



11/02/11

Technical Report for

KRW Consulting, Inc.

FRU 197-33A

1103-03A

Accutest Job Number: D28910

Sampling Date: 10/25/11

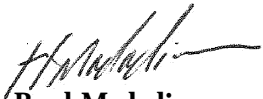
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Total number of pages in report: 144



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.


Brad Madadian
Laboratory Director

Client Service contact: 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

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Test results relate only to samples analyzed.

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Sample Summary

KRW Consulting, Inc.

Job No: D28910

FRU 197-33A
Project No: 1103-03A

Sample Number	Collected			Received	Matrix		Client Sample ID
	Date	Time	By		Code	Type	
D28910-1	10/25/11	09:30	CH	10/27/11	SO	Soil	CUTTINGS PILE
D28910-1A	10/25/11	09:30	CH	10/27/11	SO	Soil	CUTTINGS PILE

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: KRW Consulting, Inc.

Job No D28910

Site: FRU 197-33A

Report Dat 11/2/2011 4:02:49 PM

On 10/27/2011, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 0.2 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D28910 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: V5V1091

- All samples were analyzed within the recommended method holding time.
- Sample(s) D28910-1MS, D28910-1MSD 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: OP4752

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D28973-1MS, D28973-1MSD were used as the QC samples indicated.
- The matrix spike (MS) and matrix spike duplicate (MSD) recovery(s) of Indeno(1,2,3-cd)pyrene are outside control limits. Outside control limits due to matrix interference. Refer to Blank Spike.
- The matrix spike duplicate (MSD) recovery(s) of Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene are outside control limits. Variability of recovery may be due to sample matrix/homogeneity.
- The RPD(s) for the MS and MSD recoveries of Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Fluorene, Pyrene are outside control limits for sample OP4752-MSD. Variability of recovery may be due to sample matrix/homogeneity.

Volatiles by GC By Method SW846 8015B

Matrix SO

Batch ID: GGB773

- All samples were analyzed within the recommended method holding time.
- Sample(s) D28909-1MS, D28909-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GC By Method SW846-8015B

Matrix SO

Batch ID: OP4740

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D28910-1MS, D28910-1MSD were used as the QC samples indicated.

Metals By Method SW846 6010B

Matrix AQ

Batch ID: MP6134

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D28910-1AMS, D28910-1AMSD were used as the QC samples for the metals analysis.

Matrix SO

Batch ID: MP6131

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D28910-1MS, D28910-1MSD, D28910-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) and matrix spike duplicate (MSD) recovery(s) of Chromium, Lead, Nickel, Zinc are outside control limits. Spike recovery indicates possible matrix interference.
- The matrix spike (MS) recovery(s) of Barium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The serial dilution RPD(s) for Selenium are outside control limits for sample MP6131-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- D28910-1 for Selenium: Elevated detection limit due to dilution required for possible matrix interference.
- The serial dilution RPD(s) for Chromium, Lead, Nickel, Zinc are outside control limits for sample MP6131-SD1. Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020

Matrix SO

Batch ID: MP6132

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D28910-1MS, D28910-1MSD, D28910-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Arsenic are outside control limits for sample MP6132-SD1. Serial dilution indicates possible matrix interference.

Metals By Method SW846 7471A

Matrix SO

Batch ID: MP6142

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D28823-1MSD, D28823-1MS were used as the QC samples for the metals analysis.
- The matrix spike (MS) and matrix spike duplicate (MSD) recovery(s) of Mercury are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO

Batch ID: GN12233

- Sample(s) D28910-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN12218

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO

Batch ID: R10553

- The data for SW846 3060/7196A M meets quality control requirements.
- D28910-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO

Batch ID: M:GP13714

- The data for SW846 3060A/7196A meets quality control requirements.
- D28910-1 for Chromium, Hexavalent: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method SW846 9045C

Matrix SO

Batch ID: GN12231

- The following sample was run outside of holding time for method SW846 9045C: D28910-1.

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO

Batch ID: MP6134

- D28910-1A for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Accutest Mountain States**Job No** D28910**Site:** KRWCCOL: FRU 197-33A**Report Date** 11/2/2011 3:15:24 PM

1 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 10/25/2011 and were received at Accutest on 10/27/2011 properly preserved, at 2.7 Deg. C and intact. These Samples received an Accutest job number of D28910. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO**Batch ID:** GP13714

- All samples were distilled 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) D28823-2DUP, D28823-2MS were used as the QC samples for Chromium, Hexavalent.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety. The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(D28910).

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

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Client Sample ID:	CUTTINGS PILE	
Lab Sample ID:	D28910-1	Date Sampled: 10/25/11
Matrix:	SO - Soil	Date Received: 10/27/11
Method:	SW846 8260B	Percent Solids: 86.5
Project:	FRU 197-33A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V18230.D	1	10/28/11	DC	n/a	n/a	V5V1091
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.04 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	122	65	29	ug/kg	
108-88-3	Toluene	382	130	65	ug/kg	
100-41-4	Ethylbenzene	58.5	130	33	ug/kg	J
1330-20-7	Xylene (total)	432	260	130	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	98%		61-130%
460-00-4	4-Bromofluorobenzene	93%		53-131%
17060-07-0	1,2-Dichloroethane-D4	82%		62-130%

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:	CUTTINGS PILE	Date Sampled:	10/25/11
Lab Sample ID:	D28910-1	Date Received:	10/27/11
Matrix:	SO - Soil	Percent Solids:	86.5
Method:	SW846 8270C BY SIM SW846 3546		
Project:	FRU 197-33A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G06712.D	10	11/01/11	TMB	10/31/11	OP4752	E3G246
Run #2							

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

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	77	62	ug/kg	
120-12-7	Anthracene	ND	77	69	ug/kg	
56-55-3	Benzo(a)anthracene	ND	190	100	ug/kg	
50-32-8	Benzo(a)pyrene	ND	190	140	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	190	140	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	190	85	ug/kg	
218-01-9	Chrysene	ND	190	85	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	190	140	ug/kg	
206-44-0	Fluoranthene	ND	77	77	ug/kg	
86-73-7	Fluorene	ND	77	65	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	230	210	ug/kg	
91-20-3	Naphthalene	215	77	73	ug/kg	
129-00-0	Pyrene	ND	77	73	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	64%		10-145%
321-60-8	2-Fluorobiphenyl	54%		10-130%
1718-51-0	Terphenyl-d14	69%		22-130%

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

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Client Sample ID:	CUTTINGS PILE	
Lab Sample ID:	D28910-1	Date Sampled: 10/25/11
Matrix:	SO - Soil	Date Received: 10/27/11
Method:	SW846 8015B	Percent Solids: 86.5
Project:	FRU 197-33A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB13650.D	1	10/27/11	SK	n/a	n/a	GGB773
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	13	6.5	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	83%		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

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Client Sample ID:	CUTTINGS PILE			Date Sampled:	10/25/11
Lab Sample ID:	D28910-1			Date Received:	10/27/11
Matrix:	SO - Soil			Percent Solids:	86.5
Method:	SW846-8015B SW846 3546				
Project:	FRU 197-33A				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD11128.D	1	10/28/11	CS	10/28/11	OP4740	GFD553
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	15	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	86%		61-142%		

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: CUTTINGS PILE

Lab Sample ID: D28910-1

Matrix: SO - Soil

Project: FRU 197-33A

Date Sampled: 10/25/11

Date Received: 10/27/11

Percent Solids: 86.5

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.6	0.44	mg/kg	5	10/27/11	10/28/11 GJ	SW846 6020 ²	SW846 3050B ⁵
Barium	5850	5.6	mg/kg	5	10/27/11	10/28/11 JB	SW846 6010B ¹	SW846 3050B ⁴
Cadmium	< 1.1	1.1	mg/kg	1	10/27/11	10/27/11 JB	SW846 6010B ¹	SW846 3050B ⁴
Chromium	39.3	1.1	mg/kg	1	10/27/11	10/27/11 JB	SW846 6010B ¹	SW846 3050B ⁴
Copper	15.1	1.1	mg/kg	1	10/27/11	10/27/11 JB	SW846 6010B ¹	SW846 3050B ⁴
Lead	13.8	5.6	mg/kg	1	10/27/11	10/27/11 JB	SW846 6010B ¹	SW846 3050B ⁴
Mercury	< 0.12	0.12	mg/kg	1	10/31/11	10/31/11 JM	SW846 7471A ³	SW846 7471A ⁶
Nickel	20.7	3.3	mg/kg	1	10/27/11	10/27/11 JB	SW846 6010B ¹	SW846 3050B ⁴
Selenium ^a	< 28	28	mg/kg	5	10/27/11	10/28/11 JB	SW846 6010B ¹	SW846 3050B ⁴
Silver	< 3.3	3.3	mg/kg	1	10/27/11	10/27/11 JB	SW846 6010B ¹	SW846 3050B ⁴
Zinc	34.5	3.3	mg/kg	1	10/27/11	10/27/11 JB	SW846 6010B ¹	SW846 3050B ⁴

(1) Instrument QC Batch: MA1925

(2) Instrument QC Batch: MA1927

(3) Instrument QC Batch: MA1933

(4) Prep QC Batch: MP6131

(5) Prep QC Batch: MP6132

(6) Prep QC Batch: MP6142

(a) Elevated detection limit due to dilution required for possible matrix interference.

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUTTINGS PILE**Lab Sample ID:** D28910-1**Matrix:** SO - Soil**Project:** FRU 197-33A**Date Sampled:** 10/25/11**Date Received:** 10/27/11**Percent Solids:** 86.5**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent ^a	< 0.45	0.45	mg/kg	1	10/28/11 15:56	AMA	SW846 3060A/7196A
Chromium, Trivalent ^b	39.1	1.6	mg/kg	1	10/28/11 15:56	AMA	SW846 3060/7196A M
Redox Potential Vs H2	436		mv	1	10/28/11 10:40	JK	ASTM D1498-76M
Solids, Percent	86.5		%	1	10/27/11	SWT	SM19 2540B M
Specific Conductivity	1420	1.0	umhos/cm	1	11/01/11	JD	DEPT.OF AG, BOOK N9
pH	9.93		su	1	10/28/11 10:40	JK	SW846 9045C

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

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

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUTTINGS PILE	Date Sampled:	10/25/11
Lab Sample ID:	D28910-1A	Date Received:	10/27/11
Matrix:	SO - Soil	Percent Solids:	86.5
Project:	FRU 197-33A		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	44.9	2.0	mg/l	1	10/28/11	11/01/11 JB	SW846 6010B ¹	EPA 200.7 ²
Magnesium	3.62	1.0	mg/l	1	10/28/11	11/01/11 JB	SW846 6010B ¹	EPA 200.7 ²
Sodium	295	2.0	mg/l	1	10/28/11	11/01/11 JB	SW846 6010B ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA1936
(2) Prep QC Batch: MP6134

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUTTINGS PILE	Date Sampled:	10/25/11
Lab Sample ID:	D28910-1A	Date Received:	10/27/11
Matrix:	SO - Soil	Percent Solids:	86.5
Project:	FRU 197-33A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	11.4		ratio	1	11/01/11 12:46	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

[illegible]

D28910: Chain of Custody

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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D28910

Client: KRW

Immediate Client Services Action Required: No

Date / Time Received: 10/27/2011 8:50:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: FRU

Airbill #'s: CO

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

5

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: D28910**Account:** KRWCCOL KRW Consulting, Inc.**Project:** FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1091-MB	5V18228.D	1	10/28/11	DC	n/a	n/a	V5V1091

The QC reported here applies to the following samples:**Method:** SW846 8260B

D28910-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	22	ug/kg	
100-41-4	Ethylbenzene	ND	100	25	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	104% 61-130%
460-00-4	4-Bromofluorobenzene	88% 53-131%
17060-07-0	1,2-Dichloroethane-D4	87% 62-130%

Blank Spike Summary

Page 1 of 1

Job Number: D28910

Account: KRWCCOL KRW Consulting, Inc.

Project: FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1091-BS	5V18229.D	1	10/28/11	DC	n/a	n/a	V5V1091

The QC reported here applies to the following samples:

Method: SW846 8260B

D28910-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	55.5	111	70-130
100-41-4	Ethylbenzene	50	57.8	116	70-130
108-88-3	Toluene	50	55.4	111	70-130
1330-20-7	Xylene (total)	150	172	115	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	101%	61-130%
460-00-4	4-Bromofluorobenzene	106%	53-131%
17060-07-0	1,2-Dichloroethane-D4	88%	62-130%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D28910

Account: KRWCCOL KRW Consulting, Inc.

Project: FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D28910-1MS	5V18231.D	1	10/28/11	DC	n/a	n/a	V5V1091
D28910-1MSD	5V18232.D	1	10/28/11	DC	n/a	n/a	V5V1091
D28910-1	5V18230.D	1	10/28/11	DC	n/a	n/a	V5V1091

The QC reported here applies to the following samples:

Method: SW846 8260B

D28910-1

CAS No.	Compound	D28910-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	122		3260	3770	112	3700	110	2	70-134/30
100-41-4	Ethylbenzene	58.5	J	3260	3810	115	3760	114	1	70-137/30
108-88-3	Toluene	382		3260	3900	108	3900	108	0	70-130/30
1330-20-7	Xylene (total)	432		9770	11900	117	11700	115	2	61-131/30

CAS No.	Surrogate Recoveries	MS	MSD	D28910-1	Limits
2037-26-5	Toluene-D8	99%	97%	98%	61-130%
460-00-4	4-Bromofluorobenzene	110%	109%	93%	53-131%
17060-07-0	1,2-Dichloroethane-D4	83%	84%	82%	62-130%



GC/MS Volatiles

Raw Data



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5102811.S\
 Data File : 5V18230.D
 Acq On : 28 Oct 2011 10:53 am
 Operator : DONC
 Sample : D28910-1, 50x
 Misc : MS2880,V5V1091,5.039,,100,5,1
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 31 13:09:51 2011
 Quant Method : C:\msdchem\1\METHODS\V5AP1078TVH1078.M
 Quant Title : 8260
 QLast Update : Tue Oct 18 09:29:38 2011
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	278520	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	319352	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	260848	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	171464	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.035	102	26003	41.16	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	82.32%
61) Toluene-d8	13.851	98	503843	49.22	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	98.44%
69) 4-Bromofluorobenzene	16.043	95	202743	46.34	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	92.68%

Target Compounds

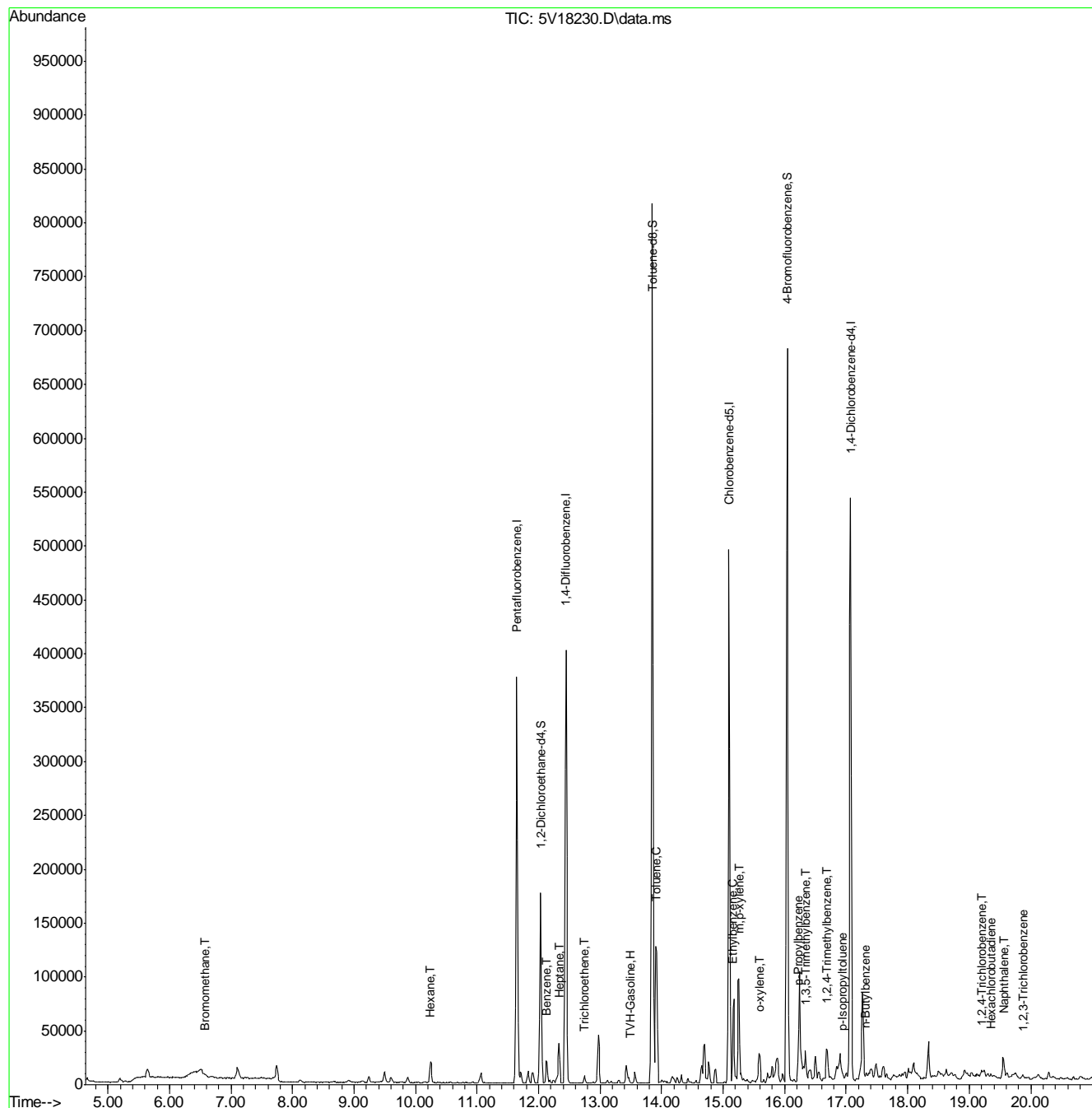
					Qvalue
1) TVH-Gasoline	13.491	TIC	1447612m	65.71	ug/l
6) Bromomethane	6.578	94	3512	1.04	ug/l # 76
41) Hexane	10.243	57	9280	2.61	ug/l 100
43) Heptane	12.332	43	14517	3.35	ug/l 96
48) Trichloroethene	12.743	95	2407	0.81	ug/l 95
50) Benzene	12.127	78	19441	1.87	ug/l 100
62) Toluene	13.908	92	39903	5.87	ug/l 98
66) Ethylbenzene	15.164	91	11632	0.90	ug/l 96
72) m,p-xylene	15.255	106	31004	5.71	ug/l 95
73) o-xylene	15.597	106	4929	0.91	ug/l 83
77) n-Propylbenzene	16.225	91	5829	0.37	ug/l # 89
80) 1,3,5-Trimethylbenzene	16.339	105	8774	0.74	ug/l 91
82) 1,2,4-Trimethylbenzene	16.682	105	16948	1.43	ug/l 88
86) p-Isopropyltoluene	16.945	119	3248	0.23	ug/l 97
88) n-Butylbenzene	17.321	91	3571	0.29	ug/l # 69
90) 1,2,4-Trichlorobenzene	19.205	180	2049	0.39	ug/l # 77
91) Naphthalene	19.559	128	12133	2.18	ug/l 100
92) Hexachlorobutadiene	19.354	225	1397	0.32	ug/l # 83
93) 1,2,3-Trichlorobenzene	19.879	180	2708	0.57	ug/l # 84

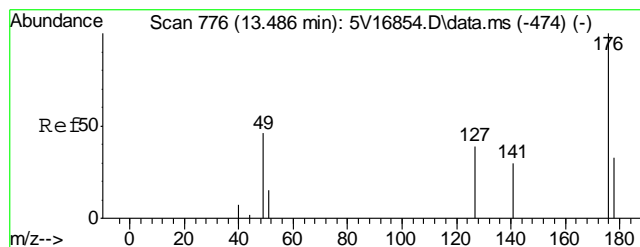
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5102811.S\
Data File : 5V18230.D
Acq On : 28 Oct 2011 10:53 am
Operator : DONC
Sample : D28910-1, 50x
Misc : MS2880,V5V1091,5.039,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

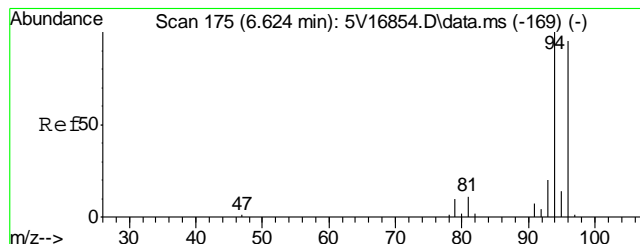
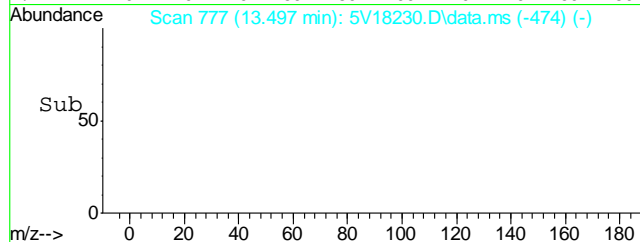
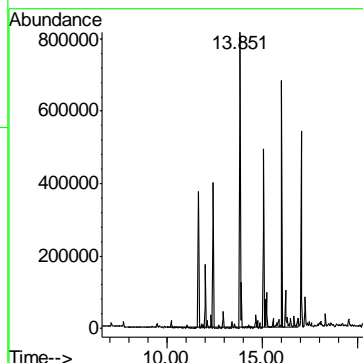
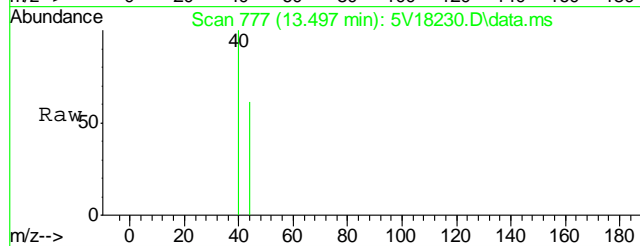
Quant Time: Oct 31 13:09:51 2011
Quant Method : C:\msdchem\1\METHODS\V5AP1078TVH1078.M
Quant Title : 8260
QLast Update : Tue Oct 18 09:29:38 2011
Response via : Initial Calibration





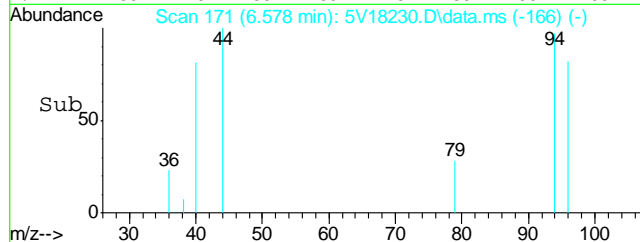
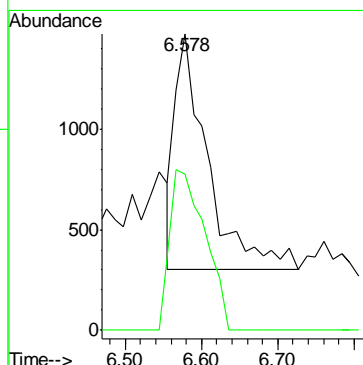
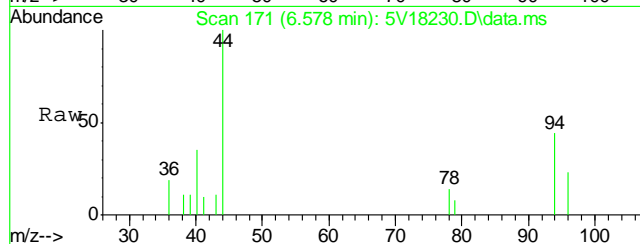
#1
TVH-Gasoline
Concen: 65.71 ug/l m
RT: 13.491 min Scan# 777
Delta R.T. 0.000 min
Lab File: 5V18230.D
Acq: 28 Oct 2011 10:53 am

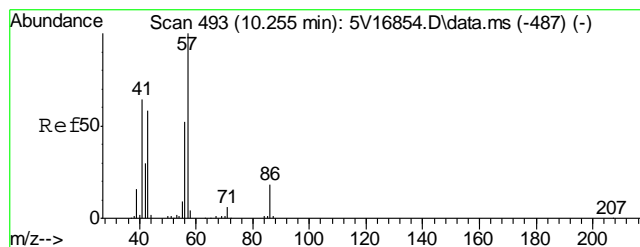
Tgt Ion:TIC Resp: 1447612



#6
Bromomethane
Concen: 1.04 ug/l
RT: 6.578 min Scan# 171
Delta R.T. -0.045 min
Lab File: 5V18230.D
Acq: 28 Oct 2011 10:53 am

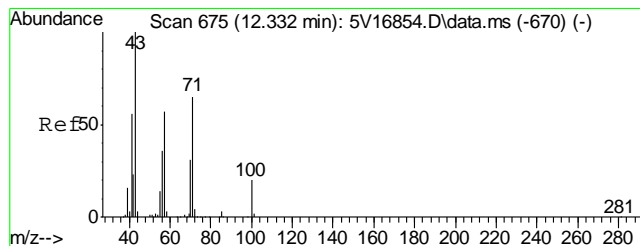
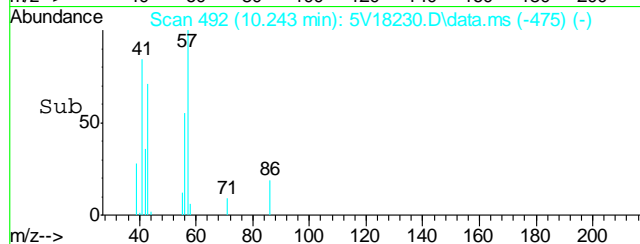
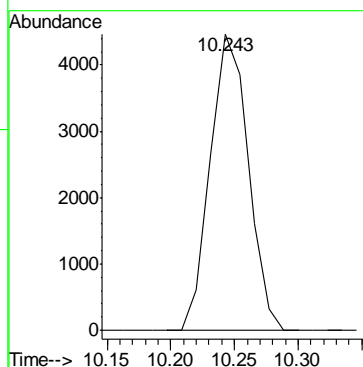
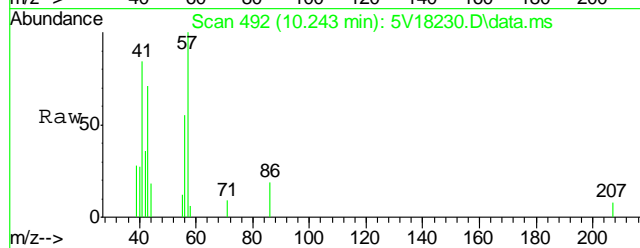
Tgt Ion: 94 Resp: 3512
Ion Ratio Lower Upper
94 100
96 73.3 76.4 116.4#





#41
Hexane
Concen: 2.61 ug/l
RT: 10.243 min Scan# 492
Delta R.T. -0.011 min
Lab File: 5V18230.D
Acq: 28 Oct 2011 10:53 am

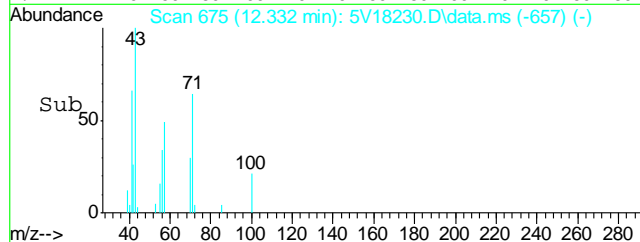
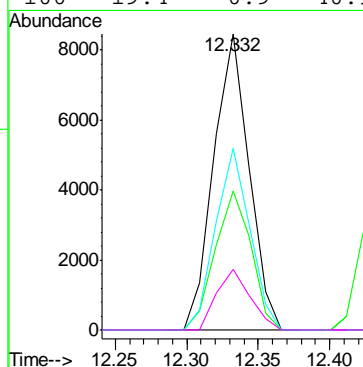
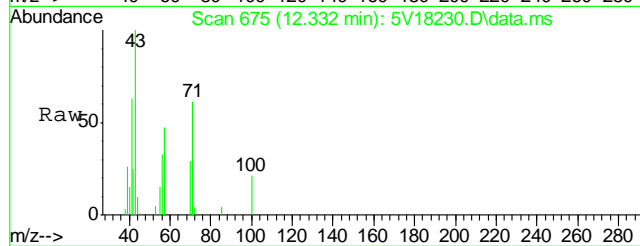
Tgt Ion: 57 Resp: 9280

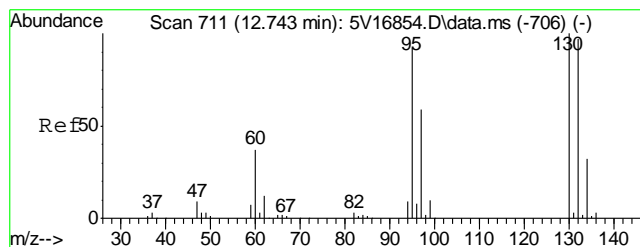


#43
Heptane
Concen: 3.35 ug/l
RT: 12.332 min Scan# 675
Delta R.T. 0.000 min
Lab File: 5V18230.D
Acq: 28 Oct 2011 10:53 am

Tgt Ion: 43 Resp: 14517

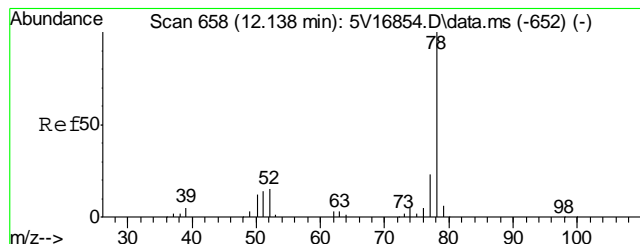
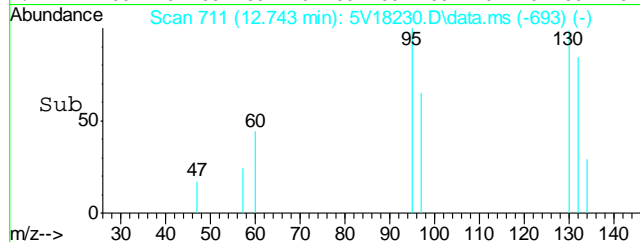
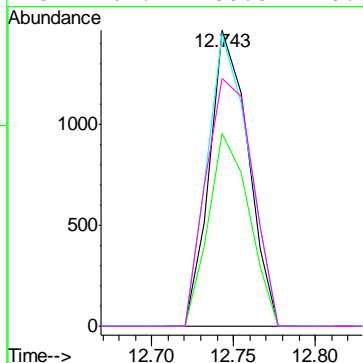
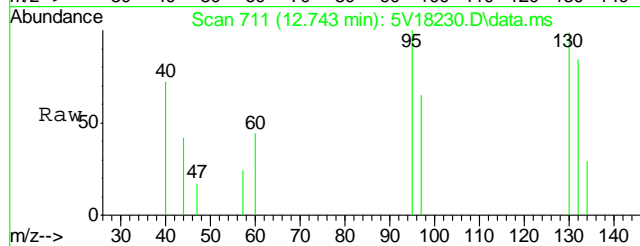
Ion	Ratio	Lower	Upper
43	100		
57	47.9	30.6	70.6
71	59.6	43.8	83.8
100	19.4	0.9	40.9





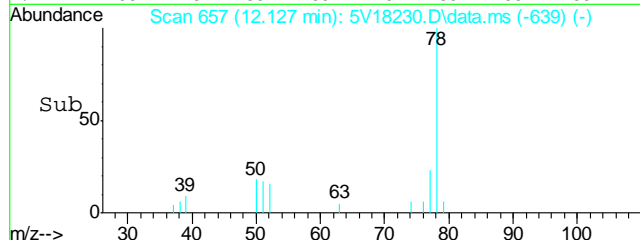
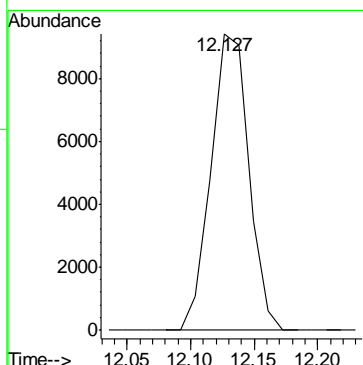
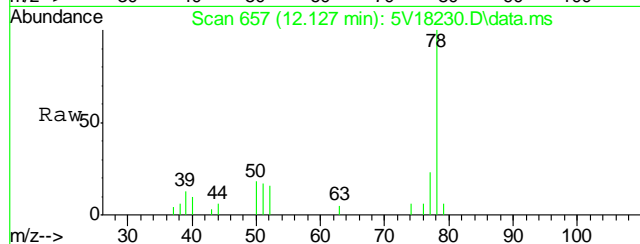
#48
Trichloroethene
Concen: 0.81 ug/l
RT: 12.743 min Scan# 711
Delta R.T. 0.000 min
Lab File: 5V18230.D
Acq: 28 Oct 2011 10:53 am

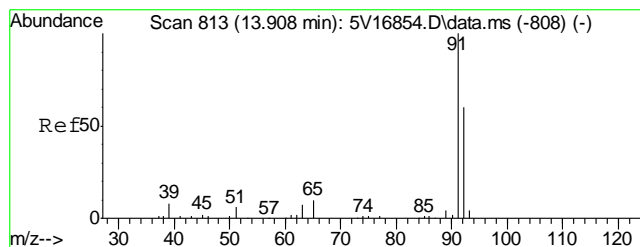
Tgt Ion	Resp	Lower	Upper
95	100		
97	68.4	44.7	84.7
130	106.6	88.7	128.7
132	101.1	88.5	128.5



#50
Benzene
Concen: 1.87 ug/l
RT: 12.127 min Scan# 657
Delta R.T. 0.000 min
Lab File: 5V18230.D
Acq: 28 Oct 2011 10:53 am

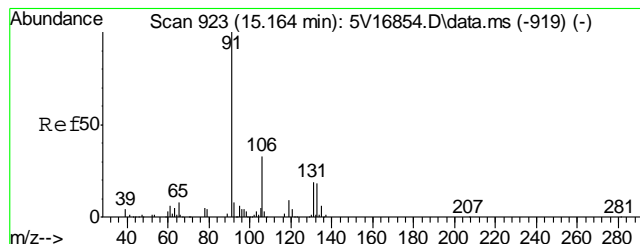
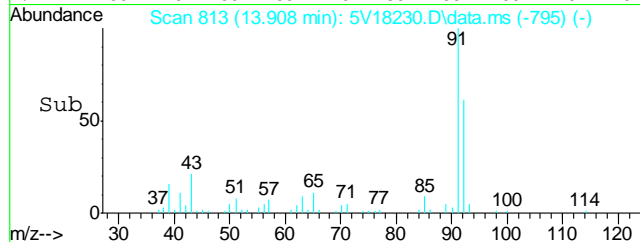
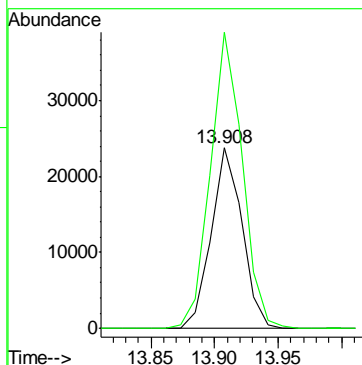
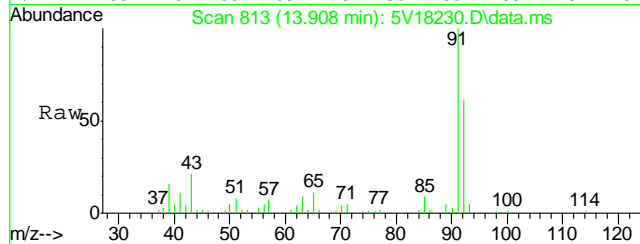
Tgt Ion: 78 Resp: 19441





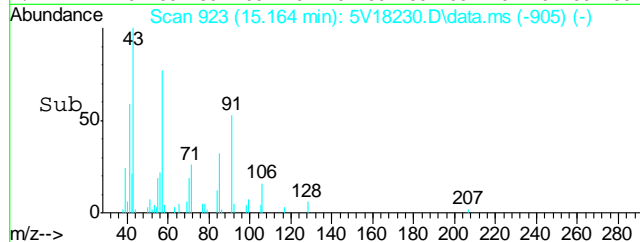
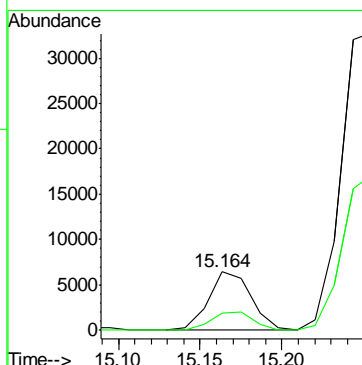
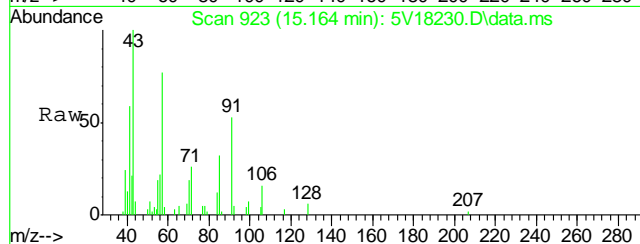
#62
Toluene
Concen: 5.87 ug/l
RT: 13.908 min Scan# 813
Delta R.T. 0.000 min
Lab File: 5V18230.D
Acq: 28 Oct 2011 10:53 am

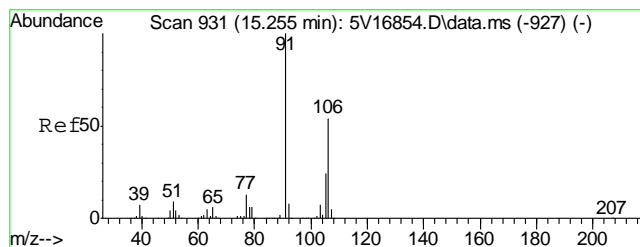
Tgt Ion	Ratio	Lower	Upper
92	100		
91	169.9	147.0	187.0



#66
Ethylbenzene
Concen: 0.90 ug/l
RT: 15.164 min Scan# 923
Delta R.T. 0.000 min
Lab File: 5V18230.D
Acq: 28 Oct 2011 10:53 am

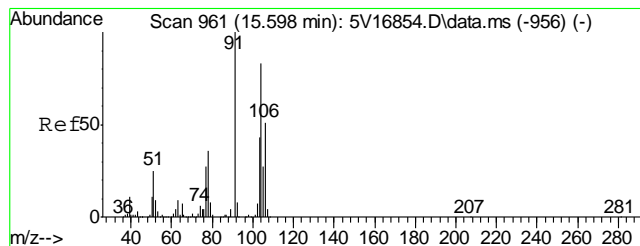
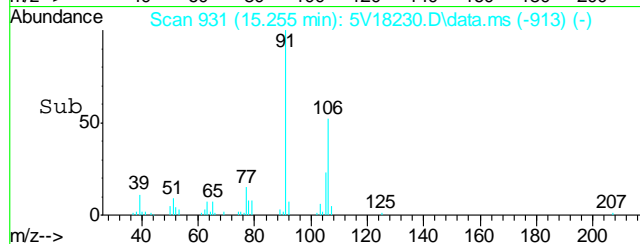
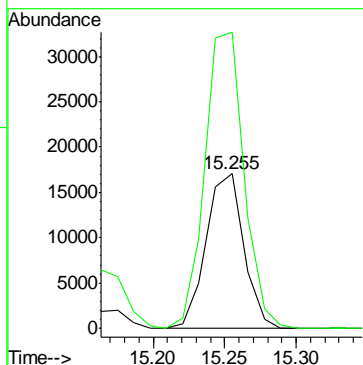
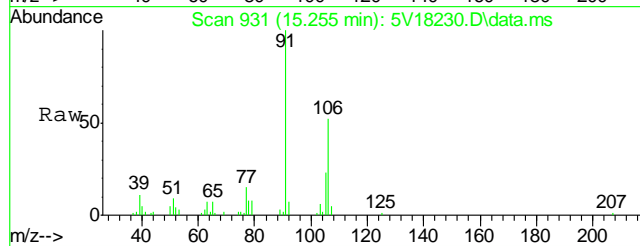
Tgt Ion	Ratio	Lower	Upper
91	100		
106	30.5	12.9	52.9





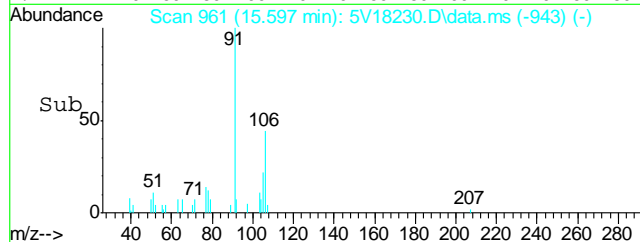
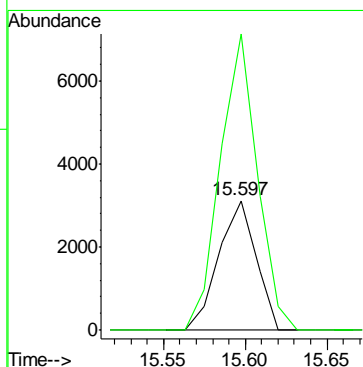
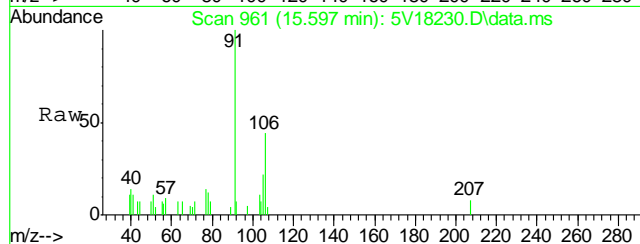
#72
m,p-xylene
Concen: 5.71 ug/l
RT: 15.255 min Scan# 931
Delta R.T. 0.000 min
Lab File: 5V18230.D
Acq: 28 Oct 2011 10:53 am

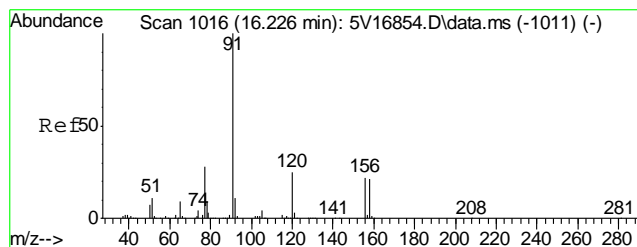
Tgt Ion	Ratio	Lower	Upper
106	100		
91	199.6	172.3	212.3



#73
o-xylene
Concen: 0.91 ug/l
RT: 15.597 min Scan# 961
Delta R.T. 0.000 min
Lab File: 5V18230.D
Acq: 28 Oct 2011 10:53 am

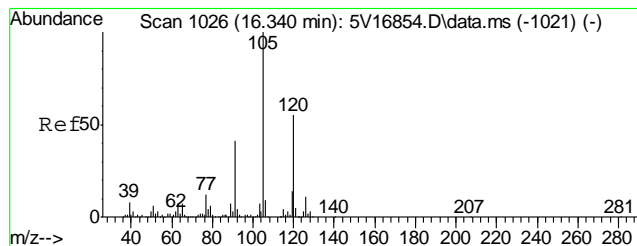
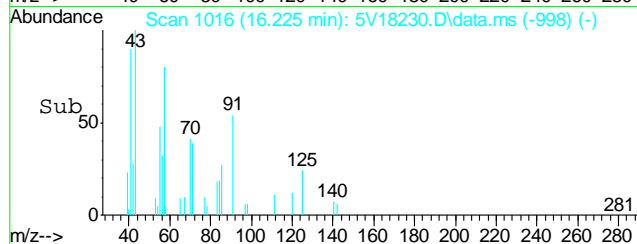
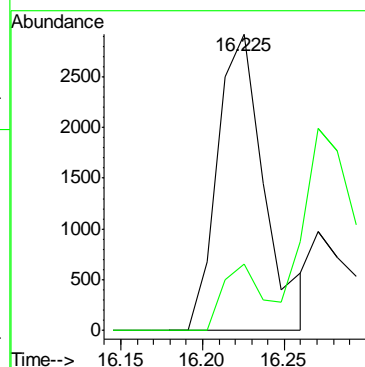
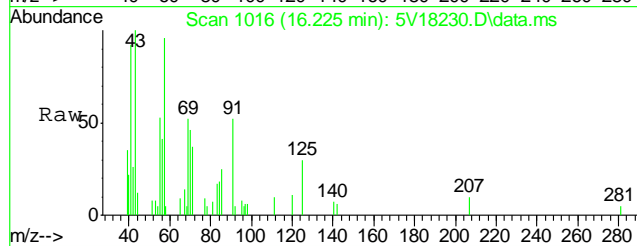
Tgt Ion	Ratio	Lower	Upper
106	100		
91	227.6	161.2	241.8





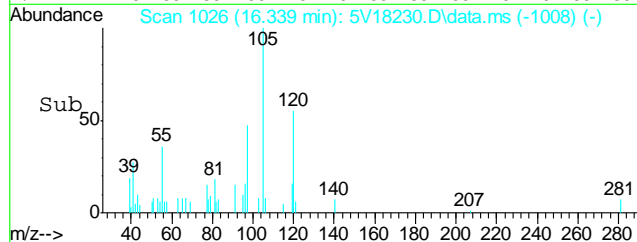
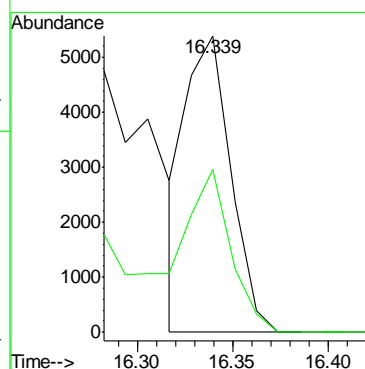
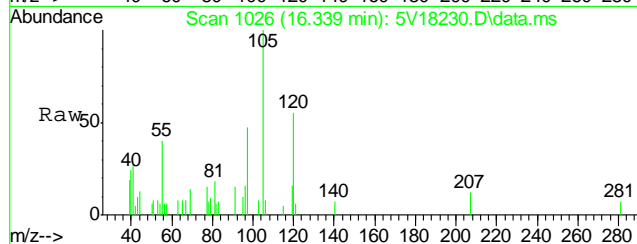
#77
n-Propylbenzene
Concen: 0.37 ug/l
RT: 16.225 min Scan# 1016
Delta R.T. 0.000 min
Lab File: 5V18230.D
Acq: 28 Oct 2011 10:53 am

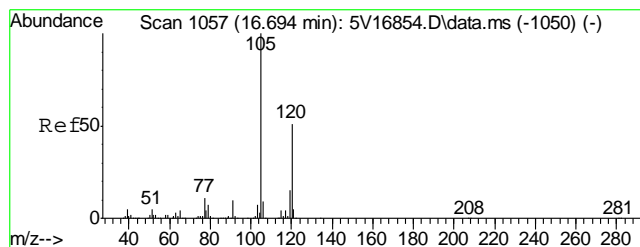
Tgt Ion: 91 Resp: 5829
Ion Ratio Lower Upper
91 100
120 20.3 20.6 31.0#



#80
1,3,5-Trimethylbenzene
Concen: 0.74 ug/l
RT: 16.339 min Scan# 1026
Delta R.T. 0.000 min
Lab File: 5V18230.D
Acq: 28 Oct 2011 10:53 am

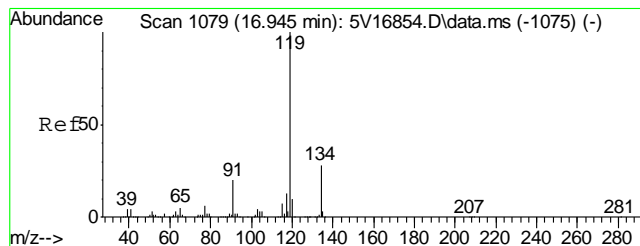
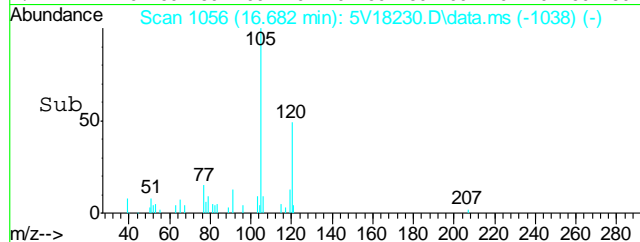
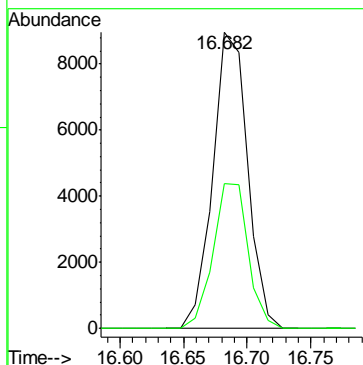
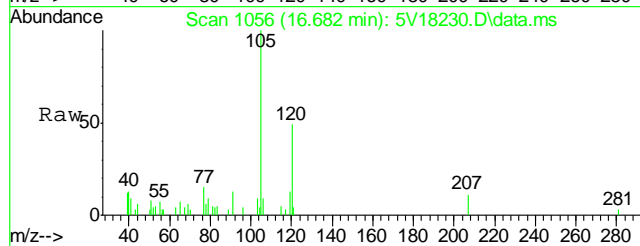
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Ion Ratio Lower Upper
105 100
120 59.6 42.6 64.0





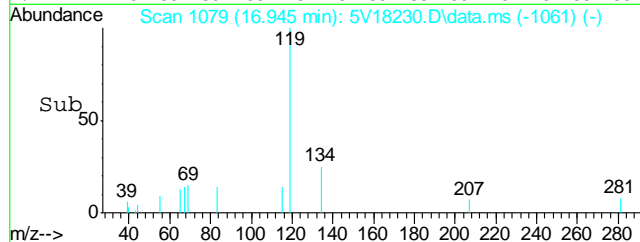
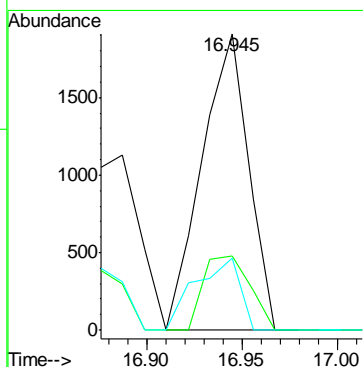
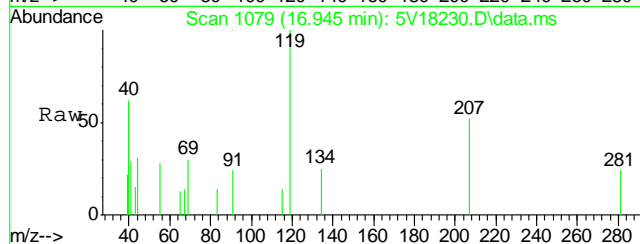
#82
1,2,4-Trimethylbenzene
Concen: 1.43 ug/l
RT: 16.682 min Scan# 1056
Delta R.T. 0.000 min
Lab File: 5V18230.D
Acq: 28 Oct 2011 10:53 am

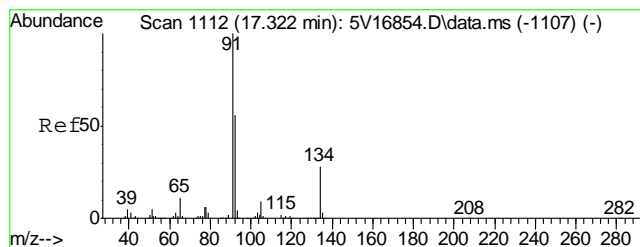
Tgt Ion	Ratio	Lower	Upper
105	100		
120	49.3	46.9	70.3



#86
p-Isopropyltoluene
Concen: 0.23 ug/l
RT: 16.945 min Scan# 1079
Delta R.T. 0.000 min
Lab File: 5V18230.D
Acq: 28 Oct 2011 10:53 am

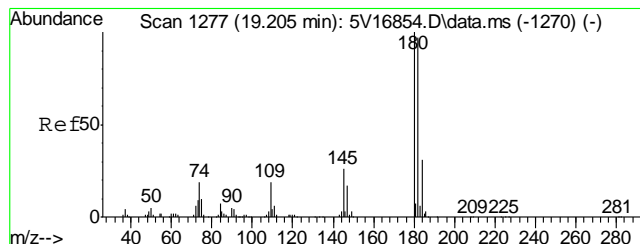
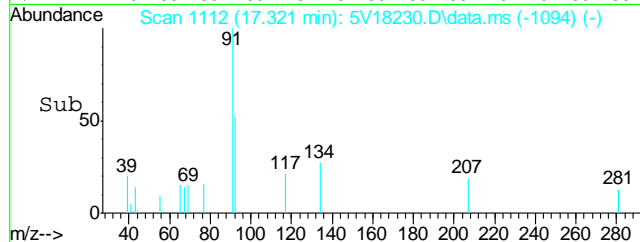
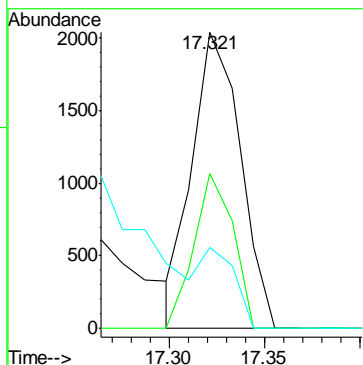
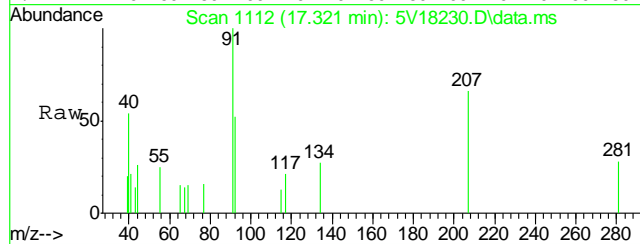
Tgt Ion	Ratio	Lower	Upper
119	100		
134	25.1	21.6	32.4
91	23.4	17.6	26.4





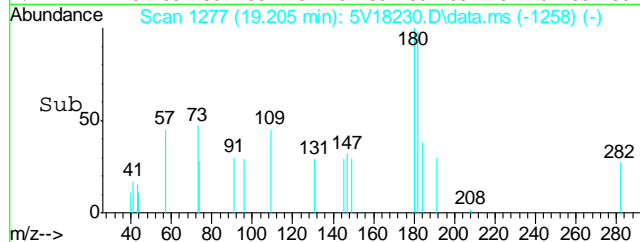
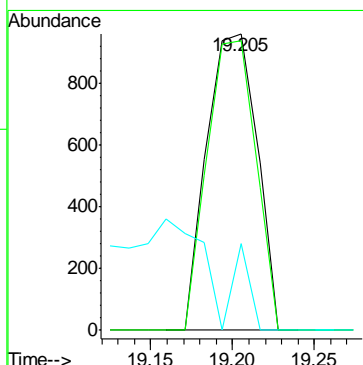
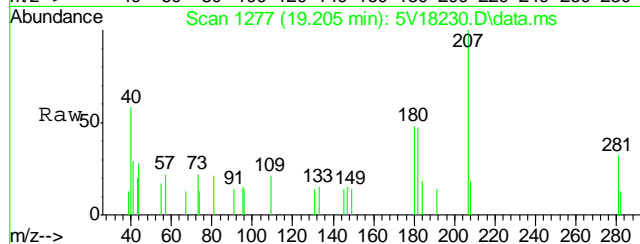
#88
n-Butylbenzene
Concen: 0.29 ug/l
RT: 17.321 min Scan# 1112
Delta R.T. 0.000 min
Lab File: 5V18230.D
Acq: 28 Oct 2011 10:53 am

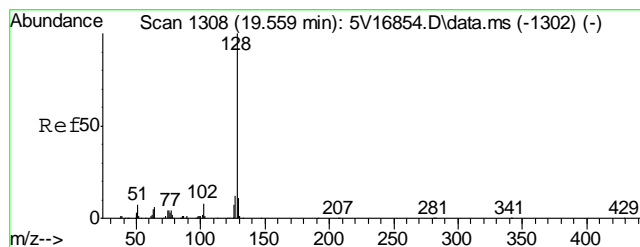
Tgt Ion:	91	Resp:	3571
Ion Ratio	Lower	Upper	
91	100		
92	42.3	43.5	65.3#
134	0.0	24.3	36.5#



#90
1,2,4-Trichlorobenzene
Concen: 0.39 ug/l
RT: 19.205 min Scan# 1277
Delta R.T. 0.011 min
Lab File: 5V18230.D
Acq: 28 Oct 2011 10:53 am

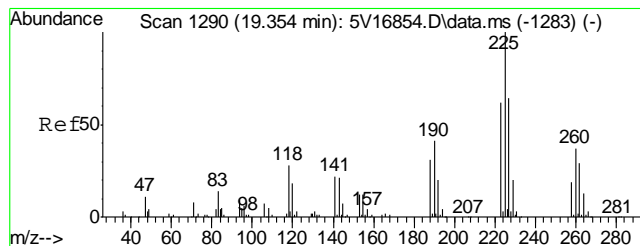
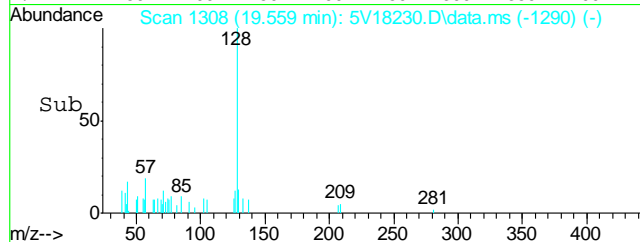
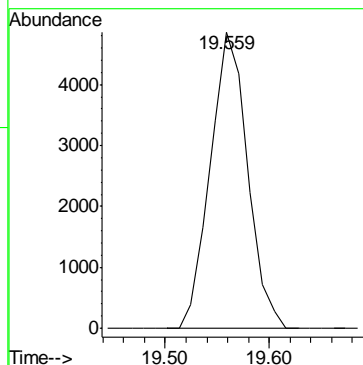
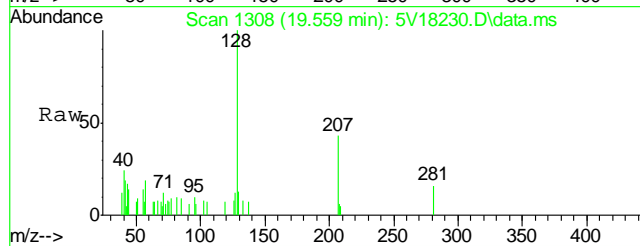
Tgt Ion:	180	Resp:	2049
Ion Ratio	Lower	Upper	
180	100		
182	94.6	76.6	114.8
145	79.1	20.2	30.2#





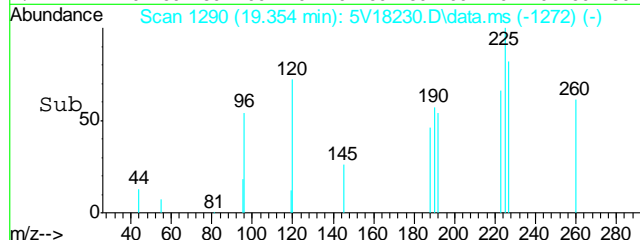
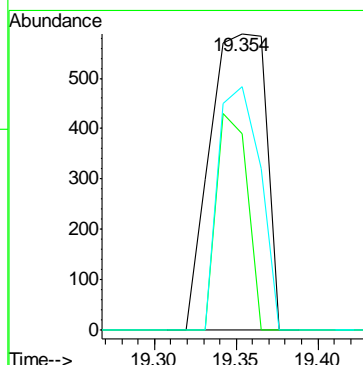
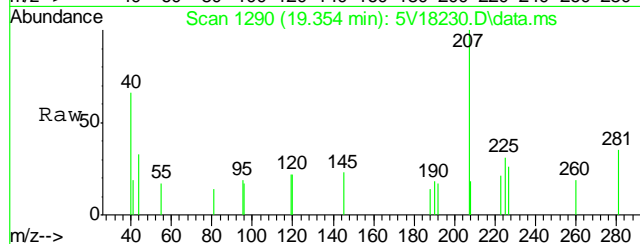
#91
Naphthalene
Concen: 2.18 ug/l
RT: 19.559 min Scan# 1308
Delta R.T. 0.000 min
Lab File: 5V18230.D
Acq: 28 Oct 2011 10:53 am

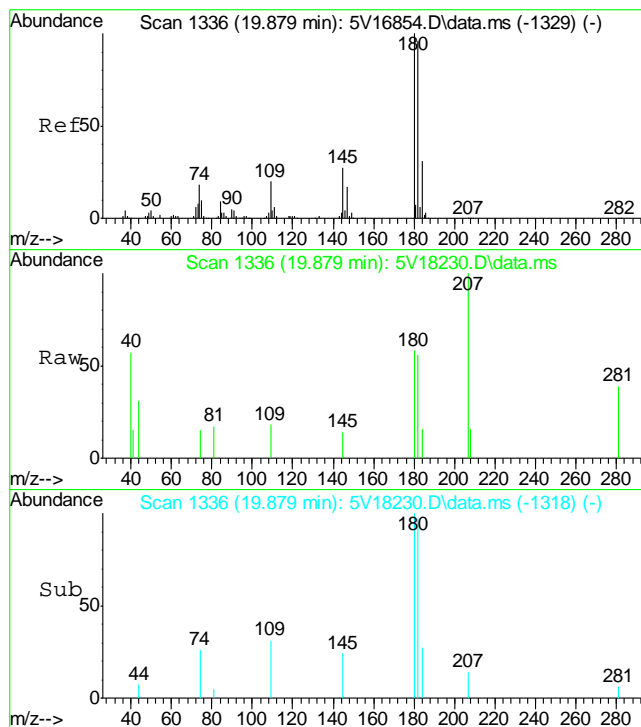
Tgt Ion:128 Resp: 12133



#92
Hexachlorobutadiene
Concen: 0.32 ug/l
RT: 19.354 min Scan# 1290
Delta R.T. 0.000 min
Lab File: 5V18230.D
Acq: 28 Oct 2011 10:53 am

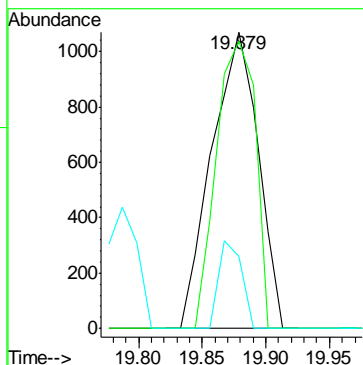
Tgt Ion:225 Resp: 1397
Ion Ratio Lower Upper
225 100
223 40.1 50.4 75.6#
227 61.6 51.8 77.8





#93
 1,2,3-Trichlorobenzene
 Concen: 0.57 ug/l
 RT: 19.879 min Scan# 1336
 Delta R.T. 0.000 min
 Lab File: 5V18230.D
 Acq: 28 Oct 2011 10:53 am

Tgt Ion:	180	Resp:	2708
Ion Ratio	Lower	Upper	
180	100		
182	81.6	76.3	114.5
145	14.5	21.4	32.2#



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5102811.S\
Data File : 5V18228.D
Acq On : 28 Oct 2011 9:49 am
Operator : DONC
Sample : MB
Misc : MS2880,V5V1091,5,,100,5,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 31 13:06:16 2011
Quant Method : C:\msdchem\1\METHODS\V5AP1078TVH1078.M
Quant Title : 8260
QLast Update : Tue Oct 18 09:29:38 2011
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	289064	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	327115	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	259208	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	155650	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.035	102	28528	43.51	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	87.02%
61) Toluene-d8	13.851	98	528025	51.90	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	103.80%
69) 4-Bromofluorobenzene	16.043	95	191056	43.94	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	87.88%

Target Compounds

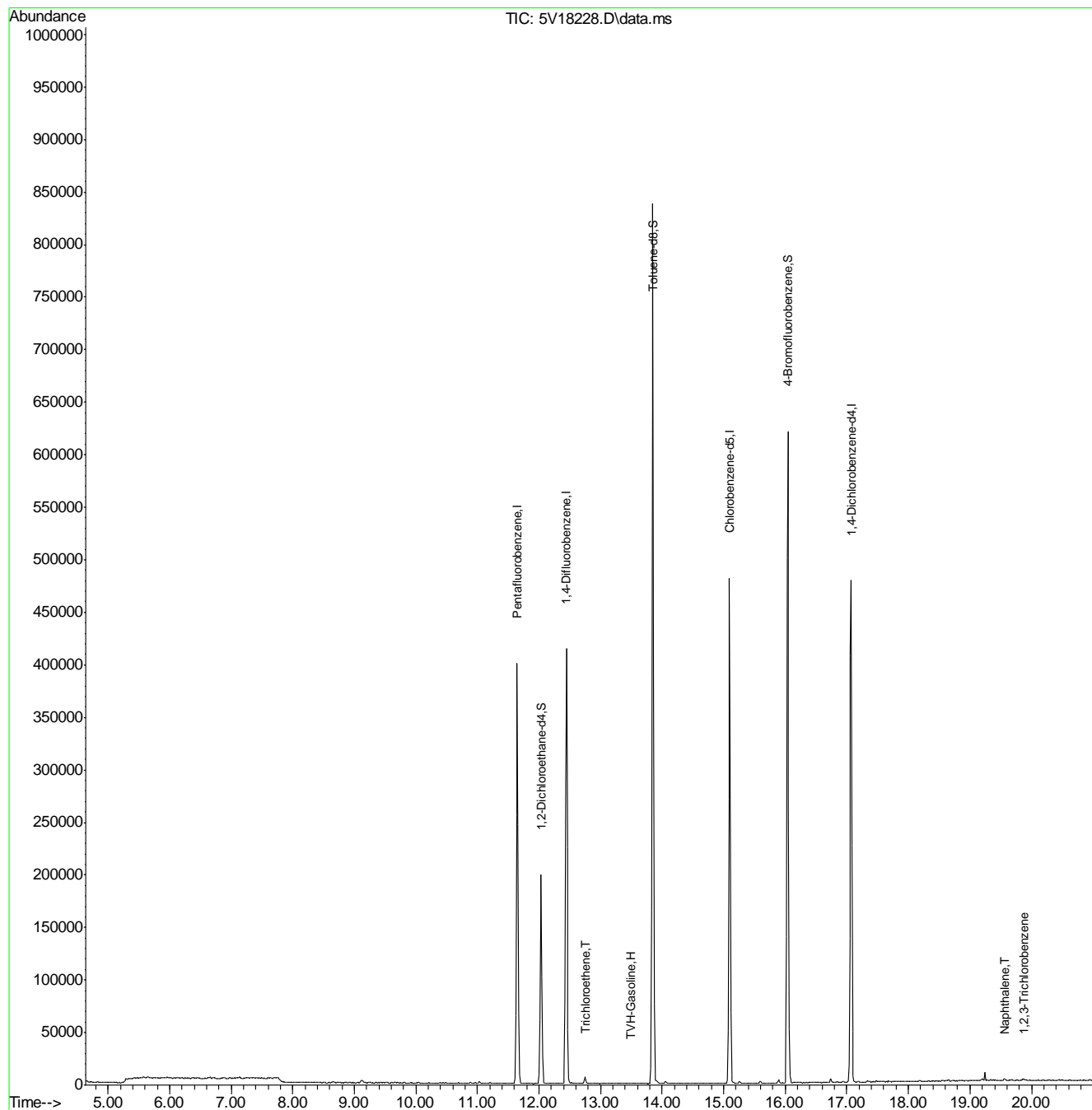
					Qvalue
1) TVH-Gasoline	13.491	TIC	5853m	0.27	ug/l
48) Trichloroethene	12.754	95	2460	0.80	ug/l
91) Naphthalene	19.559	128	2750	1.03	ug/l
93) 1,2,3-Trichlorobenzene	19.879	180	1257	0.29	ug/l

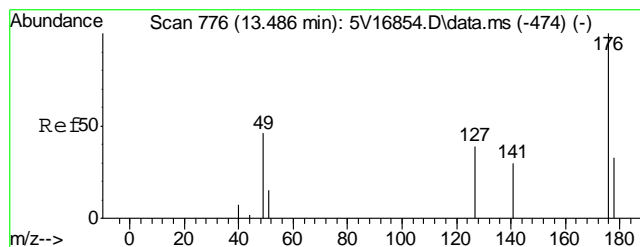
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5102811.S\
Data File : 5V18228.D
Acq On : 28 Oct 2011 9:49 am
Operator : DONC
Sample : MB
Misc : MS2880,V5V1091,5,,100,5,1
ALS Vial : 3 Sample Multiplier: 1

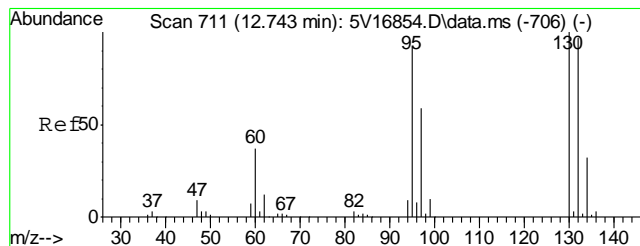
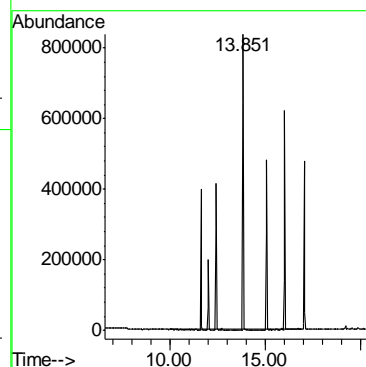
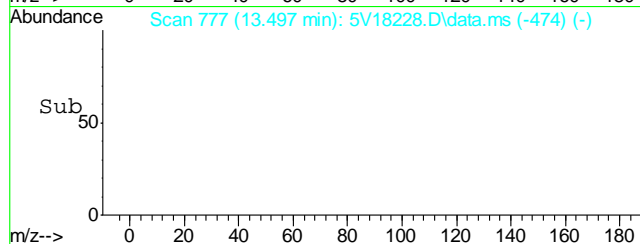
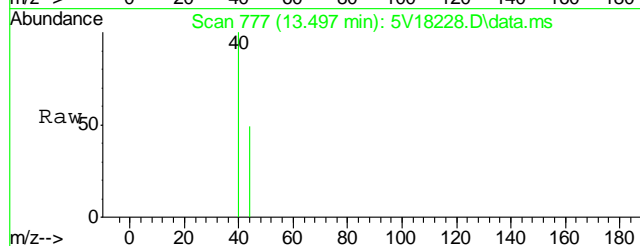
Quant Time: Oct 31 13:06:16 2011
Quant Method : C:\msdchem\1\METHODS\V5AP1078TVH1078.M
Quant Title : 8260
QLast Update : Tue Oct 18 09:29:38 2011
Response via : Initial Calibration





#1
TVH-Gasoline
Concen: 0.27 ug/l m
RT: 13.491 min Scan# 777
Delta R.T. 0.000 min
Lab File: 5V18228.D
Acq: 28 Oct 2011 9:49 am

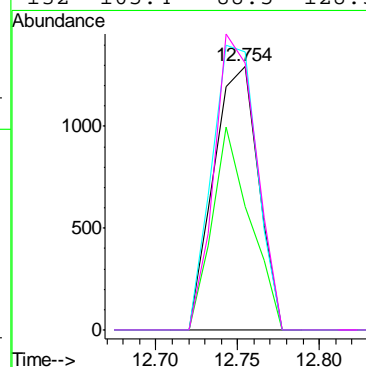
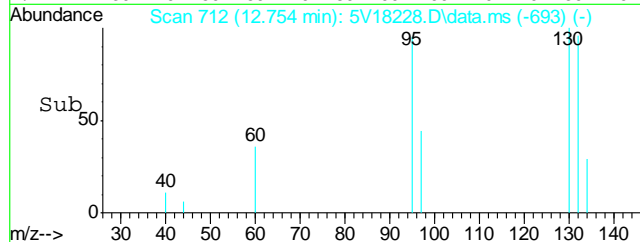
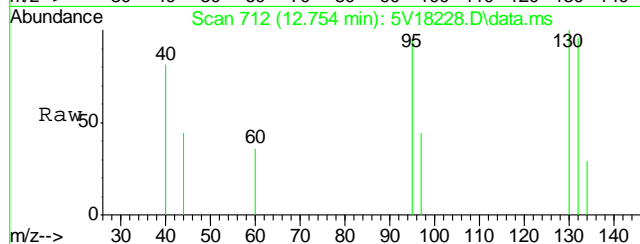
Tgt Ion:TIC Resp: 5853

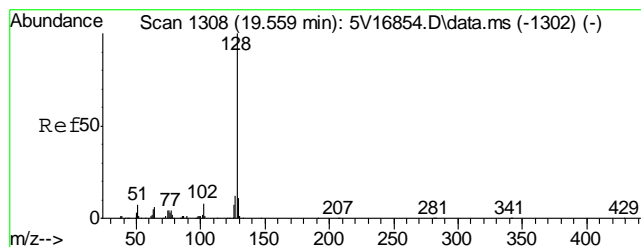


#48
Trichloroethene
Concen: 0.80 ug/l
RT: 12.754 min Scan# 712
Delta R.T. 0.011 min
Lab File: 5V18228.D
Acq: 28 Oct 2011 9:49 am

Tgt Ion: 95 Resp: 2460

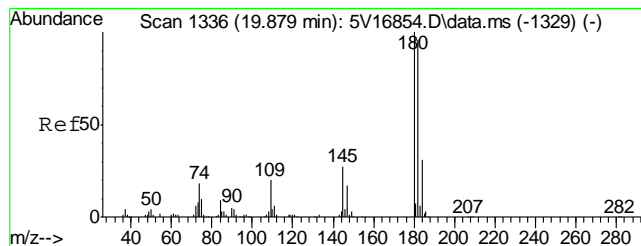
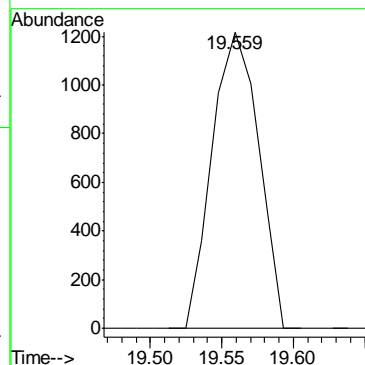
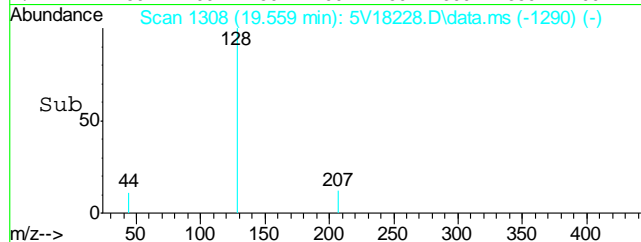
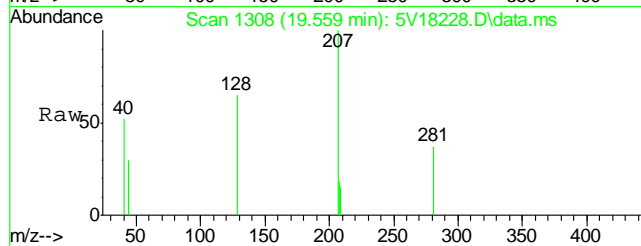
Ion	Ratio	Lower	Upper
95	100		
97	65.5	44.7	84.7
130	108.9	88.7	128.7
132	105.4	88.5	128.5





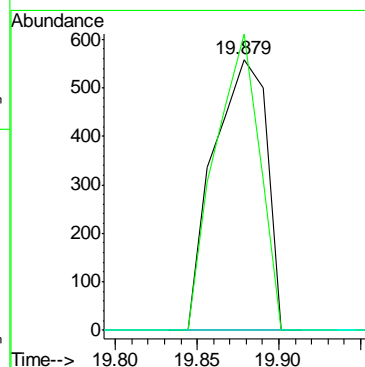
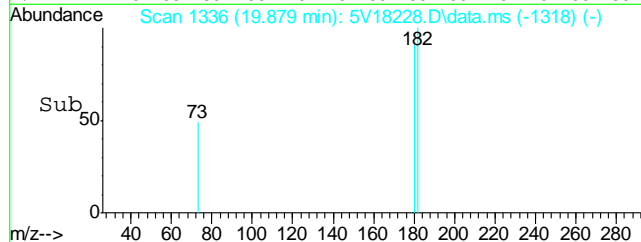
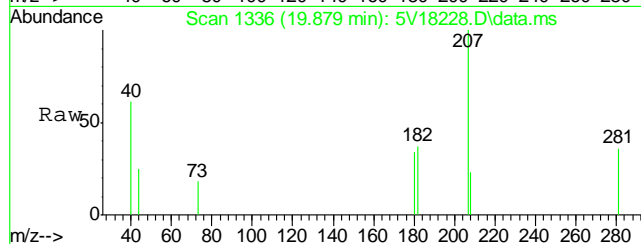
#91
Naphthalene
Concen: 1.03 ug/l
RT: 19.559 min Scan# 1308
Delta R.T. -0.000 min
Lab File: 5V18228.D
Acq: 28 Oct 2011 9:49 am

Tgt Ion:128 Resp: 2750



#93
1,2,3-Trichlorobenzene
Concen: 0.29 ug/l
RT: 19.879 min Scan# 1336
Delta R.T. -0.000 min
Lab File: 5V18228.D
Acq: 28 Oct 2011 9:49 am

Tgt Ion:180 Resp: 1257
Ion Ratio Lower Upper
180 100
182 92.0 76.3 114.5
145 0.0 21.4 32.2#



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: D28910**Account:** KRWCCOL KRW Consulting, Inc.**Project:** FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4752-MB	3G06707.D	1	10/31/11	TMB	10/31/11	OP4752	E3G246

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

D28910-1

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	6.7	5.3	ug/kg	
120-12-7	Anthracene	ND	6.7	6.0	ug/kg	
56-55-3	Benzo(a)anthracene	ND	17	8.7	ug/kg	
50-32-8	Benzo(a)pyrene	ND	17	12	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	17	12	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	17	7.3	ug/kg	
218-01-9	Chrysene	ND	17	7.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	17	12	ug/kg	
206-44-0	Fluoranthene	ND	6.7	6.7	ug/kg	
86-73-7	Fluorene	ND	6.7	5.7	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	20	18	ug/kg	
91-20-3	Naphthalene	ND	6.7	6.3	ug/kg	
129-00-0	Pyrene	ND	6.7	6.3	ug/kg	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	82% 10-145%
321-60-8	2-Fluorobiphenyl	85% 10-130%
1718-51-0	Terphenyl-d14	115% 22-130%

Blank Spike Summary

Page 1 of 1

Job Number: D28910

Account: KRWCCOL KRW Consulting, Inc.

Project: FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4752-BS	3G06708.D	1	10/31/11	TMB	10/31/11	OP4752	E3G246

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D28910-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	69.9	84	34-130
120-12-7	Anthracene	83.3	75.8	91	35-130
56-55-3	Benzo(a)anthracene	83.3	72.3	87	36-130
50-32-8	Benzo(a)pyrene	83.3	68.7	82	36-130
205-99-2	Benzo(b)fluoranthene	83.3	69.9	84	35-130
207-08-9	Benzo(k)fluoranthene	83.3	69.0	83	37-130
218-01-9	Chrysene	83.3	72.3	87	40-130
53-70-3	Dibenzo(a,h)anthracene	83.3	71.4	86	32-130
206-44-0	Fluoranthene	83.3	71.2	85	38-130
86-73-7	Fluorene	83.3	73.2	88	35-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	68.6	82	28-130
91-20-3	Naphthalene	83.3	70.4	84	35-130
129-00-0	Pyrene	83.3	67.5	81	37-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	91%	10-145%
321-60-8	2-Fluorobiphenyl	85%	10-130%
1718-51-0	Terphenyl-d14	101%	22-130%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D28910
Account: KRWCCOL KRW Consulting, Inc.
Project: FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4752-MS	3G06710.D	5	11/01/11	TMB	10/31/11	OP4752	E3G246
OP4752-MSD	3G06711.D	5	11/01/11	TMB	10/31/11	OP4752	E3G246
D28973-1	3G06709.D	5	10/31/11	TMB	10/31/11	OP4752	E3G246

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D28910-1

CAS No.	Compound	D28973-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		183	116	63	77.2	42	40* a	10-155/30
120-12-7	Anthracene	ND		183	174	95	112	61	43* a	10-155/30
56-55-3	Benzo(a)anthracene	ND		183	242	132	152	83	46* a	10-175/30
50-32-8	Benzo(a)pyrene	ND		183	201	110	ND	0* b	200* a	10-164/30
205-99-2	Benzo(b)fluoranthene	ND		183	212	116	ND	0* b	200* a	10-165/30
207-08-9	Benzo(k)fluoranthene	ND		183	163	89	97.2	53	51* a	10-178/30
218-01-9	Chrysene	ND		183	162	88	96.8	53	50* a	10-147/30
53-70-3	Dibenzo(a,h)anthracene	ND		183	162	88	ND	0* b	200* a	10-144/30
206-44-0	Fluoranthene	ND		183	227	124	133	73	52* a	10-207/30
86-73-7	Fluorene	ND		183	178	97	118	64	41* a	10-163/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		183	ND	0* b	ND	0* b	nc	10-180/30
91-20-3	Naphthalene	ND		183	161	88	136	74	17	10-198/30
129-00-0	Pyrene	ND		183	181	99	118	64	42* a	10-189/30

CAS No.	Surrogate Recoveries	MS	MSD	D28973-1	Limits
4165-60-0	Nitrobenzene-d5	46%	23%	7% * c	10-145%
321-60-8	2-Fluorobiphenyl	52%	36%	30%	10-130%
1718-51-0	Terphenyl-d14	70%	42%	45%	22-130%

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

(b) Outside control limits due to matrix interference. Refer to Blank Spike.

(c) Outside control limits due to possible matrix interference. Confirmed by re-extraction and reanalysis.

GC/MS Semi-volatiles

Raw Data

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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\103111\
 Data File : 3g06712.D
 Acq On : 1 Nov 2011 1:22 am
 Operator : TamiB
 Sample : D28910-1,10x
 Misc : OP4752,E3G246,30.01,,,1,10
 ALS Vial : 17 Sample Multiplier: 1

Quant Time: Nov 01 09:58:20 2011
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G246.M
 Quant Title : PAHSIM BASE
 QLast Update : Tue Nov 01 09:52:42 2011
 Response via : Initial Calibration

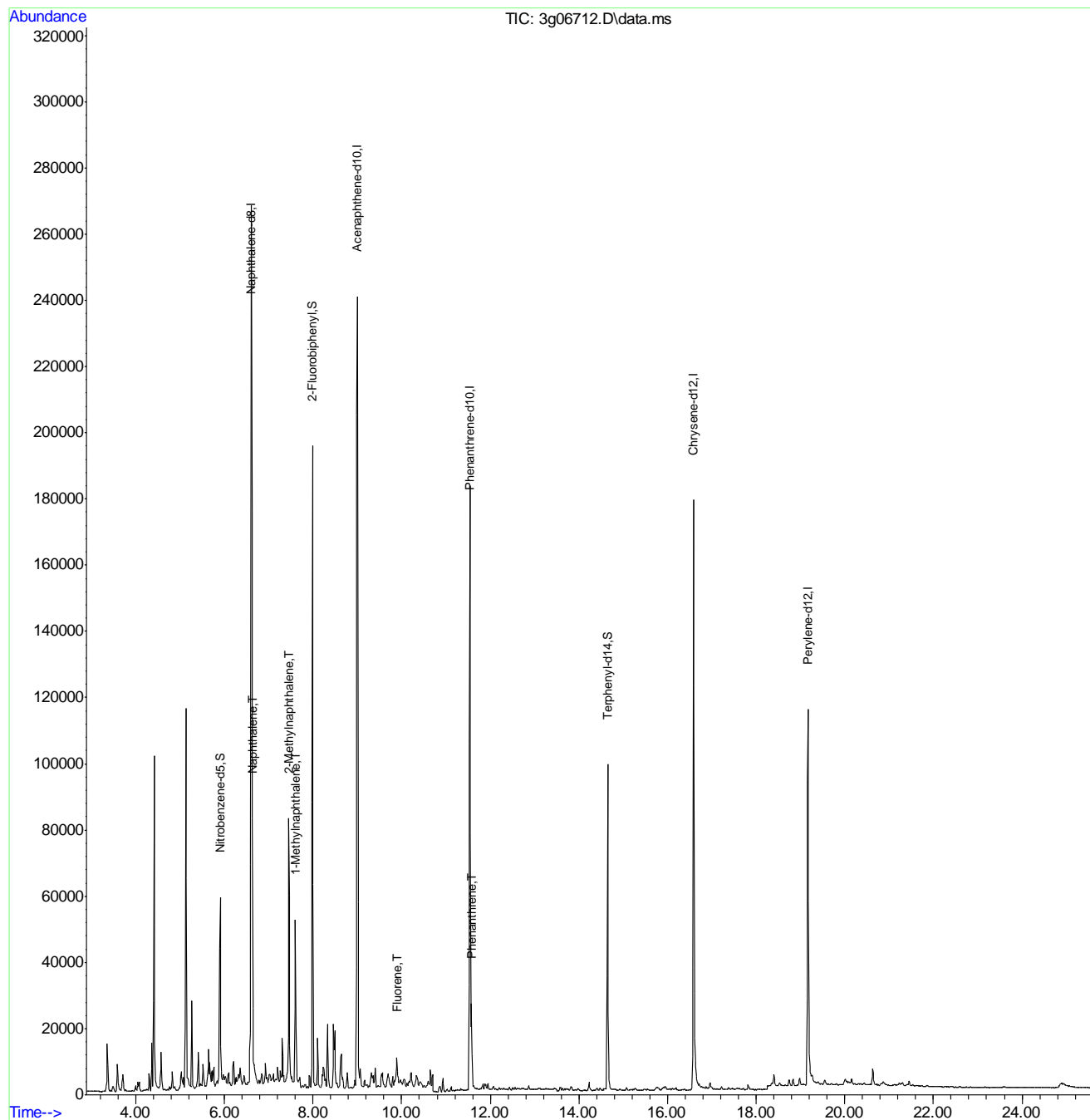
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.605	136	306044	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.003	164	149678	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.546	188	220552	4.00	ug/mL	0.00
18) Chrysene-d12	16.591	240	203178	4.00	ug/mL	0.00
23) Perylene-d12	19.172	264	161530	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.907	82	37793	3.18	ug/mL	0.00
7) 2-Fluorobiphenyl	7.987	172	171217	2.72	ug/mL	0.00
20) Terphenyl-d14	14.648	244	115328	3.44	ug/mL	0.00
Target Compounds						
					Qvalue	
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	6.630	128	55933	0.56	ug/mL	96
8) 2-Methylnaphthalene	7.453	142	56300	1.08	ug/mL	100
9) 1-Methylnaphthalene	7.603	142	29230	0.56	ug/mL	98
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	9.889	166	6337	0.14	ug/mL#	81
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	11.577	178	24786	0.35	ug/mL	98
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	0.000		0	N.D.	d	
21) Benzo(a)anthracene	0.000		0	N.D.	d	
22) Chrysene	0.000		0	N.D.	d	
24) Benzo(b)fluoranthene	0.000		0	N.D.	d	
25) Benzo(k)fluoranthene	0.000		0	N.D.	d	
26) Benzo(a)pyrene	0.000		0	N.D.	d	
27) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
28) Dibenz(a,h)anthracene	0.000		0	N.D.	d	
29) Benzo(g,h,i)perylene	0.000		0	N.D.	d	

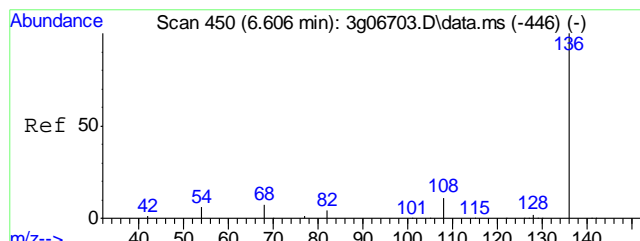
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\103111\
Data File : 3g06712.D
Acq On : 1 Nov 2011 1:22 am
Operator : TamiB
Sample : D28910-1,10x
Misc : OP4752,E3G246,30.01,,,1,10
ALS Vial : 17 Sample Multiplier: 1

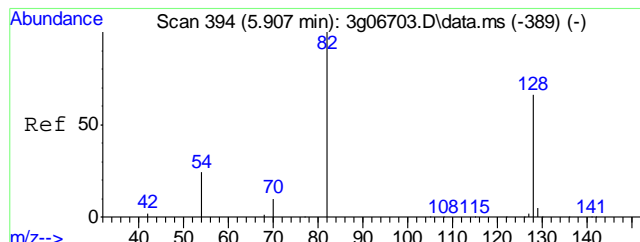
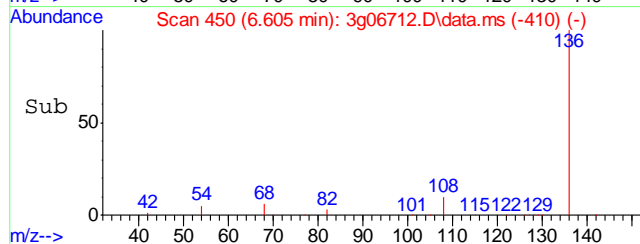
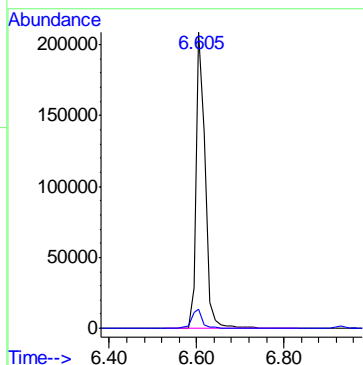
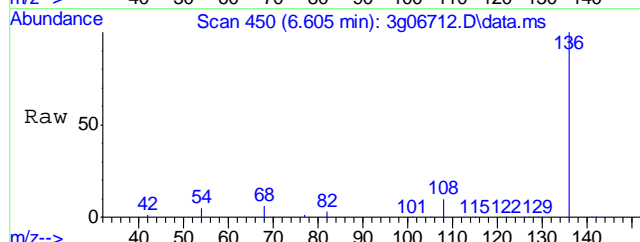
Quant Time: Nov 01 09:58:20 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G246.M
Quant Title : PAHSIM BASE
QLast Update : Tue Nov 01 09:52:42 2011
Response via : Initial Calibration





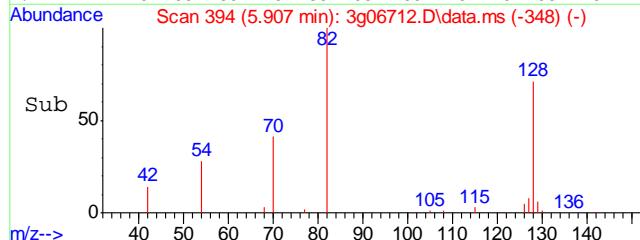
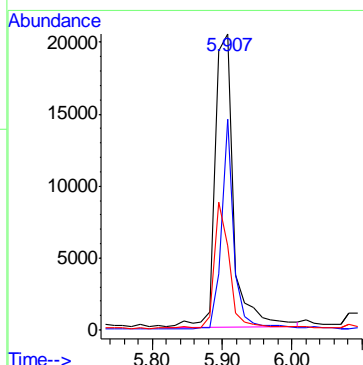
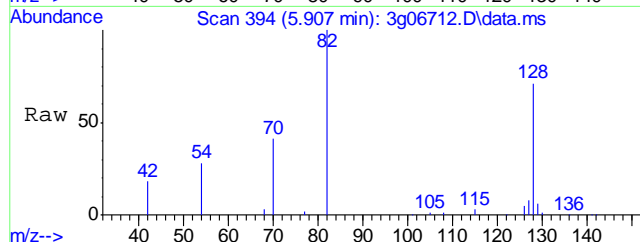
#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.605 min Scan# 450
Delta R.T. -0.000 min
Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

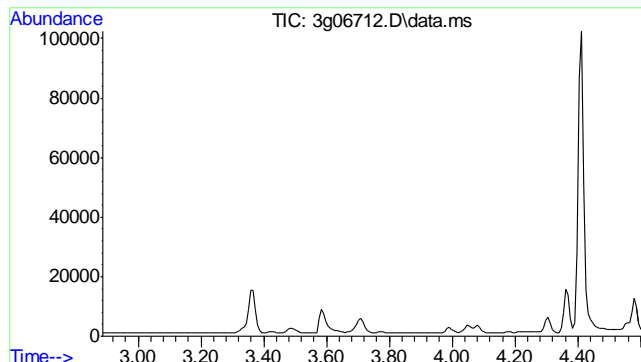
Tgt Ion: 136 Resp: 306044
Ion Ratio Lower Upper
136 100
68 7.3 0.0 28.1



#2
Nitrobenzene-d5
Concen: 3.18 ug/mL
RT: 5.907 min Scan# 394
Delta R.T. -0.000 min
Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

Tgt Ion: 82 Resp: 37793
Ion Ratio Lower Upper
82 100
128 48.8 28.3 68.3
54 36.1 14.8 54.8

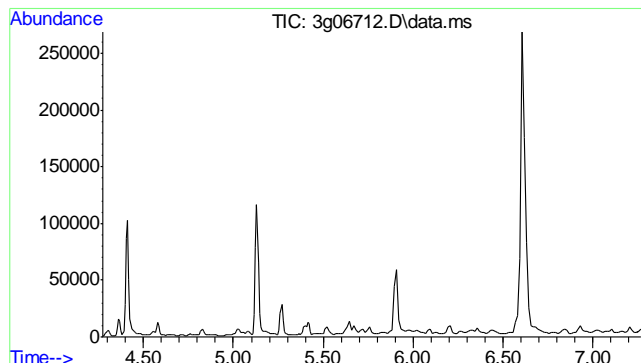
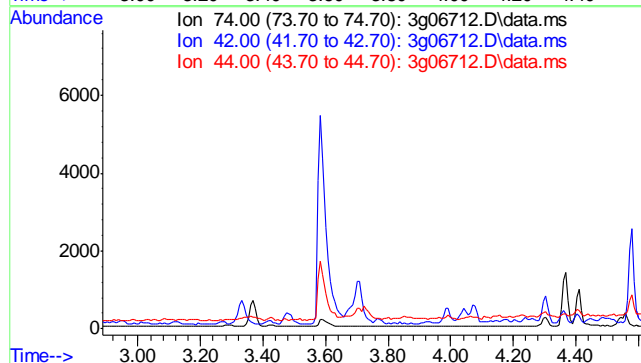




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 3.11 min

Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

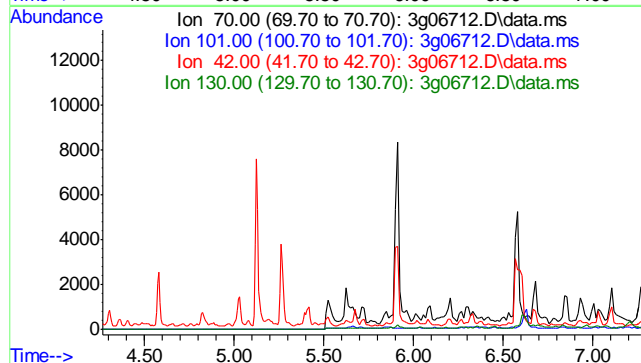
Tgt Ion:	74
Sig	Exp Ratio
74	100
42	41.9
44	3.1

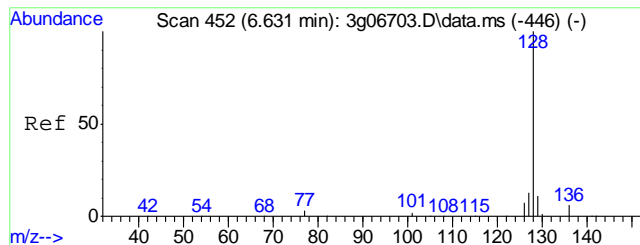


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.77 min

Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

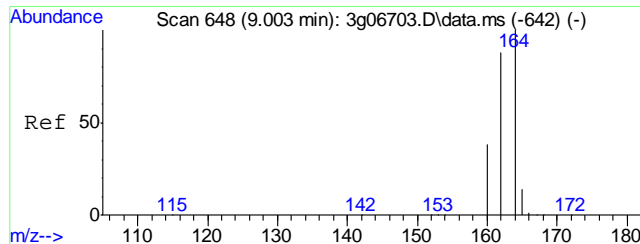
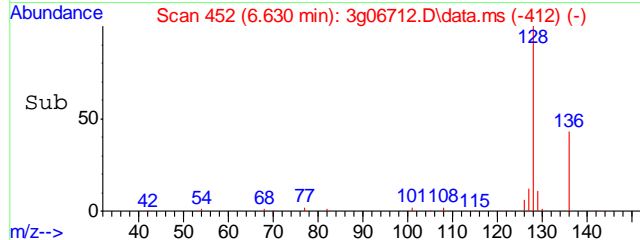
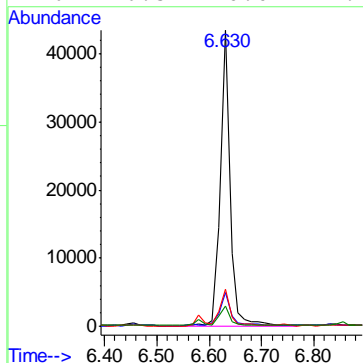
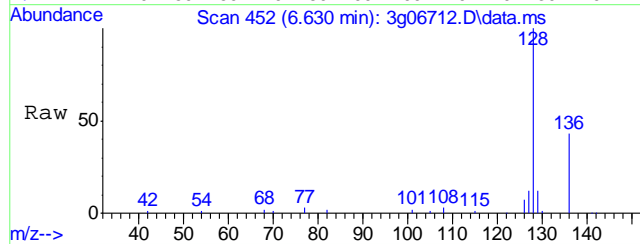
Tgt Ion:	70
Sig	Exp Ratio
70	100
101	12.6
42	35.8
130	27.2





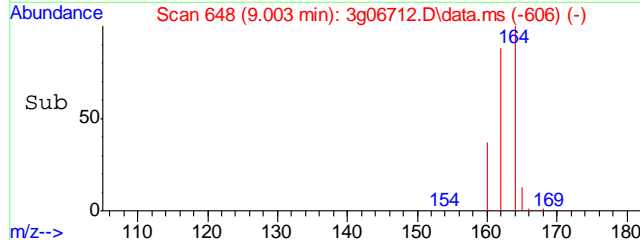
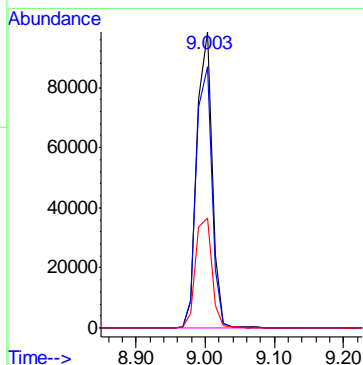
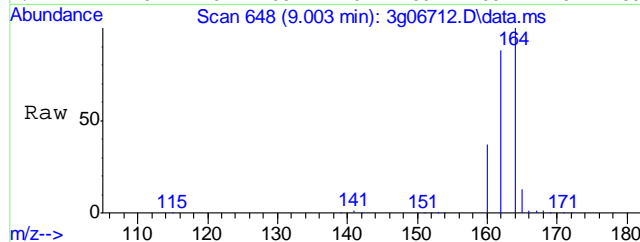
#5
Naphthalene
Concen: 0.56 ug/mL
RT: 6.630 min Scan# 452
Delta R.T. -0.000 min
Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

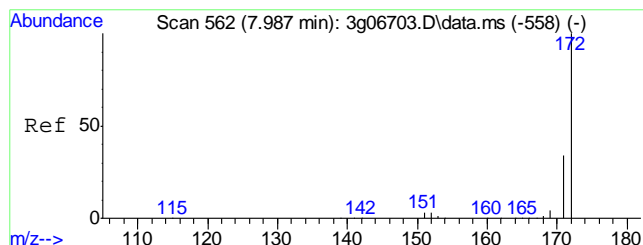
Tgt Ion:	128	Resp:	55933
Ion Ratio	Lower	Upper	
128	100		
129	14.1	0.0	30.8
127	12.0	0.0	32.9
126	6.5	0.0	27.2



#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 9.003 min Scan# 648
Delta R.T. -0.000 min
Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

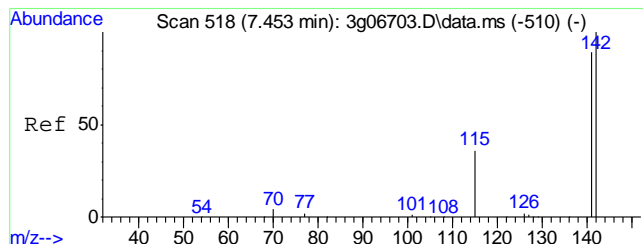
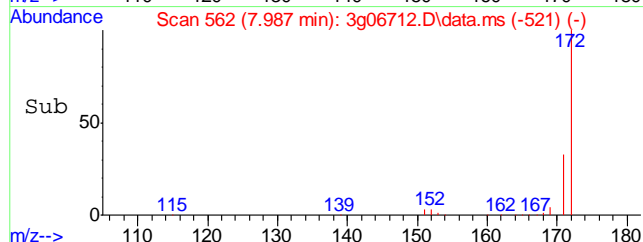
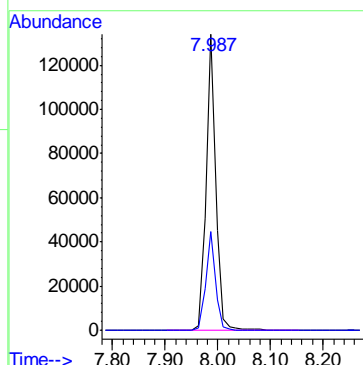
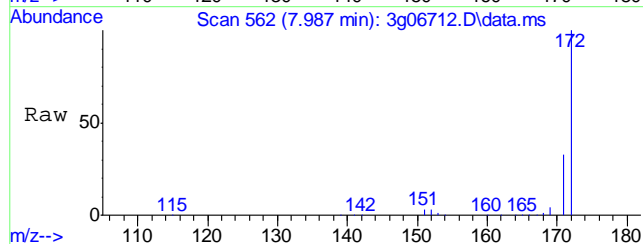
Tgt Ion:	164	Resp:	149678
Ion Ratio	Lower	Upper	
164	100		
162	91.1	72.0	112.0
160	39.7	21.5	61.5





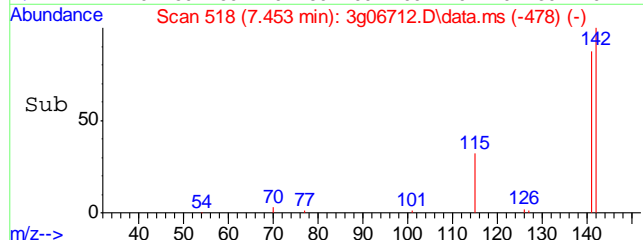
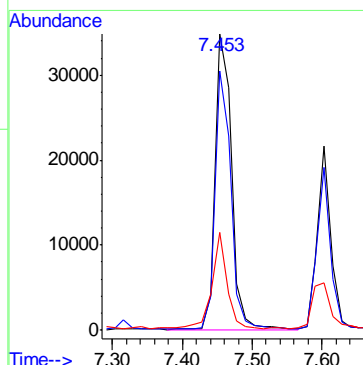
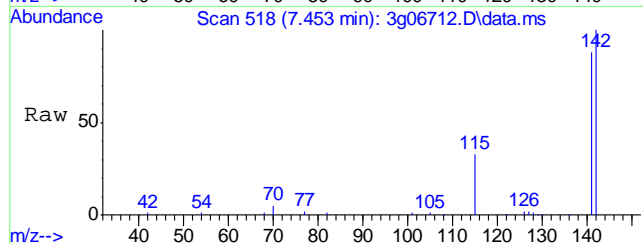
#7
2-Fluorobiphenyl
Concen: 2.72 ug/mL
RT: 7.987 min Scan# 562
Delta R.T. -0.000 min
Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

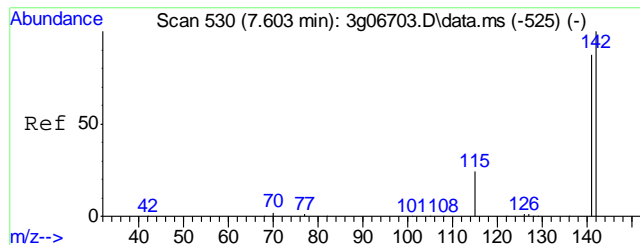
Tgt Ion	Ratio	Lower	Upper
172	100		
171	33.4	13.8	53.8



#8
2-Methylnaphthalene
Concen: 1.08 ug/mL
RT: 7.453 min Scan# 518
Delta R.T. -0.000 min
Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

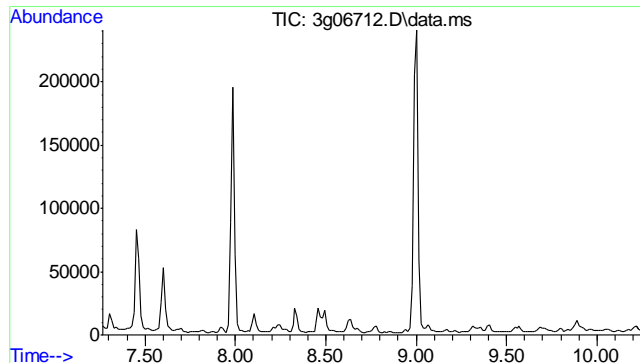
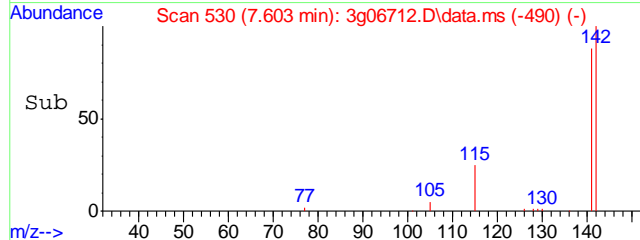
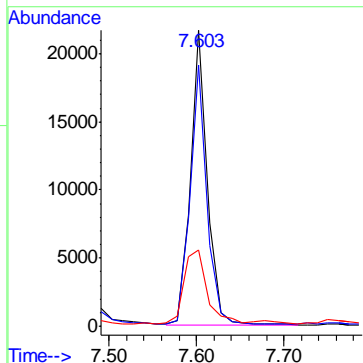
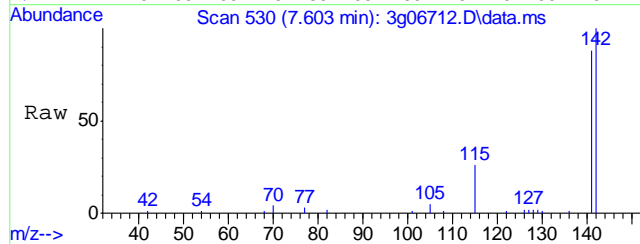
Tgt Ion	Ratio	Lower	Upper
142	100		
141	84.3	64.0	104.0
115	29.8	9.6	49.6





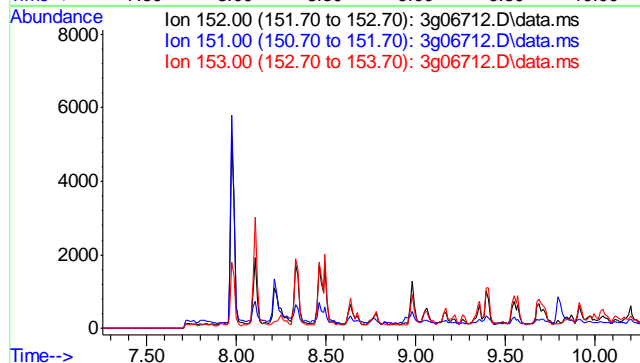
#9
1-Methylnaphthalene
Concen: 0.56 ug/mL
RT: 7.603 min Scan# 530
Delta R.T. -0.000 min
Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

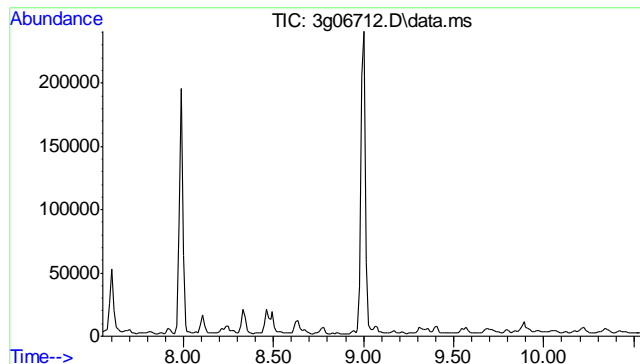
Tgt Ion:	142	Resp:	29230
Ion Ratio	100	Lower	Upper
142	100		
141	87.1	70.9	106.3
115	34.3	25.4	38.2



#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.75 min
Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

Tgt Ion:	152
Sig	Exp Ratio
152	100
151	19.6
153	12.8

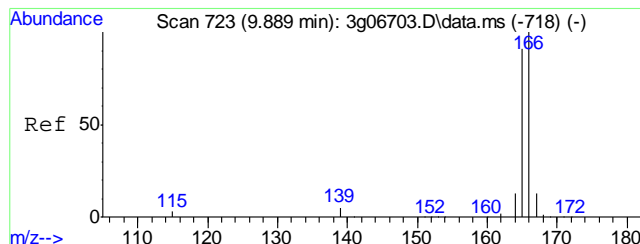
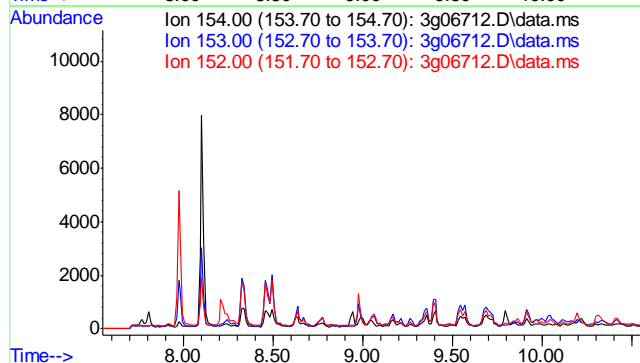




#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 9.05 min

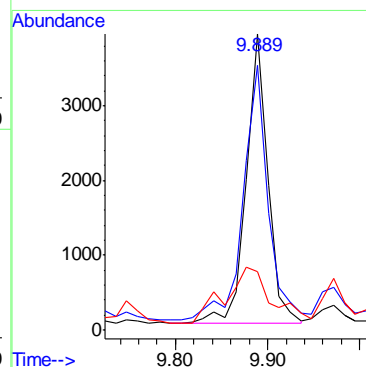
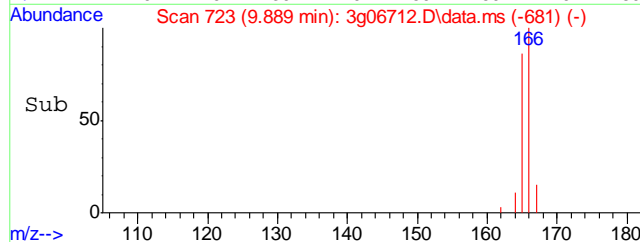
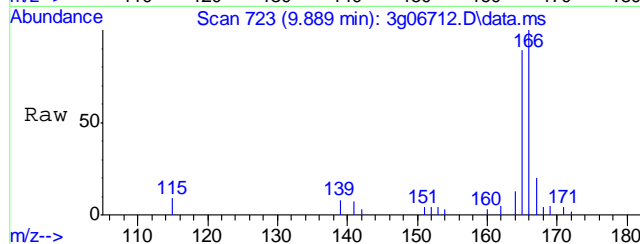
Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

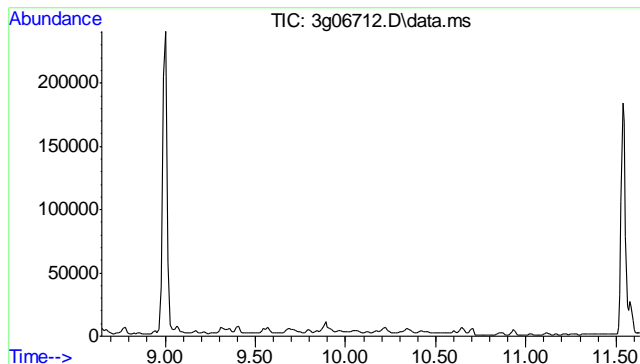
Tgt Ion: 154
Sig Exp Ratio
154 100
153 106.0
152 50.3



#12
Fluorene
Concen: 0.14 ug/mL
RT: 9.889 min Scan# 723
Delta R.T. -0.000 min
Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

Tgt Ion: 166 Resp: 6337
Ion Ratio Lower Upper
166 100
165 101.1 71.1 111.1
167 42.5 0.0 33.2#

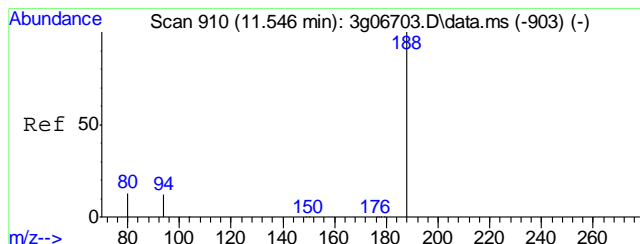
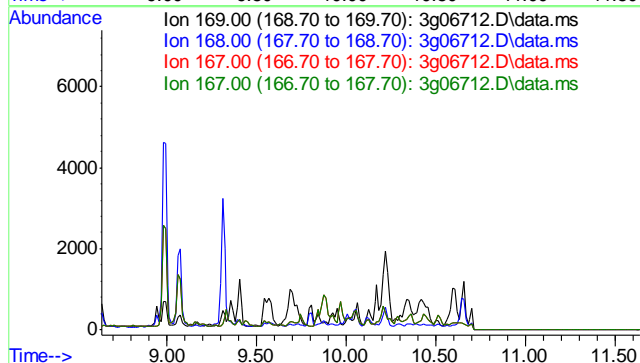




#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.14 min

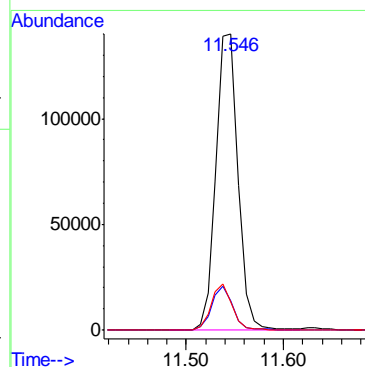
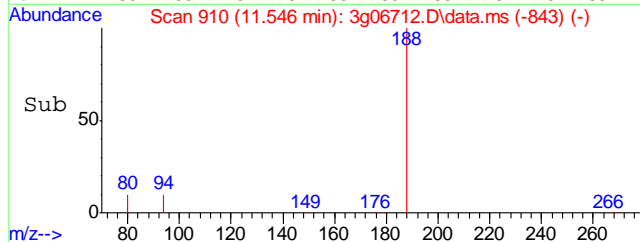
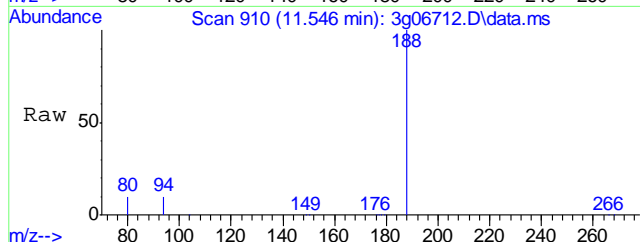
Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

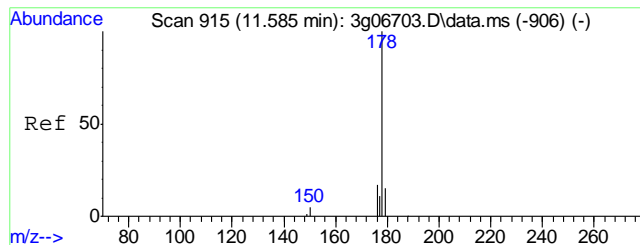
Tgt Ion: 169
Sig Exp Ratio
169 100
168 60.5
167 32.1
167 32.1



#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.546 min Scan# 910
Delta R.T. -0.000 min
Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

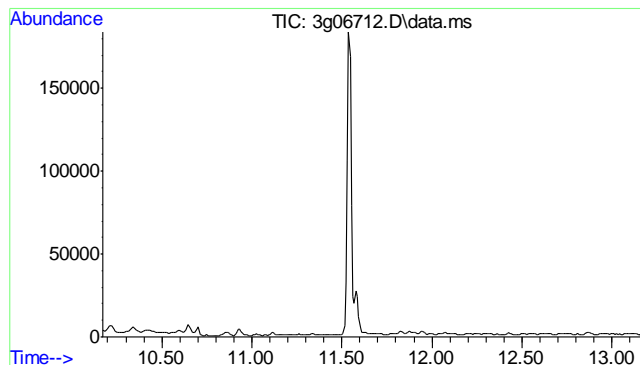
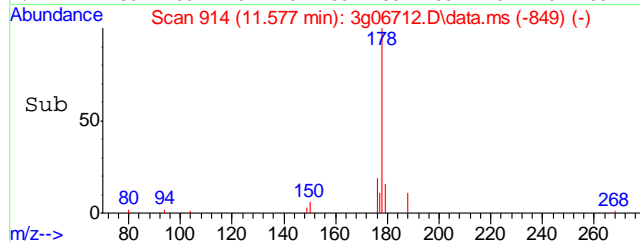
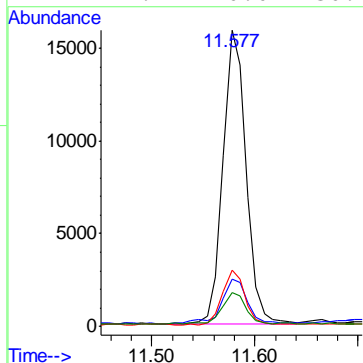
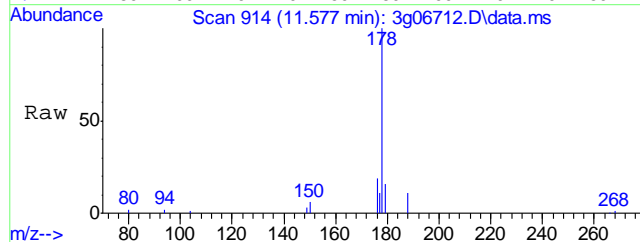
Tgt Ion: 188 Resp: 220552
Ion Ratio Lower Upper
188 100
94 14.1 0.0 36.9
80 14.8 0.0 38.3





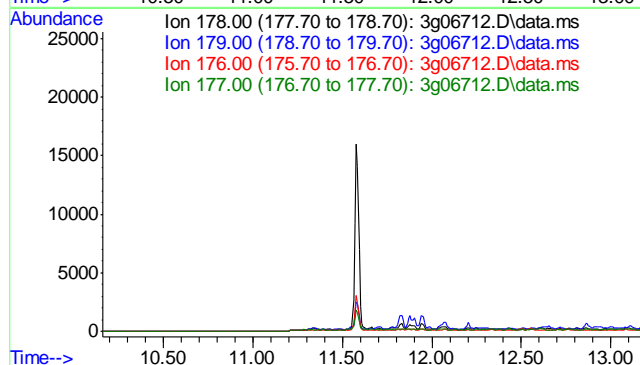
#15
Phenanthrene
Concen: 0.35 ug/mL
RT: 11.577 min Scan# 914
Delta R.T. -0.008 min
Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

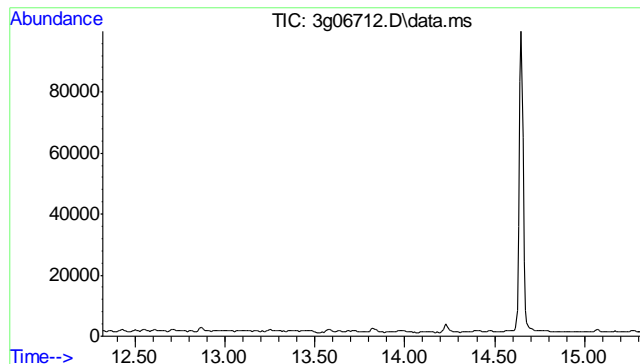
Tgt Ion:	178	Resp:	24786
Ion Ratio	Lower	Upper	
178	100		
179	16.9	0.0	35.1
176	18.3	0.0	38.3
177	11.4	0.0	30.7



#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.66 min
Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

Tgt Ion:	178
Sig	Exp Ratio
178	100
179	15.1
176	17.6
177	9.1

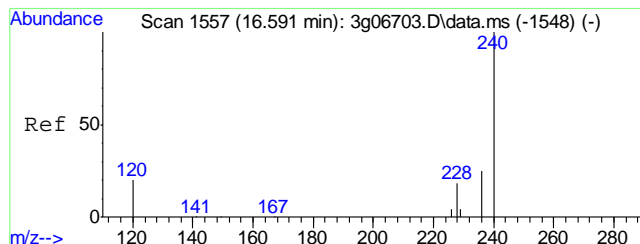
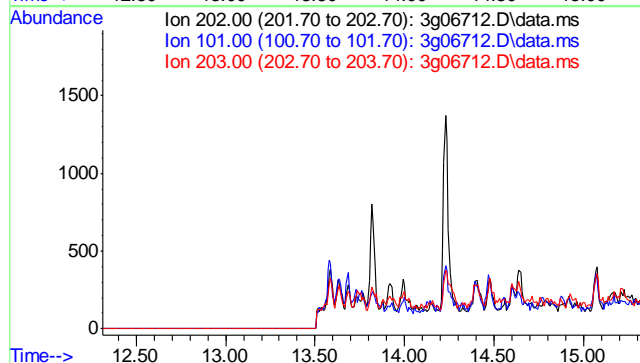




#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 13.82 min

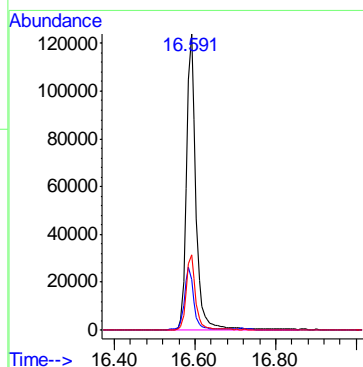
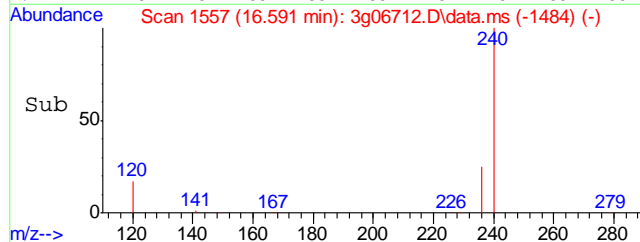
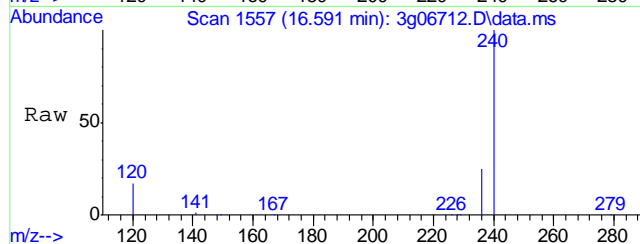
Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

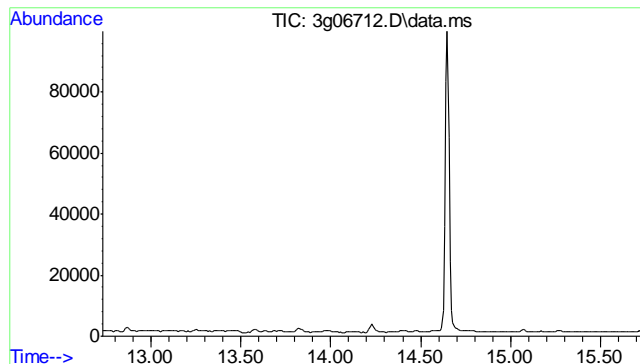
Tgt Ion: 202
Sig Exp Ratio
202 100
101 20.1
203 17.1



#18
Chrysene-d12
Concen: 4.00 ug/mL
RT: 16.591 min Scan# 1557
Delta R.T. -0.000 min
Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

Tgt Ion: 240 Resp: 203178
Ion Ratio Lower Upper
240 100
120 20.7 0.0 39.5
236 25.0 4.0 44.0

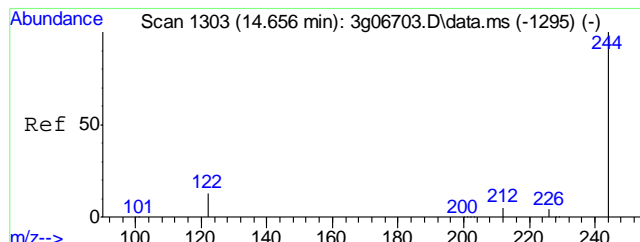
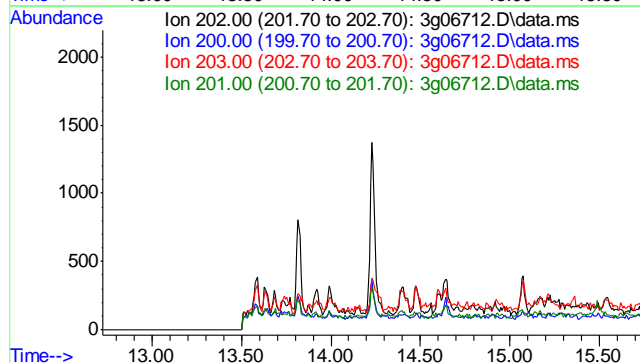




#19
 Pyrene
 Concen: N.D. ug/mL
 Expected RT: 14.23 min

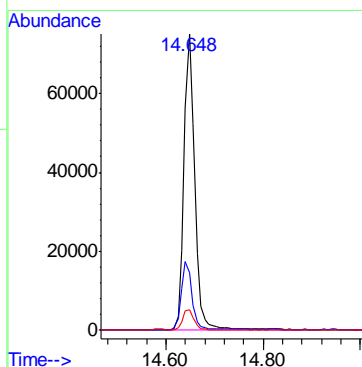
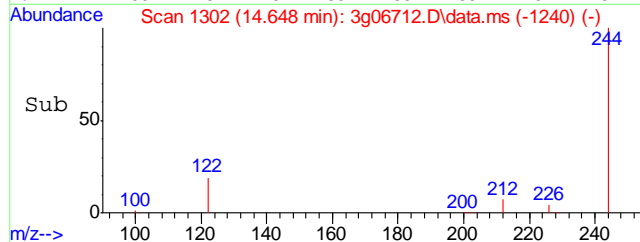
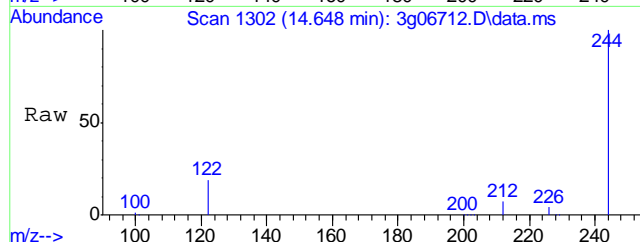
 Lab File: 3g06712.D
 Acq: 1 Nov 11 1:22 am

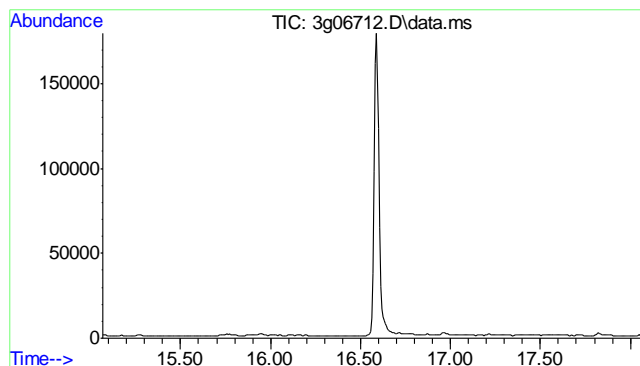
Tgt Ion: 202
 Sig Exp Ratio
 202 100
 200 19.7
 203 17.6
 201 16.5



#20
 Terphenyl-d14
 Concen: 3.44 ug/mL
 RT: 14.648 min Scan# 1302
 Delta R.T. -0.008 min
 Lab File: 3g06712.D
 Acq: 1 Nov 11 1:22 am

Tgt Ion: 244 Resp: 115328
 Ion Ratio Lower Upper
 244 100
 122 22.7 0.0 39.5
 212 6.9 0.0 26.0

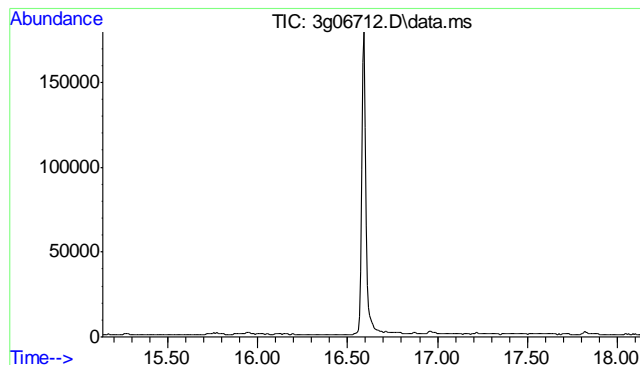
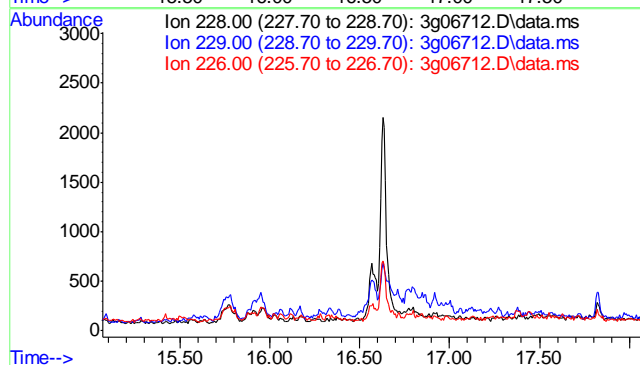




#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.56 min

Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

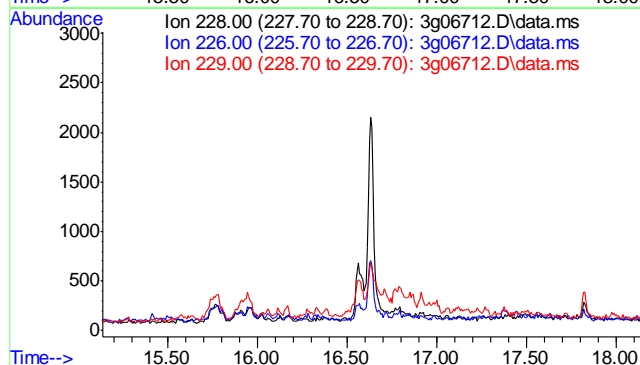
Tgt Ion	Exp Ratio
228	100
229	19.5
226	25.5

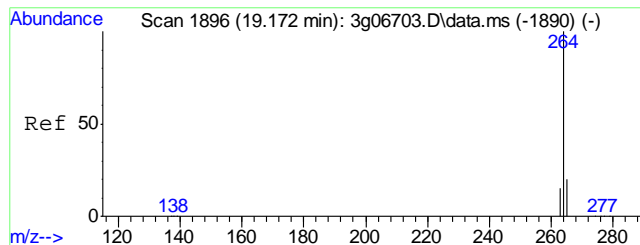


#22
Chrysene
Concen: N.D. ug/mL
Expected RT: 16.64 min

Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

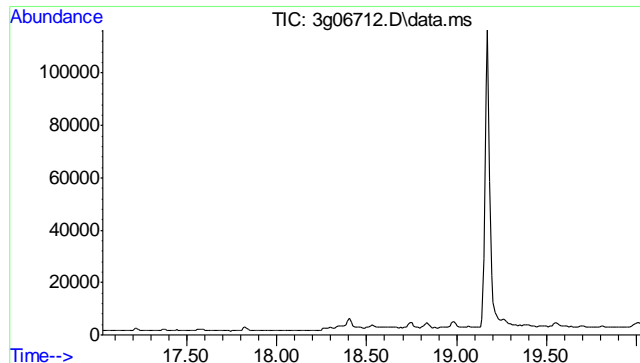
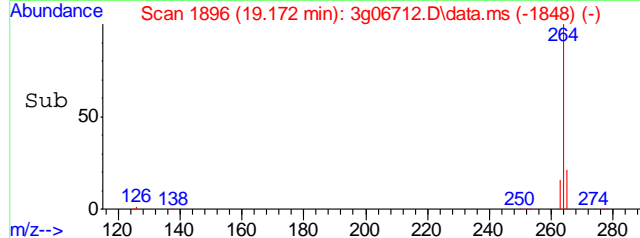
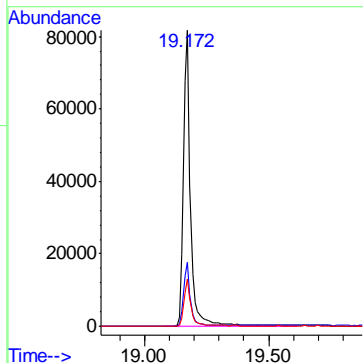
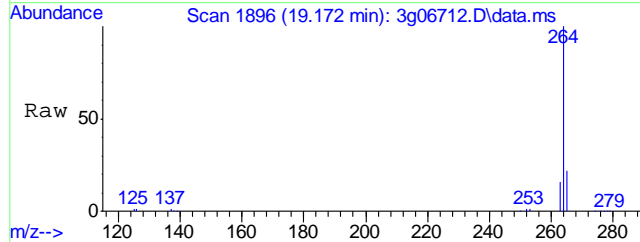
Tgt Ion	Exp Ratio
228	100
226	28.1
229	19.8





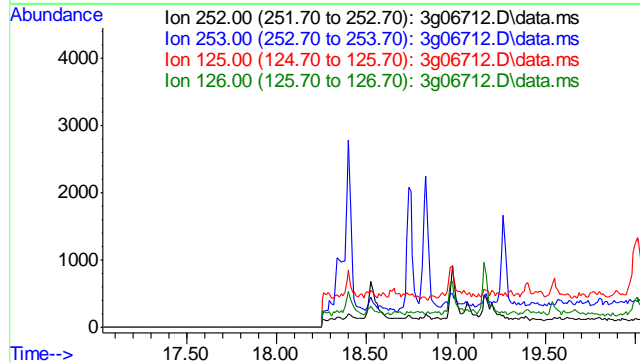
#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 19.172 min Scan# 1896
Delta R.T. -0.000 min
Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

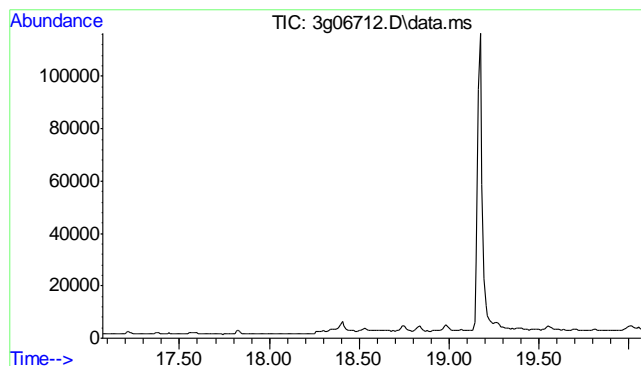
Tgt Ion:	264	Resp:	161530
Ion Ratio	Lower	Upper	
264	100		
265	21.4	0.8	40.8
263	15.7	0.0	35.9



#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.53 min
Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.5
125	17.0
126	22.7

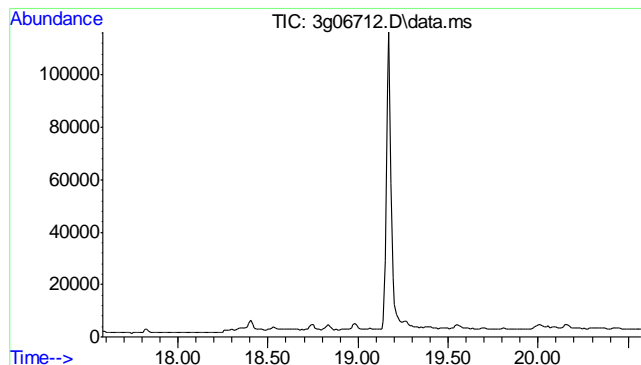
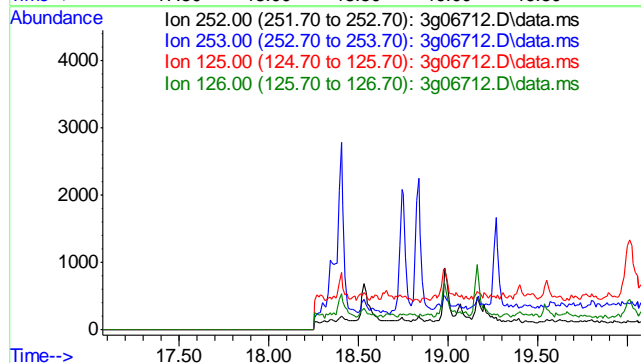




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.57 min

Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

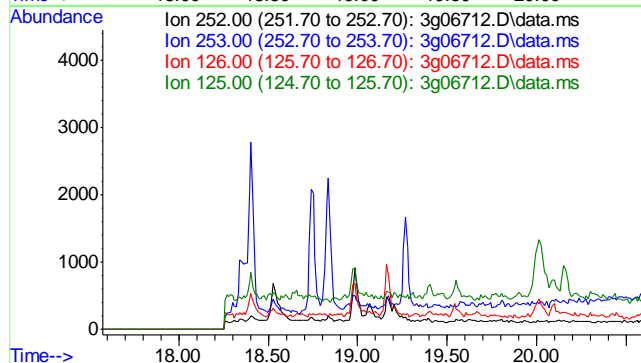
Tgt Ion	Exp Ratio
252	100
253	21.8
125	15.0
126	21.7

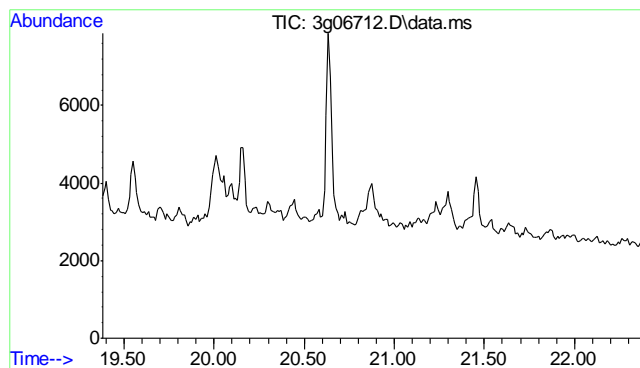


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 19.08 min

Lab File: 3g06712.D
Acq: 1 Nov 11 1:22 am

Tgt Ion	Exp Ratio
252	100
253	21.7
126	22.1
125	19.5

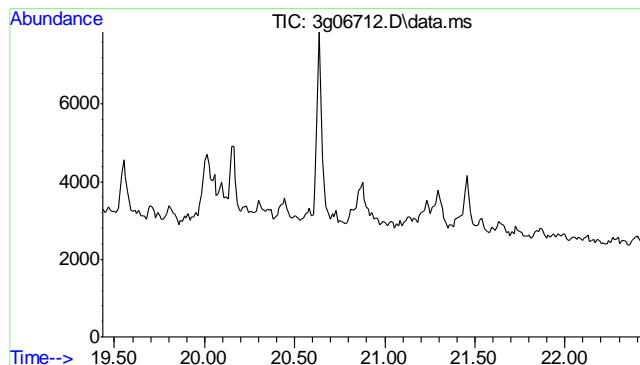
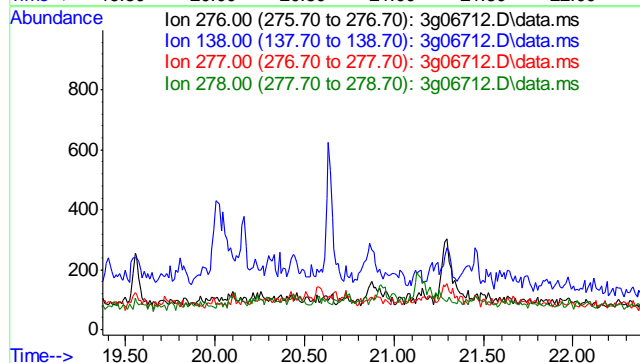




#27
 Indeno(1,2,3-cd)pyrene
 Concen: N.D. ug/mL
 Expected RT: 20.88 min

Lab File: 3g06712.D
 Acq: 1 Nov 11 1:22 am

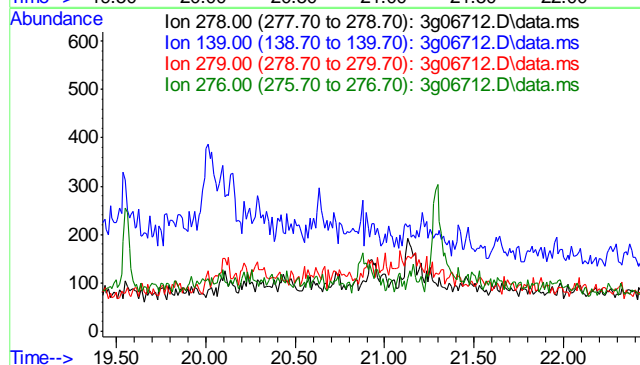
Tgt Ion	Sig	Exp Ratio
276	100	
138	26.6	
277	46.2	
278	147.1	

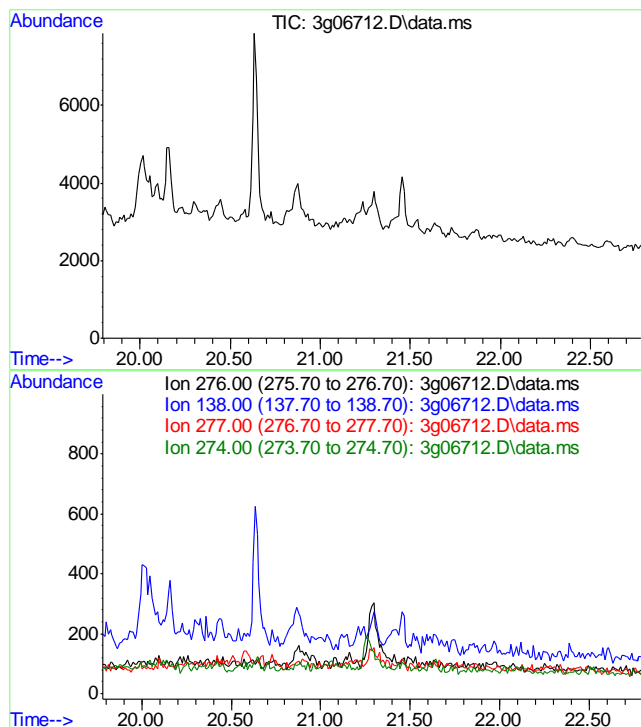


#28
 Dibenzo(a,h)anthracene
 Concen: N.D. ug/mL
 Expected RT: 20.93 min

Lab File: 3g06712.D
 Acq: 1 Nov 11 1:22 am

Tgt Ion	Sig	Exp Ratio
278	100	
139	22.3	
279	23.4	
276	127.2	





#29
 Benzo(g,h,i)perylene
 Concen: N.D. ug/mL
 Expected RT: 21.29 min

Lab File: 3g06712.D
 Acq: 1 Nov 11 1:22 am

Tgt Ion	Sig	Exp Ratio
276	100	
138	28.0	
277	23.0	
274	19.1	

8.1.1
 8

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\103111\
 Data File : 3g06707.D
 Acq On : 31 Oct 2011 10:12 pm
 Operator : TamiB
 Sample : OP4752-MB
 Misc : OP4752,E3G246,30,,,1,1
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 01 09:55:10 2011
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G246.M
 Quant Title : PAHSIM BASE
 QLast Update : Tue Nov 01 09:52:42 2011
 Response via : Initial Calibration

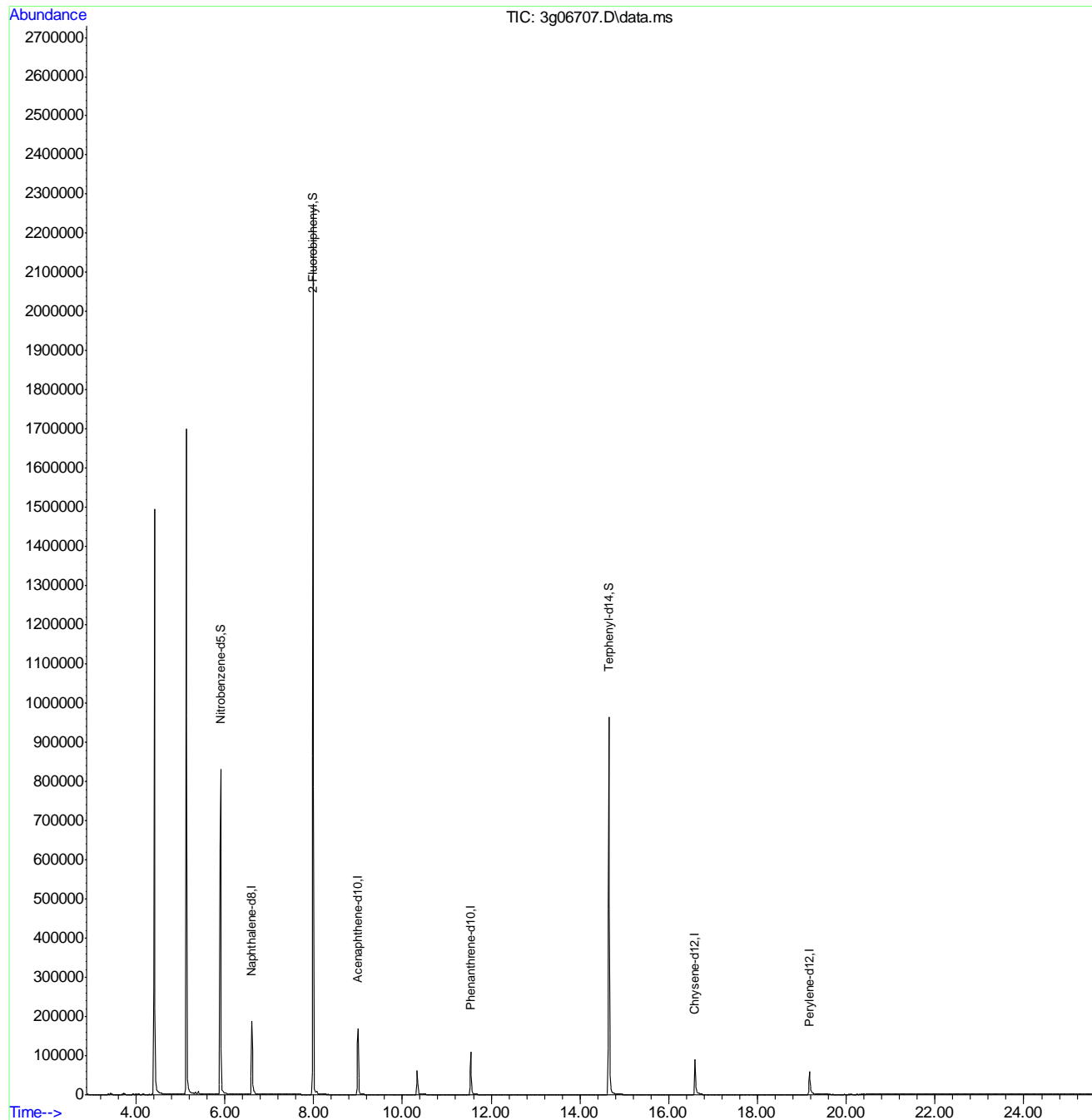
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.606	136	234882	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.003	164	107346	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.546	188	136756	4.00	ug/mL	0.00
18) Chrysene-d12	16.591	240	127873	4.00	ug/mL	0.00
23) Perylene-d12	19.172	264	96839	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.907	82	598625	41.02	ug/mL	0.00
7) 2-Fluorobiphenyl	7.987	172	1918701	42.47	ug/mL	0.00
20) Terphenyl-d14	14.656	244	1210511	57.39	ug/mL	0.00
Target Compounds						
					Qvalue	
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	0.000		0	N.D.	d	
8) 2-Methylnaphthalene	0.000		0	N.D.	d	
9) 1-Methylnaphthalene	0.000		0	N.D.	d	
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	0.000		0	N.D.	d	
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	0.000		0	N.D.	d	
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	0.000		0	N.D.	d	
21) Benzo(a)anthracene	0.000		0	N.D.	d	
22) Chrysene	0.000		0	N.D.	d	
24) Benzo(b)fluoranthene	0.000		0	N.D.	d	
25) Benzo(k)fluoranthene	0.000		0	N.D.	d	
26) Benzo(a)pyrene	0.000		0	N.D.	d	
27) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
28) Dibenz(a,h)anthracene	0.000		0	N.D.	d	
29) Benzo(g,h,i)perylene	0.000		0	N.D.	d	

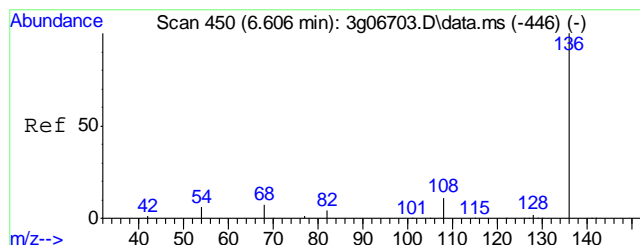
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\103111\
Data File : 3g06707.D
Acq On : 31 Oct 2011 10:12 pm
Operator : TamiB
Sample : OP4752-MB
Misc : OP4752,E3G246,30,,,1,1
ALS Vial : 12 Sample Multiplier: 1

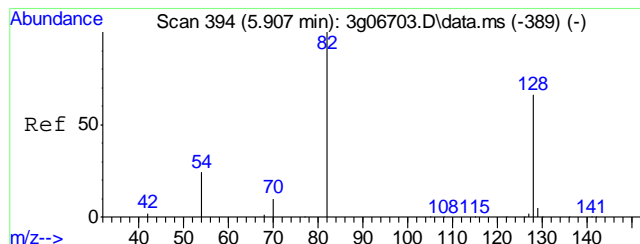
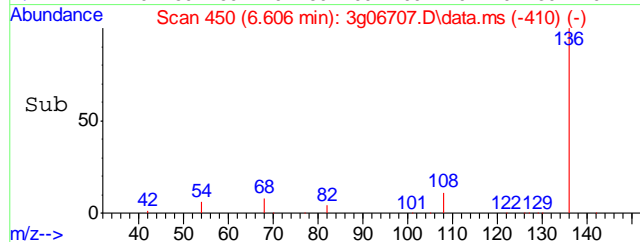
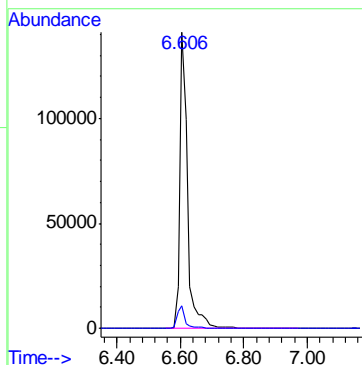
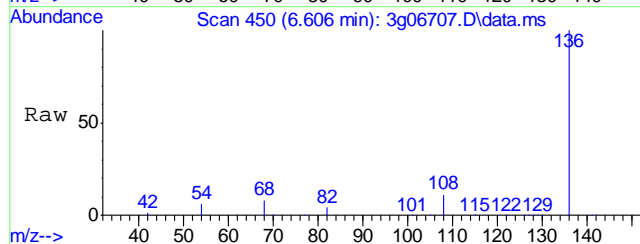
Quant Time: Nov 01 09:55:10 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G246.M
Quant Title : PAHSIM BASE
QLast Update : Tue Nov 01 09:52:42 2011
Response via : Initial Calibration





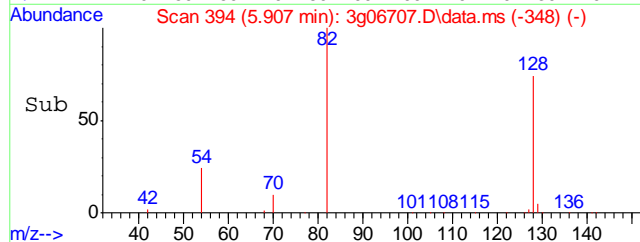
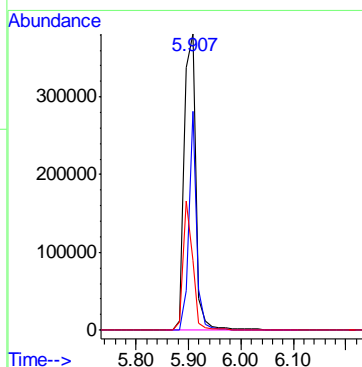
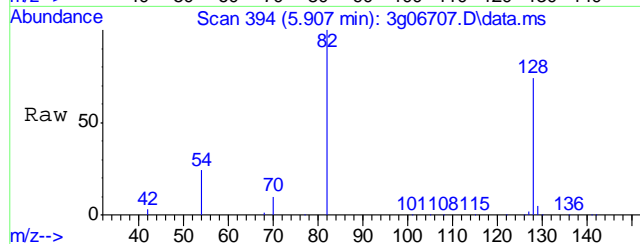
#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.606 min Scan# 450
Delta R.T. -0.000 min
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

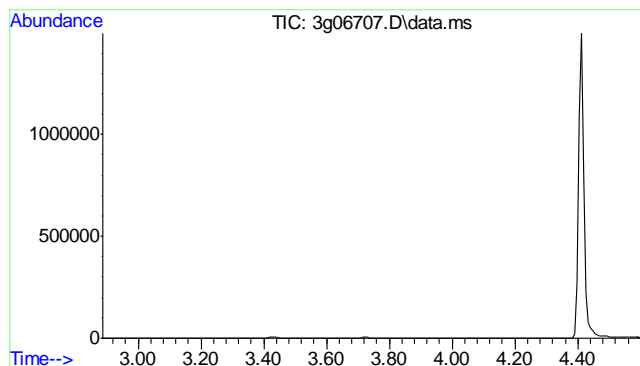
Tgt Ion: 136 Resp: 234882
Ion Ratio Lower Upper
136 100
68 8.0 0.0 28.1



#2
Nitrobenzene-d5
Concen: 41.02 ug/mL
RT: 5.907 min Scan# 394
Delta R.T. -0.000 min
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 82 Resp: 598625
Ion Ratio Lower Upper
82 100
128 50.2 28.3 68.3
54 35.6 14.8 54.8

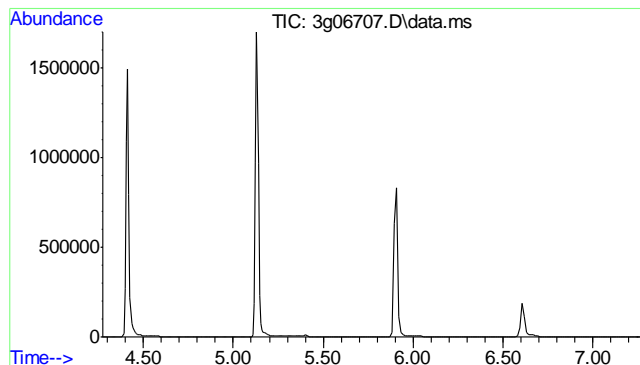
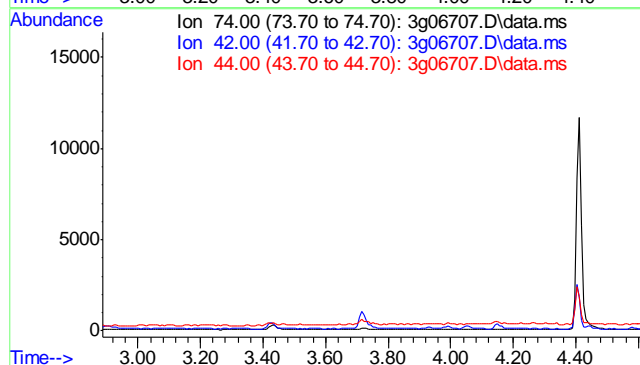




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 3.11 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

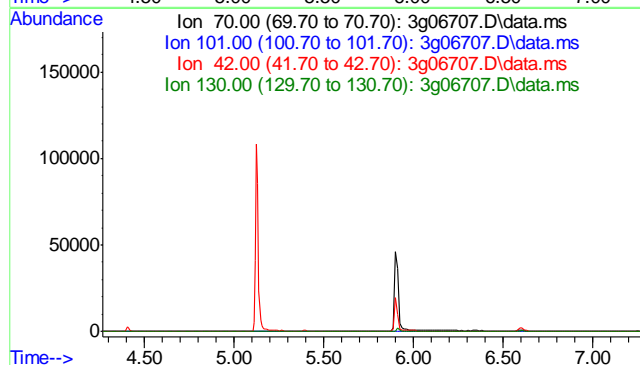
Tgt Ion:	74
Sig	Exp Ratio
74	100
42	41.9
44	3.1

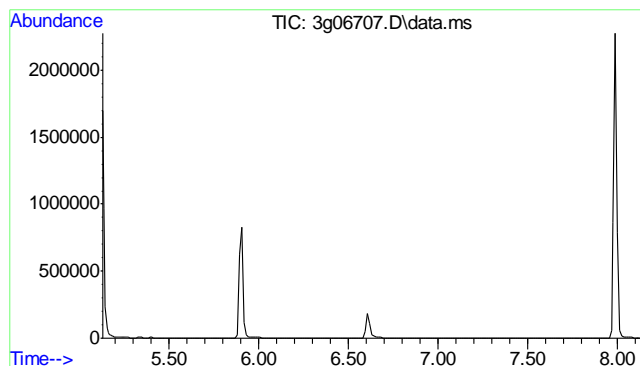


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.77 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion:	70
Sig	Exp Ratio
70	100
101	12.6
42	35.8
130	27.2

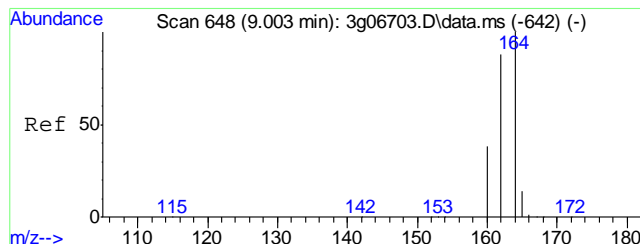
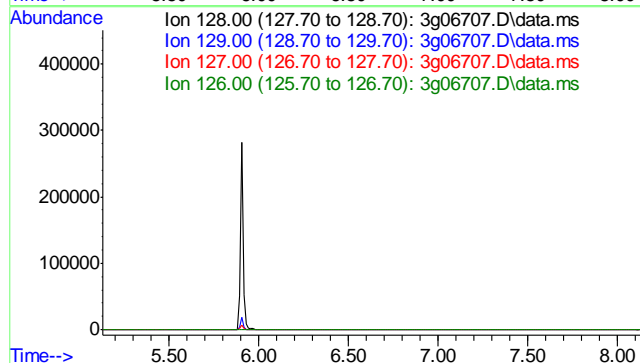




#5
Naphthalene
Concen: N.D. ug/mL
Expected RT: 6.63 min

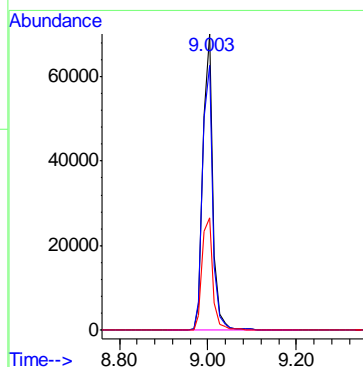
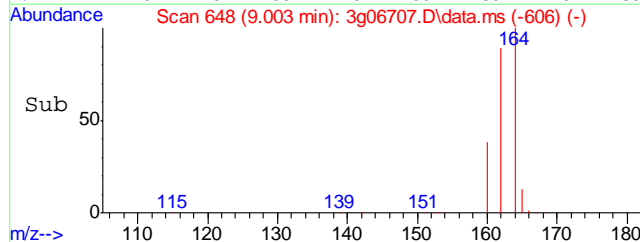
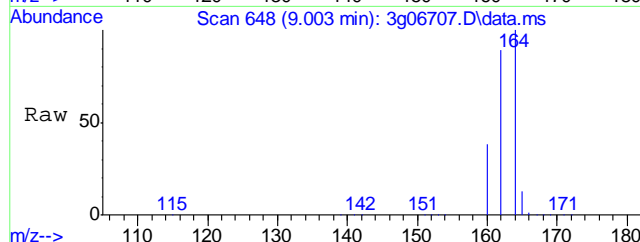
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

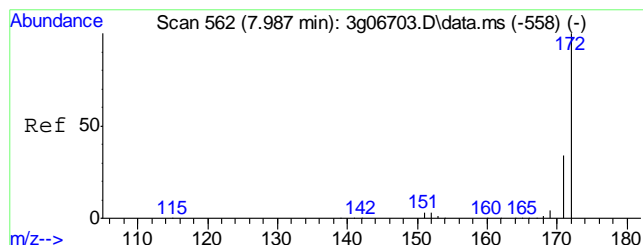
Tgt Ion: 128
Sig Exp Ratio
128 100
129 10.8
127 12.9
126 7.2



#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 9.003 min Scan# 648
Delta R.T. -0.000 min
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

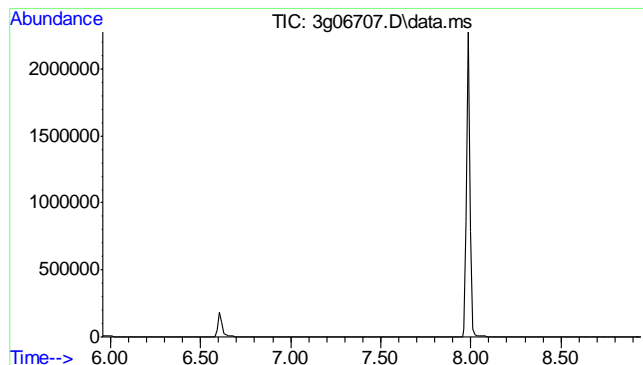
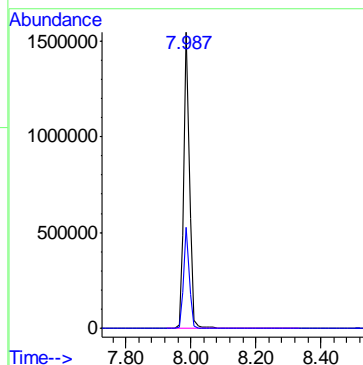
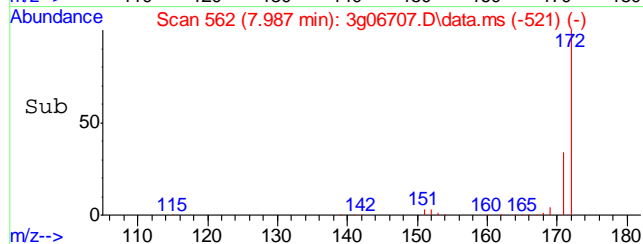
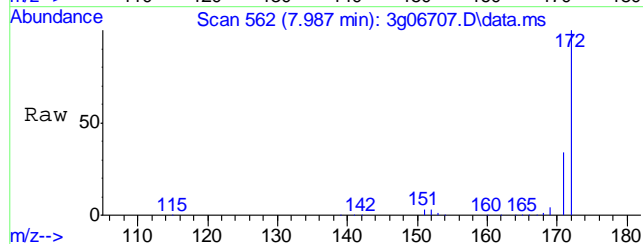
Tgt Ion: 164 Resp: 107346
Ion Ratio Lower Upper
164 100
162 92.9 72.0 112.0
160 41.3 21.5 61.5





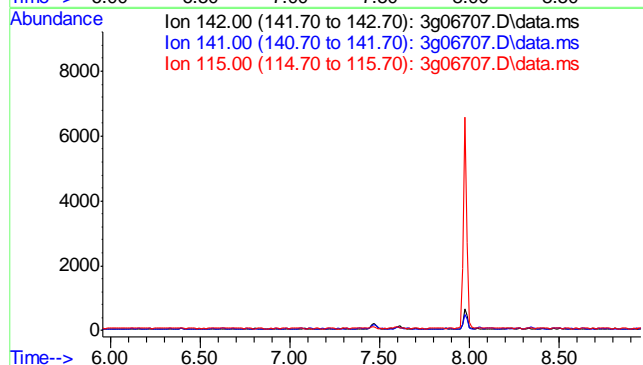
#7
2-Fluorobiphenyl
Concen: 42.47 ug/mL
RT: 7.987 min Scan# 562
Delta R.T. -0.000 min
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

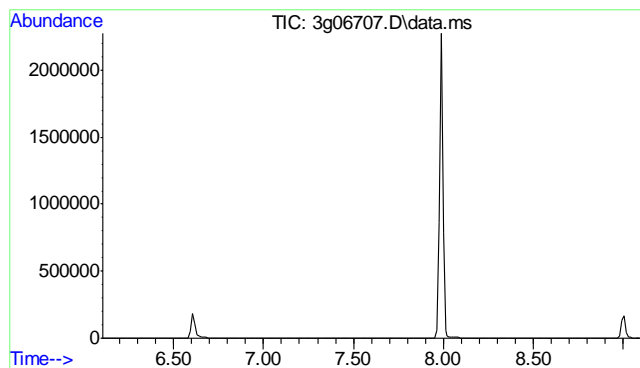
Tgt Ion: 172 Resp: 1918701
Ion Ratio Lower Upper
172 100
171 34.0 13.8 53.8



#8
2-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.45 min
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 142
Sig Exp Ratio
142 100
141 84.0
115 29.6

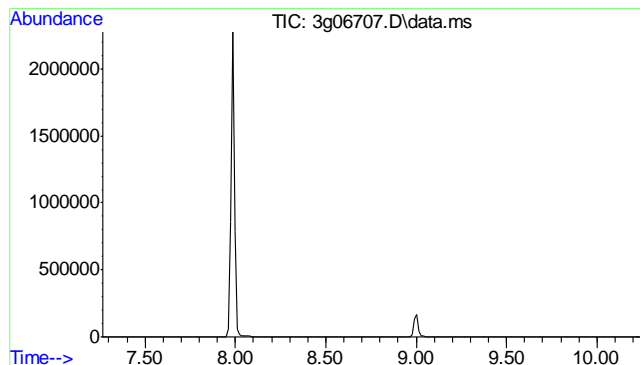
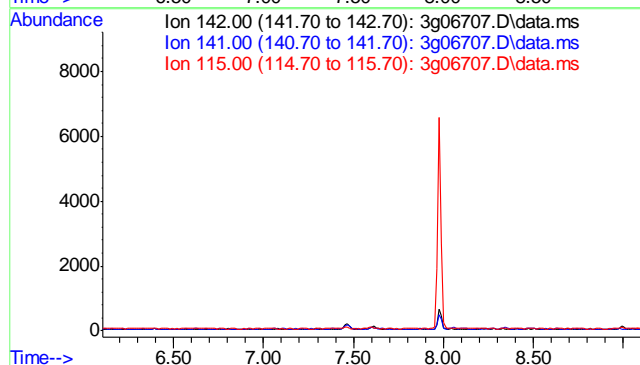




#9
1-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.60 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

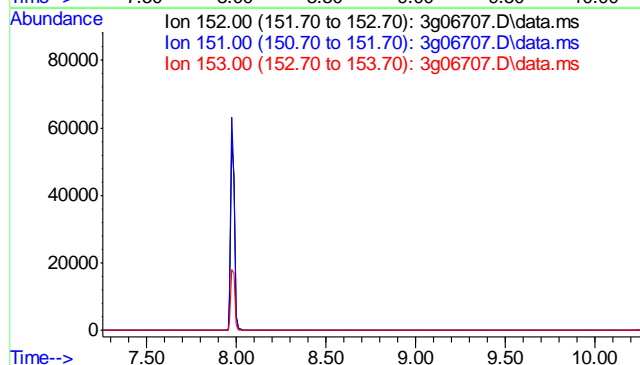
Tgt Ion:	142
Sig	Exp Ratio
142	100
141	88.6
115	31.8

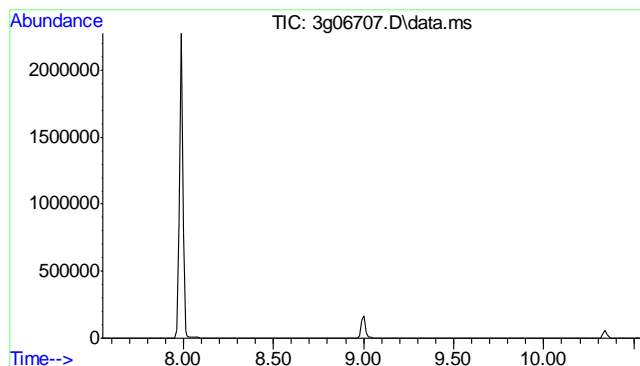


#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.75 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion:	152
Sig	Exp Ratio
152	100
151	19.6
153	12.8

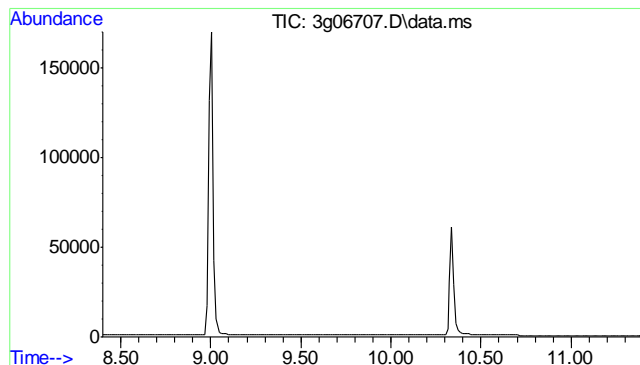
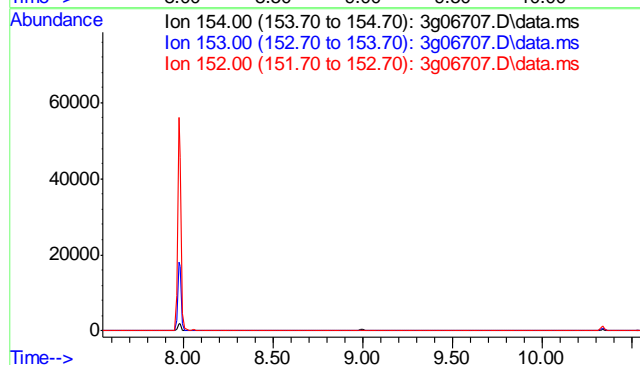




#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 9.05 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

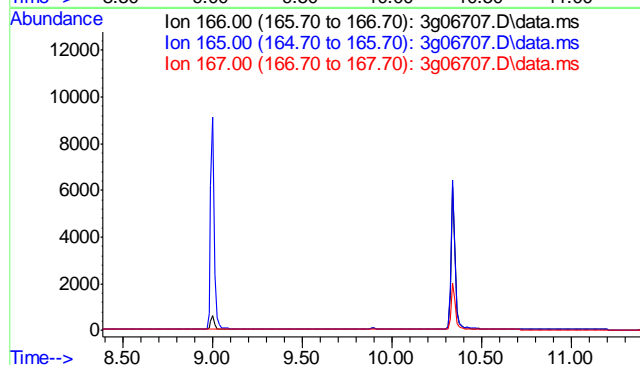
Tgt Ion:	154
Sig	Exp Ratio
154	100
153	106.0
152	50.3

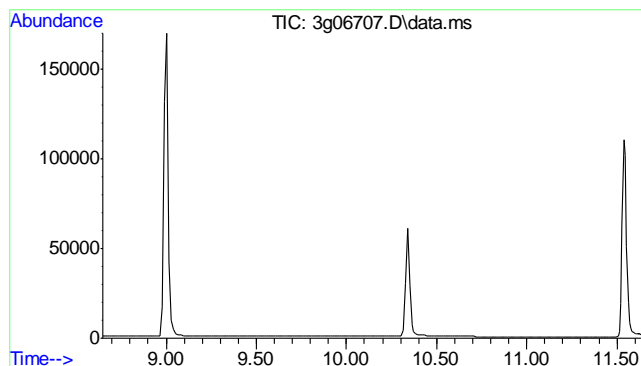


#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 9.89 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion:	166
Sig	Exp Ratio
166	100
165	91.1
167	13.2

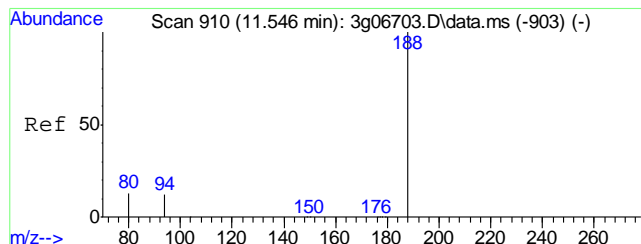
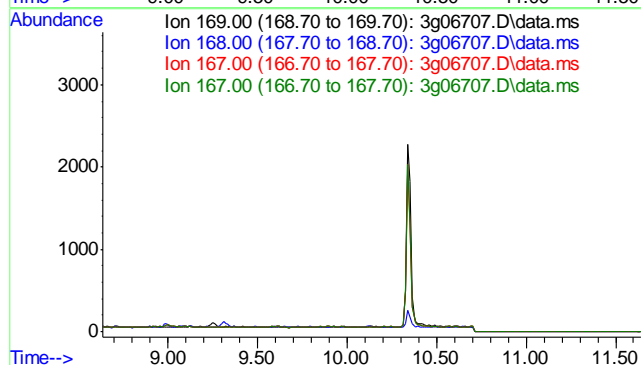




#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.14 min

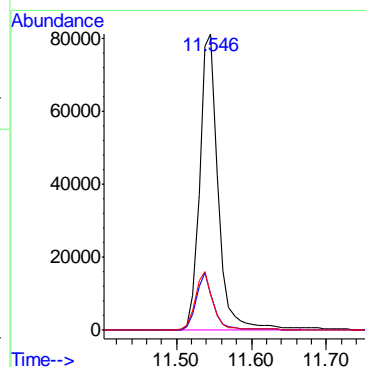
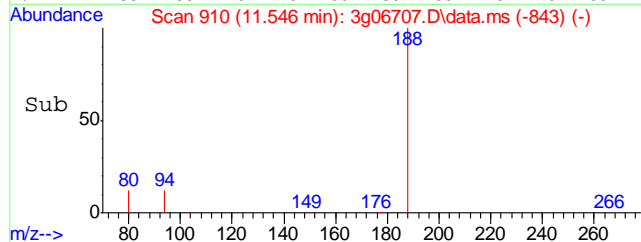
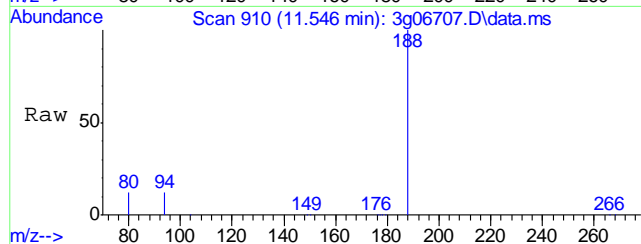
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

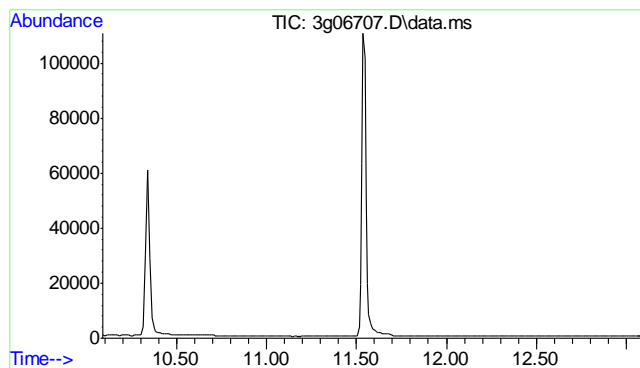
Tgt Ion: 169
Sig Exp Ratio
169 100
168 60.5
167 32.1
167 32.1



#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.546 min Scan# 910
Delta R.T. -0.000 min
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 188 Resp: 136756
Ion Ratio Lower Upper
188 100
94 17.6 0.0 36.9
80 18.8 0.0 38.3

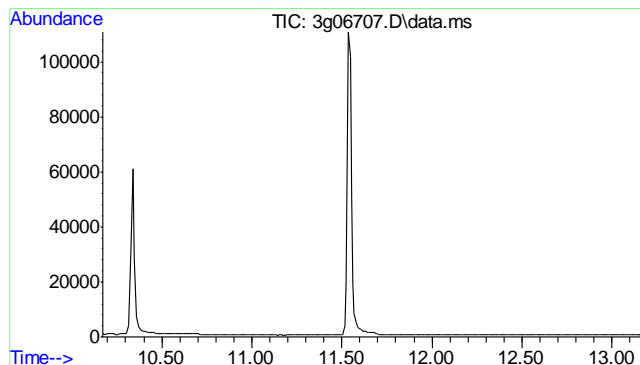
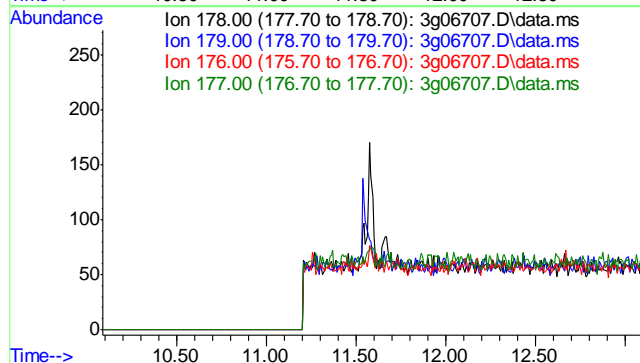




#15
Phenanthrene
Concen: N.D. ug/mL
Expected RT: 11.59 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

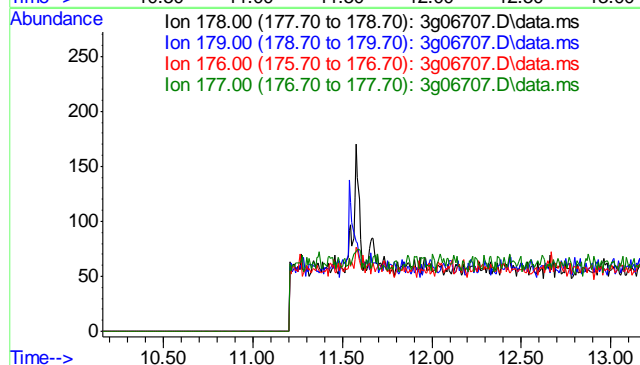
Tgt Ion:	178
Sig	Exp Ratio
178	100
179	15.1
176	18.3
177	10.7

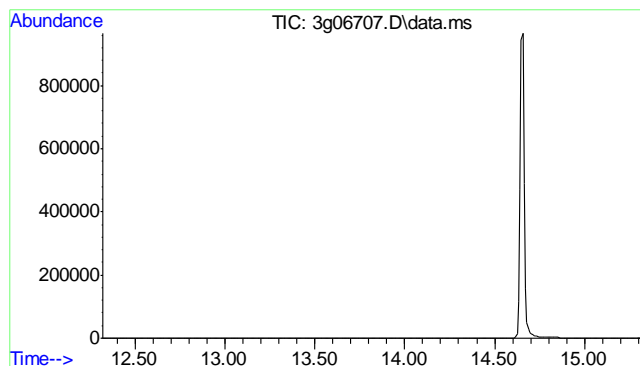


#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.66 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion:	178
Sig	Exp Ratio
178	100
179	15.1
176	17.6
177	9.1

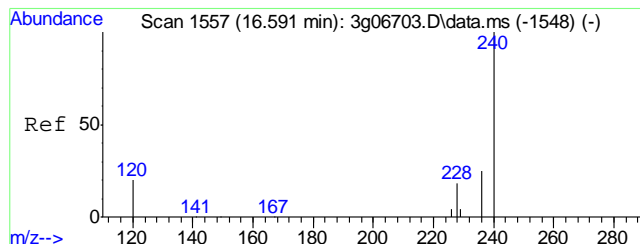
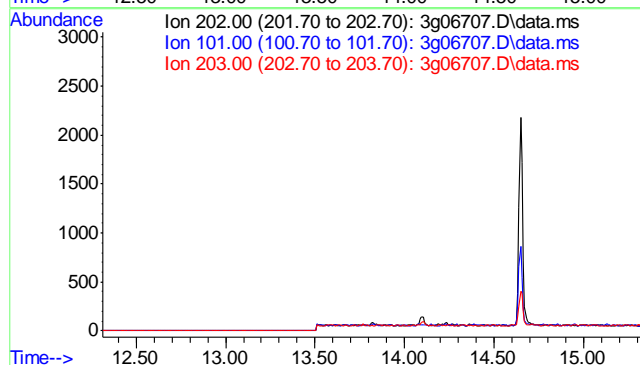




#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 13.82 min

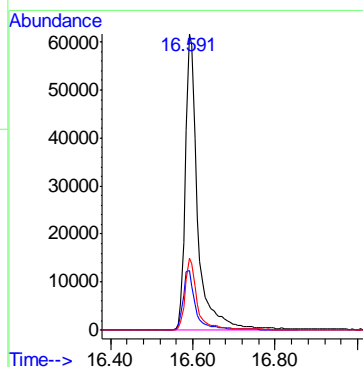
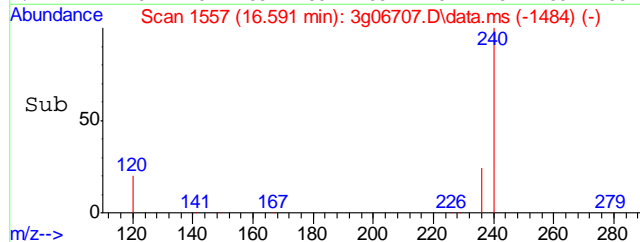
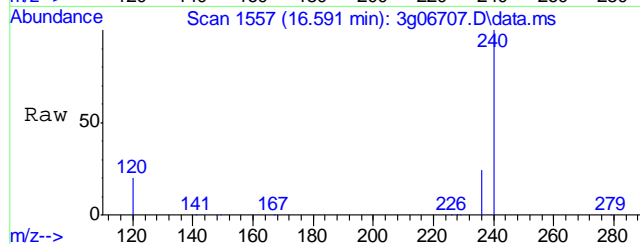
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

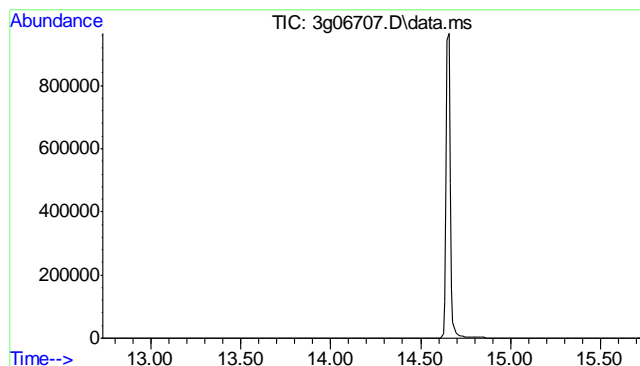
Tgt Ion: 202
Sig Exp Ratio
202 100
101 20.1
203 17.1



#18
Chrysene-d12
Concen: 4.00 ug/mL
RT: 16.591 min Scan# 1557
Delta R.T. -0.000 min
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 240 Resp: 127873
Ion Ratio Lower Upper
240 100
120 20.0 0.0 39.5
236 23.5 4.0 44.0

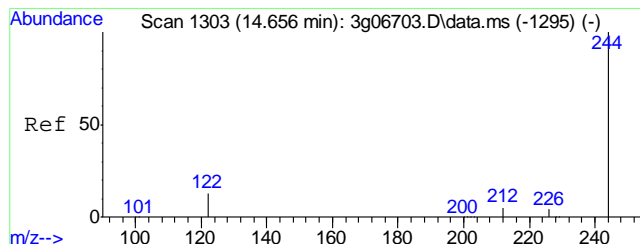
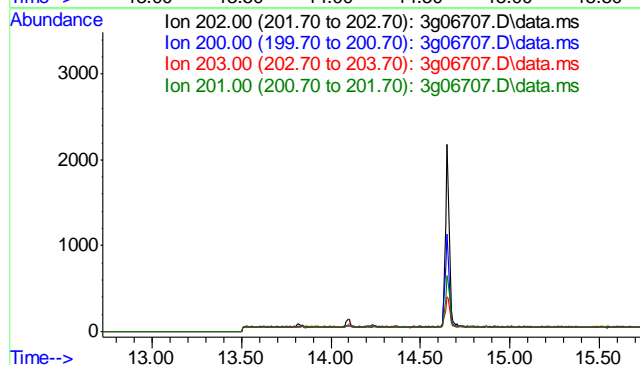




#19
Pyrene
Concen: N.D. ug/mL
Expected RT: 14.23 min

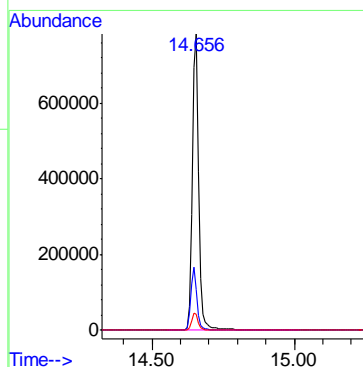
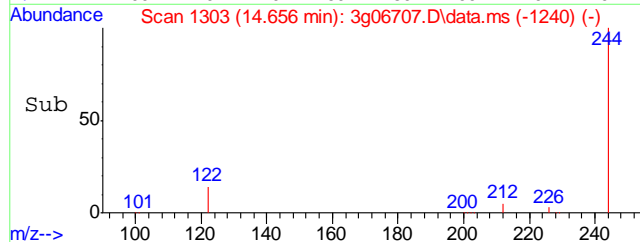
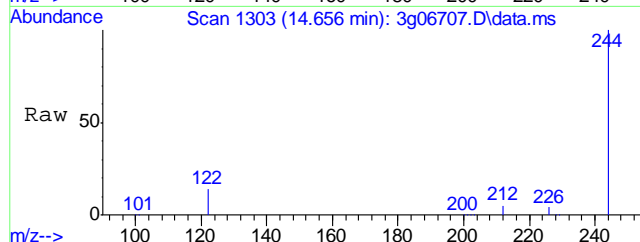
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

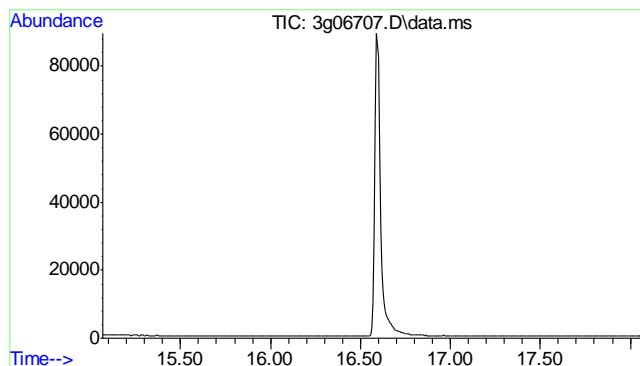
Tgt Ion: 202
Sig Exp Ratio
202 100
200 19.7
203 17.6
201 16.5



#20
Terphenyl-d14
Concen: 57.39 ug/mL
RT: 14.656 min Scan# 1303
Delta R.T. -0.000 min
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 244 Resp: 1210511
Ion Ratio Lower Upper
244 100
122 20.3 0.0 39.5
212 5.9 0.0 26.0

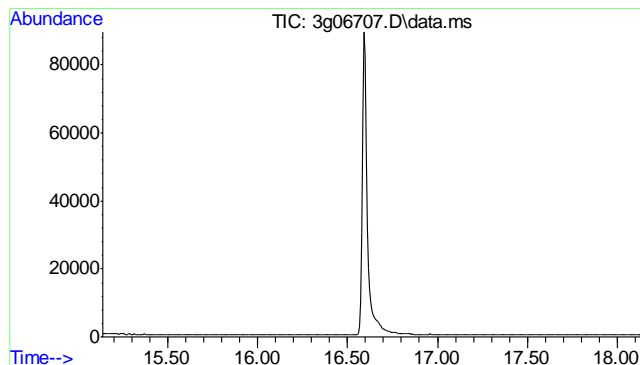
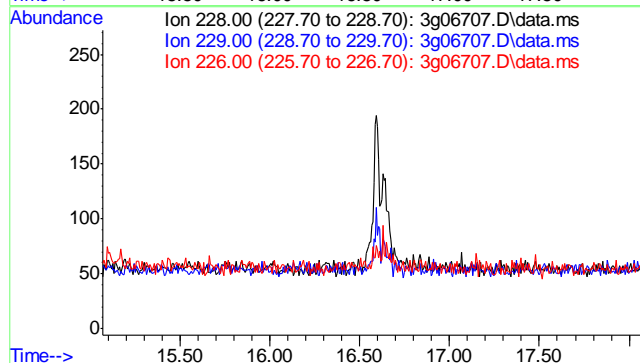




#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.56 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

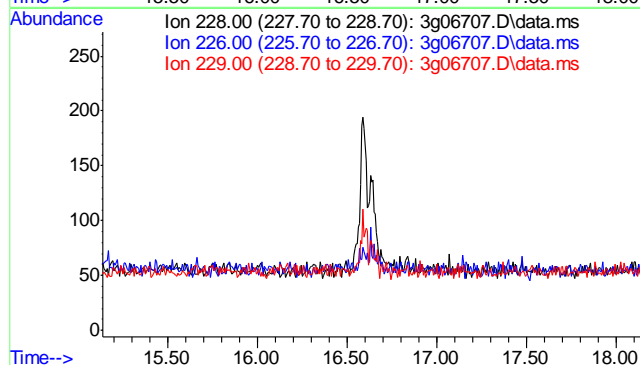
Tgt Ion:	228
Sig	Exp Ratio
228	100
229	19.5
226	25.5

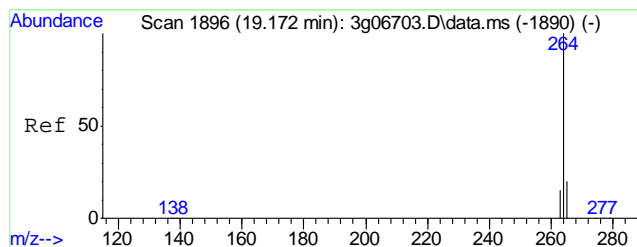


#22
Chrysene
Concen: N.D. ug/mL
Expected RT: 16.64 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

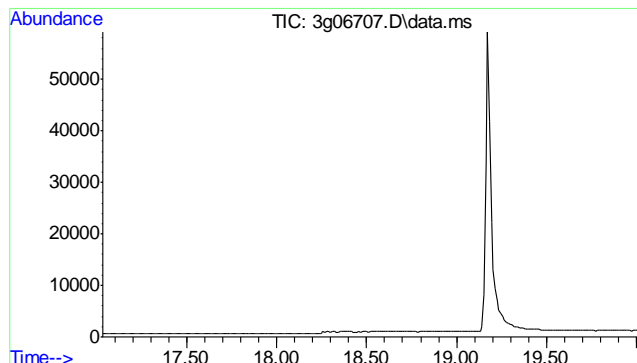
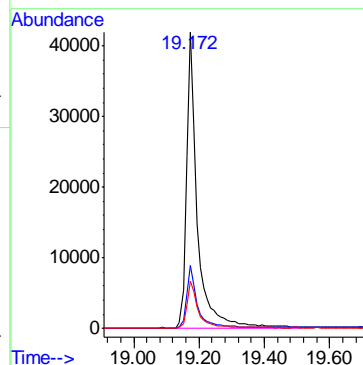
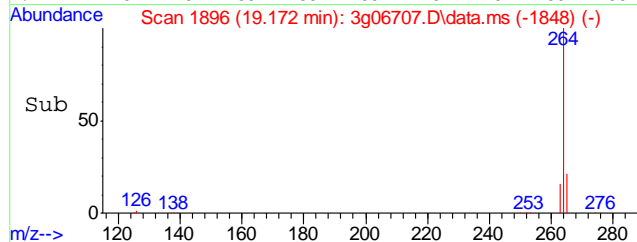
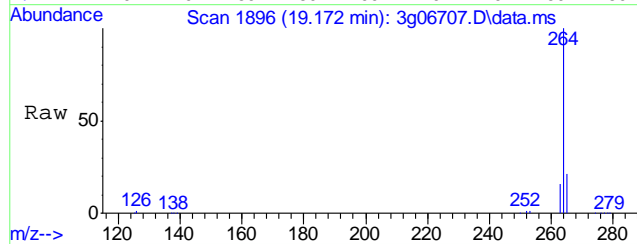
Tgt Ion:	228
Sig	Exp Ratio
228	100
226	28.1
229	19.8





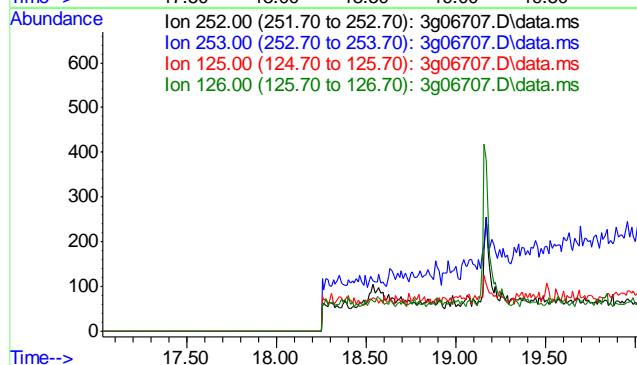
#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 19.172 min Scan# 1896
Delta R.T. -0.000 min
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

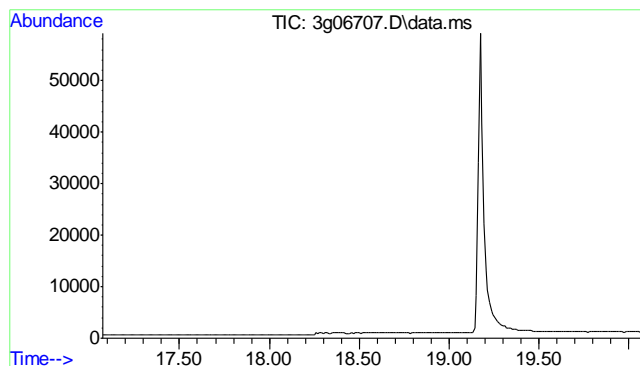
Tgt Ion:	264	Resp:	96839
Ion Ratio	Lower	Upper	
264	100		
265	20.5	0.8	40.8
263	16.6	0.0	35.9



#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.53 min
Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.5
125	17.0
126	22.7

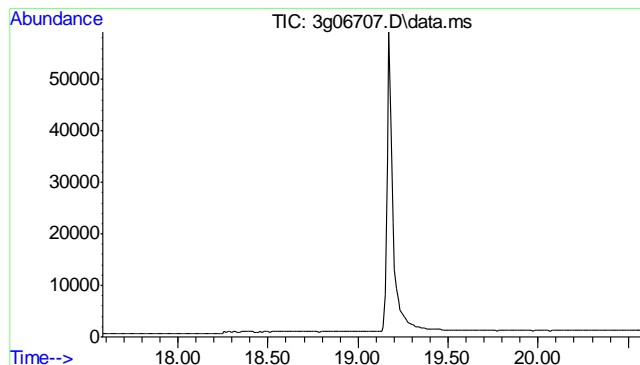
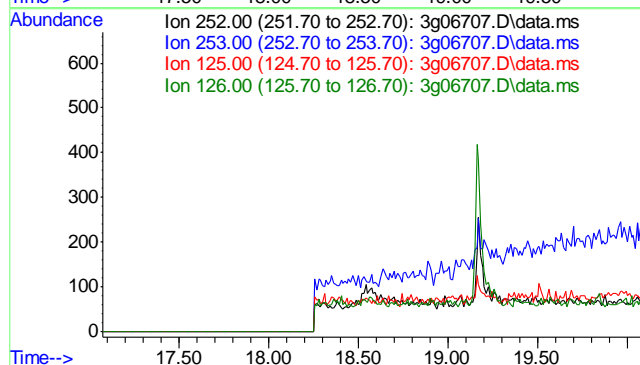




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.57 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

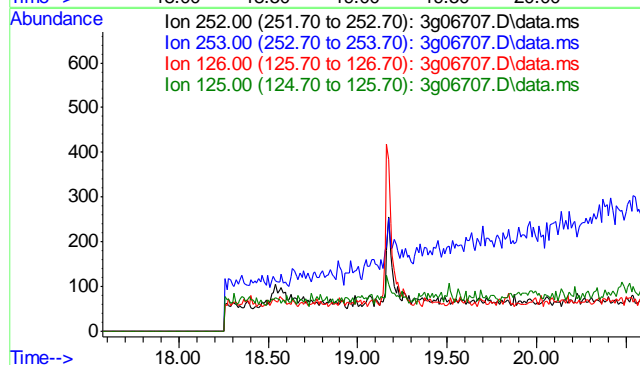
Tgt Ion: 252
Sig Exp Ratio
252 100
253 21.8
125 15.0
126 21.7

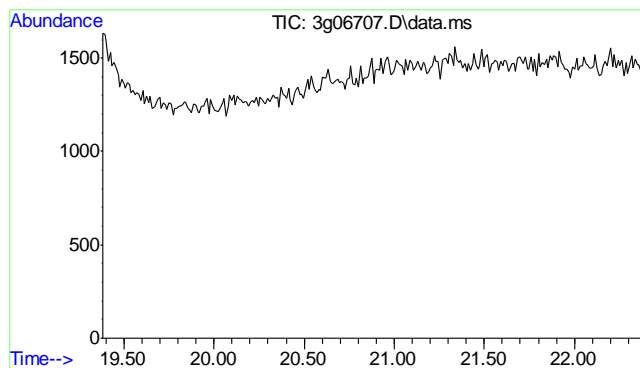


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 19.08 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 252
Sig Exp Ratio
252 100
253 21.7
126 22.1
125 19.5

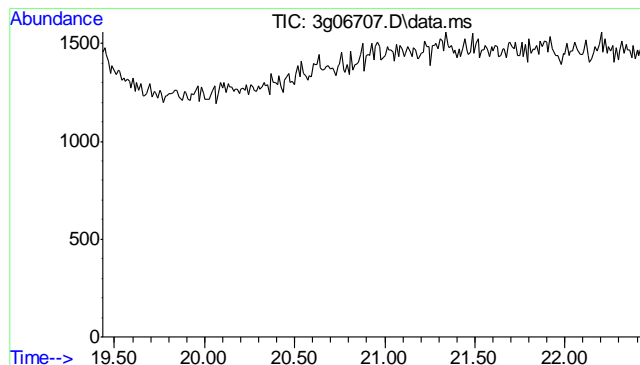
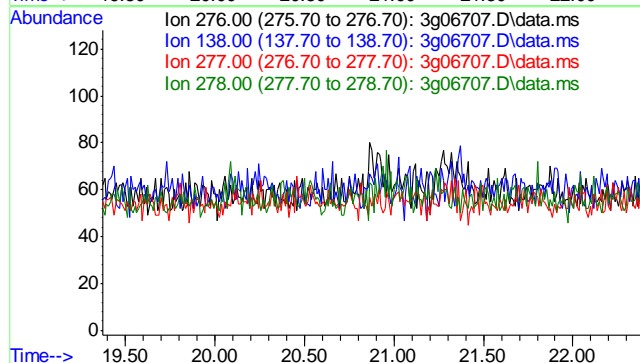




#27
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 20.88 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

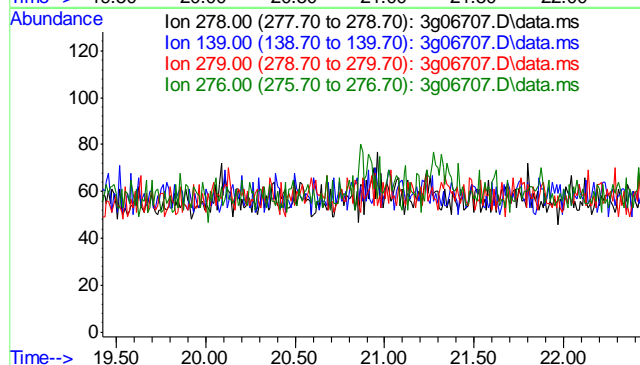
Tgt Ion:	276
Sig	Exp Ratio
276	100
138	26.6
277	46.2
278	147.1

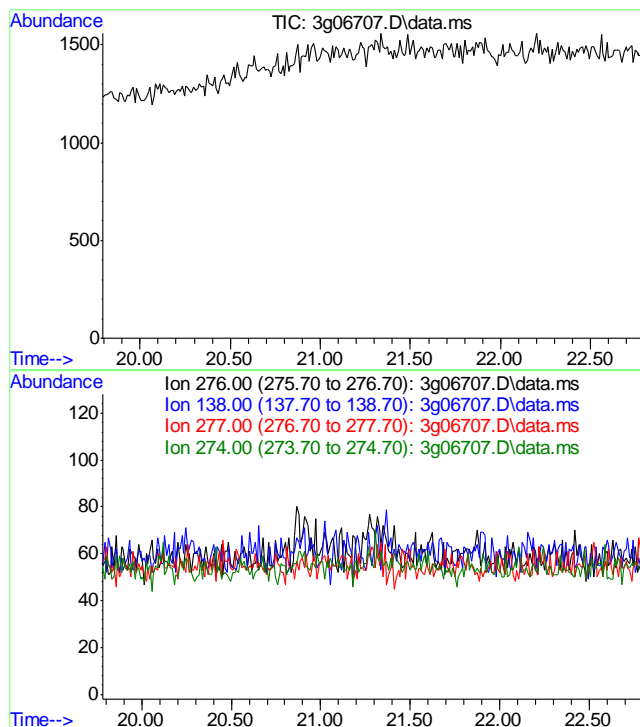


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 20.93 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion:	278
Sig	Exp Ratio
278	100
139	22.3
279	23.4
276	127.2





#29
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 21.29 min

Lab File: 3g06707.D
Acq: 31 Oct 11 10:12 pm

Tgt Ion: 276
Sig Exp Ratio
276 100
138 28.0
277 23.0
274 19.1

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: D28910
Account: KRWCCOL KRW Consulting, Inc.
Project: FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB773-MB	GB13645.D	1	10/27/11	SK	n/a	n/a	GGB773

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

D28910-1

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

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	80% 60-140%

9.1.1
9

Blank Spike Summary

Job Number: D28910
Account: KRWCCOL KRW Consulting, Inc.
Project: FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB773-BS	GB13646.D	1	10/27/11	SK	n/a	n/a	GGB773

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

D28910-1

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

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	92%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D28910
Account: KRWCCOL KRW Consulting, Inc.
Project: FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D28909-1MS	GB13648.D	1	10/27/11	SK	n/a	n/a	GGB773
D28909-1MSD	GB13649.D	1	10/27/11	SK	n/a	n/a	GGB773
D28909-1	GB13647.D	1	10/27/11	SK	n/a	n/a	GGB773

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

D28910-1

CAS No.	Compound	D28909-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	5.86	J	121	135	106	136	107	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D28909-1	Limits
120-82-1	1,2,4-Trichlorobenzene	93%	88%	93%	60-140%

GC Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\102711\GB13650.D\FID1A.CH Vial: 7
Signal #2 : Y:\1\DATA\102711\GB13650.D\FID2B.CH
Acq On : 27 Oct 2011 5:46 pm Operator: StephK
Sample : D28910-1, 50X Inst : GC/MS Ins
Misc : GC2361,GGB773,5.039,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Oct 28 08:38:49 2011 Quant Results File: TB740GB740SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Fri Oct 28 08:38:30 2011
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	14.45	2883778	83.112 %	m	
10) S	1,2,4-Trichlorobenzene (P)	14.45	21584831	107.331 %		
Target Compounds						
1) H	TVH-Gasoline	7.33	8345249	<MDL	mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5) T	Benzene	4.23	172548	0.357	ug/L	
6) T	Toluene	7.77	776886	1.672	ug/L	
7) T	Ethylbenzene	10.39	141535	0.351	ug/L	
8) T	m,p-Xylene	10.56	1042739	1.679	ug/L	
9) T	o-Xylene	11.06	258670	0.410	ug/L	
11) T	Naphthalene	14.64	1265067	5.656	ug/L	

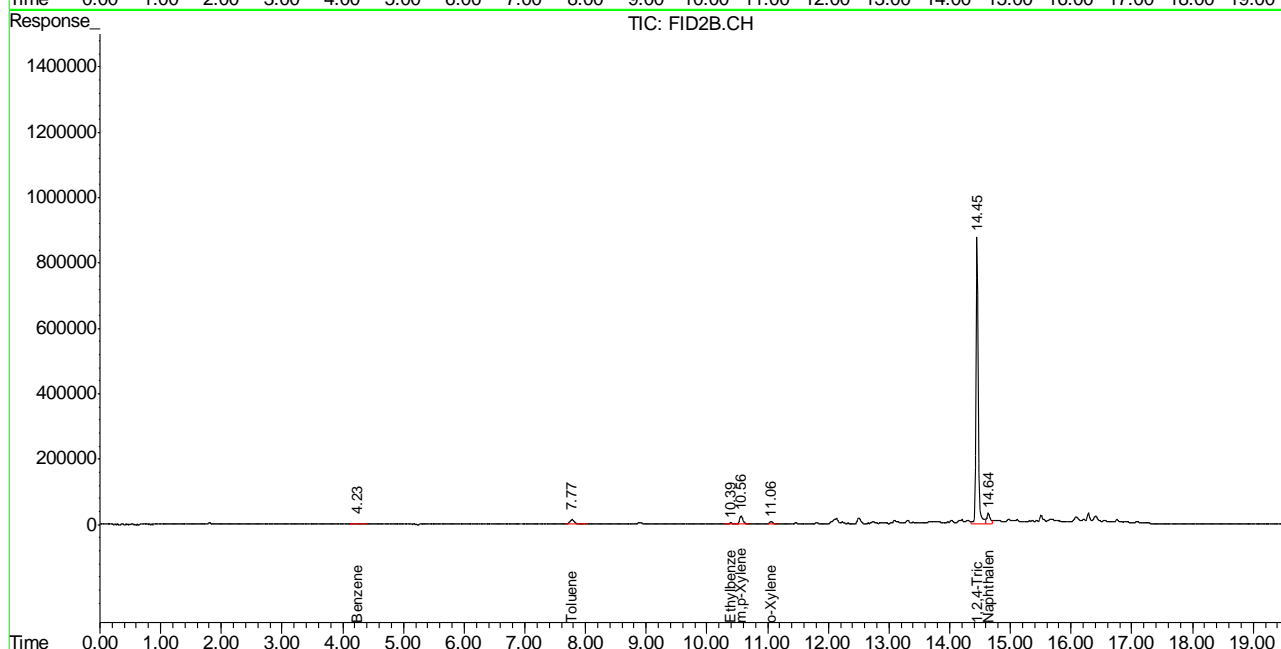
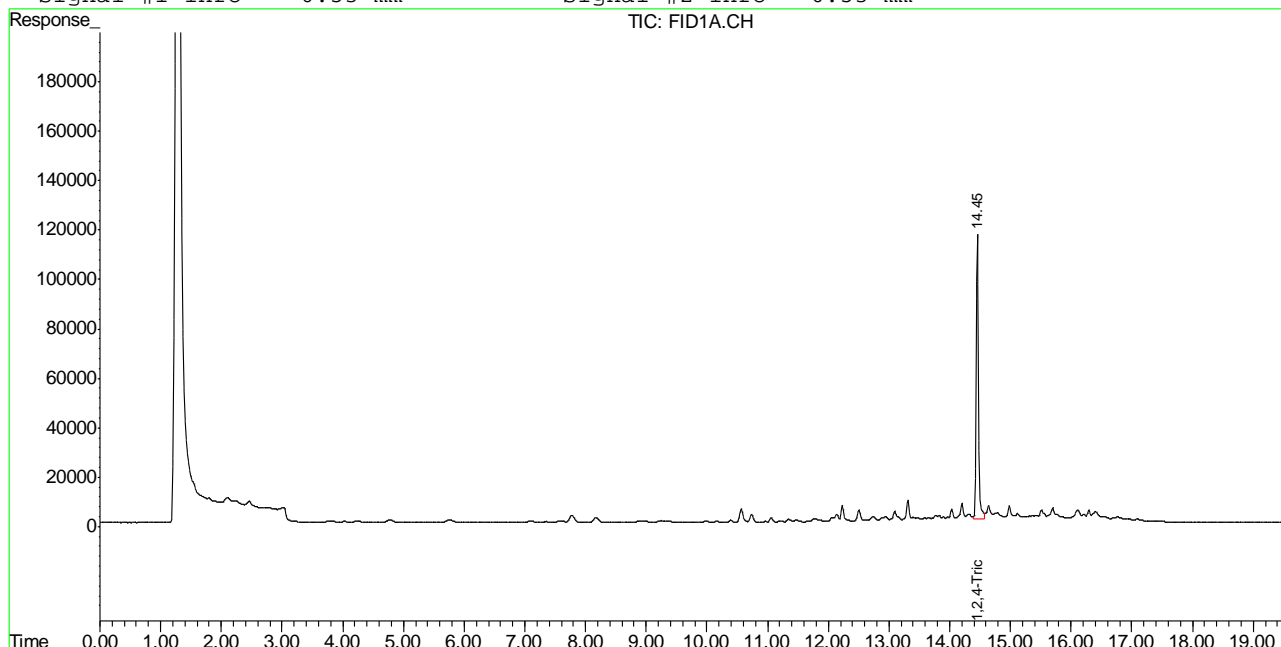
10.1.1
10

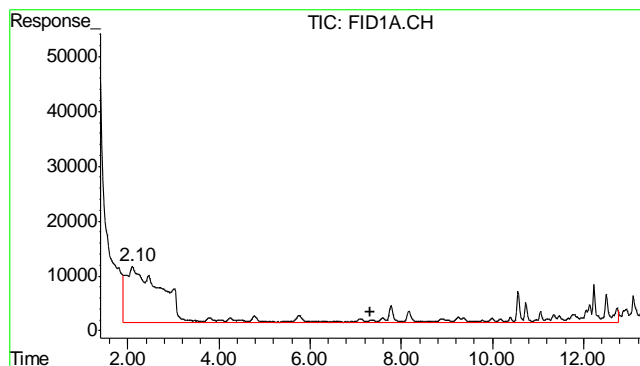
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\102711\GB13650.D\FID1A.CH Vial: 7
 Signal #2 : Y:\1\DATA\102711\GB13650.D\FID2B.CH
 Acq On : 27 Oct 2011 5:46 pm Operator: StephK
 Sample : D28910-1, 50X Inst : GC/MS Ins
 Misc : GC2361,GGB773,5.039,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Oct 28 7:39 2011 Quant Results File: TB740GB740SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Fri Oct 28 08:38:30 2011
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

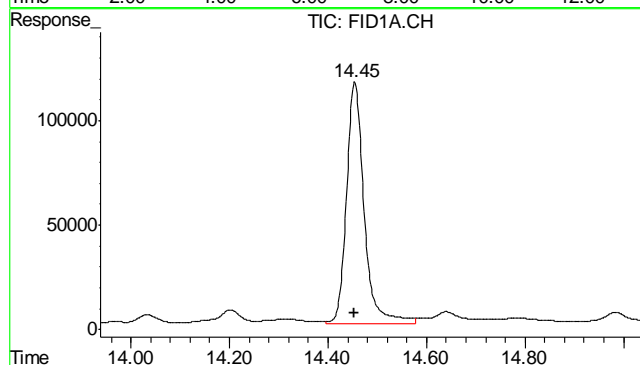
Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





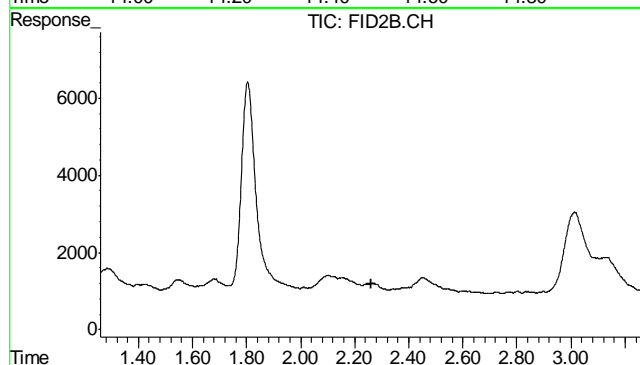
#1 TVH-Gasoline

R.T.: 7.330 min
Delta R.T.: 0.000 min
Response: 8345249
Conc: N.D.



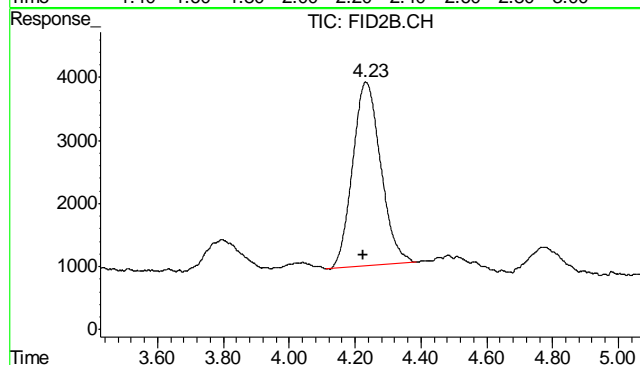
#2 1,2,4-Trichlorobenzene

R.T.: 14.454 min
Delta R.T.: 0.000 min
Response: 2883778
Conc: 83.11 % m



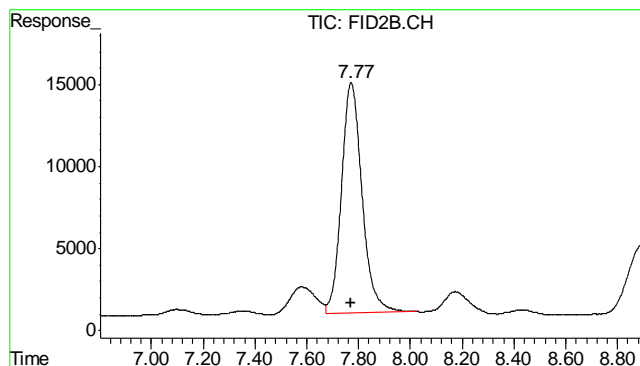
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T.: 2.260 min
Response: 0
Conc: N.D.



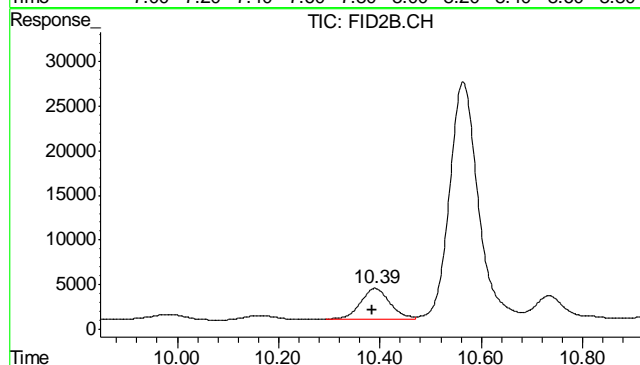
#5 Benzene

R.T.: 4.232 min
Delta R.T.: 0.006 min
Response: 172548
Conc: 0.36 ug/L



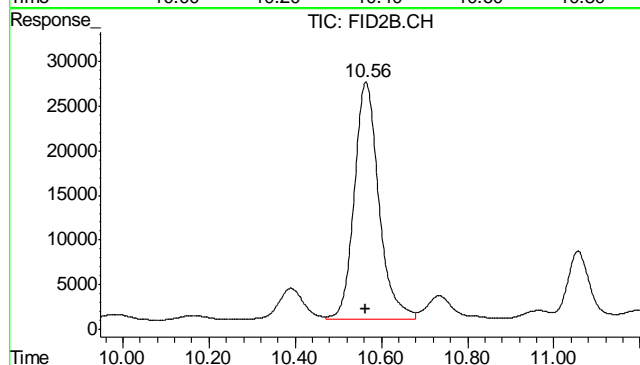
#6 Toluene

R.T.: 7.771 min
Delta R.T.: 0.002 min
Response: 776886
Conc: 1.67 ug/L



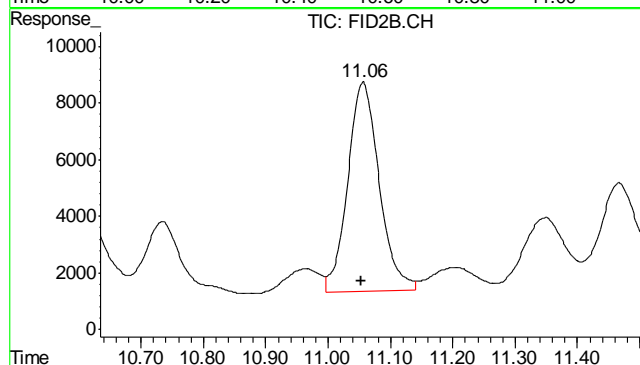
#7 Ethylbenzene

R.T.: 10.390 min
Delta R.T.: 0.004 min
Response: 141535
Conc: 0.35 ug/L



#8 m,p-Xylene

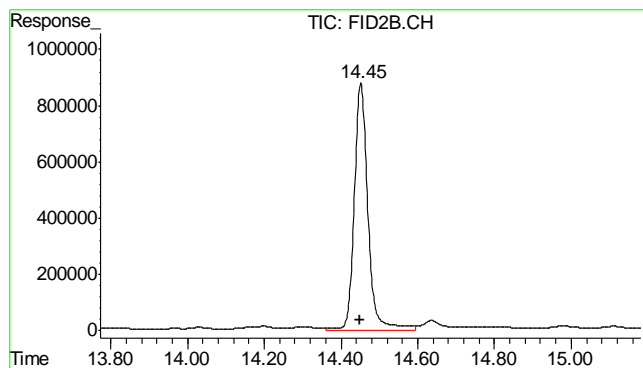
R.T.: 10.564 min
Delta R.T.: 0.001 min
Response: 1042739
Conc: 1.68 ug/L



#9 o-Xylene

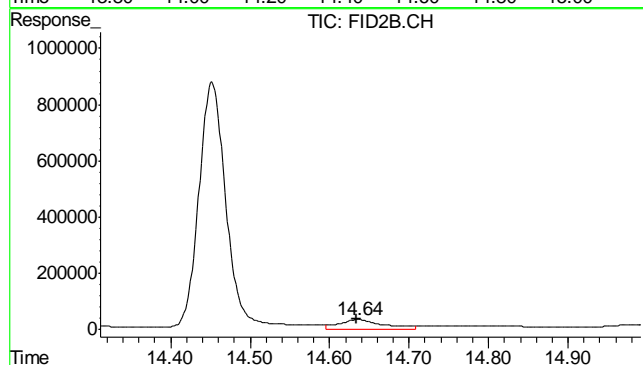
R.T.: 11.056 min
Delta R.T.: 0.004 min
Response: 258670
Conc: 0.41 ug/L

10.1.1
10



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

R.T.: 14.452 min
Delta R.T.: 0.002 min
Response: 21584831
Conc: 107.33 %



#11 Naphthalene

R.T.: 14.636 min
Delta R.T.: 0.003 min
Response: 1265067
Conc: 5.66 ug/L

10.1.1
10

Judy Melson
10/28/11 11:42

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\102711\GB13645.D\FID1A.CH Vial: 2
 Signal #2 : Y:\1\DATA\102711\GB13645.D\FID2B.CH
 Acq On : 27 Oct 2011 2:47 pm Operator: StephK
 Sample : MB, S Inst : GC/MS Ins
 Misc : GC2361,GGB773,5.000,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Oct 27 15:08:10 2011 Quant Results File: TB740GB740SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Oct 27 14:37:44 2011
 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	14.49	2784244	80.243 %	m
10) S 1,2,4-Trichlorobenzene (P)	14.49	20666658	102.765 %	
Target Compounds				
1) H TVH-Gasoline	7.33	6142707	<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	7.82	199357	0.429	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	11.09	174972	0.196	ug/L
11) T Naphthalene	14.67	228822	1.236	ug/L

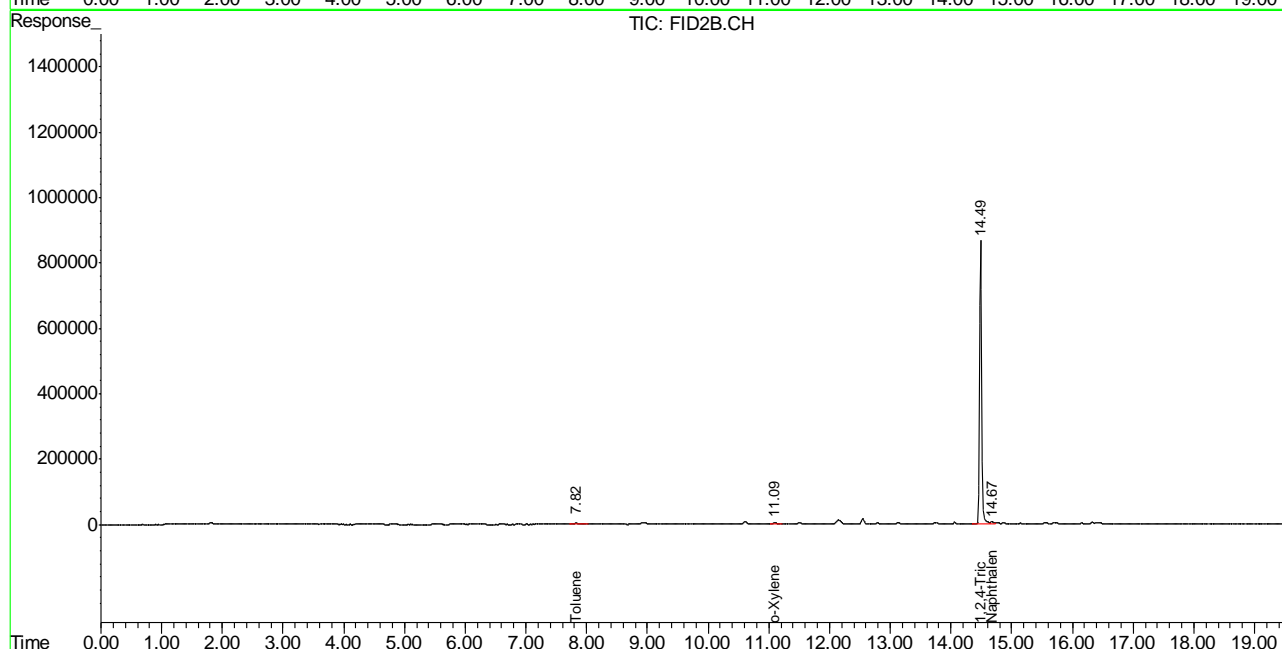
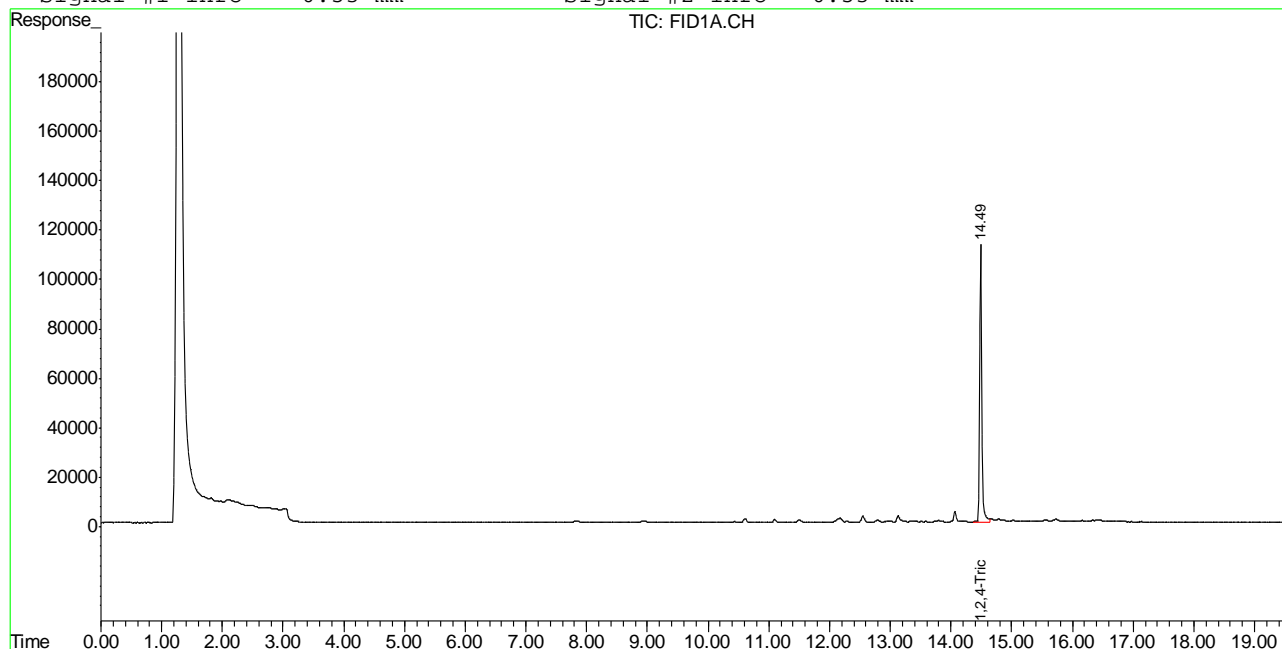
(f)=RT Delta > 1/2 Window (m)=manual int.
 GB13645.D TB740GB740SOIL.M Fri Oct 28 08:43:10 2011 GC

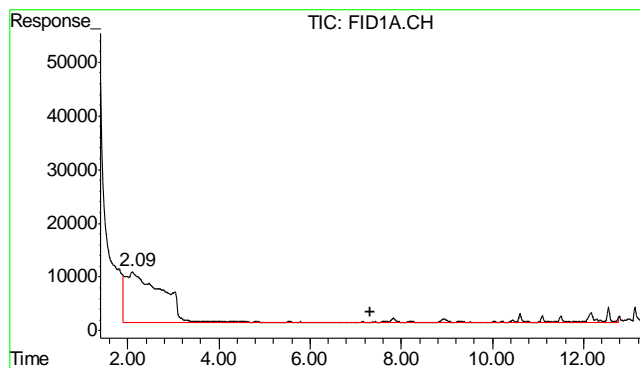
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\102711\GB13645.D\FID1A.CH Vial: 2
Signal #2 : Y:\1\DATA\102711\GB13645.D\FID2B.CH
Acq On : 27 Oct 2011 2:47 pm Operator: StephK
Sample : MB, S Inst : GC/MS Ins
Misc : GC2361,GGB773,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Oct 27 14:08 2011 Quant Results File: TB740GB740SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Oct 27 14:37:44 2011
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

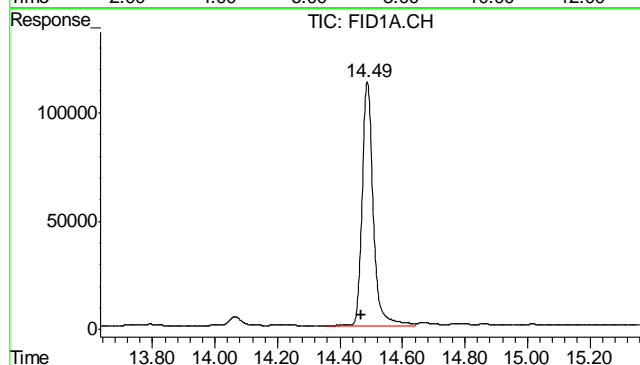
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





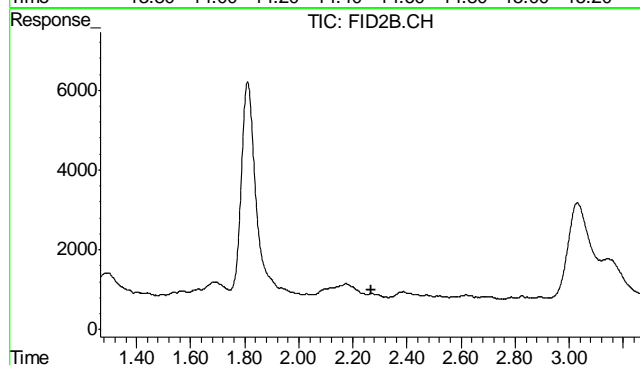
#1 TVH-Gasoline

R.T.: 7.330 min
Delta R.T.: 0.000 min
Response: 6142707
Conc: N.D.



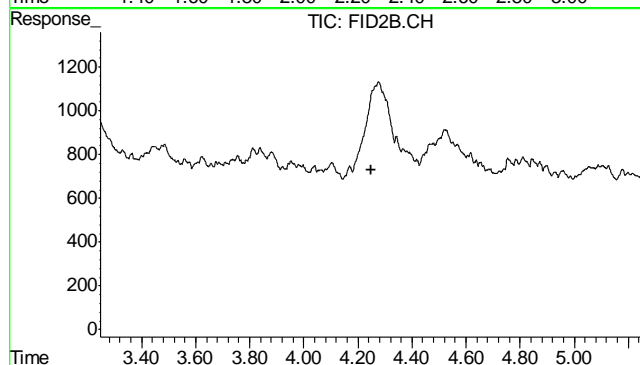
#2 1,2,4-Trichlorobenzene

R.T.: 14.487 min
Delta R.T.: 0.018 min
Response: 2784244
Conc: 80.24 % m



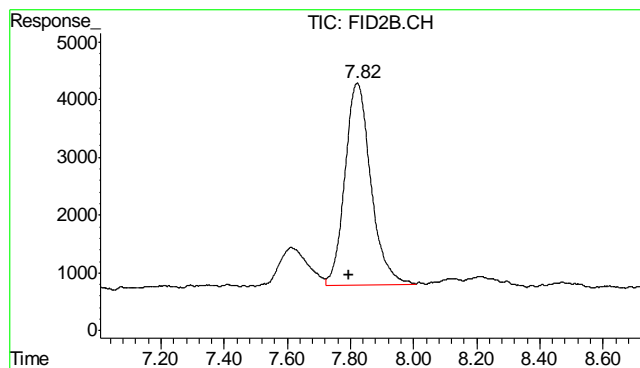
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T.: 2.266 min
Response: 0
Conc: N.D.



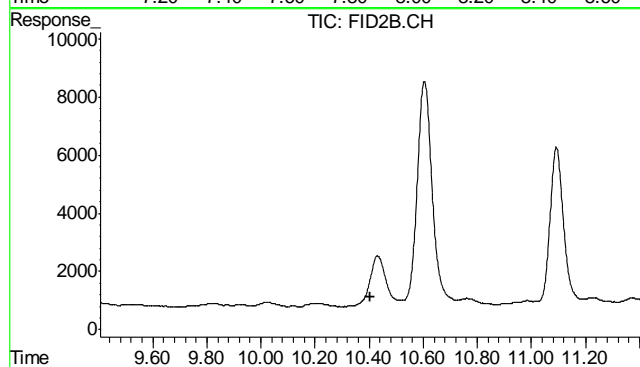
#5 Benzene

R.T.: 0.000 min
Exp R.T.: 4.248 min
Response: 0
Conc: N.D.



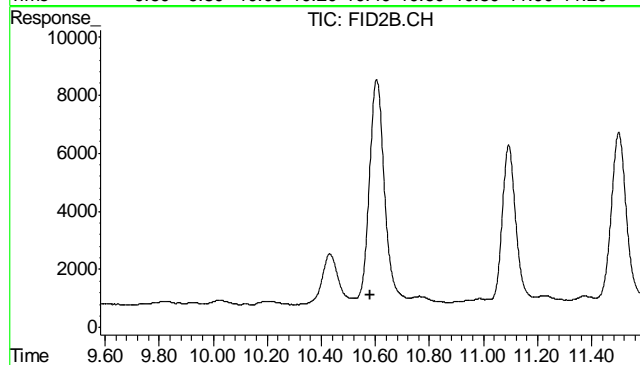
#6 Toluene

R.T.: 7.822 min
Delta R.T.: 0.028 min
Response: 199357
Conc: 0.43 ug/L



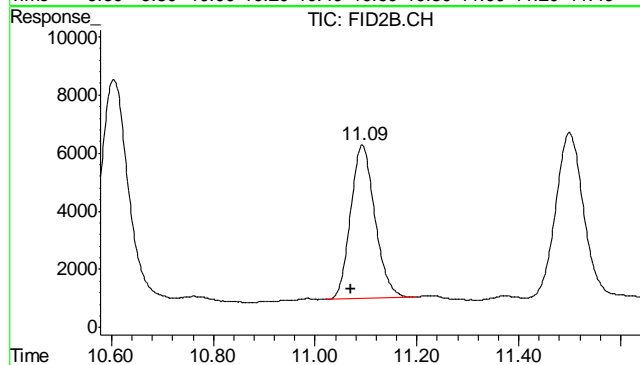
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T.: 10.406 min
Response: 0
Conc: N.D.



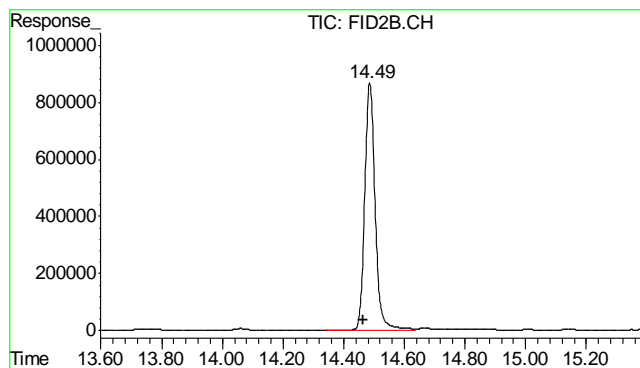
#8 m,p-Xylene

R.T.: 0.000 min
Exp R.T.: 10.582 min
Response: 0
Conc: N.D.



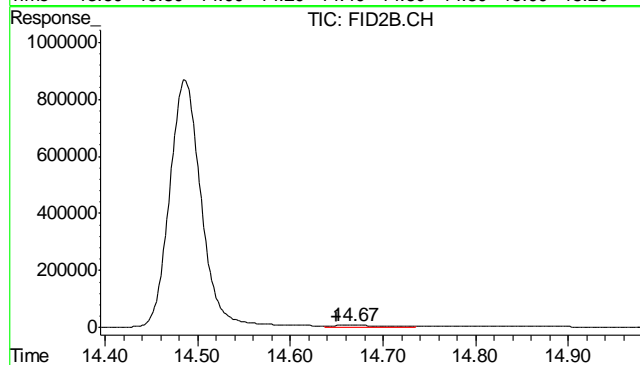
#9 o-Xylene

R.T.: 11.093 min
Delta R.T.: 0.023 min
Response: 174972
Conc: 0.20 ug/L



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

R.T.: 14.486 min
Delta R.T.: 0.020 min
Response: 20666658
Conc: 102.77 %



#11 Naphthalene

R.T.: 14.668 min
Delta R.T.: 0.019 min
Response: 228822
Conc: 1.24 ug/L

10.2.1
10

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: D28910**Account:** KRWCCOL KRW Consulting, Inc.**Project:** FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4740-MB	FD11124.D	1	10/28/11	CS	10/28/11	OP4740	GFD553

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

D28910-1

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

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	110% 61-142%

Blank Spike Summary

Job Number: D28910
Account: KRWCCOL KRW Consulting, Inc.
Project: FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4740-BS	FD11125.D	1	10/28/11	CS	10/28/11	OP4740	GFD553

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

D28910-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	648	97	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	98%	61-142%

11.2.1
11

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D28910
Account: KRWCCOL KRW Consulting, Inc.
Project: FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4740-MS	FD11126.D	1	10/28/11	CS	10/28/11	OP4740	GFD553
OP4740-MSD	FD11127.D	1	10/28/11	CS	10/28/11	OP4740	GFD553
D28910-1	FD11128.D	1	10/28/11	CS	10/28/11	OP4740	GFD553

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

D28910-1

CAS No.	Compound	D28910-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND		768	718	93	721	94	0	24-157/35

CAS No.	Surrogate Recoveries	MS	MSD	D28910-1	Limits
84-15-1	o-Terphenyl	86%	83%	86%	61-142%

11.3.1
11

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\OCT\FD102811\FD11128.D Vial: 45
Acq On : 10-28-2011 07:26:51 PM Operator: CHAVALIT
Sample : D28910-1 Inst : FID5
Misc : OP4740,GFD553,30.00,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Oct 31 07:05:19 2011 Quant Results File: GFD530.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD530.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Oct 28 07:04:31 2011
Response via : Initial Calibration
DataAcq Meth : JH080911.M

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

Compound	R.T.	Response	Conc Units

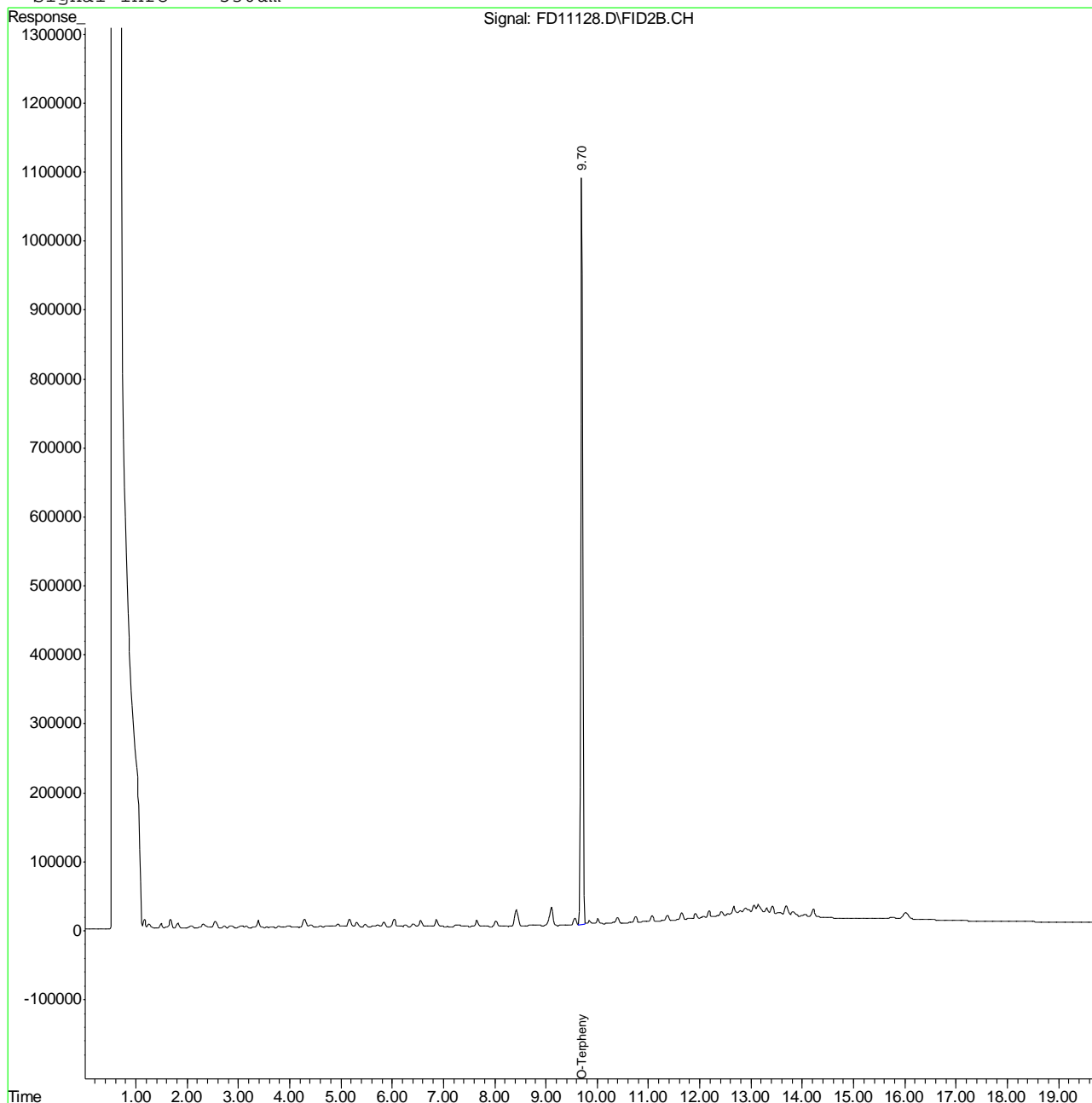
System Monitoring Compounds			
1) S O-Terphenyl	9.70	34306493	857.813 mg/L m
Target Compounds			

Quantitation Report (QT Reviewed)

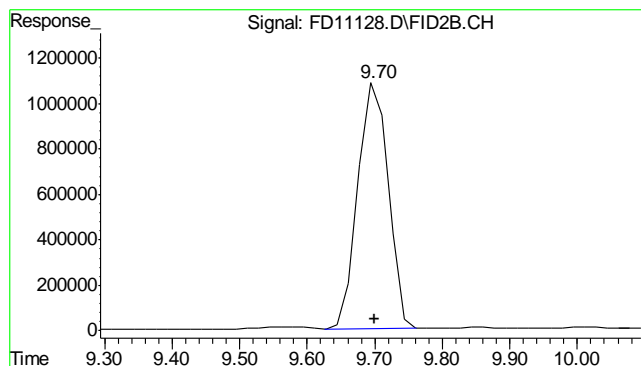
Data File : C:\MSDCHEM\2\DATA\2011\OCT\FD102811\FD11128.D Vial: 45
 Acq On : 10-28-2011 07:26:51 PM Operator: CHAVALIT
 Sample : D28910-1 Inst : FID5
 Misc : OP4740,GFD553,30.00,,,2,1 Multiplr: 1.00
 IntFile : DF-GFC101.E
 Quant Time: Oct 31 7:06 2011 Quant Results File: GFD530.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD530.M (Chemstation Integrator)
 Title : 8015B TEH
 Last Update : Fri Oct 28 07:04:31 2011
 Response via : Multiple Level Calibration
 DataAcq Meth : JH080911.M

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

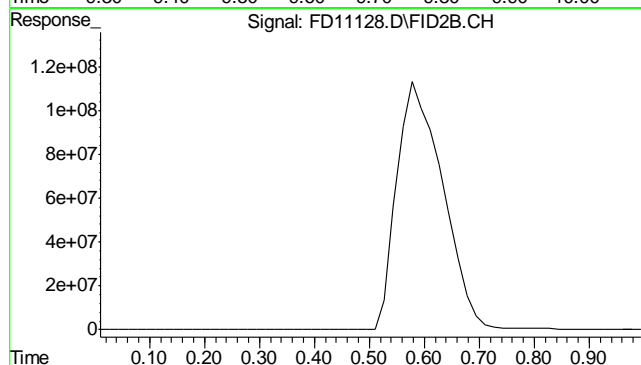


12.1.1
12



#1 O-Terphenyl

R.T.: 9.698 min
 Delta R.T.: -0.002 min
 Response: 34306493
 Conc: 857.81 mg/L m



#9 5a-Androstane

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

12.1.1
12

Judy Melson
10/31/11 10:17

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\OCT\FD102811\FD11124.D Vial: 41
Acq On : 10-28-2011 05:44:34 PM Operator: CHAVALIT
Sample : OP4740-MB Inst : FID5
Misc : OP4740,GFD553,30.00,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Oct 31 06:29:49 2011 Quant Results File: GFD530.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD530.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Oct 28 07:04:31 2011
Response via : Initial Calibration
DataAcq Meth : JH080911.M

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

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
1) S O-Terphenyl	9.70	46693650	1101.916 mg/L m
Target Compounds			

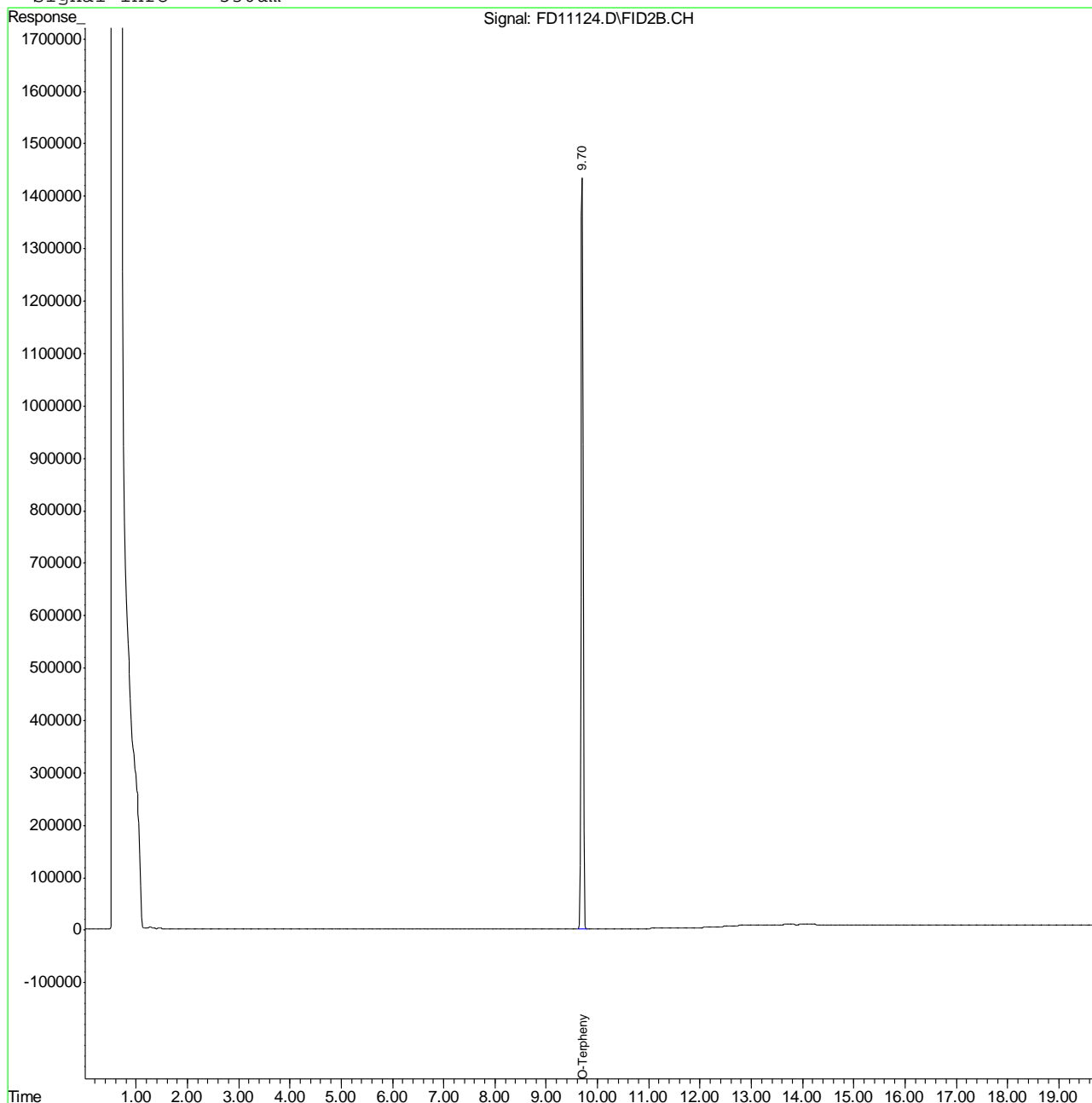
(f)=RT Delta > 1/2 Window (m)=manual int.
FD11124.D GFD530.M Mon Oct 31 07:40:14 2011 GC

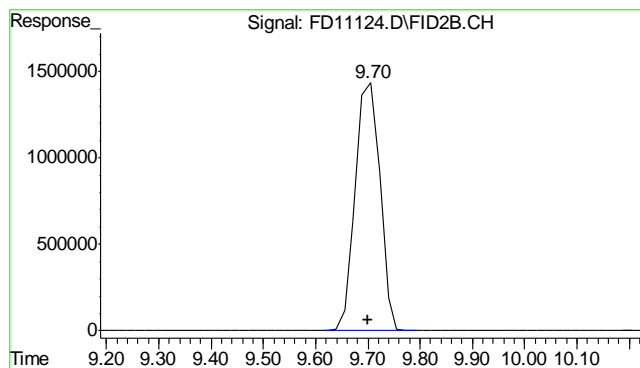
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\OCT\FD102811\FD11124.D Vial: 41
Acq On : 10-28-2011 05:44:34 PM Operator: CHAVALIT
Sample : OP4740-MB Inst : FID5
Misc : OP4740,GFD553,30.00,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Oct 31 6:30 2011 Quant Results File: GFD530.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD530.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Oct 28 07:04:31 2011
Response via : Multiple Level Calibration
DataAcq Meth : JH080911.M

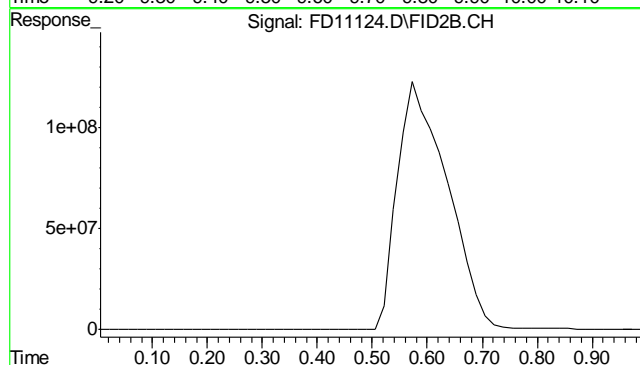
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.699 min
Delta R.T.: 0.000 min
Response: 46693650
Conc: 1101.92 mg/L m



#9 5a-Androstane

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

12.2.1
12

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: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

QC Batch ID: MP6131
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 10/27/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.59	.59		
Antimony	3.0	.31	.31		
Arsenic	2.5	.59	.59		
Barium	1.0	.11	.11	0.070	<1.0
Beryllium	1.0	.044	.1		
Boron	5.0	.48	.48		
Cadmium	1.0	.027	.27	-0.030	<1.0
Calcium	40	.96	1.1		
Chromium	1.0	.018	.031	0.0	<1.0
Cobalt	0.50	.035	.035		
Copper	1.0	.085	.16	0.18	<1.0
Iron	7.0	.34	2		
Lead	5.0	.16	.21	0.030	<5.0
Lithium	0.20	.028	.031		
Magnesium	20	.58	1.4		
Manganese	0.50	.0053	.012		
Molybdenum	1.0	.045	.054		
Nickel	3.0	.043	.099	0.21	<3.0
Phosphorus	10	1.1	1.2		
Potassium	200	5.5	9.2		
Selenium	5.0	.38	.5	-0.39	<5.0
Silicon	5.0	.38	.51		
Silver	3.0	.018	.051	0.010	<3.0
Sodium	40	11	11		
Strontium	5.0		.017		
Thallium	1.0	.29	.34		
Tin	5.0	.55	1.3		
Titanium	1.0	.011	.1		
Uranium	5.0	.15	.2		
Vanadium	1.0	.016	.025		
Zinc	3.0	.028	.06	0.62	<3.0

Associated samples MP6131: D28910-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

QC Batch ID: MP6131
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

QC Batch ID: MP6131
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 10/27/11

Metal	D28910-1 Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	5850	6900	224	467.7(a)	75-125
Beryllium					
Boron					
Cadmium	0.0	44.5	56.1	79.3	75-125
Calcium					
Chromium	39.3	72.2	56.1	58.6N(b)	75-125
Cobalt					
Copper	15.1	60.7	56.1	81.3	75-125
Iron					
Lead	13.8	97.3	112	74.4N(b)	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	20.7	56.2	56.1	63.3N(b)	75-125
Phosphorus	anr				
Potassium					
Selenium	2.4	125	112	109.2	75-125
Silicon					
Silver	0.0	18.3	22.4	81.5	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	34.5	74.6	56.1	71.5N(b)	75-125

Associated samples MP6131: D28910-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

QC Batch ID: MP6131
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

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

13.1.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

QC Batch ID: MP6131
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 10/27/11

Metal	D28910-1 Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	5850	6570	243	295.8(a)	4.9	20
Beryllium						
Boron						
Cadmium	0.0	48.7	60.8	80.0	9.0	20
Calcium						
Chromium	39.3	72.6	60.8	54.7N(b)	0.6	20
Cobalt						
Copper	15.1	66.2	60.8	84.0	8.7	20
Iron						
Lead	13.8	105	122	74.9N(b)	7.6	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	20.7	59.4	60.8	63.6N(b)	5.5	20
Phosphorus	anr					
Potassium						
Selenium	2.4	135	122	109.0	7.7	20
Silicon						
Silver	0.0	20.0	24.3	82.2	8.9	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	34.5	78.1	60.8	71.7N(b)	4.6	20

Associated samples MP6131: D28910-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

QC Batch ID: MP6131
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D28910
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: FRU 197-33A

QC Batch ID: MP6131
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: mg/kg

Prep Date: 10/27/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	175	200	87.5	80-120
Beryllium				
Boron				
Cadmium	45.1	50	90.2	80-120
Calcium				
Chromium	45.6	50	91.2	80-120
Cobalt				
Copper	45.7	50	91.4	80-120
Iron				
Lead	90.8	100	90.8	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	44.3	50	88.6	80-120
Phosphorus	anr			
Potassium				
Selenium	88.0	100	88.0	80-120
Silicon				
Silver	18.7	20	93.5	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	46.1	50	92.2	80-120

Associated samples MP6131: D28910-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

QC Batch ID: MP6131
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

QC Batch ID: MP6131
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date: 10/27/11

Metal	D28910-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	43500	57200	8.5	0-10
Beryllium				
Boron				
Cadmium	0.00	0.00	NC	0-10
Calcium				
Chromium	353	402	13.6*(a)	0-10
Cobalt				
Copper	136	133	2.2	0-10
Iron				
Lead	124	137	10.8*(a)	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	187	234	25.1*(a)	0-10
Phosphorus	anr			
Potassium				
Selenium	18.3	0.00	100.0(b)	0-10
Silicon				
Silver	0.00	1.00		0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	311	386	24.3*(a)	0-10

Associated samples MP6131: D28910-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

QC Batch ID: MP6131
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

- (anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.
(b) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

QC Batch ID: MP6132
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 10/27/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	0.024	<0.40
Barium	1.0	.0035	.1		
Beryllium	0.10	.0075	.014		
Boron	20	.97	1		
Cadmium	0.050	.023	.048		
Calcium	200	1.8	8.2		
Chromium	1.0	.021	.24		
Cobalt	0.10	.0033	.003		
Copper	1.0	.011	.063		
Iron	20	.81	3.7		
Lead	0.25	.0012	.015		
Magnesium	50	.067	2.6		
Manganese	0.50	.007	.029		
Molybdenum	0.50	.0044	.023		
Nickel	1.0	.0029	.031		
Phosphorus	30	1.8	3.5		
Potassium	100	2	3.2		
Selenium	0.20	.075	.19		
Silver	0.050	.0008	.002		
Sodium	250	.8	4.4		
Strontium	10	.004	.04		
Thallium	0.10	.015	.02		
Tin	5.0	.006	.028		
Titanium	1.0	.035	.062		
Uranium	0.25	.00038	.0009		
Vanadium	2.0	.052	.29		
Zinc	5.0	.039	.12		

Associated samples MP6132: D28910-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28910
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: FRU 197-33A

QC Batch ID: MP6132
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 10/27/11

Metal	D28910-1 Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	5.6	108	112	91.2	75-125
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6132: D28910-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28910
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: FRU 197-33A

QC Batch ID: MP6132
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 10/27/11

Metal	D28910-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	5.6	115	122	89.9	6.3	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 MP6132: D28910-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

QC Batch ID: MP6132
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 10/27/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	94.0	100	94.0	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP6132: D28910-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D28910
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: FRU 197-33A

QC Batch ID: MP6132
 Matrix Type: SOLID

Methods: SW846 6020
 Units: ug/l

Prep Date: 10/27/11

Metal	D28910-1			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic	50.0	57.7	14.1*(a)	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 MP6132: D28910-1

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested
 (a) Serial dilution indicates possible matrix interference.

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

QC Batch ID: MP6134
Matrix Type: AQUEOUS

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

Prep Date: 10/28/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	30	30		
Antimony	150	16	16		
Arsenic	130	30	30		
Barium	50	5.5	5.5		
Beryllium	50	2.2	2.5		
Boron	250	24	24		
Cadmium	50	1.4	1.4		
Calcium	2000	48	75	25.5	<2000
Chromium	50	.9	4		
Cobalt	25	1.8	1.8		
Copper	50	4.3	14		
Iron	350	17	65		
Lead	250	8	11		
Lithium	10	1.4	6		
Magnesium	1000	29	50	58.0	<1000
Manganese	25	.27	1.6		
Molybdenum	50	2.3	4.4		
Nickel	150	2.2	5		
Phosphorus	500	55	100		
Potassium	5000	280	280		
Selenium	250	19	19		
Silicon	250	19	19		
Silver	150	.9	1.6		
Sodium	2000	570	570	-86	<2000
Strontium	25		1.3		
Thallium	50	15	15		
Tin	250	28	50		
Titanium	50	.55	1.6		
Uranium	250	7.5	18		
Vanadium	50	.8	1.1		
Zinc	150	1.4	9		

Associated samples MP6134: D28910-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

QC Batch ID: MP6134
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

13.3.1

13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28910
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: FRU 197-33A

QC Batch ID: MP6134
 Matrix Type: AQUEOUS

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

Prep Date: 10/28/11

Metal	D28910-1A Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	44900	187000	125000	113.7	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	3620	139000	125000	108.3	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	295000	449000	125000	123.2	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6134: D28910-1A

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

13.32
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

QC Batch ID: MP6134
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

13.3.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28910
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: FRU 197-33A

QC Batch ID: MP6134
 Matrix Type: AQUEOUS

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

Prep Date: 10/28/11

Metal	D28910-1A Original MSD	Spikelot MPICPAL % Rec	MSD RPD	QC Limit
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	44900	187000	125000	113.7
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	3620	141000	125000	109.9
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	295000	443000	125000	118.4
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP6134: D28910-1A

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

13.32
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

QC Batch ID: MP6134
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

13.3.2
13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

QC Batch ID: MP6134
Matrix Type: AQUEOUS

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

Prep Date: 10/28/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	138000	125000	110.4	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	136000	125000	108.8	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	136000	125000	108.8	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP6134: D28910-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

QC Batch ID: MP6134
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

QC Batch ID: MP6142
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 10/31/11

Metal	RL	IDL	MDL	MB	
				raw	final

Mercury	0.10	.0011	.013	-0.000090	<0.10
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Associated samples MP6142: D28910-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28910
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: FRU 197-33A

QC Batch ID: MP6142
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 10/31/11

Metal	D28823-1 Original MS	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.0	0.31	0.384	80.6N(a) 85-115

Associated samples MP6142: D28910-1

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28910
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: FRU 197-33A

QC Batch ID: MP6142
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 10/31/11

Metal	D28823-1 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.0	0.27	0.46	58.7N(a)	13.8	20

Associated samples MP6142: D28910-1

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D28910
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: FRU 197-33A

QC Batch ID: MP6142
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 10/31/11

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.39	0.4	97.5	80-120

Associated samples MP6142: D28910-1

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

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP5819/GN12277			umhos/cm	9980	9890	99.1	90-110%
pH	GN12231			su	8.00	7.96	99.5	99.3-100.7%

Associated Samples:
Batch GN12231: D28910-1
Batch GP5819: D28910-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D28910
Account: KRWCCOL - KRW Consulting, Inc.
Project: FRU 197-33A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Redox Potential Vs H2	GN12233	D28910-1	mv	436	431	1.1	0-20%

Associated Samples:
Batch GN12233: D28910-1
(*) Outside of QC limits

Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Chain of Custody



CHAIN OF CUSTODY

4036 Youngfield St., Wheat Ridge, CO 80033
303-425-6021 FAX: 303-425-6854

Accutest Job #:	D28910
Accutest Quote #:	0
AMS P.O. #:	
Project No.:	

Client Information			Subcontract Laboratory Information										Analytical Information				
Name Accutest Mountain States (AMS)			Name Accutest - New England														
Address 4036 Youngfield St.			Address 495 Technology Center West, BLDG C														
City Wheat Ridge,	State CO	Zip 80033	City Marlborough	State MA	Zip 01752												
Send Report to: Any questions contact: Tiffany Pham Shea Greiner			Contact: Sample Management														
Phone/Fax #: (303) 425-6021; (303) 425-6854			Phone: (508) 481-6200														
Collection			Preservation										XCRA X				
Field ID / Point of Collection	Date	Time	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	None								
D28910 -1	10/25/11	9:30 AM	Soil	1													
Turnaround Information			Data Deliverable Information										Comments / Remarks				
<input checked="" type="checkbox"/> 1 - 2 Business Day Rush <input type="checkbox"/> Other (Days) RUSH! 10 Day Turnaround Hardcopy, RUSH is FAX Data unless previously approved.			Approved By: _____			<input type="checkbox"/> Commercial "A" <input type="checkbox"/> Commercial "B" <input type="checkbox"/> Commercial "BN" <input type="checkbox"/> Reduced Tier 1 <input type="checkbox"/> Full Tier 1					<input type="checkbox"/> PDF <input type="checkbox"/> Compact Disk Deliverable <input type="checkbox"/> Electronic Delivery: <input type="checkbox"/> State Forms <input type="checkbox"/> Other (Specify) _____						
Please use Colorado regulations and RLs. 11F																	
Sample Custody must be documented below each time samples change possession, including courier delivery.																	
Relinquished by: 1 ADG			Date & Time: 10/27/11			Received By: 1 FedEx			Date & Time: 1			Seal #: _____			Headspace: Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>		
Relinquished by: 2 FedEx			Date & Time: 10/28/11 9:30			Received By: 2 [Signature]			Date & Time: 210/28/11 9:30			Preserved where applicable: <input type="checkbox"/>					
Relinquished by: 3			Date & Time:			Received By: 3			Date & Time: 3			Temperature °C: 2-7			On Ice <input checked="" type="checkbox"/>		

D28910: Chain of Custody

Page 1 of 2

Accutest Labs of New England, Inc.

15.1
15

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D28910

Client: AMS

Immediate Client Services Action Required: No

Date / Time Received: 10/28/2011

Delivery Method:

Client Service Action Required at Login: No

Project:

No. Coolers: 1

Airbill #'s:

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"/>	<input checked="" type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" 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 recvd 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

General Chemistry

QC Data Summaries

(Accutest Labs of New England, Inc.)

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: D28910
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: FRU 197-33A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP13714/GN36706	0.40	0.0	mg/kg	40	39.1	97.8	80-120%
Chromium, Hexavalent	GP13714/GN36706			mg/kg	1000	1110	111.0	80-120%

Associated Samples:
Batch GP13714: D28910-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D28910
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: FRU 197-33A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP13714/GN36706	D28823-2	mg/kg	0.50	0.50	0.0	0-20%

Associated Samples:
Batch GP13714: D28910-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D28910
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: FRU 197-33A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP13714/GN36706	D28823-2	mg/kg	0.50	45.2	44.8	98.0	75-125%
Chromium, Hexavalent	GP13714/GN36706	D28823-2	mg/kg	0.50	1250	1330	106.1	75-125%

Associated Samples:
Batch GP13714: D28910-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits