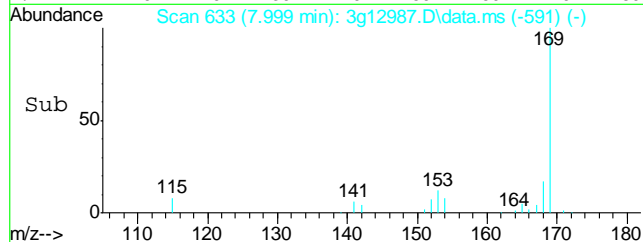
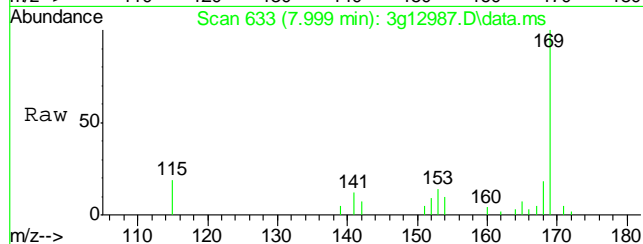
 Lab File: 3g12987.D
 Acq: 15 Jan 13 3:52 pm

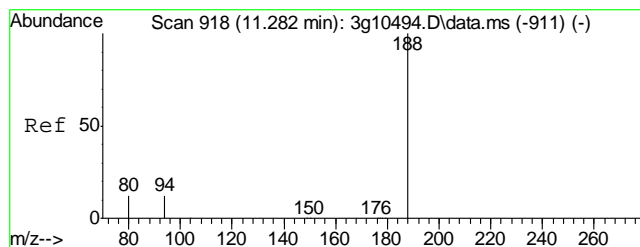
Tgt Ion: 166
 Sig Exp Ratio
 166 100
 165 92.0
 167 13.1



#14
 Diphenylamine
 Concen: 5.0440 ug/mL m
 RT: 7.999 min Scan# 633
 Delta R.T. 0.002 min
 Lab File: 3g12987.D
 Acq: 15 Jan 13 3:52 pm

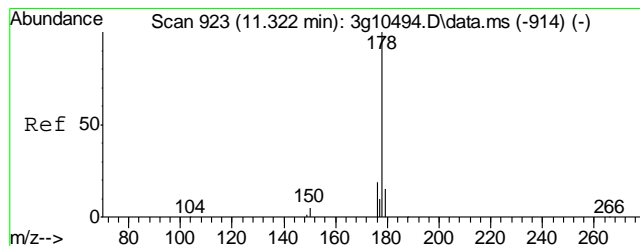
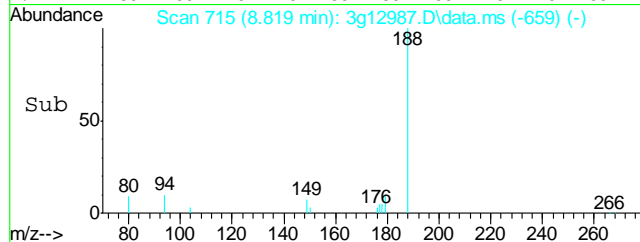
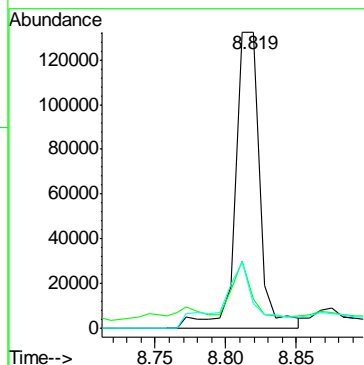
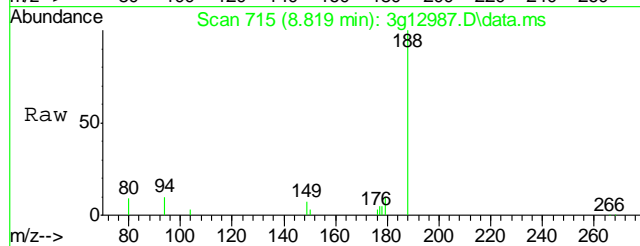
Tgt Ion: 169 Resp: 142230
 Ion Ratio Lower Upper
 169 100
 168 25.8 41.7 81.7#
 167 10.0 14.1 54.1#
 167 10.0 14.1 54.1#





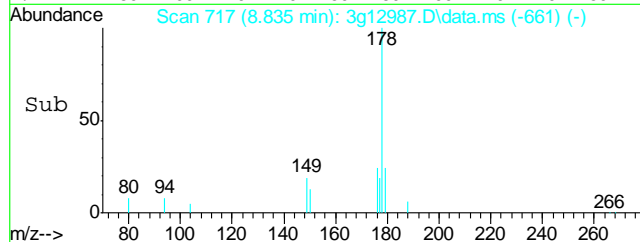
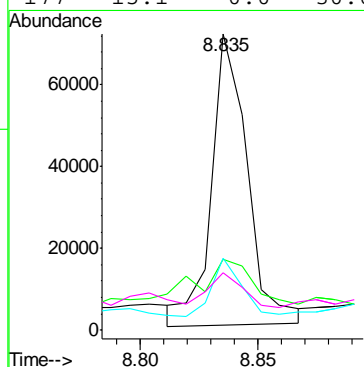
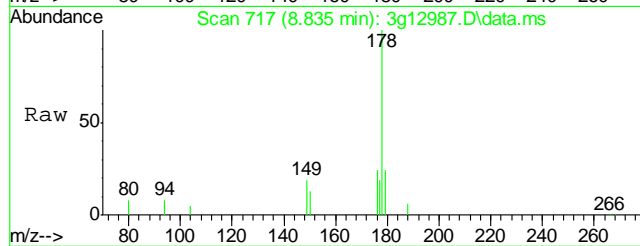
#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.819 min Scan# 715
Delta R.T. 0.008 min
Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

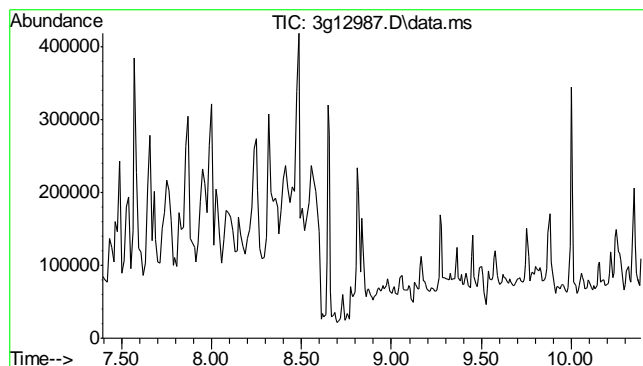
Tgt Ion	Ratio	Lower	Upper
188	100		
94	16.8	0.0	26.9
80	32.8	0.0	26.3#



#16
Phenanthrene
Concen: 1.2674 ug/mL
RT: 8.835 min Scan# 717
Delta R.T. -0.000 min
Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

Tgt Ion	Ratio	Lower	Upper
178	100		
179	74.5	0.0	35.2#
176	22.4	0.0	38.6
177	15.1	0.0	30.0

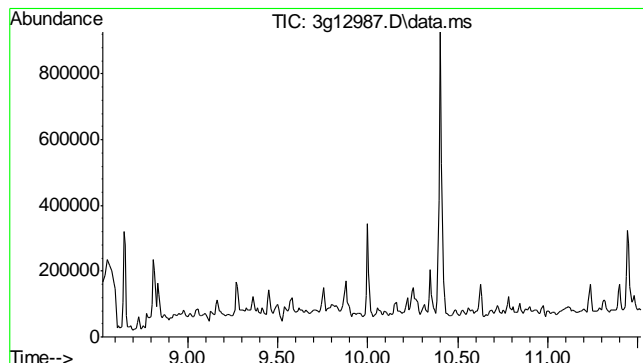
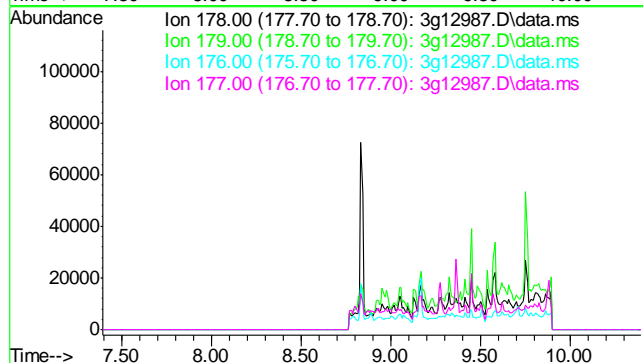




#17
 Anthracene
 Concen: N.D. ug/mL
 Expected RT: 8.89 min

 Lab File: 3g12987.D
 Acq: 15 Jan 13 3:52 pm

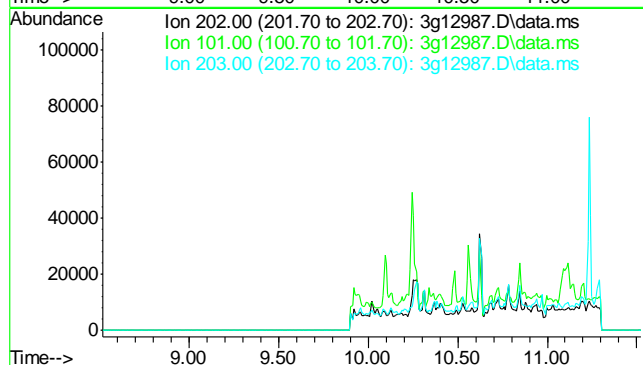
Tgt Ion	Sig	Exp Ratio
178	100	
179	15.1	
176	18.2	
177	8.7	

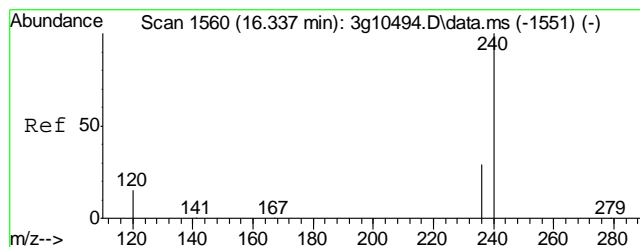


#18
 Fluoranthene
 Concen: N.D. ug/mL
 Expected RT: 10.02 min

 Lab File: 3g12987.D
 Acq: 15 Jan 13 3:52 pm

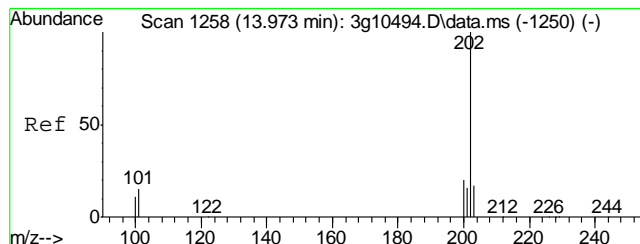
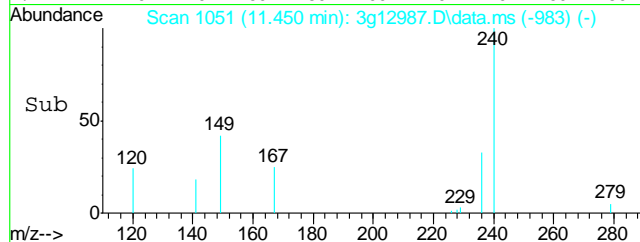
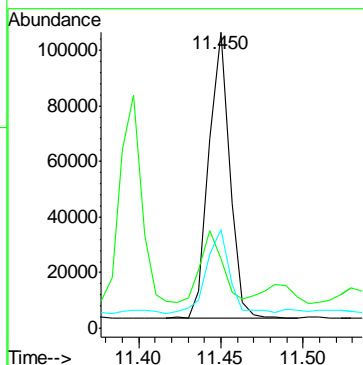
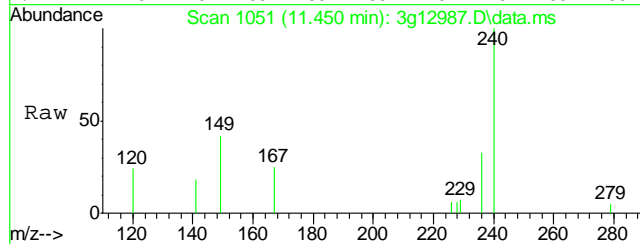
Tgt Ion	Sig	Exp Ratio
202	100	
101	12.6	
203	17.4	





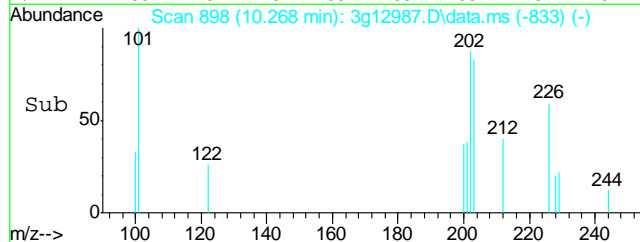
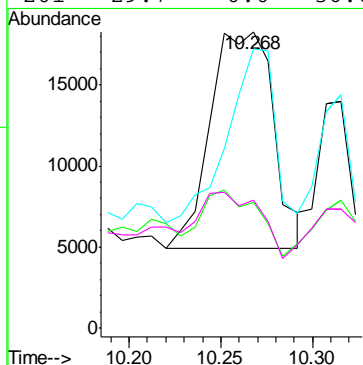
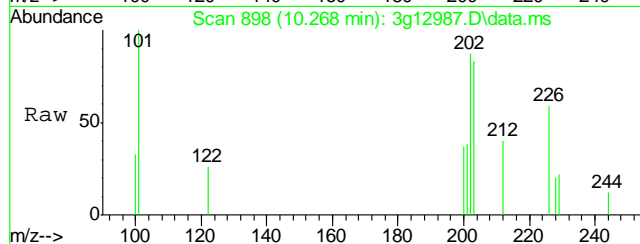
#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.450 min Scan# 1051
Delta R.T. 0.007 min
Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

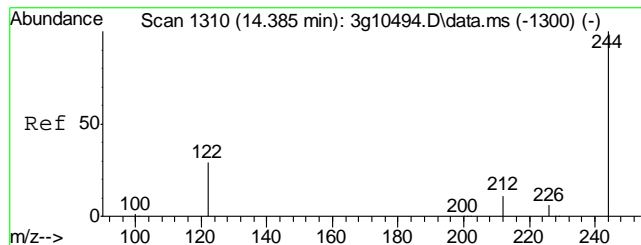
Tgt Ion:	240	Resp:	89179
Ion Ratio	Lower	Upper	
240	100		
120	36.8	0.0	37.3
236	32.0	11.2	51.2



#20
Pyrene
Concen: 0.6636 ug/mL
RT: 10.268 min Scan# 898
Delta R.T. 0.018 min
Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

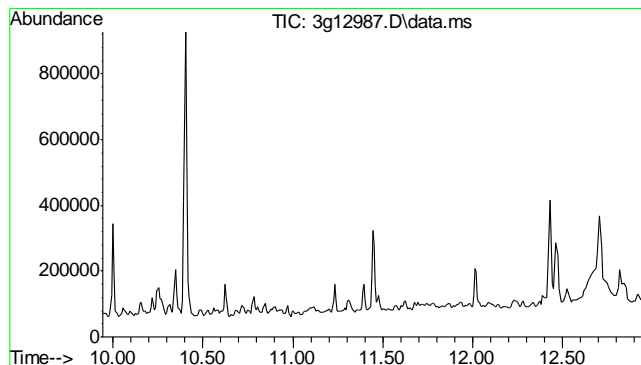
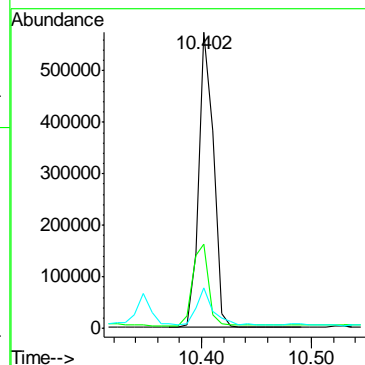
Tgt Ion:	202	Resp:	31604
Ion Ratio	Lower	Upper	
202	100		
200	27.1	0.2	40.2
203	54.7	0.0	37.8#
201	29.7	0.0	36.6





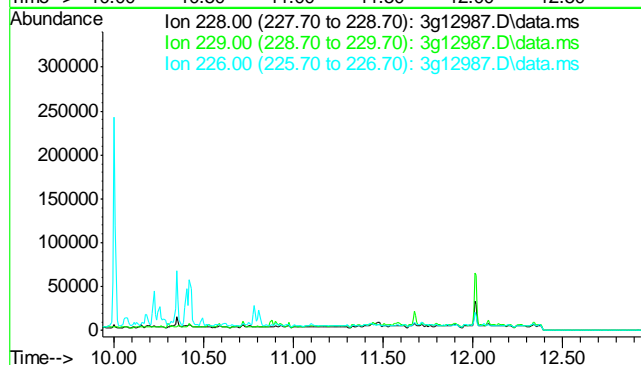
#21
Terphenyl-d14
Concen: 44.3967 ug/mL
RT: 10.402 min Scan# 915
Delta R.T. 0.002 min
Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

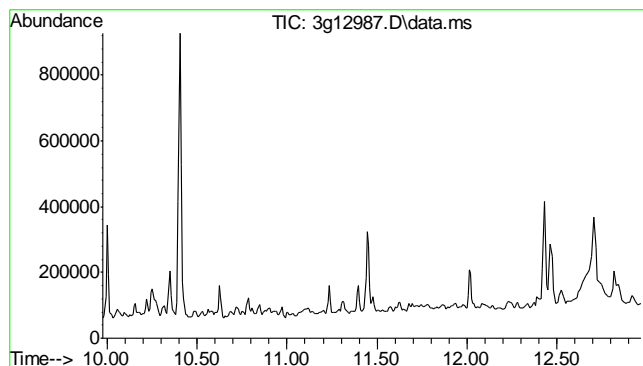
Tgt Ion:	244	Resp:	538734
Ion Ratio	Lower	Upper	
244	100		
122	31.0	7.8	47.8
212	14.6	0.0	32.8



#22
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 11.44 min
Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

Tgt Ion:	228
Sig	Exp Ratio
228	100
229	19.4
226	26.6

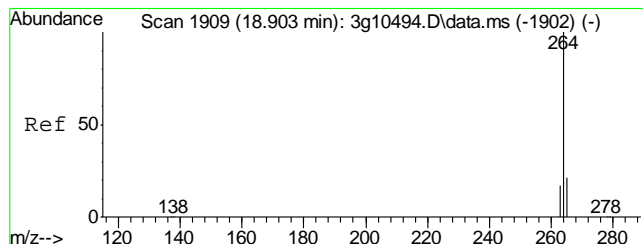
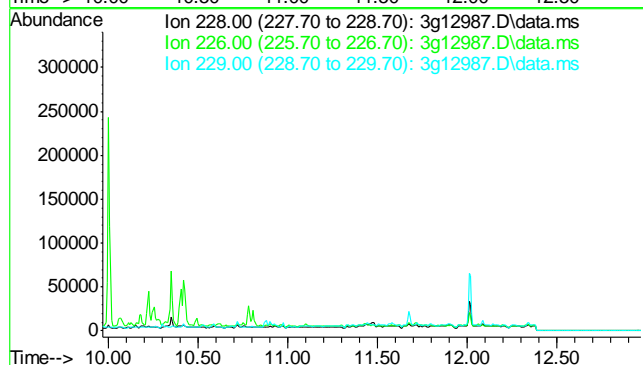




#23
 Chrysene
 Concen: N.D. ug/mL
 Expected RT: 11.47 min

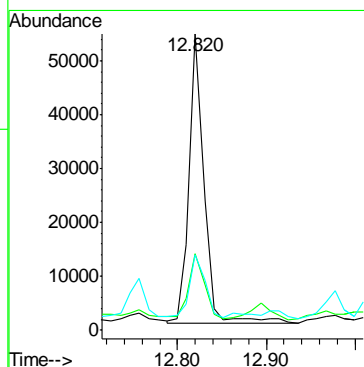
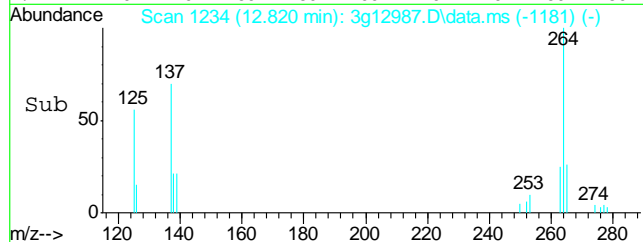
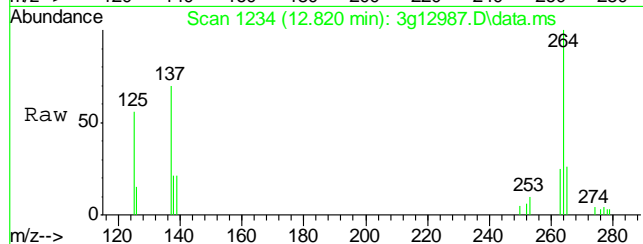
 Lab File: 3g12987.D
 Acq: 15 Jan 13 3:52 pm

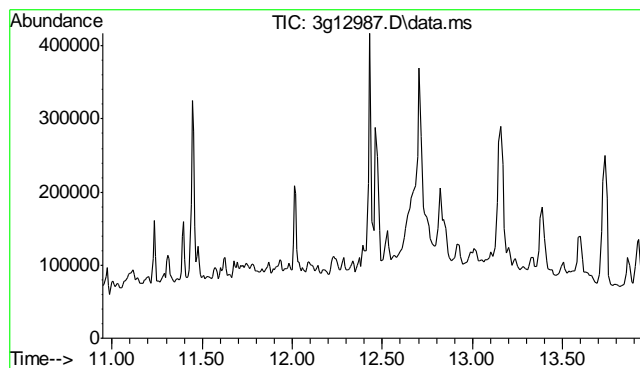
Tgt Ion: 228
 Sig Exp Ratio
 228 100
 226 28.6
 229 19.4



#24
 Perylene-d12
 Concen: 4.0000 ug/mL
 RT: 12.820 min Scan# 1234
 Delta R.T. 0.010 min
 Lab File: 3g12987.D
 Acq: 15 Jan 13 3:52 pm

Tgt Ion: 264 Resp: 62316
 Ion Ratio Lower Upper
 264 100
 265 23.7 0.6 40.6
 263 22.7 0.0 38.8

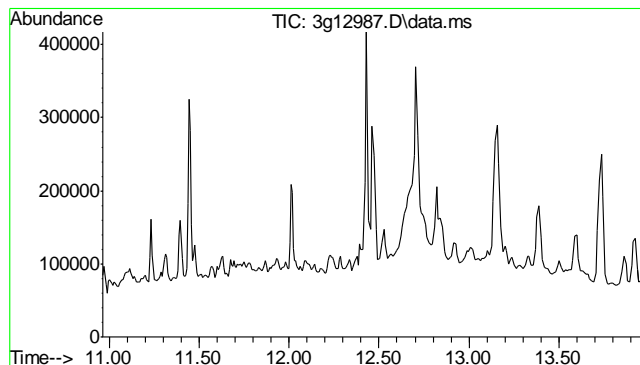
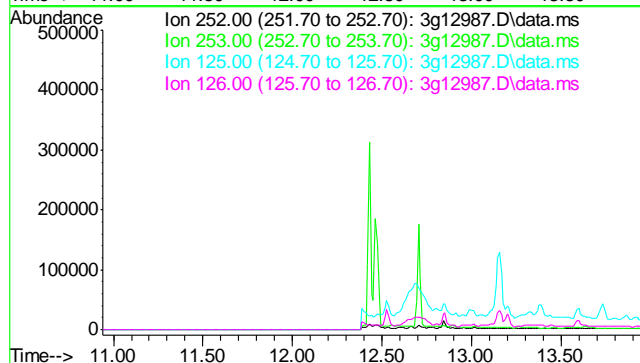




#25
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.44 min

Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

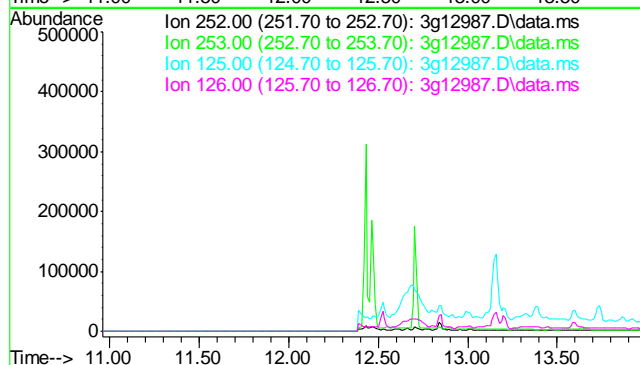
Tgt Ion	Exp Ratio
252	100
253	51.5
125	13.2
126	46.9

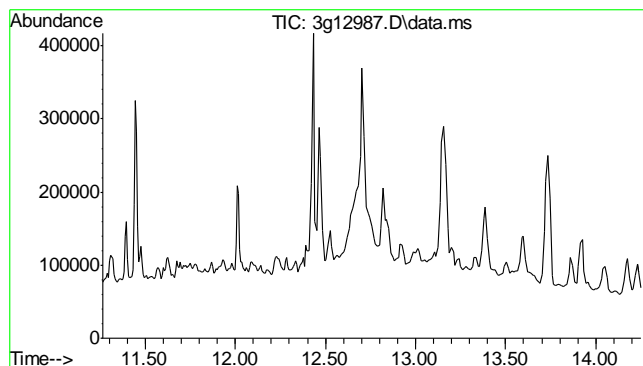


#26
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.46 min

Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

Tgt Ion	Exp Ratio
252	100
253	37.3
125	9.6
126	34.1

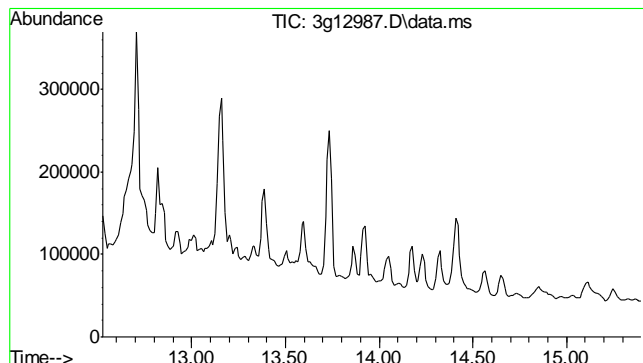
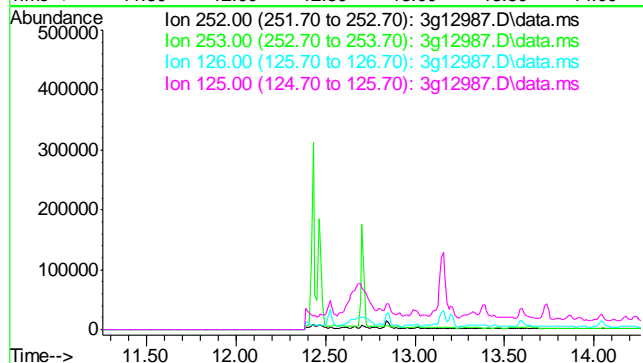




#27
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 12.76 min

Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

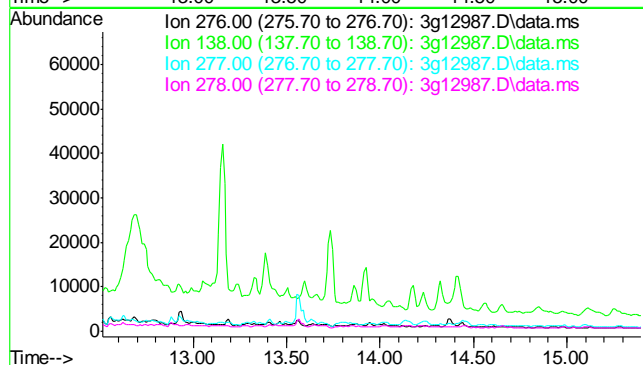
Tgt Ion	Sig	Exp Ratio
252	100	
253	21.5	
126	20.4	
125	14.5	

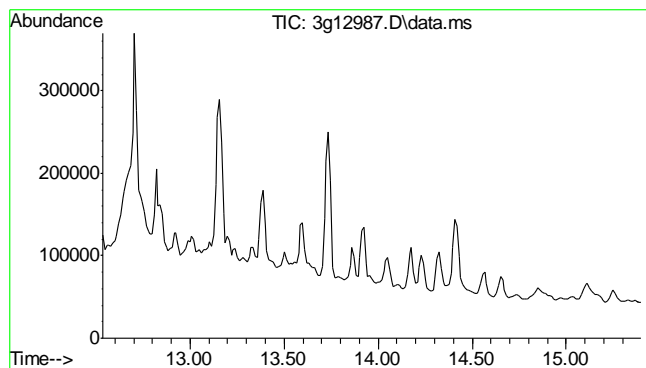


#28
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 14.02 min

Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

Tgt Ion	Sig	Exp Ratio
276	100	
138	40.0	
277	24.8	
278	76.2	

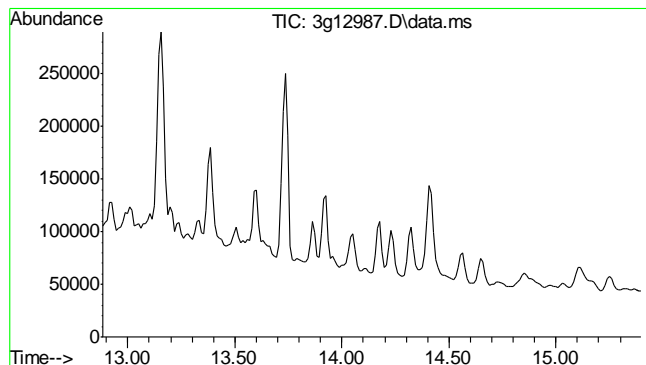
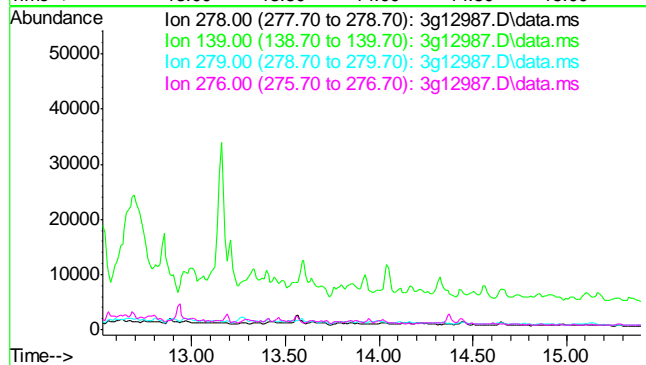




#29
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 14.03 min

Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

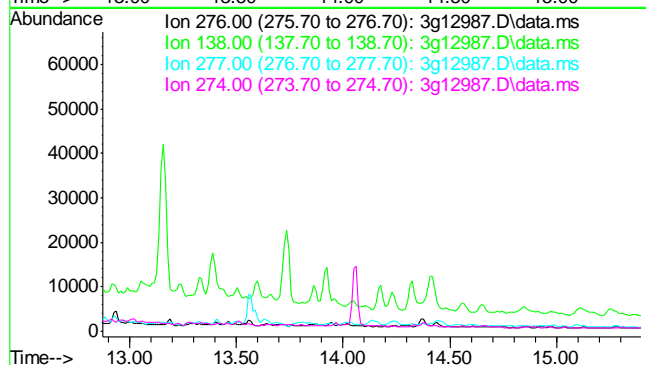
Tgt Ion: 278	
Sig	Exp Ratio
278	100
139	30.8
279	22.9
276	131.2



#30
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 14.37 min

Lab File: 3g12987.D
Acq: 15 Jan 13 3:52 pm

Tgt Ion: 276	
Sig	Exp Ratio
276	100
138	35.1
277	23.3
274	21.5



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\011513\
Data File : 3g12973.D
Acq On : 15 Jan 2013 10:14 am
Operator : DONC
Sample : OP7223-MB
Misc : OP7223,E3G621,30.00,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 15 13:46:44 2013
Quant Method : C:\msdchem\1\METHODS\SIMPE3G611.M
Quant Title : PAHSIM BASE
QLast Update : Thu Jan 10 14:18:35 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.621	136	122903	4.0000	ug/mL	0.00
6) Acenaphthene-d10	7.337	164	71901	4.0000	ug/mL	0.01
15) Phenanthrene-d10	8.812	188	128999	4.0000	ug/mL	0.00
19) Chrysene-d12	11.443	240	101544	4.0000	ug/mL	0.00
24) Perylene-d12	12.810	264	84293	4.0000	ug/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	4.935	82	445750	40.3218	ug/mL	-0.01
Spiked Amount 50.000	Range 25 - 135		Recovery =	80.64%		
7) 2-Fluorobiphenyl	6.676	172	1170373	42.6075	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	85.22%		
21) Terphenyl-d14	10.402	244	725496	52.5073	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	105.02%		

Target Compounds

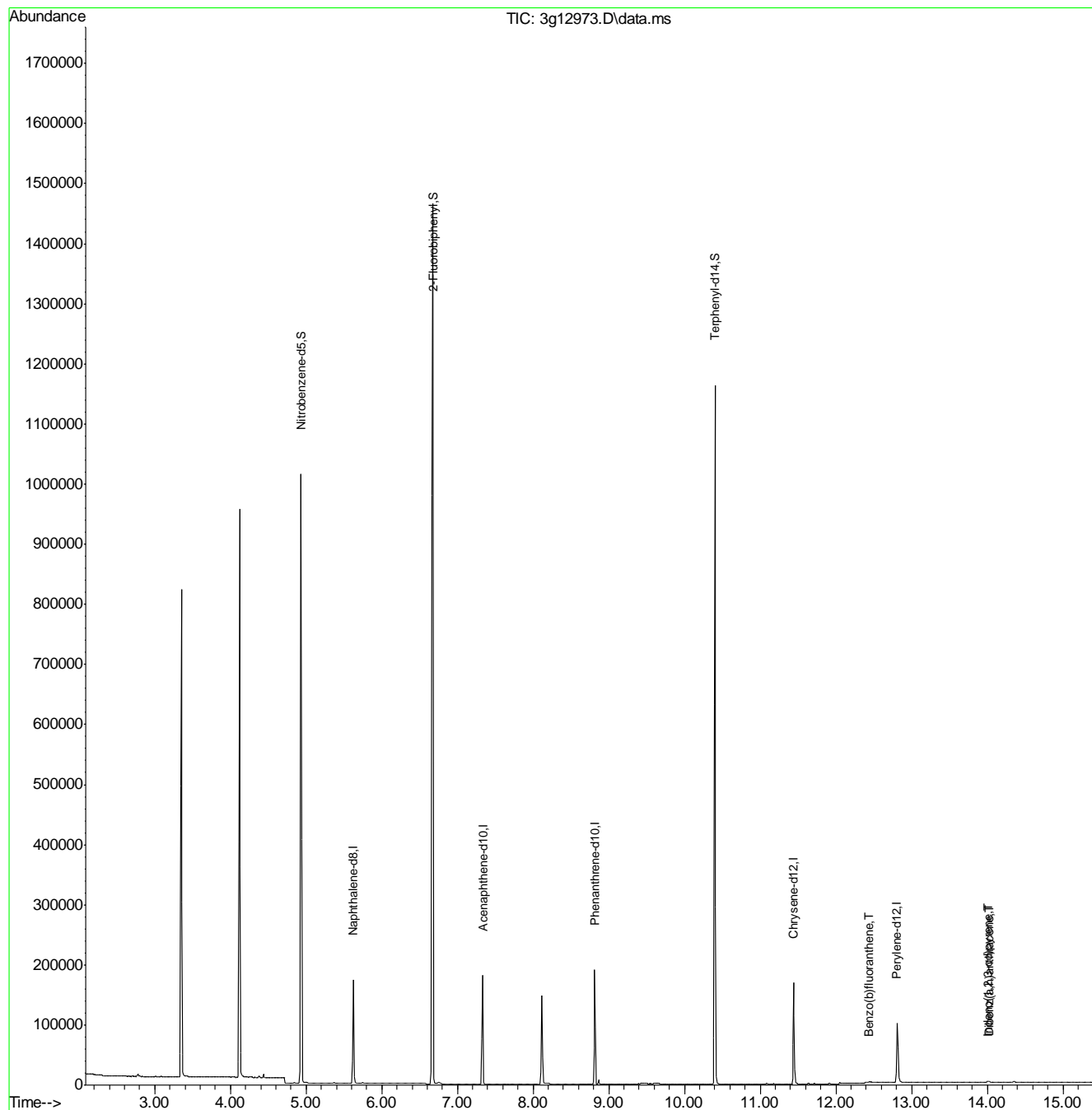
					Qvalue	
3) N-Nitrosodimethylamine	2.356	74	24	N.D.		
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d	
5) Naphthalene	5.646	128	183	Below	Cal # 48	
8) 2-Methylnaphthalene	6.319	142	186	N.D.		
9) 1-Methylnaphthalene	6.394	142	78	N.D.		
10) Acenaphthylene	7.396	152	202	N.D.		
11) Acenaphthene	7.385	154	61	N.D.		
12) Dibenzofuran	7.857	168	73	N.D.		
13) Fluorene	0.000	166	0	N.D.	d	
14) Diphenylamine	0.000	169	0	N.D.	d	
16) Phenanthrene	8.812	178	152	N.D.		
17) Anthracene	8.891	178	39	N.D.		
18) Fluoranthene	10.015	202	205	N.D.		
20) Pyrene	10.244	202	152	N.D.		
22) Benzo(a)anthracene	11.437	228	1041	N.D.		
23) Chrysene	11.470	228	877	N.D.		
25) Benzo(b)fluoranthene	12.442	252	1135m	0.0649	ug/mL	
26) Benzo(k)fluoranthene	12.463	252	1206	N.D.		
27) Benzo(a)pyrene	0.000	252	0	N.D.	d	
28) Indeno(1,2,3-cd)pyrene	14.009	276	1461	0.0777	ug/mL	89
29) Dibenz(a,h)anthracene	14.019	278	1174	0.0897	ug/mL	92
30) Benzo(g,h,i)perylene	14.356	276	1418	N.D.		

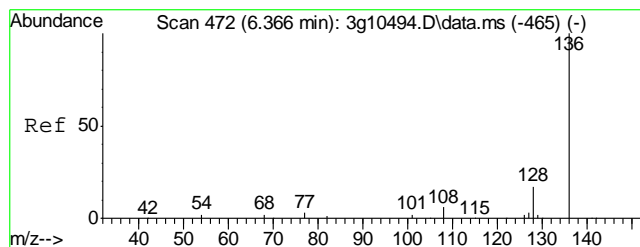
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\011513\
Data File : 3g12973.D
Acq On : 15 Jan 2013 10:14 am
Operator : DONC
Sample : OP7223-MB
Misc : OP7223,E3G621,30.00,,,1,1
ALS Vial : 4 Sample Multiplier: 1

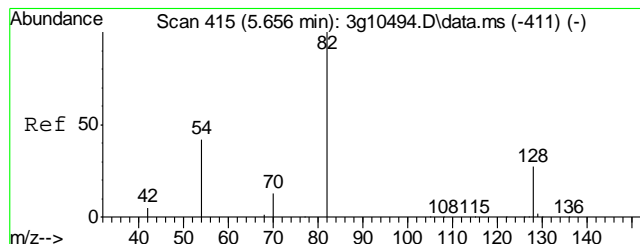
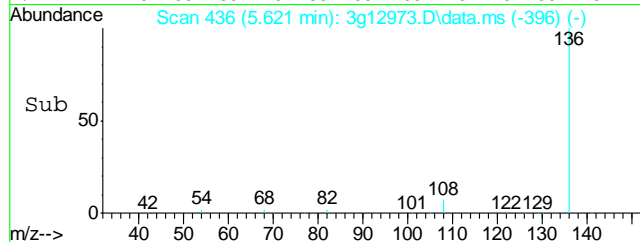
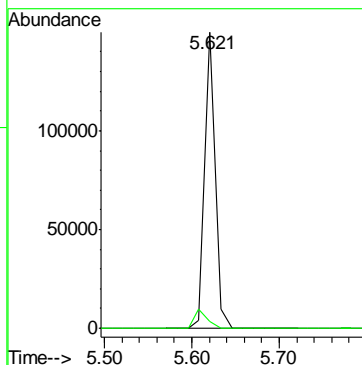
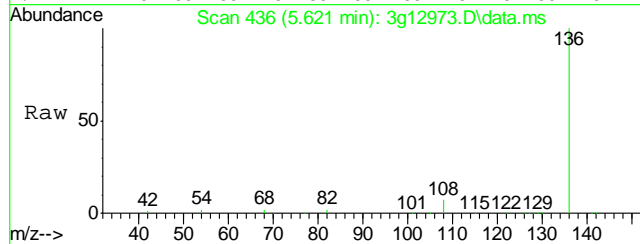
Quant Time: Jan 15 13:46:44 2013
Quant Method : C:\msdchem\1\METHODS\SIMPE3G611.M
Quant Title : PAHSIM BASE
QLast Update : Thu Jan 10 14:18:35 2013
Response via : Initial Calibration





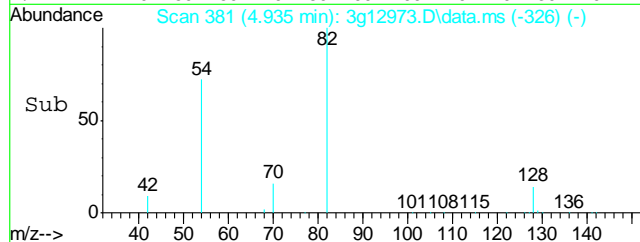
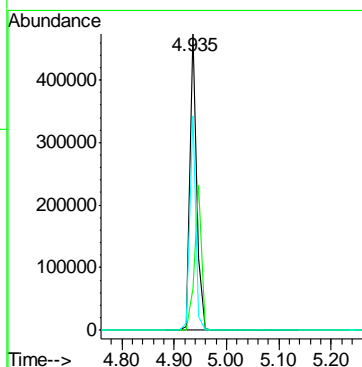
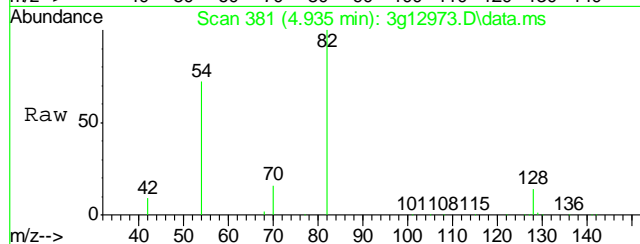
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.621 min Scan# 436
Delta R.T. 0.000 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

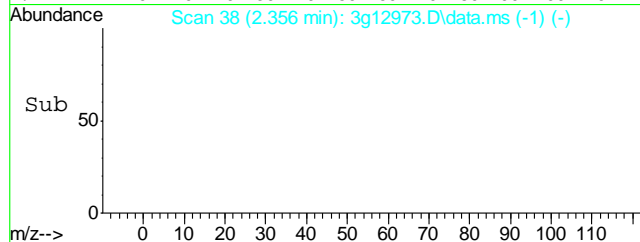
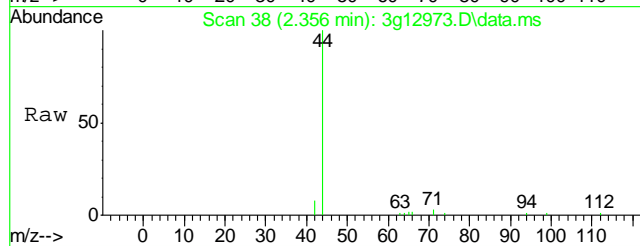
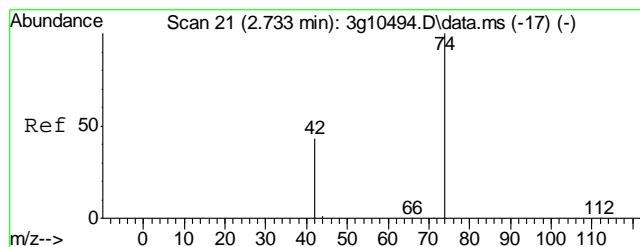
Tgt Ion:	136	Resp:	122903
Ion	Ratio	Lower	Upper
136	100		
68	7.9	0.0	20.8



#2
Nitrobenzene-d5
Concen: 40.3218 ug/mL
RT: 4.935 min Scan# 381
Delta R.T. -0.014 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

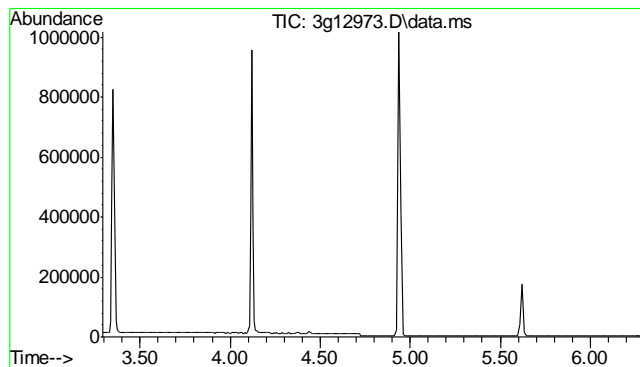
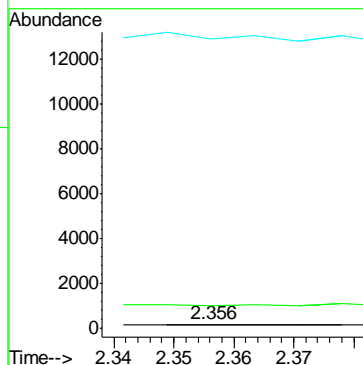
Tgt Ion:	82	Resp:	445750
Ion	Ratio	Lower	Upper
82	100		
128	50.4	36.8	76.8
54	62.9	40.5	80.5





#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.356 min Scan# 38
Delta R.T. 0.020 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

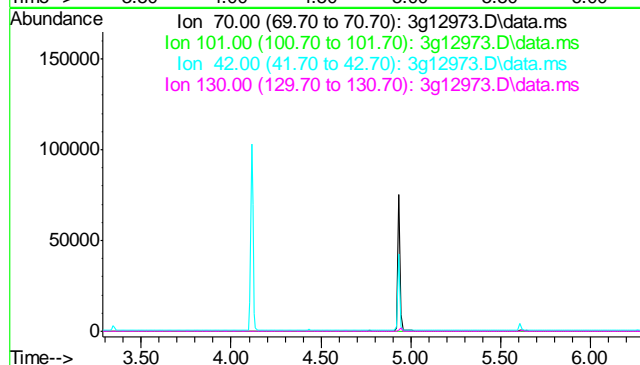
Tgt Ion:	74	Resp:	24
Ion Ratio	Lower	Upper	
74	100		
42	0.0	58.5	98.5#
44	0.0	0.0	24.0

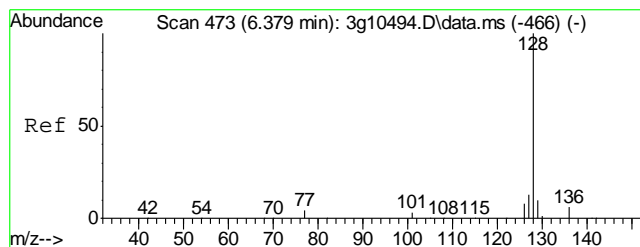


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 4.79 min

Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

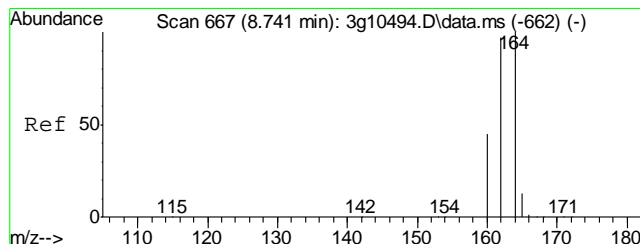
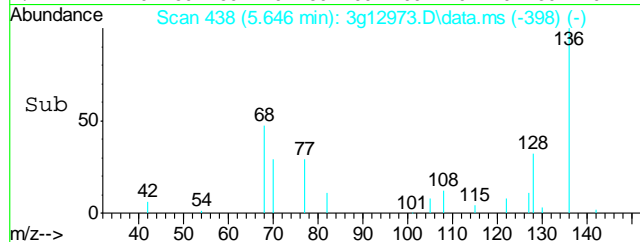
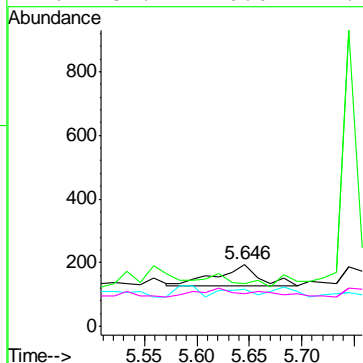
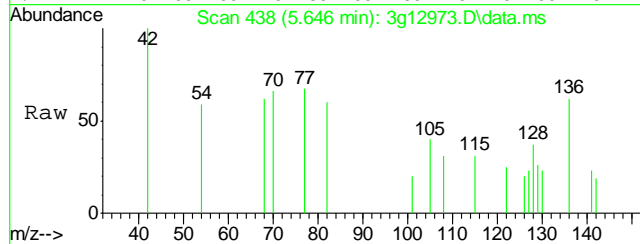
Tgt Ion:	70
Sig	Exp Ratio
70	100
101	11.9
42	57.4
130	21.7





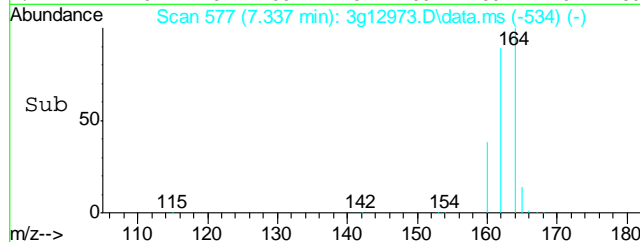
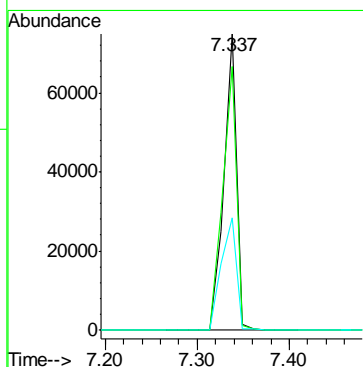
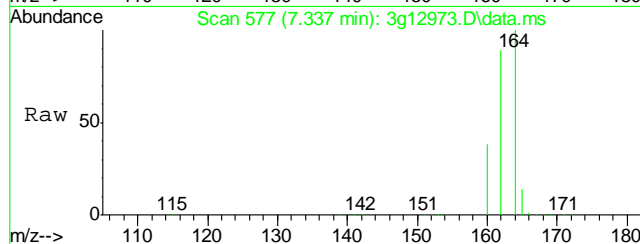
#5
Naphthalene
Concen: Below ug/mL
RT: 5.646 min Scan# 438
Delta R.T. 0.001 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

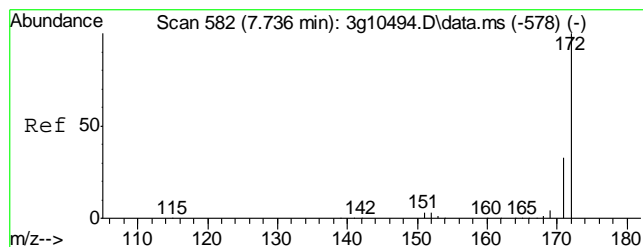
Tgt Ion	128	Resp	183
Ion Ratio	100		
Lower		0.0	31.2
Upper		32.4#	
	37.2	0.0	27.2#



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.337 min Scan# 577
Delta R.T. 0.012 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

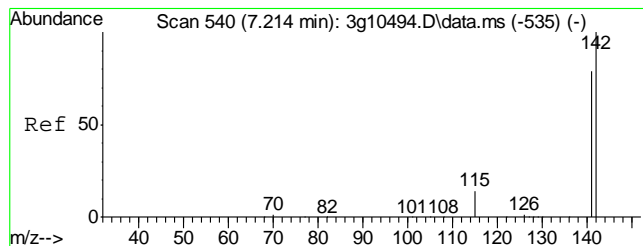
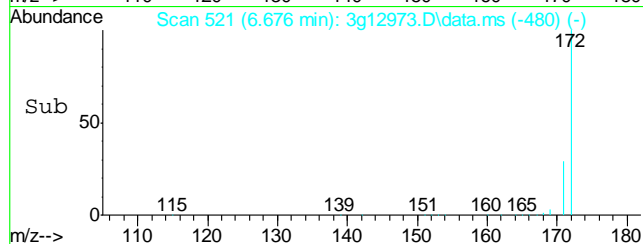
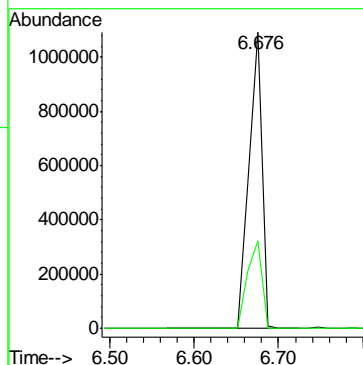
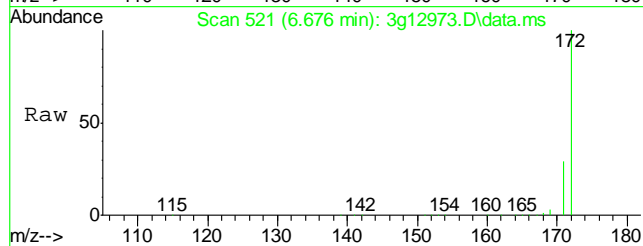
Tgt Ion	164	Resp	71901
Ion Ratio <td>100</td> <td></td> <td></td>	100		
Lower <td></td> <td>88.1</td> <td>128.1</td>		88.1	128.1
Upper <td></td> <td>78.8</td> <td></td>		78.8	





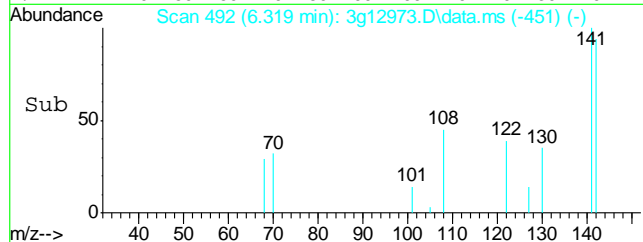
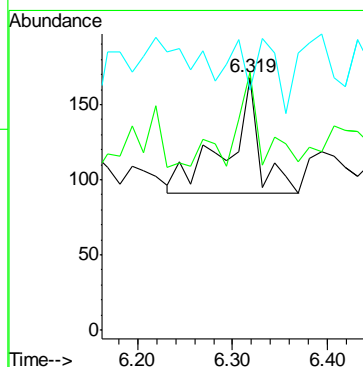
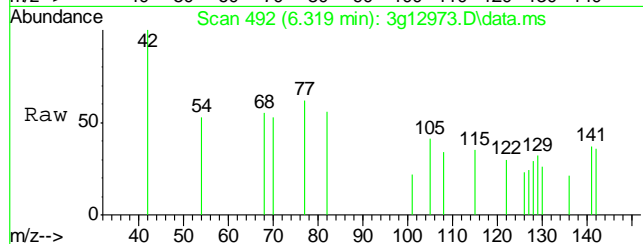
#7
2-Fluorobiphenyl
Concen: 42.6075 ug/mL
RT: 6.676 min Scan# 521
Delta R.T. 0.010 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

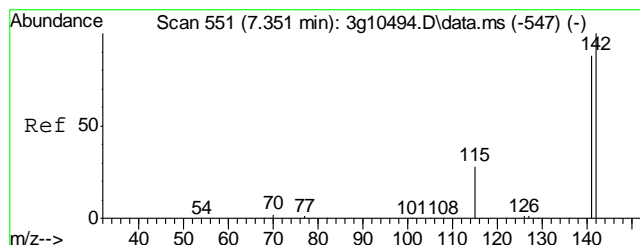
Tgt Ion:172 Resp: 1170373
Ion Ratio Lower Upper
172 100
171 32.8 12.2 52.2



#8
2-Methylnaphthalene
Concen: Below ug/mL
RT: 6.319 min Scan# 492
Delta R.T. 0.008 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

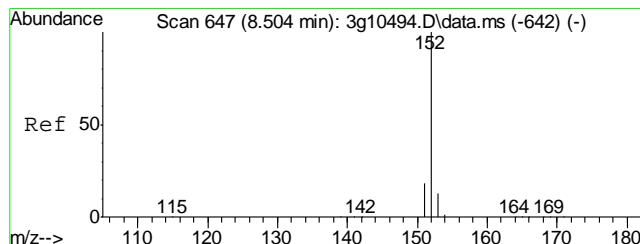
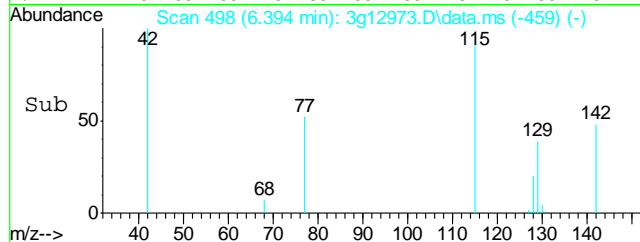
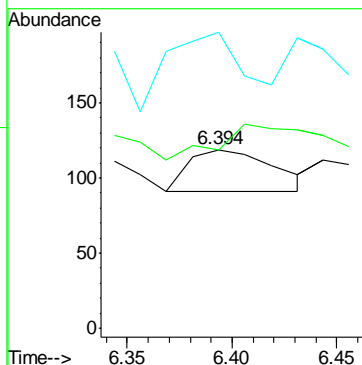
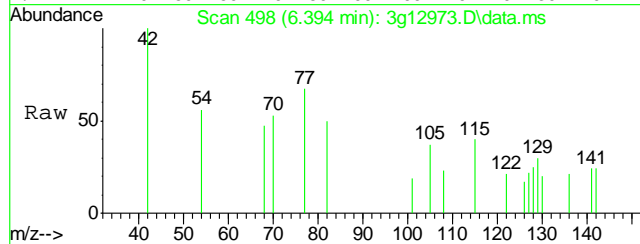
Tgt Ion:142 Resp: 186
Ion Ratio Lower Upper
142 100
141 66.1 62.0 102.0
115 0.0 11.3 51.3#





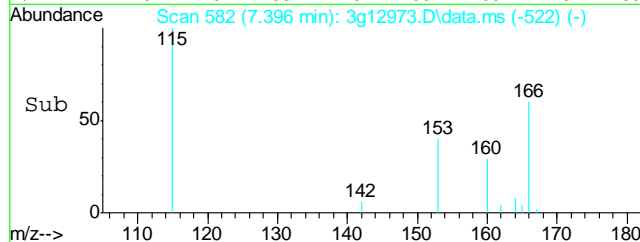
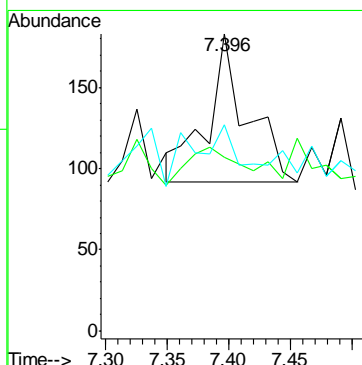
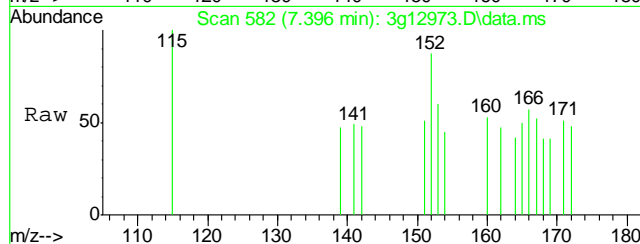
#9
1-Methylnaphthalene
Concen: Below ug/mL
RT: 6.394 min Scan# 498
Delta R.T. -0.017 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

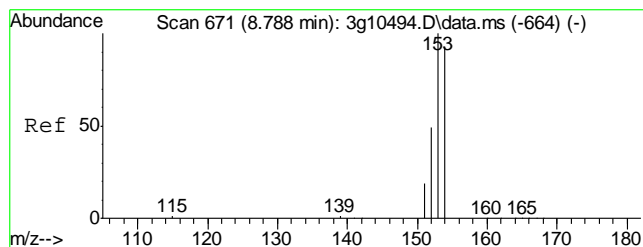
Tgt Ion	Ratio	Lower	Upper
142	100		
141	223.1	67.5	107.5#
115	0.0	19.4	59.4#



#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.396 min Scan# 582
Delta R.T. 0.212 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

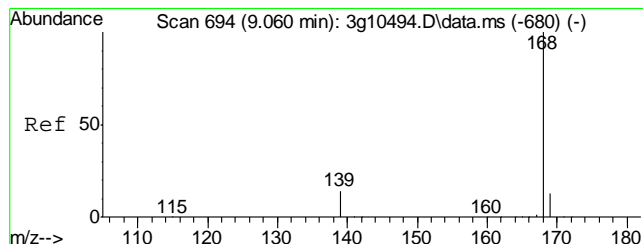
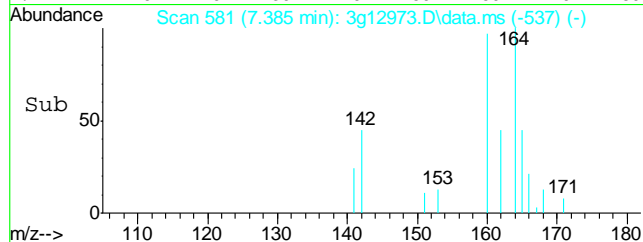
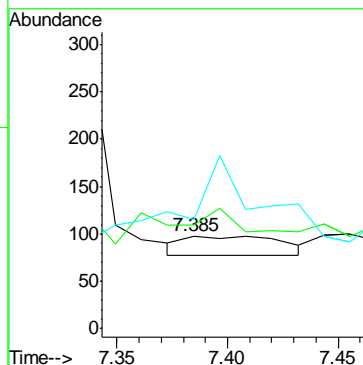
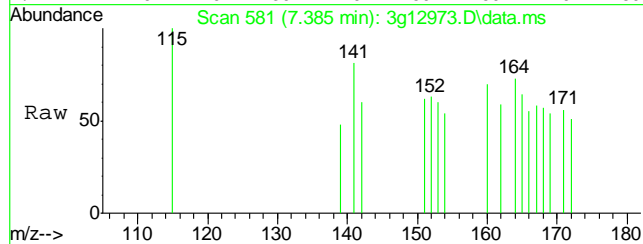
Tgt Ion	Ratio	Lower	Upper
152	100		
151	32.2	0.0	39.2
153	25.7	0.0	32.9





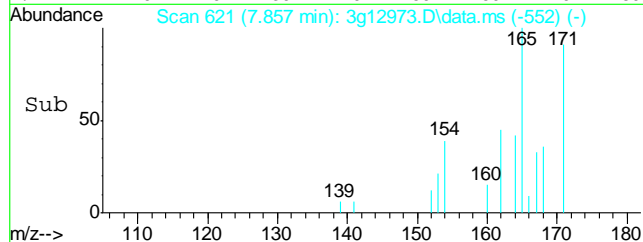
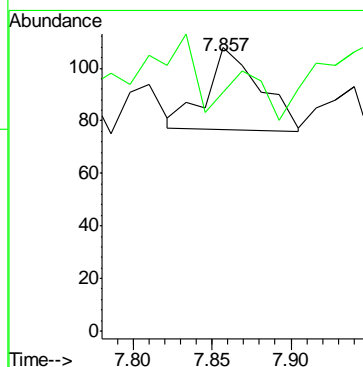
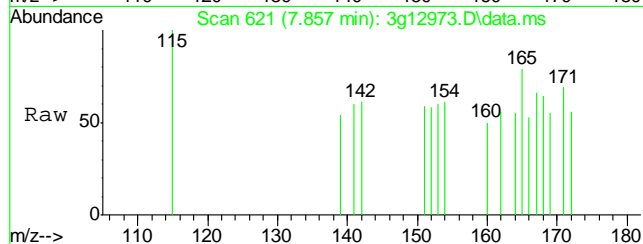
#11
Acenaphthene
Concen: Below ug/mL
RT: 7.385 min Scan# 581
Delta R.T. 0.024 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

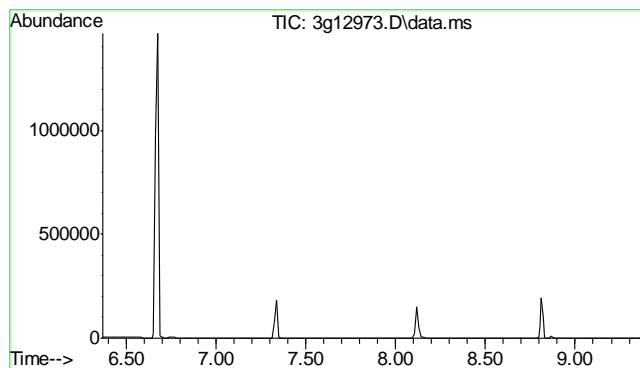
Tgt Ion:	154	Resp:	61
Ion Ratio	Lower	Upper	
154	100		
153	85.2	82.4	122.4
152	331.1	30.0	70.0#



#12
Dibenzofuran
Concen: Below ug/mL
RT: 7.857 min Scan# 621
Delta R.T. 0.320 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

Tgt Ion:	168	Resp:	73
Ion Ratio	Lower	Upper	
168	100		
139	32.9	13.4	53.4

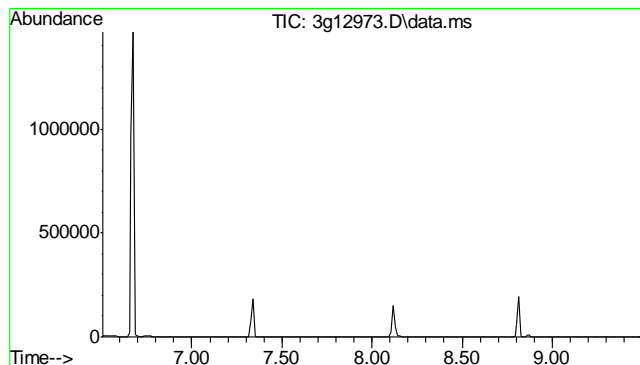
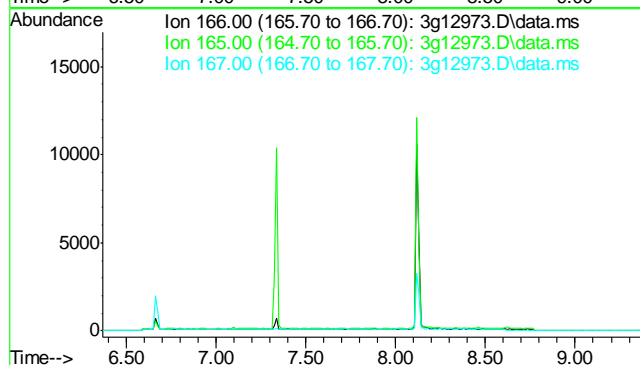




#13
Fluorene
Concen: N.D. ug/mL
Expected RT: 7.87 min

Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

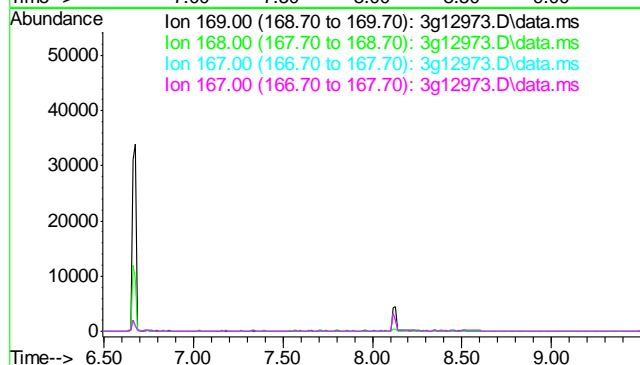
Tgt Ion:	166
Sig	Exp Ratio
166	100
165	92.0
167	13.1

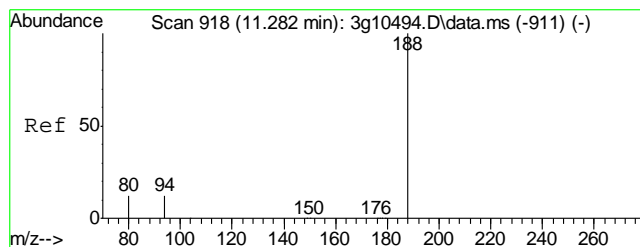


#14
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 8.00 min

Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

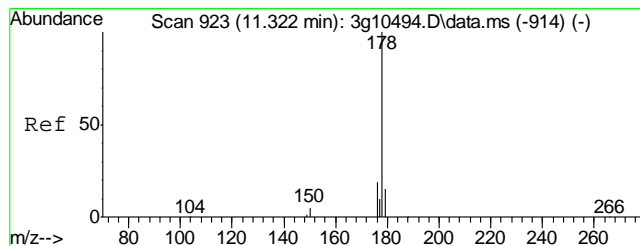
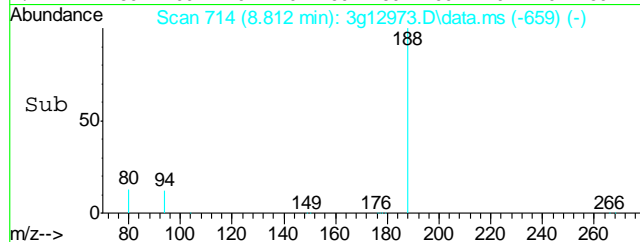
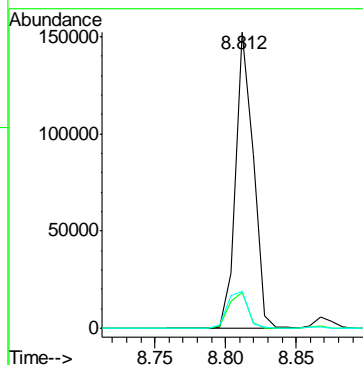
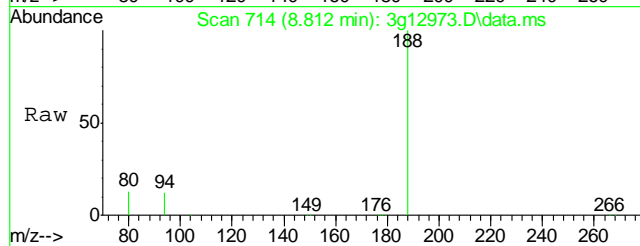
Tgt Ion:	169
Sig	Exp Ratio
169	100
168	61.7
167	34.1
167	34.1





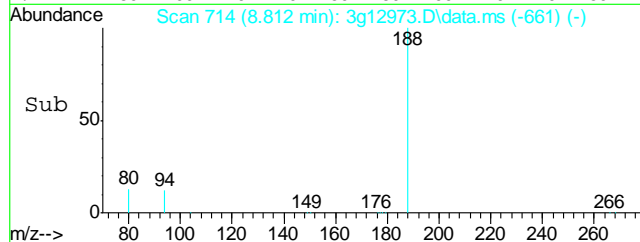
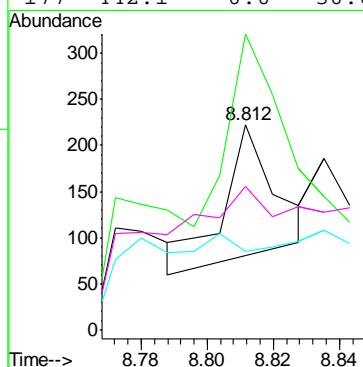
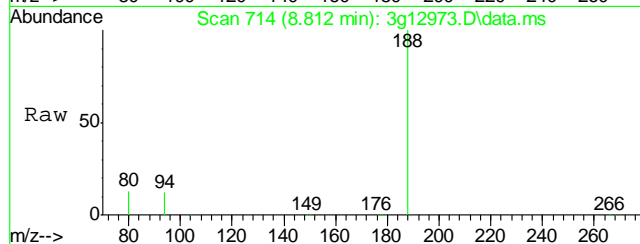
#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.812 min Scan# 714
Delta R.T. 0.000 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

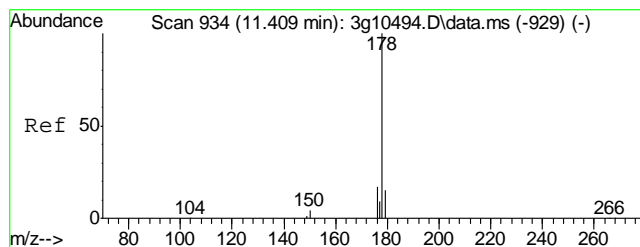
Tgt Ion	Ratio	Lower	Upper
188	100		
94	13.6	0.0	26.9
80	14.9	0.0	26.3



#16
Phenanthrene
Concen: Below ug/mL
RT: 8.812 min Scan# 714
Delta R.T. -0.024 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

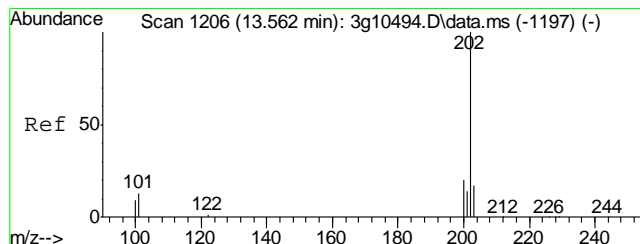
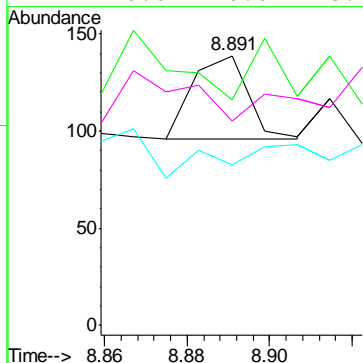
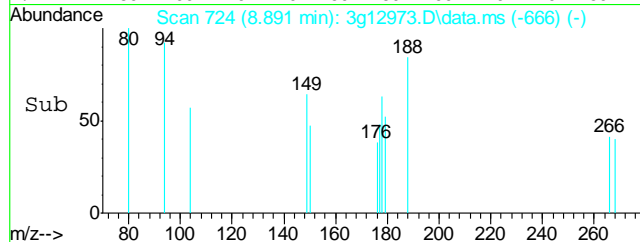
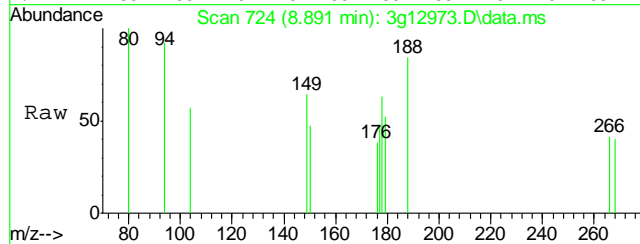
Tgt Ion	Ratio	Lower	Upper
178	100		
179	213.8	0.0	35.2#
176	159.2	0.0	38.6#
177	442.1	0.0	30.0#





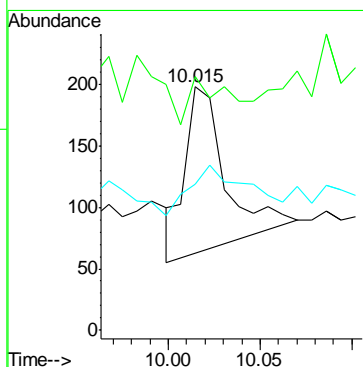
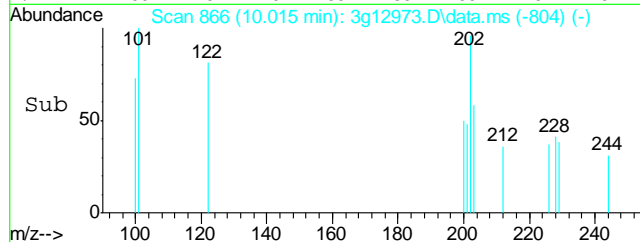
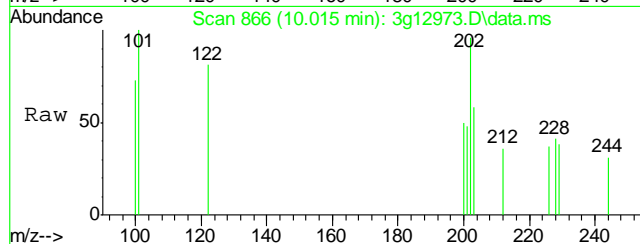
#17
Anthracene
Concen: Below ug/mL
RT: 8.891 min Scan# 724
Delta R.T. 0.000 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

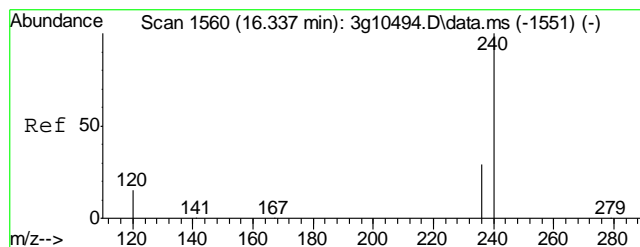
Tgt Ion: 178 Resp: 39
Ion Ratio Lower Upper
178 100
179 0.0 0.0 35.1
176 0.0 0.0 38.2
177 0.0 0.0 28.7



#18
Fluoranthene
Concen: Below ug/mL
RT: 10.015 min Scan# 866
Delta R.T. -0.006 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

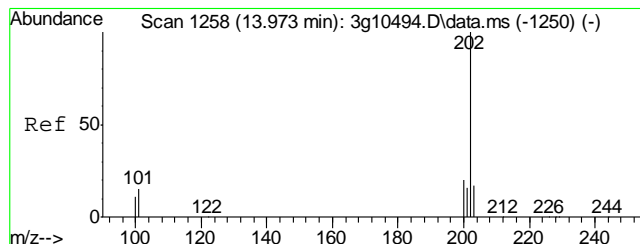
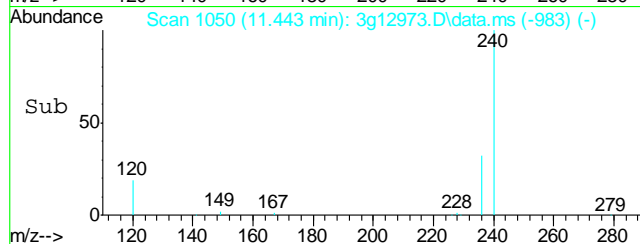
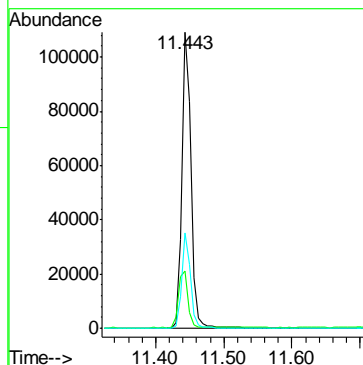
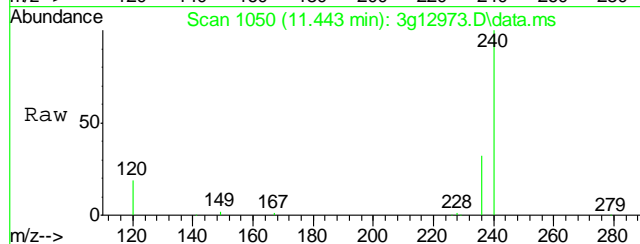
Tgt Ion: 202 Resp: 205
Ion Ratio Lower Upper
202 100
101 0.0 0.0 32.6
203 44.9 0.0 37.4#





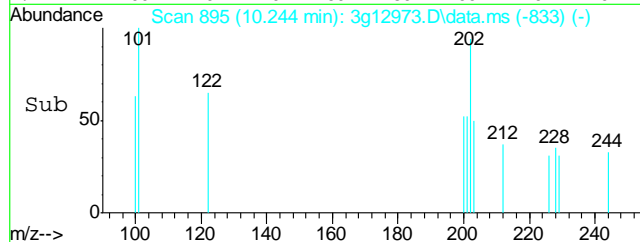
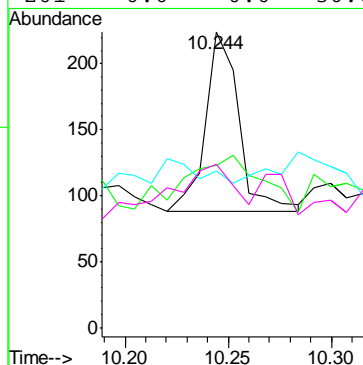
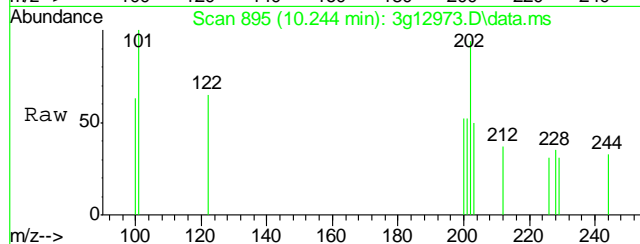
#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.443 min Scan# 1050
Delta R.T. 0.000 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

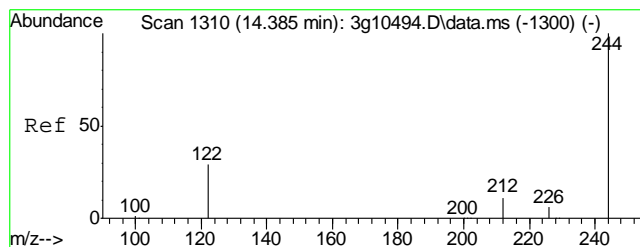
Tgt Ion:	240	Resp:	101544
Ion Ratio	Lower	Upper	
240	100		
120	20.4	0.0	37.3
236	30.7	11.2	51.2



#20
Pyrene
Concen: Below ug/mL
RT: 10.244 min Scan# 895
Delta R.T. -0.006 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

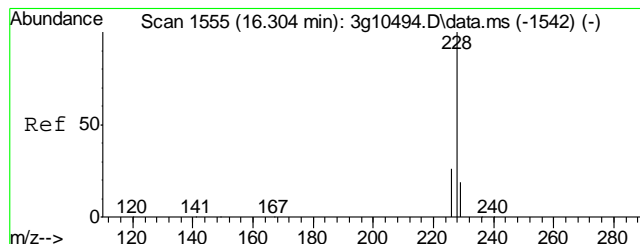
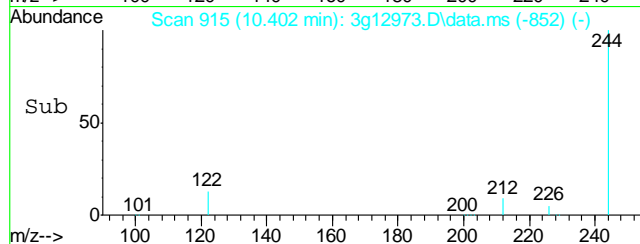
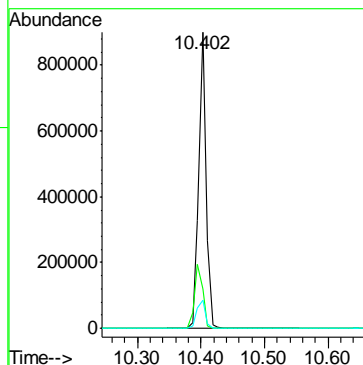
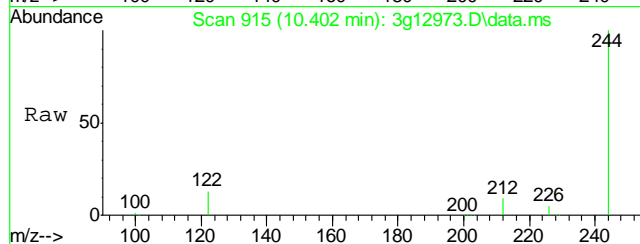
Tgt Ion:	202	Resp:	152
Ion Ratio	Lower	Upper	
202	100		
200	0.0	0.2	40.2#
203	0.0	0.0	37.8
201	0.0	0.0	36.6





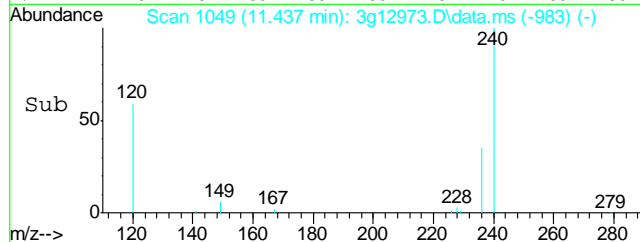
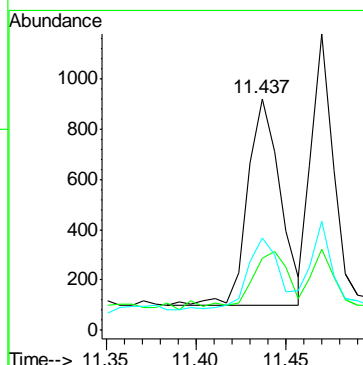
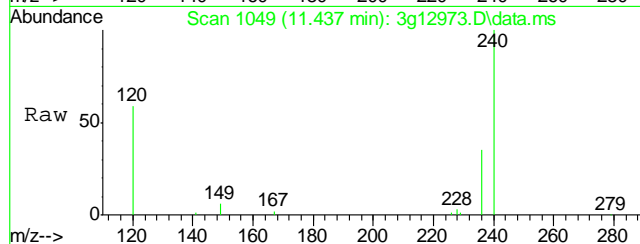
#21
Terphenyl-d14
Concen: 52.5073 ug/mL
RT: 10.402 min Scan# 915
Delta R.T. 0.002 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

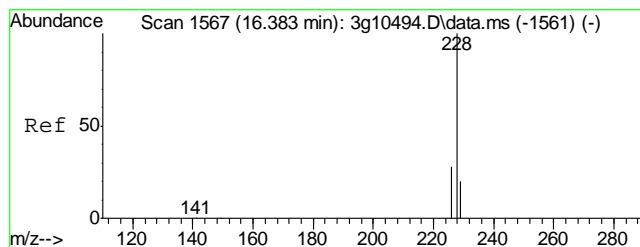
Tgt Ion	Ratio	Lower	Upper
244	100		
122	24.3	7.8	47.8
212	11.0	0.0	32.8



#22
Benzo(a)anthracene
Concen: Below ug/mL
RT: 11.437 min Scan# 1049
Delta R.T. 0.000 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

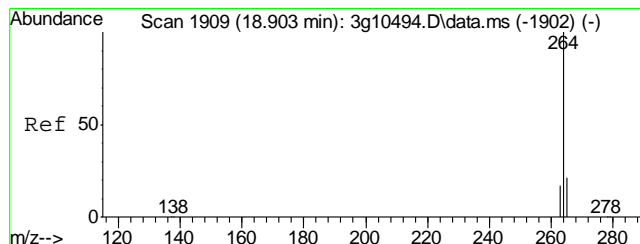
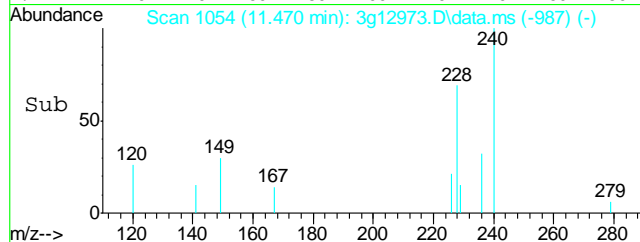
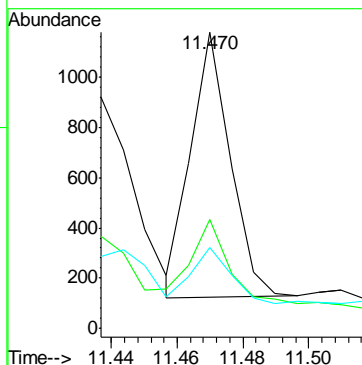
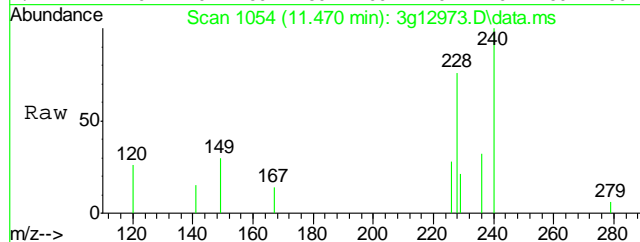
Tgt Ion	Ratio	Lower	Upper
228	100		
229	28.4	0.0	39.4
226	34.7	6.6	46.6





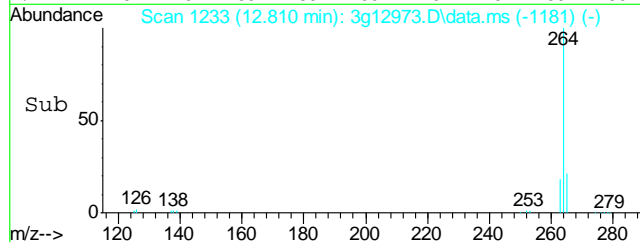
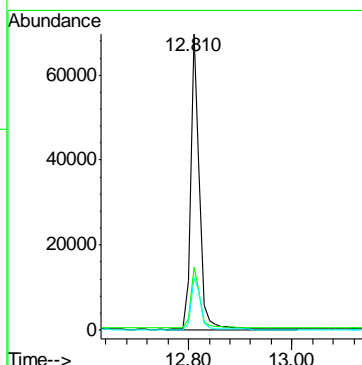
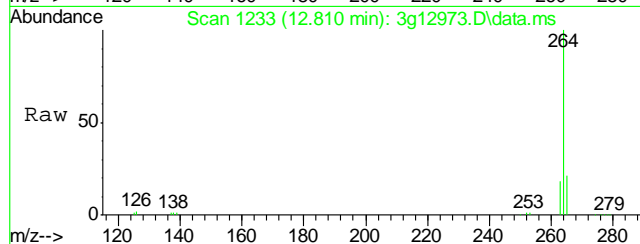
#23
Chrysene
Concen: Below ug/mL
RT: 11.470 min Scan# 1054
Delta R.T. 0.000 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

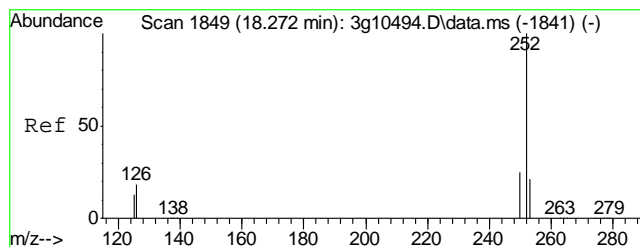
Tgt Ion: 228	Resp: 877
Ion Ratio	Lower Upper
228	100
226	40.8 8.6 48.6
229	27.1 0.0 39.4



#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 12.810 min Scan# 1233
Delta R.T. 0.000 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

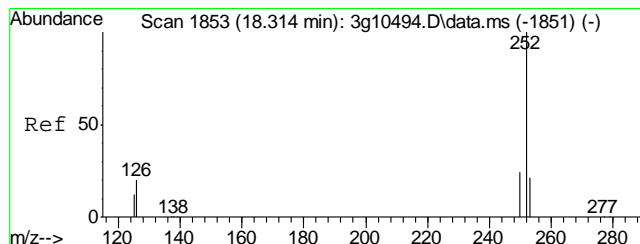
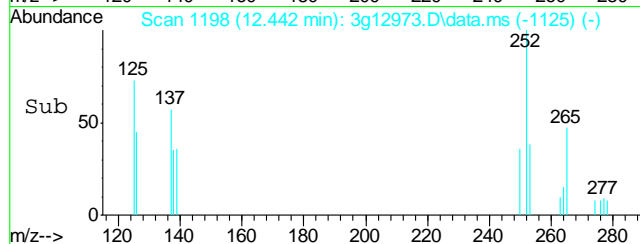
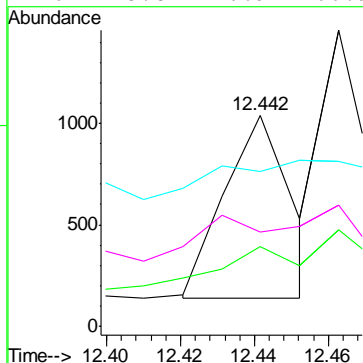
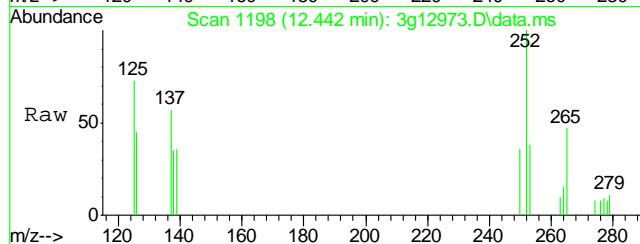
Tgt Ion: 264	Resp: 84293
Ion Ratio	Lower Upper
264	100
265	20.8 0.6 40.6
263	19.5 0.0 38.8





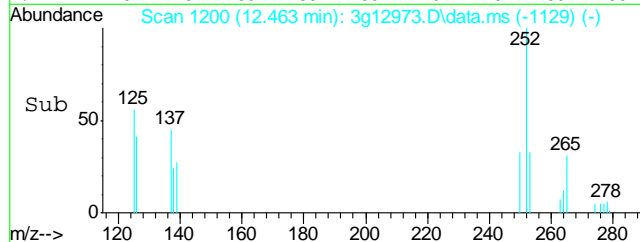
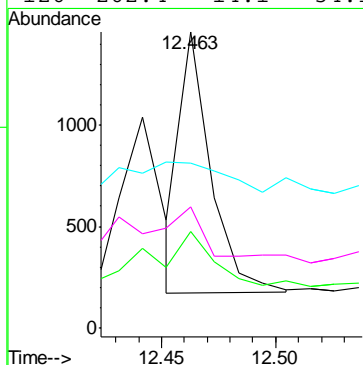
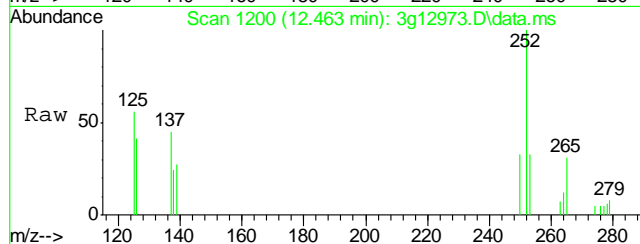
#25
Benzo(b)fluoranthene
Concen: 0.0649 ug/mL m
RT: 12.442 min Scan# 1198
Delta R.T. 0.000 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

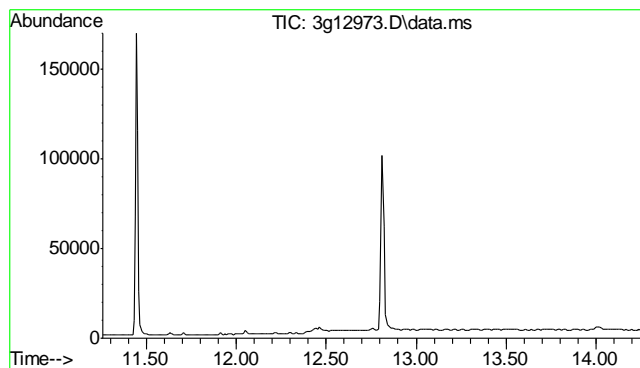
Tgt Ion	252	Resp	1135
Ion Ratio	100		
253	182.7	31.5	71.5#
125	91.1	0.0	33.2#
126	278.8	26.9	66.9#



#26
Benzo(k)fluoranthene
Concen: Below ug/mL m
RT: 12.463 min Scan# 1200
Delta R.T. -0.000 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

Tgt Ion	252	Resp	1206
Ion Ratio	100		
253	172.0	17.3	57.3#
125	85.7	0.0	29.6#
126	262.4	14.1	54.1#

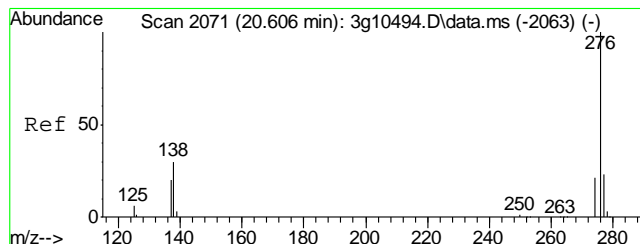
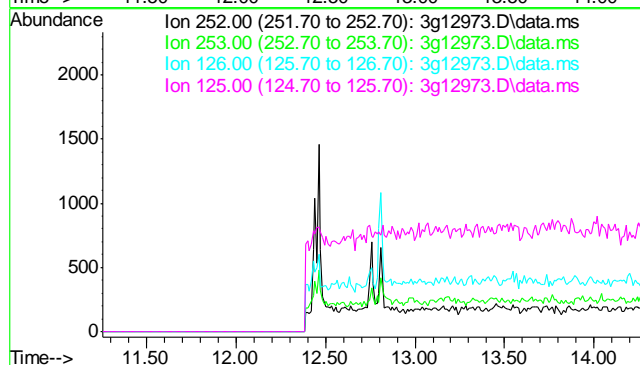




#27
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 12.76 min

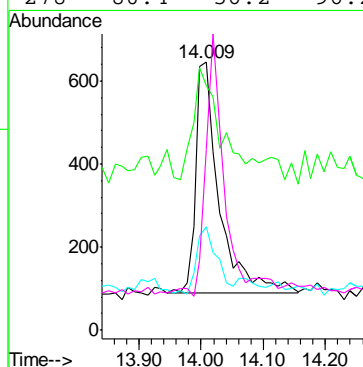
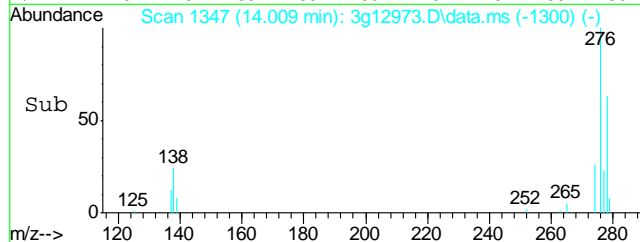
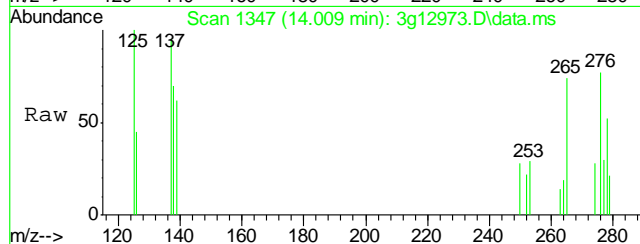
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

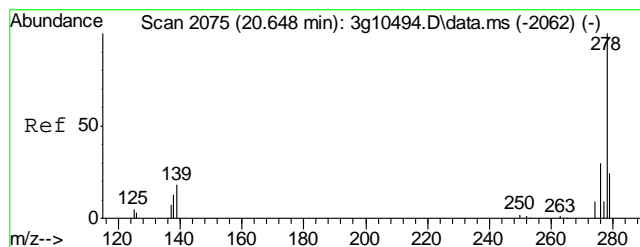
Tgt Ion: 252
Sig Exp Ratio
252 100
253 21.5
126 20.4
125 14.5



#28
Indeno(1,2,3-cd)pyrene
Concen: 0.0777 ug/mL
RT: 14.009 min Scan# 1347
Delta R.T. -0.008 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

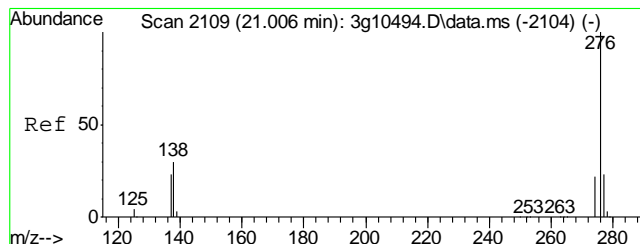
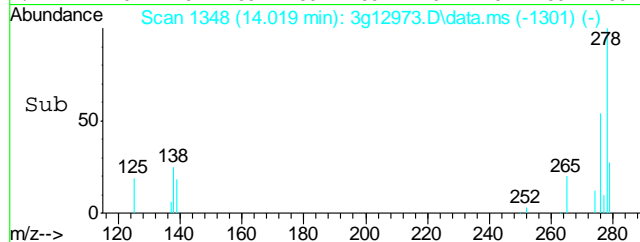
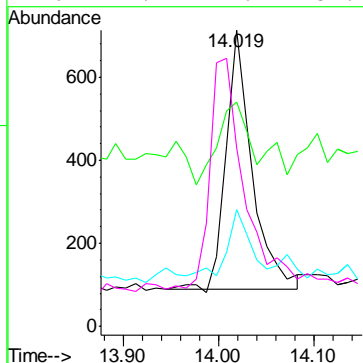
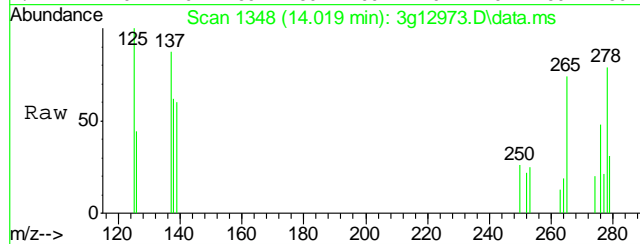
Tgt Ion: 276 Resp: 1461
Ion Ratio Lower Upper
276 100
138 57.9 20.0 60.0
277 24.3 4.8 44.8
278 80.4 56.2 96.2





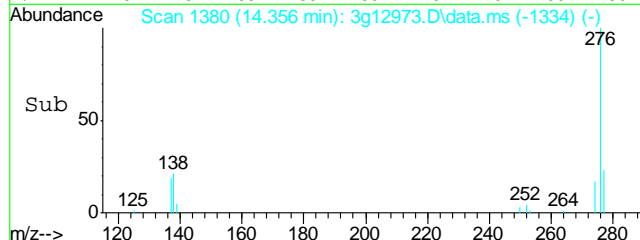
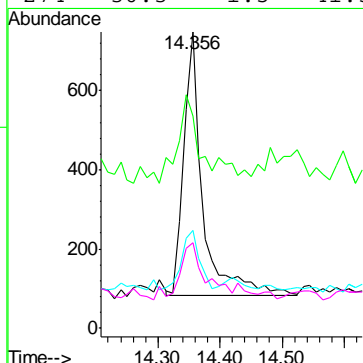
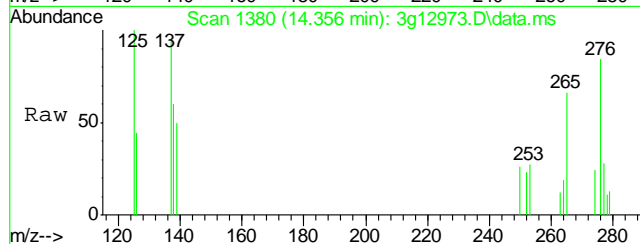
#29
Dibenzo(a,h)anthracene
Concen: 0.0897 ug/mL
RT: 14.019 min Scan# 1348
Delta R.T. -0.008 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

Tgt Ion	Ratio	Lower	Upper
278	100		
139	48.2	10.8	50.8
279	20.9	2.9	42.9
276	127.2	111.2	151.2



#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.356 min Scan# 1380
Delta R.T. -0.018 min
Lab File: 3g12973.D
Acq: 15 Jan 13 10:14 am

Tgt Ion	Ratio	Lower	Upper
276	100		
138	34.2	15.1	55.1
277	24.0	3.3	43.3
274	30.3	1.5	41.5



GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D42556
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1045-MB	GB19116.D	1	01/11/13	SK	n/a	n/a	GGB1045

The QC reported here applies to the following samples: Method: SW846 8015B
D42556-1, D42556-2

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

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	90% 60-140%

10.1.1
10

Blank Spike Summary

Job Number: D42556
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1045-BS	GB19117.D	1	01/11/13	SK	n/a	n/a	GGB1045

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

D42556-1, D42556-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	118	107	70-130

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D42556
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D42466-11MS	GB19119.D	1	01/11/13	SK	n/a	n/a	GGB1045
D42466-11MSD	GB19120.D	1	01/11/13	SK	n/a	n/a	GGB1045
D42466-11	GB19118.D	1	01/11/13	SK	n/a	n/a	GGB1045

The QC reported here applies to the following samples:

Method: SW846 8015B

D42556-1, D42556-2

CAS No.	Compound	D42466-11 mg/kg	Spike Q	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND	152	170	112	167	110	2	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D42466-11	Limits
120-82-1	1,2,4-Trichlorobenzene	109%	100%	84%	60-140%

* = Outside of Control Limits.

GC Volatiles

Raw Data



Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\011113\GB19132.D\FID1A.CH Vial: 19
Signal #2 : Y:\1\DATA\011113\GB19132.D\FID2B.CH
Acq On : 11 Jan 2013 9:59 pm Operator: StephK
Sample : D42556-1, 50X Inst : GC/MS Ins
Misc : GC3352,GGB1045,5.066,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jan 14 08:43:57 2013 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Fri Jan 11 14:33:28 2013
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	2905471	92.726 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.36	14820177	91.186 %	m
Target Compounds					
1) H	TVH-Gasoline	7.23	3738403	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	7.66	104796	0.264	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	0.00	0	N.D.	ug/L d

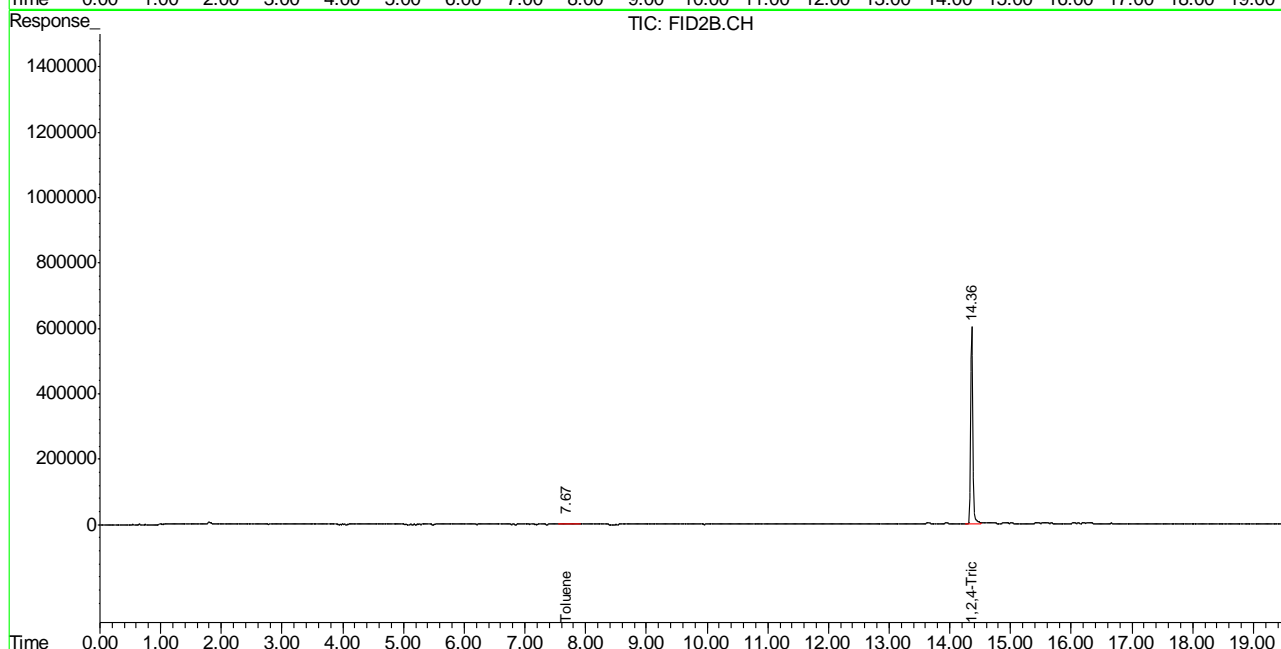
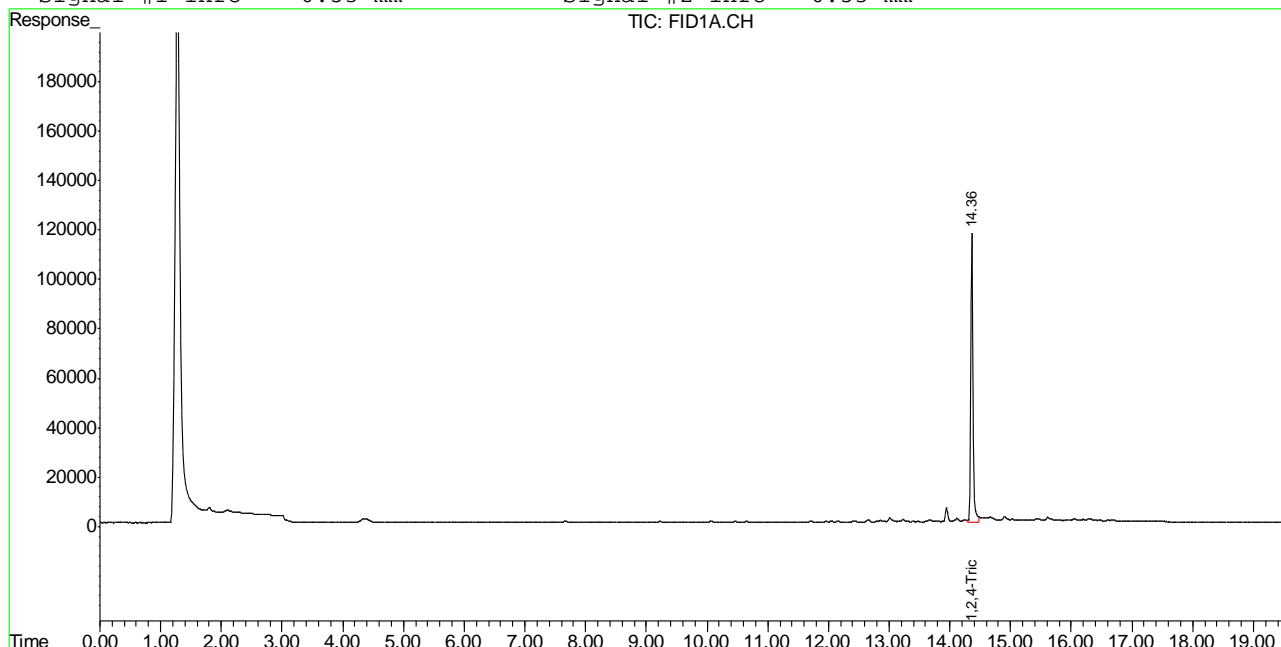
11.1.1

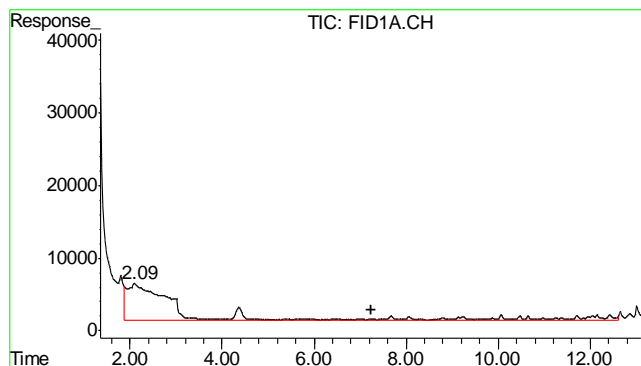
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\011113\GB19132.D\FID1A.CH Vial: 19
 Signal #2 : Y:\1\DATA\011113\GB19132.D\FID2B.CH
 Acq On : 11 Jan 2013 9:59 pm Operator: StephK
 Sample : D42556-1, 50X Inst : GC/MS Ins
 Misc : GC3352,GGB1045,5.066,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Jan 14 8:56 2013 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Fri Jan 11 14:33:28 2013
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

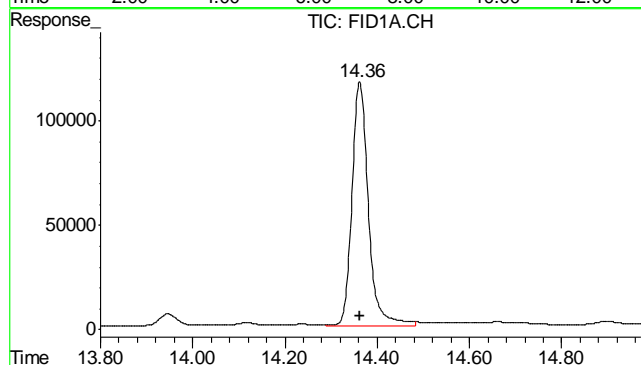
Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





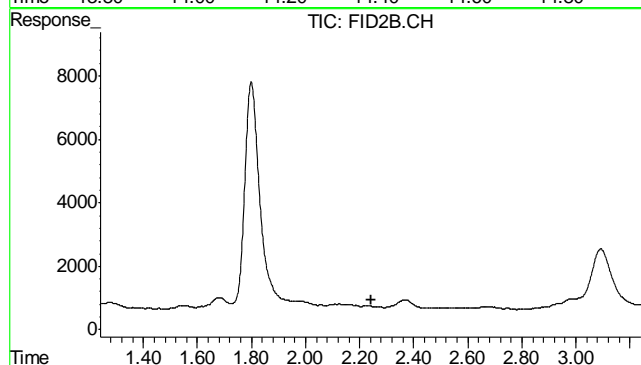
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 3738403
Conc: N.D.



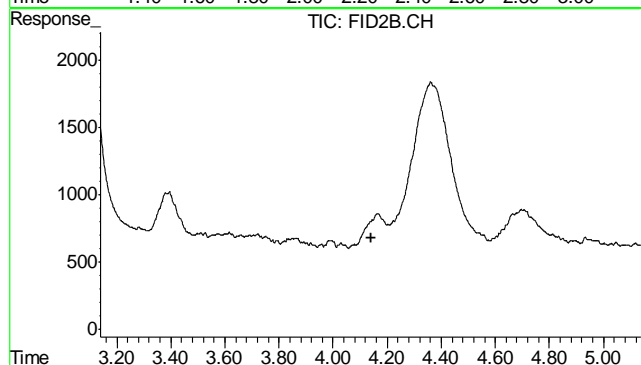
#2 1,2,4-Trichlorobenzene

R.T.: 14.362 min
Delta R.T.: 0.000 min
Response: 2905471
Conc: 92.73 % m



#4 Methyl-t-butyl-ether

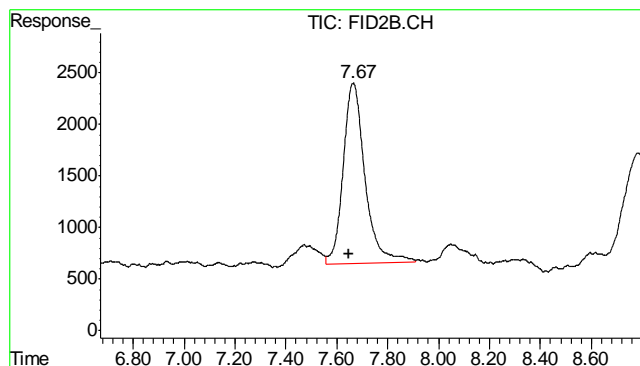
R.T.: 0.000 min
Exp R.T.: 2.241 min
Response: 0
Conc: N.D.



#5 Benzene

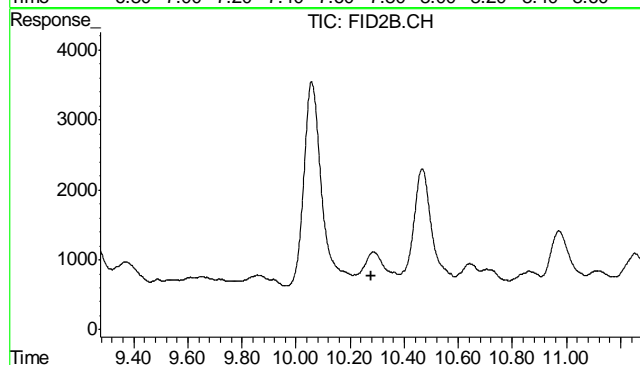
R.T.: 0.000 min
Exp R.T.: 4.139 min
Response: 0
Conc: N.D.

11.1.1



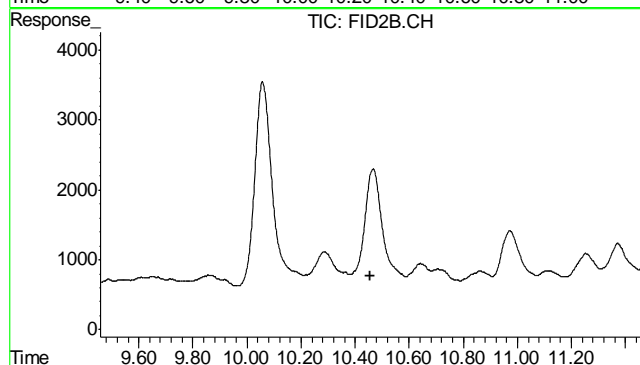
#6 Toluene

R.T.: 7.665 min
 Delta R.T.: 0.017 min
 Response: 104796
 Conc: 0.26 ug/L



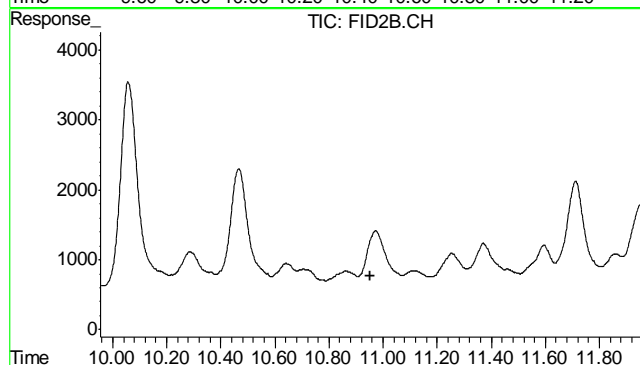
#7 Ethylbenzene

R.T.: 0.000 min
 Exp R.T.: 10.276 min
 Response: 0
 Conc: N.D.



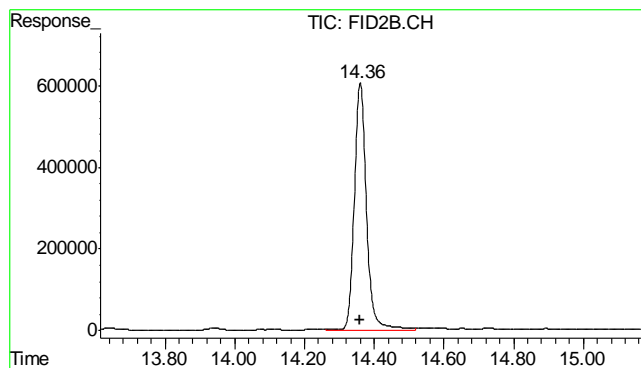
#8 m,p-Xylene

R.T.: 0.000 min
 Exp R.T.: 10.457 min
 Response: 0
 Conc: N.D.



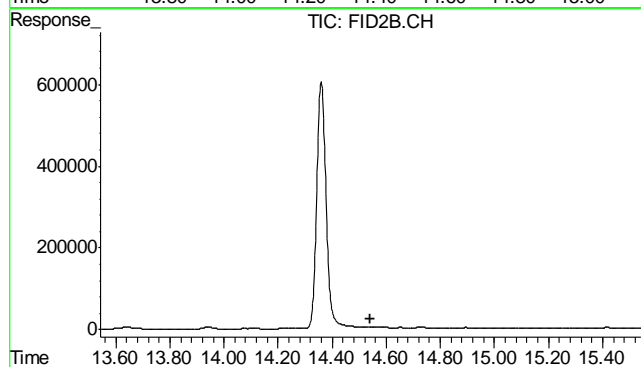
#9 o-Xylene

R.T.: 0.000 min
 Exp R.T.: 10.954 min
 Response: 0
 Conc: N.D.



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

R.T.: 14.359 min
Delta R.T.: 0.000 min
Response: 14820177
Conc: 91.19 % m



#11 Naphthalene

R.T.: 0.000 min
Exp R.T. : 14.542 min
Response: 0
Conc: N.D.

11.1.1
11

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\011113\GB19133.D\FID1A.CH Vial: 20
Signal #2 : Y:\1\DATA\011113\GB19133.D\FID2B.CH
Acq On : 11 Jan 2013 10:35 pm Operator: StephK
Sample : D42556-2, 50X Inst : GC/MS Ins
Misc : GC3352,GGB1045,5.060,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jan 14 08:44:01 2013 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Fri Jan 11 14:33:28 2013
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	

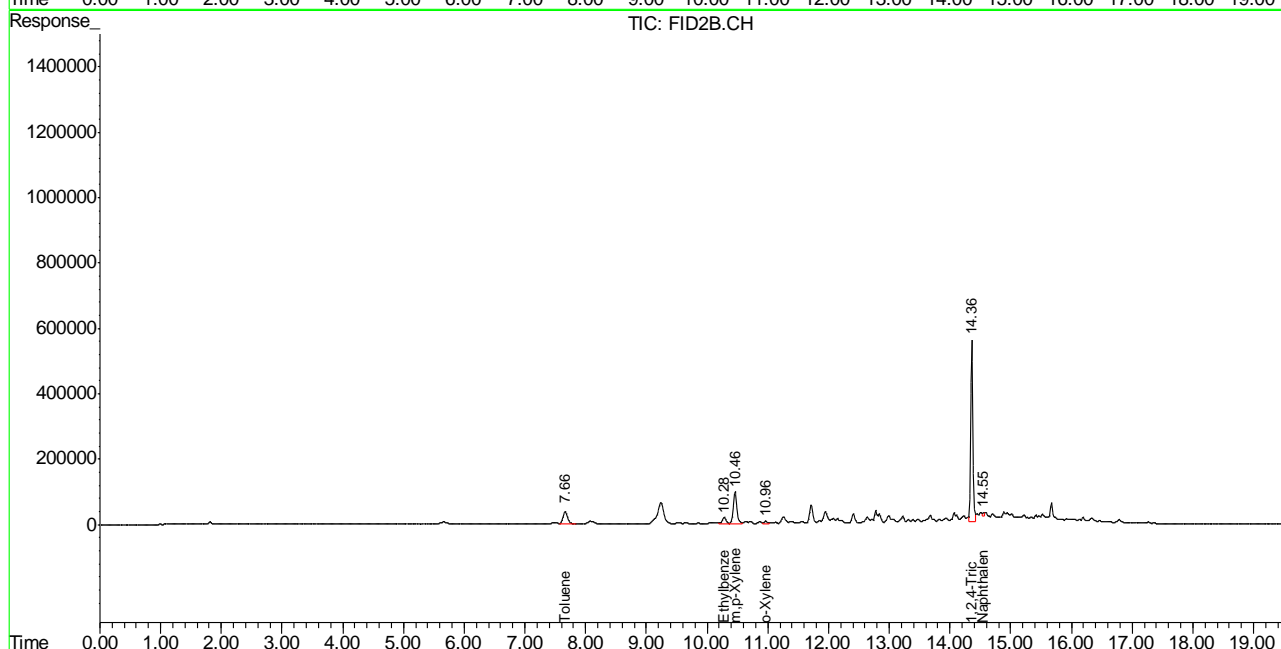
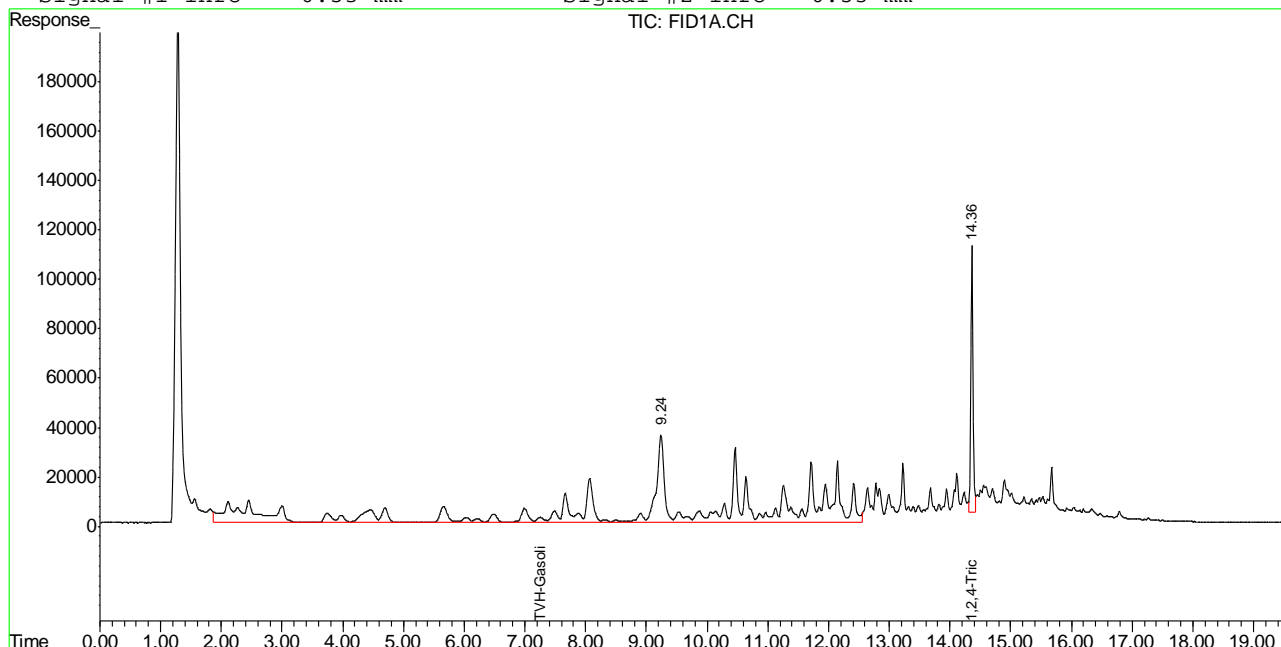
System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.36	2677351	85.446 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.36	13368492	82.254 %	m
Target Compounds					
1) H	TVH-Gasoline	7.23	23992846	0.348	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	7.66	2179890	5.501	ug/L
7) T	Ethylbenzene	10.28	888680	2.627	ug/L m
8) T	m,p-Xylene	10.46	4027842	10.662	ug/L
9) T	o-Xylene	10.96	334429	1.018	ug/L m
11) T	Naphthalene	14.55	226539	1.148	uq/L m

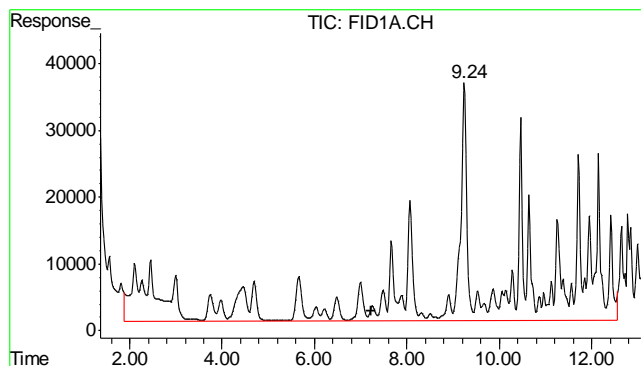
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\011113\GB19133.D\FID1A.CH Vial: 20
 Signal #2 : Y:\1\DATA\011113\GB19133.D\FID2B.CH
 Acq On : 11 Jan 2013 10:35 pm Operator: StephK
 Sample : D42556-2, 50X Inst : GC/MS Ins
 Misc : GC3352,GGB1045,5.060,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Jan 14 8:57 2013 Quant Results File: TB868GB868SOIL.RES

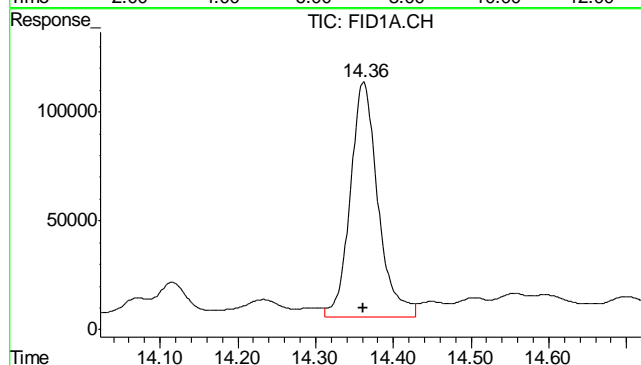
Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Fri Jan 11 14:33:28 2013
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

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

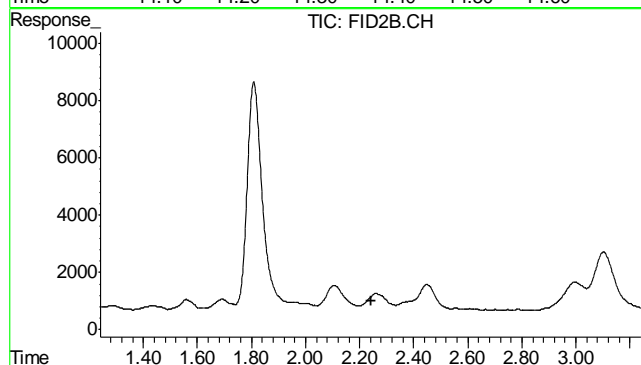




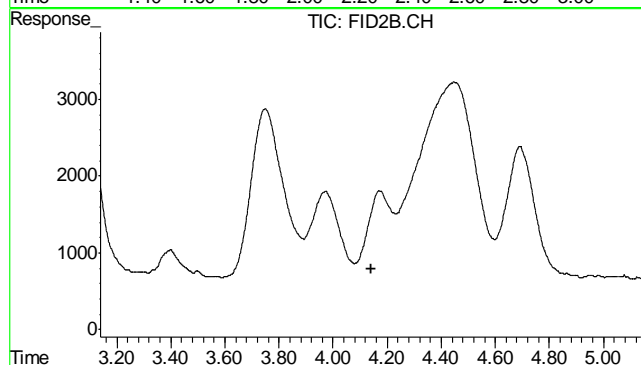
#1 TVH-Gasoline
 R.T.: 7.230 min
 Delta R.T.: 0.000 min
 Response: 23992846
 Conc: 0.35 mg/L m



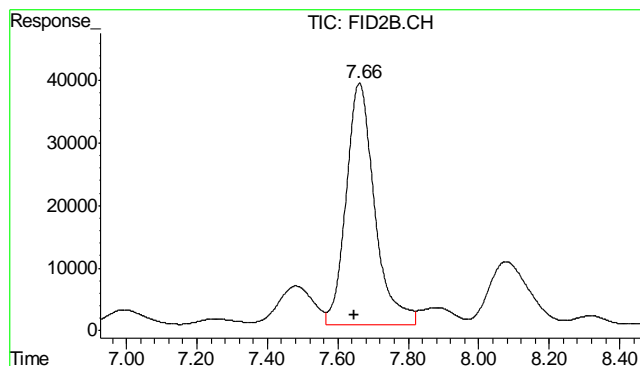
#2 1,2,4-Trichlorobenzene
 R.T.: 14.361 min
 Delta R.T.: 0.000 min
 Response: 2677351
 Conc: 85.45 % m



#4 Methyl-t-butyl-ether
 R.T.: 0.000 min
 Exp R.T.: 2.241 min
 Response: 0
 Conc: N.D.

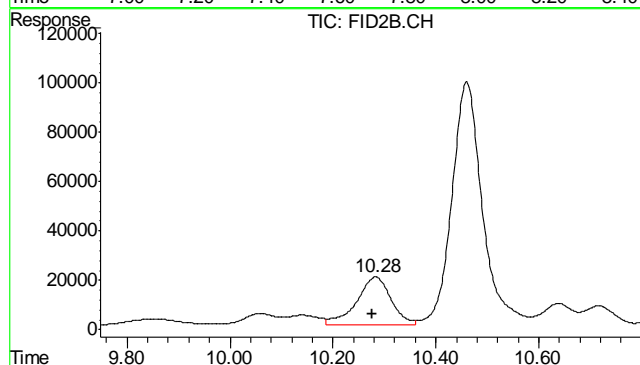


#5 Benzene
 R.T.: 0.000 min
 Exp R.T.: 4.139 min
 Response: 0
 Conc: N.D.



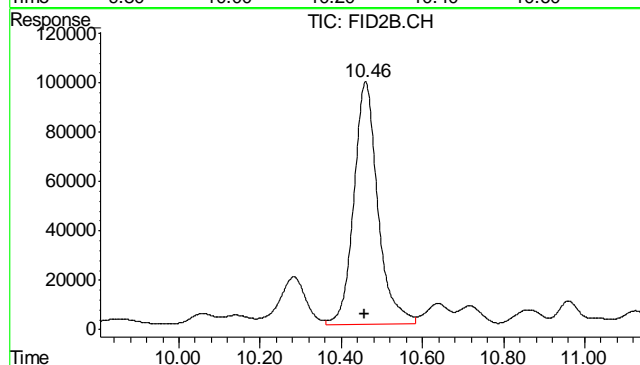
#6 Toluene

R.T.: 7.661 min
Delta R.T.: 0.013 min
Response: 2179890
Conc: 5.50 ug/L



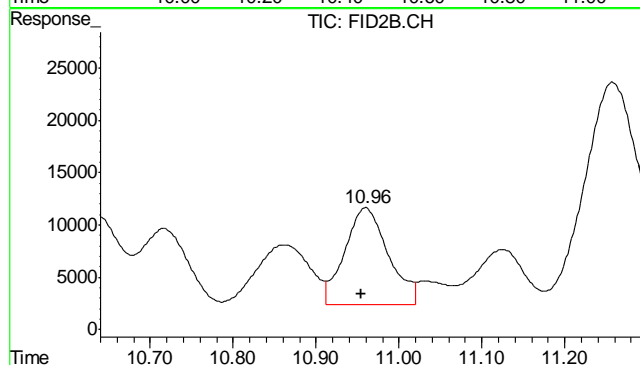
#7 Ethylbenzene

R.T.: 10.282 min
Delta R.T.: 0.006 min
Response: 888680
Conc: 2.63 ug/L m



#8 m,p-Xylene

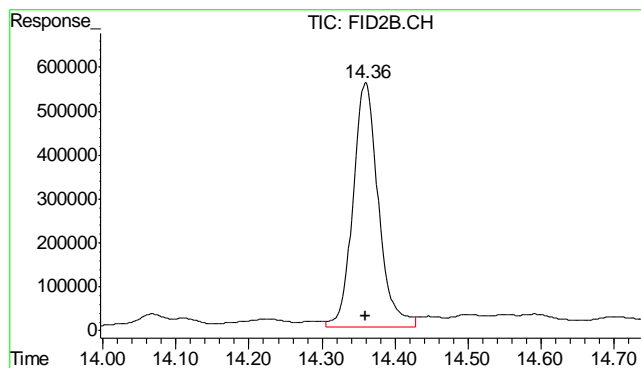
R.T.: 10.460 min
Delta R.T.: 0.003 min
Response: 4027842
Conc: 10.66 ug/L



#9 o-Xylene

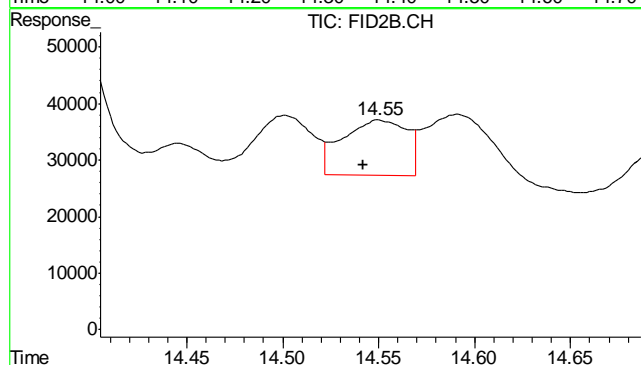
R.T.: 10.960 min
Delta R.T.: 0.006 min
Response: 334429
Conc: 1.02 ug/L m

11.12
11



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

R.T.: 14.359 min
 Delta R.T.: 0.000 min
 Response: 13368492
 Conc: 82.25 % m



#11 Naphthalene

R.T.: 14.549 min
 Delta R.T.: 0.008 min
 Response: 226539
 Conc: 1.15 ug/L m

11.1.2
11

Judy Melson
01/14/13 09:52

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\011113\GB19116.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\011113\GB19116.D\FID2B.CH
Acq On : 11 Jan 2013 12:29 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3352,GGB1045,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jan 11 14:33:44 2013 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Fri Jan 11 14:33:28 2013
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	2820685	90.020 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.36	14366912	88.397 %	m
Target Compounds					
1) H	TVH-Gasoline	7.23	3021648	<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	7.65	116878	0.295	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	16454	<MDL	ug/L m

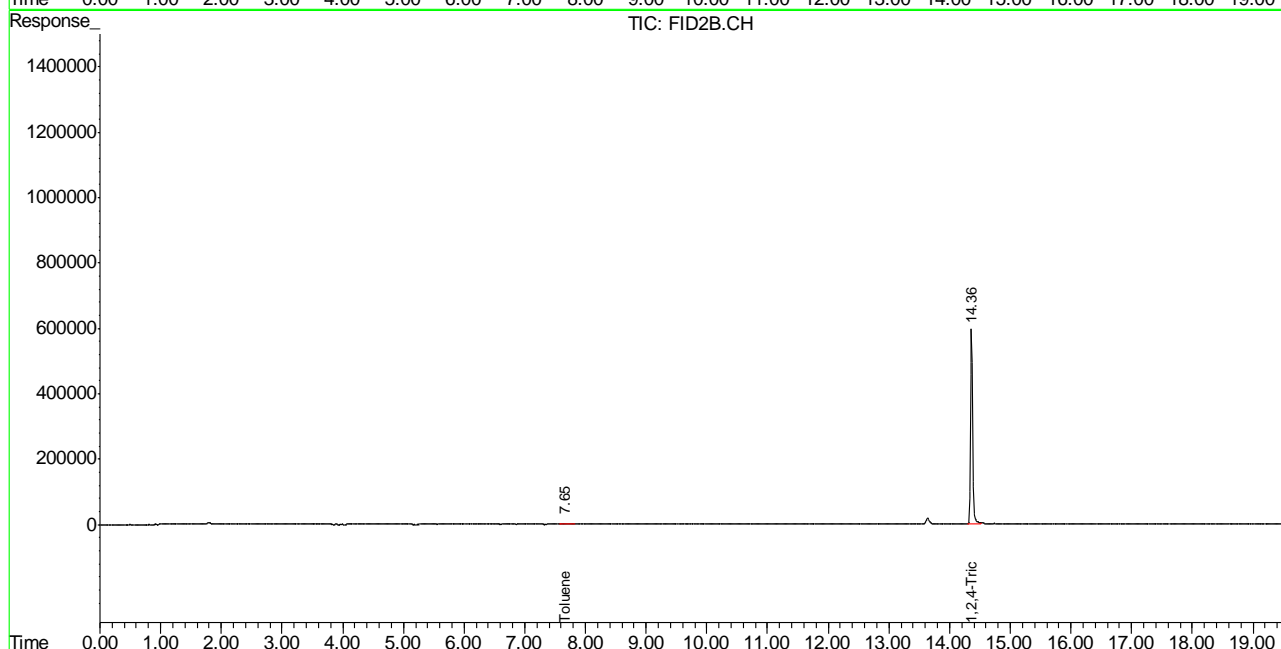
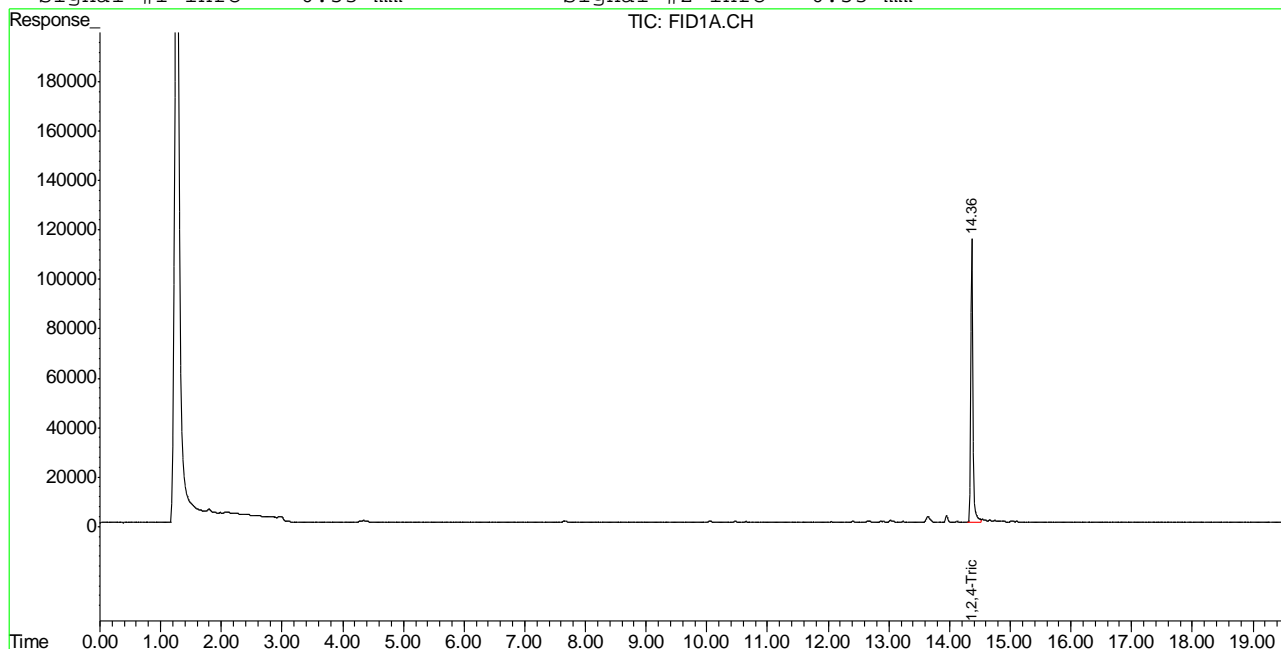
(f)=RT Delta > 1/2 Window (m)=manual int.
GB19116.D TB868GB868SOIL.M Mon Jan 14 09:00:37 2013 GC

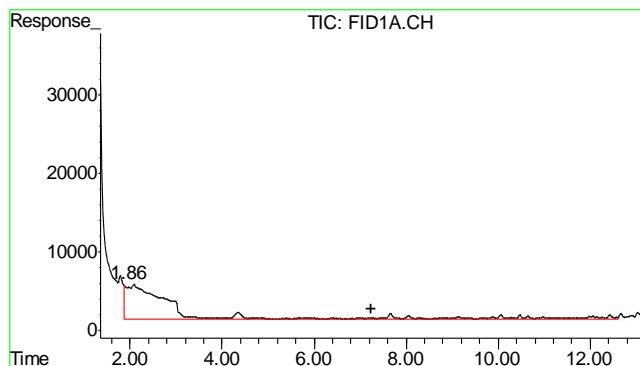
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\011113\GB19116.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\011113\GB19116.D\FID2B.CH
Acq On : 11 Jan 2013 12:29 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3352,GGB1045,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jan 11 14:33 2013 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Fri Jan 11 14:33:28 2013
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

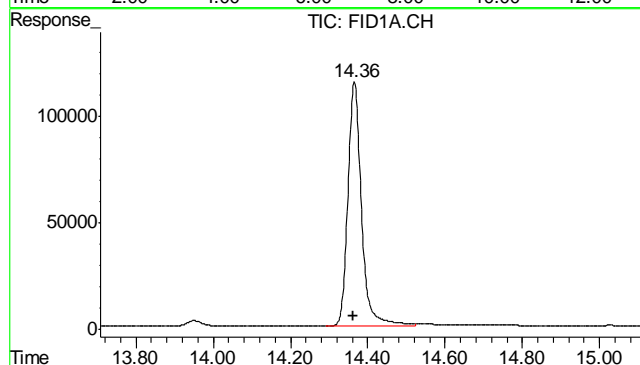
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





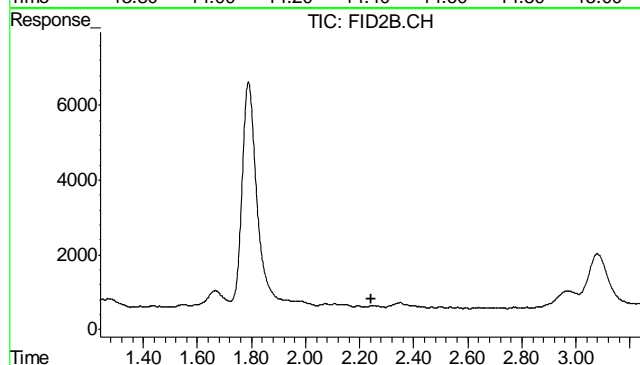
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 3021648
Conc: N.D.



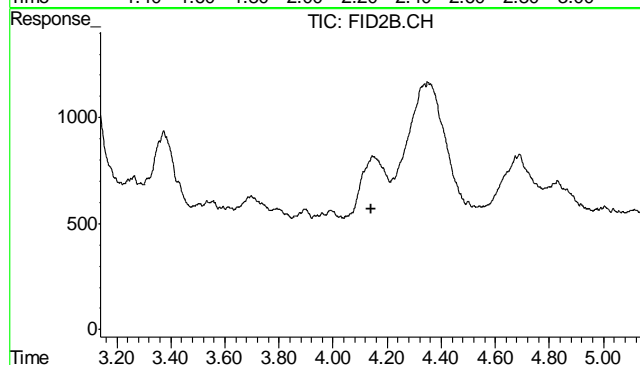
#2 1,2,4-Trichlorobenzene

R.T.: 14.365 min
Delta R.T.: 0.003 min
Response: 2820685
Conc: 90.02 % m



#4 Methyl-t-butyl-ether

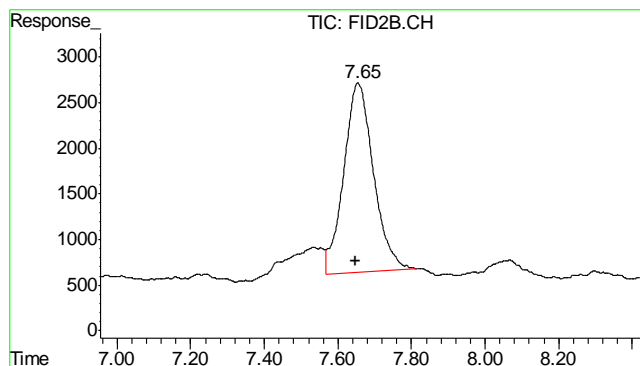
R.T.: 0.000 min
Exp R.T.: 2.241 min
Response: 0
Conc: N.D.



#5 Benzene

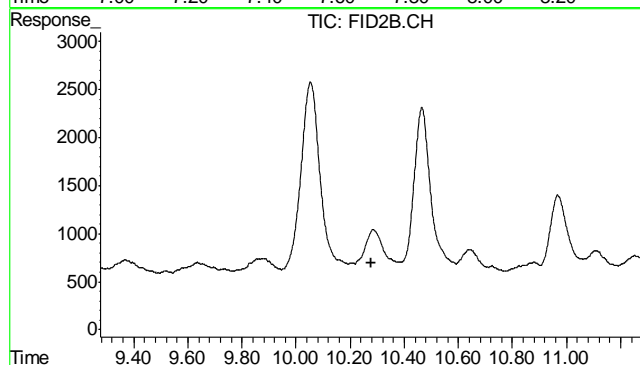
R.T.: 0.000 min
Exp R.T.: 4.139 min
Response: 0
Conc: N.D.

11.21
11



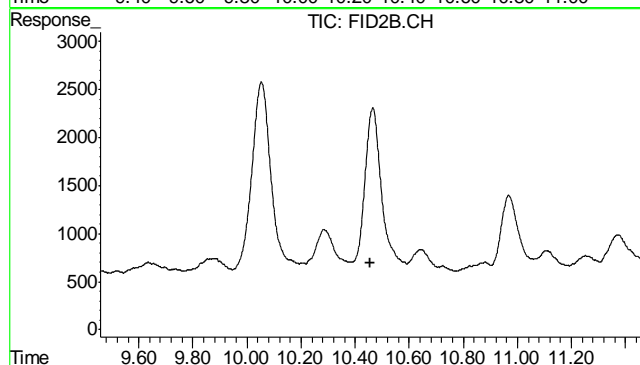
#6 Toluene

R.T.: 7.655 min
Delta R.T.: 0.006 min
Response: 116878
Conc: 0.29 ug/L



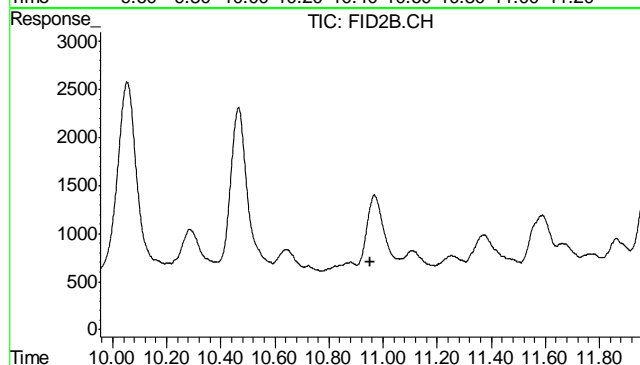
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T.: 10.276 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

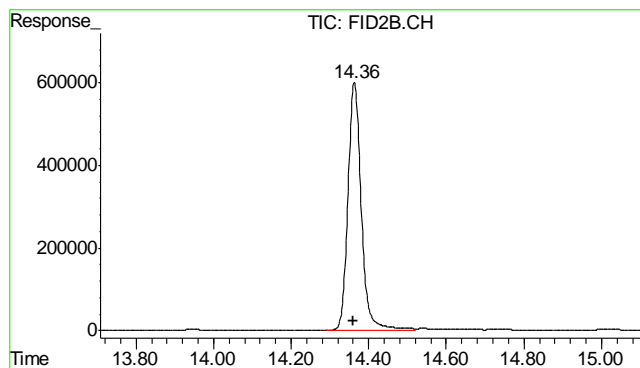
R.T.: 0.000 min
Exp R.T.: 10.457 min
Response: 0
Conc: N.D.



#9 o-Xylene

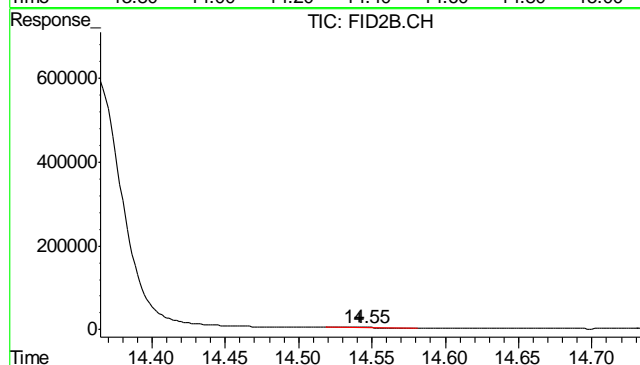
R.T.: 0.000 min
Exp R.T.: 10.954 min
Response: 0
Conc: N.D.

11.21
11



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

R.T.: 14.362 min
Delta R.T.: 0.003 min
Response: 14366912
Conc: 88.40 % m



#11 Naphthalene

R.T.: 14.545 min
Delta R.T.: 0.003 min
Response: 16454
Conc: N.D.

11.2.1
11

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D42556
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7232-MB	FD21147.D	1	01/15/13	AV	01/15/13	OP7232	GFD1064

The QC reported here applies to the following samples: Method: SW846-8015B
D42556-1, D42556-2

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	79% 35-130%

Blank Spike Summary

Page 1 of 1

Job Number: D42556
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7232-BS	FD21148.D	1	01/15/13	AV	01/15/13	OP7232	GFD1064

The QC reported here applies to the following samples:

Method: SW846-8015B

D42556-1, D42556-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	631	95	48-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	83%	35-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D42556
Account: XTOKRWR XTO Energy
Project: PCU 296-5A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7232-MS	FD21149.D	1	01/15/13	AV	01/15/13	OP7232	GFD1064
OP7232-MSD	FD21150.D	1	01/15/13	AV	01/15/13	OP7232	GFD1064
D42562-1	FD21151.D	1	01/15/13	AV	01/15/13	OP7232	GFD1064

The QC reported here applies to the following samples:

Method: SW846-8015B

D42556-1, D42556-2

CAS No.	Compound	D42562-1 mg/kg	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	313	876	1030	82	1030	82	0	20-168/30

CAS No.	Surrogate Recoveries	MS	MSD	D42562-1	Limits
84-15-1	o-Terphenyl	91%	84%	79%	35-130%

* = Outside of Control Limits.

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2013\JAN\FD011513\FD21152.D Vial: 8
Acq On : 1-15-2013 06:48:18 PM Operator: ashleyv
Sample : D42556-1 Inst : FID5
Misc : OP7232,GFD1064,30.10,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Jan 16 08:12:36 2013 Quant Results File: DRO-GFD1044F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD1044F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Jan 15 13:27:58 2013
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

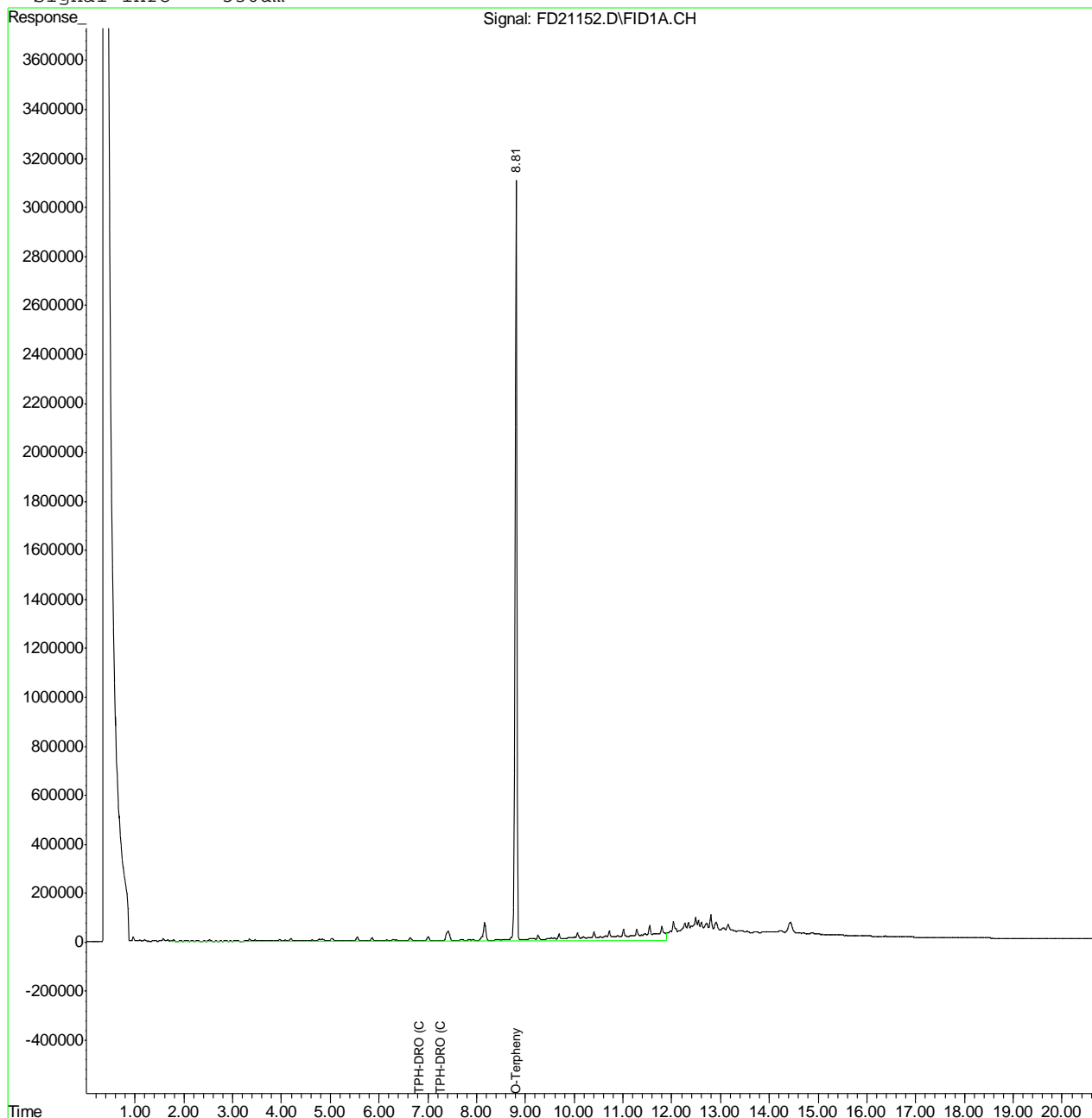
System Monitoring Compounds			
1) S O-Terphenyl	8.81	80055375	1398.956 mg/L
Target Compounds			
2) H TPH-DRO (C10-C32)	7.27	78643979	1918.275 mg/L
3) H TPH-DRO (C10-C28)	6.82	49423214	1210.711 mg/L

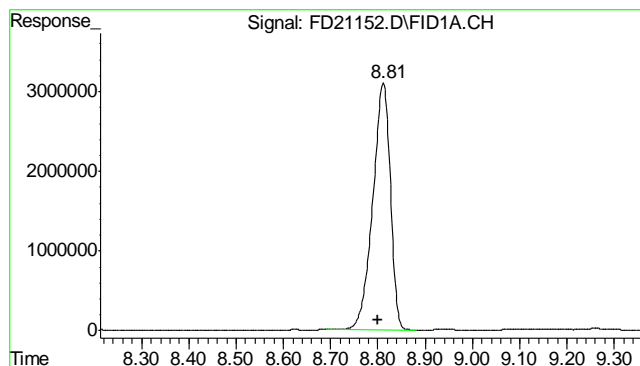
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2013\JAN\FD011513\FD21152.D Vial: 8
Acq On : 1-15-2013 06:48:18 PM Operator: ashleyv
Sample : D42556-1 Inst : FID5
Misc : OP7232,GFD1064,30.10,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Jan 16 8:12 2013 Quant Results File: DRO-GFD1044F.RES

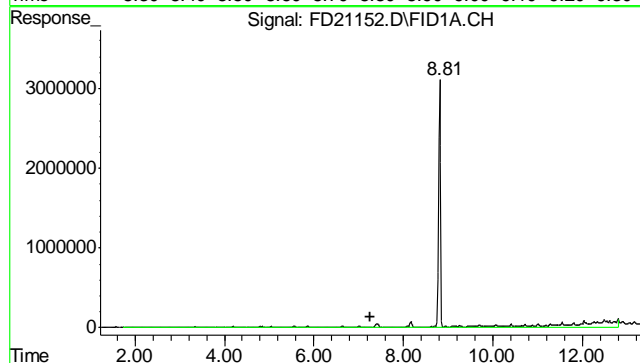
Quant Method : C:\MSDCHEM\2...\DRO-GFD1044F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Jan 15 13:27:58 2013
Response via : Multiple Level Calibration
DataAcq Meth : DRO_FR.M

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

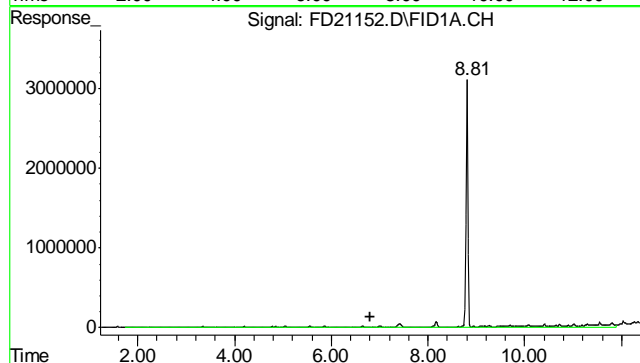




#1 O-Terphenyl
 R.T.: 8.811 min
 Delta R.T.: 0.011 min
 Response: 80055375
 Conc: 1398.96 mg/L



#2 TPH-DRO (C10-C32)
 R.T.: 7.270 min
 Delta R.T.: 0.000 min
 Response: 78643979
 Conc: 1918.27 mg/L m



#3 TPH-DRO (C10-C28)
 R.T.: 6.815 min
 Delta R.T.: 0.000 min
 Response: 49423214
 Conc: 1210.71 mg/L m

13.1.1
13

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2013\JAN\FD011513\FD21153.D Vial: 9
 Acq On : 1-15-2013 07:14:50 PM Operator: ashleyv
 Sample : D42556-2 Inst : FID5
 Misc : OP7232,GFD1064,30.01,,,1,1 Multiplr: 1.00
 IntFile : autoint1.e
 Quant Time: Jan 16 08:12:38 2013 Quant Results File: DRO-GFD1044F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD1044F.M (Chemstation Integrator)
 Title : 8015B TEH
 Last Update : Tue Jan 15 13:27:58 2013
 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

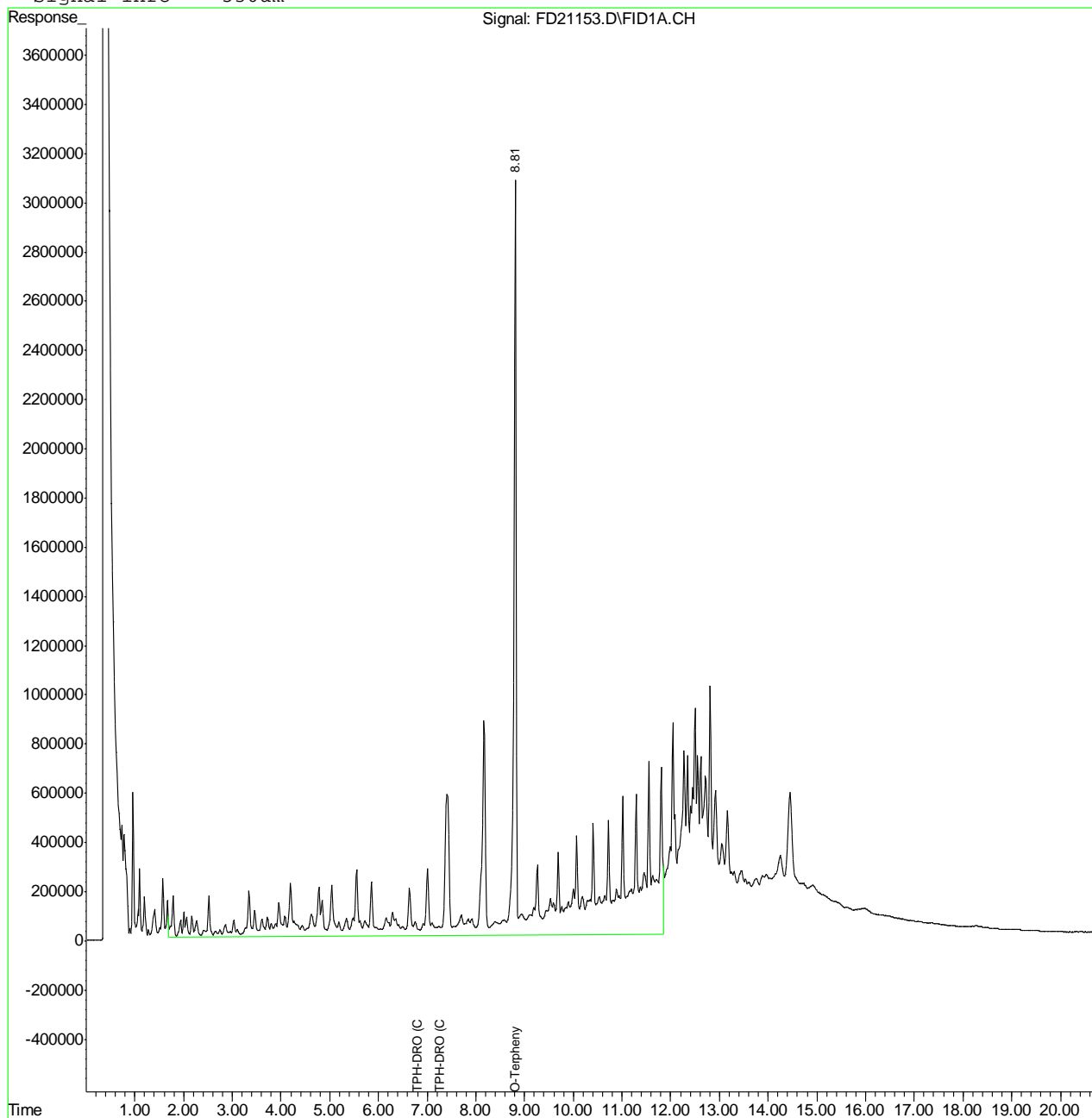
System Monitoring Compounds			
1) S O-Terphenyl	8.81	92144707	1610.215 mg/L
Target Compounds			
2) H TPH-DRO (C10-C32)	7.27	857459850	20915.058 mg/L
3) H TPH-DRO (C10-C28)	6.82	605699620	14837.711 mg/L

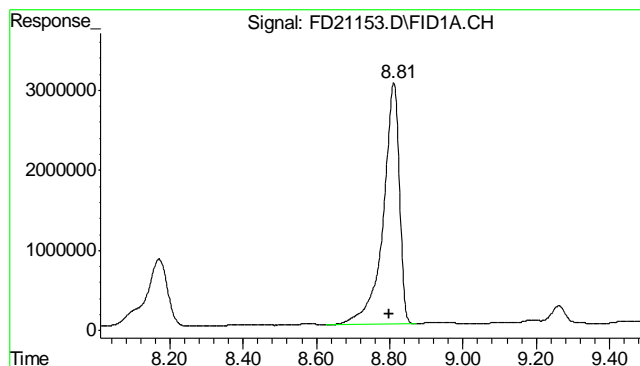
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2013\JAN\FD011513\FD21153.D Vial: 9
Acq On : 1-15-2013 07:14:50 PM Operator: ashleyv
Sample : D42556-2 Inst : FID5
Misc : OP7232,GFD1064,30.01,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Jan 16 8:23 2013 Quant Results File: DRO-GFD1044F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD1044F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Jan 15 13:27:58 2013
Response via : Multiple Level Calibration
DataAcq Meth : DRO_FR.M

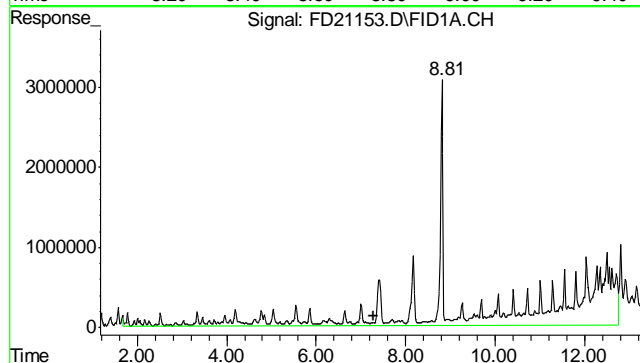
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





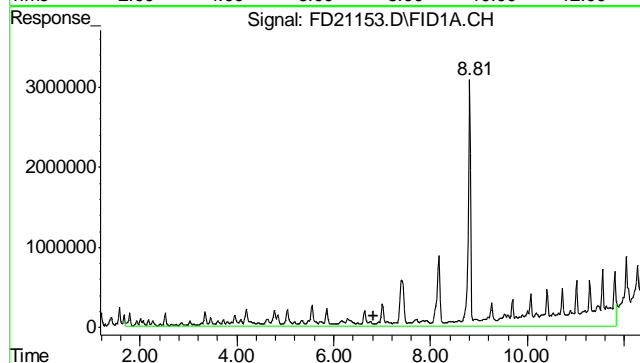
#1 O-Terphenyl

R.T.: 8.811 min
Delta R.T.: 0.011 min
Response: 92144707
Conc: 1610.22 mg/L



#2 TPH-DRO (C10-C32)

R.T.: 7.270 min
Delta R.T.: 0.000 min
Response: 857459850
Conc: 20915.06 mg/L m



#3 TPH-DRO (C10-C28)

R.T.: 6.815 min
Delta R.T.: 0.000 min
Response: 605699620
Conc: 14837.71 mg/L m

13.1.2
13

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2013\JAN\FD011513\FD21147.D Vial: 3
Acq On : 1-15-2013 04:35:51 PM Operator: ashleyv
Sample : OP7232-MB Inst : FID5
Misc : OP7232,GFD1064,30.00,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Jan 16 08:12:28 2013 Quant Results File: DRO-GFD1044F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD1044F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Jan 15 13:27:58 2013
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

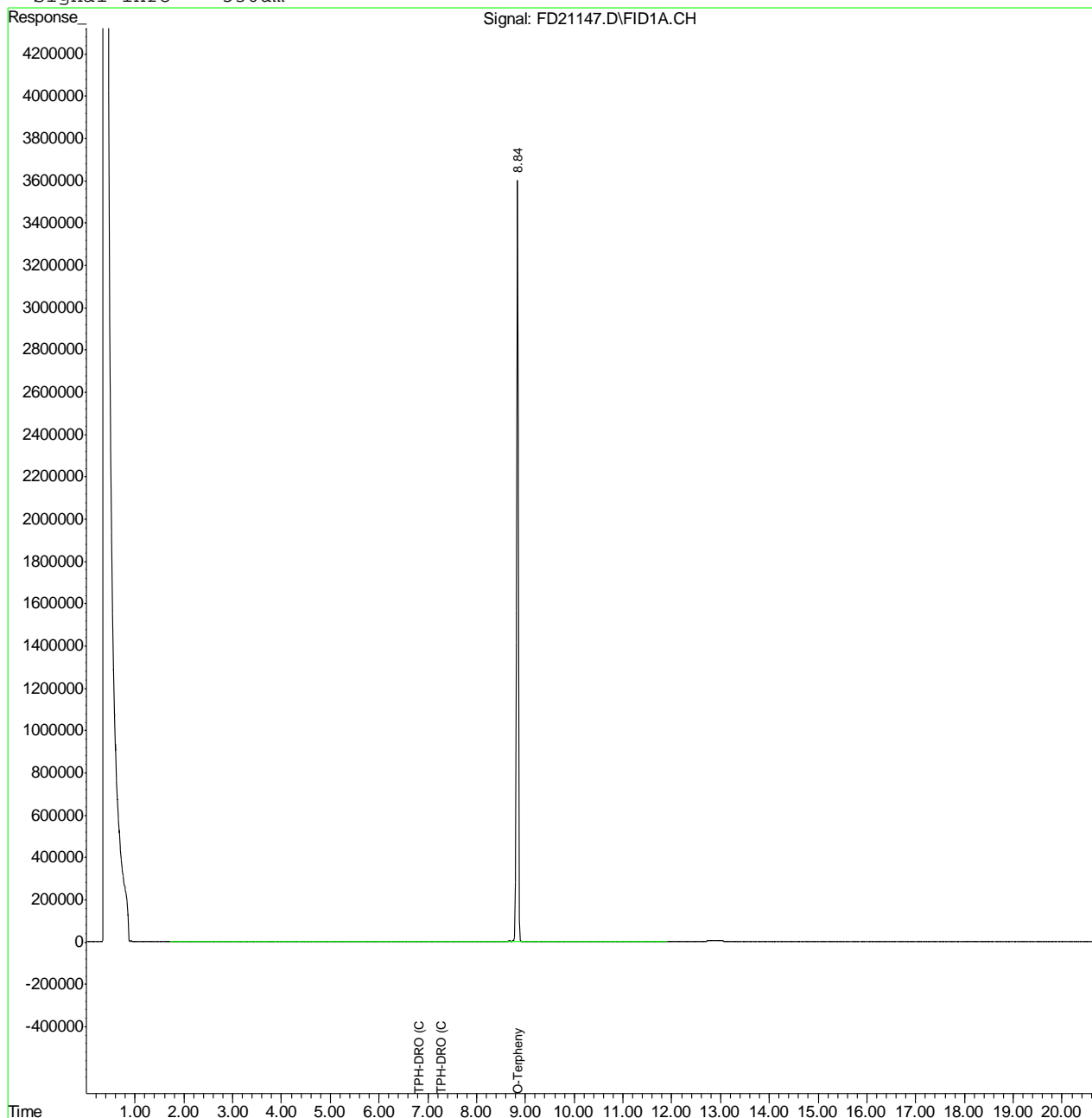
System Monitoring Compounds			
1) S O-Terphenyl	8.84	90567108	1582.647 mg/L
Target Compounds			
2) H TPH-DRO (C10-C32)	7.27	2029145	49.495 mg/L
3) H TPH-DRO (C10-C28)	6.82	1512285	37.046 mg/L

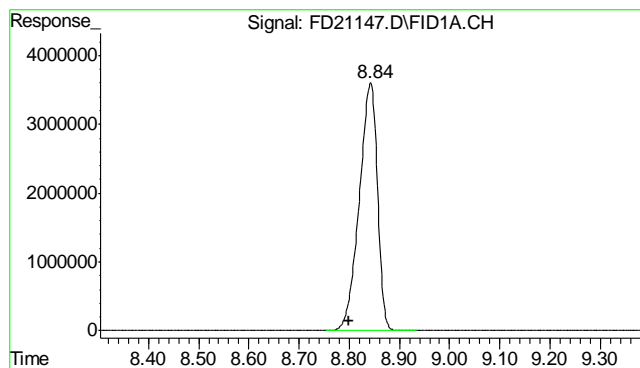
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2013\JAN\FD011513\FD21147.D Vial: 3
Acq On : 1-15-2013 04:35:51 PM Operator: ashleyv
Sample : OP7232-MB Inst : FID5
Misc : OP7232,GFD1064,30.00,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Jan 16 8:12 2013 Quant Results File: DRO-GFD1044F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD1044F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Jan 15 13:27:58 2013
Response via : Multiple Level Calibration
DataAcq Meth : DRO_FR.M

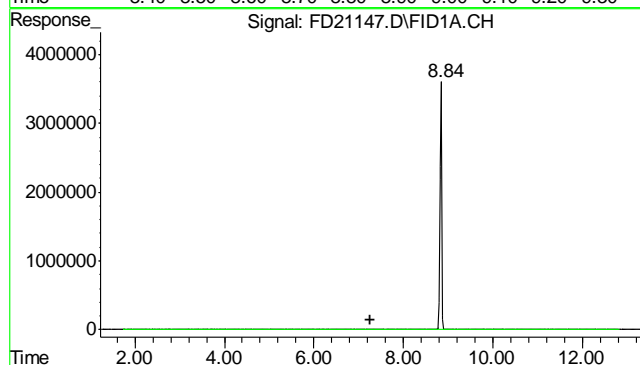
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





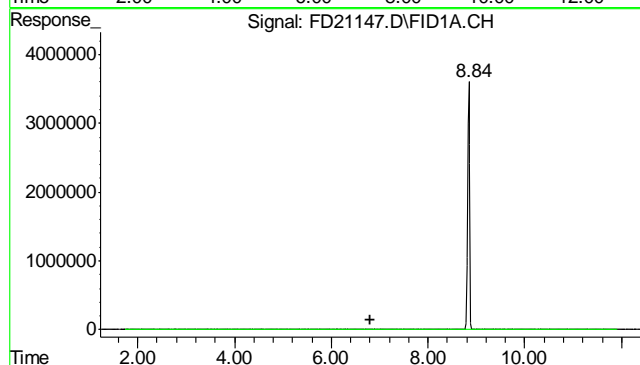
#1 O-Terphenyl

R.T.: 8.842 min
Delta R.T.: 0.042 min
Response: 90567108
Conc: 1582.65 mg/L



#2 TPH-DRO (C10-C32)

R.T.: 7.270 min
Delta R.T.: 0.000 min
Response: 2029145
Conc: 49.49 mg/L m



#3 TPH-DRO (C10-C28)

R.T.: 6.815 min
Delta R.T.: 0.000 min
Response: 1512285
Conc: 37.05 mg/L m

13.2.1
13

Metals Analysis

QC Data Summaries

Includes the following where applicable:

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9242
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 01/14/13

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	0.25	<1.0
Beryllium	1.0	.13	.15		
Boron	5.0	.1	.06		
Cadmium	1.0	.06	.036	0.020	<1.0
Calcium	40	.54	9		
Chromium	1.0	.03	.03	0.040	<1.0
Cobalt	0.50	.04	.07		
Copper	1.0	.12	.15	0.13	<1.0
Iron	7.0	.12	.87		
Lead	5.0	.19	.24	0.020	<5.0
Lithium	0.20	.05	.054		
Magnesium	20	.65	.98		
Manganese	0.50	.12	.022		
Molybdenum	1.0	.21	.08		
Nickel	3.0	.05	.026	-0.020	<3.0
Phosphorus	10	1.4	1.9		
Potassium	200	6.1	7		
Selenium	5.0	.48	.36	-0.46	<5.0
Silicon	5.0	.29	.37		
Silver	3.0	.04	.06	0.030	<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	0.090	<3.0

Associated samples MP9242: D42556-1, D42556-2

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9242
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9242
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 01/14/13

Metal	D42510-1 Original MS		Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium	4420	4470	235	21.3 (a)	75-125
Beryllium					
Boron					
Cadmium	0.0	49.1	58.7	83.7	75-125
Calcium					
Chromium	28.6	73.0	58.7	83.2	75-125
Cobalt					
Copper	15.4	67.2	58.7	88.3	75-125
Iron					
Lead	12.0	107	117	81.0	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	19.2	77.2	58.7	98.9	75-125
Phosphorus					
Potassium					
Selenium	0.0	105	117	89.5	75-125
Silicon					
Silver	0.0	21.0	23.5	89.5	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	37.6	82.7	58.7	76.9	75-125

Associated samples MP9242: D42556-1, D42556-2

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9242
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9242
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 01/14/13

Metal	D42510-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium	4420	4930	232	219.5(a)	9.8	20
Beryllium						
Boron						
Cadmium	0.0	48.6	58.1	83.7	1.0	20
Calcium						
Chromium	28.6	74.5	58.1	86.6	2.0	20
Cobalt						
Copper	15.4	67.2	58.1	89.2	0.0	20
Iron						
Lead	12.0	105	116	80.1	1.9	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	19.2	77.0	58.1	99.5	0.3	20
Phosphorus						
Potassium						
Selenium	0.0	104	116	89.5	1.0	20
Silicon						
Silver	0.0	20.8	23.2	89.5	1.0	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	37.6	81.9	58.1	76.3	1.0	20

Associated samples MP9242: D42556-1, D42556-2

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9242
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9242
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 01/14/13

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	198	200	99.0	80-120
Beryllium				
Boron				
Cadmium	46.5	50	93.0	80-120
Calcium				
Chromium	49.9	50	99.8	80-120
Cobalt				
Copper	47.4	50	94.8	80-120
Iron				
Lead	96.0	100	96.0	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	47.5	50	95.0	80-120
Phosphorus				
Potassium				
Selenium	97.5	100	97.5	80-120
Silicon				
Silver	19.8	20	99.0	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	49.2	50	98.4	80-120

Associated samples MP9242: D42556-1, D42556-2

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9242
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9242
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/14/13

Metal	D42510-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	32800	36700	2.5	0-10
Beryllium				
Boron				
Cadmium	0.00	0.00	NC	0-10
Calcium				
Chromium	206	243	17.8*(a)	0-10
Cobalt				
Copper	121	142	8.3	0-10
Iron				
Lead	119	122	19.0*(a)	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	135	155	5.2	0-10
Phosphorus				
Potassium				
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver	0.00	0.00	NC	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	320	412	28.5*(a)	0-10

Associated samples MP9242: D42556-1, D42556-2

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

14.1.4
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9242
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

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

14.1.4
14

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9243
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 01/14/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.006	.06	0.013	<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 MP9243: D42556-1, D42556-2

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: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9243
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 01/14/13

Metal	D42510-1 Original MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	11.1	116	117	89.4
Barium	anr			
Beryllium				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper				
Iron				
Lead	anr			
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium	anr			
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP9243: D42556-1, D42556-2

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: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9243
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 01/14/13

Metal	D42510-1 Original	MSD	SpikeLot ICPAL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	11.1	123	116	96.3	5.9	20
Barium						
Beryllium						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt						
Copper						
Iron						
Lead	anr					
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium	anr					
Silver	anr					
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP9243: D42556-1, D42556-2

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: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9243
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 01/14/13

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	101	100	101.0	80-120
Barium	anr			
Beryllium				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper				
Iron				
Lead	anr			
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium	anr			
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP9243: D42556-1, D42556-2

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: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9243
Matrix Type: SOLID

Methods: SW846 6020A
Units: ug/l

Prep Date: 01/14/13

Metal	D42510-1			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic	94.9	94.9	0.0	0-10	
Barium	anr				
Beryllium					
Boron					
Cadmium	anr				
Calcium					
Chromium	anr				
Cobalt					
Copper					
Iron					
Lead	anr				
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium	anr				
Silver	anr				
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP9243: D42556-1, D42556-2

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: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9244
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 01/15/13

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.10	.0011	.0009	0.0018	<0.10

Associated samples MP9244: D42556-1, D42556-2

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: D42556
 Account: XTOKRWR - XTO Energy
 Project: PCU 296-5A

QC Batch ID: MP9244
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 01/15/13

Metal	D42445-1 Original MS	Spikelot HGWSR1	% Rec	QC Limits
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Mercury 0.054 0.45 0.393 100.7 75-125

Associated samples MP9244: D42556-1, D42556-2

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: D42556
 Account: XTOKRWR - XTO Energy
 Project: PCU 296-5A

QC Batch ID: MP9244
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 01/15/13

Metal	D42445-1		SpikeLot		MSD	QC
	Original	MSD	HGWSR1	% Rec		
Mercury	0.054	0.45	0.393	100.7	0.0	20

Associated samples MP9244: D42556-1, D42556-2

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: D42556
 Account: XTOKRWR - XTO Energy
 Project: PCU 296-5A

QC Batch ID: MP9244
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 01/15/13

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

Associated samples MP9244: D42556-1, D42556-2

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9251
Matrix Type: AQUEOUS

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

Prep Date: 01/15/13

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	2.5	<2000
Chromium	50	1.5	2.8		
Cobalt	25	2	2.1		
Copper	50	6	15		
Iron	350	6	100		
Lead	250	9.5	15		
Lithium	10	2.5			
Magnesium	1000	33	110	24.0	<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	27.5	<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 MP9251: D42556-1A, D42556-2A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9251
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: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9251
Matrix Type: AQUEOUS

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

Prep Date: 01/15/13

Metal	D42556-1A Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	92300	231000	125000	111.0	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	26000	155000	125000	103.2	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	107000	239000	125000	105.6	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP9251: D42556-1A, D42556-2A

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

14.4.2
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9251
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: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9251
Matrix Type: AQUEOUS

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

Prep Date: 01/15/13

Metal	D42556-1A Original	MSD	SpikeLot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	92300	236000	125000	115.0	2.1	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	26000	153000	125000	101.6	1.3	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	107000	235000	125000	102.4	1.7	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP9251: D42556-1A, D42556-2A

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

14.4.2
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9251
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: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9251
Matrix Type: AQUEOUS

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

Prep Date: 01/15/13

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	137000	125000	109.6	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	123000	125000	98.4	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	125000	125000	100.0	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP9251: D42556-1A, D42556-2A

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

14.4.3
14

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9251
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: D42556
 Account: XTOKRWR - XTO Energy
 Project: PCU 296-5A

QC Batch ID: MP9251
 Matrix Type: AQUEOUS

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

Prep Date: 01/15/13

D42556-1A			QC	
Metal	Original	SDL 1:5	%DIF	Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	18500	18600	0.9	0-10
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	5190	5270	1.5	0-10
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	21500	21600	0.8	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP9251: D42556-1A, D42556-2A

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

14.4.4
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

QC Batch ID: MP9251
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

14.4.4
14

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP9086/GN18425	1.0	0.0	mg/kg	92.9	91.5	98.5	80-120%
Specific Conductivity	GP9098/GN18435	1.0	<1.0	umhos/cm	9992	10500	105.2	90-110%
pH	GN18424			su	8.00	7.97	99.8	99.3-100.7%
pH	GN18426			su	8.00	8.00	100.0	99.3-100.7%

Associated Samples:
Batch GP9086: D42556-1, D42556-2
Batch GP9098: D42556-1, D42556-2
Batch GN18424: D42556-1
Batch GN18426: D42556-2
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP9086/GN18425	D42556-1	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN18422	D42337-20	mv	230	227	1.3	0-20%

Associated Samples:

Batch GP9086: D42556-1, D42556-2

Batch GN18422: D42556-1, D42556-2

(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP9086/GN18425	D42556-1	mg/kg	0.0	40.0	35.0	87.5	75-125%

Associated Samples:
Batch GP9086: D42556-1, D42556-2
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D42556
Account: XTOKRWR - XTO Energy
Project: PCU 296-5A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chromium, Hexavalent	GP9086/GN18425	D42556-1	mg/kg	0.0	40.0	33.9	3.1	20%

Associated Samples:
Batch GP9086: D42556-1, D42556-2
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

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