



12/10/12

Technical Report for

XTO Energy

PCU 296-6A

1211-02

Accutest Job Number: D41382

Sampling Date: 11/29/12

Report to:

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Total number of pages in report: 184



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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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: D41382

PCU 296-6A
Project No: 1211-02

Sample Number	Collected			Received	Matrix		Client Sample ID
	Date	Time	By		Code	Type	
D41382-1	11/29/12	09:05	DS	12/01/12	SO	Soil	RP PRE-SOLIDIFICATION
D41382-1A	11/29/12	09:05	DS	12/01/12	SO	Soil	RP PRE-SOLIDIFICATION
D41382-2	11/29/12	09:50	DS	12/01/12	SO	Soil	RP SETTLING CHAMBER
D41382-2A	11/29/12	09:50	DS	12/01/12	SO	Soil	RP SETTLING CHAMBER

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



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: XTO Energy

Job No D41382

Site: PCU 296-6A

Report Date 12/10/2012 4:13:35 PM

On 12/01/2012, 2 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2.7 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D41382 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: V3V1282

- All samples were analyzed within the recommended method holding time.
- Sample(s) D41381-1MS, D41381-1MSD 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: OP7075

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) D41381-1MS, D41381-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- D41382-1: Elevated reporting limit due to low % solids.

Volatiles by GC By Method SW846 8015B

Matrix SO

Batch ID: GGB1019

- All samples were analyzed within the recommended method holding time.
- Sample(s) D41339-11MS, D41339-11MSD 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: OP7053

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) D41381-1MS, D41381-1MSD 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: MP9015

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41381-1AMS, D41381-1AMSD, D41381-1ASDL were used as the QC samples for the metals analysis.

Matrix SO

Batch ID: MP9006

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41381-1MS, D41381-1MSD, D41381-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Barium, Cadmium, Lead, Nickel are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- The matrix spike duplicate (MSD) recovery(s) of Cadmium, Lead, Nickel are outside control limits. Probable cause due to matrix interference.
- The serial dilution RPD(s) for Cadmium, Silver, Chromium, Nickel, Zinc are outside control limits for sample MP9006-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP9006-MB1 for Barium: All sample results >10x method blank concentration or <RL.
- MP9006-SD1 for Nickel: Serial dilution indicates possible matrix interference.
- MP9006-S1 for Lead: Spike recovery indicates possible matrix interference.
- MP9006-S1 for Cadmium: Spike recovery indicates possible matrix interference.
- MP9006-SD1 for Zinc: Serial dilution indicates possible matrix interference.
- MP9006-SD1 for Chromium: Serial dilution indicates possible matrix interference.
- MP9006-S1 for Nickel: Spike recovery indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix SO

Batch ID: MP9007

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41381-1MS, D41381-1MSD, D41381-1SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471B

Matrix SO

Batch ID: MP8991

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D41298-1MS, D41298-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO

Batch ID: GN17931

- Sample(s) D41407-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO	Batch ID: GN17924
------------------	--------------------------

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

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO	Batch ID: GP8811
------------------	-------------------------

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

Wet Chemistry By Method SW846 3060A/7196A M

Matrix SO	Batch ID: R15359
------------------	-------------------------

- The data for SW846 3060A/7196A M meets quality control requirements.
- D41382-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix SO	Batch ID: R15360
------------------	-------------------------

- The data for SW846 3060A/7196A M meets quality control requirements.
- D41382-2 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 9045D

Matrix SO	Batch ID: GN17928
------------------	--------------------------

- The following samples were run outside of holding time for method SW846 9045D: D41382-1, D41382-2

Matrix SO	Batch ID: GN17929
------------------	--------------------------

- The following samples were run outside of holding time for method SW846 9045D: D41382-1

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO	Batch ID: MP9015
------------------	-------------------------

- D41382-1A for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$
- D41382-2A 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: D41382
Account: XTO Energy
Project: PCU 296-6A
Collected: 11/29/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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D41382-1 RP PRE-SOLIDIFICATION

Benzene	0.414	0.31	0.15	mg/kg	SW846 8260B
Toluene	0.737	0.61	0.31	mg/kg	SW846 8260B
Ethylbenzene	0.129 J	0.61	0.12	mg/kg	SW846 8260B
Xylene (total)	0.958 J	1.2	0.61	mg/kg	SW846 8260B
Naphthalene ^a	0.702	0.25	0.22	mg/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)	31.6 J	61	31	mg/kg	SW846 8015B
TPH-DRO (C10-C28)	1340	140	84	mg/kg	SW846-8015B
Arsenic	5.0	0.36		mg/kg	SW846 6020A
Barium	33500	36		mg/kg	SW846 6010C
Chromium	16.1	3.6		mg/kg	SW846 6010C
Copper	43.3	3.6		mg/kg	SW846 6010C
Nickel	19.7	11		mg/kg	SW846 6010C
Zinc	71.0	11		mg/kg	SW846 6010C
Specific Conductivity	2790	1.0		umhos/cm	SM2510B-1997 MOD
Chromium, Trivalent ^b	16.1	4.6		mg/kg	SW846 3060A/7196A M
pH	11.48			su	SW846 9045D
pH	11.48			su	SW846 9045D

D41382-1A RP PRE-SOLIDIFICATION

Calcium	5.52	2.0		mg/l	SW846 6010C
Sodium	566	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^c	64.2			ratio	USDA HANDBOOK 60

D41382-2 RP SETTLING CHAMBER

TPH-DRO (C10-C28)	21.8	8.3	5.0	mg/kg	SW846-8015B
Arsenic	5.9	0.12		mg/kg	SW846 6020A
Barium	9810	12		mg/kg	SW846 6010C
Chromium	36.9	1.2		mg/kg	SW846 6010C
Copper	11.1	1.2		mg/kg	SW846 6010C
Lead	8.2	6.2		mg/kg	SW846 6010C
Nickel	14.3	3.7		mg/kg	SW846 6010C
Zinc	35.4	3.7		mg/kg	SW846 6010C
Specific Conductivity	1010	1.0		umhos/cm	SM2510B-1997 MOD
Chromium, Trivalent ^b	36.9	2.2		mg/kg	SW846 3060A/7196A M
Redox Potential Vs H2	29.2			mv	ASTM D1498-76M
pH	9.67			su	SW846 9045D

D41382-2A RP SETTLING CHAMBER

Calcium	32.8	2.0		mg/l	SW846 6010C
Magnesium	12.7	1.0		mg/l	SW846 6010C

Summary of Hits

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Job Number: D41382
Account: XTO Energy
Project: PCU 296-6A
Collected: 11/29/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Analyte						
Sodium		164	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^c		6.16			ratio	USDA HANDBOOK 60

(a) Elevated reporting limit due to low % solids.

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

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

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

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Client Sample ID:	RP PRE-SOLIDIFICATION			Date Sampled:	11/29/12
Lab Sample ID:	D41382-1			Date Received:	12/01/12
Matrix:	SO - Soil			Percent Solids:	26.9
Method:	SW846 8260B				
Project:	PCU 296-6A				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V21967.D	1	12/04/12	BD	n/a	n/a	V3V1282
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.45 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.414	0.31	0.15	mg/kg	
108-88-3	Toluene	0.737	0.61	0.31	mg/kg	
100-41-4	Ethylbenzene	0.129	0.61	0.12	mg/kg	J
1330-20-7	Xylene (total)	0.958	1.2	0.61	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	95%		64-130%
460-00-4	4-Bromofluorobenzene	100%		62-131%
17060-07-0	1,2-Dichloroethane-D4	98%		70-130%

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

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

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Report of Analysis

Page 1 of 1

Client Sample ID:	RP PRE-SOLIDIFICATION	Date Sampled:	11/29/12
Lab Sample ID:	D41382-1	Date Received:	12/01/12
Matrix:	SO - Soil	Percent Solids:	26.9
Method:	SW846 8270C BY SIM SW846 3546		
Project:	PCU 296-6A		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	3G12513.D	1	12/10/12	DC	12/10/12	OP7075	E3G593
Run #2							

Run #	Initial Weight	Final Volume
Run #1	5.13 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	0.18	0.094	mg/kg	
120-12-7	Anthracene	ND	0.18	0.094	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.18	0.094	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.18	0.094	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.18	0.094	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.18	0.094	mg/kg	
218-01-9	Chrysene	ND	0.18	0.094	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.18	0.094	mg/kg	
206-44-0	Fluoranthene	ND	0.18	0.094	mg/kg	
86-73-7	Fluorene	ND	0.18	0.094	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.18	0.094	mg/kg	
91-20-3	Naphthalene	0.702	0.25	0.22	mg/kg	
129-00-0	Pyrene	ND	0.18	0.094	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	87%		10-159%
321-60-8	2-Fluorobiphenyl	72%		19-131%
1718-51-0	Terphenyl-d14	80%		18-150%

(a) Elevated reporting limit due to low % solids.

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

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

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Report of Analysis

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Client Sample ID:	RP PRE-SOLIDIFICATION			Date Sampled:	11/29/12
Lab Sample ID:	D41382-1			Date Received:	12/01/12
Matrix:	SO - Soil			Percent Solids:	26.9
Method:	SW846 8015B				
Project:	PCU 296-6A				

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB18726.D	1	12/03/12	SK	n/a	n/a	GGB1019
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.4 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	31.6	61	31	mg/kg	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	87%		60-140%		

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

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

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Report of Analysis

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Client Sample ID:	RP PRE-SOLIDIFICATION				Date Sampled:	11/29/12
Lab Sample ID:	D41382-1				Date Received:	12/01/12
Matrix:	SO - Soil				Percent Solids:	26.9
Method:	SW846-8015B SW846 3546					
Project:	PCU 296-6A					

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FH008078.D	1	12/06/12	TR	12/05/12	OP7053	GFH446
Run #2							

Run #	Initial Weight	Final Volume
Run #1	5.3 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	1340	140	84	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	84%		35-130%		

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

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

Report of Analysis

Client Sample ID:	RP PRE-SOLIDIFICATION	Date Sampled:	11/29/12
Lab Sample ID:	D41382-1	Date Received:	12/01/12
Matrix:	SO - Soil	Percent Solids:	26.9
Project:	PCU 296-6A		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.0	0.36	mg/kg	5	12/05/12	12/07/12 JM	SW846 6020A ³	SW846 3050B ⁷
Barium	33500	36	mg/kg	10	12/05/12	12/07/12 JB	SW846 6010C ⁴	SW846 3050B ⁶
Cadmium	< 3.6	3.6	mg/kg	1	12/05/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Chromium	16.1	3.6	mg/kg	1	12/05/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Copper	43.3	3.6	mg/kg	1	12/05/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Lead	< 18	18	mg/kg	1	12/05/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Mercury	< 0.27	0.27	mg/kg	1	12/04/12	12/04/12 JB	SW846 7471B ¹	SW846 7471B ⁵
Nickel	19.7	11	mg/kg	1	12/05/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Selenium	< 18	18	mg/kg	1	12/05/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Silver	< 11	11	mg/kg	1	12/05/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Zinc	71.0	11	mg/kg	1	12/05/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶

(1) Instrument QC Batch: MA3048

(2) Instrument QC Batch: MA3055

(3) Instrument QC Batch: MA3061

(4) Instrument QC Batch: MA3062

(5) Prep QC Batch: MP8991

(6) Prep QC Batch: MP9006

(7) Prep QC Batch: MP9007

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RP PRE-SOLIDIFICATION	Date Sampled:	11/29/12
Lab Sample ID:	D41382-1	Date Received:	12/01/12
Matrix:	SO - Soil	Percent Solids:	26.9
Project:	PCU 296-6A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	2790	1.0	umhos/cm	1	12/04/12	JD	SM2510B-1997 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	12/04/12	KB	SW846 3060A/7196A
Chromium, Trivalent ^a	16.1	4.6	mg/kg	1	12/05/12 23:29	JB	SW846 3060A/7196A M
Redox Potential Vs H2	-13		mv	1	12/04/12 13:15	JK	ASTM D1498-76M
Solids, Percent	26.9		%	1	12/04/12	SWT	SM19 2540B M
pH	11.48		su	1	12/04/12 13:15	JK	SW846 9045D
pH	11.48		su	1	12/04/12 13:15	JK	SW846 9045D

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

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RP PRE-SOLIDIFICATION	Date Sampled:	11/29/12
Lab Sample ID:	D41382-1A	Date Received:	12/01/12
Matrix:	SO - Soil	Percent Solids:	26.9
Project:	PCU 296-6A		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	5.52	2.0	mg/l	1	12/06/12	12/10/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	< 1.0	1.0	mg/l	1	12/06/12	12/10/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Sodium	566	2.0	mg/l	1	12/06/12	12/10/12 JB	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA3069

(2) Prep QC Batch: MP9015

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RP PRE-SOLIDIFICATION	Date Sampled:	11/29/12
Lab Sample ID:	D41382-1A	Date Received:	12/01/12
Matrix:	SO - Soil	Percent Solids:	26.9
Project:	PCU 296-6A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	64.2		ratio	1	12/10/12 09:53	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

Page 1 of 1

Client Sample ID:	RP SETTLING CHAMBER					Date Sampled:	11/29/12
Lab Sample ID:	D41382-2					Date Received:	12/01/12
Matrix:	SO - Soil					Percent Solids:	80.5
Method:	SW846 8260B						
Project:	PCU 296-6A						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V21968.D	1	12/04/12	BD	n/a	n/a	V3V1282
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.19 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	ND	0.14	0.072	mg/kg	
100-41-4	Ethylbenzene	ND	0.14	0.027	mg/kg	
1330-20-7	Xylene (total)	ND	0.29	0.14	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	93%		64-130%
460-00-4	4-Bromofluorobenzene	100%		62-131%
17060-07-0	1,2-Dichloroethane-D4	95%		70-130%

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

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

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	RP SETTLING CHAMBER	Date Sampled:	11/29/12
Lab Sample ID:	D41382-2	Date Received:	12/01/12
Matrix:	SO - Soil	Percent Solids:	80.5
Method:	SW846 8270C BY SIM SW846 3546		
Project:	PCU 296-6A		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G12514.D	1	12/10/12	DC	12/10/12	OP7075	E3G593
Run #2							

Run #	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	0.0054	mg/kg	
120-12-7	Anthracene	ND	0.010	0.0054	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.010	0.0054	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.010	0.0054	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.010	0.0054	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.010	0.0054	mg/kg	
218-01-9	Chrysene	ND	0.010	0.0054	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.010	0.0054	mg/kg	
206-44-0	Fluoranthene	ND	0.010	0.0054	mg/kg	
86-73-7	Fluorene	ND	0.010	0.0054	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.010	0.0054	mg/kg	
91-20-3	Naphthalene	ND	0.014	0.013	mg/kg	
129-00-0	Pyrene	ND	0.010	0.0054	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	72%		10-159%
321-60-8	2-Fluorobiphenyl	65%		19-131%
1718-51-0	Terphenyl-d14	80%		18-150%

ND = Not detected MDL - Method Detection Limit

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N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	RP SETTLING CHAMBER			Date Sampled:	11/29/12
Lab Sample ID:	D41382-2			Date Received:	12/01/12
Matrix:	SO - Soil			Percent Solids:	80.5
Method:	SW846 8015B				
Project:	PCU 296-6A				

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB18727.D	1	12/03/12	SK	n/a	n/a	GGB1019
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.2 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	14	7.2	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	91%		60-140%		

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

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

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	RP SETTLING CHAMBER			Date Sampled:	11/29/12
Lab Sample ID:	D41382-2			Date Received:	12/01/12
Matrix:	SO - Soil			Percent Solids:	80.5
Method:	SW846-8015B SW846 3546				
Project:	PCU 296-6A				

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FH008079.D	1	12/06/12	TR	12/05/12	OP7053	GFH446
Run #2							

Run #	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)	21.8	8.3	5.0	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:	RP SETTLING CHAMBER	Date Sampled:	11/29/12
Lab Sample ID:	D41382-2	Date Received:	12/01/12
Matrix:	SO - Soil	Percent Solids:	80.5
Project:	PCU 296-6A		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.9	0.12	mg/kg	5	12/05/12	12/07/12 JM	SW846 6020A ³	SW846 3050B ⁷
Barium	9810	12	mg/kg	10	12/05/12	12/07/12 JB	SW846 6010C ⁴	SW846 3050B ⁶
Cadmium	< 1.2	1.2	mg/kg	1	12/05/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Chromium	36.9	1.2	mg/kg	1	12/05/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Copper	11.1	1.2	mg/kg	1	12/05/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Lead	8.2	6.2	mg/kg	1	12/05/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Mercury	< 0.11	0.11	mg/kg	1	12/04/12	12/04/12 JB	SW846 7471B ¹	SW846 7471B ⁵
Nickel	14.3	3.7	mg/kg	1	12/05/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Selenium	< 6.2	6.2	mg/kg	1	12/05/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Silver	< 3.7	3.7	mg/kg	1	12/05/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶
Zinc	35.4	3.7	mg/kg	1	12/05/12	12/05/12 JB	SW846 6010C ²	SW846 3050B ⁶

(1) Instrument QC Batch: MA3048

(2) Instrument QC Batch: MA3055

(3) Instrument QC Batch: MA3061

(4) Instrument QC Batch: MA3062

(5) Prep QC Batch: MP8991

(6) Prep QC Batch: MP9006

(7) Prep QC Batch: MP9007

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RP SETTLING CHAMBER	Date Sampled:	11/29/12
Lab Sample ID:	D41382-2	Date Received:	12/01/12
Matrix:	SO - Soil	Percent Solids:	80.5
Project:	PCU 296-6A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	1010	1.0	umhos/cm	1	12/04/12	JD	SM2510B-1997 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	12/04/12	KB	SW846 3060A/7196A
Chromium, Trivalent ^a	36.9	2.2	mg/kg	1	12/05/12 23:36	JB	SW846 3060A/7196A M
Redox Potential Vs H2	29.2		mv	1	12/04/12 13:15	JK	ASTM D1498-76M
Solids, Percent	80.5		%	1	12/04/12	SWT	SM19 2540B M
pH	9.67		su	1	12/04/12 13:15	JK	SW846 9045D

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

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RP SETTLING CHAMBER	Date Sampled:	11/29/12
Lab Sample ID:	D41382-2A	Date Received:	12/01/12
Matrix:	SO - Soil	Percent Solids:	80.5
Project:	PCU 296-6A		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	32.8	2.0	mg/l	1	12/06/12	12/10/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	12.7	1.0	mg/l	1	12/06/12	12/10/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Sodium	164	2.0	mg/l	1	12/06/12	12/10/12 JB	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA3069

(2) Prep QC Batch: MP9015

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RP SETTLING CHAMBER	Date Sampled:	11/29/12
Lab Sample ID:	D41382-2A	Date Received:	12/01/12
Matrix:	SO - Soil	Percent Solids:	80.5
Project:	PCU 296-6A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	6.16		ratio	1	12/10/12 10:00	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Misc. Forms

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Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



CHAIN OF CUSTODY

PAGE 1 OF 1

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

FED-EX Tracking #	Bottle Order Control #
Accutest Guide #	Accutest Job # D41382

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)										Matrix Codes			
Company Name KRW Consulting		Project Name XTO PCU 296-6A		<div>7-910</div>										<div>DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe PB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank</div>			
Street Address 8000 West 14th Street; Suite 200		Street															
City Lakewood, CO 80214		City State															
Project Contact Dwayne Knudson		Project # 1211-02															
Phone # 970-488-1098		Client Purchase Order #															
Sampler(s) Name(s) DAVIN SANDERS		Project Manager Joe Hess		Billing Information (If different from Report to)		Company Name XTO Energy		Street Address 21459 CR 5		City Rifle, CO 81650		Attention: Jessica Dooling					
Account Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	IN33	IN204	NONE	DI Water	MEOH	ENCORE	Residue	LAB USE ONLY
	RP PRESOLIDIFICATION		11-29-12	9:15	DS	SO	5						X				01
	RP SETTLING CHAMBER		11-29-12	9:50	DS	SO	5						X				02
Turnaround Time (Business days)		Approved By (Accutest PM): / Date:		Data Deliverable Information										Comments / Special Instructions			
<input type="checkbox"/> Std. 10 Business Days <input checked="" type="checkbox"/> Std. 5 Business Days (By contract only) <input type="checkbox"/> 3 Day Emergency <input type="checkbox"/> 2 Day Emergency <input type="checkbox"/> 1 Day Emergency <input type="checkbox"/> Emergency & Rush T/A data available VIA Lablink				<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> COMMBN <input type="checkbox"/> COMMBN+ <input type="checkbox"/> State Forms Required <input type="checkbox"/> Send Forms to State <input type="checkbox"/> Report by Fax <input checked="" type="checkbox"/> Report by PDF ONLY <input type="checkbox"/> EDD Format Commercial "A" = Results Only Commercial "B" = Results + QC Summary Commercial BN = Results/QC Narrative (+ = chromatograms)										Please email to: KRW Piceance Team			
Sample Custody must be documented below each time samples change possession, including courier delivery.																	
Relinquished by Sampler: 1 1021 K. B. Sanders	Date Time: 11/30/12 1700	Received By: 2 2145 Service Center	Relinquished By: 2	Date Time: 11/30/12 8:45	Received By: 4	Custody Seal # FX <input type="checkbox"/> Intact <input type="checkbox"/> Not intact Preserved where applicable <input type="checkbox"/> On Ice <input type="checkbox"/> Cooler Temp. 27											
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By:												
Relinquished by Sampler: 5	Date Time:	Received By: 5	Relinquished By:	Date Time:	Received By:												

D41382: Chain of Custody

Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D41382

Client: KRW

Immediate Client Services Action Required: No

Date / Time Received: 12/1/2012 8:45:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XTO PCU-296-6A

Airbill #'s: FX

Cooler Security
Y or N
Y or N

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

Cooler Temperature
Y or N

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

Quality Control Preservation
Y or N
N/A

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

Sample Integrity - Documentation
Y or N

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

Sample Integrity - Condition
Y or N

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

Sample Integrity - Instructions
Y or N N/A

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

Comments

 Accutest Laboratories
 V: (303) 425-6021

 4036 Youngfield Street
 F: (303) 425-6854

 Wheat Ridge, CO
 www.accutest.com

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D41382
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1282-MB	3V21961.D	1	12/04/12	BD	n/a	n/a	V3V1282

The QC reported here applies to the following samples:

Method: SW846 8260B

D41382-1, D41382-2

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	93% 64-130%
460-00-4	4-Bromofluorobenzene	101% 62-131%
17060-07-0	1,2-Dichloroethane-D4	99% 70-130%

Blank Spike Summary

Page 1 of 1

Job Number: D41382
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1282-BS	3V21962.D	1	12/04/12	BD	n/a	n/a	V3V1282

The QC reported here applies to the following samples:

Method: SW846 8260B

D41382-1, D41382-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	51.4	103	70-130
100-41-4	Ethylbenzene	50	50.9	102	70-130
108-88-3	Toluene	50	48.4	97	70-130
1330-20-7	Xylene (total)	150	149	99	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	96%	64-130%
460-00-4	4-Bromofluorobenzene	103%	62-131%
17060-07-0	1,2-Dichloroethane-D4	101%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D41382
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D41381-1MS	3V21965.D	1	12/04/12	BD	n/a	n/a	V3V1282
D41381-1MSD	3V21966.D	1	12/04/12	BD	n/a	n/a	V3V1282
D41381-1	3V21964.D	1	12/04/12	BD	n/a	n/a	V3V1282

The QC reported here applies to the following samples:

Method: SW846 8260B

D41382-1, D41382-2

CAS No.	Compound	D41381-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3010	3070	102	2950	98	4	64-139/30
100-41-4	Ethylbenzene	ND		3010	3000	100	2930	97	2	68-136/30
108-88-3	Toluene	ND		3010	2740	91	2680	89	2	60-130/30
1330-20-7	Xylene (total)	ND		9040	9100	101	8860	98	3	58-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D41381-1	Limits
2037-26-5	Toluene-D8	91%	93%	92%	64-130%
460-00-4	4-Bromofluorobenzene	119%	122%	101%	62-131%
17060-07-0	1,2-Dichloroethane-D4	97%	104%	103%	70-130%

* = Outside of Control Limits.

GC/MS Volatiles

Raw Data

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3120412.S\
 Data File : 3V21967.D
 Acq On : 4 Dec 2012 1:42 pm
 Operator : Jessical
 Sample : D41382-1
 Misc : MS5044,V3V1282,5.448,,100,5,1
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 05 08:51:56 2012
 Quant Method : C:\msdchem\1\METHODS\V3AP1277TVH1277SOIL.M
 Quant Title : 8260
 QLast Update : Wed Nov 28 14:20:19 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.864	168	157082	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.657	114	269886	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.297	117	301350	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.282	152	162973	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.246	102	18745	49.16	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	98.32%
61) Toluene-d8	14.052	98	343874	47.33	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	94.66%
69) 4-Bromofluorobenzene	16.246	95	149686	50.13	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	100.26%

Target Compounds

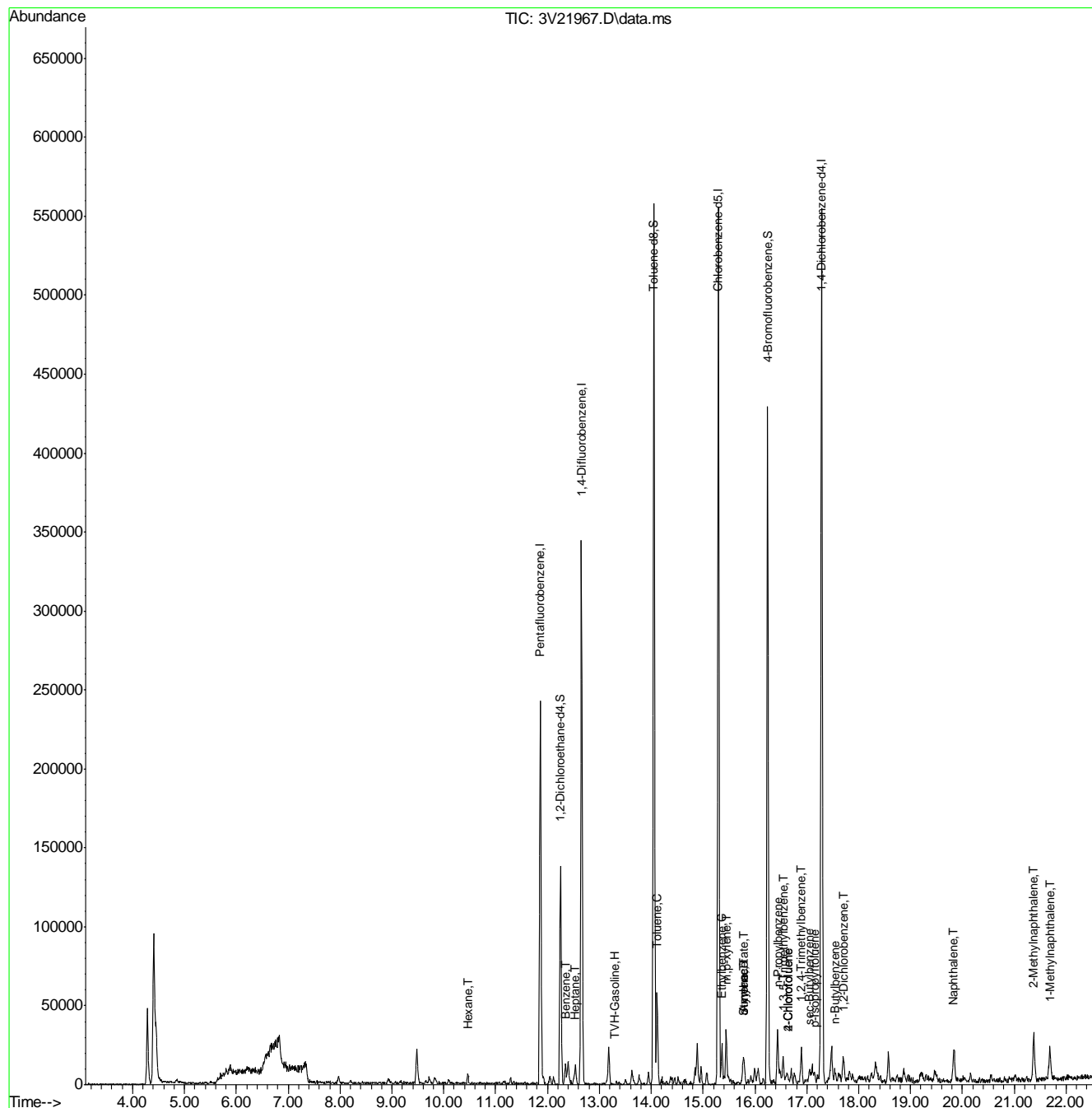
					Qvalue
1) TVH-Gasoline	13.285	TIC	601746m	178.56	ug/l
41) Hexane	10.459	57	3120	0.79	ug/l 100
43) Heptane	12.541	43	5633	1.14	ug/l 92
50) Benzene	12.349	78	12328	1.35	ug/l 100
58) Amyl acetate	15.774	70	1995	6.80	ug/l # 44
62) Toluene	14.116	92	15829	2.40	ug/l 96
66) Ethylbenzene	15.367	91	5176	0.42	ug/l 94
71) Styrene	15.797	104	2344	0.49	ug/l 94
72) m,p-xylene	15.450	106	10993	2.18	ug/l 96
73) o-xylene	15.794	106	2187	0.94	ug/l 98
77) n-Propylbenzene	16.429	91	4293	0.31	ug/l # 83
78) 2-Chlorotoluene	16.647	91	2284	0.25	ug/l 91
79) 4-Chlorotoluene	16.647	91	2284	0.29	ug/l # 86
80) 1,3,5-Trimethylbenzene	16.544	105	5766	0.59	ug/l 95
82) 1,2,4-Trimethylbenzene	16.891	105	12018	1.22	ug/l 88
83) sec-Butylbenzene	17.064	105	3525	0.28	ug/l # 87
86) p-Isopropyltoluene	17.157	119	3841	0.37	ug/l # 86
87) 1,2-Dichlorobenzene	17.696	146	2260	0.42	ug/l # 77
88) n-Butylbenzene	17.542	91	5365	0.57	ug/l 92
91) Naphthalene	19.839	128	22434	5.63	ug/l 100
94) 2-Methylnaphthalene	21.382	142	21077	6.64	ug/l 95
95) 1-Methylnaphthalene	21.686	142	14854	5.10	ug/l # 92

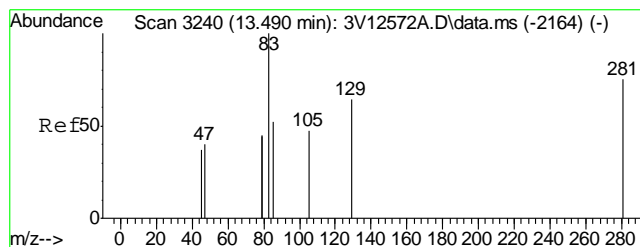
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3120412.S\
 Data File : 3V21967.D
 Acq On : 4 Dec 2012 1:42 pm
 Operator : Jessical
 Sample : D41382-1
 Misc : MS5044,V3V1282,5.448,,100,5,1
 ALS Vial : 9 Sample Multiplier: 1

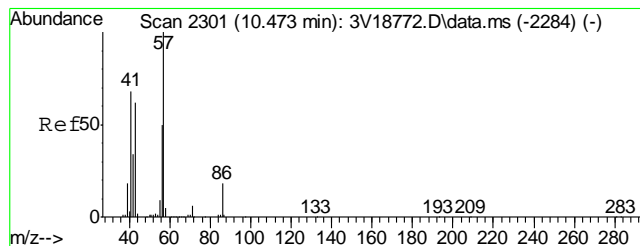
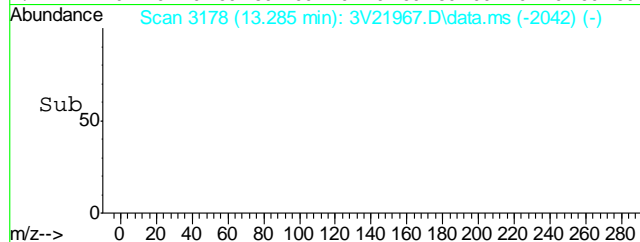
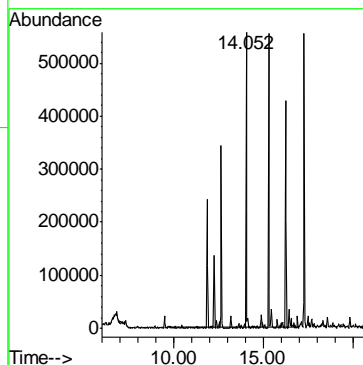
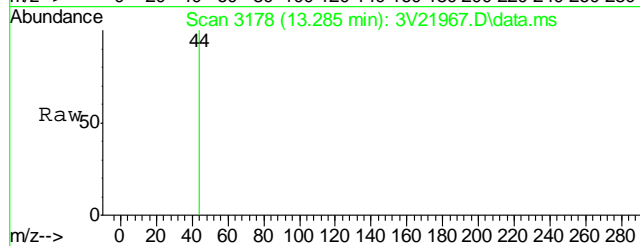
Quant Time: Dec 05 08:51:56 2012
 Quant Method : C:\msdchem\1\METHODS\V3AP1277TVH1277SOIL.M
 Quant Title : 8260
 QLast Update : Wed Nov 28 14:20:19 2012
 Response via : Initial Calibration





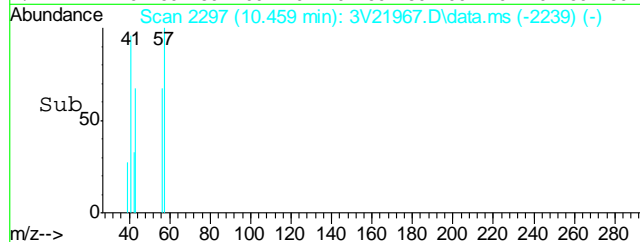
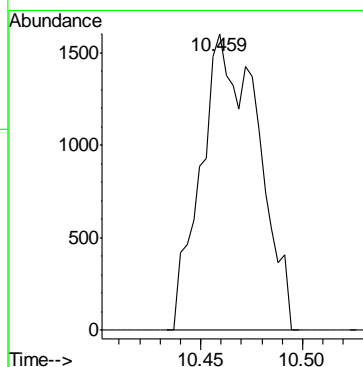
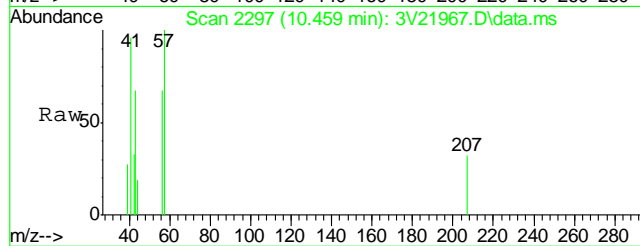
#1
TVH-Gasoline
Concen: 178.56 ug/l m
RT: 13.285 min Scan# 3178
Delta R.T. 0.000 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

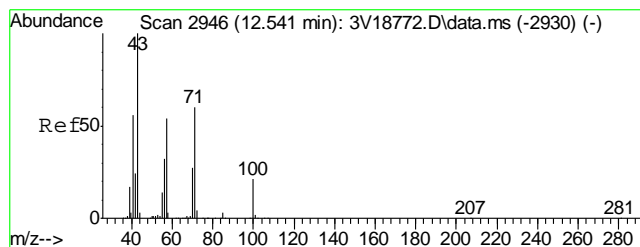
Tgt Ion:TIC Resp: 601746



#41
Hexane
Concen: 0.79 ug/l
RT: 10.459 min Scan# 2297
Delta R.T. -0.013 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

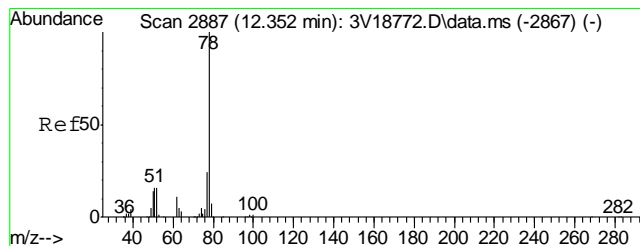
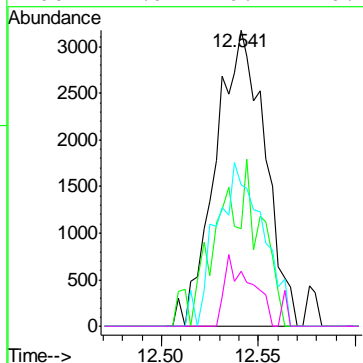
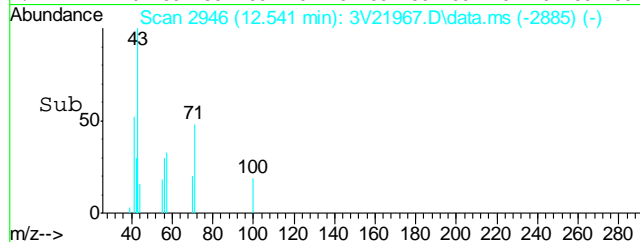
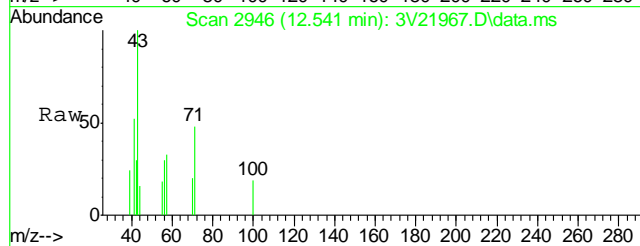
Tgt Ion: 57 Resp: 3120





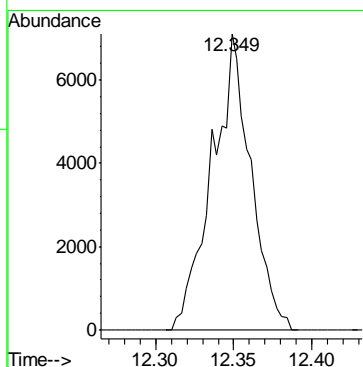
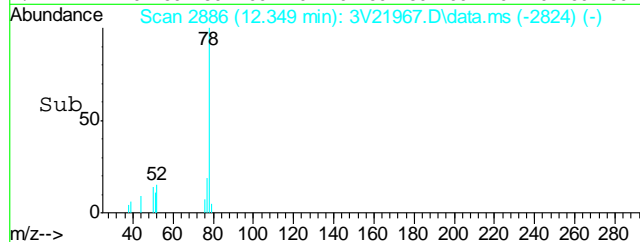
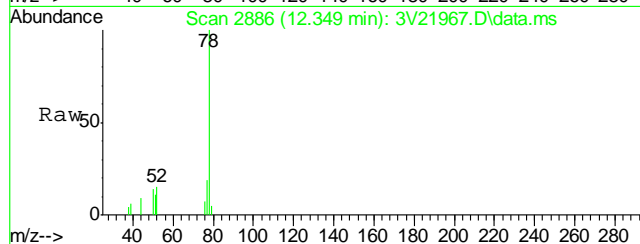
#43
Heptane
Concen: 1.14 ug/l
RT: 12.541 min Scan# 2946
Delta R.T. -0.003 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

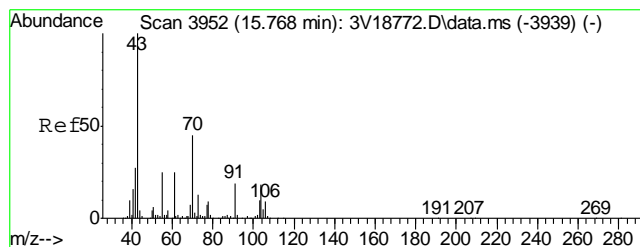
Tgt Ion	Ratio	Lower	Upper
43	100		
57	50.2	32.1	72.1
71	52.2	39.6	79.6
100	12.9	0.1	40.1



#50
Benzene
Concen: 1.35 ug/l
RT: 12.349 min Scan# 2886
Delta R.T. 0.000 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

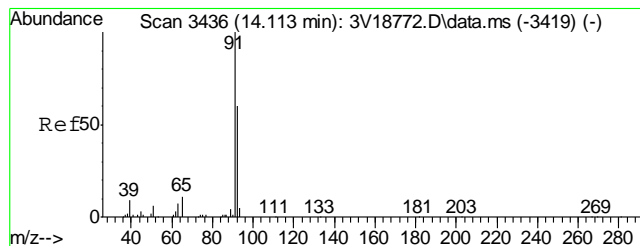
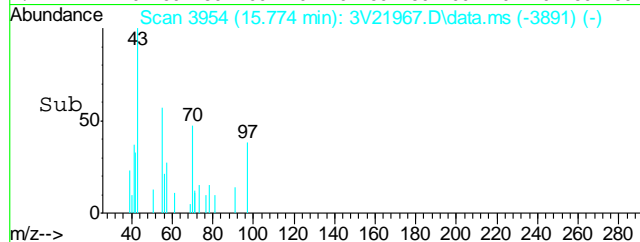
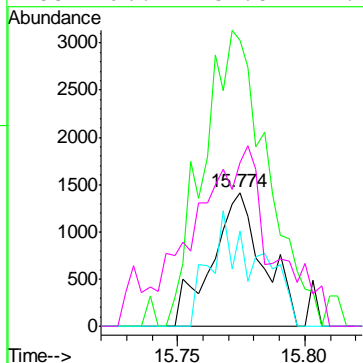
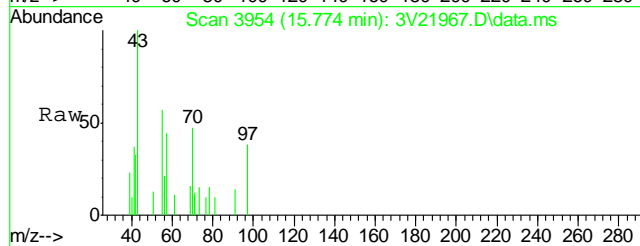
Tgt Ion: 78 Resp: 12328





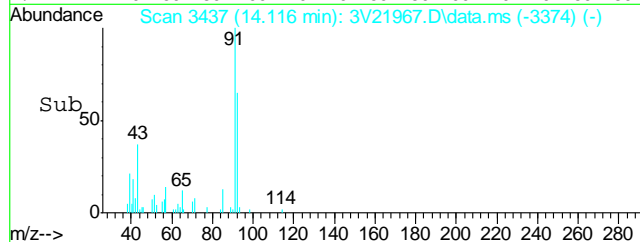
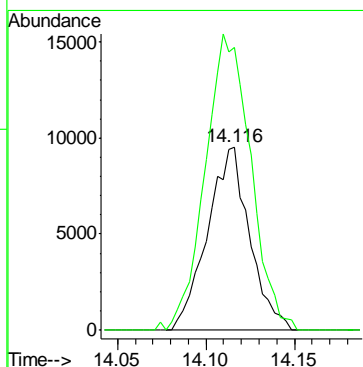
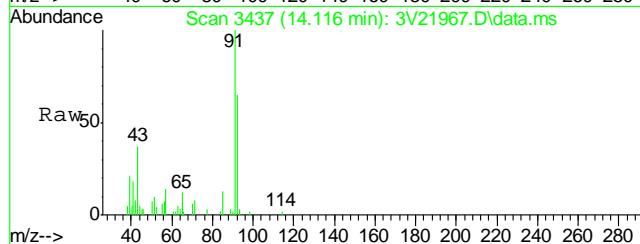
#58
Amyl acetate
Concen: 6.80 ug/l
RT: 15.774 min Scan# 3954
Delta R.T. 0.003 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

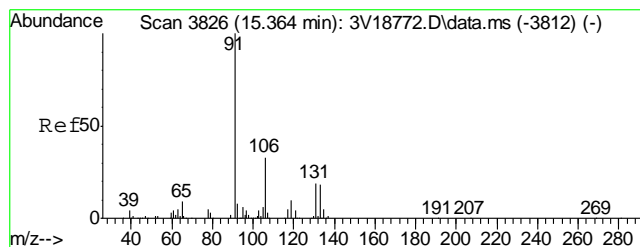
Tgt Ion	Ratio	Lower	Upper
70	100		
43	277.0	205.3	245.3#
42	79.7	42.6	82.6
55	196.4	37.8	77.8#



#62
Toluene
Concen: 2.40 ug/l
RT: 14.116 min Scan# 3437
Delta R.T. 0.003 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

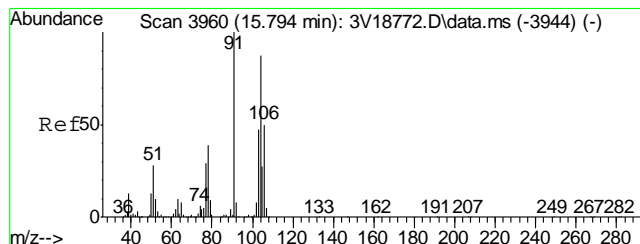
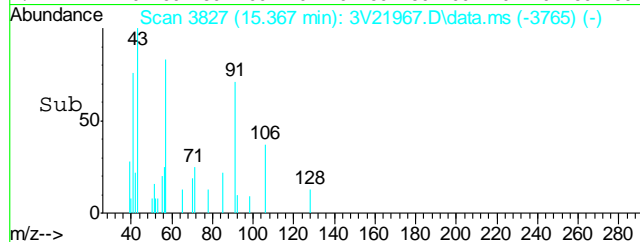
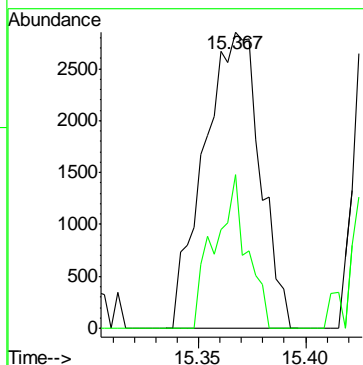
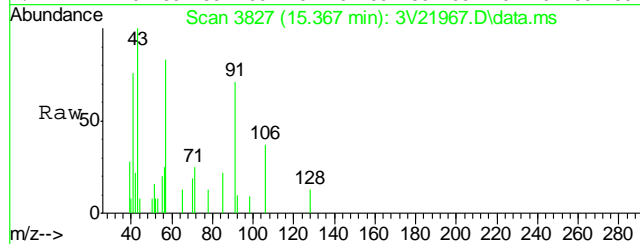
Tgt Ion	Ratio	Lower	Upper
92	100		
91	175.3	150.2	190.2





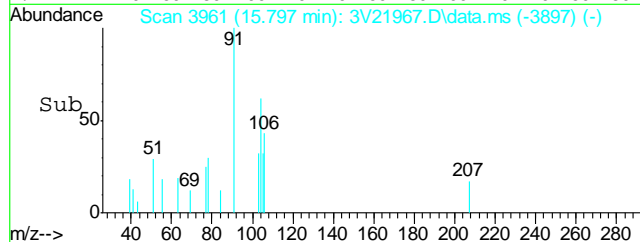
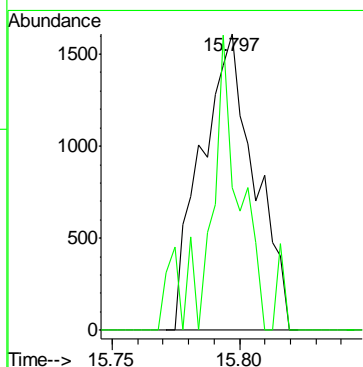
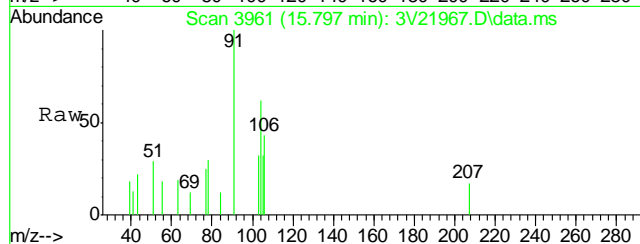
#66
Ethylbenzene
Concen: 0.42 ug/l
RT: 15.367 min Scan# 3827
Delta R.T. 0.000 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

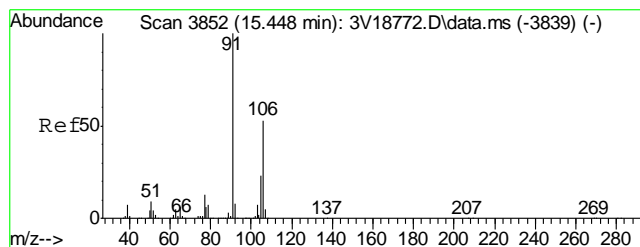
Tgt Ion: 91 Resp: 5176
Ion Ratio Lower Upper
91 100
106 29.9 13.2 53.2



#71
Styrene
Concen: 0.49 ug/l
RT: 15.797 min Scan# 3961
Delta R.T. 0.004 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

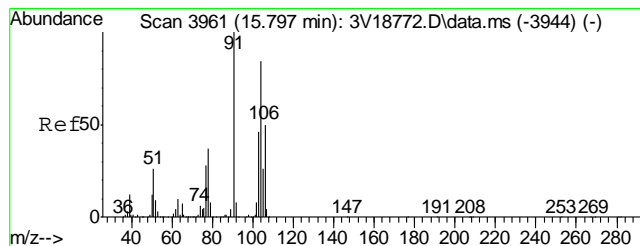
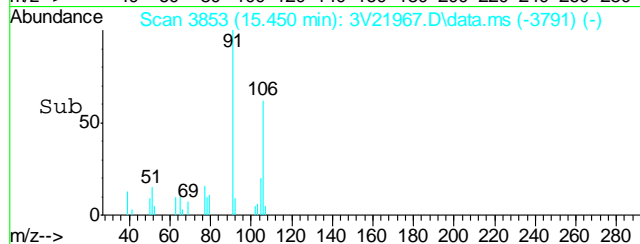
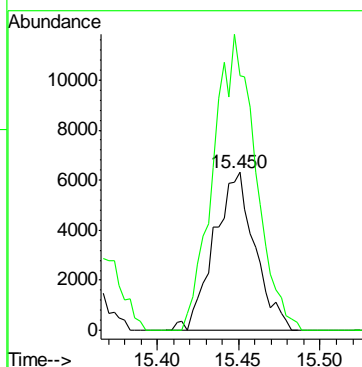
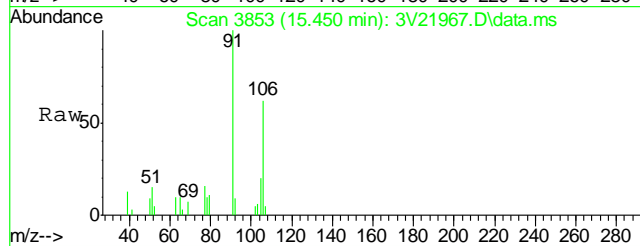
Tgt Ion: 104 Resp: 2344
Ion Ratio Lower Upper
104 100
78 49.3 25.4 65.4





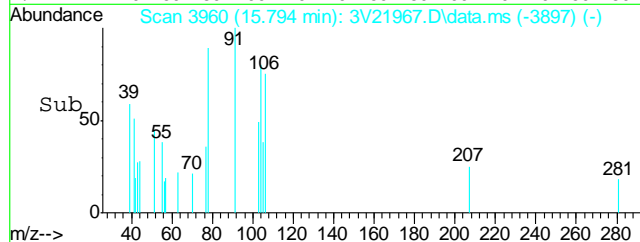
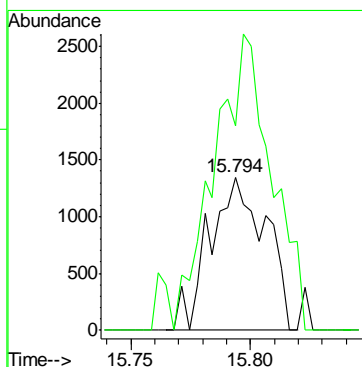
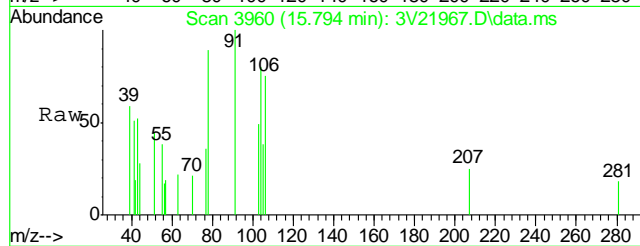
#72
m,p-xylene
Concen: 2.18 ug/l
RT: 15.450 min Scan# 3853
Delta R.T. 0.000 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

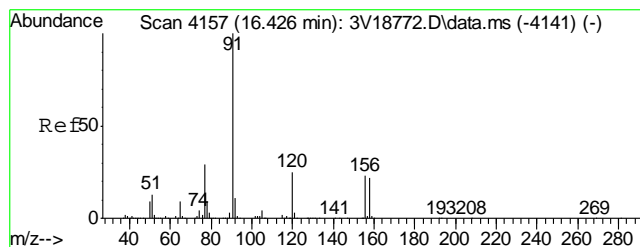
Tgt Ion:106 Resp: 10993
Ion Ratio Lower Upper
106 100
91 194.0 168.1 208.1



#73
o-xylene
Concen: 0.94 ug/l
RT: 15.794 min Scan# 3960
Delta R.T. 0.001 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

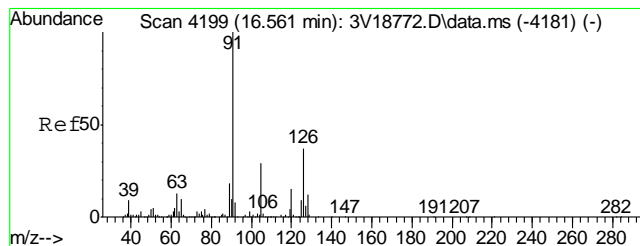
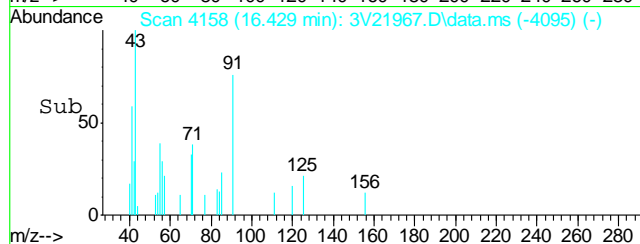
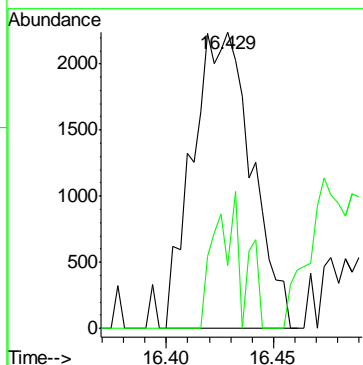
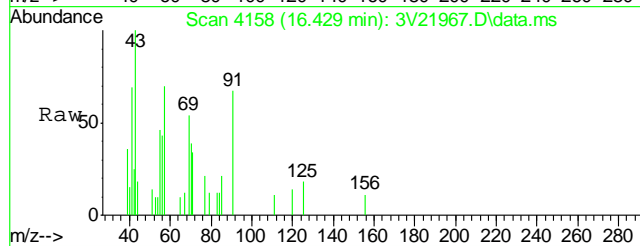
Tgt Ion:106 Resp: 2187
Ion Ratio Lower Upper
106 100
91 197.8 160.2 240.4





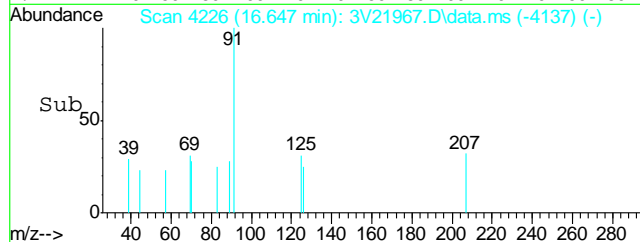
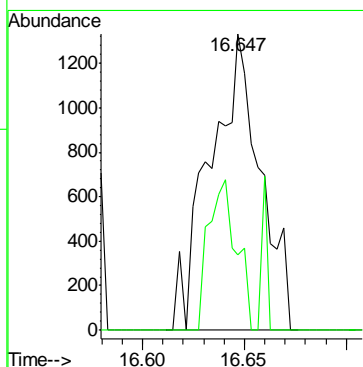
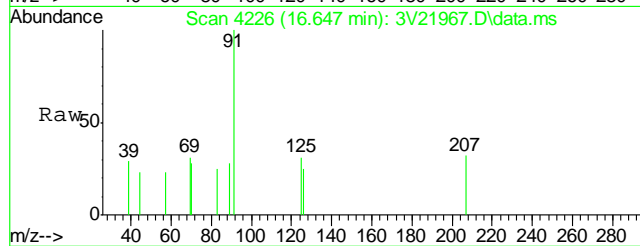
#77
n-Propylbenzene
Concen: 0.31 ug/l
RT: 16.429 min Scan# 4158
Delta R.T. 0.003 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

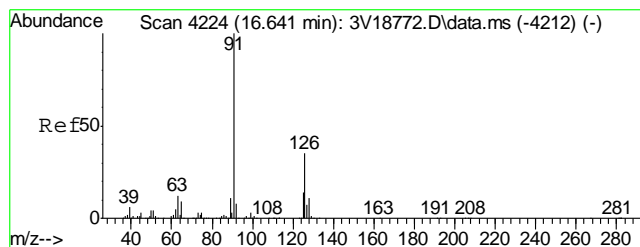
Tgt Ion: 91 Resp: 4293
Ion Ratio Lower Upper
91 100
120 16.3 19.9 29.9#



#78
2-Chlorotoluene
Concen: 0.25 ug/l
RT: 16.647 min Scan# 4226
Delta R.T. 0.087 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

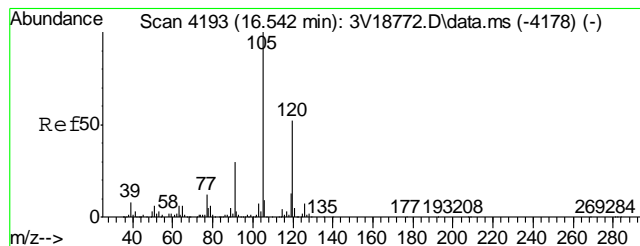
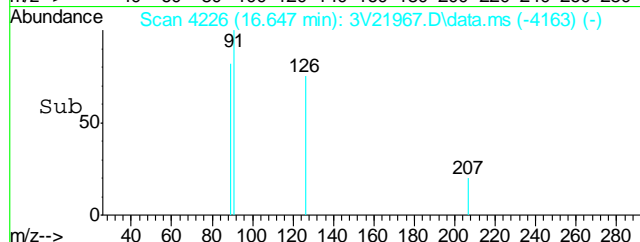
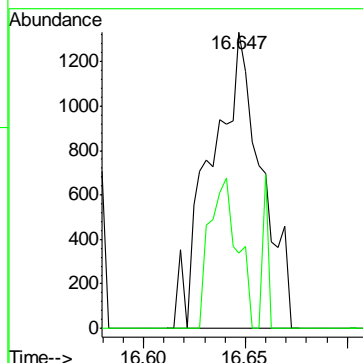
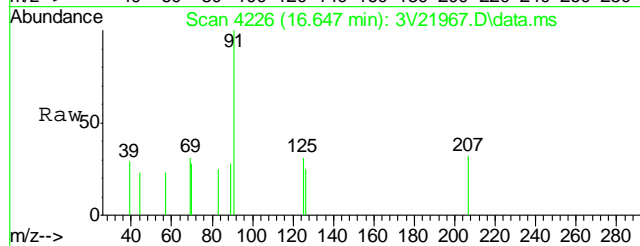
Tgt Ion: 91 Resp: 2284
Ion Ratio Lower Upper
91 100
126 27.9 26.6 39.8





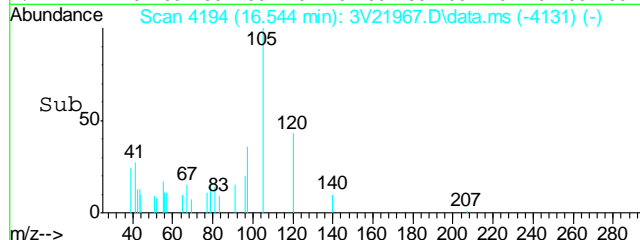
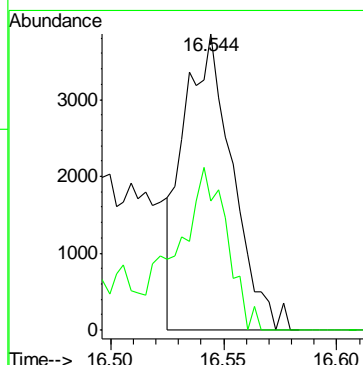
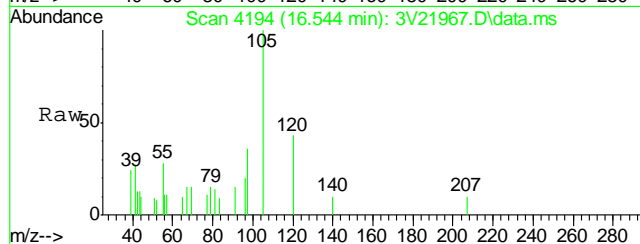
#79
4-Chlorotoluene
Concen: 0.29 ug/l
RT: 16.647 min Scan# 4226
Delta R.T. 0.003 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

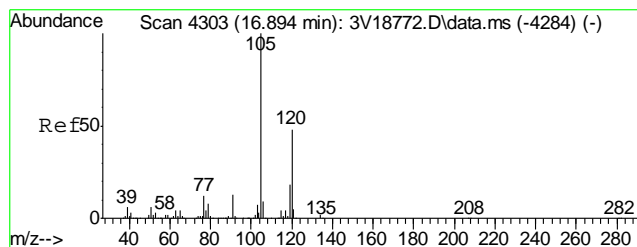
Tgt Ion: 91 Resp: 2284
Ion Ratio Lower Upper
91 100
126 27.9 29.1 43.7#



#80
1,3,5-Trimethylbenzene
Concen: 0.59 ug/l
RT: 16.544 min Scan# 4194
Delta R.T. 0.003 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

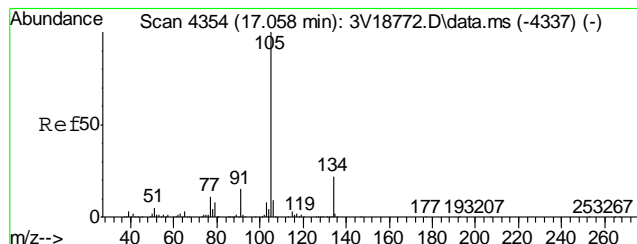
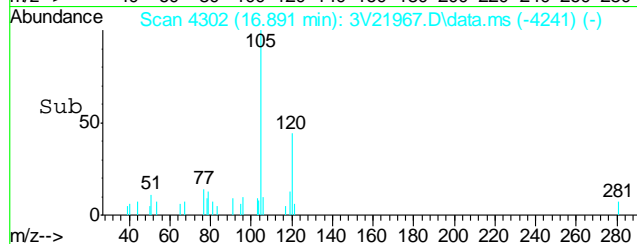
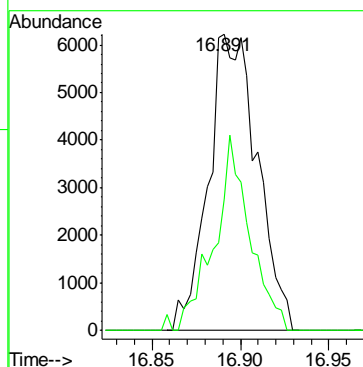
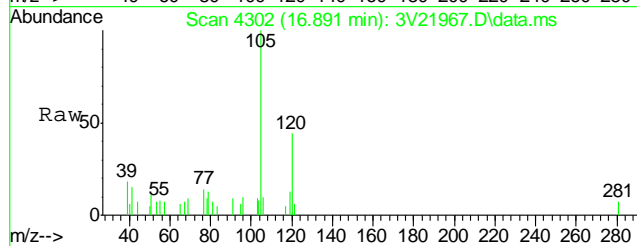
Tgt Ion: 105 Resp: 5766
Ion Ratio Lower Upper
105 100
120 55.2 41.4 62.2





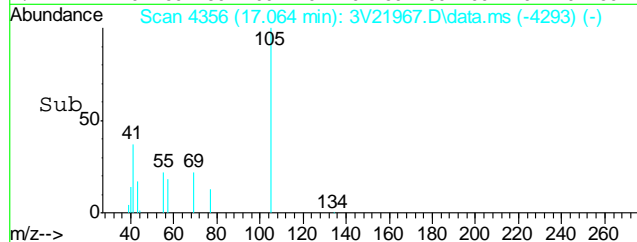
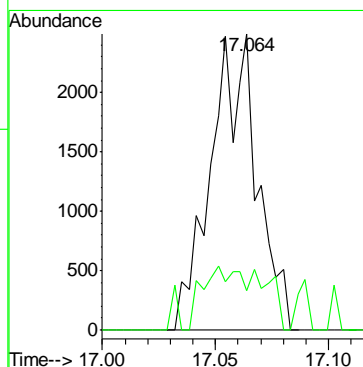
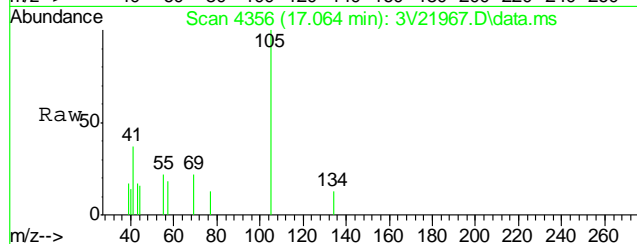
#82
1,2,4-Trimethylbenzene
Concen: 1.22 ug/l
RT: 16.891 min Scan# 4302
Delta R.T. -0.003 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

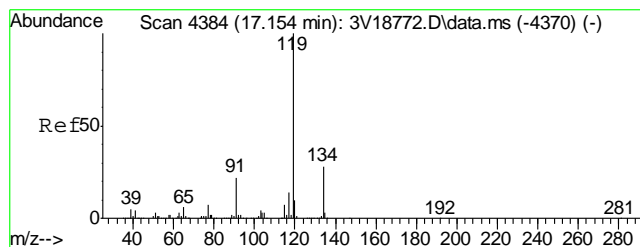
Tgt Ion:105 Resp: 12018
Ion Ratio Lower Upper
105 100
120 47.4 45.1 67.7



#83
sec-Butylbenzene
Concen: 0.28 ug/l
RT: 17.064 min Scan# 4356
Delta R.T. 0.003 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

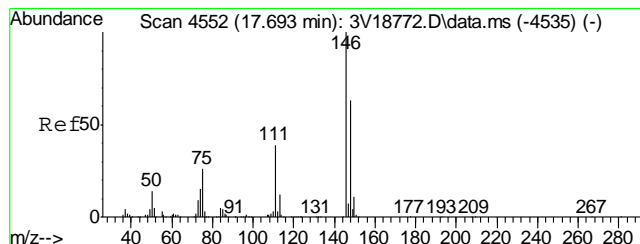
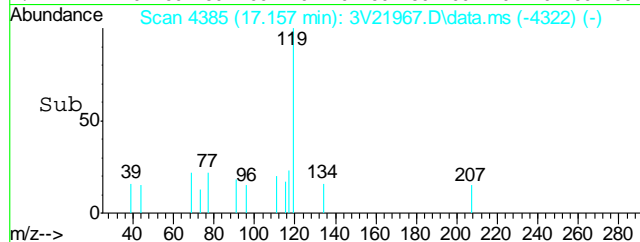
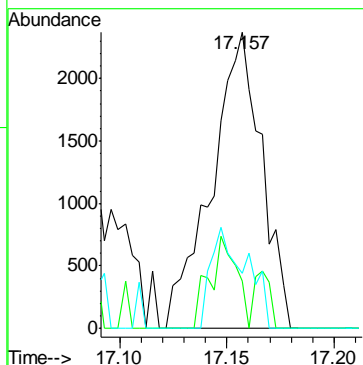
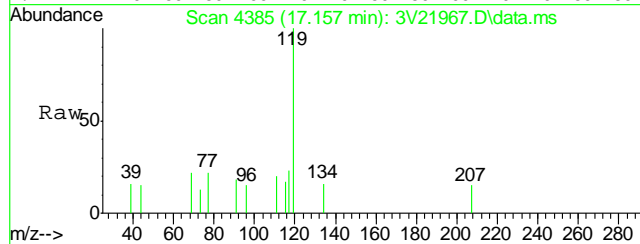
Tgt Ion:105 Resp: 3525
Ion Ratio Lower Upper
105 100
134 28.2 17.6 26.4#





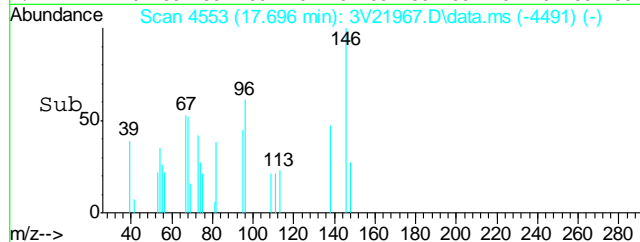
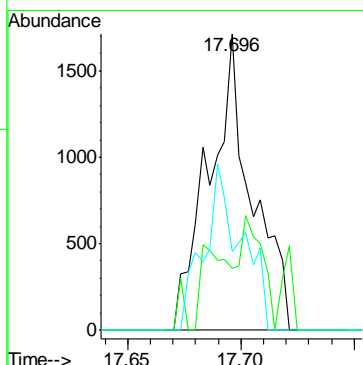
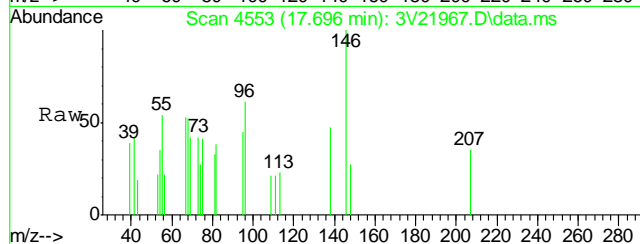
#86
p-Isopropyltoluene
Concen: 0.37 ug/l
RT: 17.157 min Scan# 4385
Delta R.T. 0.003 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

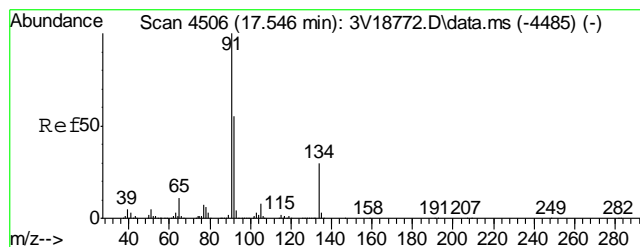
Tgt Ion	Ratio	Lower	Upper
119	100		
134	16.8	22.3	33.5#
91	24.3	17.4	26.2



#87
1,2-Dichlorobenzene
Concen: 0.42 ug/l
RT: 17.696 min Scan# 4553
Delta R.T. 0.000 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

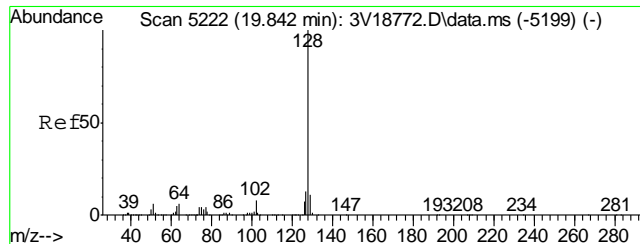
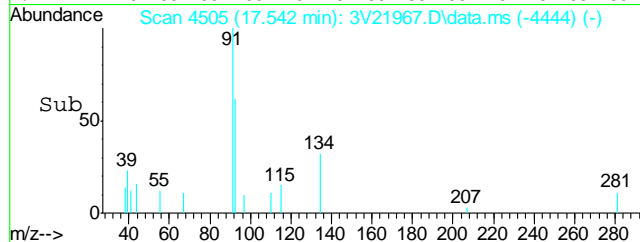
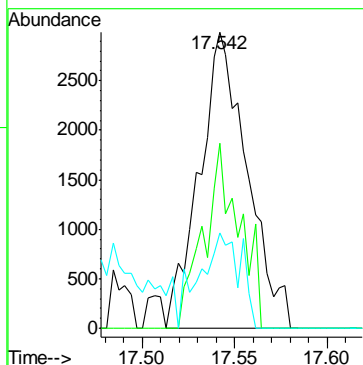
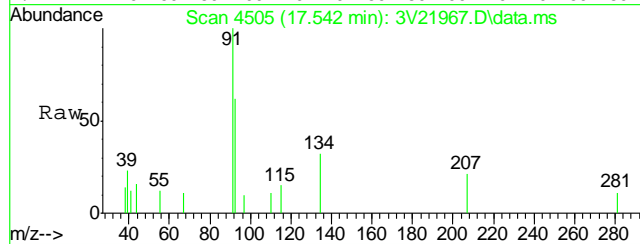
Tgt Ion	Ratio	Lower	Upper
146	100		
111	20.5	31.0	46.6#
148	49.0	51.4	77.2#





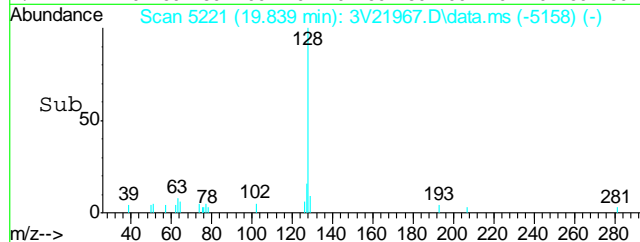
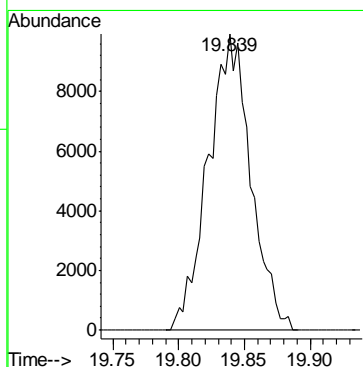
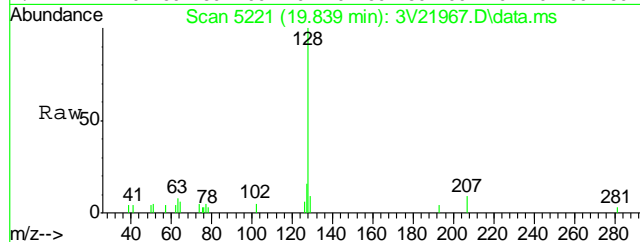
#88
n-Butylbenzene
Concen: 0.57 ug/l
RT: 17.542 min Scan# 4505
Delta R.T. -0.003 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

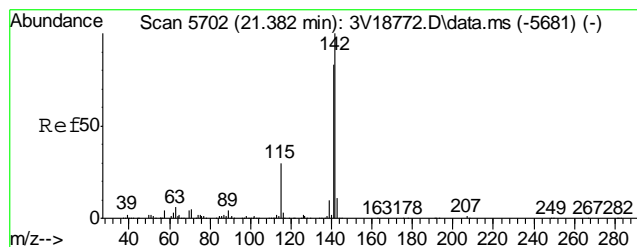
Tgt Ion:	91	Resp:	5365
Ion Ratio	Lower	Upper	
91	100		
92	46.4	43.8	65.8
134	27.6	23.1	34.7



#91
Naphthalene
Concen: 5.63 ug/l
RT: 19.839 min Scan# 5221
Delta R.T. 0.001 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

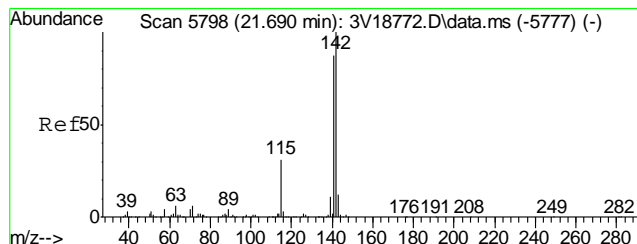
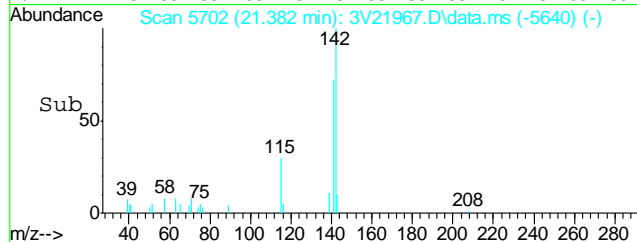
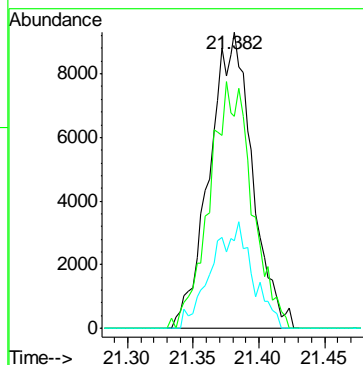
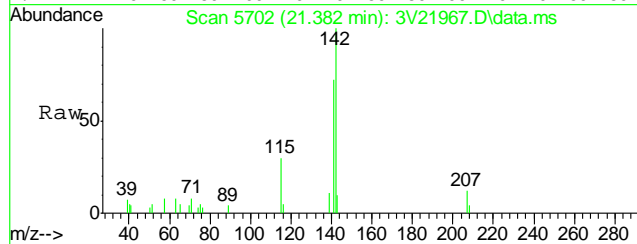
Tgt Ion:	128	Resp:	22434
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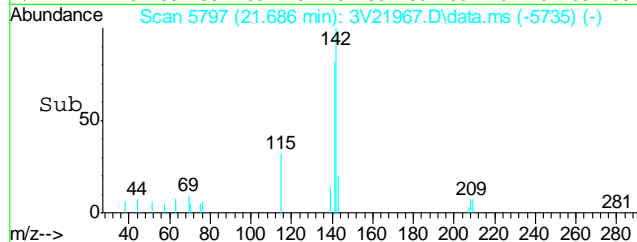
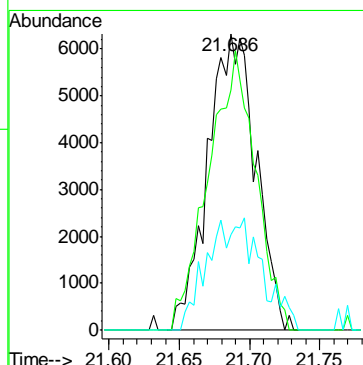
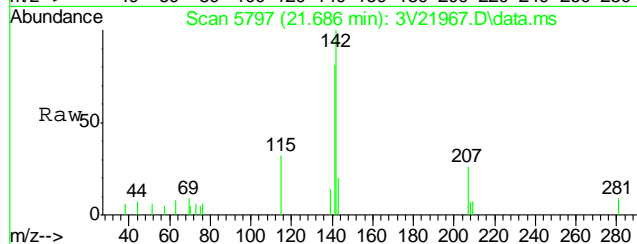
#94
2-Methylnaphthalene
Concen: 6.64 ug/l
RT: 21.382 min Scan# 5702
Delta R.T. 0.000 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

Tgt Ion:	142	Resp:	21077
Ion Ratio	Lower	Upper	
142	100		
141	82.6	68.6	103.0
115	34.4	23.8	35.6



#95
1-Methylnaphthalene
Concen: 5.10 ug/l
RT: 21.686 min Scan# 5797
Delta R.T. 0.000 min
Lab File: 3V21967.D
Acq: 4 Dec 2012 1:42 pm

Tgt Ion:	142	Resp:	14854
Ion Ratio	Lower	Upper	
142	100		
141	92.4	70.6	106.0
115	42.3	25.4	38.2#



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3120412.S\
Data File : 3V21968.D
Acq On : 4 Dec 2012 2:14 pm
Operator : Jessical
Sample : D41382-2
Misc : MS5044,V3V1282,5.191,,100,5,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 05 09:04:33 2012
Quant Method : C:\msdchem\1\METHODS\V3AP1277TVH1277SOIL.M
Quant Title : 8260
QLast Update : Wed Nov 28 14:20:19 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.863	168	152998	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.655	114	268776	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.295	117	298267	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.287	152	158168	50.00	ug/l	0.00

System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.248	102	17723	47.72	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	95.44%
61) Toluene-d8	14.051	98	335173	46.61	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	93.22%
69) 4-Bromofluorobenzene	16.245	95	147433	49.89	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	99.78%

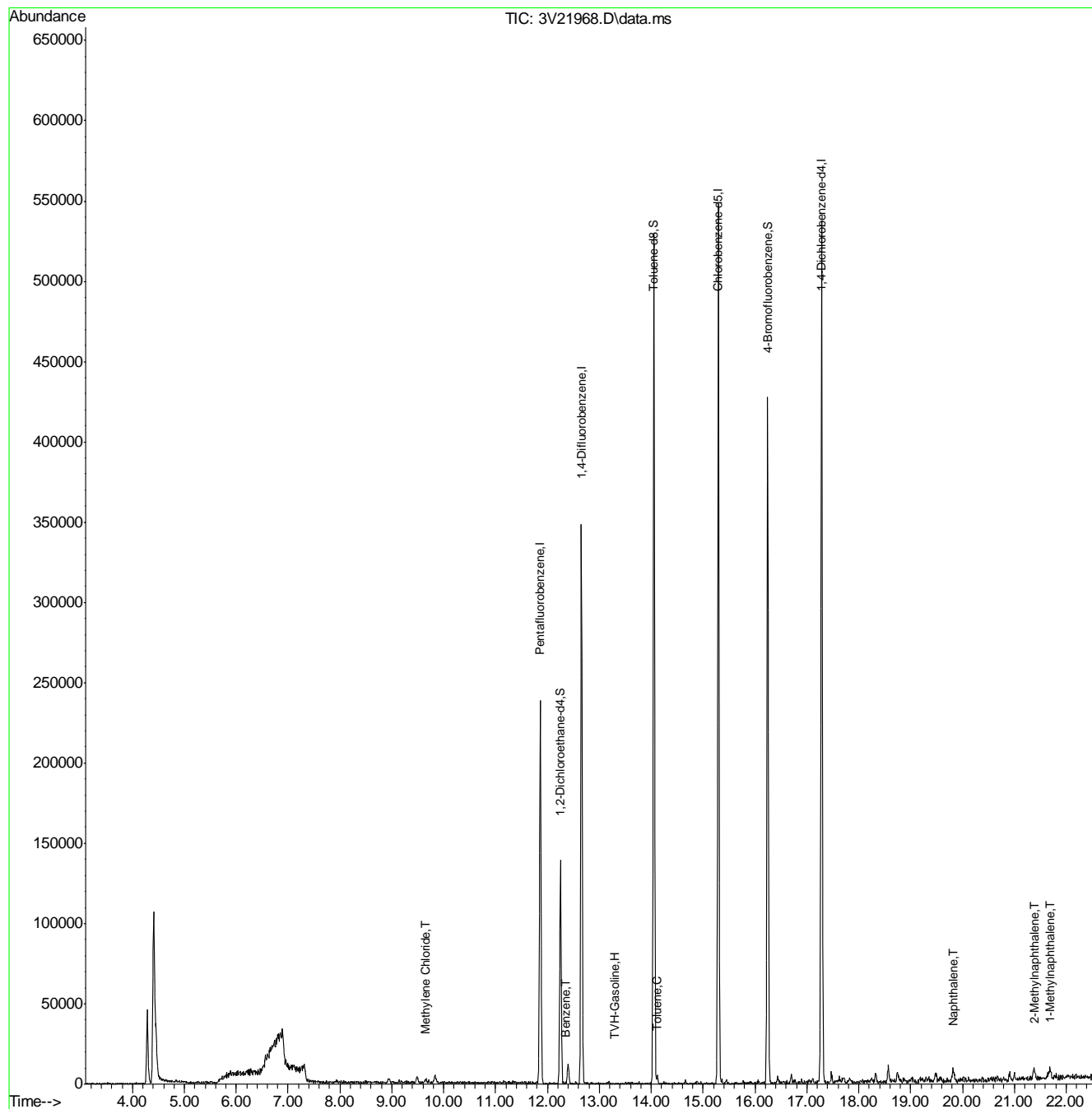
Target Compounds						Qvalue
1) TVH-Gasoline	13.285	TIC	17949m	159.64	ug/l	
17) Methylene Chloride	9.653	84	1041m	0.46	ug/l	
50) Benzene	12.354	78	649	0.07	ug/l	100
62) Toluene	14.108	92	1584	0.24	ug/l	95
91) Naphthalene	19.840	128	6481	3.99	ug/l	100
94) 2-Methylnaphthalene	21.383	142	6081	1.97	ug/l	94
95) 1-Methylnaphthalene	21.688	142	4733	1.67	ug/l #	79

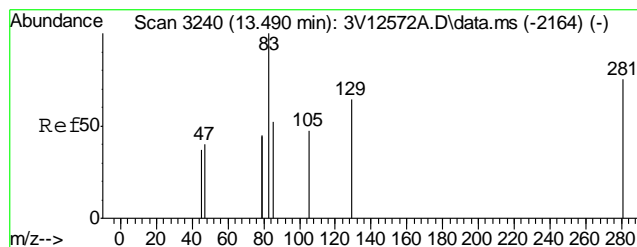
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3120412.S\
Data File : 3V21968.D
Acq On : 4 Dec 2012 2:14 pm
Operator : Jessical
Sample : D41382-2
Misc : MS5044,V3V1282,5.191,,100,5,1
ALS Vial : 10 Sample Multiplier: 1

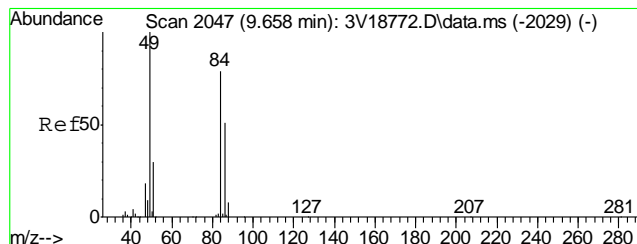
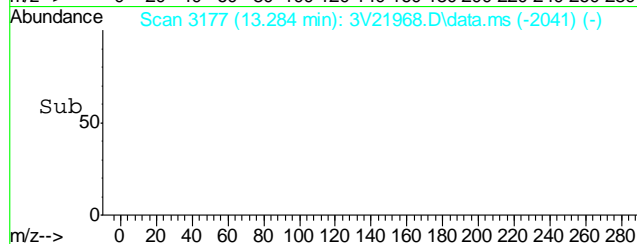
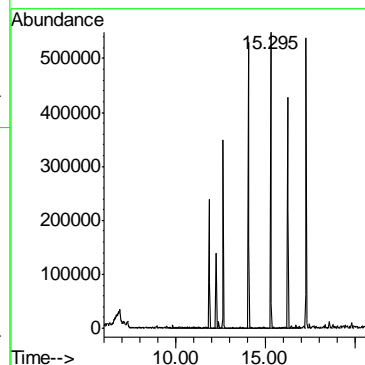
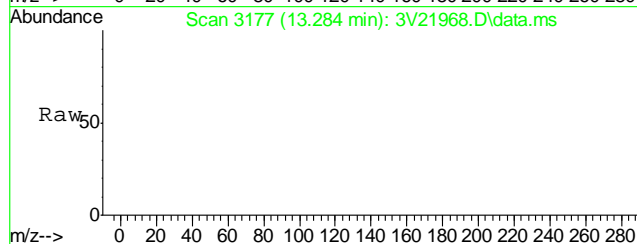
Quant Time: Dec 05 09:04:33 2012
Quant Method : C:\msdchem\1\METHODS\V3AP1277TVH1277SOIL.M
Quant Title : 8260
QLast Update : Wed Nov 28 14:20:19 2012
Response via : Initial Calibration





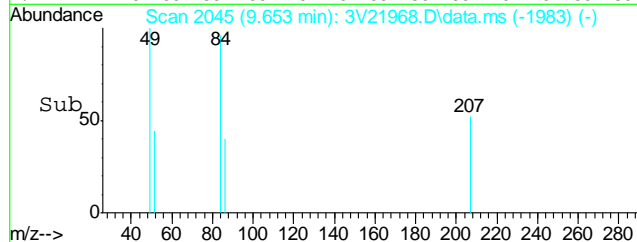
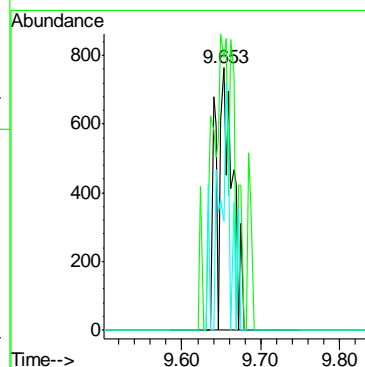
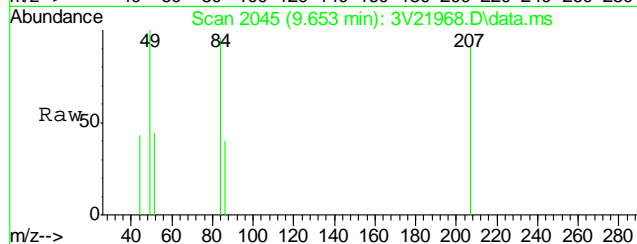
#1
TVH-Gasoline
Concen: 159.64 ug/l m
RT: 13.285 min Scan# 3177
Delta R.T. 0.000 min
Lab File: 3V21968.D
Acq: 4 Dec 2012 2:14 pm

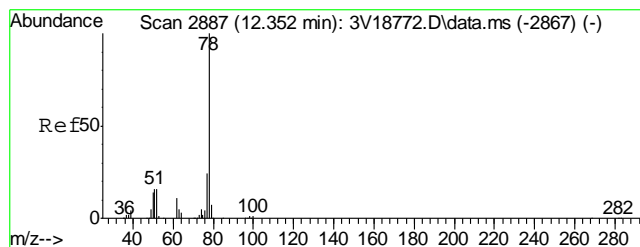
Tgt Ion:TIC Resp: 17949



#17
Methylene Chloride
Concen: 0.46 ug/l m
RT: 9.653 min Scan# 2045
Delta R.T. -0.001 min
Lab File: 3V21968.D
Acq: 4 Dec 2012 2:14 pm

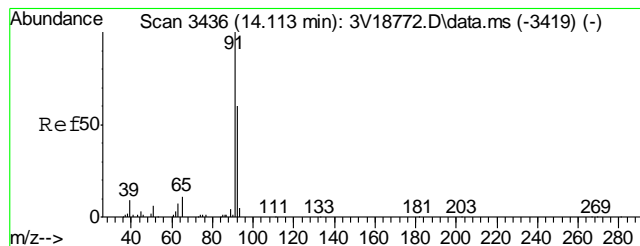
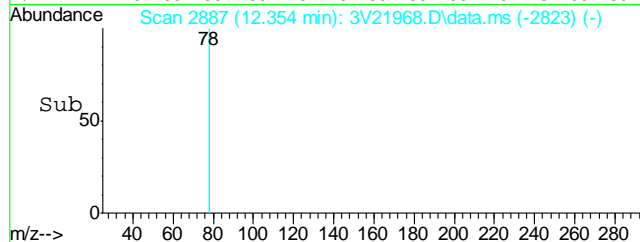
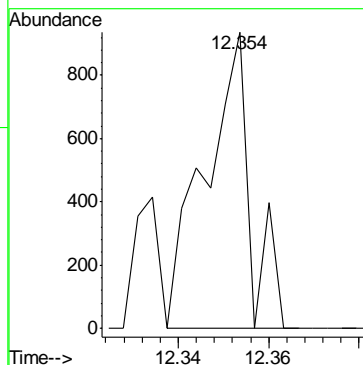
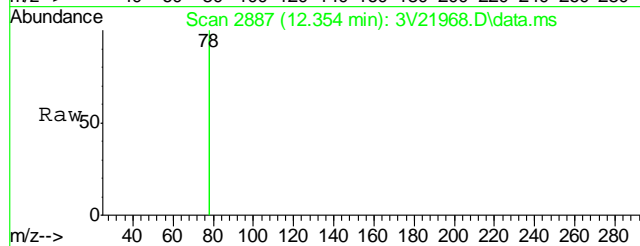
Tgt Ion: 84 Resp: 1041
Ion Ratio Lower Upper
84 100
49 130.8 102.6 142.6
86 64.8 44.5 84.5





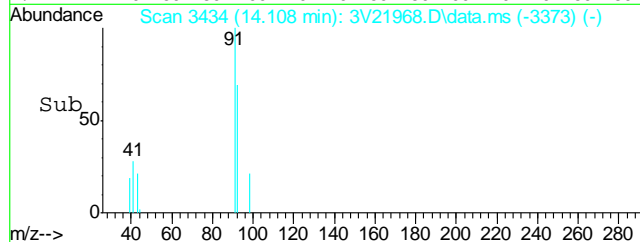
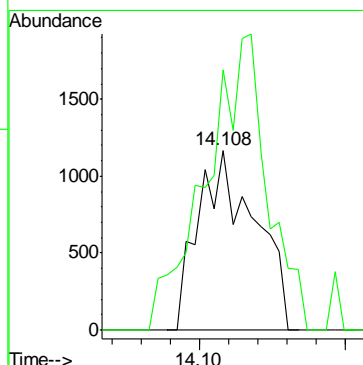
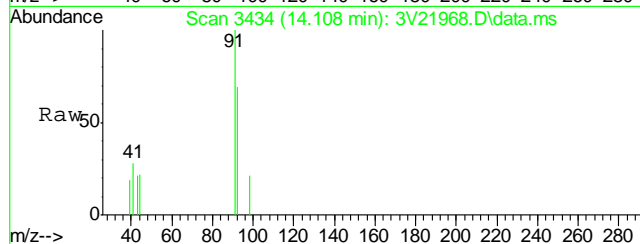
#50
Benzene
Concen: 0.07 ug/l
RT: 12.354 min Scan# 2887
Delta R.T. 0.005 min
Lab File: 3V21968.D
Acq: 4 Dec 2012 2:14 pm

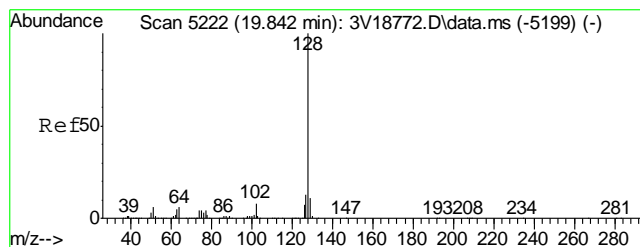
Tgt Ion: 78 Resp: 649



#62
Toluene
Concen: 0.24 ug/l
RT: 14.108 min Scan# 3434
Delta R.T. -0.004 min
Lab File: 3V21968.D
Acq: 4 Dec 2012 2:14 pm

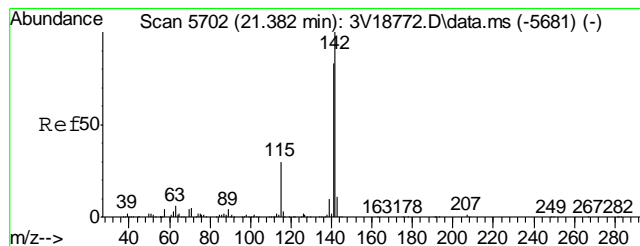
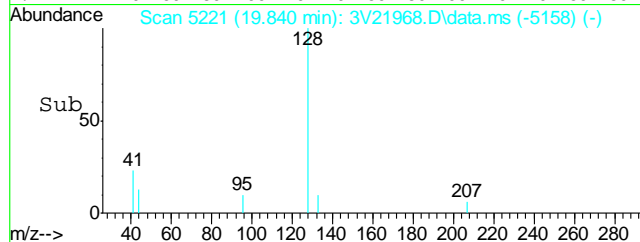
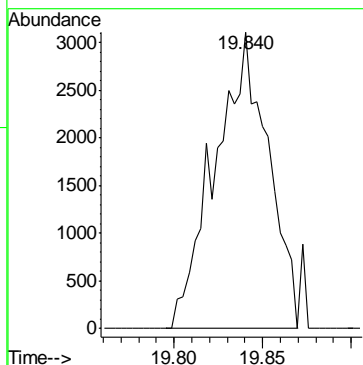
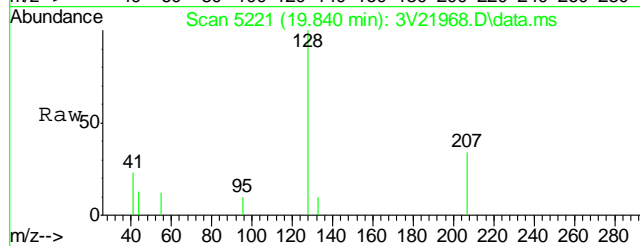
Tgt Ion: 92 Resp: 1584
Ion Ratio Lower Upper
92 100
91 177.2 150.2 190.2





#91
Naphthalene
Concen: 3.99 ug/l
RT: 19.840 min Scan# 5221
Delta R.T. 0.002 min
Lab File: 3V21968.D
Acq: 4 Dec 2012 2:14 pm

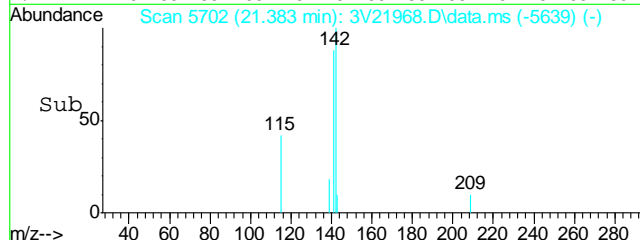
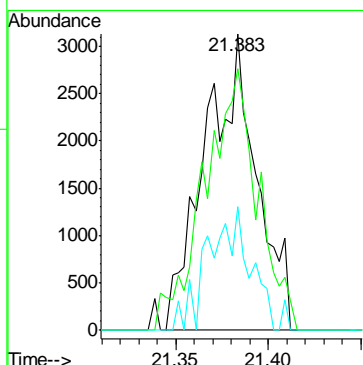
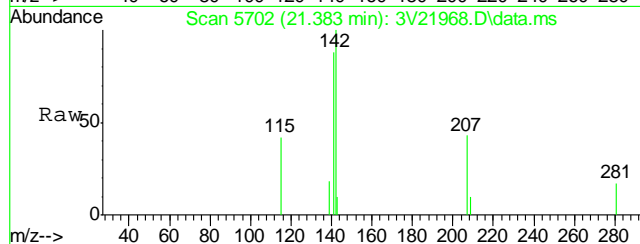
Tgt Ion:128 Resp: 6481

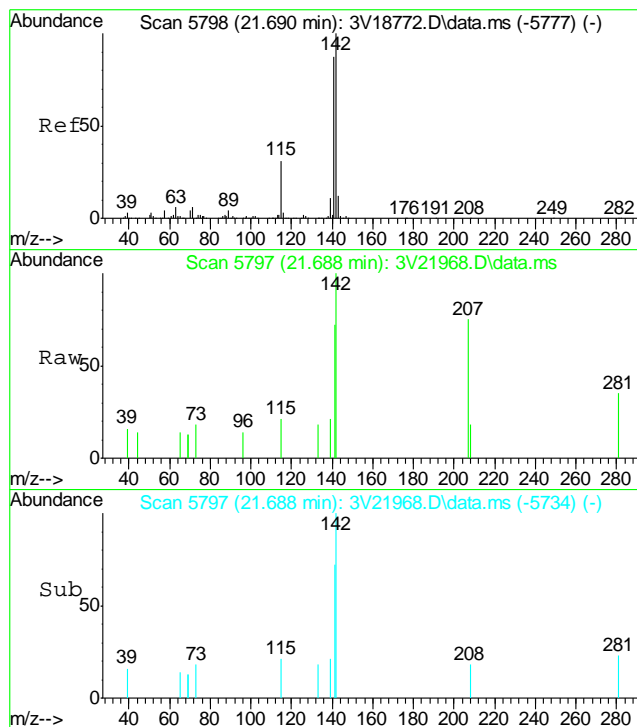


#94
2-Methylnaphthalene
Concen: 1.97 ug/l
RT: 21.383 min Scan# 5702
Delta R.T. 0.002 min
Lab File: 3V21968.D
Acq: 4 Dec 2012 2:14 pm

Tgt Ion:142 Resp: 6081

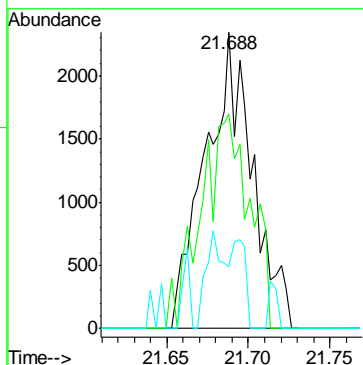
Ion	Ratio	Lower	Upper
142	100		
141	90.7	68.6	103.0
115	33.5	23.8	35.6





#95
 1-Methylnaphthalene
 Concen: 1.67 ug/l
 RT: 21.688 min Scan# 5797
 Delta R.T. 0.002 min
 Lab File: 3V21968.D
 Acq: 4 Dec 2012 2:14 pm

Tgt Ion:	142	Resp:	4733
Ion Ratio	Lower	Upper	
142	100		
141	75.3	70.6	106.0
115	8.3	25.4	38.2#



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3120412.S\
 Data File : 3V21961.D
 Acq On : 4 Dec 2012 10:34 am
 Operator : Jessical
 Sample : MB
 Misc : MS5044,V3V1282,5.00,,100,5,1
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 05 08:43:05 2012
 Quant Method : C:\msdchem\1\METHODS\V3AP1277TVH1277SOIL.M
 Quant Title : 8260
 QLast Update : Wed Nov 28 14:20:19 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.858	168	161672	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.653	114	283220	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.293	117	308766	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.282	152	163893	50.00	ug/l	0.00

System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.249	102	19489	49.66	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	99.32%
61) Toluene-d8	14.049	98	347440	46.67	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	93.34%
69) 4-Bromofluorobenzene	16.243	95	154606	50.54	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	101.08%

Target Compounds						Qvalue
1) TVH-Gasoline	13.285	TIC	20935m	159.73	ug/l	
58) Amyl acetate	15.768	70	919	5.78	ug/l	# 85
62) Toluene	14.113	92	891	0.13	ug/l	92
88) n-Butylbenzene	17.542	91	1453	0.15	ug/l	# 78
90) 1,2,4-Trichlorobenzene	19.467	180	1220	0.37	ug/l	# 65
91) Naphthalene	19.839	128	15538	4.90	ug/l	100
94) 2-Methylnaphthalene	21.375	142	13910	4.36	ug/l	# 95
95) 1-Methylnaphthalene	21.680	142	11334	3.87	ug/l	98

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

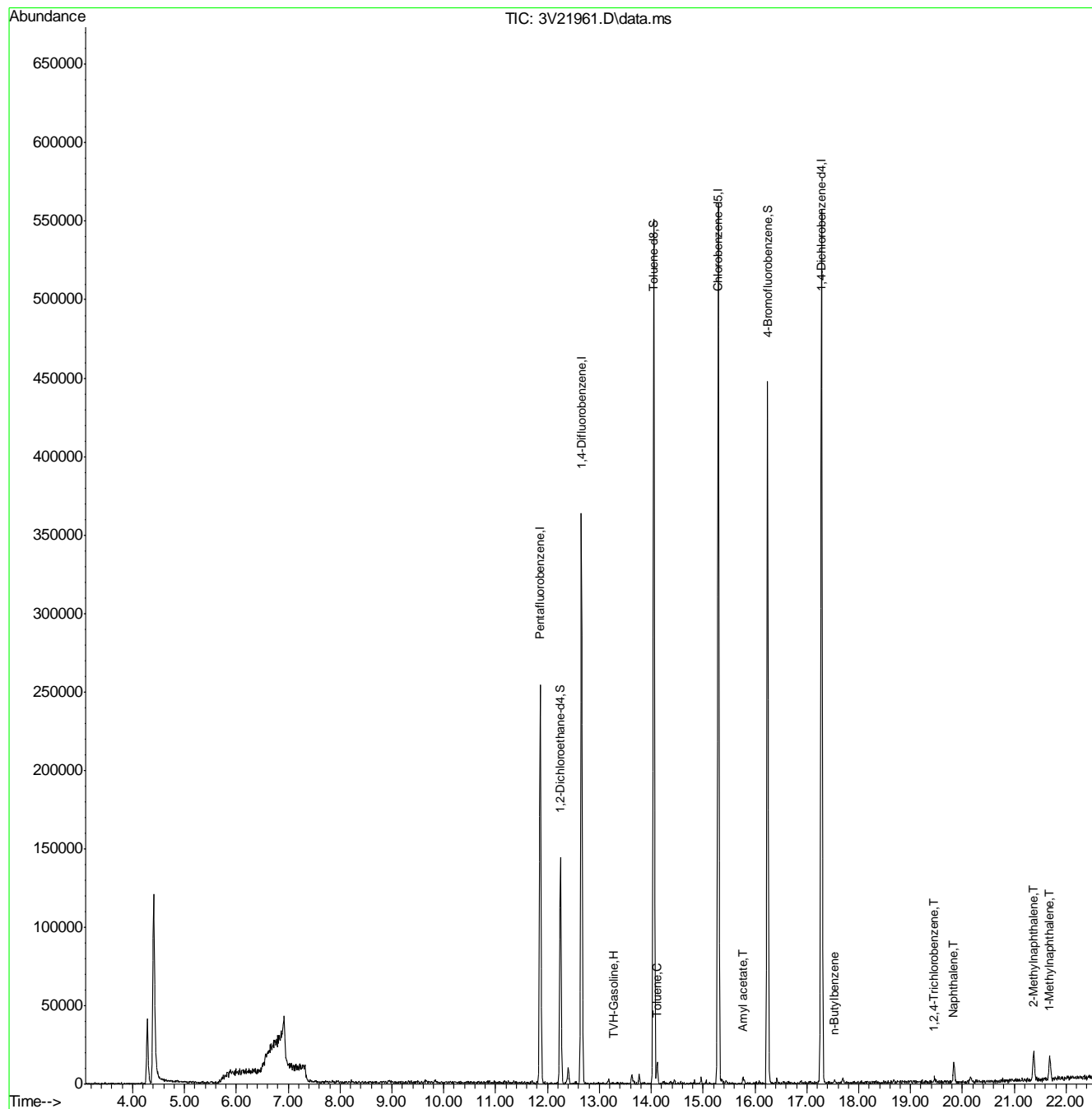
7.2.1

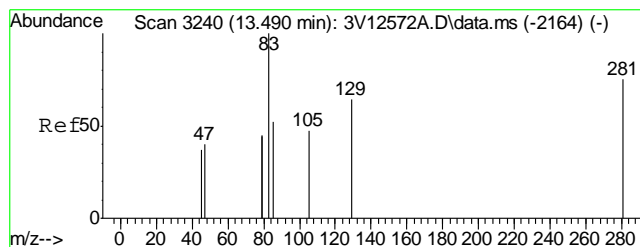
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3120412.S\
Data File : 3V21961.D
Acq On : 4 Dec 2012 10:34 am
Operator : Jessical
Sample : MB
Misc : MS5044,V3V1282,5.00,,100,5,1
ALS Vial : 3 Sample Multiplier: 1

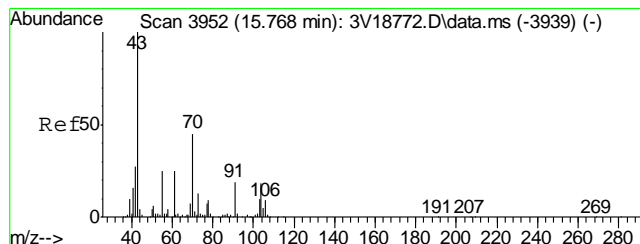
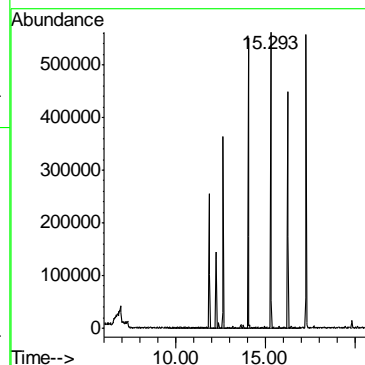
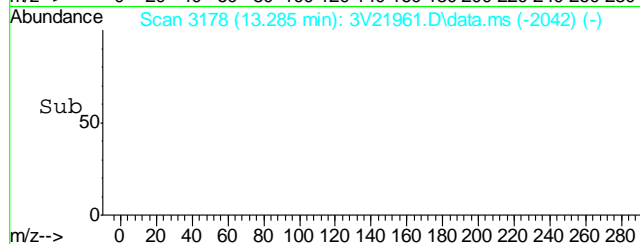
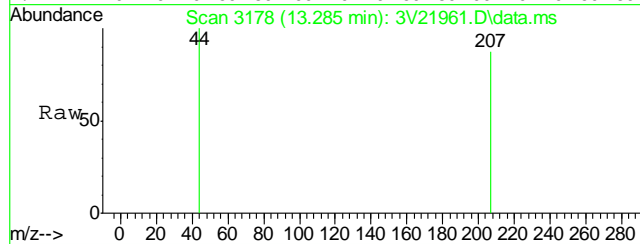
Quant Time: Dec 05 08:43:05 2012
Quant Method : C:\msdchem\1\METHODS\V3AP1277TVH1277SOIL.M
Quant Title : 8260
QLast Update : Wed Nov 28 14:20:19 2012
Response via : Initial Calibration





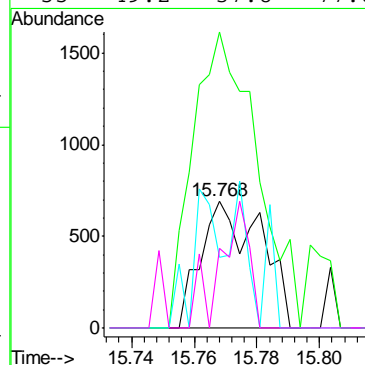
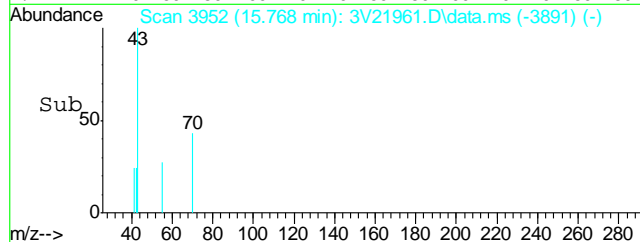
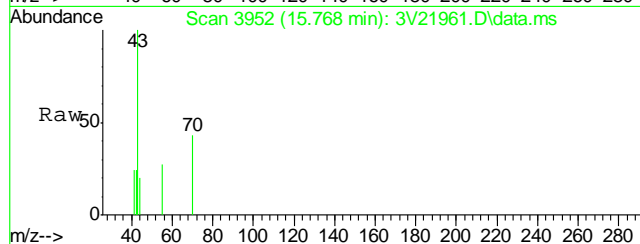
#1
TVH-Gasoline
Concen: 159.73 ug/l m
RT: 13.285 min Scan# 3178
Delta R.T. 0.000 min
Lab File: 3V21961.D
Acq: 4 Dec 2012 10:34 am

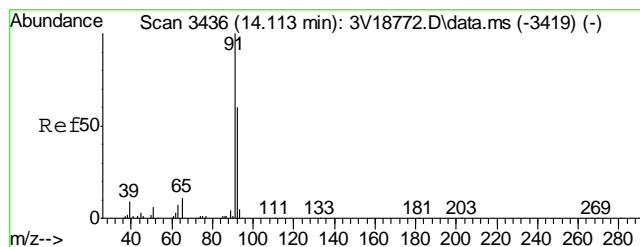
Tgt Ion:TIC Resp: 20935



#58
Amyl acetate
Concen: 5.78 ug/l
RT: 15.768 min Scan# 3952
Delta R.T. -0.003 min
Lab File: 3V21961.D
Acq: 4 Dec 2012 10:34 am

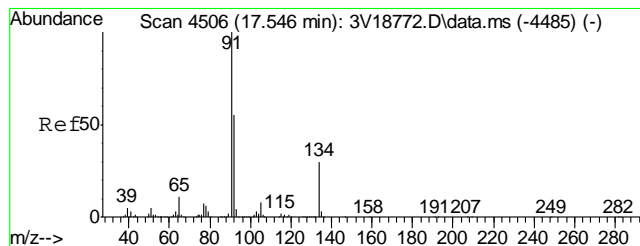
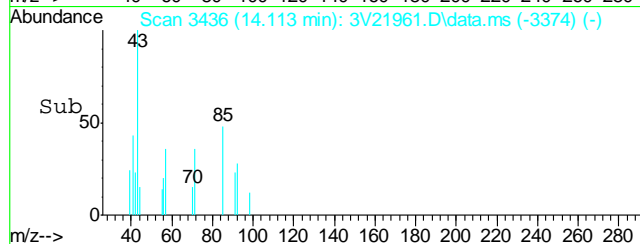
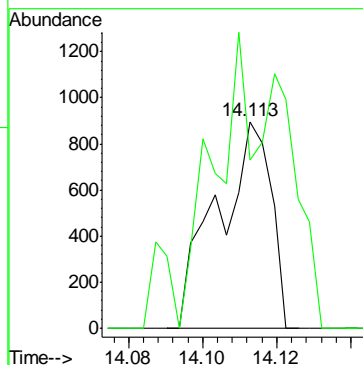
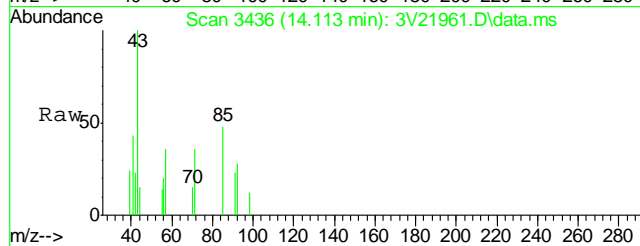
Tgt Ion: 70 Resp: 919
Ion Ratio Lower Upper
70 100
43 248.7 205.3 245.3#
42 77.5 42.6 82.6
55 49.2 37.8 77.8





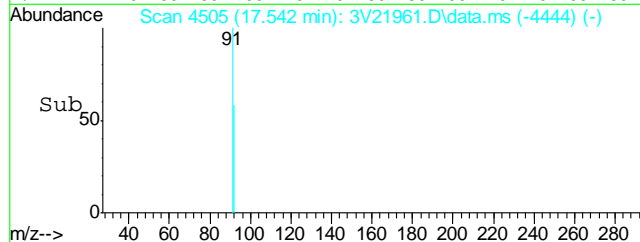
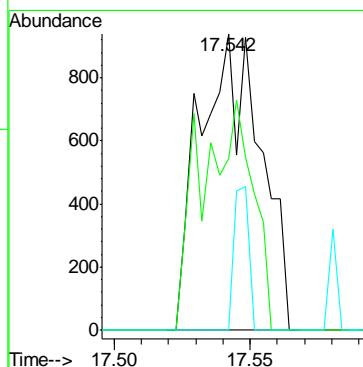
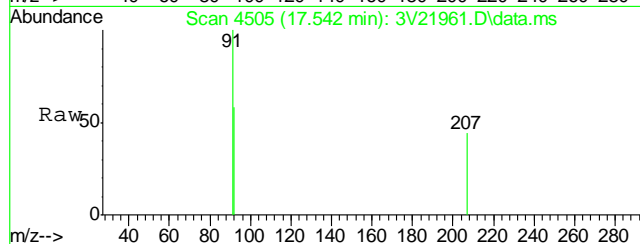
#62
Toluene
Concen: 0.13 ug/l
RT: 14.113 min Scan# 3436
Delta R.T. 0.000 min
Lab File: 3V21961.D
Acq: 4 Dec 2012 10:34 am

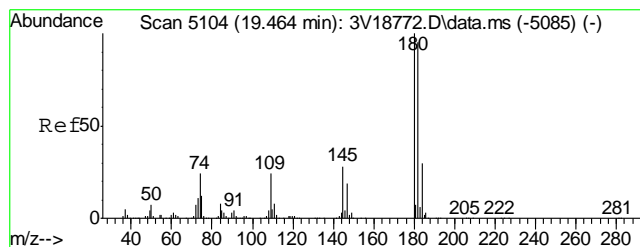
Tgt Ion: 92 Resp: 891
Ion Ratio Lower Upper
92 100
91 181.6 150.2 190.2



#88
n-Butylbenzene
Concen: 0.15 ug/l
RT: 17.542 min Scan# 4505
Delta R.T. -0.003 min
Lab File: 3V21961.D
Acq: 4 Dec 2012 10:34 am

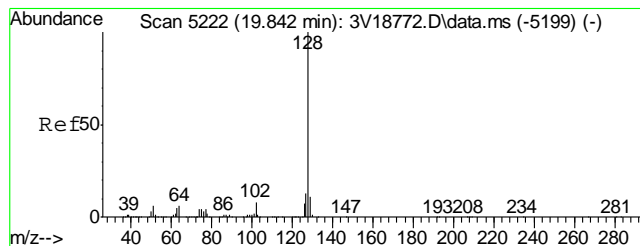
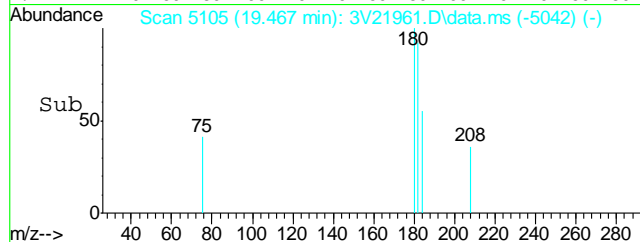
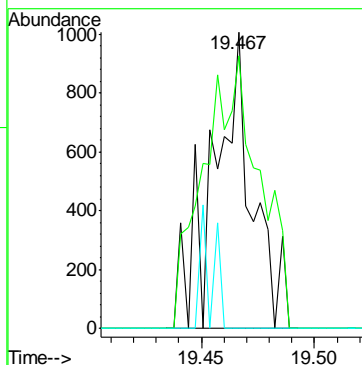
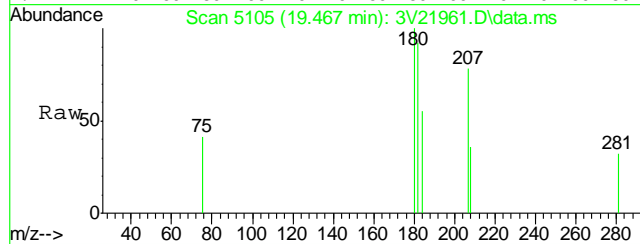
Tgt Ion: 91 Resp: 1453
Ion Ratio Lower Upper
91 100
92 66.7 43.8 65.8#
134 11.9 23.1 34.7#





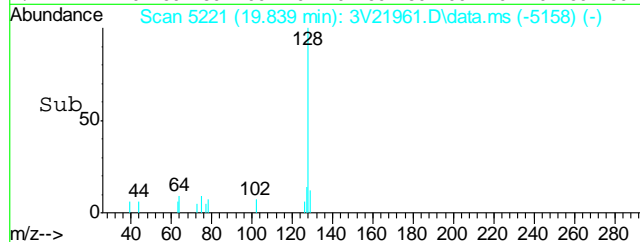
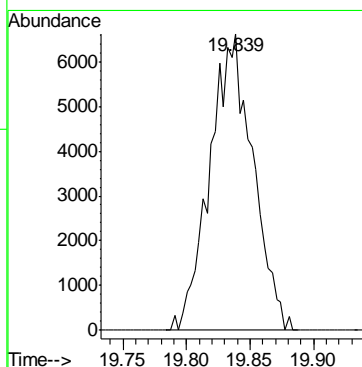
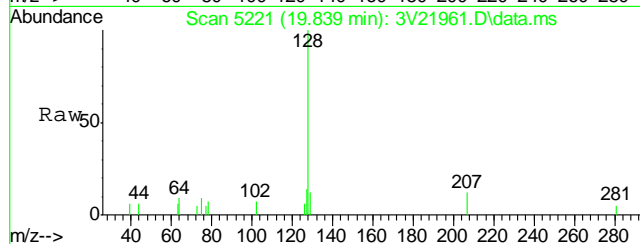
#90
1,2,4-Trichlorobenzene
Concen: 0.37 ug/l
RT: 19.467 min Scan# 5105
Delta R.T. 0.003 min
Lab File: 3V21961.D
Acq: 4 Dec 2012 10:34 am

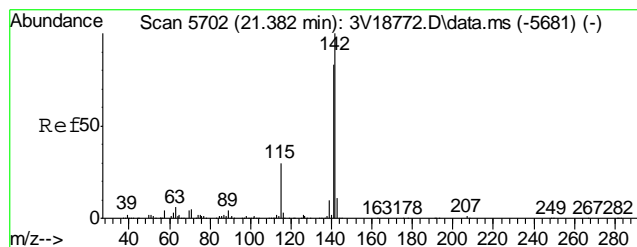
Tgt Ion	180	Resp	1220
Ion Ratio	100		
182	130.7	76.4	114.6#
145	12.3	22.9	34.3#



#91
Naphthalene
Concen: 4.90 ug/l
RT: 19.839 min Scan# 5221
Delta R.T. 0.001 min
Lab File: 3V21961.D
Acq: 4 Dec 2012 10:34 am

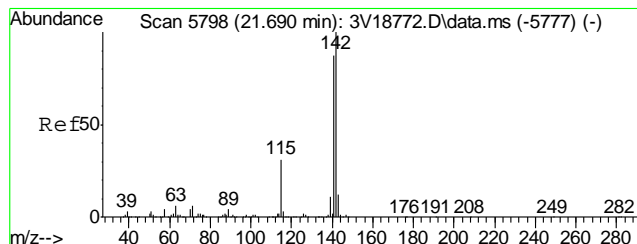
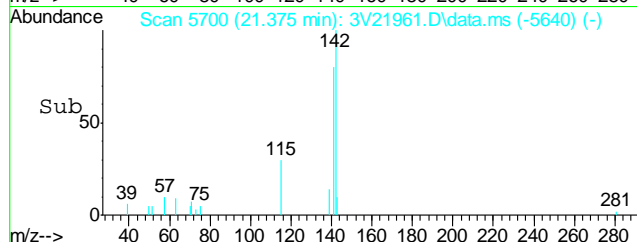
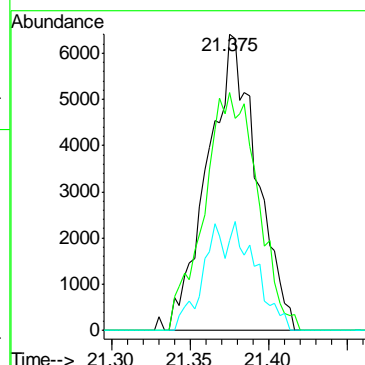
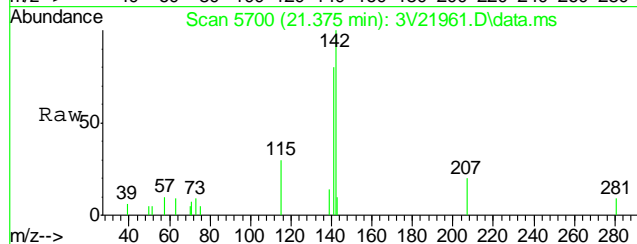
Tgt Ion:128 Resp: 15538





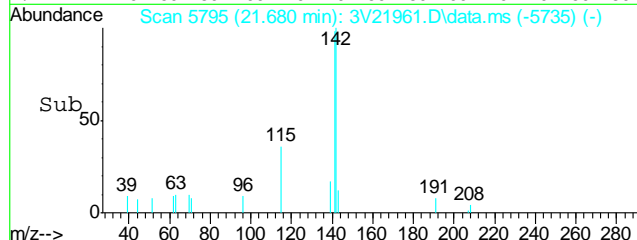
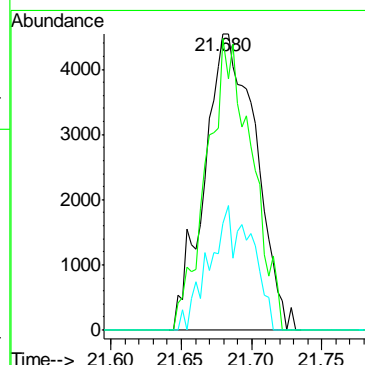
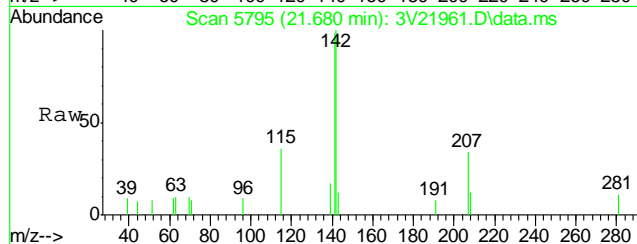
#94
2-Methylnaphthalene
Concen: 4.36 ug/l
RT: 21.375 min Scan# 5700
Delta R.T. -0.006 min
Lab File: 3V21961.D
Acq: 4 Dec 2012 10:34 am

Tgt Ion	Ratio	Lower	Upper
142	100		
141	88.2	68.6	103.0
115	36.9	23.8	35.6#



#95
1-Methylnaphthalene
Concen: 3.87 ug/l
RT: 21.680 min Scan# 5795
Delta R.T. -0.006 min
Lab File: 3V21961.D
Acq: 4 Dec 2012 10:34 am

Tgt Ion	Ratio	Lower	Upper
142	100		
141	86.8	70.6	106.0
115	34.6	25.4	38.2



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: D41382
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7075-MB	3G12508.D	1	12/10/12	DC	12/10/12	OP7075	E3G593

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D41382-1, D41382-2

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	88% 10-159%
321-60-8	2-Fluorobiphenyl	79% 19-131%
1718-51-0	Terphenyl-d14	91% 18-150%

8.1.1

8

Blank Spike Summary

Page 1 of 1

Job Number: D41382
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7075-BS	3G12509.D	1	12/10/12	DC	12/10/12	OP7075	E3G593

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D41382-1, D41382-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	74.0	89	68-130
120-12-7	Anthracene	83.3	63.0	76	67-130
56-55-3	Benzo(a)anthracene	83.3	72.7	87	65-130
205-99-2	Benzo(b)fluoranthene	83.3	83.2	100	44-130
207-08-9	Benzo(k)fluoranthene	83.3	66.7	80	56-131
50-32-8	Benzo(a)pyrene	83.3	74.9	90	62-130
218-01-9	Chrysene	83.3	74.6	90	70-130
53-70-3	Dibenzo(a,h)anthracene	83.3	72.2	87	55-130
206-44-0	Fluoranthene	83.3	63.1	76	70-130
86-73-7	Fluorene	83.3	71.5	86	70-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	72.0	86	56-130
91-20-3	Naphthalene	83.3	78.0	94	70-130
129-00-0	Pyrene	83.3	76.0	91	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	97%	10-159%
321-60-8	2-Fluorobiphenyl	76%	19-131%
1718-51-0	Terphenyl-d14	87%	18-150%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D41382
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7075-MS	3G12511.D	1	12/10/12	DC	12/10/12	OP7075	E3G593
OP7075-MSD	3G12512.D	1	12/10/12	DC	12/10/12	OP7075	E3G593
D41381-1	3G12510.D	1	12/10/12	DC	12/10/12	OP7075	E3G593

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D41382-1, D41382-2

CAS No.	Compound	D41381-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		93.9	77.2	82	74.1	79	4	25-151/30
120-12-7	Anthracene	ND		93.9	71.0	76	69.6	74	2	39-159/30
56-55-3	Benzo(a)anthracene	ND		93.9	80.7	86	79.9	85	1	39-168/30
205-99-2	Benzo(b)fluoranthene	ND		93.9	85.0	90	85.9	92	1	24-163/30
207-08-9	Benzo(k)fluoranthene	ND		93.9	77.1	82	76.7	82	1	10-188/30
50-32-8	Benzo(a)pyrene	ND		93.9	83.5	89	81.1	86	3	32-144/30
218-01-9	Chrysene	ND		93.9	80.3	85	81.0	86	1	43-150/30
53-70-3	Dibenzo(a,h)anthracene	ND		93.9	81.0	86	77.6	83	4	21-152/30
206-44-0	Fluoranthene	ND		93.9	71.8	76	69.7	74	3	36-157/30
86-73-7	Fluorene	ND		93.9	80.0	85	74.9	80	7	10-182/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		93.9	79.8	85	77.7	83	3	20-154/30
91-20-3	Naphthalene	ND		93.9	77.2	82	73.0	78	6	10-163/30
129-00-0	Pyrene	ND		93.9	83.7	89	83.2	89	1	25-180/30

CAS No.	Surrogate Recoveries	MS	MSD	D41381-1	Limits
4165-60-0	Nitrobenzene-d5	83%	78%	70%	10-159%
321-60-8	2-Fluorobiphenyl	69%	64%	57%	19-131%
1718-51-0	Terphenyl-d14	78%	78%	72%	18-150%

* = Outside of Control Limits.

GC/MS Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\121012\
 Data File : 3g12513.D
 Acq On : 10 Dec 2012 1:51 pm
 Operator : DONC
 Sample : D41382-1
 Misc : OP7075,E3G593,5.13,,,1,1
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 10 14:56:42 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G586.M
 Quant Title : PAHSIM BASE
 QLast Update : Tue Dec 04 08:50:28 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.670	136	143790	4.0000	ug/mL	-0.01
6) Acenaphthene-d10	7.385	164	93575	4.0000	ug/mL	0.00
15) Phenanthrene-d10	8.859	188	165699	4.0000	ug/mL	-0.02
19) Chrysene-d12	11.496	240	114008	4.0000	ug/mL	-0.02
24) Perylene-d12	12.873	264	96455	4.0000	ug/mL	-0.02

System Monitoring Compounds

2) Nitrobenzene-d5	4.985	82	626012	43.5533	ug/mL	-0.01
Spiked Amount	50.000	Range	25 - 135	Recovery	=	87.10%
7) 2-Fluorobiphenyl	6.723	172	1483818	35.9359	ug/mL	0.00
Spiked Amount	50.000	Range	25 - 135	Recovery	=	71.88%
21) Terphenyl-d14	10.450	244	672318	40.0628	ug/mL	-0.02
Spiked Amount	50.000	Range	25 - 135	Recovery	=	80.12%

Target Compounds

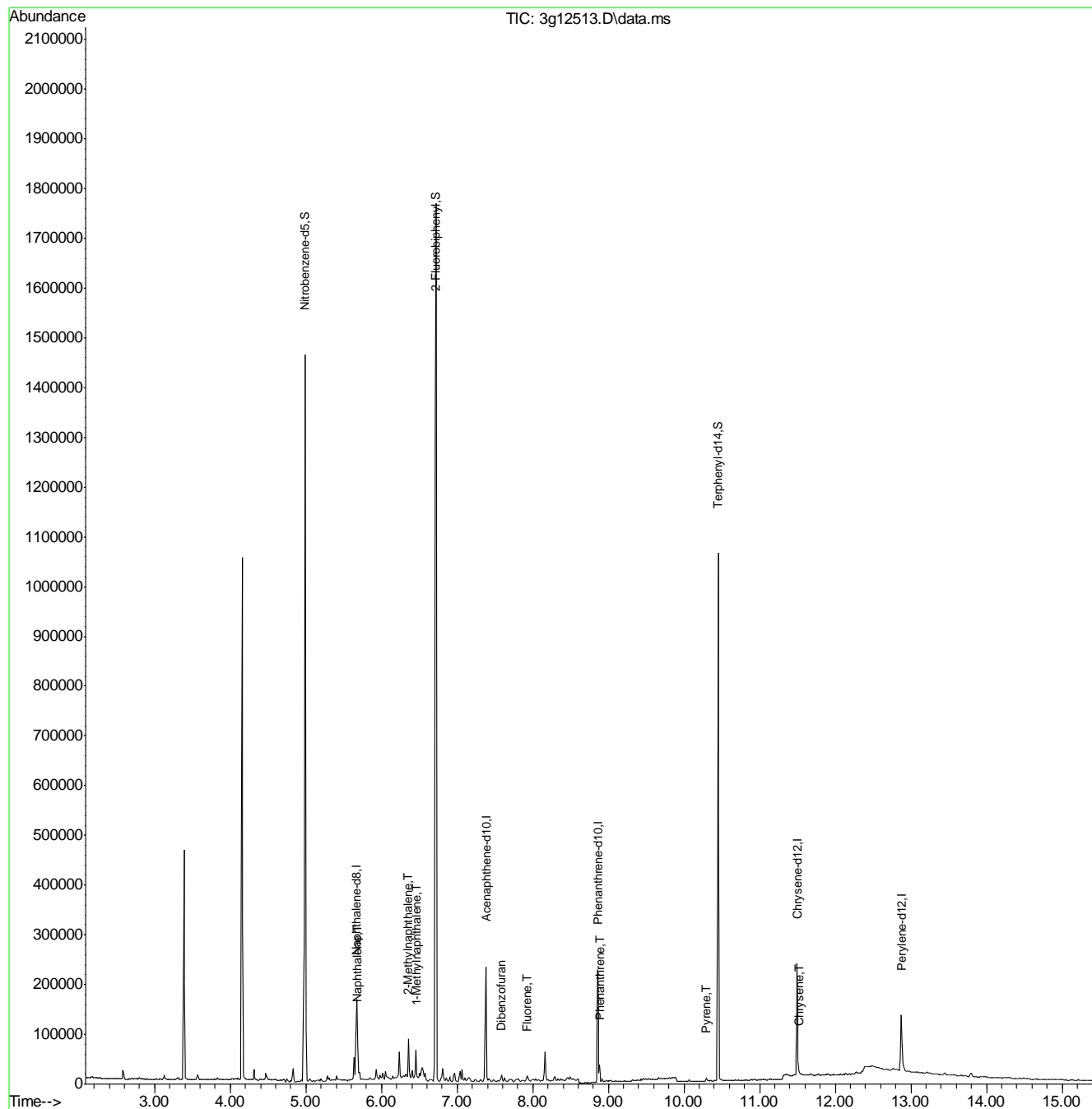
					Qvalue
3) N-Nitrosodimethylamine	2.356	74	58	N.D.	
4) N-Nitrosodi-propylamine	0.000	70	0	N.D. d	
5) Naphthalene	5.683	128	42130	0.9685	ug/mL 90
8) 2-Methylnaphthalene	6.356	142	31333	0.9367	ug/mL 98
9) 1-Methylnaphthalene	6.456	142	20452	0.6169	ug/mL 92
10) Acenaphthylene	7.243	152	851	N.D.	
11) Acenaphthene	7.408	154	709	Below Cal #	21
12) Dibenzofuran	7.585	168	6508	0.1202	ug/mL 99
13) Fluorene	7.928	166	4908	0.1170	ug/mL# 89
14) Diphenylamine	8.093	169	841	N.D.	
16) Phenanthrene	8.883	178	18482	0.2719	ug/mL 96
17) Anthracene	0.000	178	0	N.D. d	
18) Fluoranthene	10.070	202	3033	N.D.	
20) Pyrene	10.292	202	3928	0.0614	ug/mL 85
22) Benzo(a)anthracene	11.490	228	1759	N.D.	
23) Chrysene	11.523	228	4301	0.0793	ug/mL# 73
25) Benzo(b)fluoranthene	0.000	252	0	N.D. d	
26) Benzo(k)fluoranthene	0.000	252	0	N.D. d	
27) Benzo(a)pyrene	12.820	252	1226	N.D.	
28) Indeno(1,2,3-cd)pyrene	14.093	276	623	N.D.	
29) Dibenz(a,h)anthracene	14.103	278	527	N.D.	
30) Benzo(g,h,i)perylene	14.440	276	1750	N.D.	

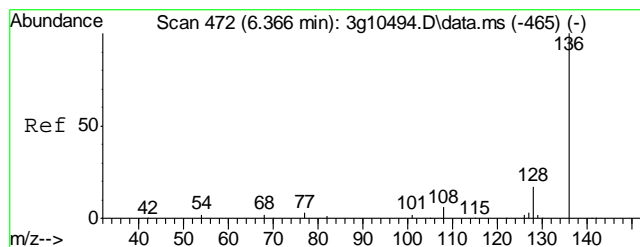
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\121012\
Data File : 3g12513.D
Acq On : 10 Dec 2012 1:51 pm
Operator : DONC
Sample : D41382-1
Misc : OP7075,E3G593,5.13,,,1,1
ALS Vial : 9 Sample Multiplier: 1

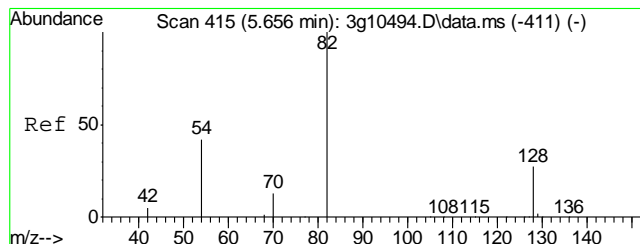
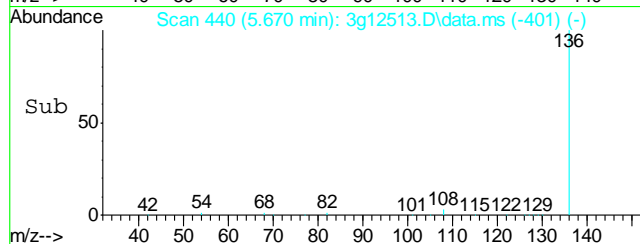
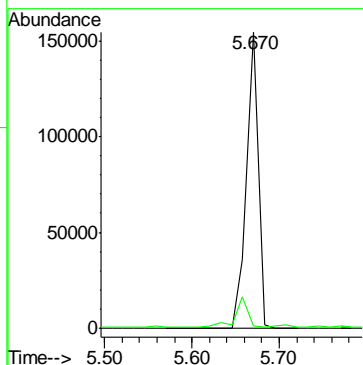
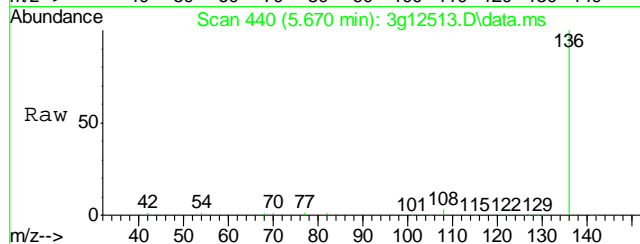
Quant Time: Dec 10 14:56:42 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G586.M
Quant Title : PAHSIM BASE
QLast Update : Tue Dec 04 08:50:28 2012
Response via : Initial Calibration





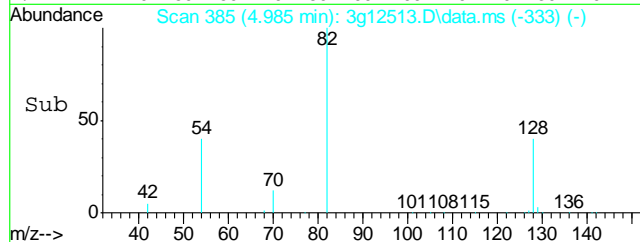
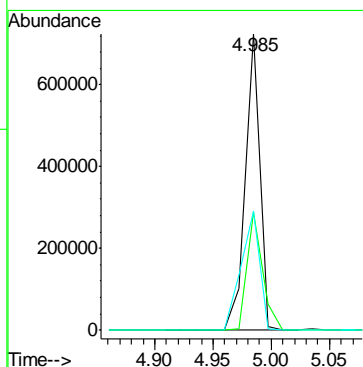
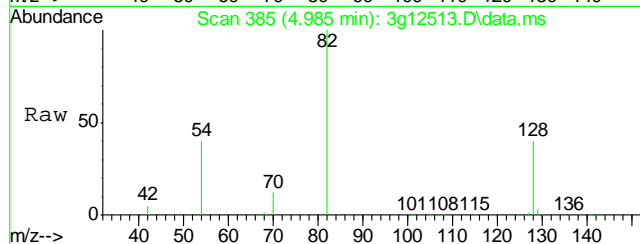
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.670 min Scan# 440
Delta R.T. -0.011 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

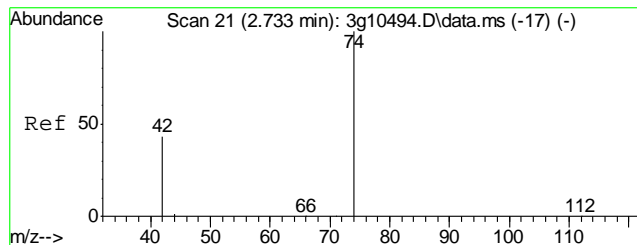
Tgt Ion	Ratio	Lower	Upper
136	100		
68	10.9	0.0	28.4



#2
Nitrobenzene-d5
Concen: 43.5533 ug/mL
RT: 4.985 min Scan# 385
Delta R.T. -0.011 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

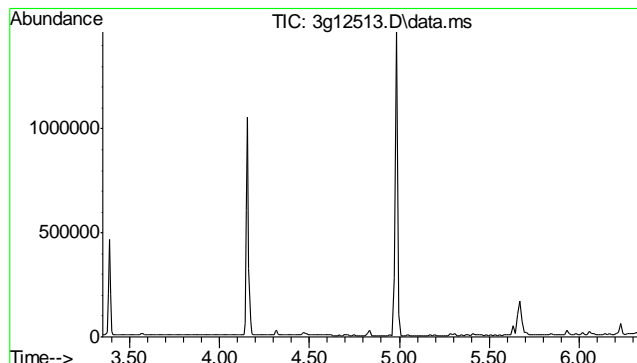
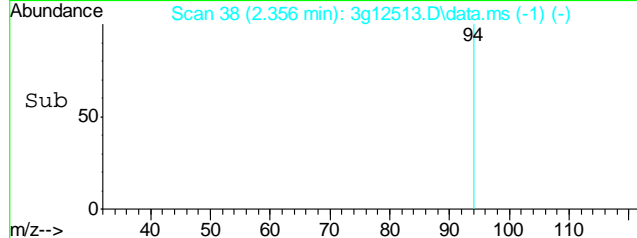
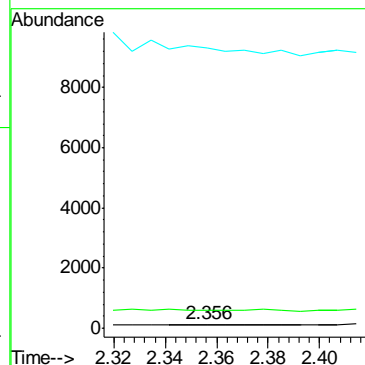
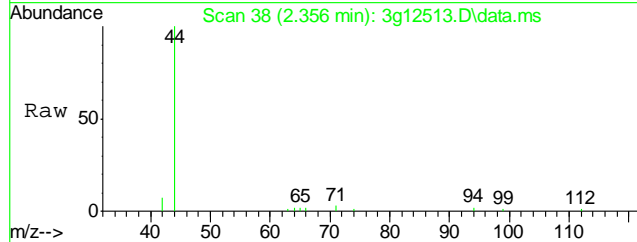
Tgt Ion	Ratio	Lower	Upper
82	100		
128	42.8	31.8	71.8
54	51.3	29.2	69.2





#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.356 min Scan# 38
Delta R.T. -0.022 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

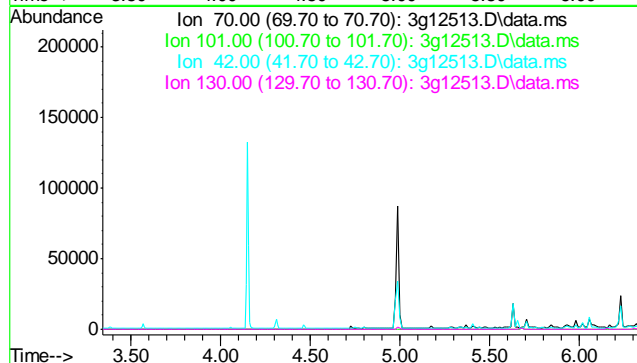
Tgt Ion: 74 Resp: 58
Ion Ratio Lower Upper
74 100
42 0.0 52.5 92.5#
44 0.0 0.0 24.1

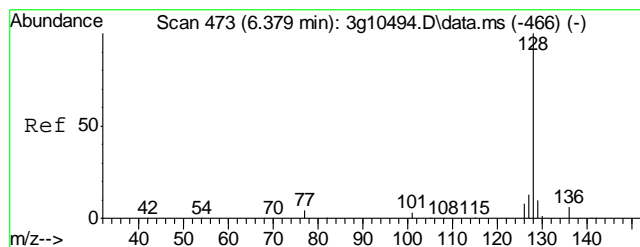


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 4.85 min

Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

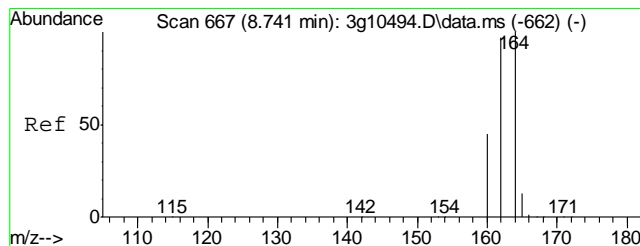
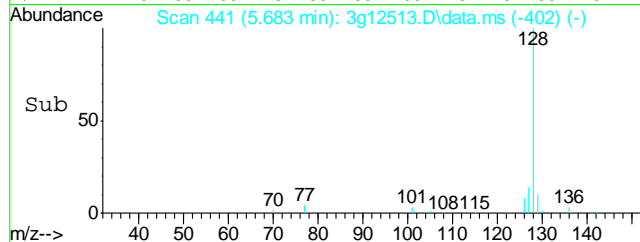
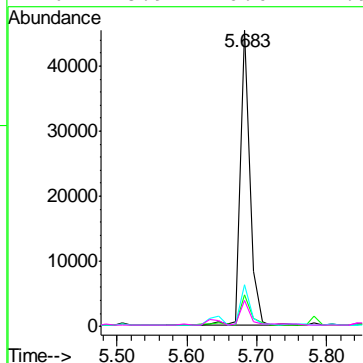
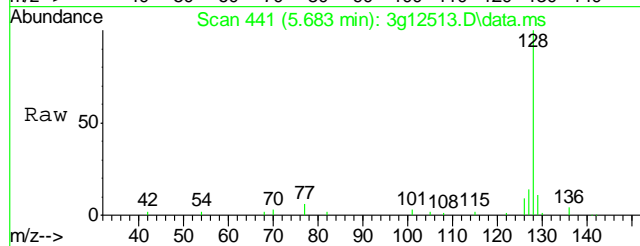
Tgt Ion: 70
Sig Exp Ratio
70 100
101 12.2
42 67.9
130 33.2





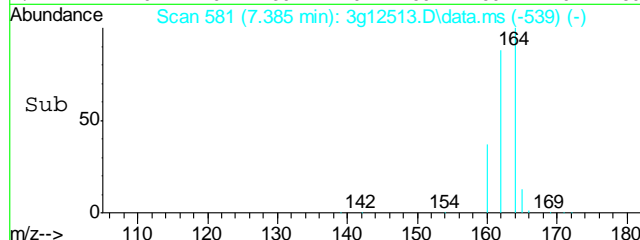
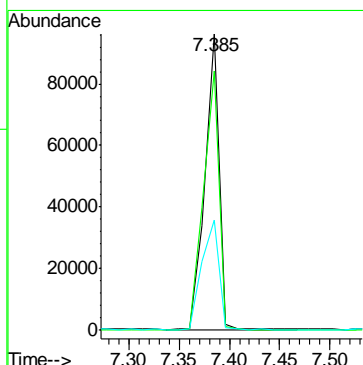
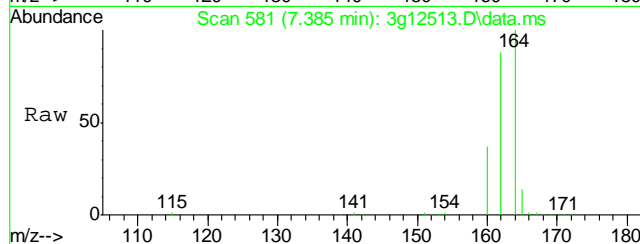
#5
Naphthalene
Concen: 0.9685 ug/mL
RT: 5.683 min Scan# 441
Delta R.T. -0.011 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

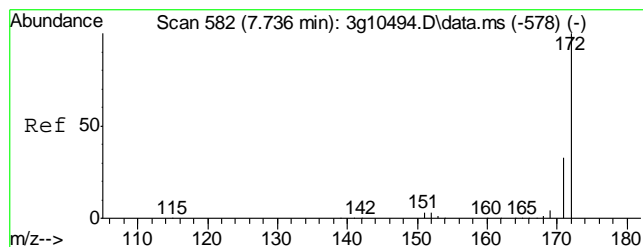
Tgt Ion:	128	Resp:	42130
Ion Ratio	Lower	Upper	
128	100		
129	13.9	0.0	30.7
127	19.0	0.0	33.2
126	8.9	0.0	27.9



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.385 min Scan# 581
Delta R.T. -0.004 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

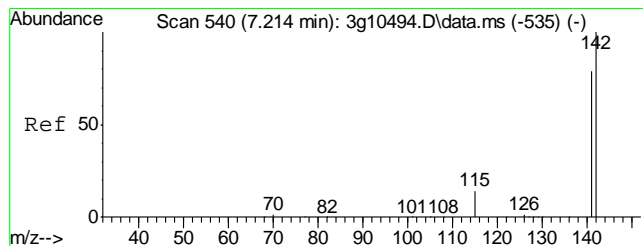
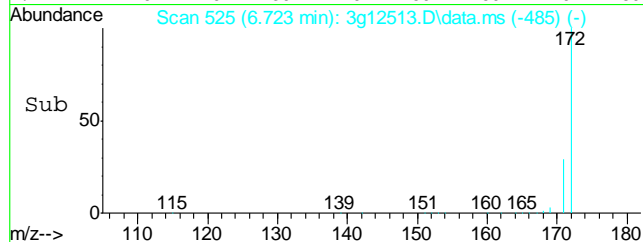
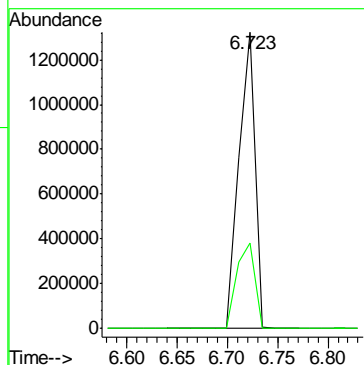
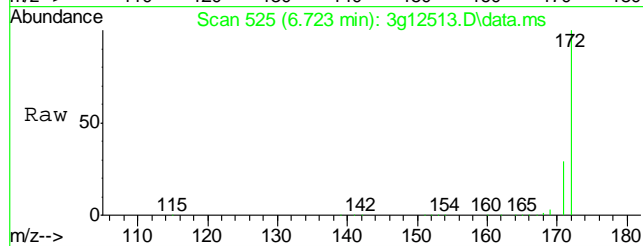
Tgt Ion:	164	Resp:	93575
Ion Ratio	Lower	Upper	
164	100		
162	94.7	78.0	118.0
160	44.3	27.3	67.3





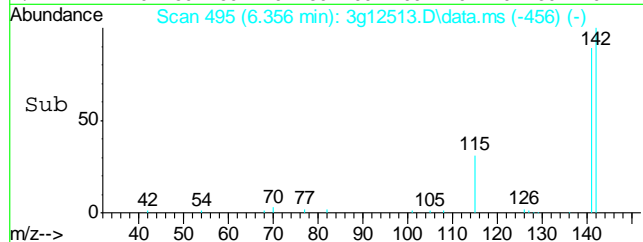
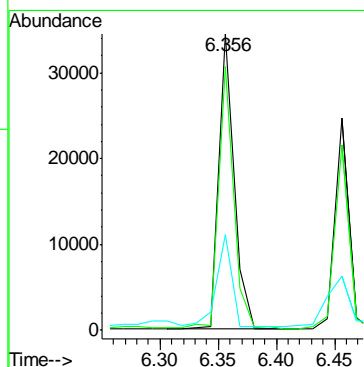
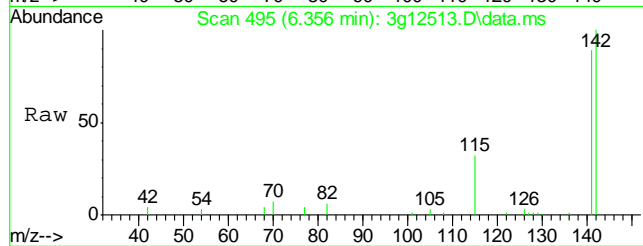
#7
2-Fluorobiphenyl
Concen: 35.9359 ug/mL
RT: 6.723 min Scan# 525
Delta R.T. -0.004 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

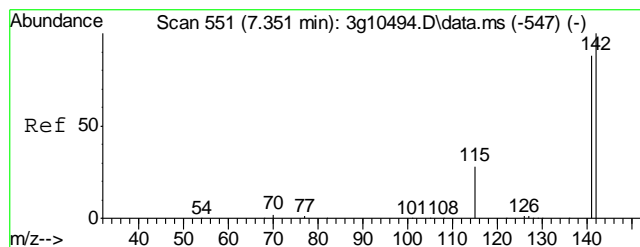
Tgt Ion	Ratio	Lower	Upper
172	100		
171	32.6	13.7	53.7



#8
2-Methylnaphthalene
Concen: 0.9367 ug/mL
RT: 6.356 min Scan# 495
Delta R.T. -0.011 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

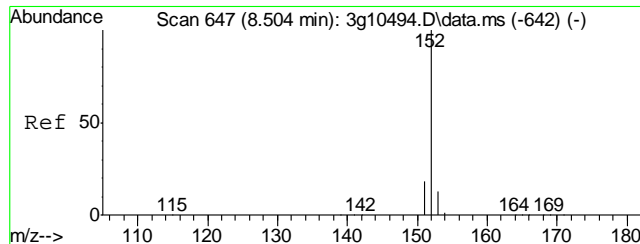
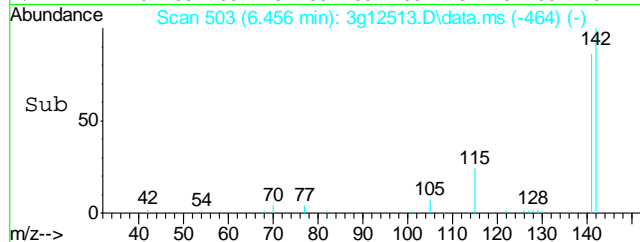
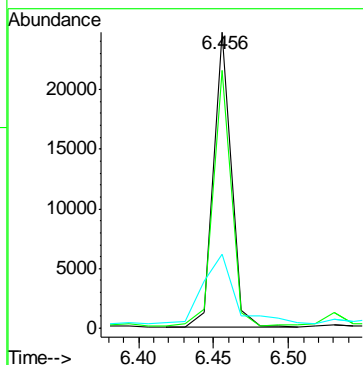
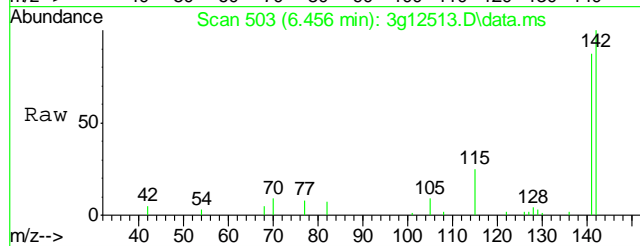
Tgt Ion	Ratio	Lower	Upper
142	100		
141	86.9	65.6	105.6
115	30.8	12.2	52.2





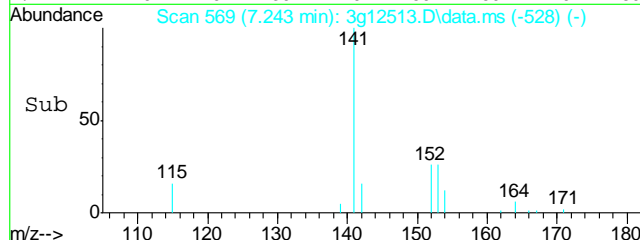
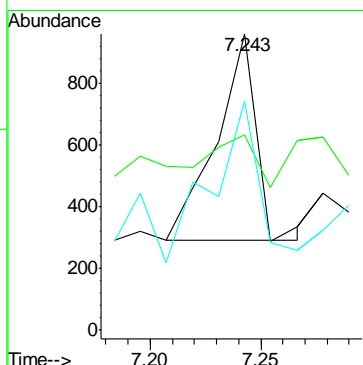
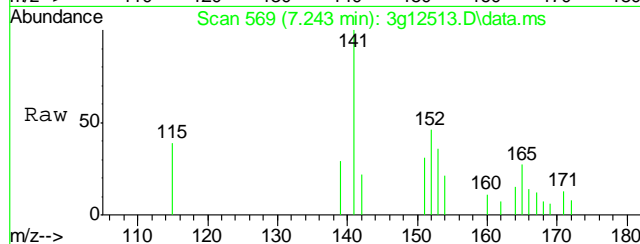
#9
1-Methylnaphthalene
Concen: 0.6169 ug/mL
RT: 6.456 min Scan# 503
Delta R.T. -0.011 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

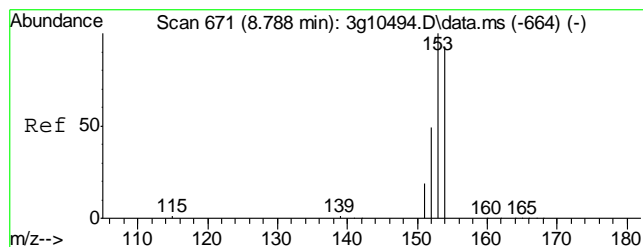
Tgt Ion:	142	Resp:	20452
Ion Ratio	Lower	Upper	
142	100		
141	89.3	67.0	107.0
115	42.3	9.3	49.3



#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.243 min Scan# 569
Delta R.T. -0.016 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

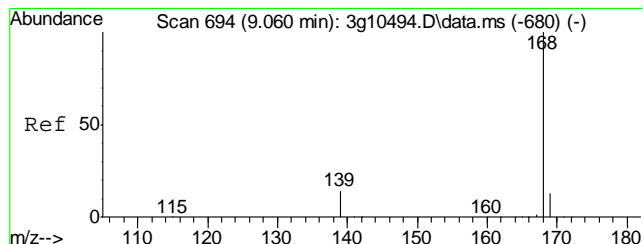
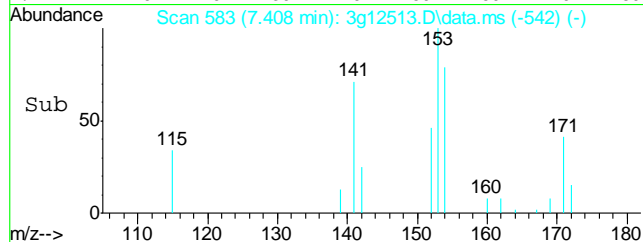
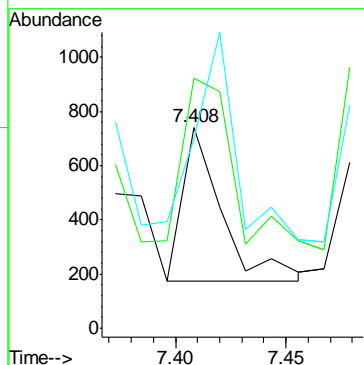
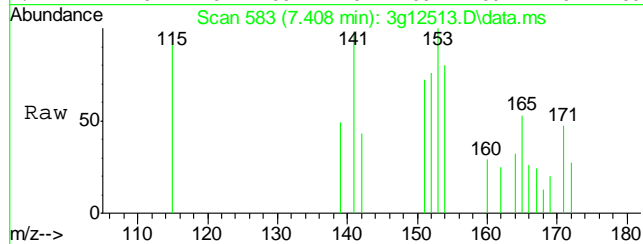
Tgt Ion:	152	Resp:	851
Ion Ratio	Lower	Upper	
152	100		
151	25.3	0.0	39.5
153	91.3	0.0	33.0#





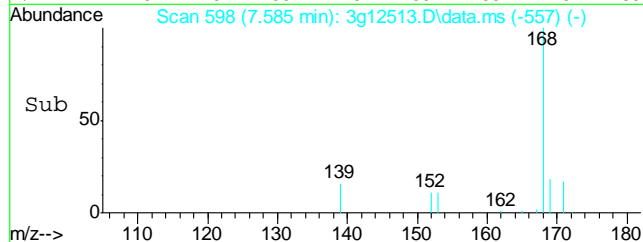
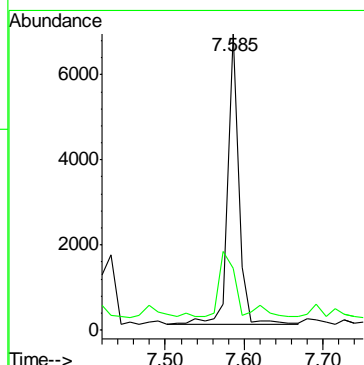
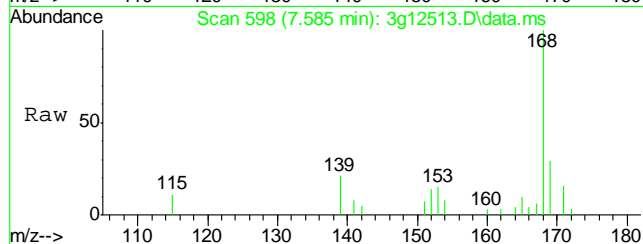
#11
Acenaphthene
Concen: Below ug/mL
RT: 7.408 min Scan# 583
Delta R.T. -0.016 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

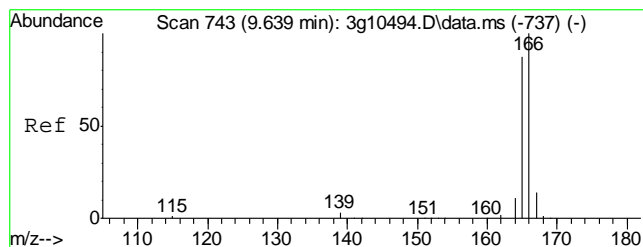
Tgt Ion	Ratio	Lower	Upper
154	100		
153	153.5	84.7	124.7#
152	150.9	30.2	70.2#



#12
Dibenzofuran
Concen: 0.1202 ug/mL
RT: 7.585 min Scan# 598
Delta R.T. -0.016 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

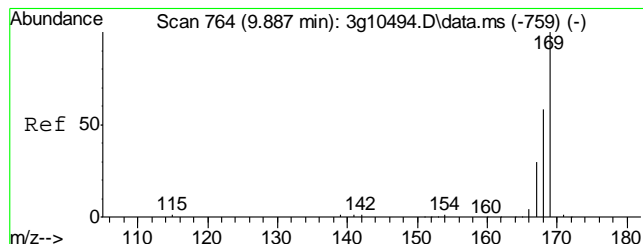
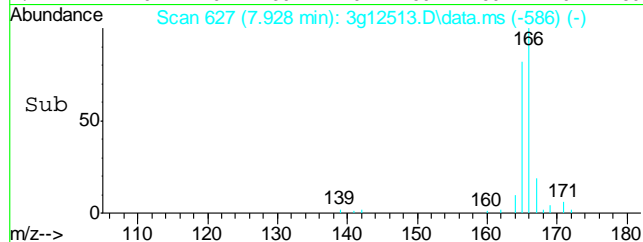
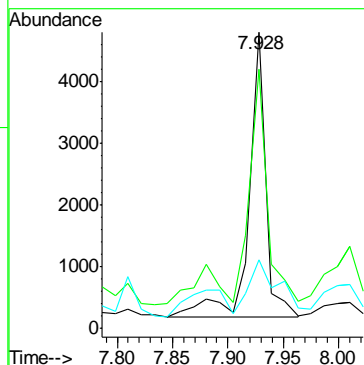
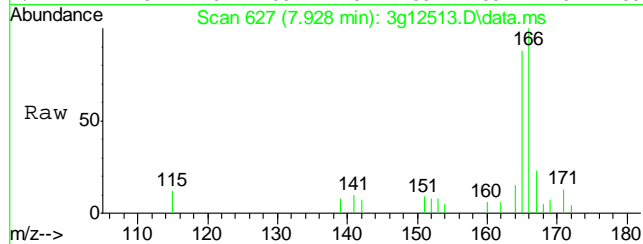
Tgt Ion	Ratio	Lower	Upper
168	100		
139	31.6	12.0	52.0





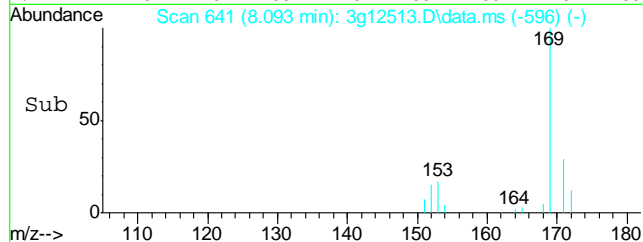
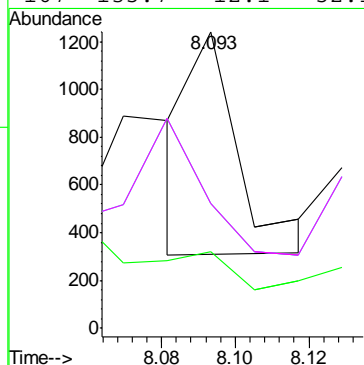
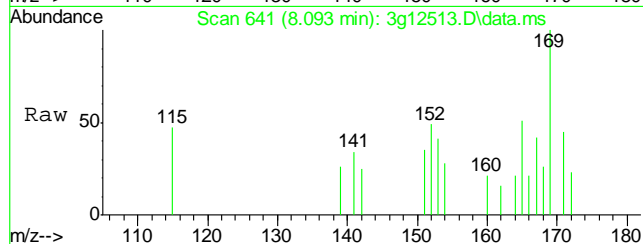
#13
Fluorene
Concen: 0.1170 ug/mL
RT: 7.928 min Scan# 627
Delta R.T. -0.016 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

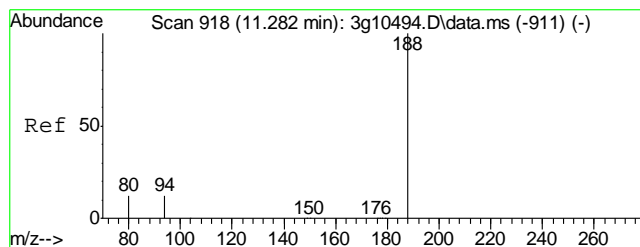
Tgt Ion	Ratio	Lower	Upper
166	100		
165	85.3	70.1	110.1
167	33.7	0.0	33.4



#14
Diphenylamine
Concen: Below ug/mL
RT: 8.093 min Scan# 641
Delta R.T. 0.031 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

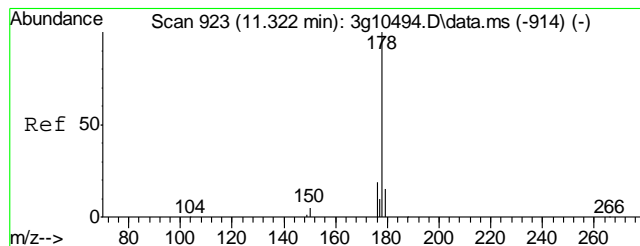
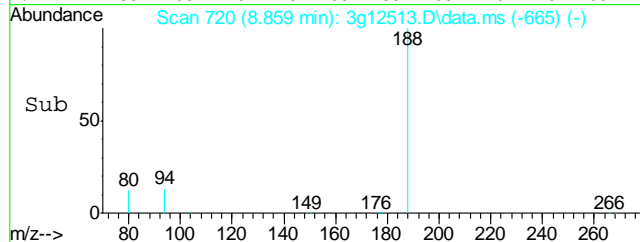
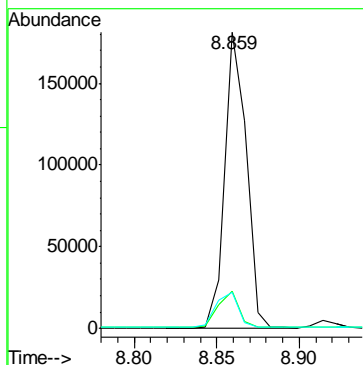
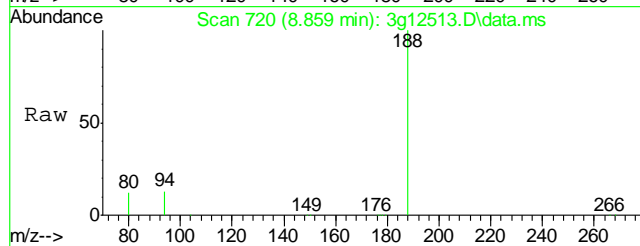
Tgt Ion	Ratio	Lower	Upper
169	100		
168	0.0	40.1	80.1
167	135.7	12.1	52.1
167	135.7	12.1	52.1





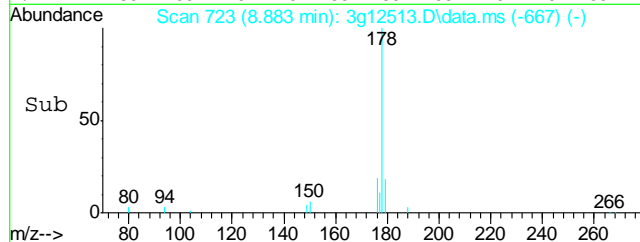
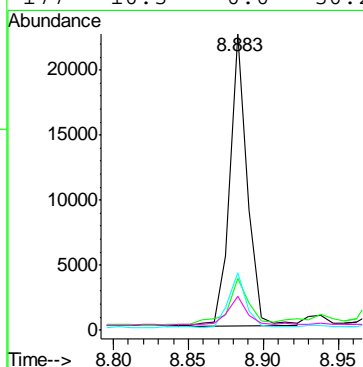
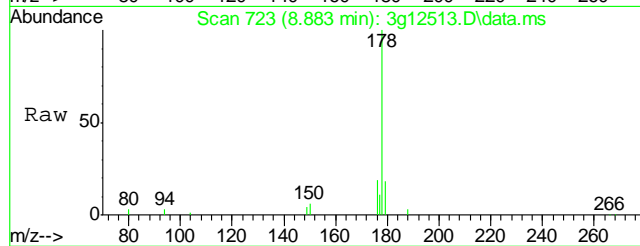
#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.859 min Scan# 720
Delta R.T. -0.019 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

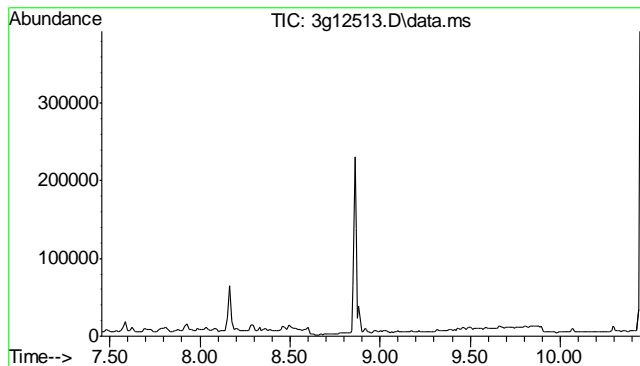
Tgt Ion:188	Resp:	165699
Ion Ratio	Lower	Upper
188 100		
94 12.0	0.0	33.4
80 12.9	0.0	28.9



#16
Phenanthrene
Concen: 0.2719 ug/mL
RT: 8.883 min Scan# 723
Delta R.T. -0.019 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

Tgt Ion:178	Resp:	18482
Ion Ratio	Lower	Upper
178 100		
179 19.6	0.0	35.3
176 19.1	0.0	38.6
177 10.3	0.0	30.2

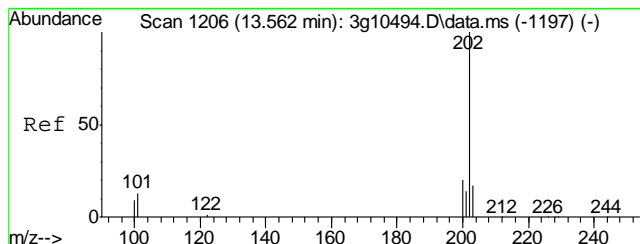
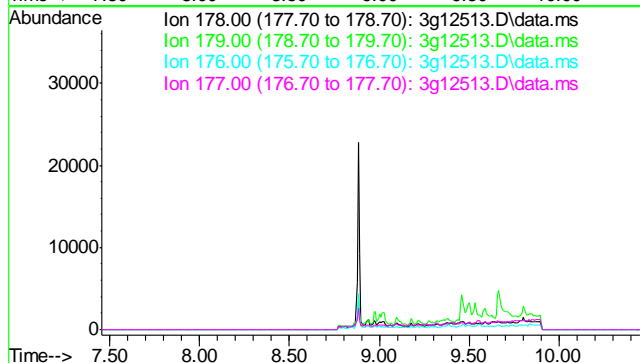




#17
Anthracene
Concen: N.D. ug/mL
Expected RT: 8.95 min

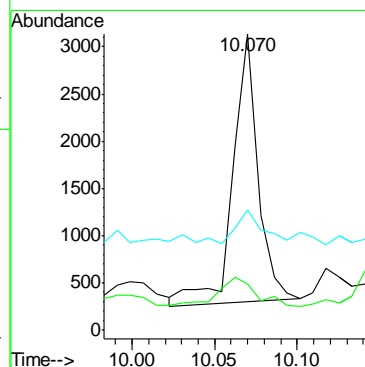
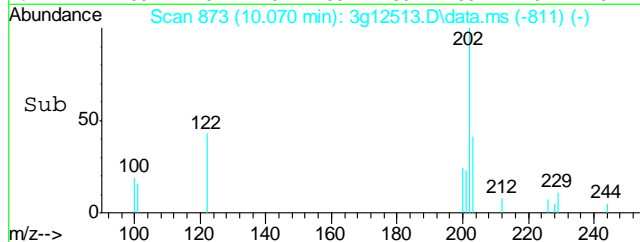
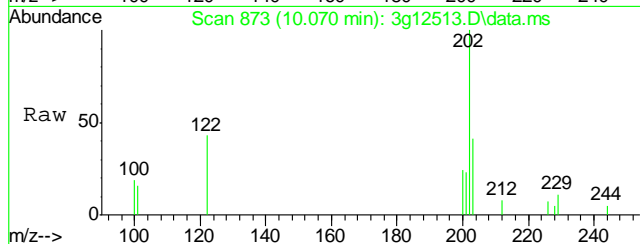
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

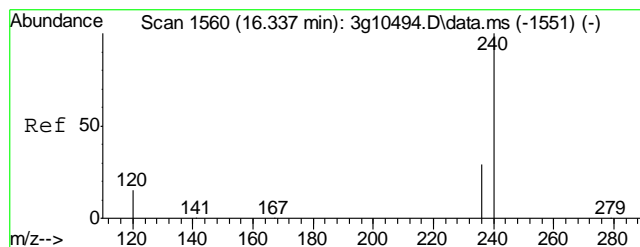
Tgt Ion: 178
Sig Exp Ratio
178 100
179 15.1
176 18.2
177 8.8



#18
Fluoranthene
Concen: Below ug/mL
RT: 10.070 min Scan# 873
Delta R.T. -0.012 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

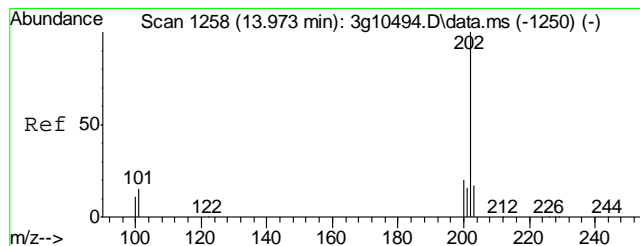
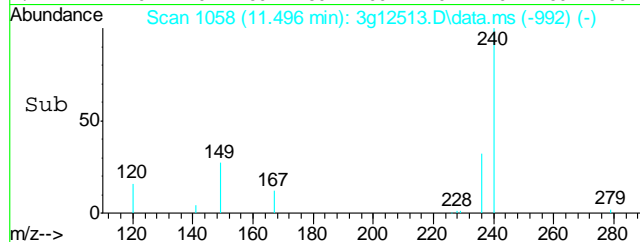
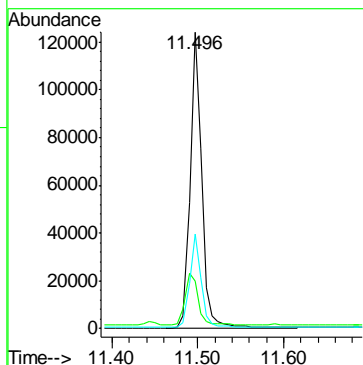
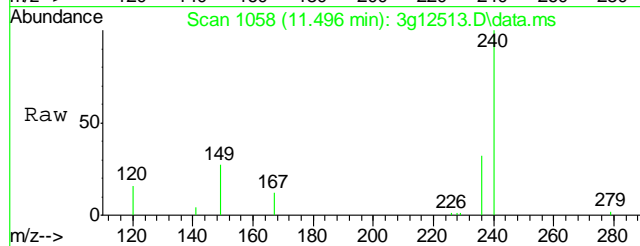
Tgt Ion: 202 Resp: 3033
Ion Ratio Lower Upper
202 100
101 15.7 0.0 32.5
203 12.5 0.0 37.3





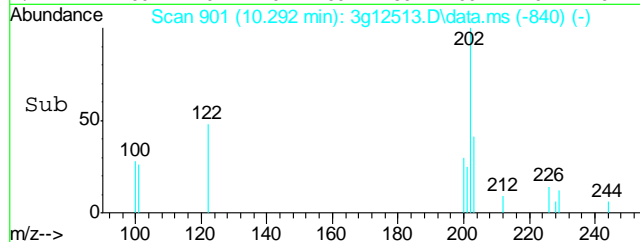
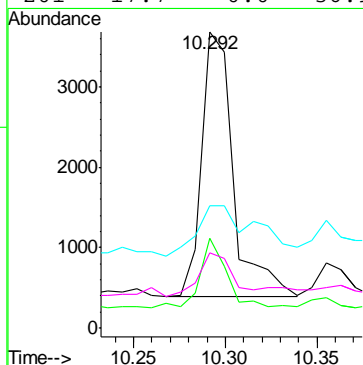
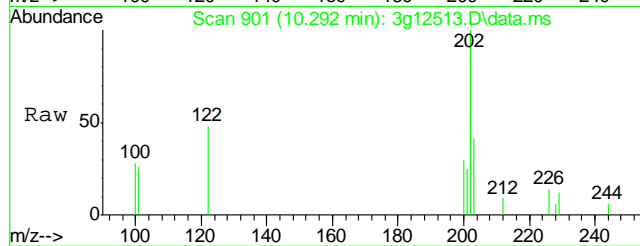
#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.496 min Scan# 1058
Delta R.T. -0.019 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

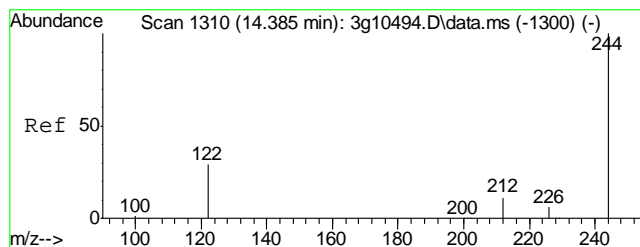
Tgt Ion	Ratio	Lower	Upper
240	100		
120	19.2	0.0	39.7
236	31.4	11.1	51.1



#20
Pyrene
Concen: 0.0614 ug/mL
RT: 10.292 min Scan# 901
Delta R.T. -0.019 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

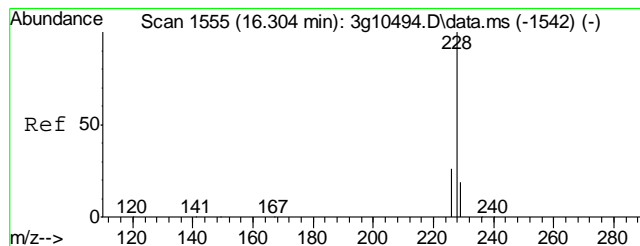
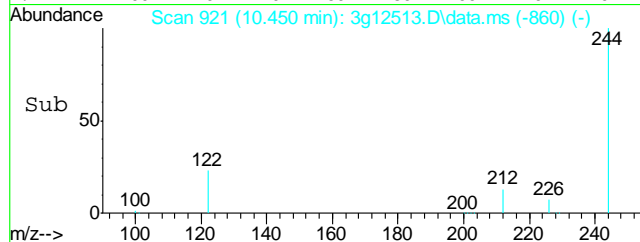
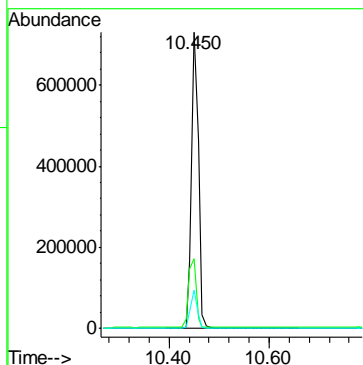
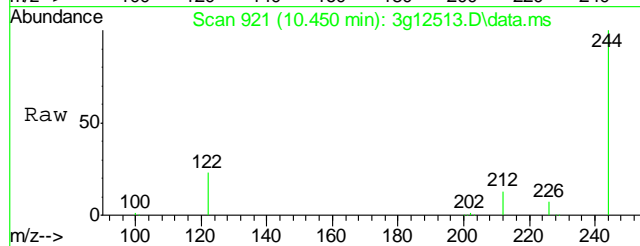
Tgt Ion	Ratio	Lower	Upper
202	100		
200	22.1	0.7	40.7
203	36.0	0.0	37.8
201	17.7	0.0	36.9





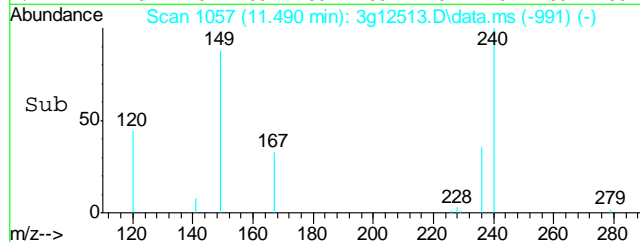
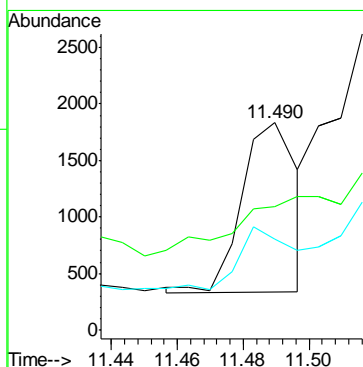
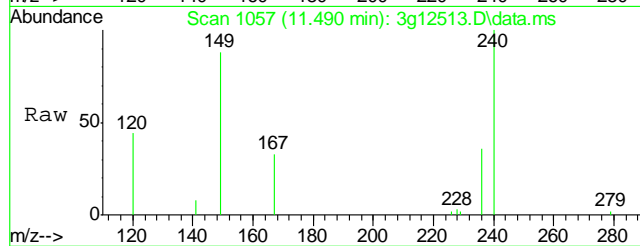
#21
Terphenyl-d14
Concen: 40.0628 ug/mL
RT: 10.450 min Scan# 921
Delta R.T. -0.020 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

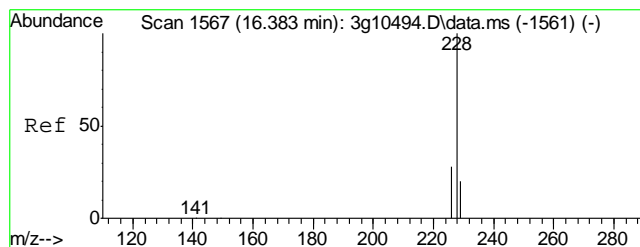
Tgt Ion	Ratio	Lower	Upper
244	100		
122	25.5	6.8	46.8
212	12.3	0.0	32.3



#22
Benzo(a)anthracene
Concen: Below ug/mL
RT: 11.490 min Scan# 1057
Delta R.T. -0.013 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

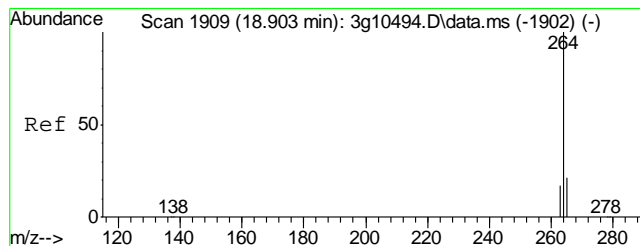
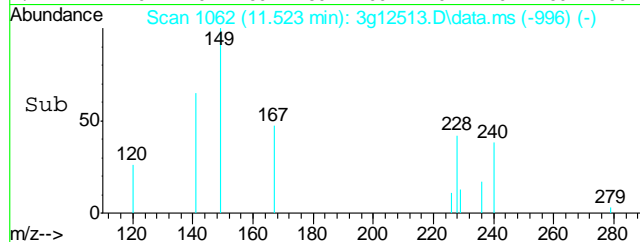
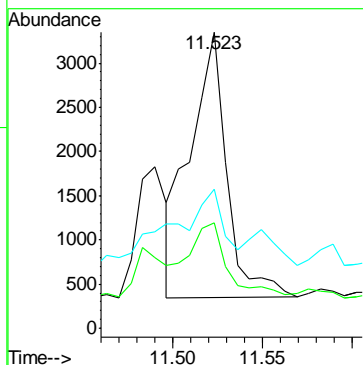
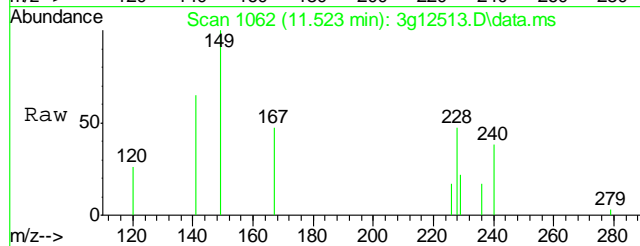
Tgt Ion	Ratio	Lower	Upper
228	100		
229	0.0	0.0	39.4
226	37.5	6.8	46.8





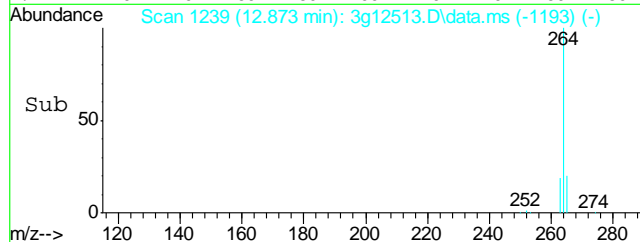
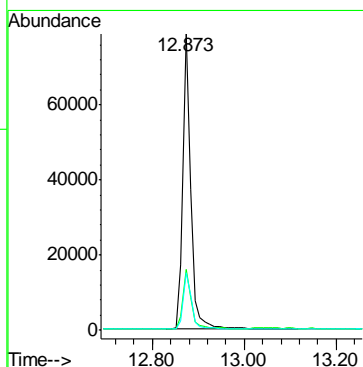
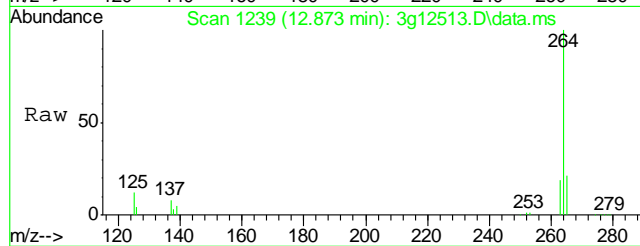
#23
Chrysene
Concen: 0.0793 ug/mL
RT: 11.523 min Scan# 1062
Delta R.T. -0.019 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

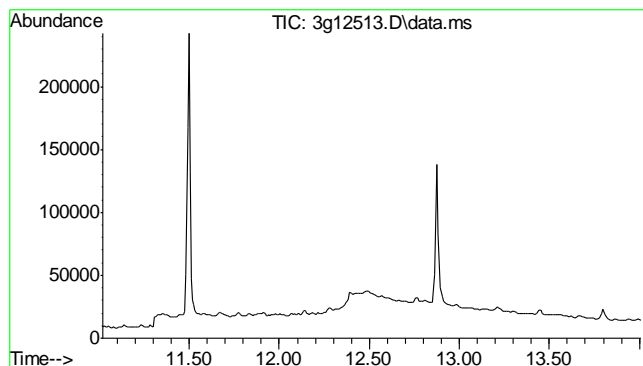
Tgt Ion	Ratio	Lower	Upper
228	100		
226	30.7	9.2	49.2
229	47.8	0.0	39.4



#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 12.873 min Scan# 1239
Delta R.T. -0.019 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

Tgt Ion	Ratio	Lower	Upper
264	100		
265	20.6	0.6	40.6
263	19.8	0.0	39.7

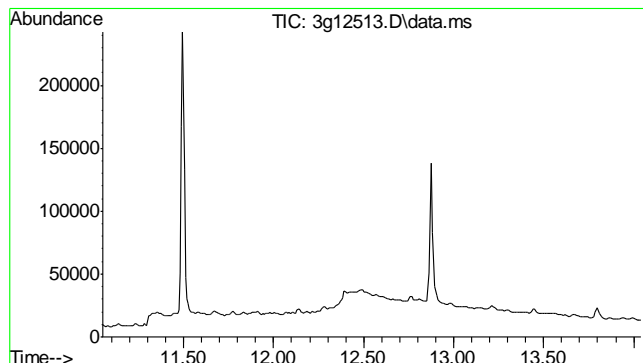
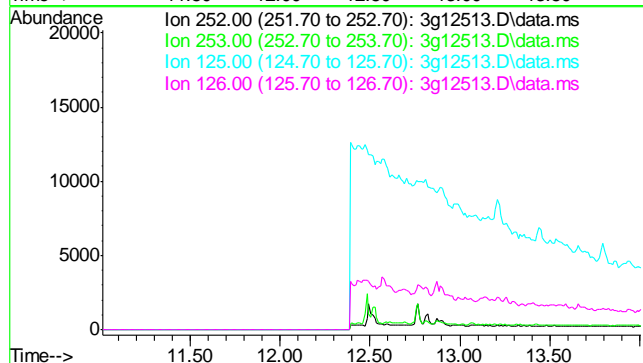




#25
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.51 min

Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

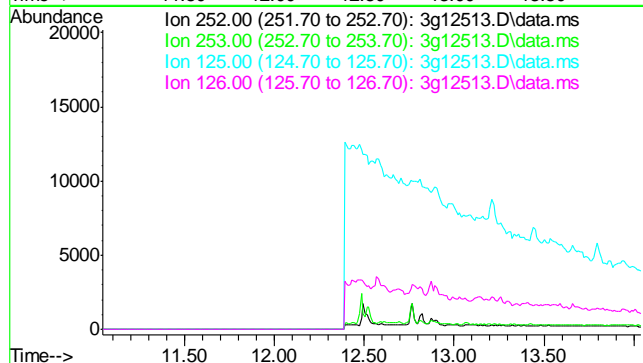
Tgt Ion	Exp Ratio
252	100
253	27.0
125	29.0
126	41.6

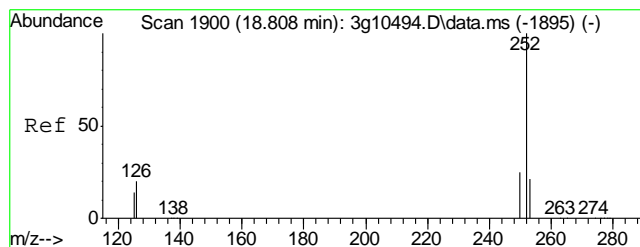


#26
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.54 min

Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

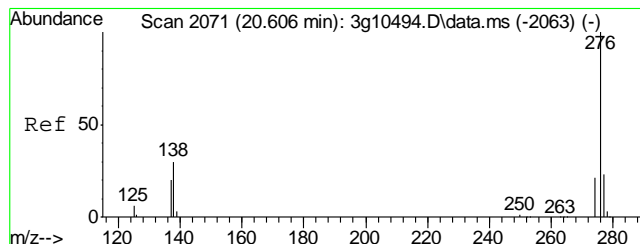
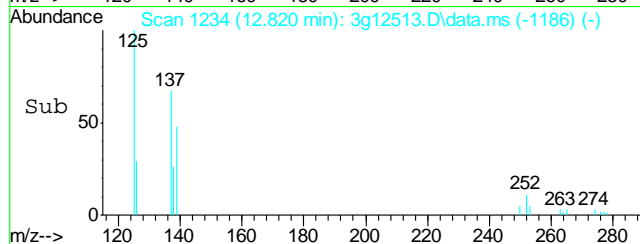
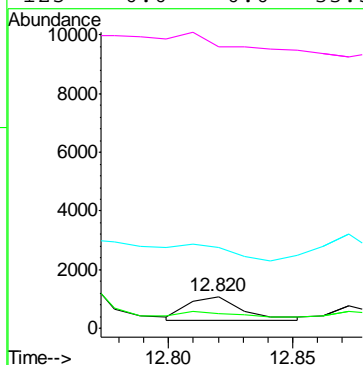
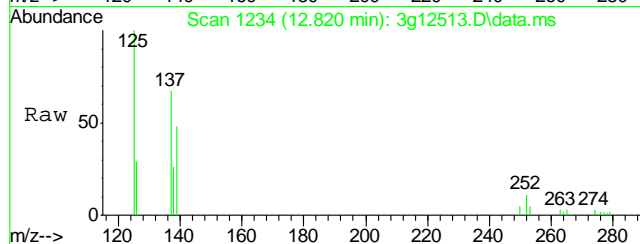
Tgt Ion	Exp Ratio
252	100
253	24.0
125	15.3
126	20.8





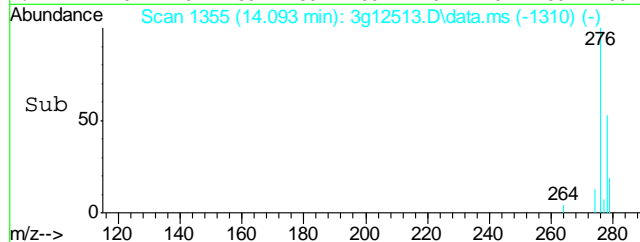
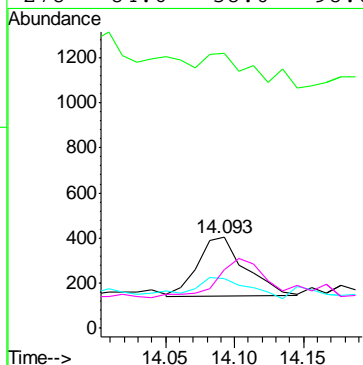
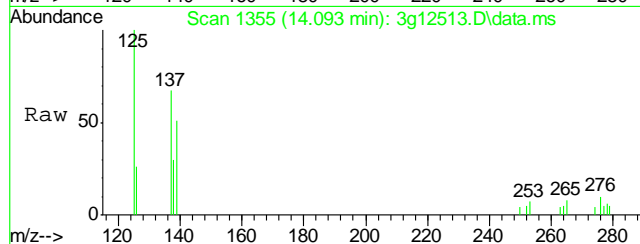
#27
Benzo(a)pyrene
Concen: Below ug/mL
RT: 12.820 min Scan# 1234
Delta R.T. -0.019 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

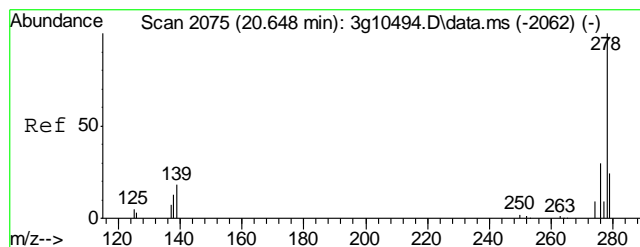
Tgt Ion:	252	Resp:	1226
Ion Ratio	100	Lower	Upper
252	100		
253	20.3	1.5	41.5
126	0.0	0.0	38.4
125	0.0	0.0	33.5



#28
Indeno(1,2,3-cd)pyrene
Concen: Below ug/mL
RT: 14.093 min Scan# 1355
Delta R.T. -0.030 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

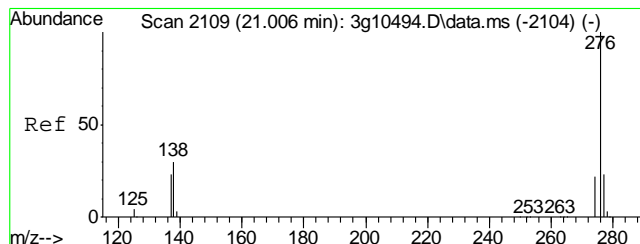
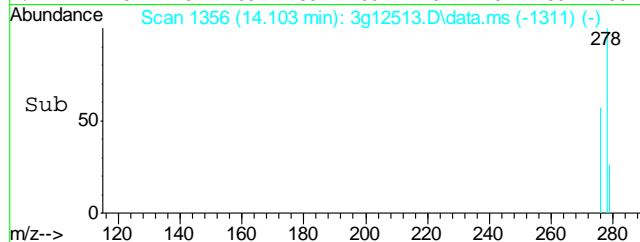
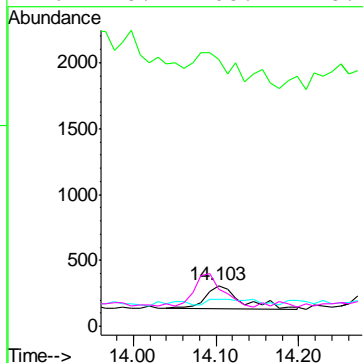
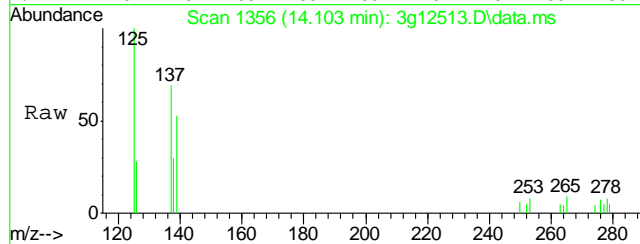
Tgt Ion:	276	Resp:	623
Ion Ratio	100	Lower	Upper
276	100		
138	0.0	16.0	56.0#
277	44.3	4.9	44.9
278	84.6	58.0	98.0





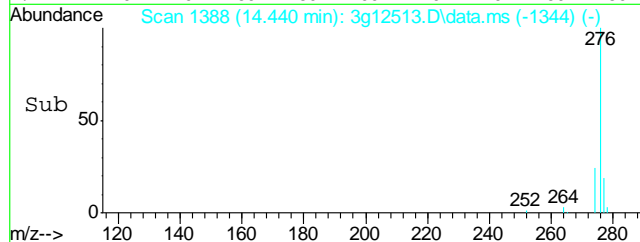
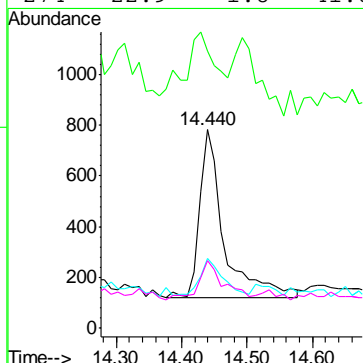
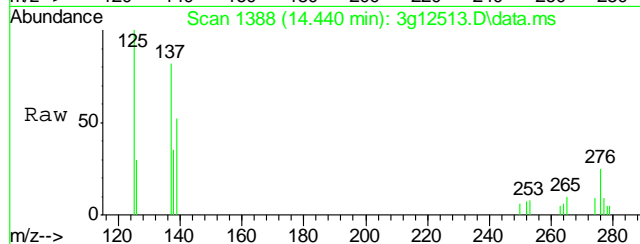
#29
Dibenz(a,h)anthracene
Concen: Below ug/mL
RT: 14.103 min Scan# 1356
Delta R.T. -0.030 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

Tgt Ion: 278 Resp: 527
Ion Ratio Lower Upper
278 100
139 0.0 7.4 47.4#
279 42.5 2.8 42.8
276 118.2 108.1 148.1



#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.440 min Scan# 1388
Delta R.T. -0.040 min
Lab File: 3g12513.D
Acq: 10 Dec 12 1:51 pm

Tgt Ion: 276 Resp: 1750
Ion Ratio Lower Upper
276 100
138 50.3 10.9 50.9
277 18.2 3.2 43.2
274 22.9 1.8 41.8



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\121012\
 Data File : 3g12514.D
 Acq On : 10 Dec 2012 2:14 pm
 Operator : DONC
 Sample : D41382-2
 Misc : OP7075,E3G593,30.01,,,1,1
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 10 14:57:09 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G586.M
 Quant Title : PAHSIM BASE
 QLast Update : Tue Dec 04 08:50:28 2012
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.670	136	127738	4.0000	ug/mL	-0.01
6) Acenaphthene-d10	7.385	164	80281	4.0000	ug/mL	0.00
15) Phenanthrene-d10	8.859	188	145182	4.0000	ug/mL	-0.02
19) Chrysene-d12	11.496	240	101506	4.0000	ug/mL	-0.02
24) Perylene-d12	12.873	264	82629	4.0000	ug/mL	-0.02

System Monitoring Compounds

2) Nitrobenzene-d5	4.985	82	458384	35.8985	ug/mL	-0.01
Spiked Amount 50.000	Range 25 - 135		Recovery =	71.80%		
7) 2-Fluorobiphenyl	6.723	172	1167016	32.6194	ug/mL	0.00
Spiked Amount 50.000	Range 25 - 135		Recovery =	65.24%		
21) Terphenyl-d14	10.450	244	599920	40.1517	ug/mL	-0.02
Spiked Amount 50.000	Range 25 - 135		Recovery =	80.30%		

Target Compounds

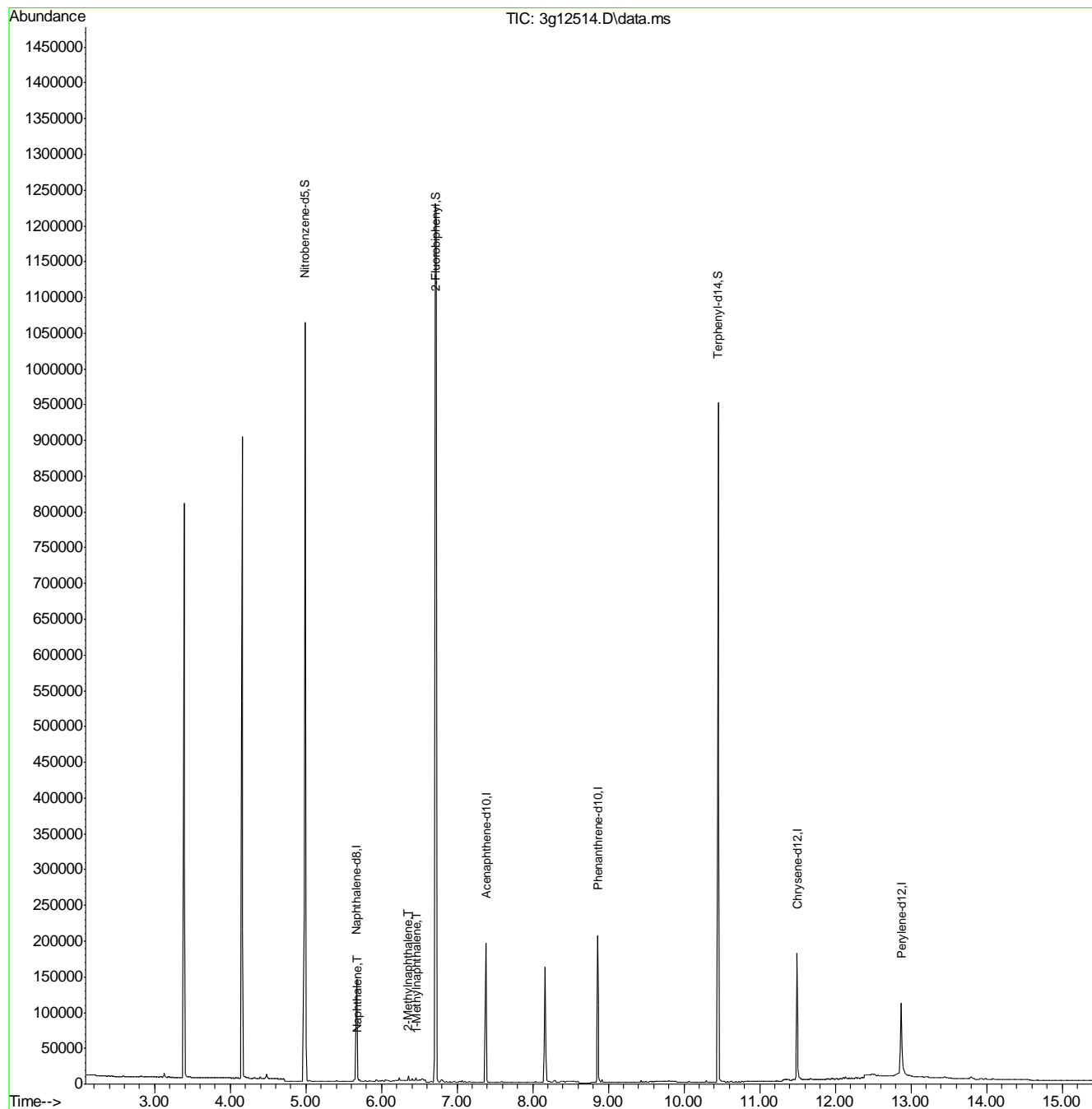
					Qvalue
3) N-Nitrosodimethylamine	2.378	74	42	N.D.	
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d
5) Naphthalene	5.683	128	2527	0.0654	ug/mL 90
8) 2-Methylnaphthalene	6.356	142	3009	0.1049	ug/mL 94
9) 1-Methylnaphthalene	6.456	142	1446	0.0508	ug/mL 94
10) Acenaphthylene	7.243	152	267	N.D.	
11) Acenaphthene	7.373	154	421	Below	Cal # 56
12) Dibenzofuran	7.585	168	459	N.D.	
13) Fluorene	7.928	166	389	N.D.	
14) Diphenylamine	8.046	169	681	N.D.	
16) Phenanthrene	8.883	178	1878	N.D.	
17) Anthracene	8.883	178	1878	N.D.	
18) Fluoranthene	10.070	202	982	N.D.	
20) Pyrene	10.070	202	982	N.D.	
22) Benzo(a)anthracene	11.490	228	1334	N.D.	
23) Chrysene	11.516	228	1175	N.D.	
25) Benzo(b)fluoranthene	0.000	252	0	N.D.	d
26) Benzo(k)fluoranthene	12.494	252	2325	N.D.	
27) Benzo(a)pyrene	12.810	252	635	N.D.	
28) Indeno(1,2,3-cd)pyrene	14.082	276	707	N.D.	
29) Dibenz(a,h)anthracene	14.114	278	552	N.D.	
30) Benzo(g,h,i)perylene	14.082	276	707	N.D.	

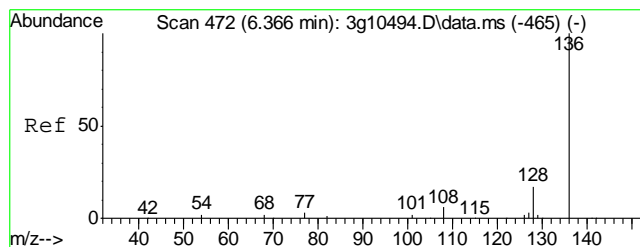
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\121012\
Data File : 3g12514.D
Acq On : 10 Dec 2012 2:14 pm
Operator : DONC
Sample : D41382-2
Misc : OP7075,E3G593,30.01,,,1,1
ALS Vial : 10 Sample Multiplier: 1

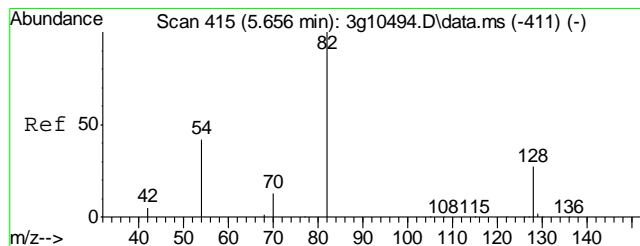
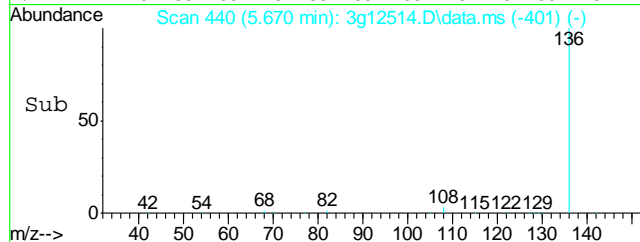
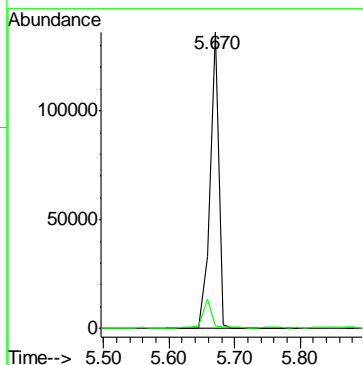
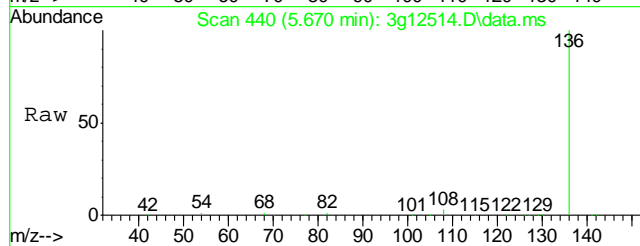
Quant Time: Dec 10 14:57:09 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G586.M
Quant Title : PAHSIM BASE
QLast Update : Tue Dec 04 08:50:28 2012
Response via : Initial Calibration





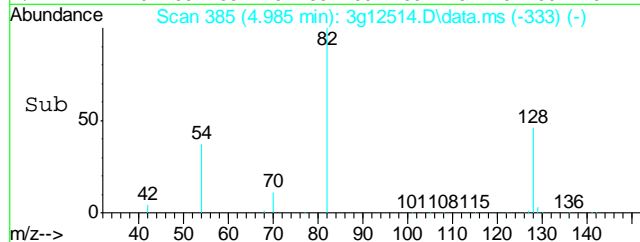
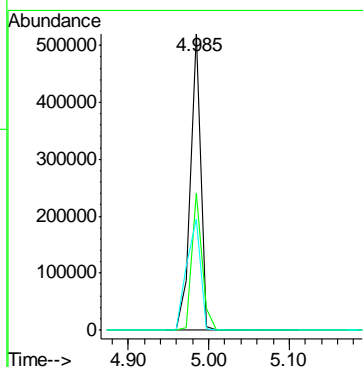
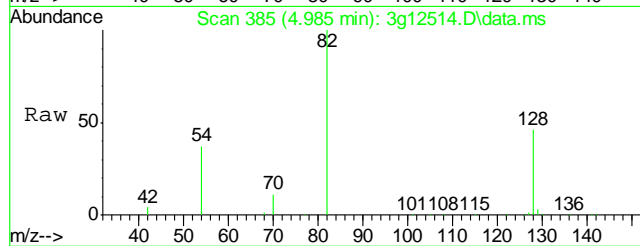
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.670 min Scan# 440
Delta R.T. -0.011 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

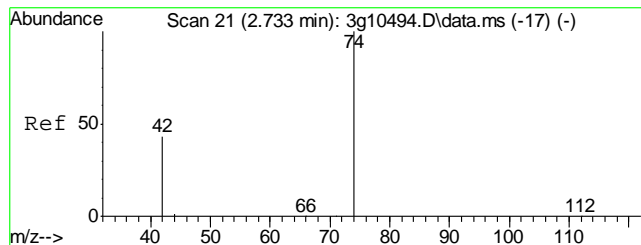
Tgt Ion	Ratio	Lower	Upper
136	100		
68	9.2	0.0	28.4



#2
Nitrobenzene-d5
Concen: 35.8985 ug/mL
RT: 4.985 min Scan# 385
Delta R.T. -0.011 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

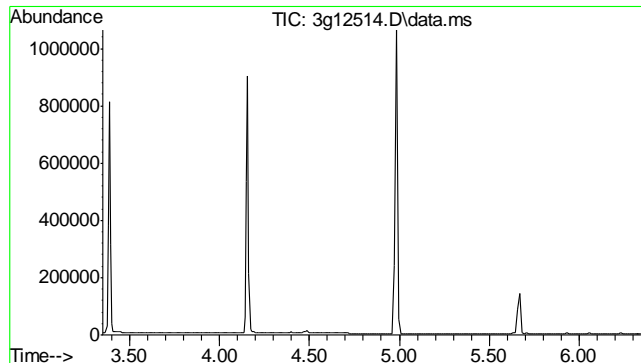
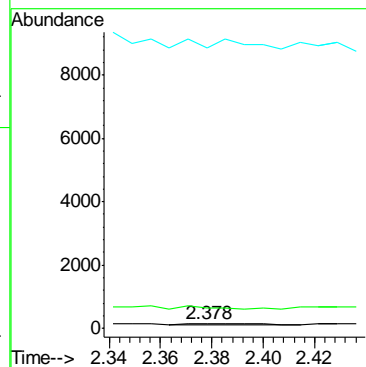
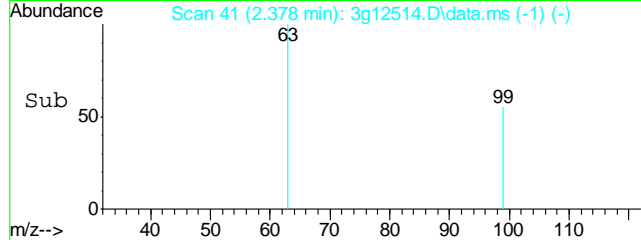
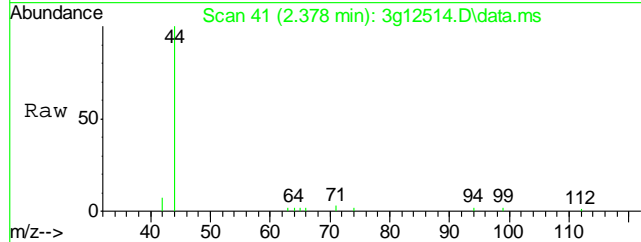
Tgt Ion	Ratio	Lower	Upper
82	100		
128	45.9	31.8	71.8
54	50.3	29.2	69.2





#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.378 min Scan# 41
Delta R.T. 0.000 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

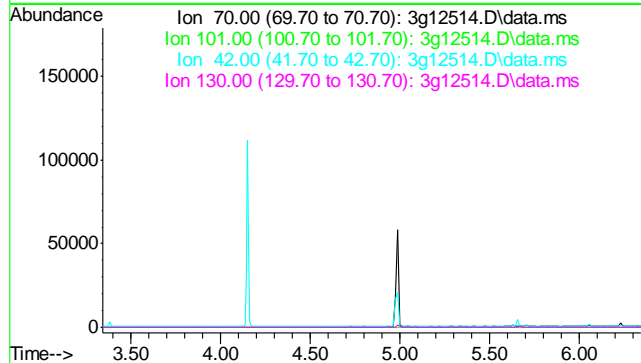
Tgt Ion	74	42	44
Resp	100	0.0	0.0
Lower		52.5	0.0
Upper		92.5	24.1

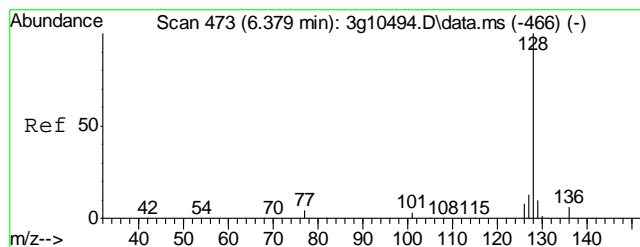


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 4.85 min

Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

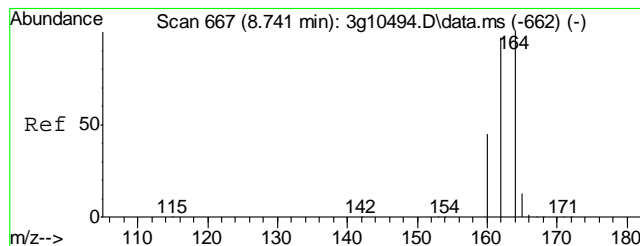
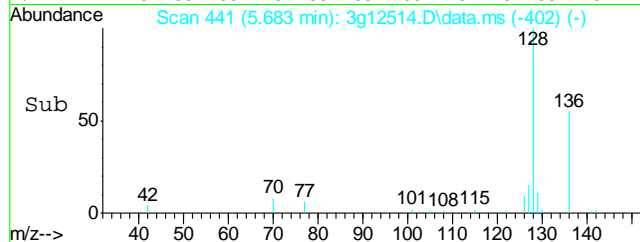
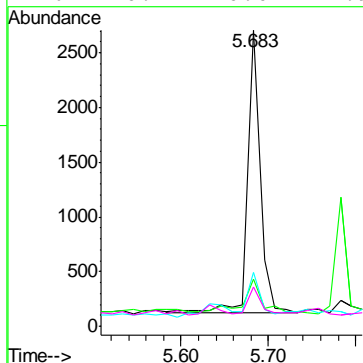
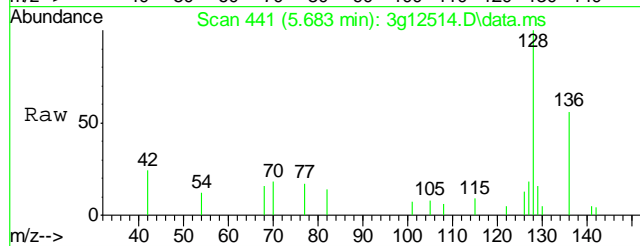
Tgt Ion	70	101	42	130
Exp Ratio	100	12.2	67.9	33.2





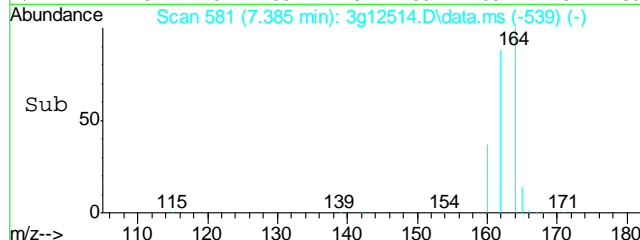
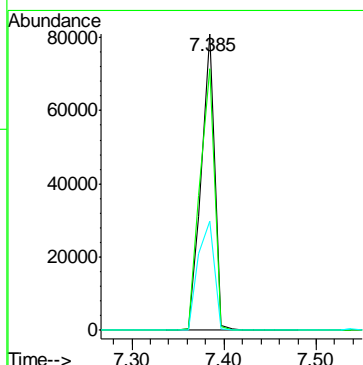
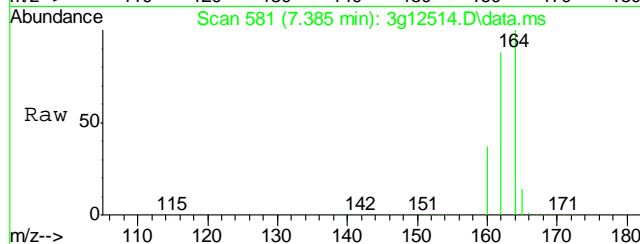
#5
Naphthalene
Concen: 0.0654 ug/mL
RT: 5.683 min Scan# 441
Delta R.T. -0.011 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

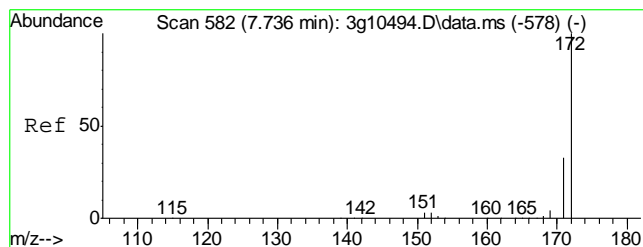
Tgt Ion:128	Resp:	2527
Ion Ratio	Lower	Upper
128	100	
129	17.5	0.0 30.7
127	15.6	0.0 33.2
126	10.4	0.0 27.9



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.385 min Scan# 581
Delta R.T. -0.004 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

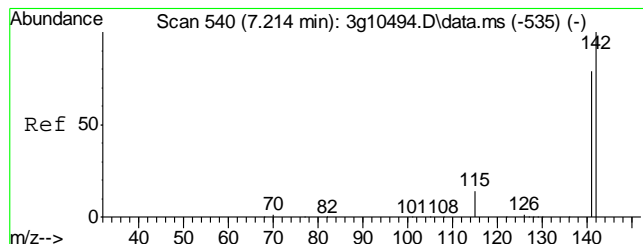
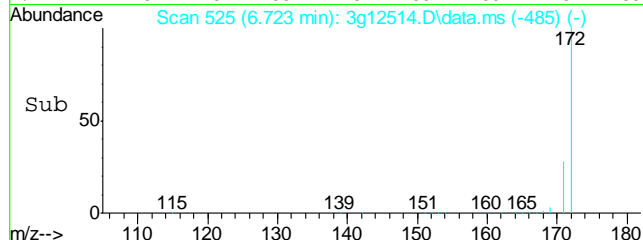
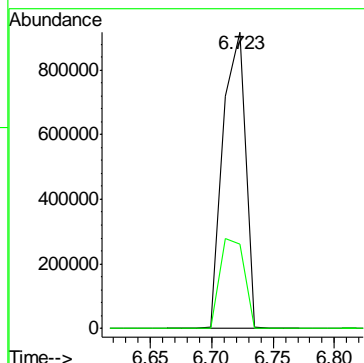
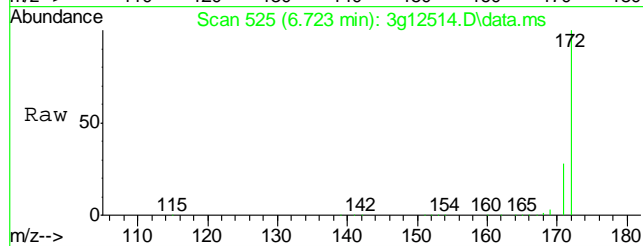
Tgt Ion:164	Resp:	80281
Ion Ratio	Lower	Upper
164	100	
162	96.6	78.0 118.0
160	45.2	27.3 67.3





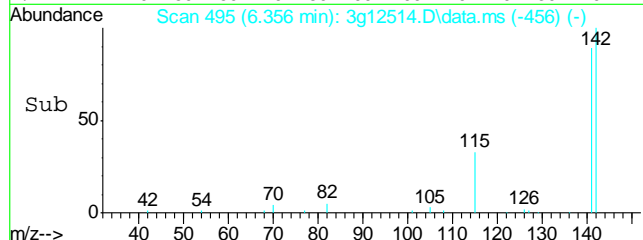
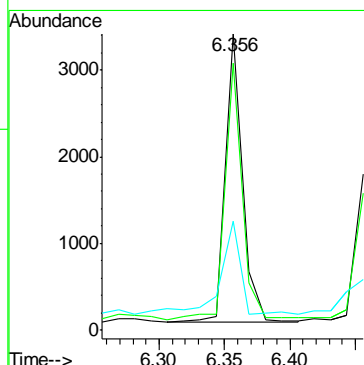
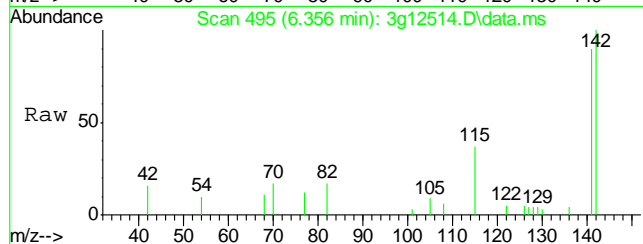
#7
2-Fluorobiphenyl
Concen: 32.6194 ug/mL
RT: 6.723 min Scan# 525
Delta R.T. -0.004 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

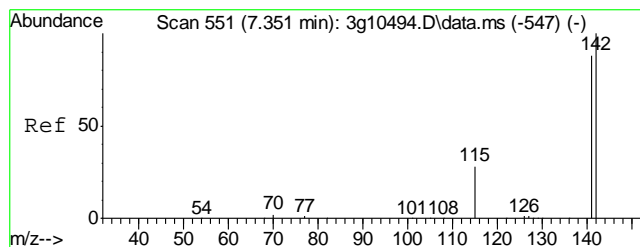
Tgt Ion	Ratio	Lower	Upper
172	100		
171	32.8	13.7	53.7



#8
2-Methylnaphthalene
Concen: 0.1049 ug/mL
RT: 6.356 min Scan# 495
Delta R.T. -0.011 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

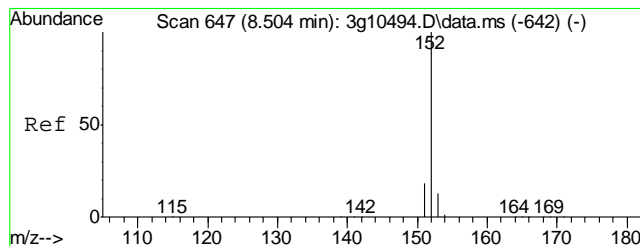
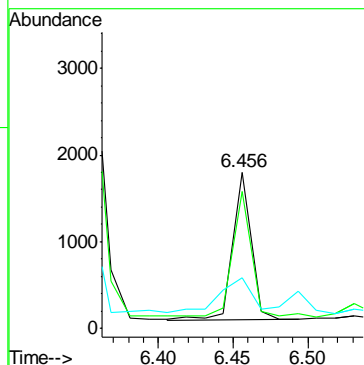
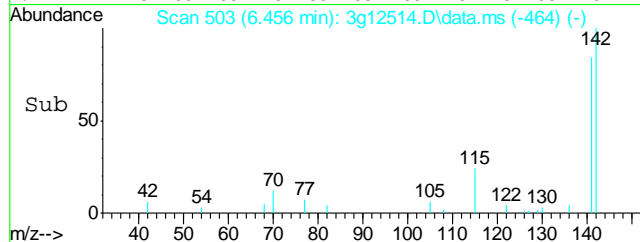
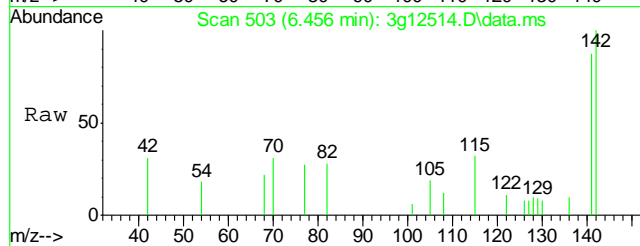
Tgt Ion	Ratio	Lower	Upper
142	100		
141	91.1	65.6	105.6
115	36.1	12.2	52.2





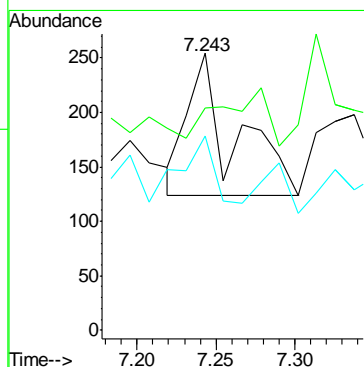
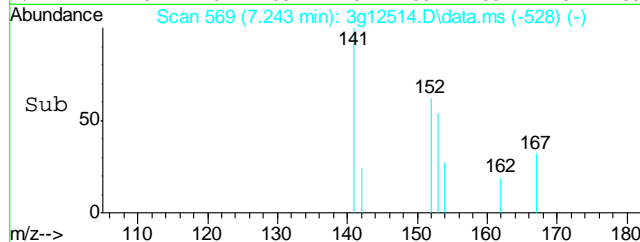
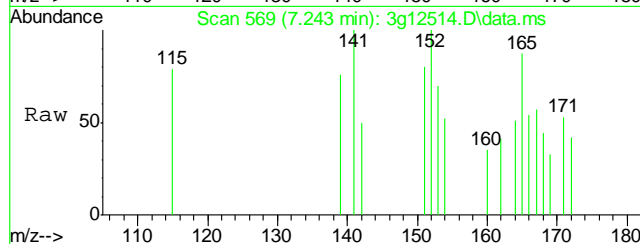
#9
1-Methylnaphthalene
Concen: 0.0508 ug/mL
RT: 6.456 min Scan# 503
Delta R.T. -0.011 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

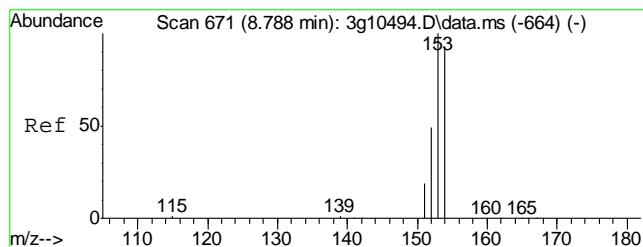
Tgt Ion: 142	Resp: 1446
Ion Ratio	Lower Upper
142	100
141	87.1 67.0 107.0
115	41.6 9.3 49.3



#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.243 min Scan# 569
Delta R.T. -0.016 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

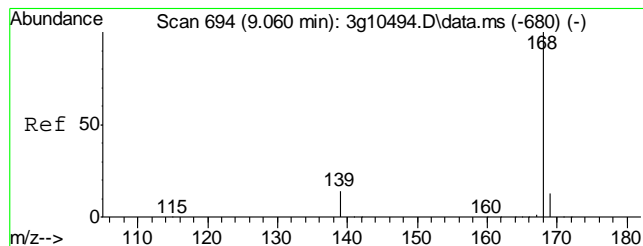
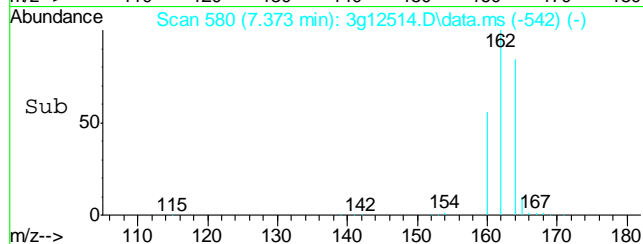
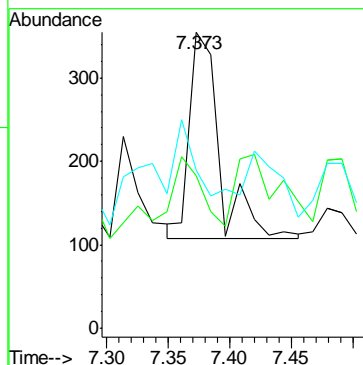
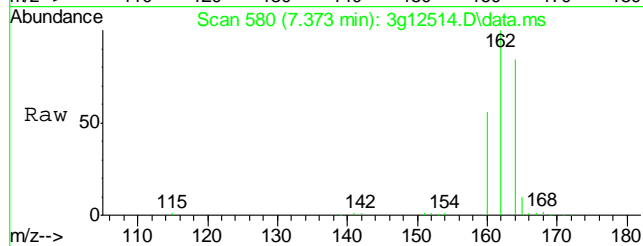
Tgt Ion: 152	Resp: 267
Ion Ratio	Lower Upper
152	100
151	0.0 0.0 39.5
153	32.2 0.0 33.0





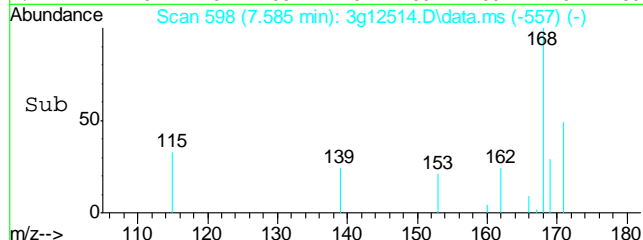
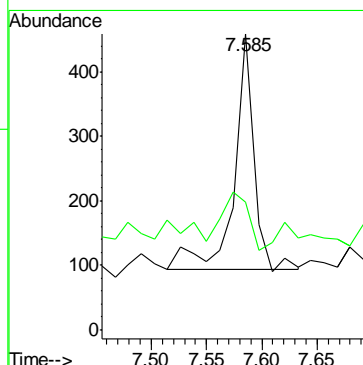
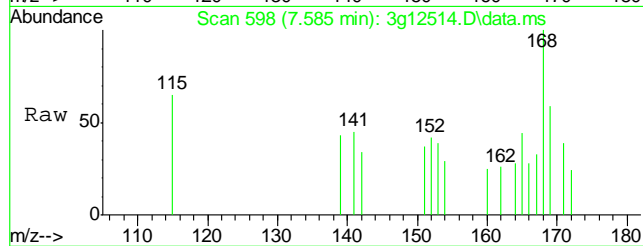
#11
Acenaphthene
Concen: Below ug/mL
RT: 7.373 min Scan# 580
Delta R.T. -0.051 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

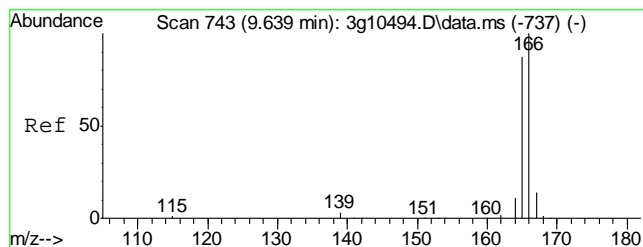
Tgt Ion	Ratio	Lower	Upper
154	100		
153	56.8	84.7	124.7#
152	77.7	30.2	70.2#



#12
Dibenzofuran
Concen: Below ug/mL
RT: 7.585 min Scan# 598
Delta R.T. -0.016 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

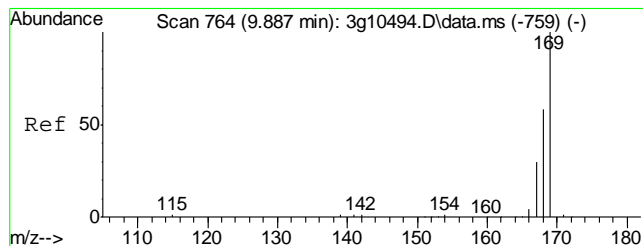
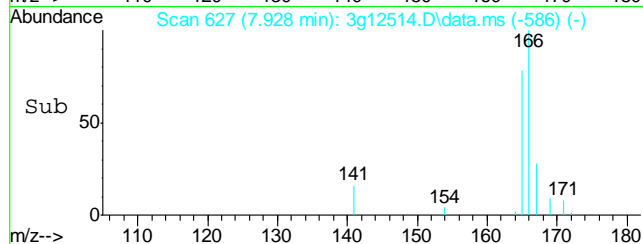
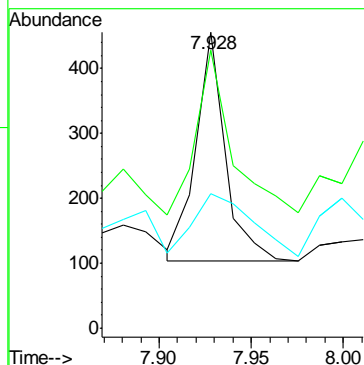
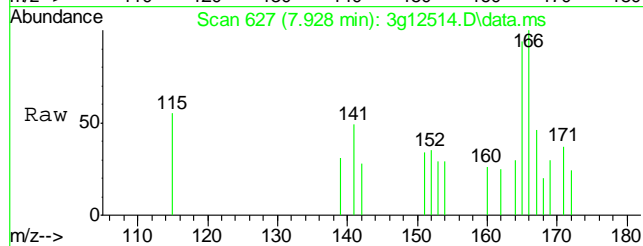
Tgt Ion	Ratio	Lower	Upper
168	100		
139	25.3	12.0	52.0





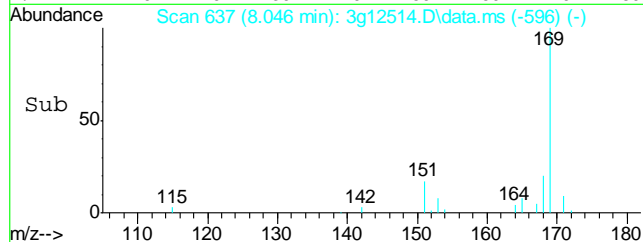
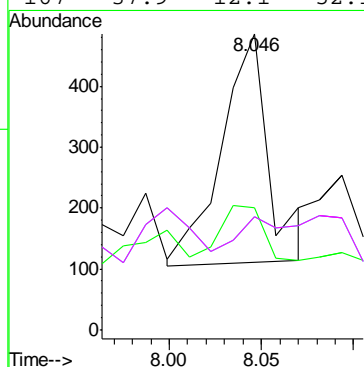
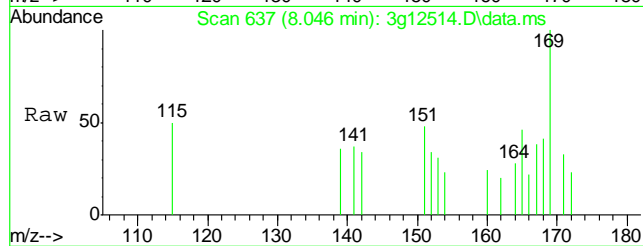
#13
Fluorene
Concen: Below ug/mL
RT: 7.928 min Scan# 627
Delta R.T. -0.016 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

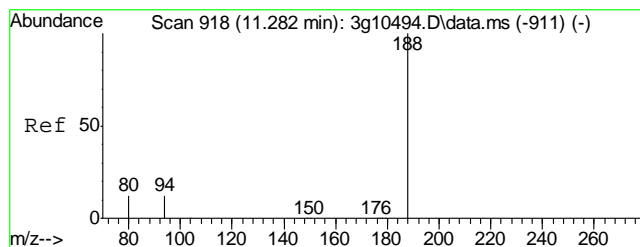
Tgt Ion	Ratio	Lower	Upper
166	100		
165	0.0	70.1	110.1#
167	54.8	0.0	33.4#



#14
Diphenylamine
Concen: Below ug/mL
RT: 8.046 min Scan# 637
Delta R.T. -0.016 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

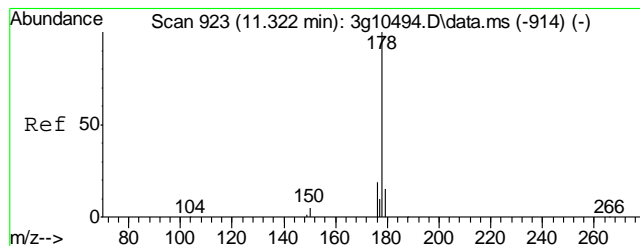
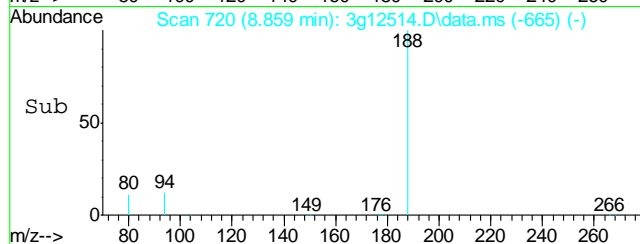
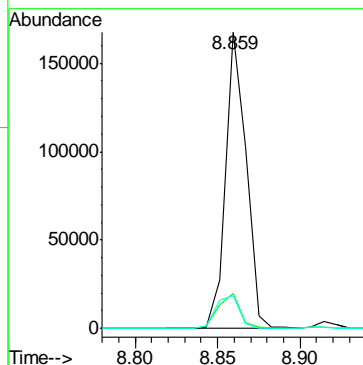
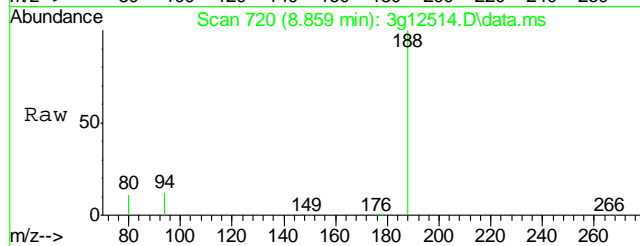
Tgt Ion	Ratio	Lower	Upper
169	100		
168	21.1	40.1	80.1#
167	37.9	12.1	52.1
167	37.9	12.1	52.1





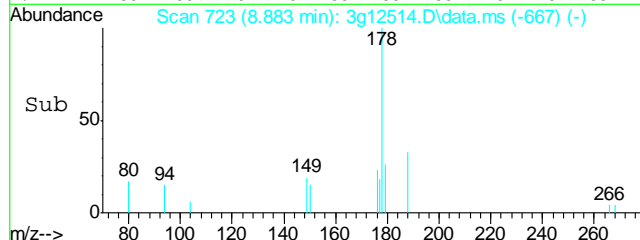
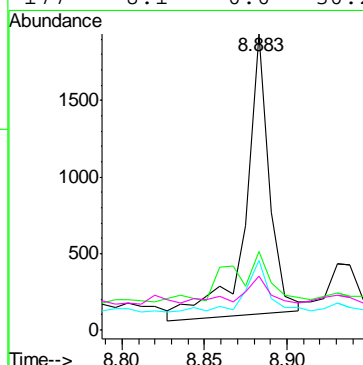
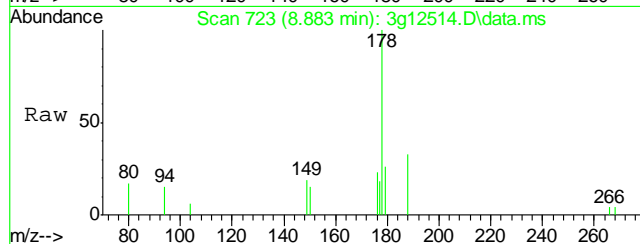
#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.859 min Scan# 720
Delta R.T. -0.019 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

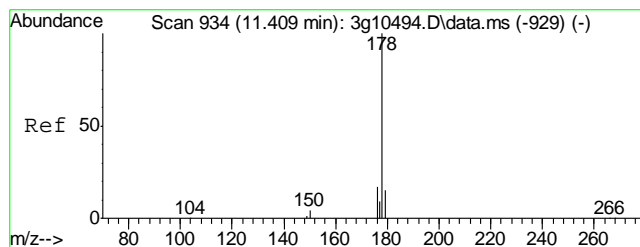
Tgt Ion	Ratio	Lower	Upper
188	100		
94	11.9	0.0	33.4
80	12.3	0.0	28.9



#16
Phenanthrene
Concen: Below ug/mL
RT: 8.883 min Scan# 723
Delta R.T. -0.019 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

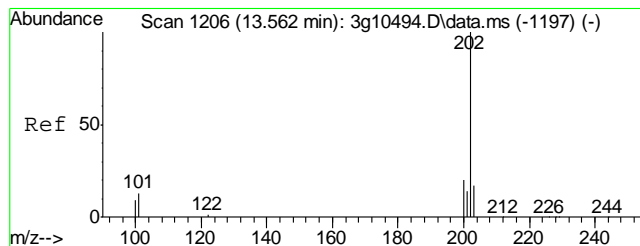
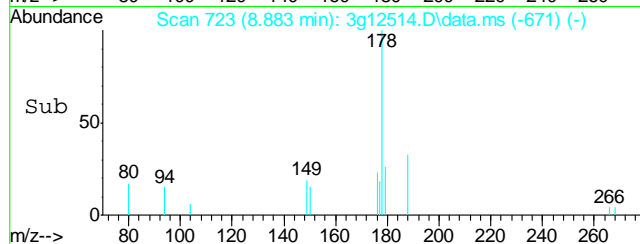
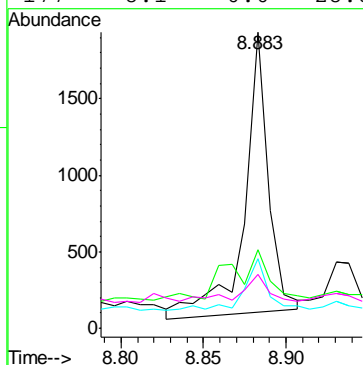
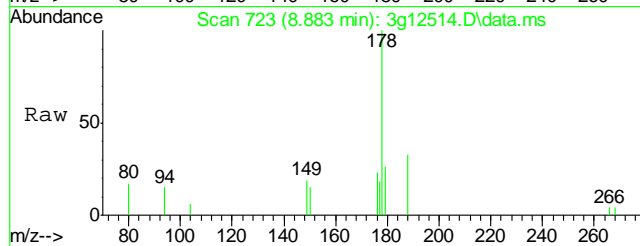
Tgt Ion	Ratio	Lower	Upper
178	100		
179	13.6	0.0	35.3
176	20.7	0.0	38.6
177	8.1	0.0	30.2





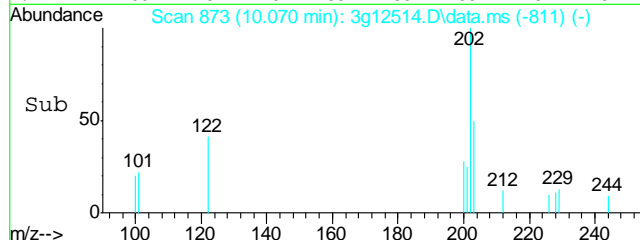
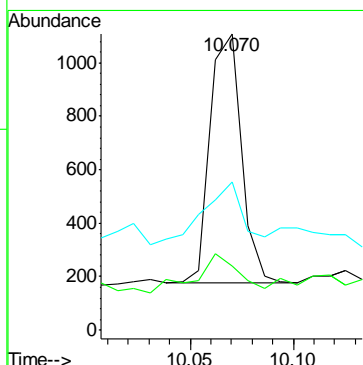
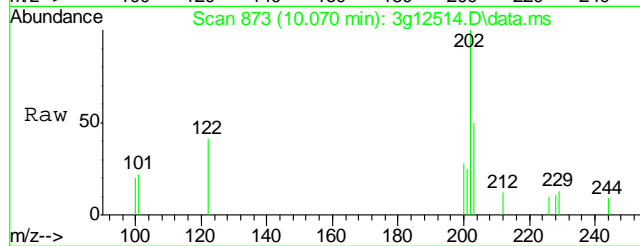
#17
 Anthracene
 Concen: Below ug/mL
 RT: 8.883 min Scan# 723
 Delta R.T. -0.067 min
 Lab File: 3g12514.D
 Acq: 10 Dec 12 2:14 pm

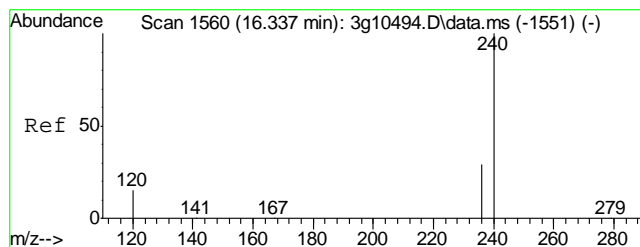
Tgt Ion:	178	Resp:	1878
Ion Ratio	Lower	Upper	
178	100		
179	13.6	0.0	35.1
176	20.7	0.0	38.2
177	8.1	0.0	28.8



#18
 Fluoranthene
 Concen: Below ug/mL
 RT: 10.070 min Scan# 873
 Delta R.T. -0.011 min
 Lab File: 3g12514.D
 Acq: 10 Dec 12 2:14 pm

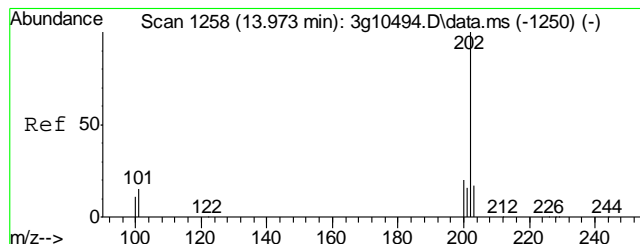
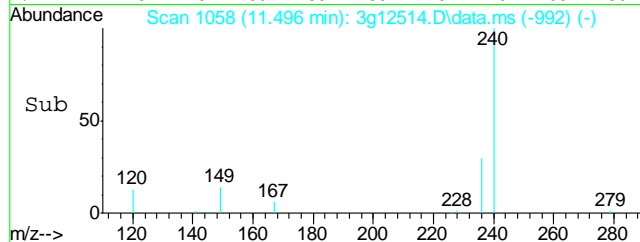
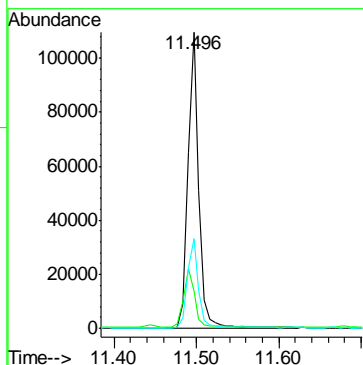
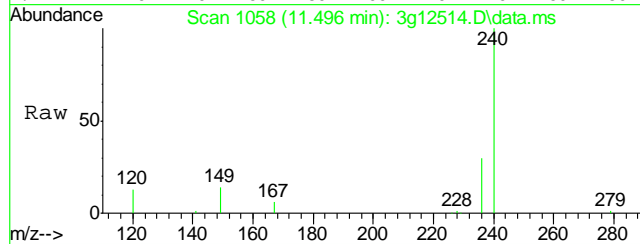
Tgt Ion:	202	Resp:	982
Ion Ratio	Lower	Upper	
202	100		
101	21.4	0.0	32.5
203	24.9	0.0	37.3





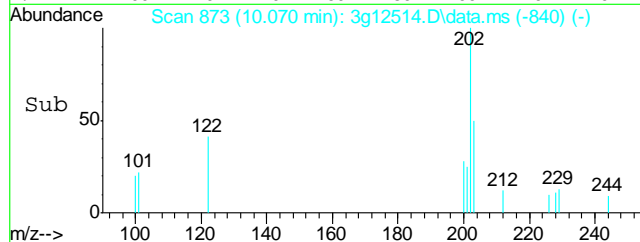
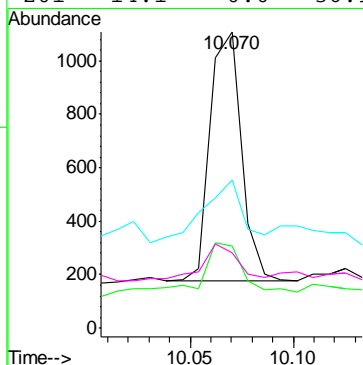
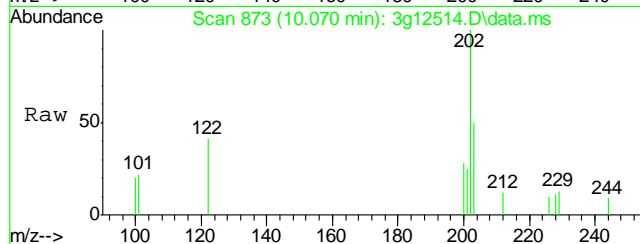
#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.496 min Scan# 1058
Delta R.T. -0.019 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

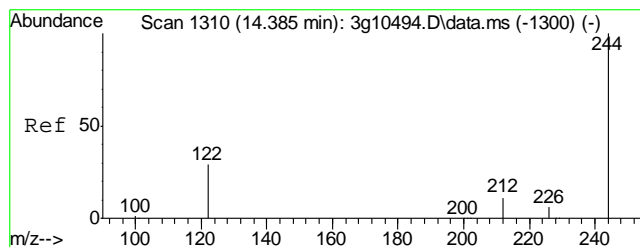
Tgt Ion:	240	Resp:	101506
Ion Ratio	Lower	Upper	
240	100		
120	20.2	0.0	39.7
236	31.1	11.1	51.1



#20
Pyrene
Concen: Below ug/mL
RT: 10.070 min Scan# 873
Delta R.T. -0.241 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

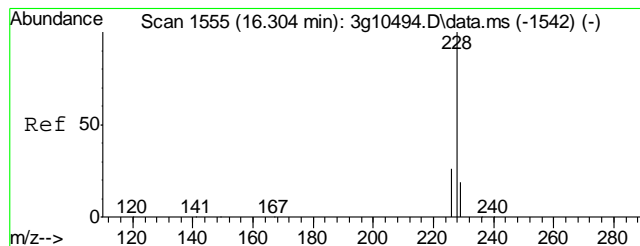
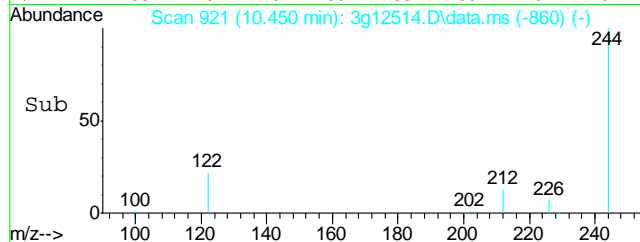
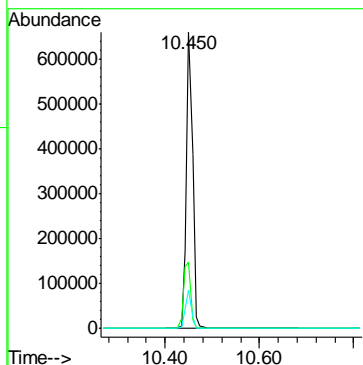
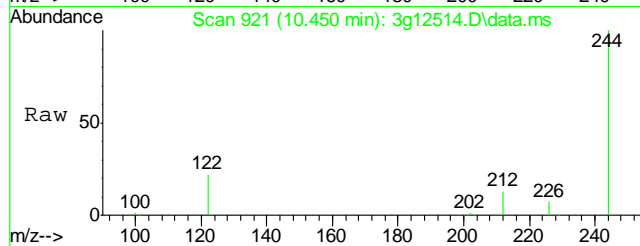
Tgt Ion:	202	Resp:	982
Ion Ratio	Lower	Upper	
202	100		
200	21.4	0.7	40.7
203	24.9	0.0	37.8
201	14.1	0.0	36.9





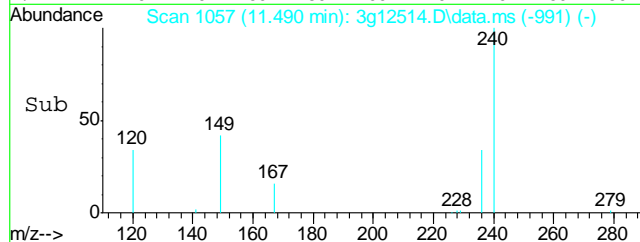
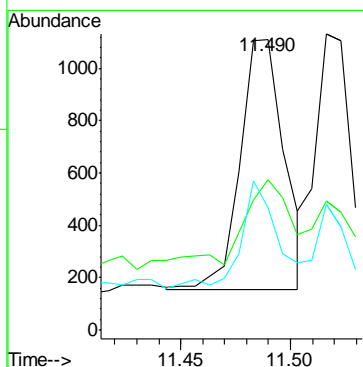
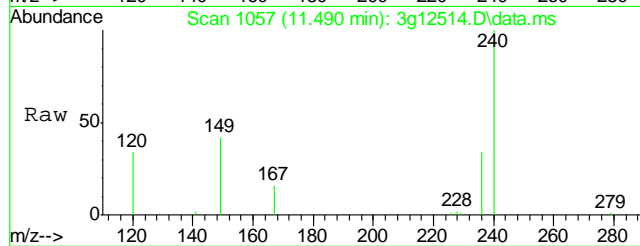
#21
Terphenyl-d14
Concen: 40.1517 ug/mL
RT: 10.450 min Scan# 921
Delta R.T. -0.019 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

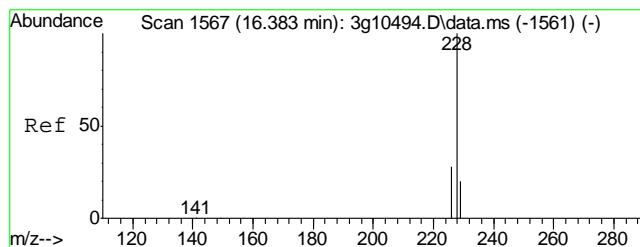
Tgt Ion:	244	Resp:	599920
Ion Ratio	Lower	Upper	
244	100		
122	25.7	6.8	46.8
212	12.5	0.0	32.3



#22
Benzo(a)anthracene
Concen: Below ug/mL
RT: 11.490 min Scan# 1057
Delta R.T. -0.013 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

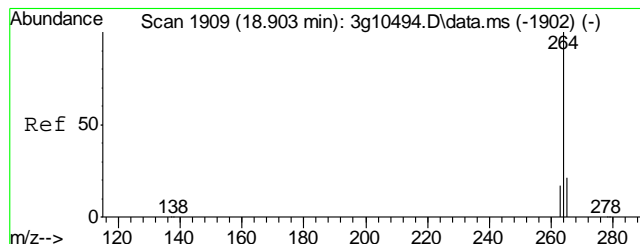
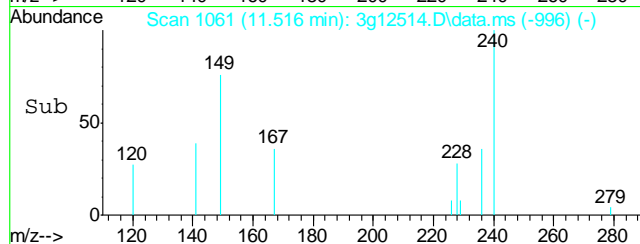
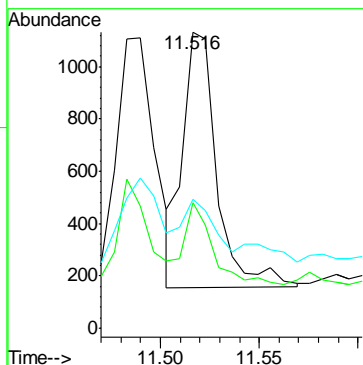
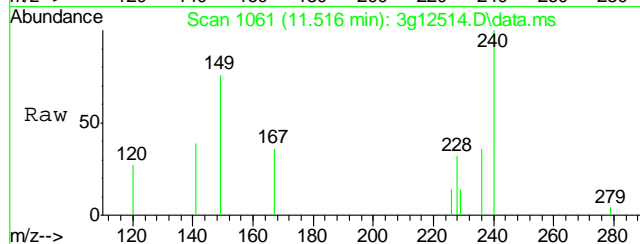
Tgt Ion:	228	Resp:	1334
Ion Ratio	Lower	Upper	
228	100		
229	36.1	0.0	39.4
226	35.1	6.8	46.8





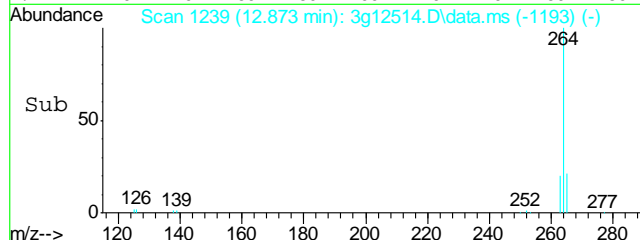
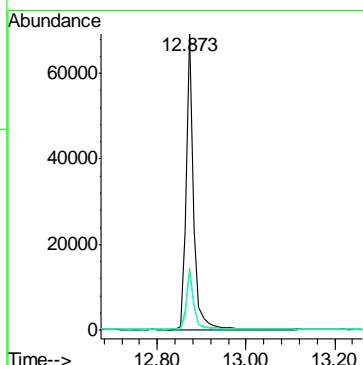
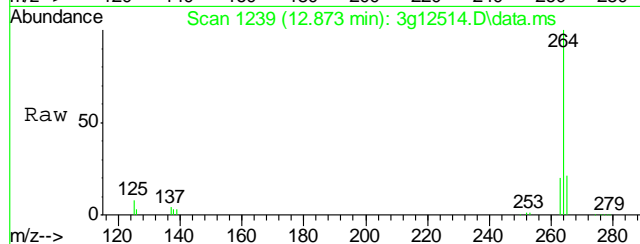
#23
Chrysene
Concen: Below ug/mL
RT: 11.516 min Scan# 1061
Delta R.T. -0.026 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

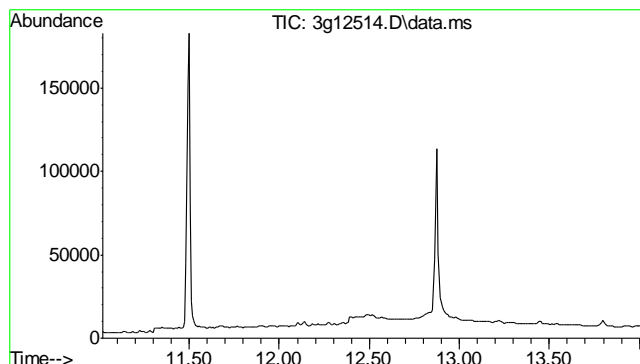
Tgt Ion:	228	Resp:	1175
Ion Ratio	100	Lower	Upper
228	100		
226	27.4	9.2	49.2
229	27.5	0.0	39.4



#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 12.873 min Scan# 1239
Delta R.T. -0.019 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

Tgt Ion:	264	Resp:	82629
Ion Ratio	100	Lower	Upper
264	100		
265	20.1	0.6	40.6
263	19.4	0.0	39.7

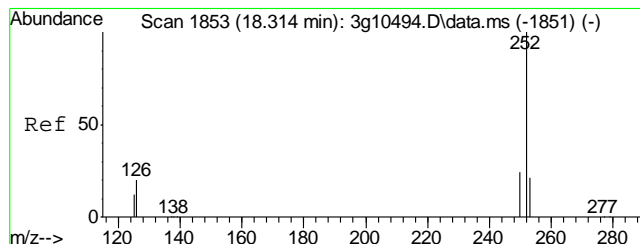
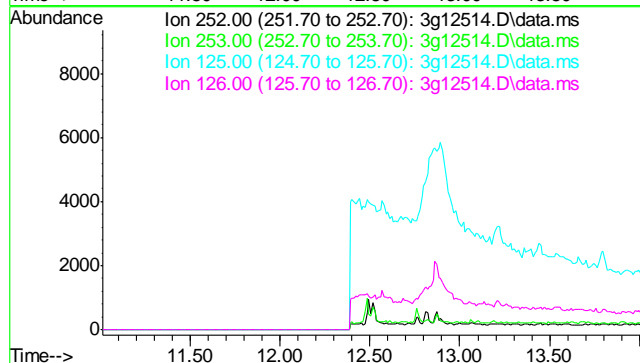




#25
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 12.51 min

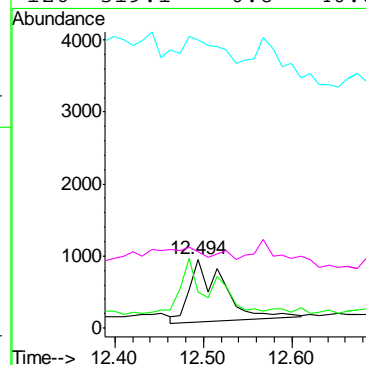
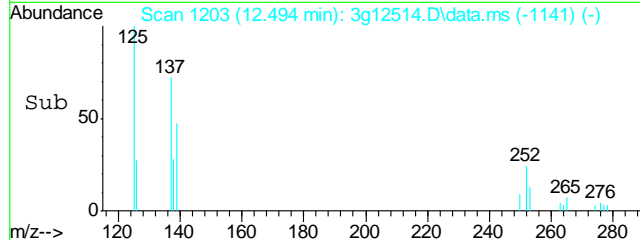
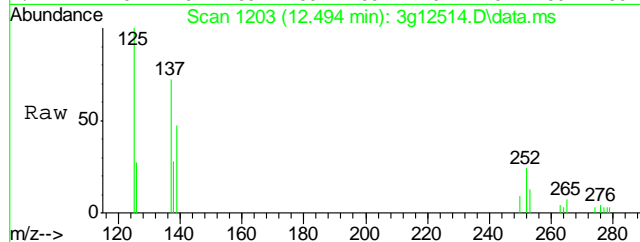
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

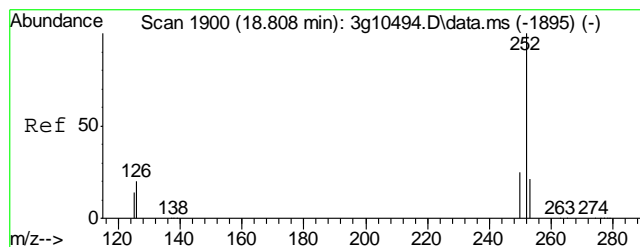
Tgt Ion: 252
Sig Exp Ratio
252 100
253 27.0
125 29.0
126 41.6



#26
Benzo(k)fluoranthene
Concen: Below ug/mL
RT: 12.494 min Scan# 1203
Delta R.T. -0.051 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

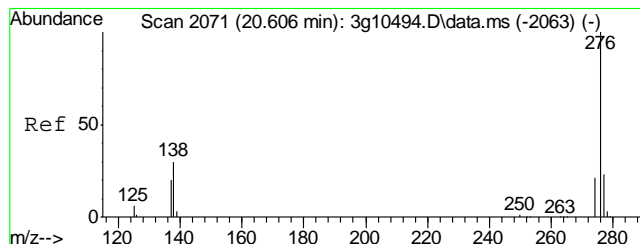
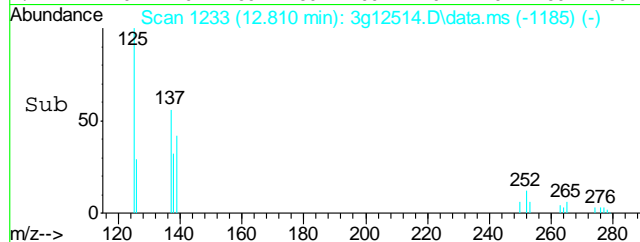
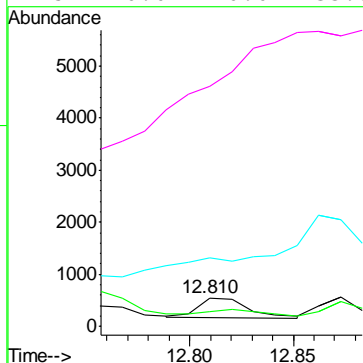
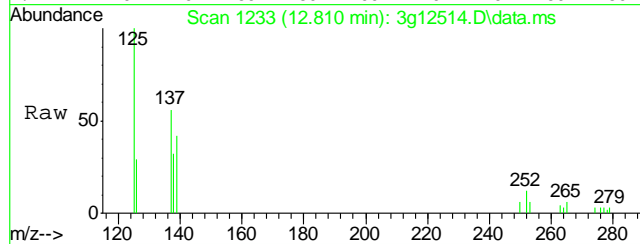
Tgt Ion: 252 Resp: 2325
Ion Ratio Lower Upper
252 100
253 44.4 4.0 44.0#
125 0.0 0.0 35.3
126 319.1 0.8 40.8#





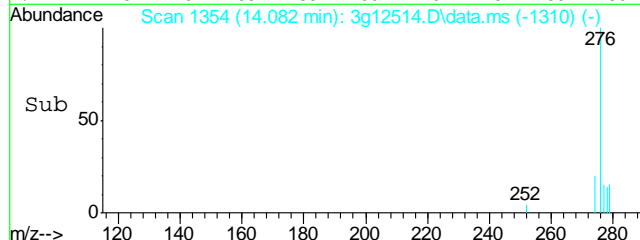
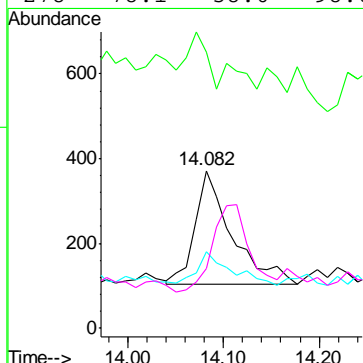
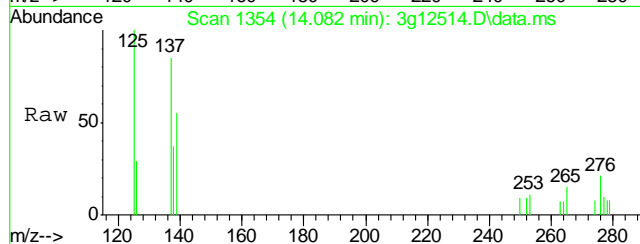
#27
Benzo(a)pyrene
Concen: Below ug/mL
RT: 12.810 min Scan# 1233
Delta R.T. -0.030 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

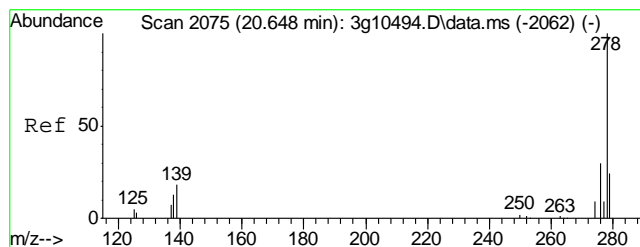
Tgt Ion:	252	Resp:	635
Ion Ratio	Lower	Upper	
252	100		
253	31.2	1.5	41.5
126	0.0	0.0	38.4
125	0.0	0.0	33.5



#28
Indeno(1,2,3-cd)pyrene
Concen: Below ug/mL
RT: 14.082 min Scan# 1354
Delta R.T. -0.040 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

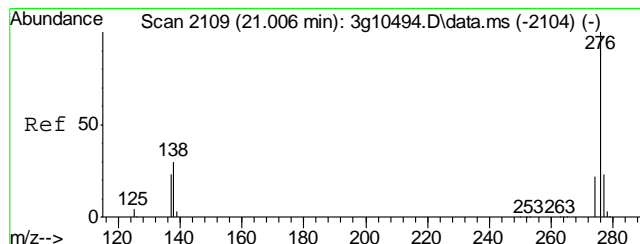
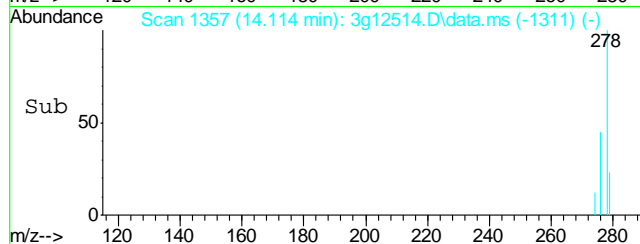
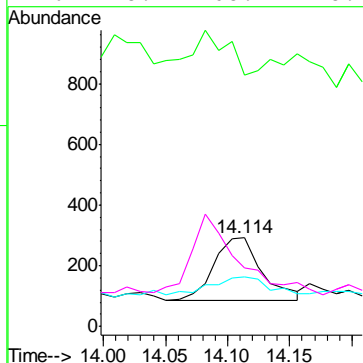
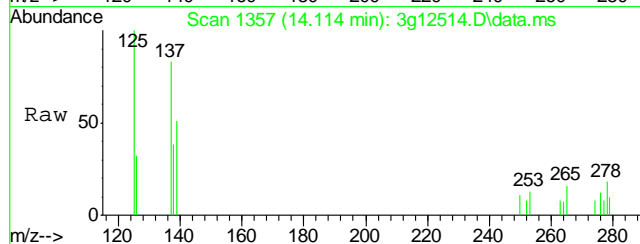
Tgt Ion:	276	Resp:	707
Ion Ratio	Lower	Upper	
276	100		
138	26.9	16.0	56.0
277	26.7	4.9	44.9
278	78.1	58.0	98.0





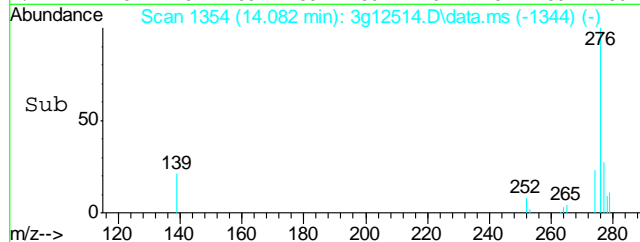
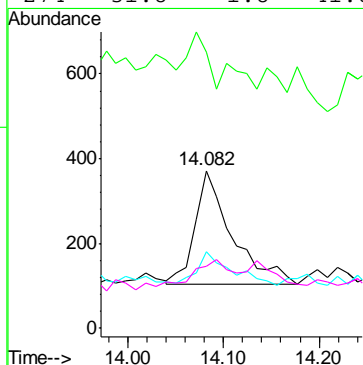
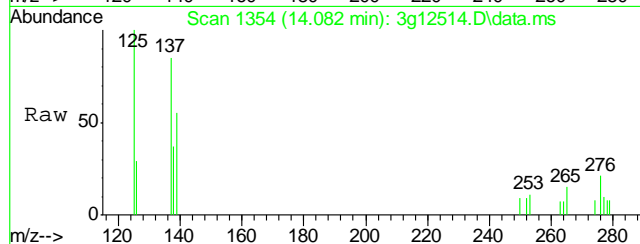
#29
Dibenz(a,h)anthracene
Concen: Below ug/mL
RT: 14.114 min Scan# 1357
Delta R.T. -0.019 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

Tgt Ion: 278 Resp: 552
Ion Ratio Lower Upper
278 100
139 68.7 7.4 47.4#
279 33.9 2.8 42.8
276 128.1 108.1 148.1



#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.082 min Scan# 1354
Delta R.T. -0.398 min
Lab File: 3g12514.D
Acq: 10 Dec 12 2:14 pm

Tgt Ion: 276 Resp: 707
Ion Ratio Lower Upper
276 100
138 26.9 10.9 50.9
277 26.7 3.2 43.2
274 31.8 1.8 41.8



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\121012\
Data File : 3g12508.D
Acq On : 10 Dec 2012 11:52 am
Operator : DONC
Sample : OP7075-MB
Misc : OP7075,E3G593,30.00,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 10 13:58:13 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G586.M
Quant Title : PAHSIM BASE
QLast Update : Tue Dec 04 08:50:28 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.670	136	153335	4.0000	ug/mL	-0.01
6) Acenaphthene-d10	7.385	164	92403	4.0000	ug/mL	0.00
15) Phenanthrene-d10	8.867	188	160356	4.0000	ug/mL	-0.01
19) Chrysene-d12	11.503	240	115791	4.0000	ug/mL	-0.01
24) Perylene-d12	12.883	264	94737	4.0000	ug/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	4.985	82	677706	44.2147	ug/mL	-0.01
Spiked Amount	50.000	Range	25 - 135	Recovery	=	88.42%
7) 2-Fluorobiphenyl	6.723	172	1592975	39.4888	ug/mL	0.00
Spiked Amount	50.000	Range	25 - 135	Recovery	=	78.98%
21) Terphenyl-d14	10.458	244	774374	45.4337	ug/mL	-0.01
Spiked Amount	50.000	Range	25 - 135	Recovery	=	90.86%

Target Compounds

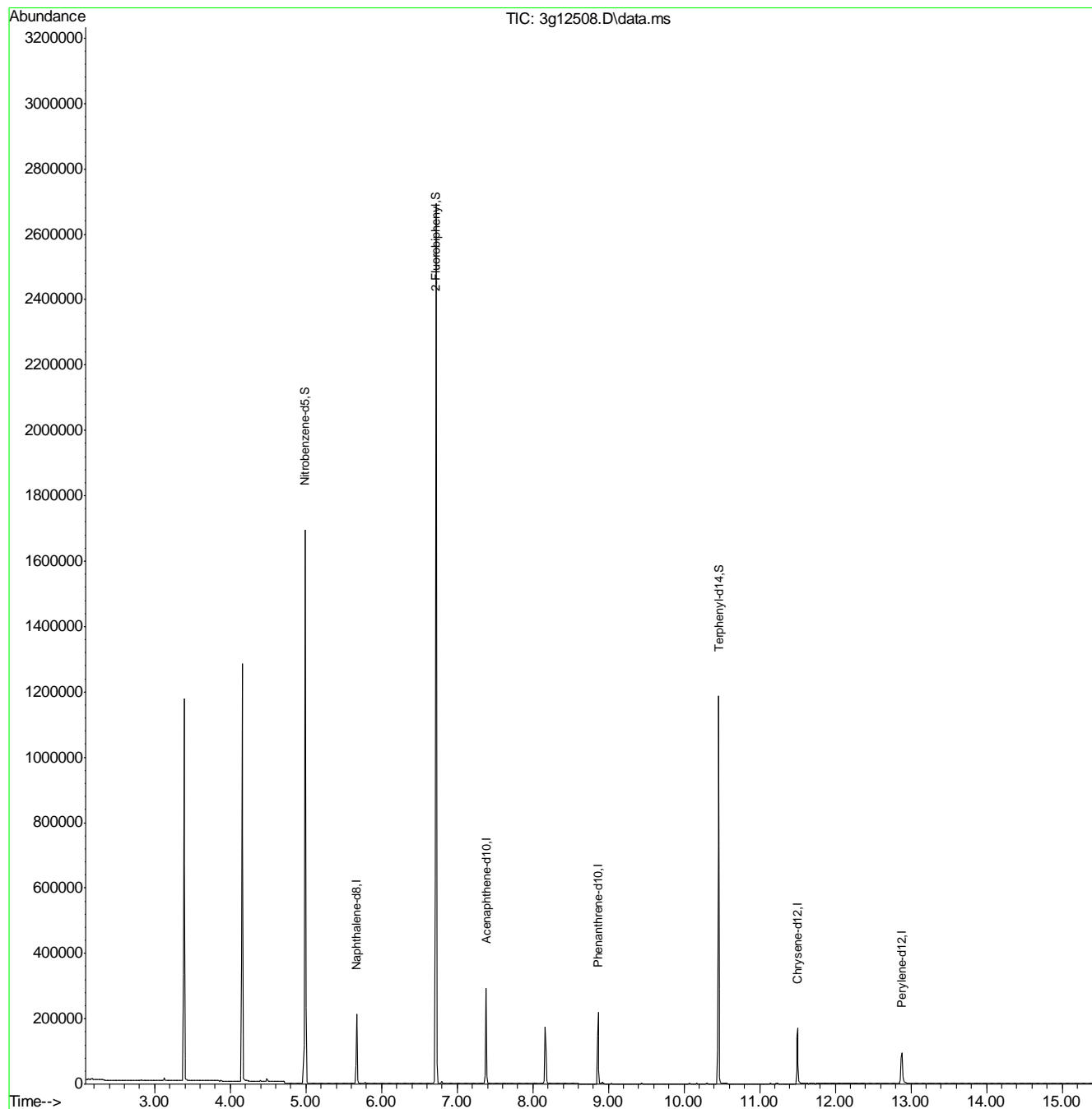
					Qvalue
3) N-Nitrosodimethylamine	2.334	74	50	N.D.	
4) N-Nitrosodi-propylamine	0.000	70	0	N.D.	d
5) Naphthalene	5.683	128	491	N.D.	
8) 2-Methylnaphthalene	6.356	142	179	N.D.	
9) 1-Methylnaphthalene	6.456	142	126	N.D.	
10) Acenaphthylene	7.243	152	198	N.D.	
11) Acenaphthene	7.113	154	75	Below	Cal 87
12) Dibenzofuran	7.585	168	152	N.D.	
13) Fluorene	0.000	166	0	N.D.	d
14) Diphenylamine	0.000	169	0	N.D.	d
16) Phenanthrene	8.891	178	540	N.D.	
17) Anthracene	8.938	178	357	N.D.	
18) Fluoranthene	10.070	202	778	N.D.	
20) Pyrene	10.299	202	864	N.D.	
22) Benzo(a)anthracene	11.496	228	1148	N.D.	
23) Chrysene	11.523	228	724	N.D.	
25) Benzo(b)fluoranthene	12.494	252	1411	N.D.	
26) Benzo(k)fluoranthene	12.494	252	1411	N.D.	
27) Benzo(a)pyrene	12.820	252	509	N.D.	
28) Indeno(1,2,3-cd)pyrene	14.093	276	459	N.D.	
29) Dibenz(a,h)anthracene	14.114	278	376	N.D.	
30) Benzo(g,h,i)perylene	14.450	276	479	N.D.	

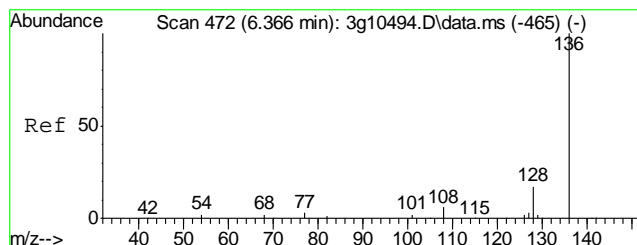
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\121012\
Data File : 3g12508.D
Acq On : 10 Dec 2012 11:52 am
Operator : DONC
Sample : OP7075-MB
Misc : OP7075,E3G593,30.00,,,1,1
ALS Vial : 4 Sample Multiplier: 1

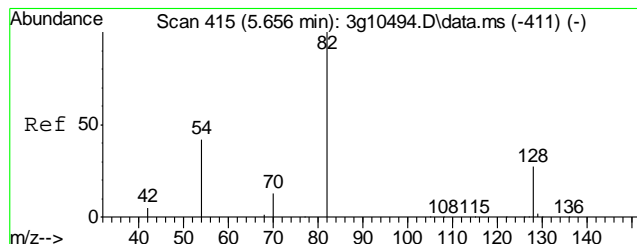
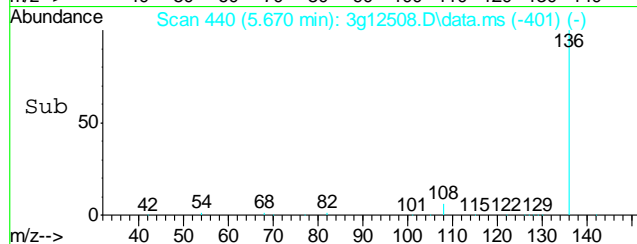
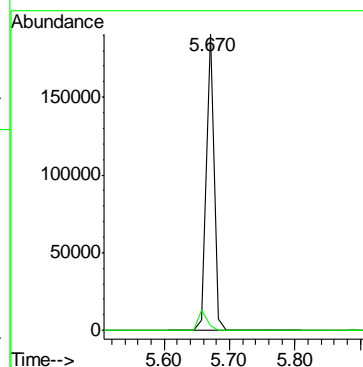
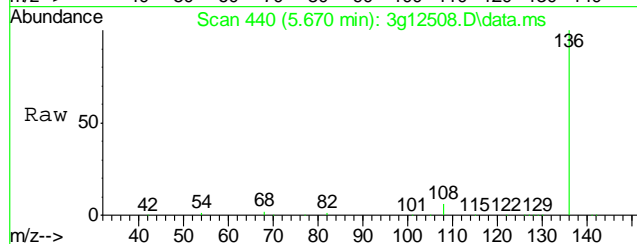
Quant Time: Dec 10 13:58:13 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G586.M
Quant Title : PAHSIM BASE
QLast Update : Tue Dec 04 08:50:28 2012
Response via : Initial Calibration





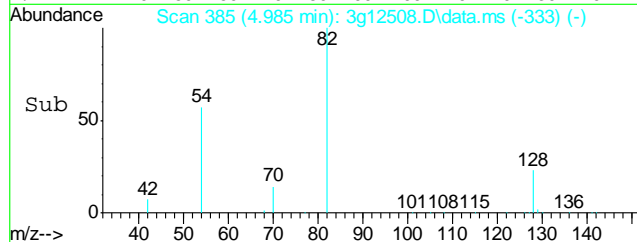
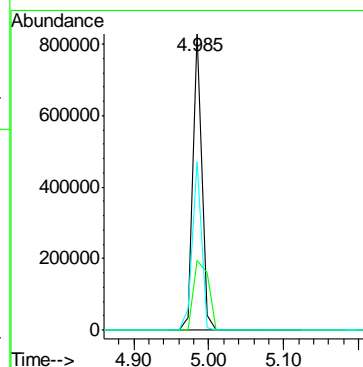
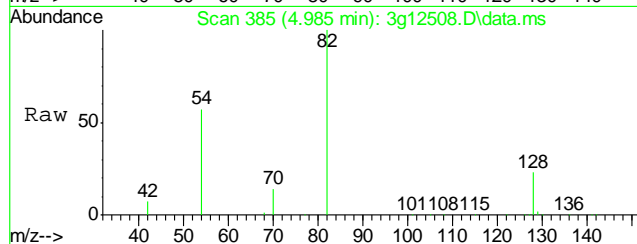
#1
Naphthalene-d8
Concen: 4.0000 ug/mL
RT: 5.670 min Scan# 440
Delta R.T. -0.011 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

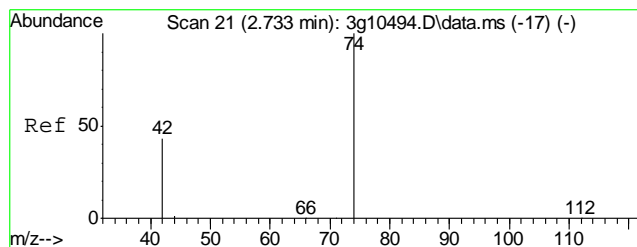
Tgt Ion:	136	Resp:	153335
Ion Ratio	Lower	Upper	
136	100		
68	7.6	0.0	28.4



#2
Nitrobenzene-d5
Concen: 44.2147 ug/mL
RT: 4.985 min Scan# 385
Delta R.T. -0.011 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

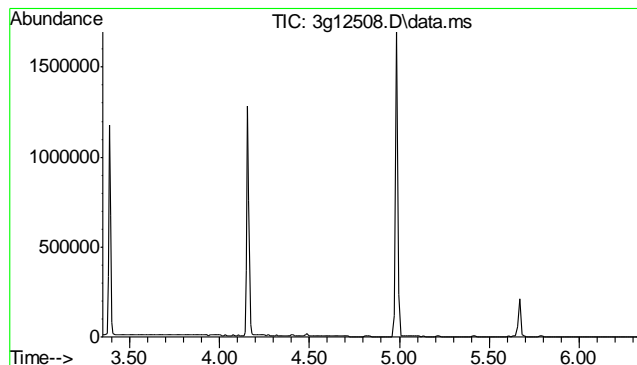
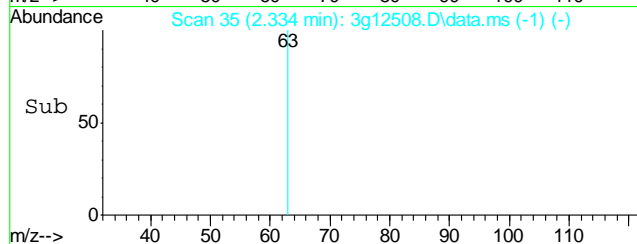
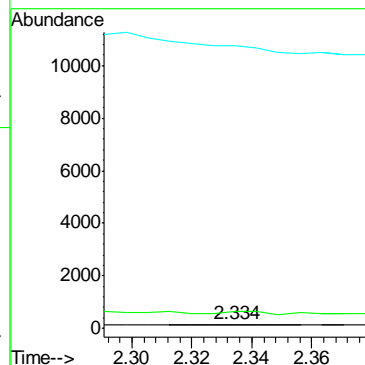
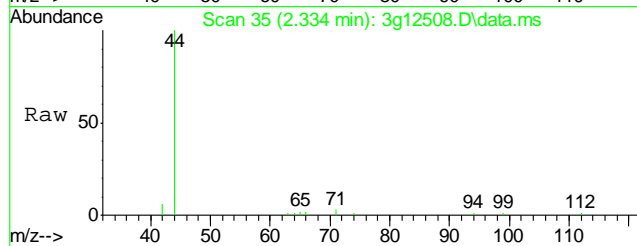
Tgt Ion:	82	Resp:	677706
Ion Ratio	Lower	Upper	
82	100		
128	39.2	31.8	71.8
54	59.4	29.2	69.2





#3
N-Nitrosodimethylamine
Concen: Below ug/mL
RT: 2.334 min Scan# 35
Delta R.T. -0.044 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

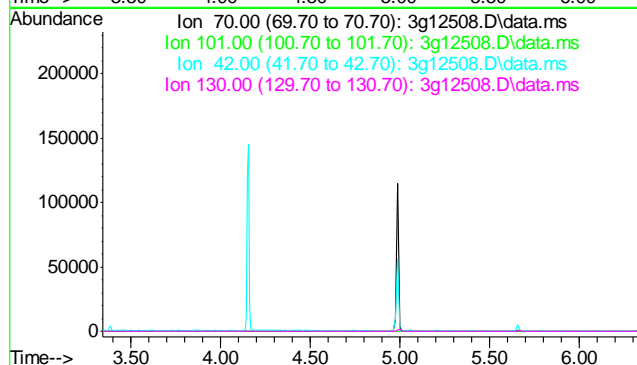
Tgt Ion: 74 Resp: 50
Ion Ratio Lower Upper
74 100
42 168.0 52.5 92.5#
44 0.0 0.0 24.1

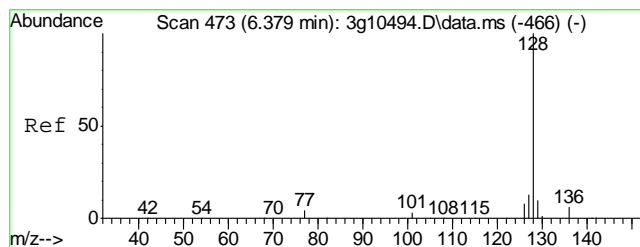


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 4.85 min

Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

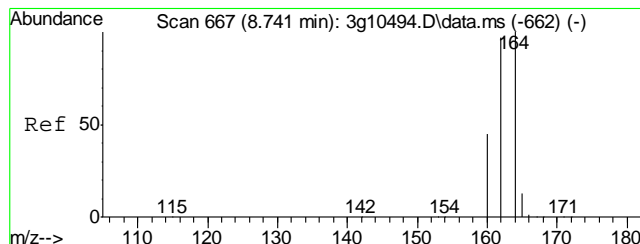
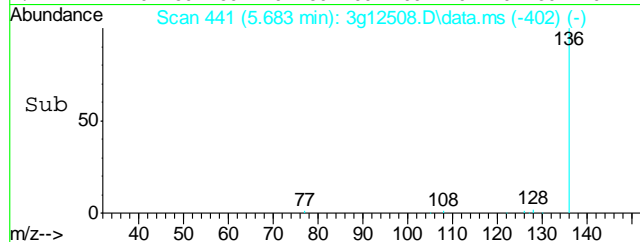
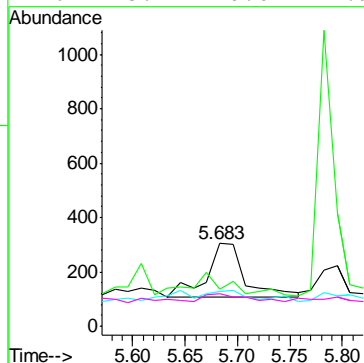
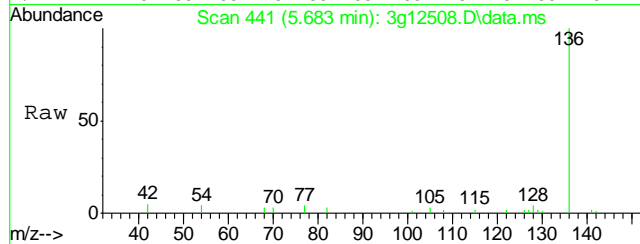
Tgt Ion: 70
Sig Exp Ratio
70 100
101 12.2
42 67.9
130 33.2





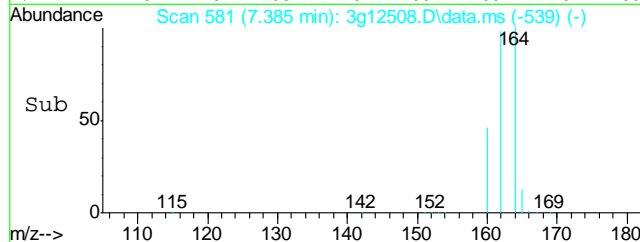
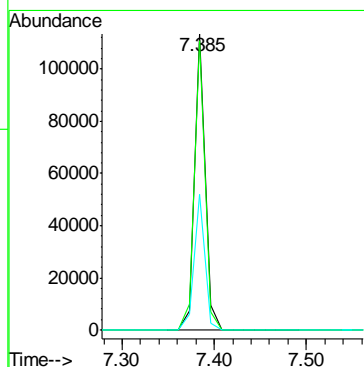
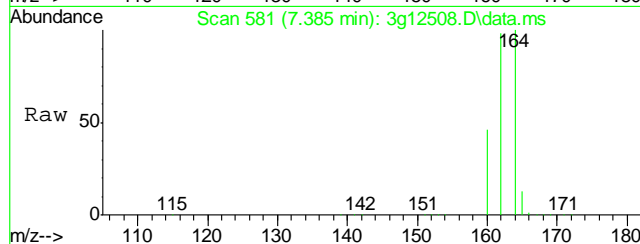
#5
Naphthalene
Concen: Below ug/mL
RT: 5.683 min Scan# 441
Delta R.T. -0.011 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

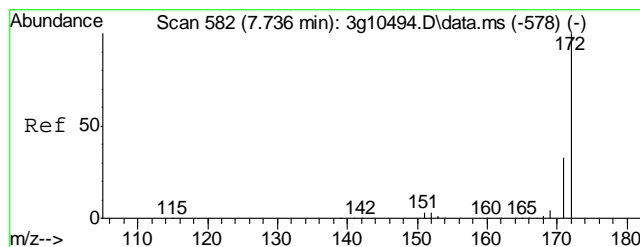
Tgt Ion	128	Resp	491
Ion Ratio	100		
129	43.2	0.0	30.7#
127	24.8	0.0	33.2
126	15.1	0.0	27.9



#6
Acenaphthene-d10
Concen: 4.0000 ug/mL
RT: 7.385 min Scan# 581
Delta R.T. -0.004 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

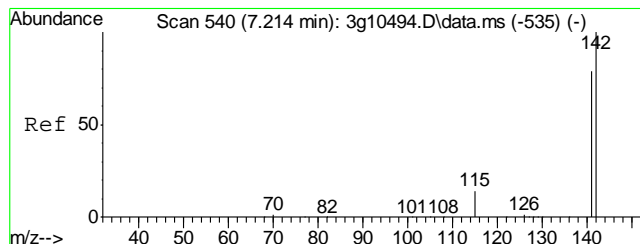
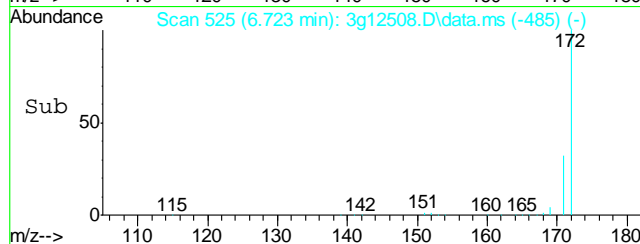
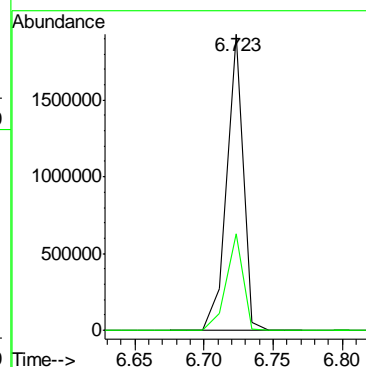
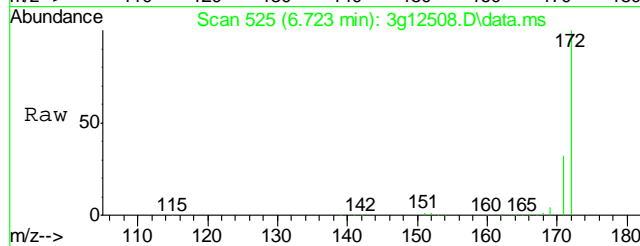
Tgt Ion	164	Resp	92403
Ion Ratio	100		
162	98.1	78.0	118.0
160	46.6	27.3	67.3





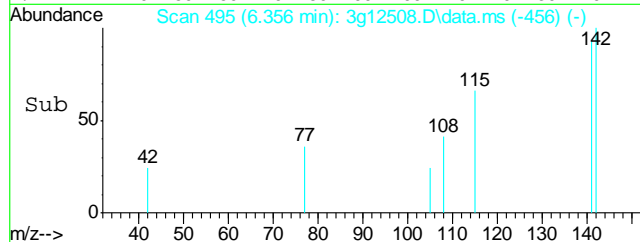
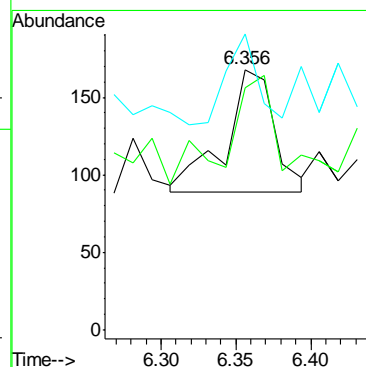
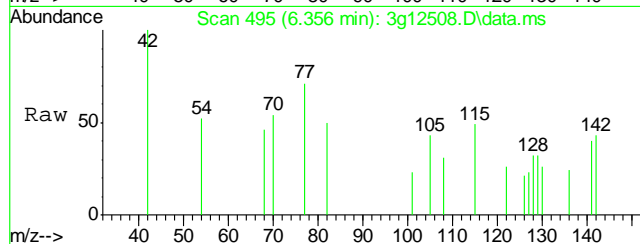
#7
2-Fluorobiphenyl
Concen: 39.4888 ug/mL
RT: 6.723 min Scan# 525
Delta R.T. -0.004 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

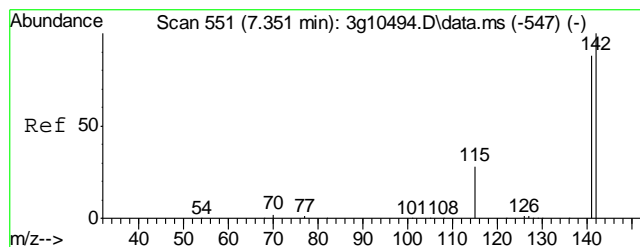
Tgt Ion:172 Resp: 1592975
Ion Ratio Lower Upper
172 100
171 33.4 13.7 53.7



#8
2-Methylnaphthalene
Concen: Below ug/mL
RT: 6.356 min Scan# 495
Delta R.T. -0.011 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

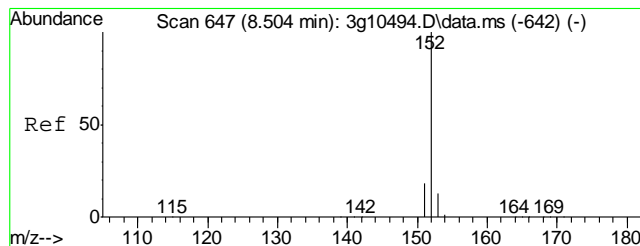
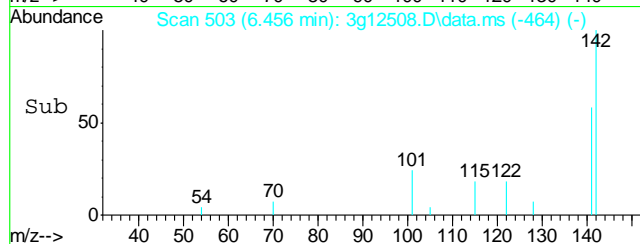
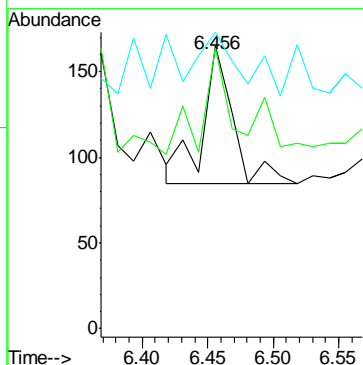
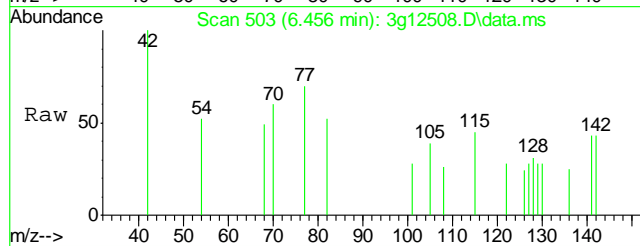
Tgt Ion:142 Resp: 179
Ion Ratio Lower Upper
142 100
141 40.2 65.6 105.6#
115 0.0 12.2 52.2#





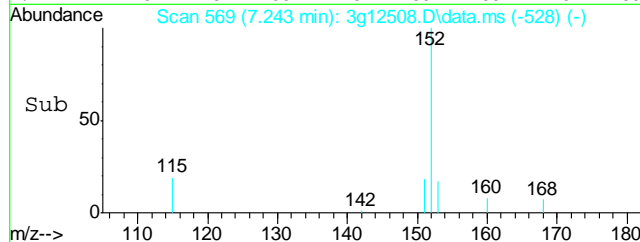
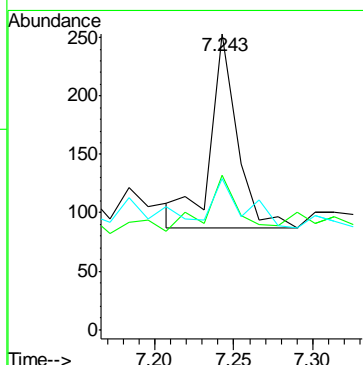
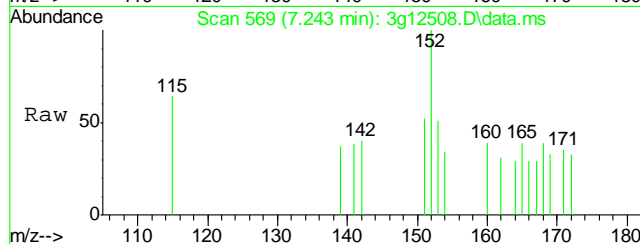
#9
1-Methylnaphthalene
Concen: Below ug/mL
RT: 6.456 min Scan# 503
Delta R.T. -0.011 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

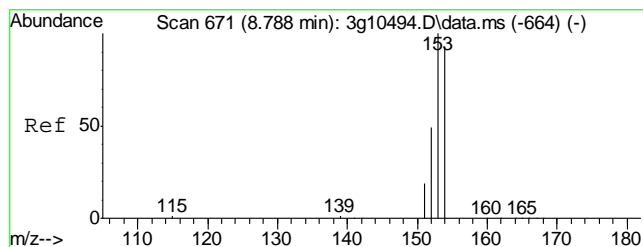
Tgt Ion: 142 Resp: 126
Ion Ratio Lower Upper
142 100
141 69.8 67.0 107.0
115 0.0 9.3 49.3#



#10
Acenaphthylene
Concen: Below ug/mL
RT: 7.243 min Scan# 569
Delta R.T. -0.016 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

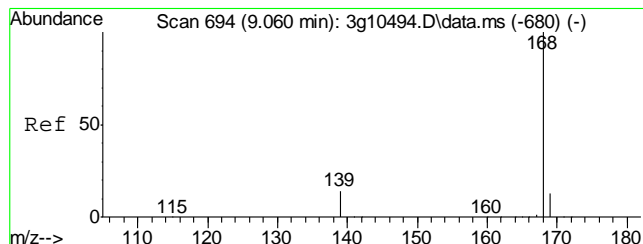
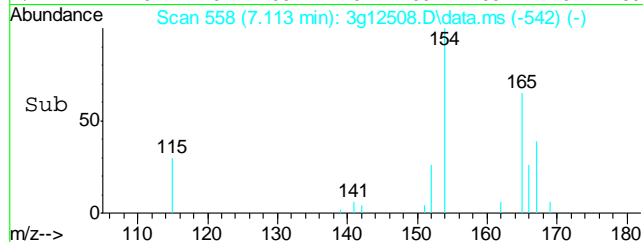
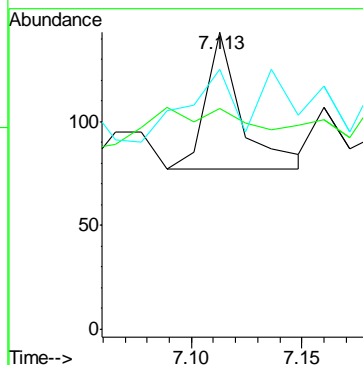
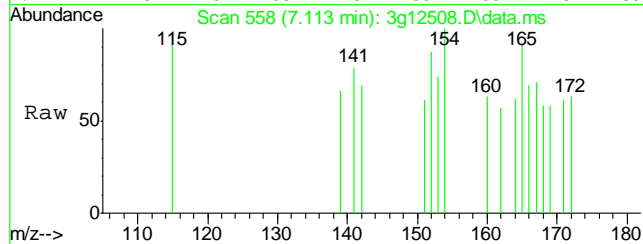
Tgt Ion: 152 Resp: 198
Ion Ratio Lower Upper
152 100
151 34.3 0.0 39.5
153 27.8 0.0 33.0





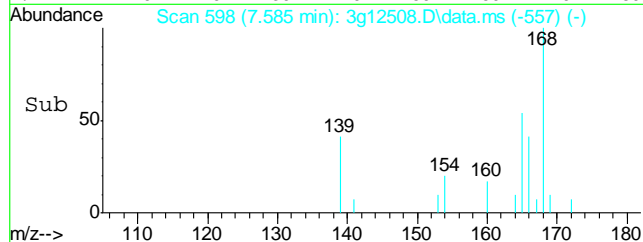
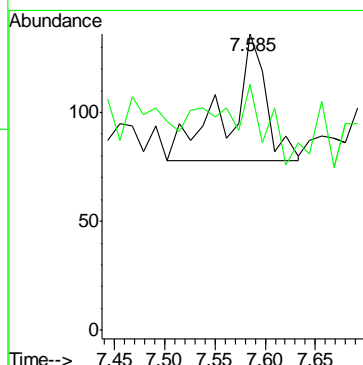
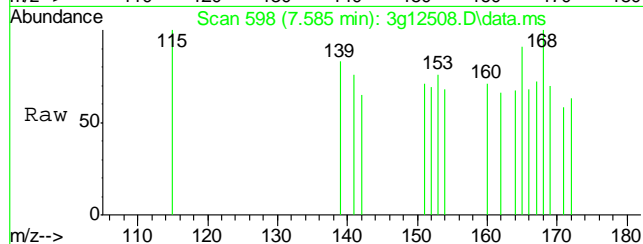
#11
Acenaphthene
Concen: Below ug/mL
RT: 7.113 min Scan# 558
Delta R.T. -0.311 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

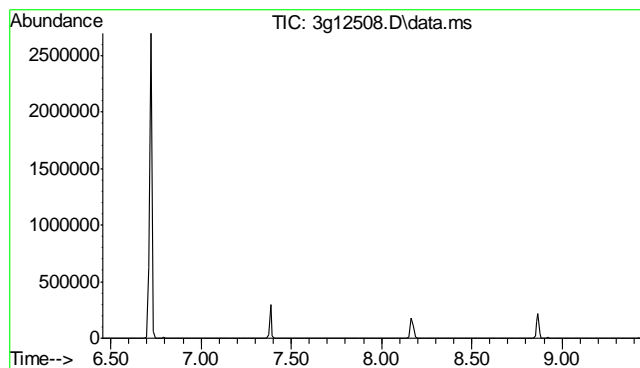
Tgt Ion:	154	Resp:	75
Ion Ratio	Lower	Upper	
154	100		
153	98.7	84.7	124.7
152	69.3	30.2	70.2



#12
Dibenzofuran
Concen: Below ug/mL
RT: 7.585 min Scan# 598
Delta R.T. -0.016 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

Tgt Ion:	168	Resp:	152
Ion Ratio	Lower	Upper	
168	100		
139	13.2	12.0	52.0

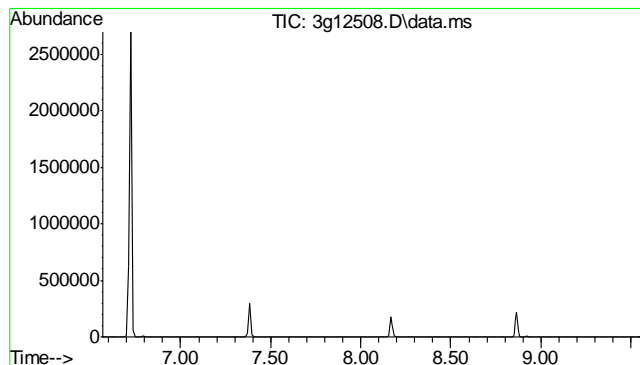
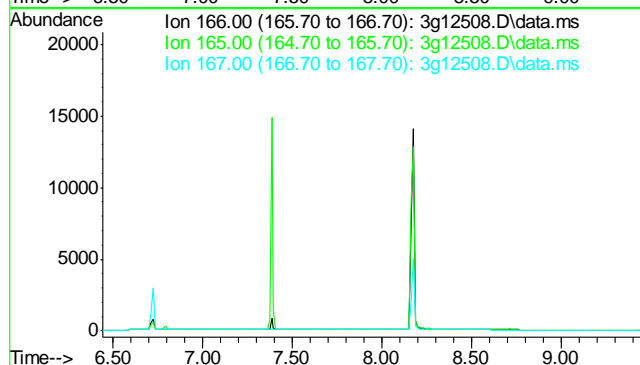




#13
Fluorene
Concen: N.D. ug/mL
Expected RT: 7.94 min

Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

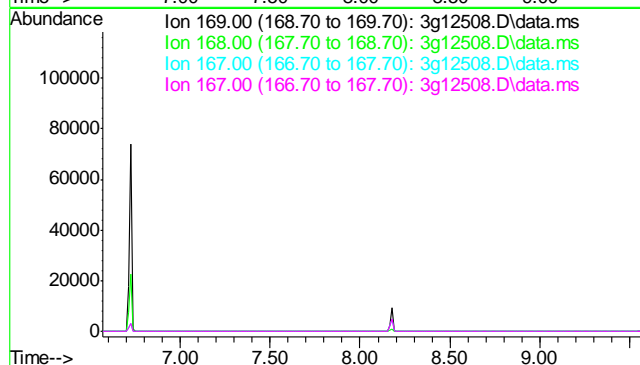
Tgt Ion:	166
Sig	Exp Ratio
166	100
165	90.1
167	13.4

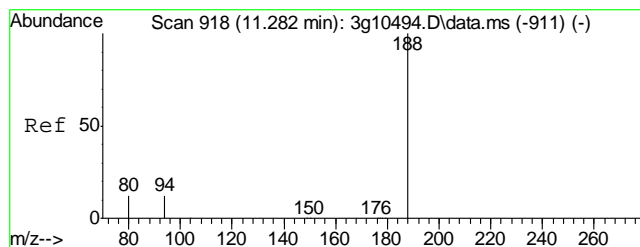


#14
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 8.06 min

Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

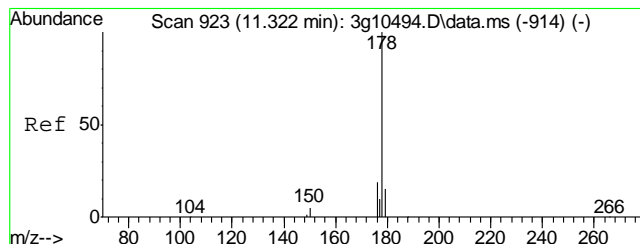
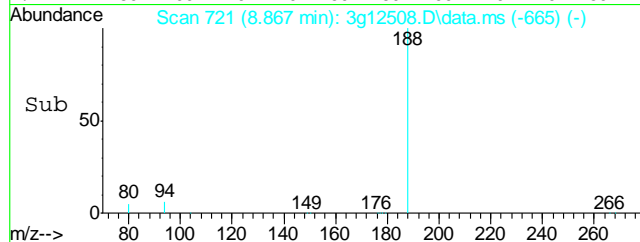
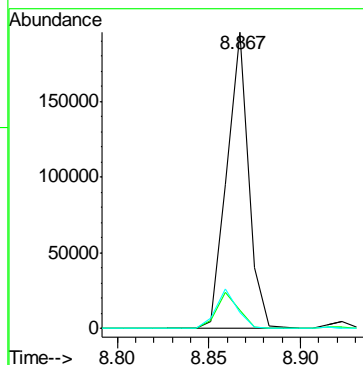
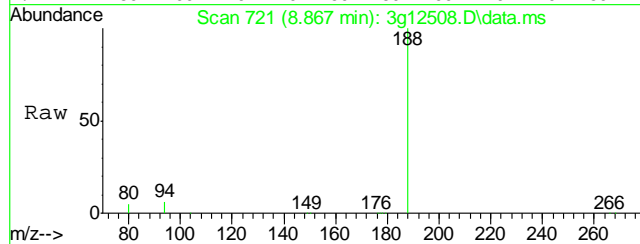
Tgt Ion:	169
Sig	Exp Ratio
169	100
168	60.1
167	32.1
167	32.1





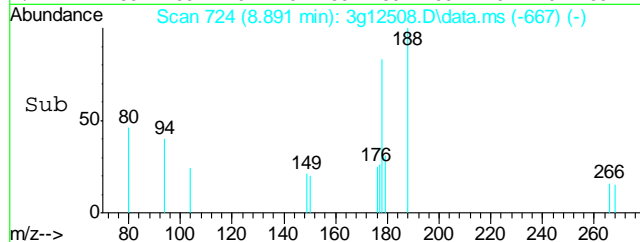
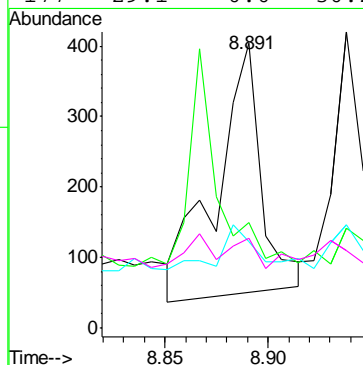
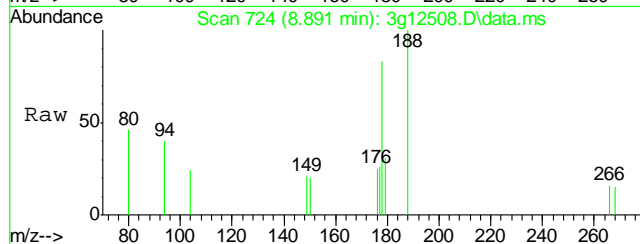
#15
Phenanthrene-d10
Concen: 4.0000 ug/mL
RT: 8.867 min Scan# 721
Delta R.T. -0.012 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

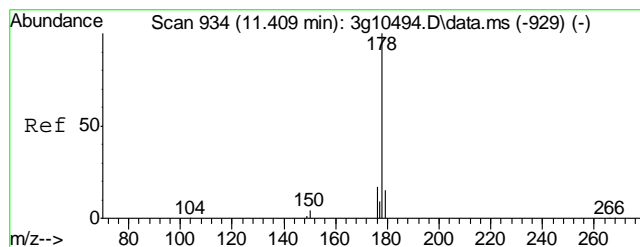
Tgt Ion	Ratio	Lower	Upper
188	100		
94	12.2	0.0	33.4
80	12.9	0.0	28.9



#16
Phenanthrene
Concen: Below ug/mL
RT: 8.891 min Scan# 724
Delta R.T. -0.011 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

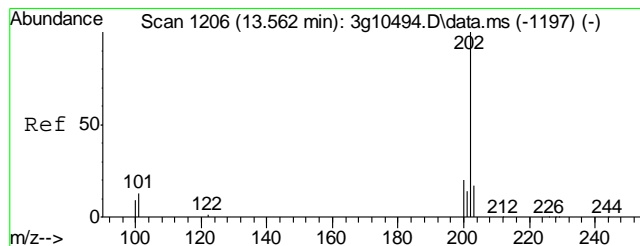
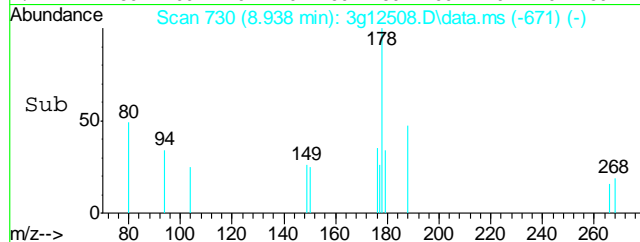
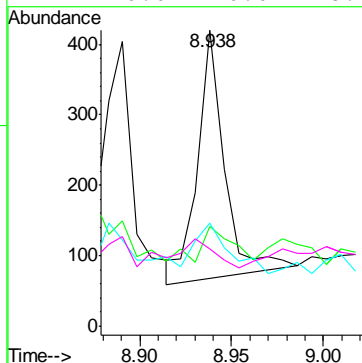
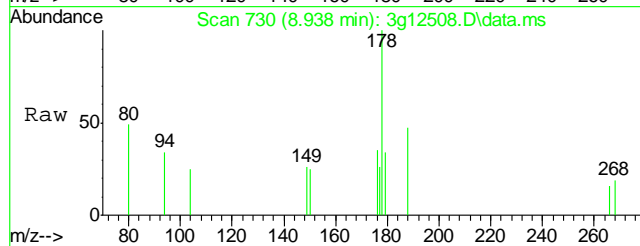
Tgt Ion	Ratio	Lower	Upper
178	100		
179	84.3	0.0	35.3#
176	9.6	0.0	38.6
177	29.1	0.0	30.2





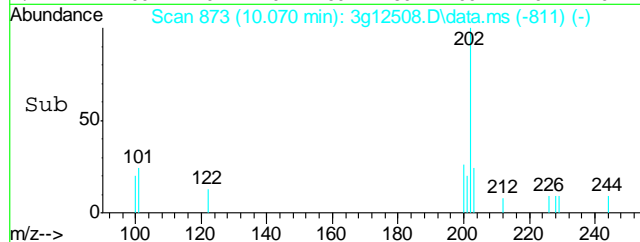
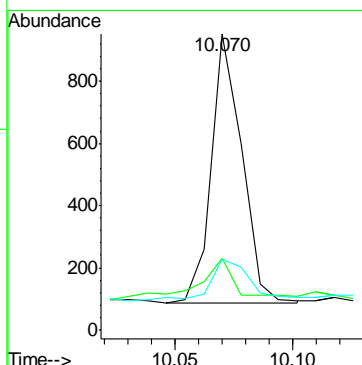
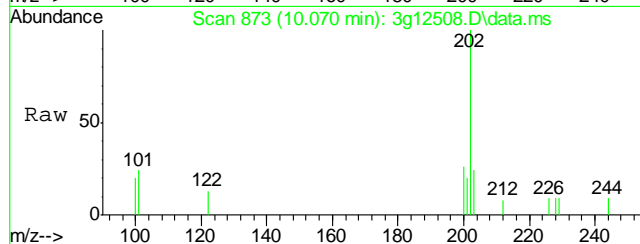
#17
Anthracene
Concen: Below ug/mL
RT: 8.938 min Scan# 730
Delta R.T. -0.012 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

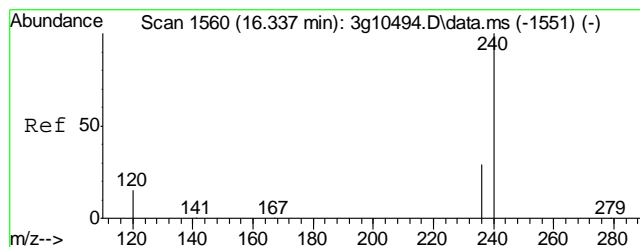
Tgt Ion	Ratio	Lower	Upper
178	100		
179	17.6	0.0	35.1
176	20.7	0.0	38.2
177	0.0	0.0	28.8



#18
Fluoranthene
Concen: Below ug/mL
RT: 10.070 min Scan# 873
Delta R.T. -0.012 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

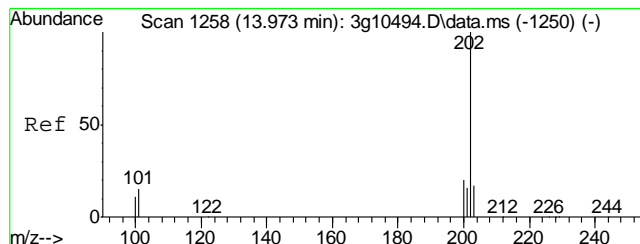
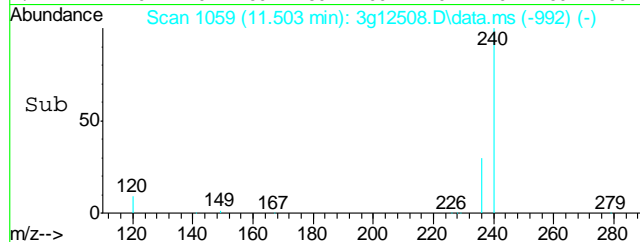
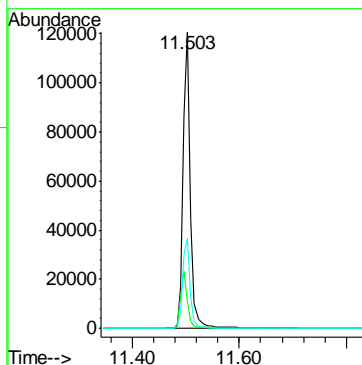
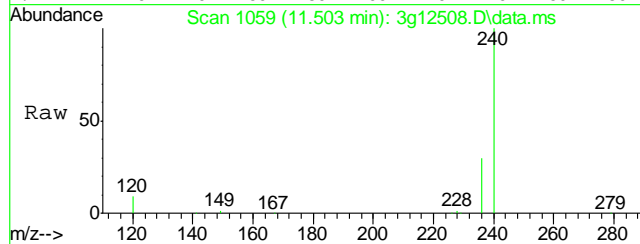
Tgt Ion	Ratio	Lower	Upper
202	100		
101	11.4	0.0	32.5
203	16.1	0.0	37.3





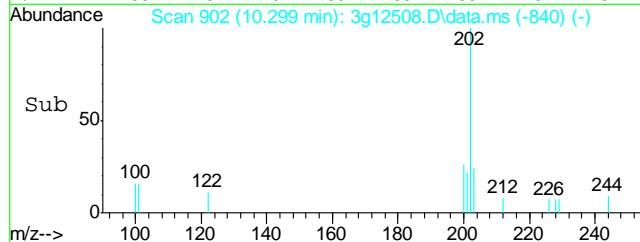
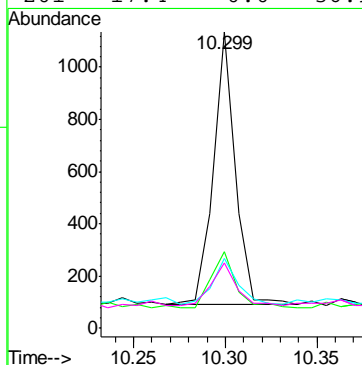
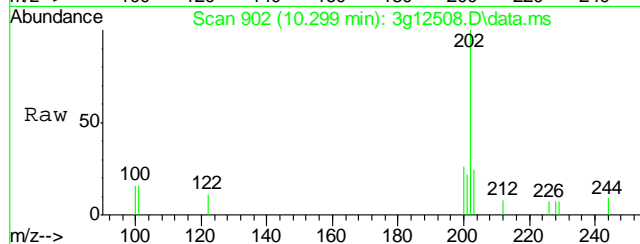
#19
Chrysene-d12
Concen: 4.0000 ug/mL
RT: 11.503 min Scan# 1059
Delta R.T. -0.013 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

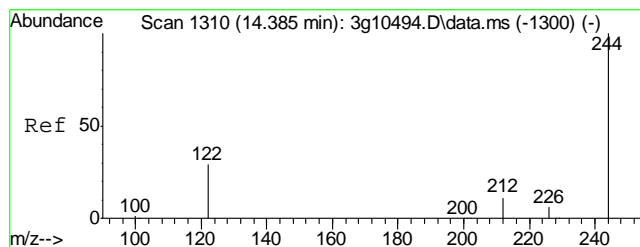
Tgt Ion:	240	Resp:	115791
Ion Ratio	Lower	Upper	
240	100		
120	18.3	0.0	39.7
236	31.8	11.1	51.1



#20
Pyrene
Concen: Below ug/mL
RT: 10.299 min Scan# 902
Delta R.T. -0.012 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

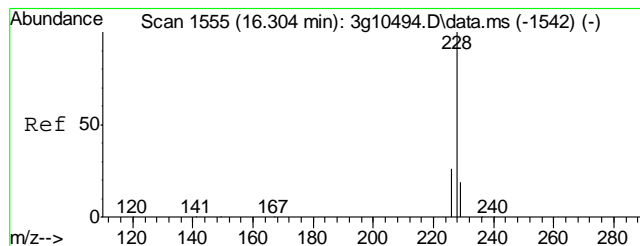
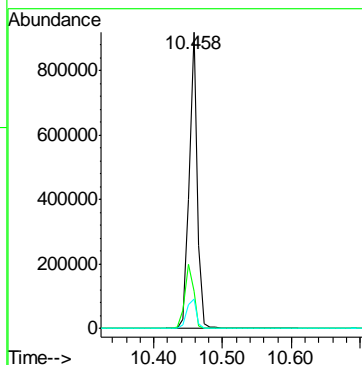
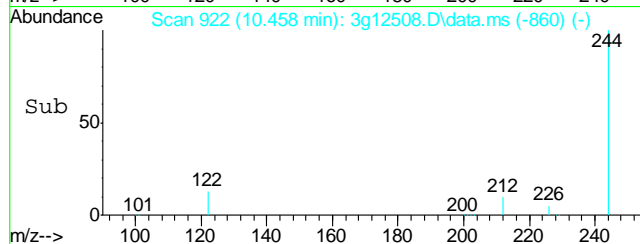
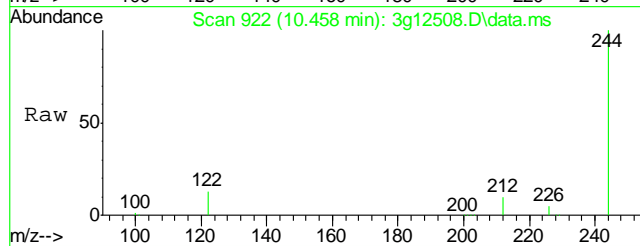
Tgt Ion:	202	Resp:	864
Ion Ratio	Lower	Upper	
202	100		
200	22.9	0.7	40.7
203	19.7	0.0	37.8
201	17.4	0.0	36.9





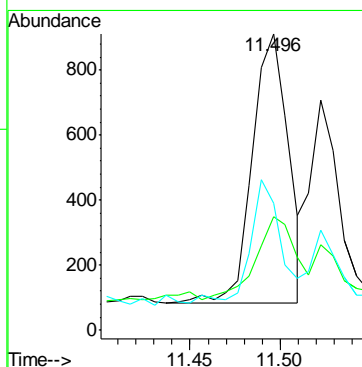
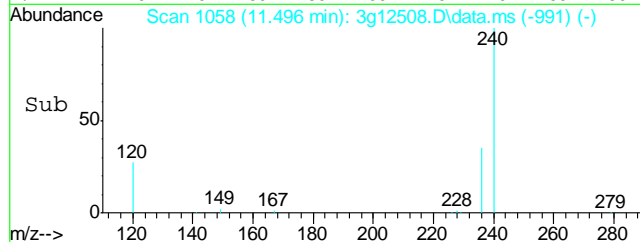
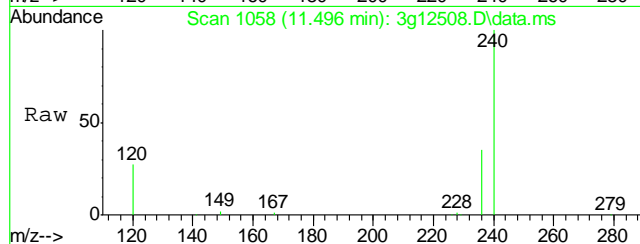
#21
Terphenyl-d14
Concen: 45.4337 ug/mL
RT: 10.458 min Scan# 922
Delta R.T. -0.012 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

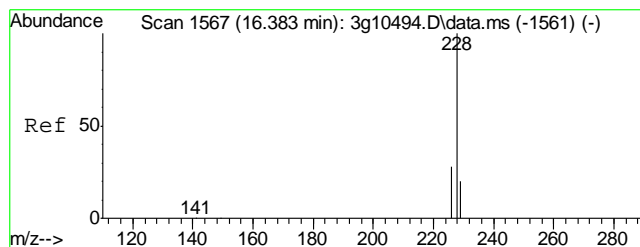
Tgt Ion:	244	Resp:	774374
Ion Ratio	Lower	Upper	
244	100		
122	23.6	6.8	46.8
212	11.7	0.0	32.3



#22
Benzo(a)anthracene
Concen: Below ug/mL
RT: 11.496 min Scan# 1058
Delta R.T. -0.006 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

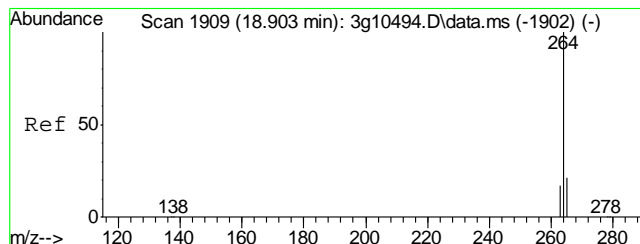
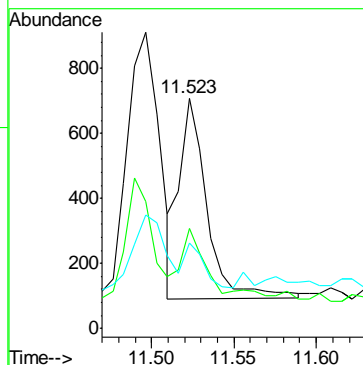
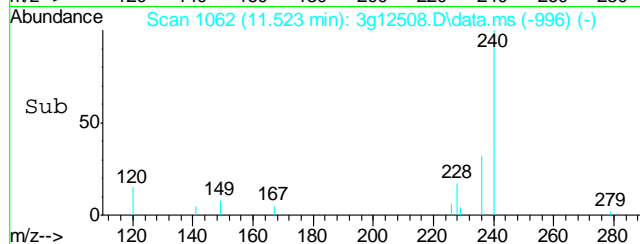
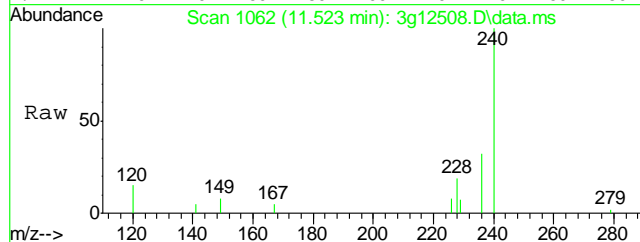
Tgt Ion:	228	Resp:	1148
Ion Ratio	Lower	Upper	
228	100		
229	34.7	0.0	39.4
226	38.0	6.8	46.8





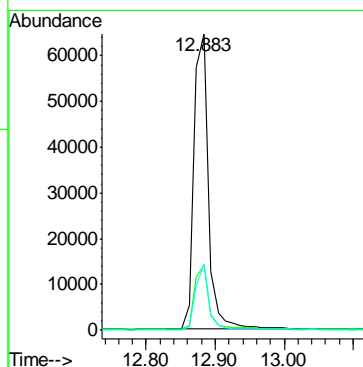
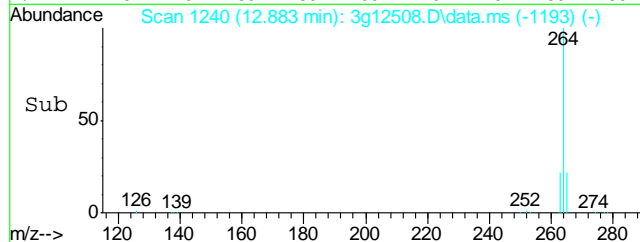
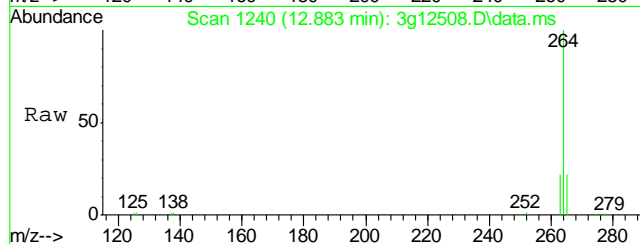
#23
Chrysene
Concen: Below ug/mL
RT: 11.523 min Scan# 1062
Delta R.T. -0.019 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

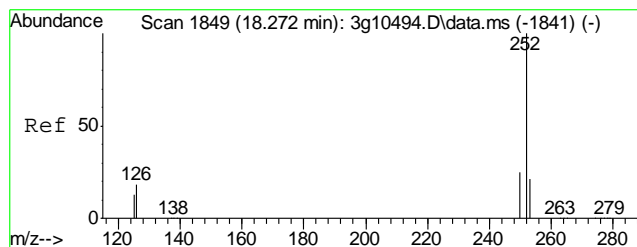
Tgt Ion:	228	Resp:	724
Ion Ratio	100	Lower	Upper
228	100		
226	25.1	9.2	49.2
229	2.9	0.0	39.4



#24
Perylene-d12
Concen: 4.0000 ug/mL
RT: 12.883 min Scan# 1240
Delta R.T. -0.009 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

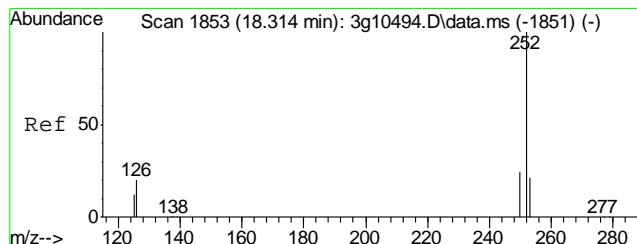
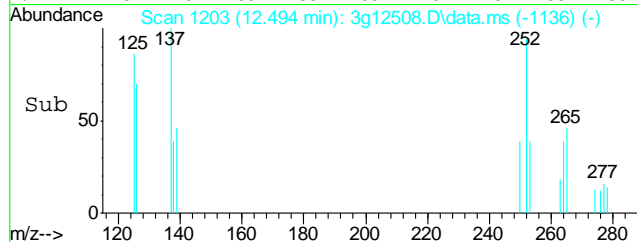
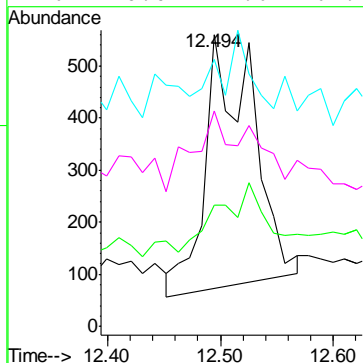
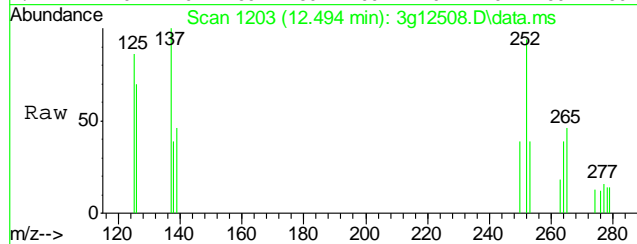
Tgt Ion:	264	Resp:	94737
Ion Ratio	100	Lower	Upper
264	100		
265	20.6	0.6	40.6
263	20.3	0.0	39.7





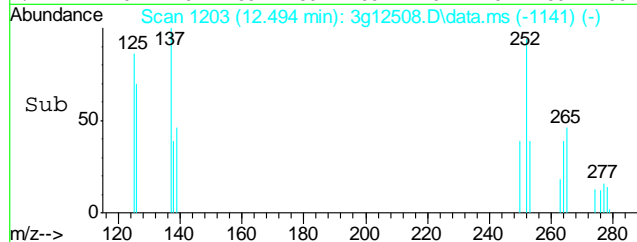
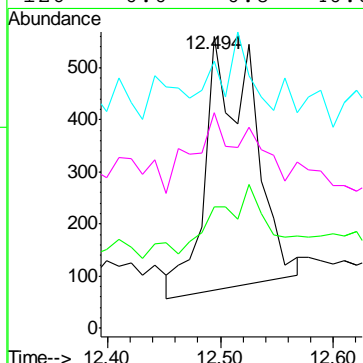
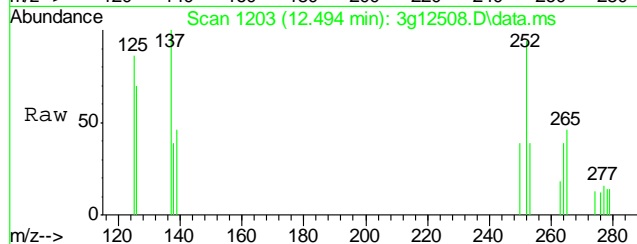
#25
Benzo(b)fluoranthene
Concen: Below ug/mL
RT: 12.494 min Scan# 1203
Delta R.T. -0.019 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

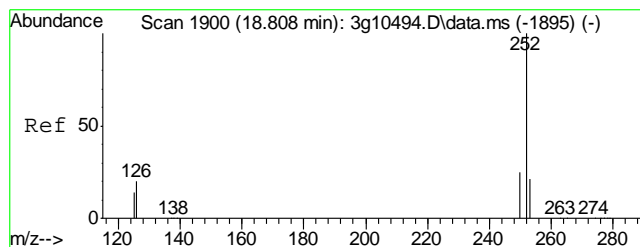
Tgt Ion: 252	Resp: 1411
Ion Ratio	Lower Upper
252	100
253	45.0 7.0 47.0
125	0.0 9.0 49.0#
126	0.0 21.6 61.6#



#26
Benzo(k)fluoranthene
Concen: Below ug/mL
RT: 12.494 min Scan# 1203
Delta R.T. -0.051 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

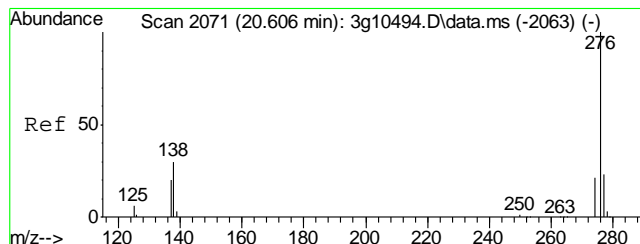
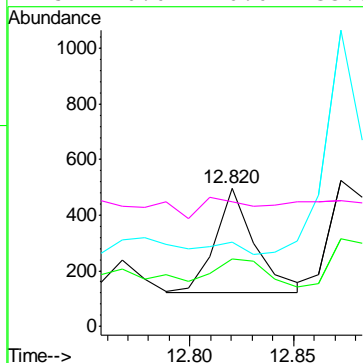
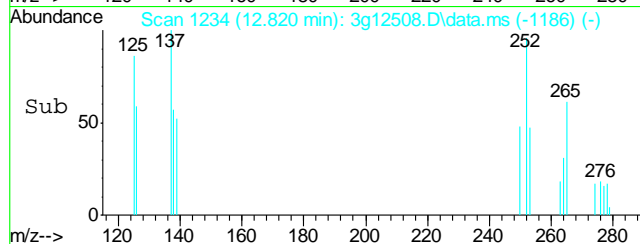
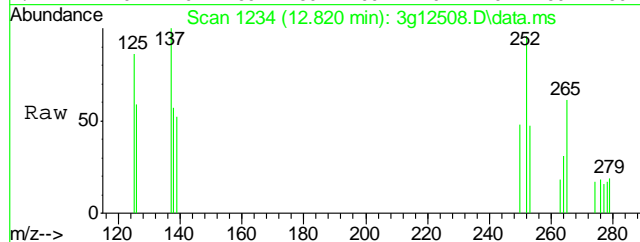
Tgt Ion: 252	Resp: 1411
Ion Ratio	Lower Upper
252	100
253	45.0 4.0 44.0#
125	0.0 0.0 35.3
126	0.0 0.8 40.8#





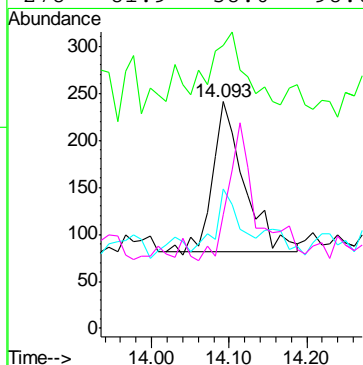
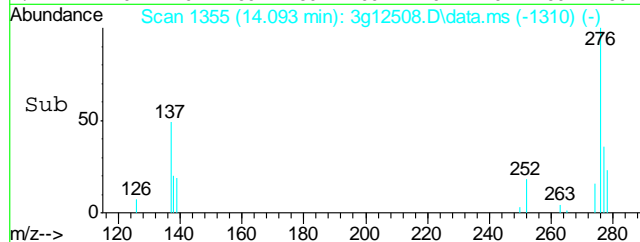
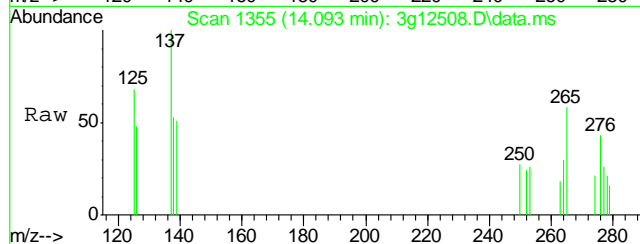
#27
Benzo(a)pyrene
Concen: Below ug/mL
RT: 12.820 min Scan# 1234
Delta R.T. -0.019 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

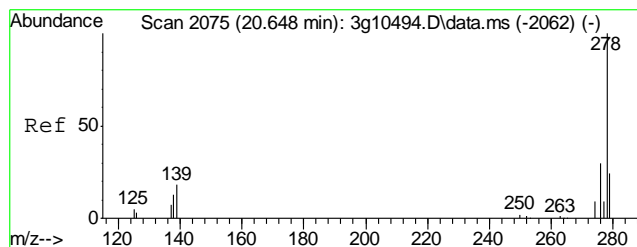
Tgt Ion:	252	Resp:	509
Ion Ratio	100	Lower	Upper
252	100		
253	34.4	1.5	41.5
126	0.0	0.0	38.4
125	0.0	0.0	33.5



#28
Indeno(1,2,3-cd)pyrene
Concen: Below ug/mL
RT: 14.093 min Scan# 1355
Delta R.T. -0.030 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

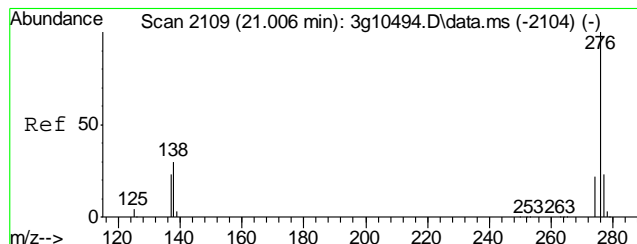
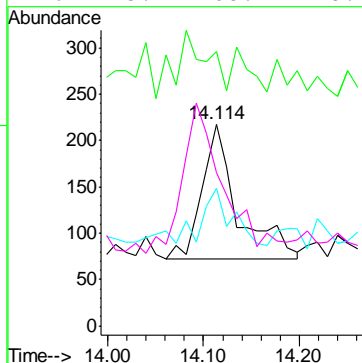
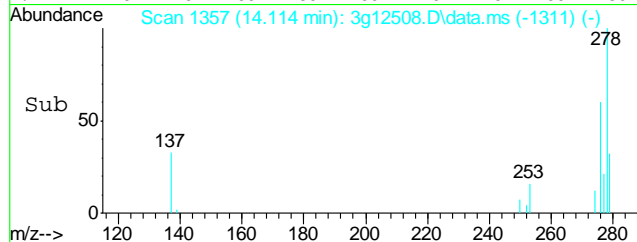
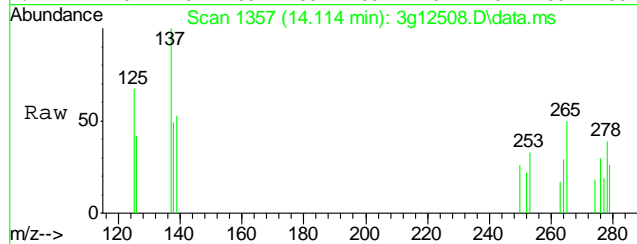
Tgt Ion:	276	Resp:	459
Ion Ratio	100	Lower	Upper
276	100		
138	66.2	16.0	56.0#
277	29.6	4.9	44.9
278	81.9	58.0	98.0





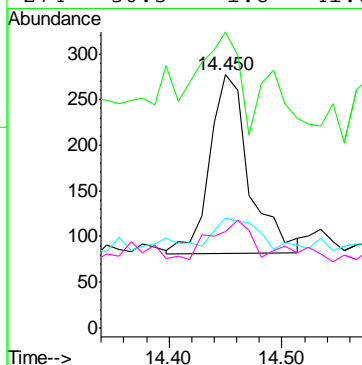
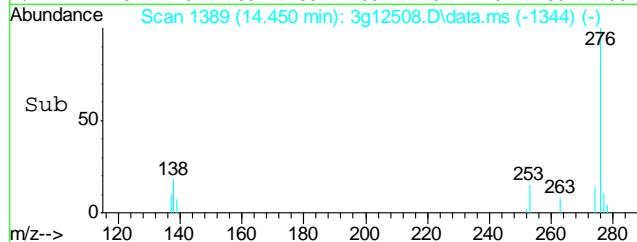
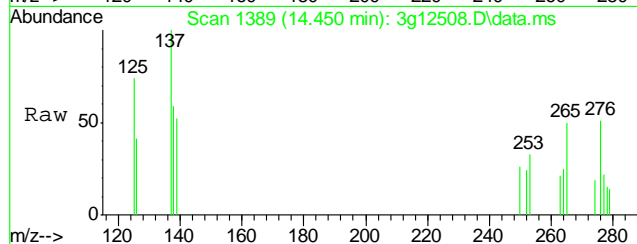
#29
Dibenzo(a,h)anthracene
Concen: Below ug/mL
RT: 14.114 min Scan# 1357
Delta R.T. -0.019 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

Tgt Ion: 278 Resp: 376
Ion Ratio Lower Upper
278 100
139 46.8 7.4 47.4
279 34.3 2.8 42.8
276 123.4 108.1 148.1



#30
Benzo(g,h,i)perylene
Concen: Below ug/mL
RT: 14.450 min Scan# 1389
Delta R.T. -0.030 min
Lab File: 3g12508.D
Acq: 10 Dec 12 11:52 am

Tgt Ion: 276 Resp: 479
Ion Ratio Lower Upper
276 100
138 56.8 10.9 50.9#
277 15.9 3.2 43.2
274 30.5 1.8 41.8



GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D41382
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1019-MB	GB18715.D	1	12/03/12	SK	n/a	n/a	GGB1019

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

D41382-1, D41382-2

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	96% 60-140%

10.1.1
10

Blank Spike Summary

Page 1 of 1

Job Number: D41382
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1019-BS	GB18716.D	1	12/03/12	SK	n/a	n/a	GGB1019

The QC reported here applies to the following samples:

Method: SW846 8015B

D41382-1, D41382-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	124	113	70-130

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D41382
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D41339-11MS	GB18718.D	1	12/03/12	SK	n/a	n/a	GGB1019
D41339-11MSD	GB18719.D	1	12/03/12	SK	n/a	n/a	GGB1019
D41339-11	GB18717.D	1	12/03/12	SK	n/a	n/a	GGB1019

The QC reported here applies to the following samples:

Method: SW846 8015B

D41382-1, D41382-2

CAS No.	Compound	D41339-11 mg/kg	Spike Q	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND	149	166	111	168	113	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D41339-11	Limits
120-82-1	1,2,4-Trichlorobenzene	107%	102%	90%	60-140%

* = Outside of Control Limits.

GC Volatiles

Raw Data



Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\120312\GB18726.D\FID1A.CH Vial: 14
Signal #2 : Y:\1\DATA\120312\GB18726.D\FID2B.CH
Acq On : 3 Dec 2012 10:52 pm Operator: StephK
Sample : D41382-1, 50X Inst : GC/MS Ins
Misc : GC3270,GGB1019,5.448,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Dec 04 08:52:12 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Dec 03 16:22:30 2012
Response via : Initial Calibration
DataAcq Meth : TVB4.M

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

Compound		R.T.	Response	Conc	Units

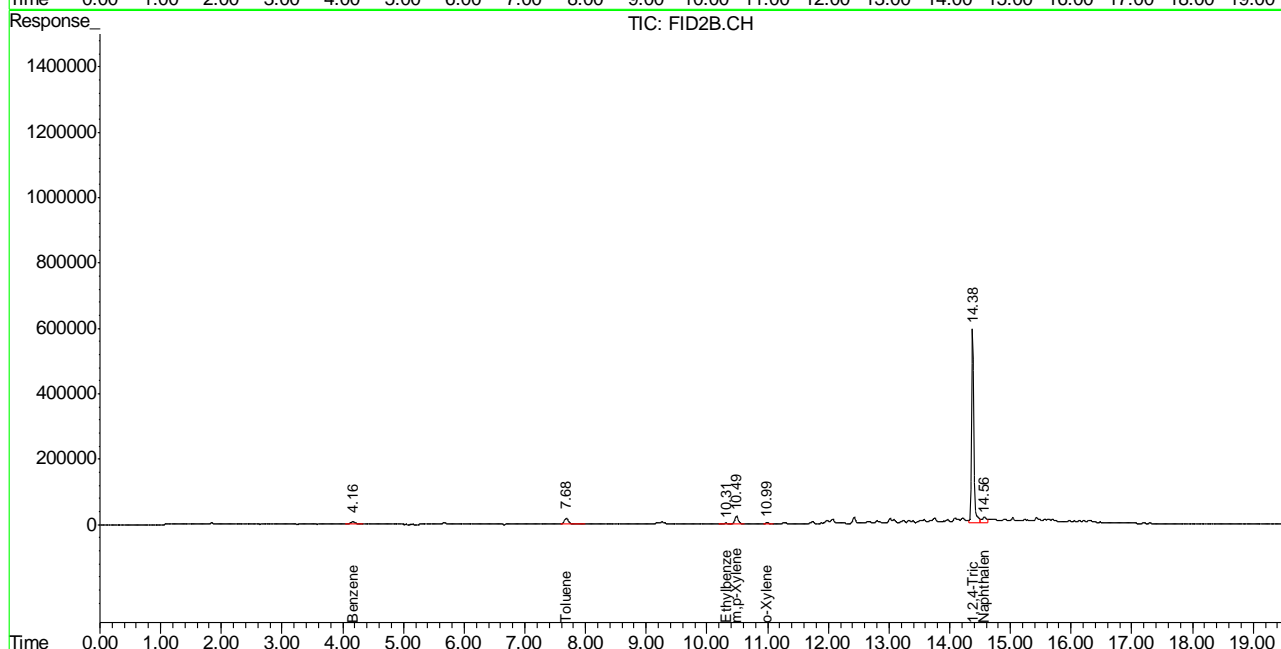
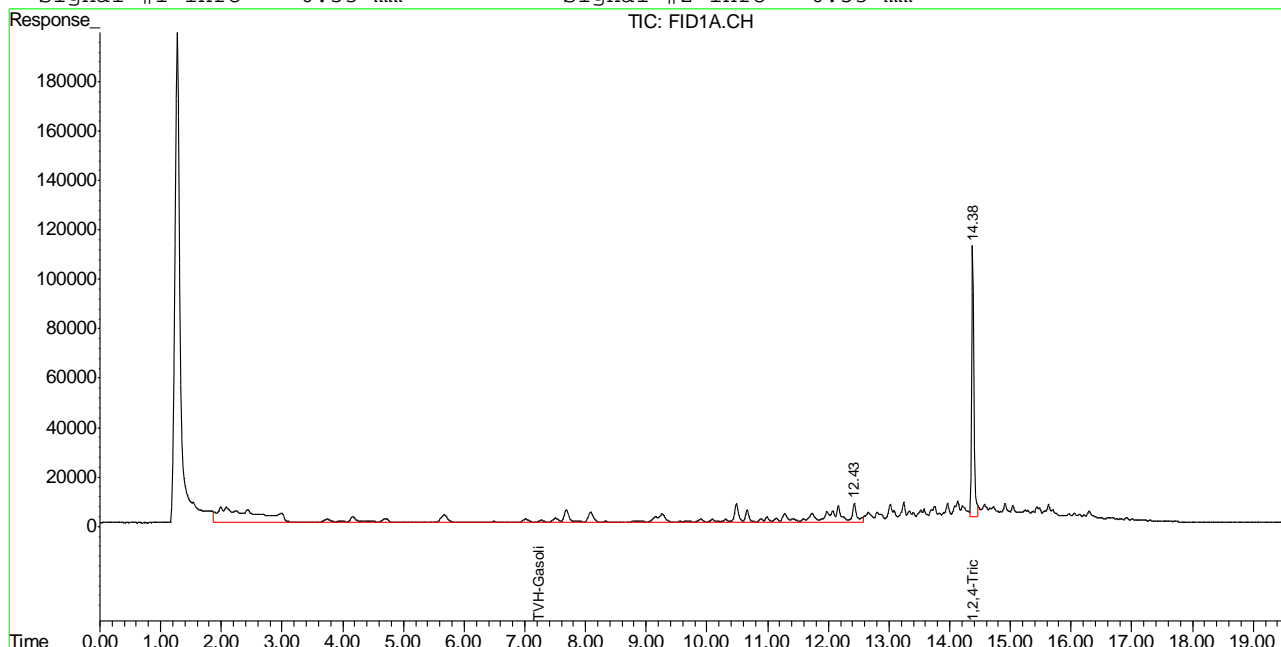
System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.38	2717277	86.720 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.38	14851035	91.376 %	
Target Compounds					
1) H	TVH-Gasoline	7.23	8577728	0.103 mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	4.16	494998	1.228 ug/L	
6) T	Toluene	7.68	1040992	2.627 ug/L	
7) T	Ethylbenzene	10.31	187039	0.553 ug/L	
8) T	m,p-Xylene	10.49	1117673	2.689 ug/L	
9) T	o-Xylene	10.99	251485	0.766 ug/L	
11) T	Naphthalene	14.57	1094763	5.548 ug/L	

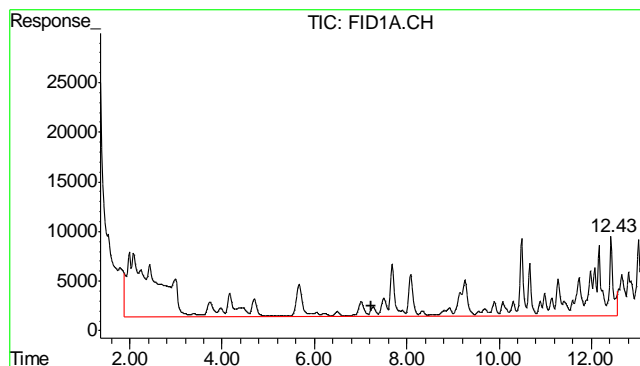
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\120312\GB18726.D\FID1A.CH Vial: 14
 Signal #2 : Y:\1\DATA\120312\GB18726.D\FID2B.CH
 Acq On : 3 Dec 2012 10:52 pm Operator: StephK
 Sample : D41382-1, 50X Inst : GC/MS Ins
 Misc : GC3270,GGB1019,5.448,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Dec 4 8:57 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Mon Dec 03 16:22:30 2012
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

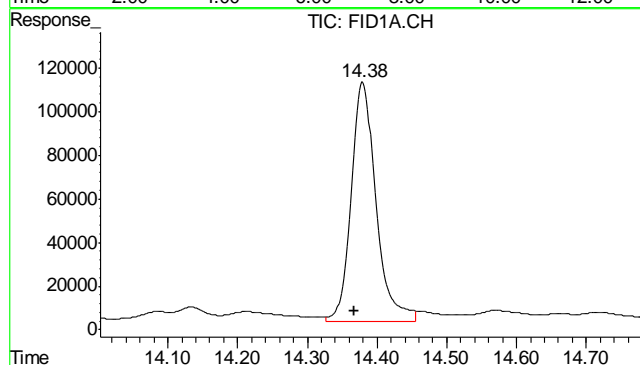
Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





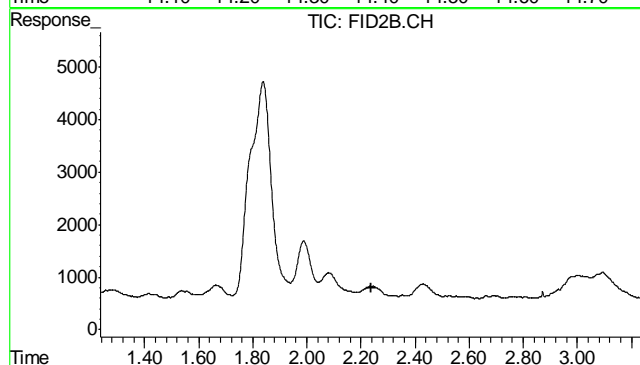
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 8577728
Conc: 0.10 mg/L m



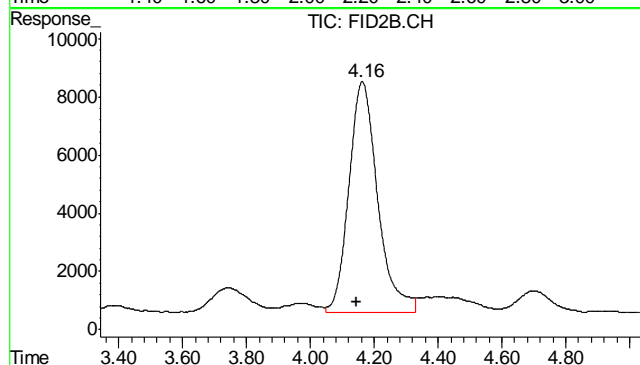
#2 1,2,4-Trichlorobenzene

R.T.: 14.379 min
Delta R.T.: 0.011 min
Response: 2717277
Conc: 86.72 % m



#4 Methyl-t-butyl-ether

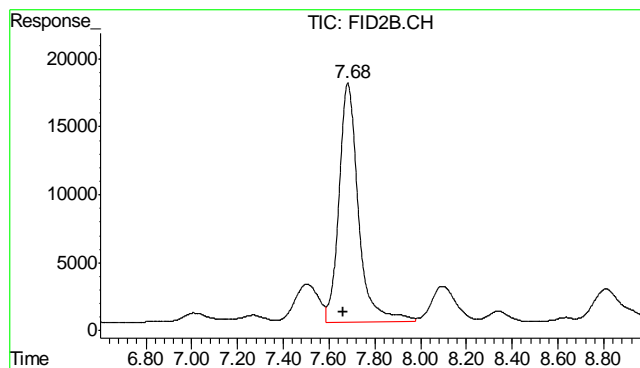
R.T.: 0.000 min
Exp R.T.: 2.237 min
Response: 0
Conc: N.D.



#5 Benzene

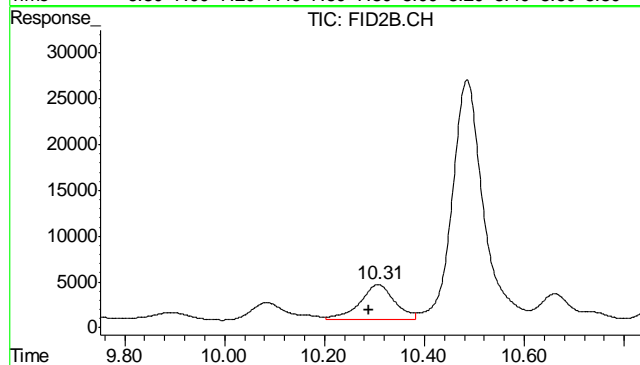
R.T.: 4.163 min
Delta R.T.: 0.017 min
Response: 494998
Conc: 1.23 ug/L

11.1.1



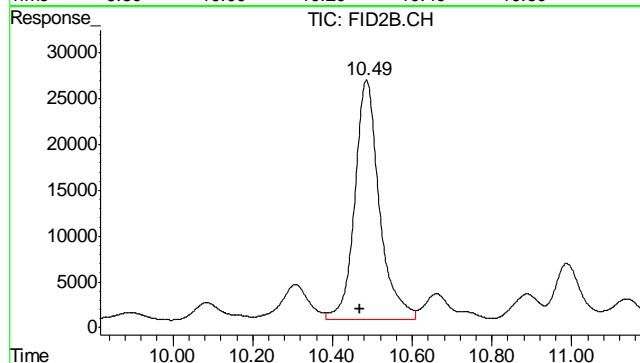
#6 Toluene

R.T.: 7.682 min
Delta R.T.: 0.018 min
Response: 1040992
Conc: 2.63 ug/L



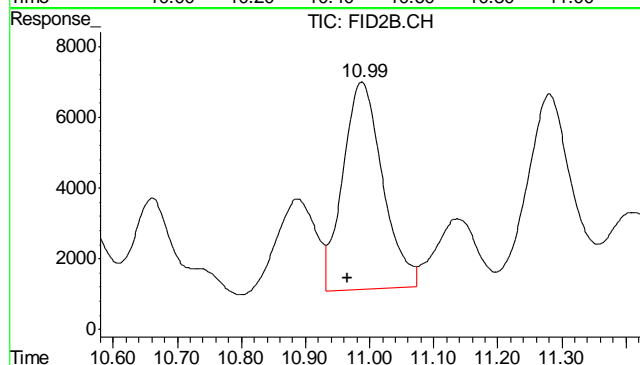
#7 Ethylbenzene

R.T.: 10.308 min
Delta R.T.: 0.018 min
Response: 187039
Conc: 0.55 ug/L



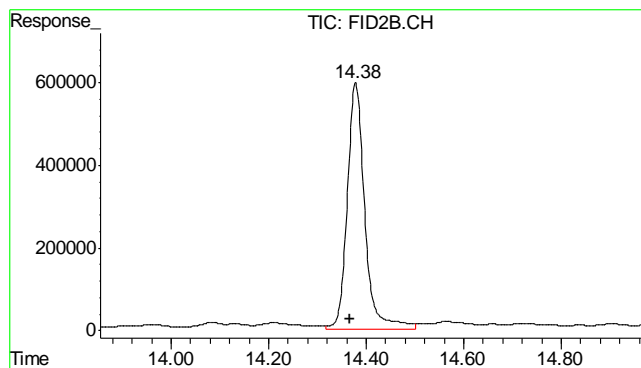
#8 m,p-Xylene

R.T.: 10.485 min
Delta R.T.: 0.016 min
Response: 1117673
Conc: 2.69 ug/L



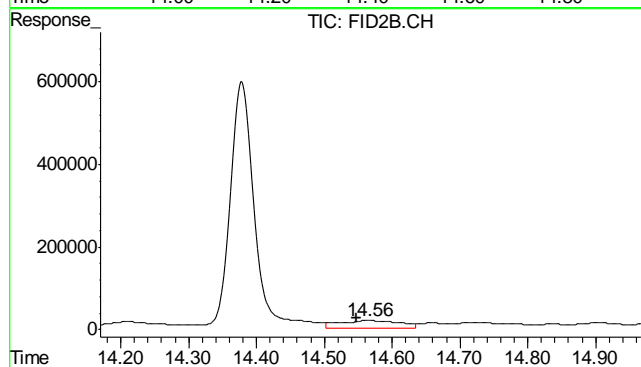
#9 o-Xylene

R.T.: 10.988 min
Delta R.T.: 0.022 min
Response: 251485
Conc: 0.77 ug/L



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

R.T.: 14.379 min
Delta R.T.: 0.013 min
Response: 14851035
Conc: 91.38 %



#11 Naphthalene

R.T.: 14.565 min
Delta R.T.: 0.017 min
Response: 1094763
Conc: 5.55 ug/L

11.1.1

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\120312\GB18727.D\FID1A.CH Vial: 15
 Signal #2 : Y:\1\DATA\120312\GB18727.D\FID2B.CH
 Acq On : 3 Dec 2012 11:27 pm Operator: StephK
 Sample : D41382-2, 50X Inst : GC/MS Ins
 Misc : GC3270,GGB1019,5.191,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Dec 04 08:52:16 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Mon Dec 03 16:22:30 2012
 Response via : Initial Calibration
 DataAcq Meth : TVB4.M

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

	Compound	R.T.	Response	Conc	Units

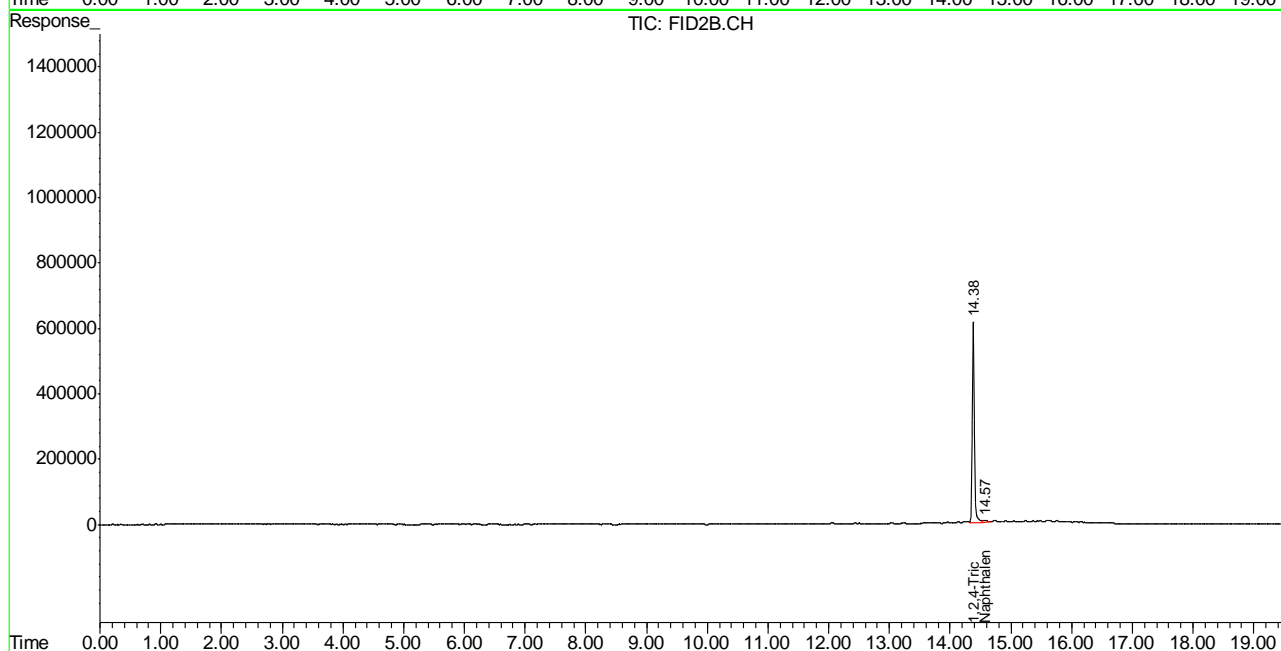
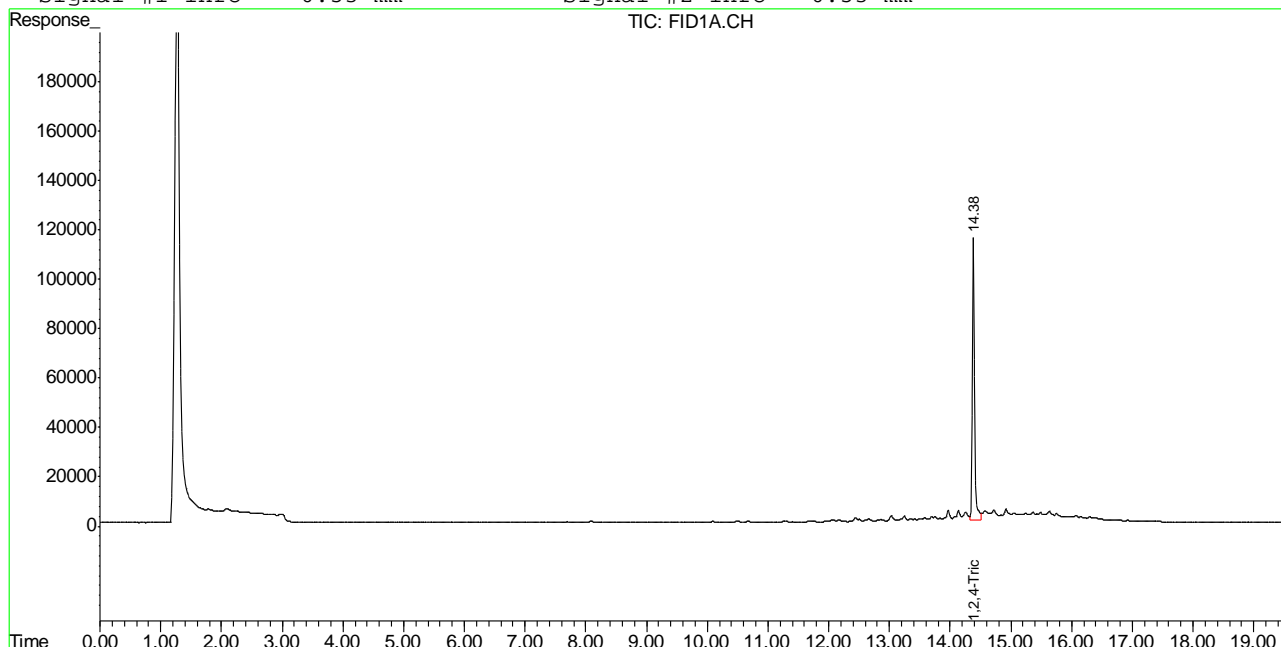
System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.38	2852399	91.032	%
10) S	1,2,4-Trichlorobenzene (P)	14.38	14516308	89.316	%
Target Compounds					
1) H	TVH-Gasoline	7.23	4159325	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	0.00	0	N.D.	ug/L d
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	0.00	0	N.D.	ug/L d
9) T	o-Xylene	0.00	0	N.D.	ug/L d
11) T	Naphthalene	14.57	358069	1.815	ug/L

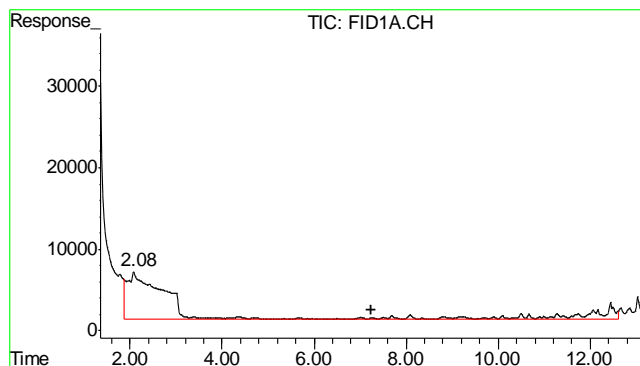
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\120312\GB18727.D\FID1A.CH Vial: 15
 Signal #2 : Y:\1\DATA\120312\GB18727.D\FID2B.CH
 Acq On : 3 Dec 2012 11:27 pm Operator: StephK
 Sample : D41382-2, 50X Inst : GC/MS Ins
 Misc : GC3270,GGB1019,5.191,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Dec 4 8:57 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Mon Dec 03 16:22:30 2012
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

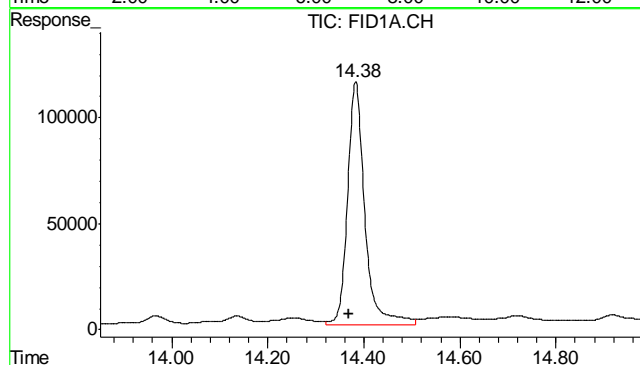
Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





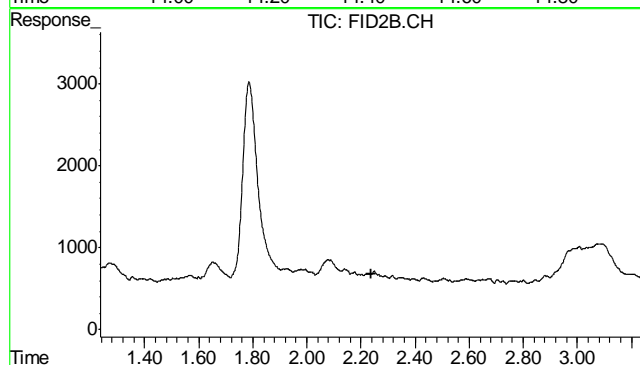
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 4159325
Conc: N.D.



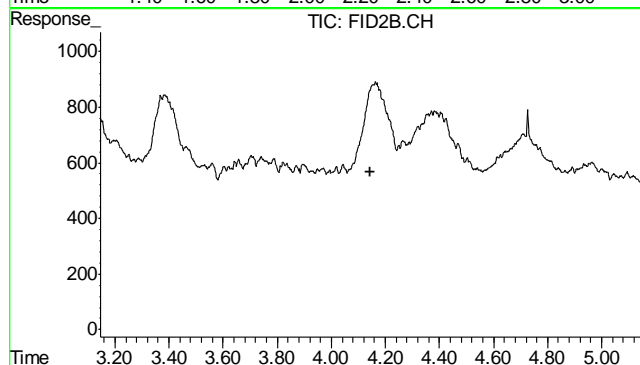
#2 1,2,4-Trichlorobenzene

R.T.: 14.383 min
Delta R.T.: 0.015 min
Response: 2852399
Conc: 91.03 %



#4 Methyl-t-butyl-ether

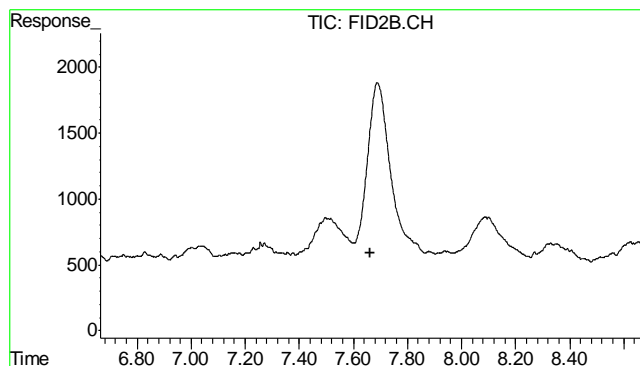
R.T.: 0.000 min
Exp R.T.: 2.237 min
Response: 0
Conc: N.D.



#5 Benzene

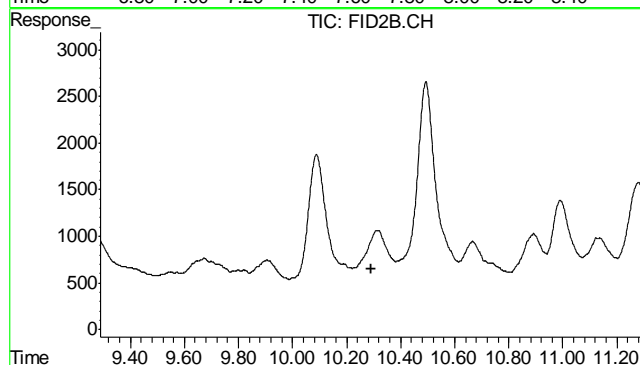
R.T.: 0.000 min
Exp R.T.: 4.146 min
Response: 0
Conc: N.D.

11.12
11



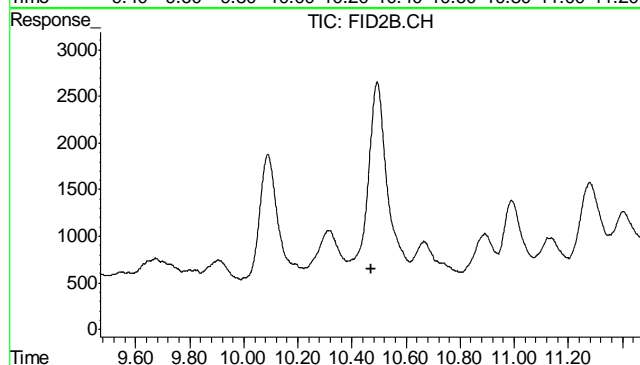
#6 Toluene

R.T.: 0.000 min
Exp R.T. : 7.664 min
Response: 0
Conc: N.D.



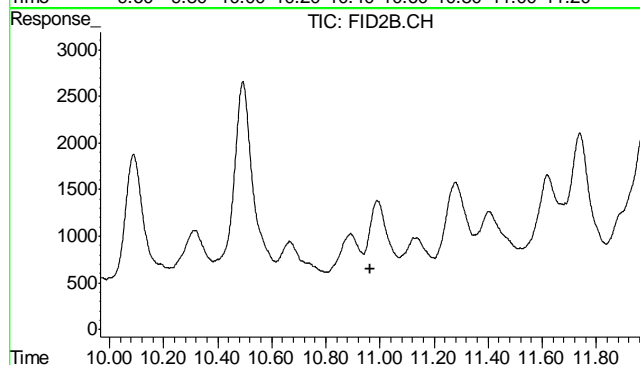
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.290 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

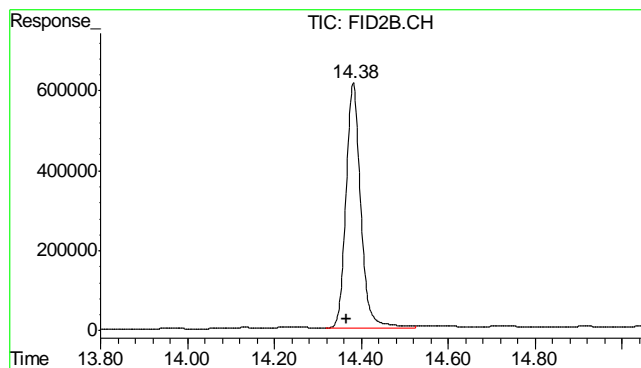
R.T.: 0.000 min
Exp R.T. : 10.470 min
Response: 0
Conc: N.D.



#9 o-Xylene

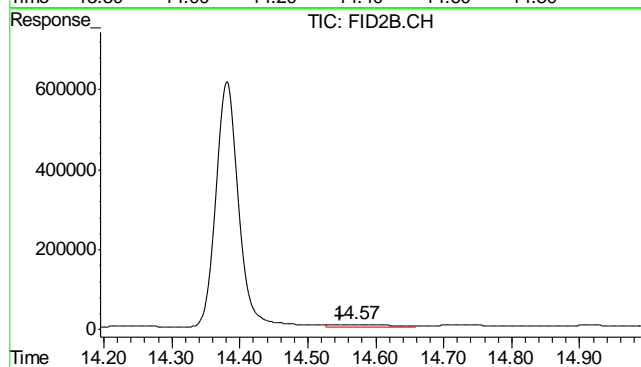
R.T.: 0.000 min
Exp R.T. : 10.965 min
Response: 0
Conc: N.D.

11.12
11



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

R.T.: 14.382 min
Delta R.T.: 0.016 min
Response: 14516308
Conc: 89.32 %



#11 Naphthalene

R.T.: 14.569 min
Delta R.T.: 0.021 min
Response: 358069
Conc: 1.81 ug/L

11.1.2
11

Judy Melson
12/04/12 16:25

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\120312\GB18715.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\120312\GB18715.D\FID2B.CH
Acq On : 3 Dec 2012 4:21 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3270,GGB1019,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Dec 03 16:46:31 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Dec 03 16:22:30 2012
Response via : Initial Calibration
DataAcq Meth : TVB4.M

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

Compound		R.T.	Response	Conc	Units

System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.37	3009184	96.036 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.37	15616092	96.083 %	
Target Compounds					
1) H	TVH-Gasoline	7.23	3097269	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	7.67	86840	0.219	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	189204	0.959	ug/L

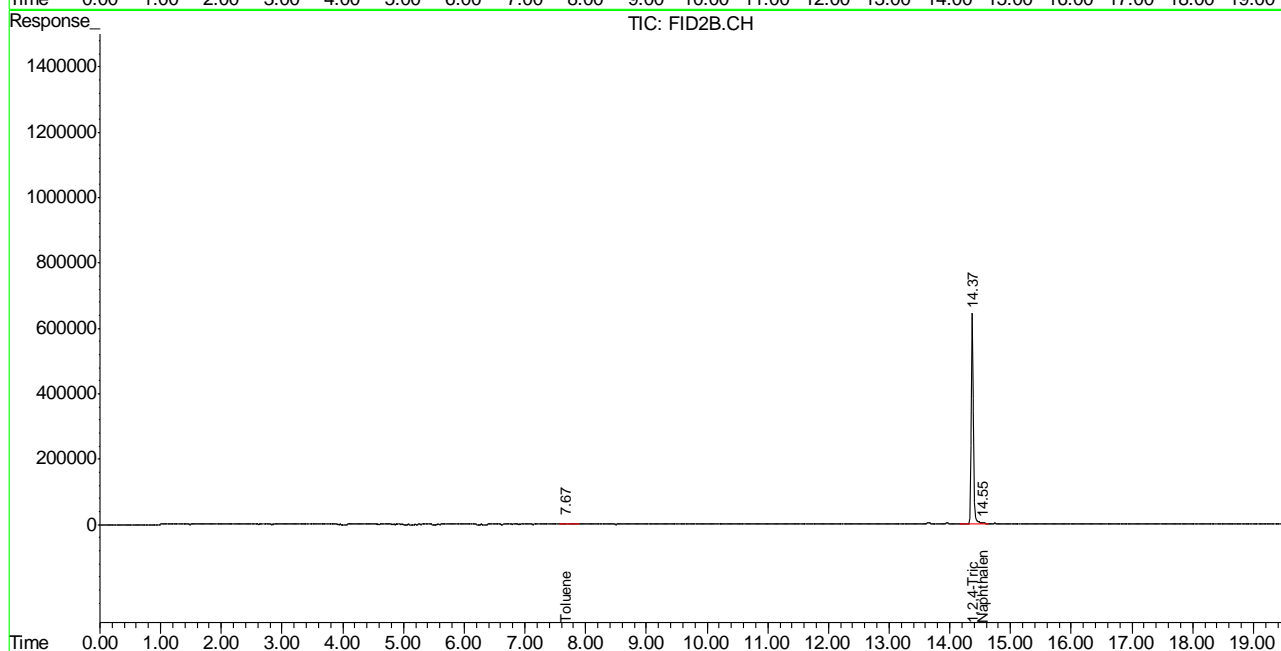
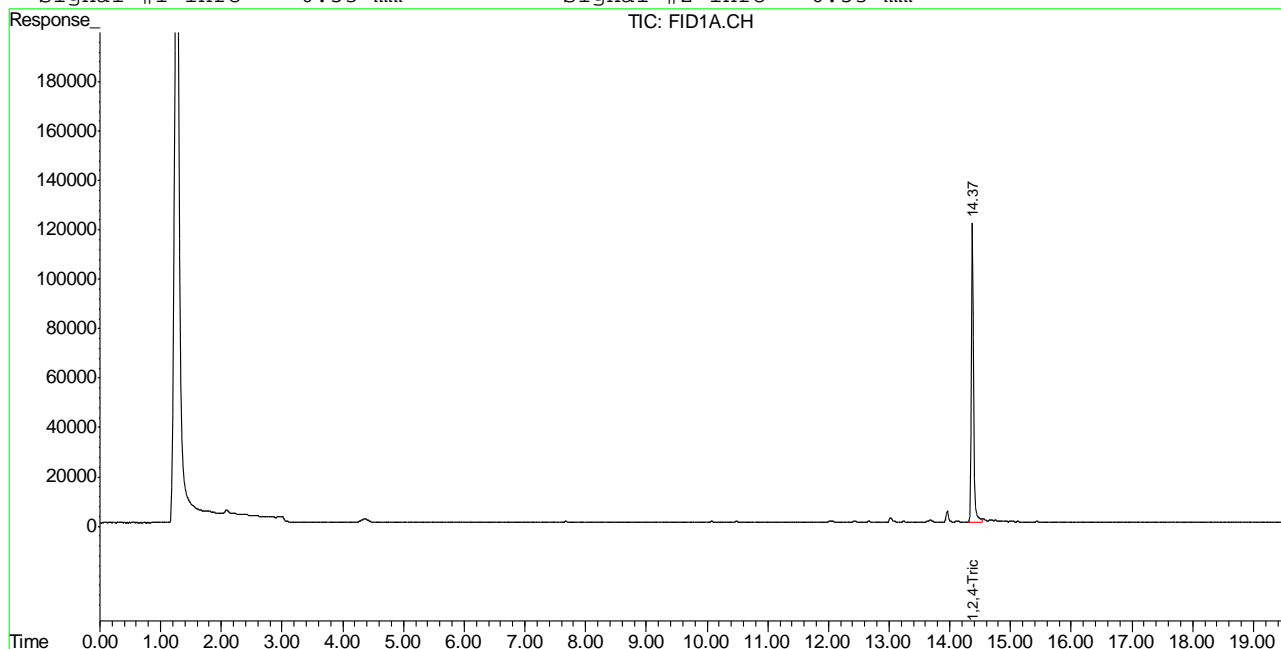
(f)=RT Delta > 1/2 Window (m)=manual int.
GB18715.D TB868GB868SOIL.M Tue Dec 04 09:00:54 2012 GC

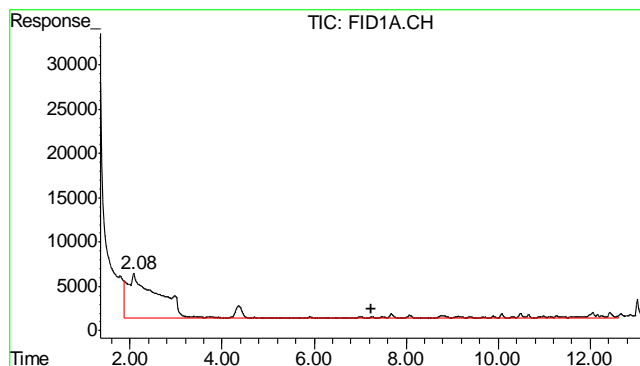
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\120312\GB18715.D\FID1A.CH Vial: 3
Signal #2 : Y:\1\DATA\120312\GB18715.D\FID2B.CH
Acq On : 3 Dec 2012 4:21 pm Operator: StephK
Sample : MB Inst : GC/MS Ins
Misc : GC3270,GGB1019,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Dec 4 8:51 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Dec 03 16:22:30 2012
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

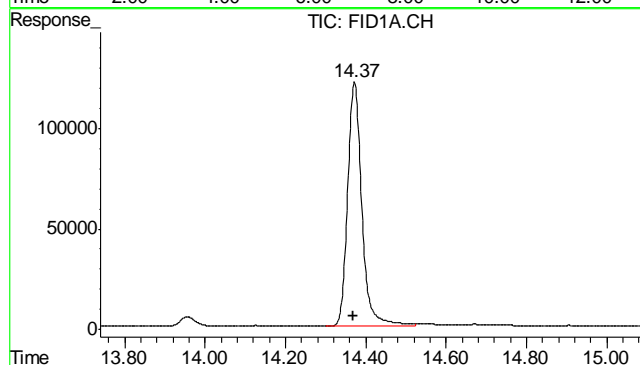
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





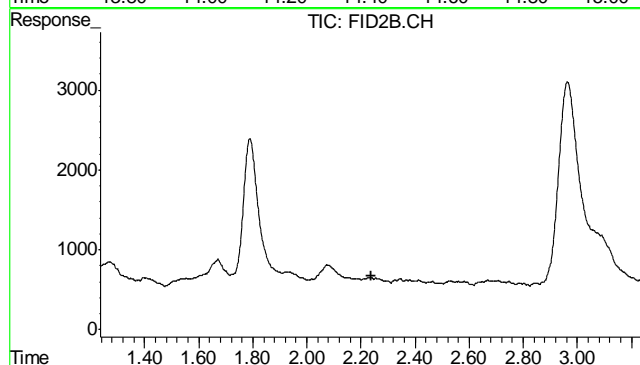
#1 TVH-Gasoline

R.T.: 7.230 min
Delta R.T.: 0.000 min
Response: 3097269
Conc: N.D.



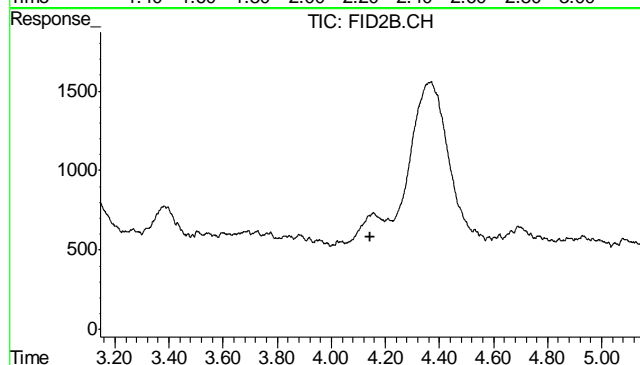
#2 1,2,4-Trichlorobenzene

R.T.: 14.372 min
Delta R.T.: 0.004 min
Response: 3009184
Conc: 96.04 % m



#4 Methyl-t-butyl-ether

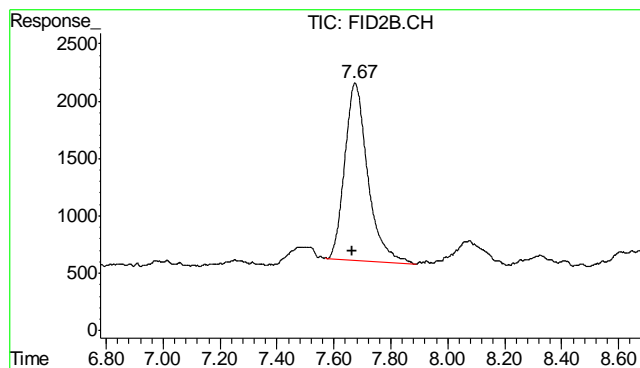
R.T.: 0.000 min
Exp R.T.: 2.237 min
Response: 0
Conc: N.D.



#5 Benzene

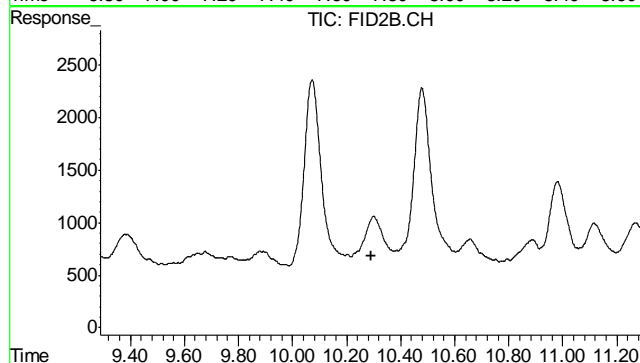
R.T.: 0.000 min
Exp R.T.: 4.146 min
Response: 0
Conc: N.D.

11.21
11



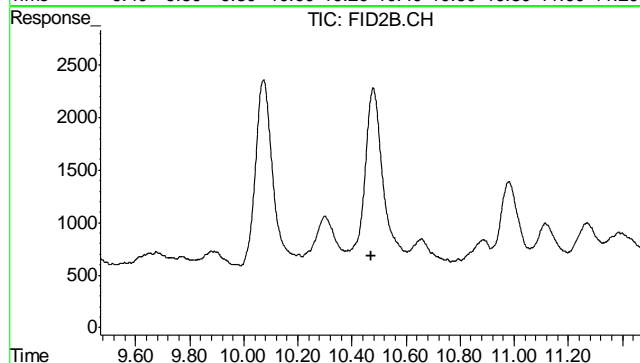
#6 Toluene

R.T.: 7.674 min
Delta R.T.: 0.011 min
Response: 86840
Conc: 0.22 ug/L



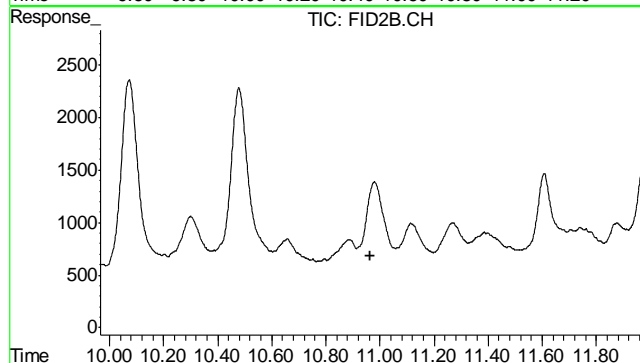
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T.: 10.290 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

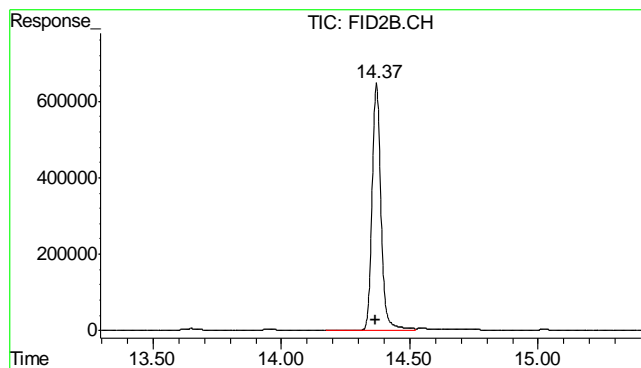
R.T.: 0.000 min
Exp R.T.: 10.470 min
Response: 0
Conc: N.D.



#9 o-Xylene

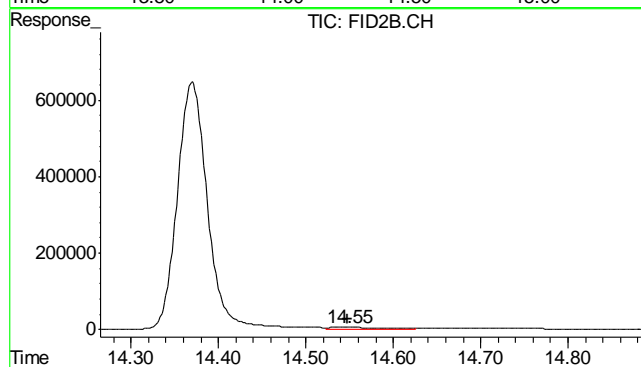
R.T.: 0.000 min
Exp R.T.: 10.965 min
Response: 0
Conc: N.D.

11.21
11



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

R.T.: 14.370 min
Delta R.T.: 0.004 min
Response: 15616092
Conc: 96.08 %



#11 Naphthalene

R.T.: 14.549 min
Delta R.T.: 0.001 min
Response: 189204
Conc: 0.96 ug/L

11.2.1
11

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D41382
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7053-MB	FH008059.D	1	12/05/12	TR	12/05/12	OP7053	GFH446

The QC reported here applies to the following samples:

Method: SW846-8015B

D41382-1, D41382-2

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	78% 35-130%

12.1.1
12

Blank Spike Summary

Page 1 of 1

Job Number: D41382
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7053-BS	FH008060.D	1	12/05/12	TR	12/05/12	OP7053	GFH446

The QC reported here applies to the following samples:

Method: SW846-8015B

D41382-1, D41382-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	528	79	48-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	74%	35-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D41382
Account: XTOKRWR XTO Energy
Project: PCU 296-6A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7053-MS	FH008061.D	1	12/05/12	TR	12/05/12	OP7053	GFH446
OP7053-MSD	FH008062.D	1	12/05/12	TR	12/05/12	OP7053	GFH446
D41381-1	FH008063.D	1	12/05/12	TR	12/05/12	OP7053	GFH446

The QC reported here applies to the following samples:

Method: SW846-8015B

D41382-1, D41382-2

CAS No.	Compound	D41381-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	18.0		752	534	69	478	61	11	20-168/30

CAS No.	Surrogate Recoveries	MS	MSD	D41381-1	Limits
84-15-1	o-Terphenyl	56%	54%	68%	35-130%

* = Outside of Control Limits.

GC Semi-volatiles

Raw Data

Judy Melson
12/06/12 16:20

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH120512\
Data File : FH008078.D
Signal(s) : FID1A.ch
Acq On : 6 Dec 2012 1:52 am
Operator : TEDR
Sample : D41382-1
Misc : OP7053,GFH446,5.33,,,1,1
ALS Vial : 24 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Dec 06 09:54:53 2012
Quant Method : C:\msdchem\1\METHODS\DRO-GFH439F.M
Quant Title : DRO-ORO FRONT
QLast Update : Fri Nov 30 09:29:08 2012
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
2) s o-Terphenyl	12.743	2063652800	1686.762 ug/mlm
Target Compounds			
1) H TPH-DRO (C10-C28)	10.422	1901342008	1927.676 ug/ml

(f)=RT Delta > 1/2 Window

(m)=manual int.

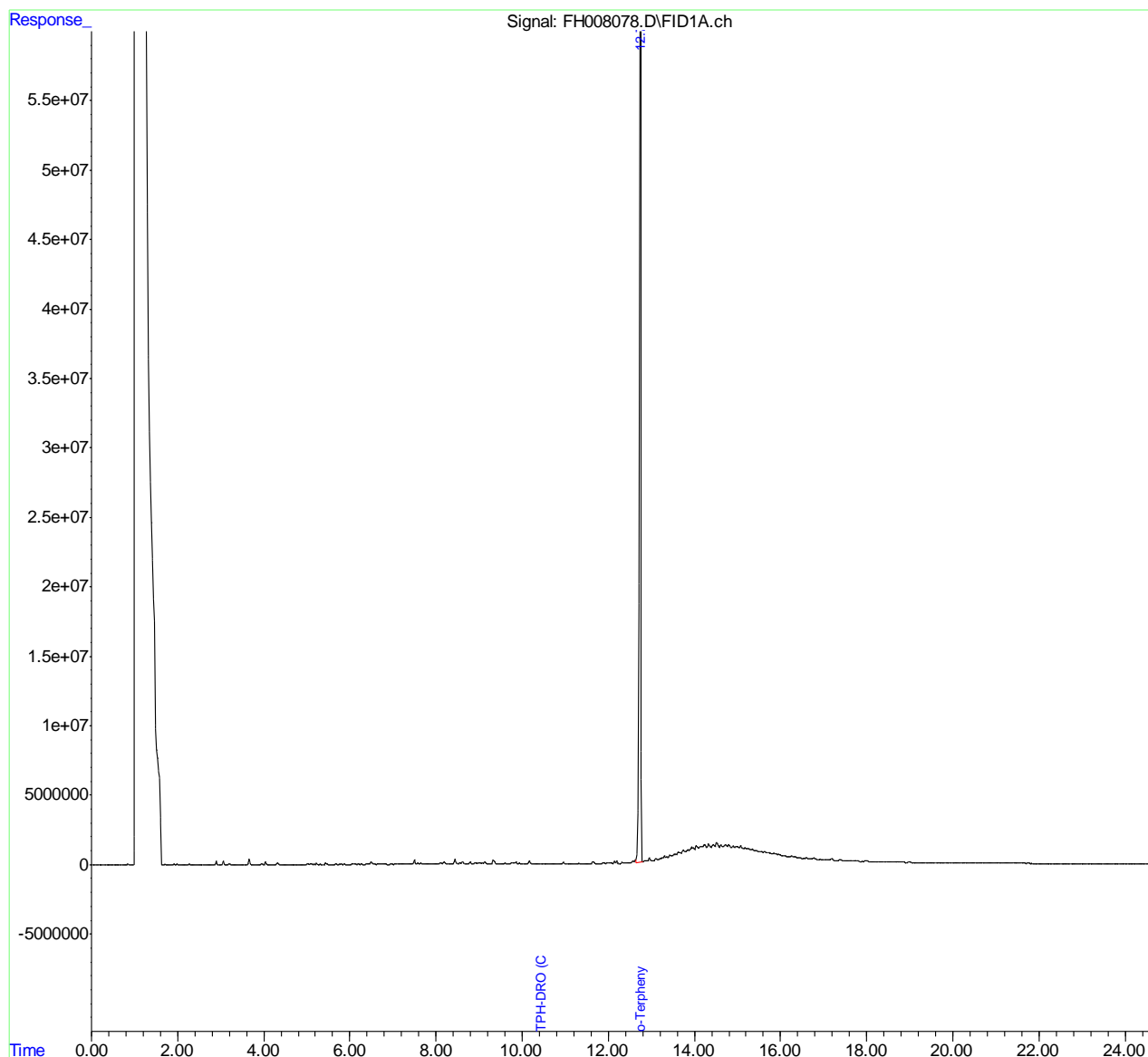
13.1.1
13

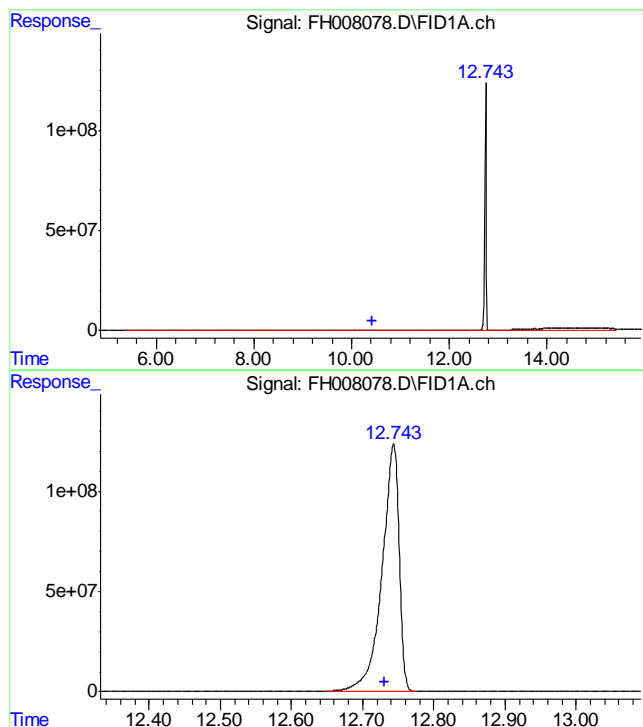
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH120512\
Data File : FH008078.D
Signal(s) : FID1A.ch
Acq On : 6 Dec 2012 1:52 am
Operator : TEDR
Sample : D41382-1
Misc : OP7053,GFH446,5.33,,,1,1
ALS Vial : 24 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Dec 06 09:54:53 2012
Quant Method : C:\msdchem\1\METHODS\DRO-GFH439F.M
Quant Title : DRO-ORO FRONT
QLast Update : Fri Nov 30 09:29:08 2012
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :





#1 TPH-DRO (C10-C28)

R.T.: 10.422 min

Delta R.T.: 0.000 min

Response: 1901342008

Conc: 1927.68 ug/ml m

#2 o-Terphenyl

R.T.: 12.743 min

Delta R.T.: 0.012 min

Response: 2063652800

Conc: 1686.76 ug/ml m

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH120512\
 Data File : FH008079.D
 Signal(s) : FID1A.ch
 Acq On : 6 Dec 2012 2:27 am
 Operator : TEDR
 Sample : D41382-2
 Misc : OP7053,GFH446,30.11,,,1,1
 ALS Vial : 25 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Dec 06 09:13:16 2012
 Quant Method : C:\msdchem\1\METHODS\DRO-GFH439F.M
 Quant Title : DRO-ORO FRONT
 QLast Update : Fri Nov 30 09:29:08 2012
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
2) s o-Terphenyl	12.736	1713806437	1400.809 ug/ml
Target Compounds			
1) H TPH-DRO (C10-C28)	10.422	522196645	529.429 ug/ml

(f)=RT Delta > 1/2 Window

(m)=manual int.

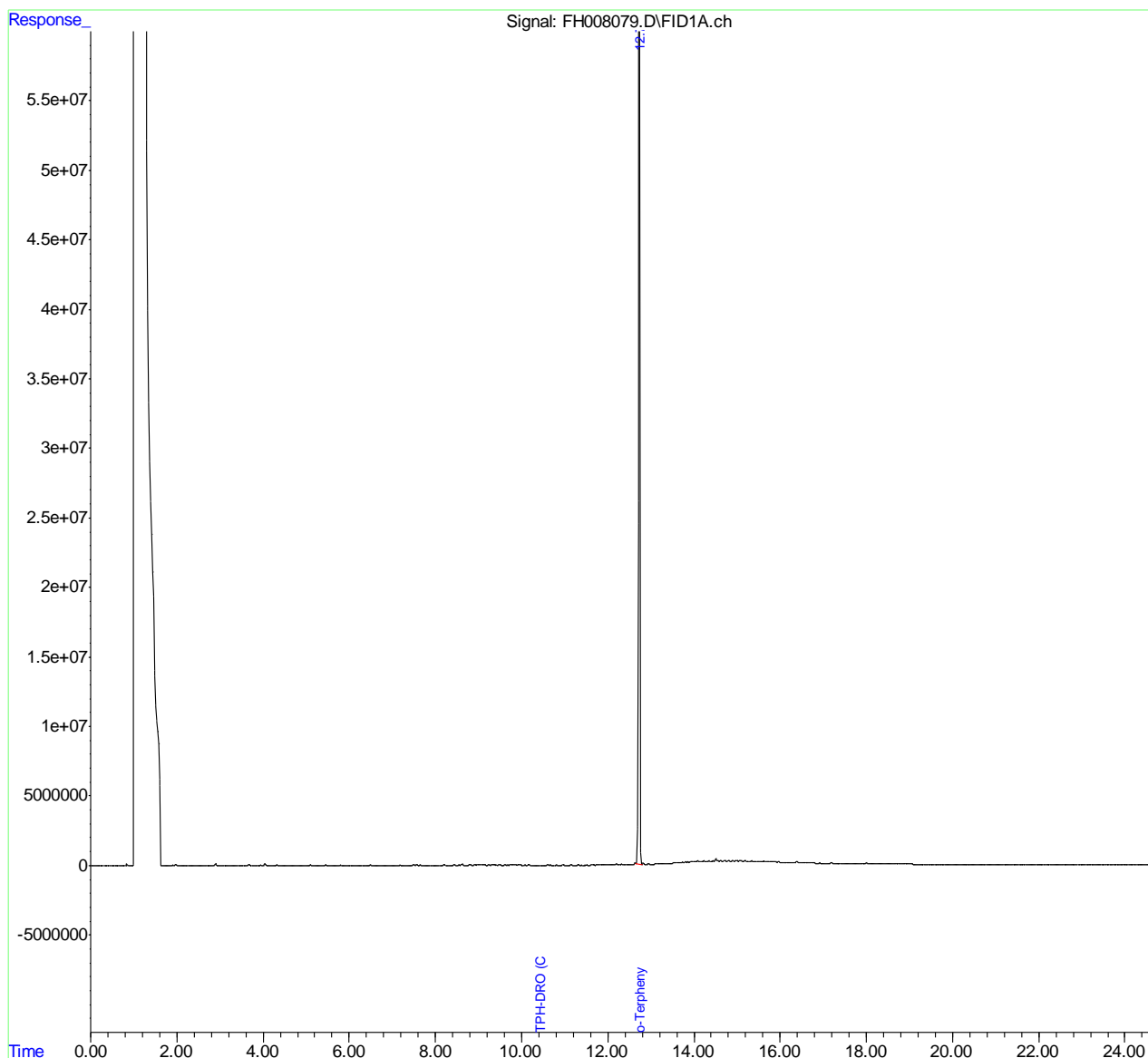
13.12
13

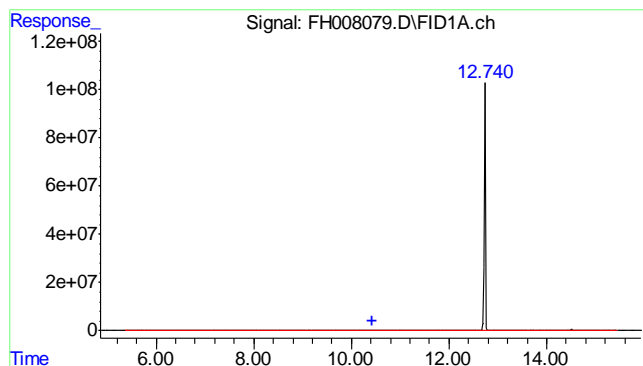
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH120512\
 Data File : FH008079.D
 Signal(s) : FID1A.ch
 Acq On : 6 Dec 2012 2:27 am
 Operator : TEDR
 Sample : D41382-2
 Misc : OP7053,GFH446,30.11,,,1,1
 ALS Vial : 25 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Dec 06 09:13:16 2012
 Quant Method : C:\msdchem\1\METHODS\DRO-GFH439F.M
 Quant Title : DRO-ORO FRONT
 QLast Update : Fri Nov 30 09:29:08 2012
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal Phase :
 Signal Info :





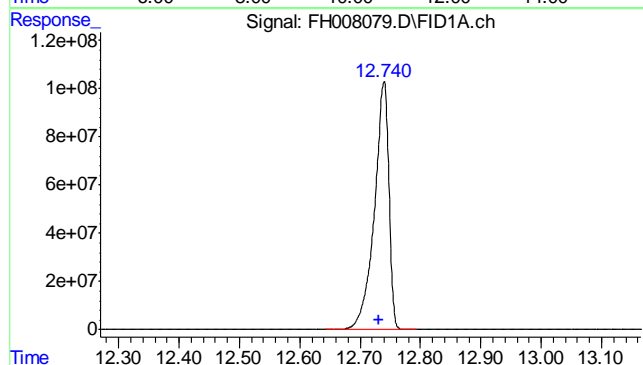
#1 TPH-DRO (C10-C28)

R.T.: 10.422 min

Delta R.T.: 0.000 min

Response: 522196645

Conc: 529.43 ug/ml m



#2 o-Terphenyl

R.T.: 12.736 min

Delta R.T.: 0.005 min

Response: 1713806437

Conc: 1400.81 ug/ml

Judy Melson
12/06/12 16:19

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH120512\
Data File : FH008059.D
Signal(s) : FID1A.ch
Acq On : 5 Dec 2012 2:38 pm
Operator : TEDR
Sample : OP7053-MB
Misc : OP7053,GFH446,30.00,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Dec 05 15:04:35 2012
Quant Method : C:\msdchem\1\METHODS\DRO-GFH439F.M
Quant Title : DRO-ORO FRONT
QLast Update : Fri Nov 30 09:29:08 2012
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
2) s o-Terphenyl	12.746	1913998694	1564.439 ug/mlm
Target Compounds			
1) H TPH-DRO (C10-C28)	10.422	39324729	39.869 ug/ml

(f)=RT Delta > 1/2 Window

(m)=manual int.

13.2.1

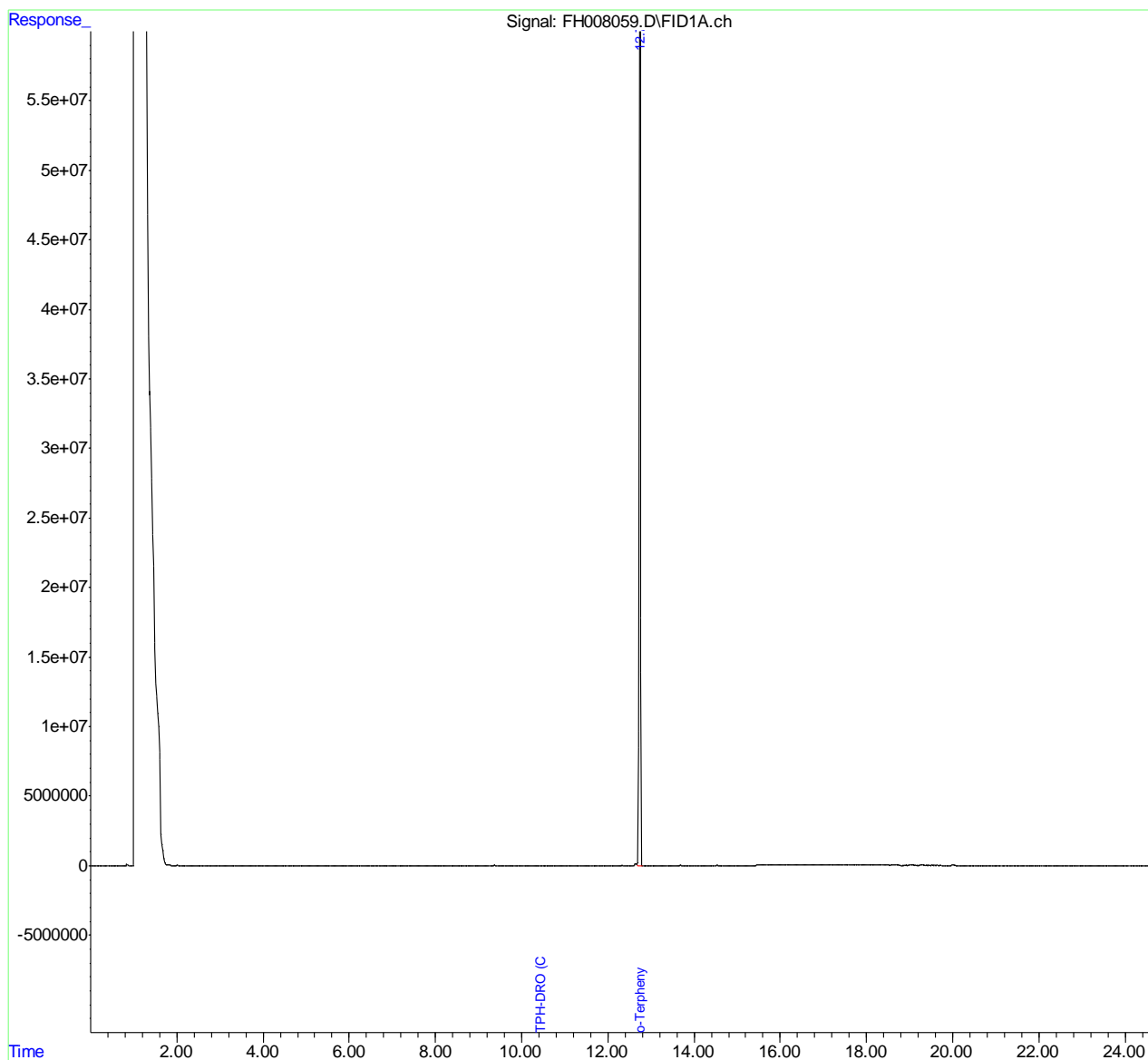
13

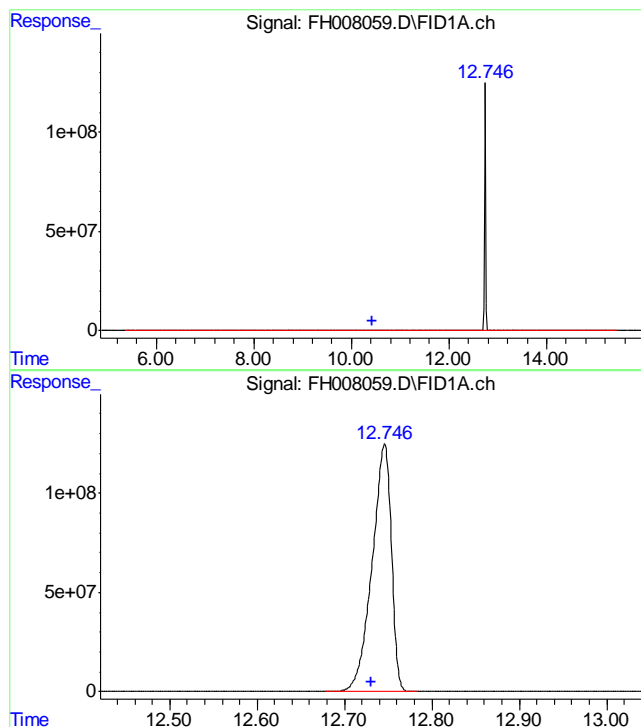
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\FH120512\
Data File : FH008059.D
Signal(s) : FID1A.ch
Acq On : 5 Dec 2012 2:38 pm
Operator : TEDR
Sample : OP7053-MB
Misc : OP7053,GFH446,30.00,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Dec 05 15:04:35 2012
Quant Method : C:\msdchem\1\METHODS\DRO-GFH439F.M
Quant Title : DRO-ORO FRONT
QLast Update : Fri Nov 30 09:29:08 2012
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :





#1 TPH-DRO (C10-C28)

R.T.: 10.422 min
Delta R.T.: 0.000 min
Response: 39324729
Conc: 39.87 ug/ml m

#2 o-Terphenyl

R.T.: 12.746 min
Delta R.T.: 0.015 min
Response: 1913998694
Conc: 1564.44 ug/ml 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: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP8991
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 12/04/12

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.10	.0011	.0009	-0.0026	<0.10

Associated samples MP8991: D41382-1, D41382-2

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: D41382
 Account: XTOKRWR - XTO Energy
 Project: PCU 296-6A

QC Batch ID: MP8991
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 12/04/12

Metal	D41298-1		Spikelot		QC
	Original	MS	HGWSR1	% Rec	Limits
Mercury	0.044	2.5	2.53	97.1	75-125

Associated samples MP8991: D41382-1, D41382-2

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: D41382
 Account: XTOKRWR - XTO Energy
 Project: PCU 296-6A

QC Batch ID: MP8991
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 12/04/12

Metal	D41298-1 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.044	2.4	2.37	99.4	4.1	20

Associated samples MP8991: D41382-1, D41382-2

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: D41382
 Account: XTOKRWR - XTO Energy
 Project: PCU 296-6A

QC Batch ID: MP8991
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 12/04/12

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

Associated samples MP8991: D41382-1, D41382-2

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: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9006
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/05/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.96	.57		
Antimony	3.0	.17	.12		
Arsenic	2.5	.44	.56		
Barium	1.0	.01	.11	0.66	* (a)
Beryllium	1.0	.13	.15		
Boron	5.0	.1	.06		
Cadmium	1.0	.06	.036	0.0	<1.0
Calcium	40	.54	9		
Chromium	1.0	.03	.03	0.080	<1.0
Cobalt	0.50	.04	.07		
Copper	1.0	.12	.15	0.010	<1.0
Iron	7.0	.12	.87		
Lead	5.0	.19	.24	0.070	<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	0.13	<3.0
Phosphorus	10	1.4	1.9		
Potassium	200	6.1	7		
Selenium	5.0	.48	.36	-0.12	<5.0
Silicon	5.0	.29	.37		
Silver	3.0	.04	.06	-0.070	<3.0
Sodium	40	.59	1.9		
Strontium	5.0	.004	.017		
Thallium	1.0	.29	.53		
Tin	5.0	1.2	2		
Titanium	1.0	.01	.038		
Uranium	5.0	.22	.26		
Vanadium	1.0	.02	.036		
Zinc	3.0	.05	.37	0.21	<3.0

Associated samples MP9006: D41382-1, D41382-2

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9006
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

(a) All sample results >10x method blank concentration or <RL.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9006
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/05/12

Metal	D41381-1 Original MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	228	294	113	58.5N(a) 75-125
Beryllium	anr			
Boron				
Cadmium	0.0	20.9	28.2	73.7N(b) 75-125
Calcium				
Chromium	29.7	46.6	28.2	75.8 75-125
Cobalt	anr			
Copper	15.5	37.5	28.2	80.1 75-125
Iron	anr			
Lead	12.5	53.2	56.4	72.1N(b) 75-125
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	18.9	35.3	28.2	68.8N(b) 75-125
Phosphorus	anr			
Potassium				
Selenium	0.0	45.9	56.4	81.3 75-125
Silicon				
Silver	0.11	9.0	11.3	78.8 75-125
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium	anr			
Vanadium	anr			
Zinc	41.4	62.9	28.2	76.2 75-125

Associated samples MP9006: D41382-1, D41382-2

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9006
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9006
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/05/12

Metal	D41381-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	228	336	113	95.7	13.3	20
Beryllium	anr					
Boron						
Cadmium	0.0	20.8	28.2	73.3N(a)	0.5	20
Calcium						
Chromium	29.7	48.1	28.2	81.2	3.2	20
Cobalt	anr					
Copper	15.5	38.5	28.2	83.6	2.6	20
Iron	anr					
Lead	12.5	54.2	56.4	73.9N(a)	1.9	20
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum	anr					
Nickel	18.9	35.5	28.2	69.5N(a)	0.6	20
Phosphorus	anr					
Potassium						
Selenium	0.0	45.6	56.4	80.8	0.7	20
Silicon						
Silver	0.11	9.0	11.3	78.8	0.0	20
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium	anr					
Vanadium	anr					
Zinc	41.4	65.2	28.2	84.3	3.6	20

Associated samples MP9006: D41382-1, D41382-2

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9006
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9006
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 12/05/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	103	100	103.0	80-120
Beryllium	anr			
Boron				
Cadmium	21.9	25	87.6	80-120
Calcium				
Chromium	23.6	25	94.4	80-120
Cobalt	anr			
Copper	22.8	25	91.2	80-120
Iron	anr			
Lead	45.7	50	91.4	80-120
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	22.8	25	91.2	80-120
Phosphorus	anr			
Potassium				
Selenium	48.3	50	96.6	80-120
Silicon				
Silver	9.6	10	96.0	80-120
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium	anr			
Vanadium	anr			
Zinc	23.4	25	93.6	80-120

Associated samples MP9006: D41382-1, D41382-2

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9006
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

14.2.3

14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9006
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 12/05/12

Metal	D41381-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	2020	1950	3.7	0-10
Beryllium	anr			
Boron				
Cadmium	1.00	0.00	100.0(a)	0-10
Calcium				
Chromium	223	267	19.6*(b)	0-10
Cobalt	anr			
Copper	132	142	6.9	0-10
Iron	anr			
Lead	111	122	9.7	0-10
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	168	177	25.4*(b)	0-10
Phosphorus	anr			
Potassium				
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver	4.00	0.00	100.0(a)	0-10
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium	anr			
Vanadium	anr			
Zinc	367	477	30.0*(b)	0-10

Associated samples MP9006: D41382-1, D41382-2

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

14.2.4
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9006
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

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

(b) Serial dilution indicates possible matrix interference.

14.2.4
14

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9007
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 12/05/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.006	.06	-0.0047	<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 MP9007: D41382-1, D41382-2

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: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9007
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 12/05/12

Metal	D41381-1 Original MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	4.8	51.6	56.4	82.9
Barium				75-125
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP9007: D41382-1, D41382-2

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

14.3.2
14

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9007
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 12/05/12

Metal	D41381-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	4.8	51.7	56.4	83.1	0.2	20
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP9007: D41382-1, D41382-2

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

14.3.2
14

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9007
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 12/05/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	46.7	50	93.4	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP9007: D41382-1, D41382-2

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

14.3.3
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9007
Matrix Type: SOLID

Methods: SW846 6020A
Units: ug/l

Prep Date: 12/05/12

Metal	D41381-1			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic	42.2	40.8	3.1	0-10	
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP9007: D41382-1, D41382-2

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

14.3.4
14

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9015
Matrix Type: AQUEOUS

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

Prep Date: 12/06/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	48	130		
Antimony	150	8.5	18		
Arsenic	130	22	42		
Barium	50	.5	9		
Beryllium	50	6.5	16		
Boron	250	5	22		
Cadmium	50	3	3		
Calcium	2000	27	80	9.5	<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	26.0	<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	103	<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 MP9015: D41382-1A, D41382-2A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9015
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: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9015
Matrix Type: AQUEOUS

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

Prep Date: 12/06/12

Metal	D41381-1A Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	32600	168000	125000	108.3	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	8180	132000	125000	99.1	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	35000	161000	125000	100.8	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP9015: D41382-1A, D41382-2A

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: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9015
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: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9015
Matrix Type: AQUEOUS

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

Prep Date: 12/06/12

Metal	D41381-1A Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	32600	169000	125000	109.1	0.6	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	8180	132000	125000	99.1	0.0	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	35000	161000	125000	100.8	0.0	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP9015: D41382-1A, D41382-2A

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: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9015
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: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9015
Matrix Type: AQUEOUS

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

Prep Date: 12/06/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	135000	125000	108.0	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	122000	125000	97.6	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	124000	125000	99.2	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP9015: D41382-1A, D41382-2A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9015
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: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9015
Matrix Type: AQUEOUS

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

Prep Date: 12/06/12

Metal	D41381-1A Original SDL 1:5		%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	6510	6470	0.8	0-10
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	1640	1720	4.8	0-10
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	7000	7390	5.5	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP9015: D41382-1A, D41382-2A

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

14.4.4
14

SERIAL DILUTION RESULTS SUMMARY

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

QC Batch ID: MP9015
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: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP8811/GN17932	1.0	0.0	mg/kg	176.0	171	97.0	80-120%
Specific Conductivity	GP8815/GN17934			umhos/cm	9992	9910	99.2	90-110%
pH	GN17928			su	8.00	7.95	99.4	99.3-100.7%
pH	GN17929			su	8.00	8.00	100.0	99.3-100.7%

Associated Samples:

Batch GP8811: D41382-1, D41382-2
Batch GP8815: D41382-1, D41382-2
Batch GN17928: D41382-1, D41382-2
Batch GN17929: D41382-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP8811/GN17932	D41305-1	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN17931	D41407-1	mv	37.1	40.3	8.3	0-20%

Associated Samples:

Batch GP8811: D41382-1, D41382-2

Batch GN17931: D41382-1, D41382-2

(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

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

Associated Samples:

Batch GP8811: D41382-1, D41382-2

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D41382
Account: XTOKRWR - XTO Energy
Project: PCU 296-6A

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

Associated Samples:
Batch GP8811: D41382-1, D41382-2
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits