



11/10/11

Technical Report for

KRW Consulting, Inc.

XOM FRU 197-33A

1103-03A

Accutest Job Number: D29207

Sampling Date: 11/04/11

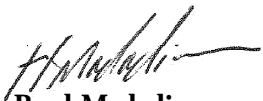
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Total number of pages in report: 141



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)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.
Test results relate only to samples analyzed.

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Sample Summary

KRW Consulting, Inc.

Job No: D29207

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

Sample Number	Collected		Time By	Received	Matrix		Client Sample ID
	Date				Code	Type	
D29207-1	11/04/11	11:05	DK	11/05/11	SO	Soil	RP SUBLINER
D29207-1A	11/04/11	11:05	DK	11/05/11	SO	Soil	RP SUBLINER

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: KRW Consulting, Inc.

Job No D29207

Site: XOM FRU 197-33A

Report Dat 11/10/2011 3:42:14 PM

On 11/05/2011, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D29207 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: V3V832
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- Sample(s) D29207-1MS, D29207-1MSD 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: OP4805
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D29207-1MS, D29207-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- The matrix spike (MS) and matrix spike duplicate (MSD) recovery(s) of multiple analytes are outside control limits. Probable cause due to dilution.
- The RPD(s) for the MS and MSD recoveries of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluorene, Indeno(1,2,3-cd)pyrene are outside control limits for sample OP4805-MSD. Probable cause due to sample homogeneity.

Volatiles by GC By Method SW846 8015B

Matrix SO	Batch ID: GGB778
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D29186-1MS, D29186-1MSD were used as the QC samples indicated.

Extractables by GC By Method SW846-8015B

Matrix SO	Batch ID: OP4801
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D29207-1MS, D29207-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Metals By Method SW846 6010B

Matrix AQ

Batch ID: MP6227

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D29236-1AMS, D29236-1AMSD were used as the QC samples for the metals analysis.

Matrix SO

Batch ID: MP6206

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D29206-1MSD, D29206-1SDL, D29206-1MS, D29206-1MSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) and matrix spike duplicate (MSD) recovery(s) of Selenium 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 Silver are outside control limits for sample MP6206-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- The serial dilution RPD(s) for Zinc are outside control limits for sample MP6206-SD1. Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020

Matrix SO

Batch ID: MP6207

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D29206-1MS, D29206-1MSD, D29206-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Arsenic are outside control limits for sample MP6207-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Metals By Method SW846 7471A

Matrix SO

Batch ID: MP6224

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D29206-1MS, D29206-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO

Batch ID: GN12406

- Sample(s) D29207-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN12361

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO

Batch ID: R10683

- The data for SW846 3060/7196A M meets quality control requirements.
- D29207-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO

Batch ID: M:GP13780

- The data for SW846 3060A/7196A meets quality control requirements.
- D29207-1 for Chromium, Hexavalent: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method SW846 9045C

Matrix SO

Batch ID: GN12401

- The following sample was run outside of holding time for method SW846 9045C: D29207-1.

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO

Batch ID: MP6227

- D29207-1A 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 D29207

Site: KRWCCOL: XOM FRU 197-33A

Report Date 11/10/2011 4:31:22 PM

1 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 11/04/2011 and were received at Accutest on 11/05/2011 properly preserved, at 1.8 Deg. C and intact. These Samples received an Accutest job number of D29207. 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: GP13780

- 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) D29207-1DUP, D29207-1MS 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(D29207).

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	RP SUBLINER	Date Sampled:	11/04/11
Lab Sample ID:	D29207-1	Date Received:	11/05/11
Matrix:	SO - Soil	Percent Solids:	88.6
Method:	SW846 8260B		
Project:	XOM FRU 197-33A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V14473.D	1	11/07/11	DC	n/a	n/a	V3V832
Run #2							

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	62	27	ug/kg	
108-88-3	Toluene	ND	120	62	ug/kg	
100-41-4	Ethylbenzene	ND	120	31	ug/kg	
1330-20-7	Xylene (total)	215	250	120	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	108%		61-130%
460-00-4	4-Bromofluorobenzene	109%		53-131%
17060-07-0	1,2-Dichloroethane-D4	102%		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:	RP SUBLINER	Date Sampled:	11/04/11
Lab Sample ID:	D29207-1	Date Received:	11/05/11
Matrix:	SO - Soil	Percent Solids:	88.6
Method:	SW846 8270C BY SIM SW846 3546		
Project:	XOM FRU 197-33A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G06851.D	10	11/10/11	TMB	11/08/11	OP4805	E3G253
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	75	60	ug/kg	
120-12-7	Anthracene	ND	75	68	ug/kg	
56-55-3	Benzo(a)anthracene	ND	190	98	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	83	ug/kg	
218-01-9	Chrysene	ND	190	83	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	190	140	ug/kg	
206-44-0	Fluoranthene	ND	75	75	ug/kg	
86-73-7	Fluorene	166	75	64	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	230	210	ug/kg	
91-20-3	Naphthalene	ND	75	71	ug/kg	
129-00-0	Pyrene	ND	75	71	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	111%		10-145%
321-60-8	2-Fluorobiphenyl	70%		10-130%
1718-51-0	Terphenyl-d14	67%		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

Page 1 of 1

Client Sample ID:	RP SUBLINER	Date Sampled:	11/04/11
Lab Sample ID:	D29207-1	Date Received:	11/05/11
Matrix:	SO - Soil	Percent Solids:	88.6
Method:	SW846 8015B		
Project:	XOM FRU 197-33A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB13743.D	1	11/07/11	SK	n/a	n/a	GGB778
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	30.0	12	6.2	mg/kg	

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

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

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

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	RP SUBLINER	Date Sampled:	11/04/11
Lab Sample ID:	D29207-1	Date Received:	11/05/11
Matrix:	SO - Soil	Percent Solids:	88.6
Method:	SW846-8015B SW846 3546		
Project:	XOM FRU 197-33A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD11387.D	1	11/08/11	TR	11/08/11	OP4801	GFD571
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)	752	15	9.8	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	101%		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: RP SUBLINER

Lab Sample ID: D29207-1

Matrix: SO - Soil

Project: XOM FRU 197-33A

Date Sampled: 11/04/11

Date Received: 11/05/11

Percent Solids: 88.6

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	9.4	0.44	mg/kg	5	11/07/11	11/08/11 GJ	SW846 6020 ²	SW846 3050B ⁵
Barium	826	1.1	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B ¹	SW846 3050B ⁴
Cadmium	< 1.1	1.1	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B ¹	SW846 3050B ⁴
Chromium	32.9	1.1	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B ¹	SW846 3050B ⁴
Copper	13.0	1.1	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B ¹	SW846 3050B ⁴
Lead	12.1	5.5	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B ¹	SW846 3050B ⁴
Mercury	< 0.11	0.11	mg/kg	1	11/09/11	11/09/11 JB	SW846 7471A ³	SW846 7471A ⁶
Nickel	18.5	3.3	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B ¹	SW846 3050B ⁴
Selenium	< 5.5	5.5	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B ¹	SW846 3050B ⁴
Silver	< 3.3	3.3	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B ¹	SW846 3050B ⁴
Zinc	45.1	3.3	mg/kg	1	11/07/11	11/08/11 JB	SW846 6010B ¹	SW846 3050B ⁴

(1) Instrument QC Batch: MA1952

(2) Instrument QC Batch: MA1953

(3) Instrument QC Batch: MA1959

(4) Prep QC Batch: MP6206

(5) Prep QC Batch: MP6207

(6) Prep QC Batch: MP6224

RL = Reporting Limit

Report of Analysis

Client Sample ID: RP SUBLINER
Lab Sample ID: D29207-1
Matrix: SO - Soil
Project: XOM FRU 197-33A

Date Sampled: 11/04/11
Date Received: 11/05/11
Percent Solids: 88.6

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent ^a	< 0.44	0.44	mg/kg	1	11/10/11 15:13	AMA	SW846 3060A/7196A
Chromium, Trivalent ^b	32.6	1.5	mg/kg	1	11/10/11 15:13	AMA	SW846 3060/7196A M
Redox Potential Vs H2	383		mv	1	11/08/11 14:40	JK	ASTM D1498-76M
Solids, Percent	88.6		%	1	11/07/11	SWT	SM19 2540B M
Specific Conductivity	830	1.0	umhos/cm	1	11/08/11	JD	DEPT.OF AG, BOOK N9
pH	10.06		su	1	11/08/11 11:30	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:	RP SUBLINER	Date Sampled:	11/04/11
Lab Sample ID:	D29207-1A	Date Received:	11/05/11
Matrix:	SO - Soil	Percent Solids:	88.6
Project:	XOM FRU 197-33A		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	8.94	2.0	mg/l	1	11/09/11	11/10/11 JB	SW846 6010B ¹	EPA 200.7 1994 ²
Magnesium	2.84	1.0	mg/l	1	11/09/11	11/10/11 JB	SW846 6010B ¹	EPA 200.7 1994 ²
Sodium	160	2.0	mg/l	1	11/09/11	11/10/11 JB	SW846 6010B ¹	EPA 200.7 1994 ²

(1) Instrument QC Batch: MA1960
(2) Prep QC Batch: MP6227

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RP SUBLINER	Date Sampled:	11/04/11
Lab Sample ID:	D29207-1A	Date Received:	11/05/11
Matrix:	SO - Soil	Percent Solids:	88.6
Project:	XOM FRU 197-33A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	11.9		ratio	1	11/10/11 11:12	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

Accutest Laboratories Mountain States
4036 Youngfield Street Wheat Ridge, Co 80033
TEL. 303-425-6021 877-737-4521
FAX 303-425-6021

Client / Reporting Information			Project Information			Requested Analysis (see TEST CODE sheet)												Matrix Codes	
Company Name KRW Consulting			Project Name XOM FRU 197-334			<div>Table 910-1</div>													<div>DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED-Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB-Field Blank EB- Equipment Blank RB- Rinse Blank TB-Trip Blank</div>
Street Address 8000 W. 14th Ave. Ste 200			Street:																
City State Zip Lakewood CO 80214			City:																
Project Contact Dwayne Knudsen			Project# 1103-034																
Phone # 970-675-4066			Client PO#																
Sampler(s) Name(s) Dwayne Knudsen same			Project Manager			City State Zip												PO#	
Field ID / Point of Collection			MEOH/DI Vial #	Collection		Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Residue	LAB USE ONLY		
RP Subliner				11-4-11		1105	DK	SO	5								01		
																	7p		

D29207: Chain of Custody

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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D29207

Client: KRW CONSULTING

Immediate Client Services Action Required: No

Date / Time Received: 11/5/2011 11:00:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XOM FRU 197-33A

Airbill #'s: Fedex

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

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: D29207
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V832-MB	3V14464A.D 1		11/07/11	DC	n/a	n/a	V3V832

The QC reported here applies to the following samples:

Method: SW846 8260B

D29207-1

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	108% 61-130%
460-00-4	4-Bromofluorobenzene	99% 53-131%
17060-07-0	1,2-Dichloroethane-D4	101% 62-130%

Blank Spike Summary

Page 1 of 1

Job Number: D29207

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V832-BS	3V14465A.D 1		11/07/11	DC	n/a	n/a	V3V832

The QC reported here applies to the following samples:

Method: SW846 8260B

D29207-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	53.4	107	70-130
100-41-4	Ethylbenzene	50	54.7	109	70-130
108-88-3	Toluene	50	53.1	106	70-130
1330-20-7	Xylene (total)	150	165	110	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	107%	61-130%
460-00-4	4-Bromofluorobenzene	108%	53-131%
17060-07-0	1,2-Dichloroethane-D4	99%	62-130%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D29207

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D29207-1MS	3V14474.D	1	11/07/11	DC	n/a	n/a	V3V832
D29207-1MSD	3V14475.D	1	11/07/11	DC	n/a	n/a	V3V832
D29207-1	3V14473.D	1	11/07/11	DC	n/a	n/a	V3V832

The QC reported here applies to the following samples:

Method: SW846 8260B

D29207-1

CAS No.	Compound	D29207-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3110	3260	105	3400	109	4	70-134/30
100-41-4	Ethylbenzene	ND		3110	3290	106	3380	109	3	70-137/30
108-88-3	Toluene	ND		3110	2990	96	3020	97	1	70-130/30
1330-20-7	Xylene (total)	215	J	9320	9650	101	9850	103	2	61-131/30

CAS No.	Surrogate Recoveries	MS	MSD	D29207-1	Limits
2037-26-5	Toluene-D8	98%	95%	108%	61-130%
460-00-4	4-Bromofluorobenzene	101%	98%	109%	53-131%
17060-07-0	1,2-Dichloroethane-D4	99%	100%	102%	62-130%

GC/MS Volatiles

Raw Data



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3110711.S\
 Data File : 3V14473.D
 Acq On : 7 Nov 2011 6:46 pm
 Operator : DONC
 Sample : D29207-1, 50x
 Misc : MS2923,V3V832,5.065,,100,5,1
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 09 11:35:35 2011
 Quant Method : C:\msdchem\1\METHODS\V3AP830TVH830.M
 Quant Title : 8260
 QLast Update : Mon Nov 07 14:42:41 2011
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.885	168	288407	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.681	114	470282	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.315	117	399685	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.308	152	225530	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.283	102	39038	51.24	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	102.48%
61) Toluene-d8	14.074	98	645587	54.15	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	108.30%
69) 4-Bromofluorobenzene	16.265	95	210630	54.29	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	108.58%

Target Compounds

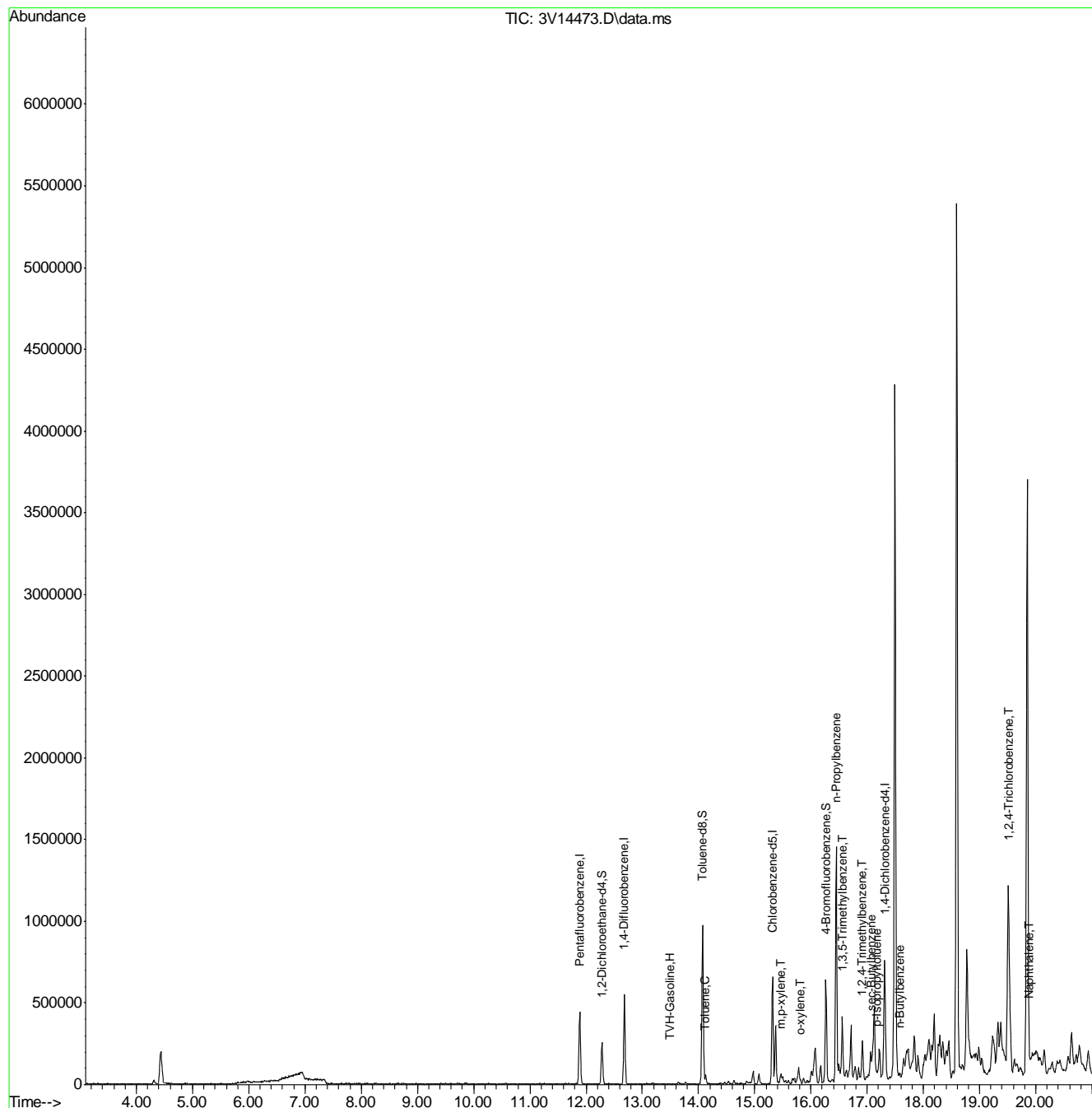
						Qvalue
1) TVH-Gasoline	13.491	TIC	6699431m	388.54	ug/l	
62) Toluene	14.125	92	3079	0.38	ug/l	92
72) m,p-xylene	15.463	106	16438	2.84	ug/l	99
73) o-xylene	15.813	106	5118	0.62	ug/l	96
77) n-Propylbenzene	16.448	91	6975	0.44	ug/l #	49
80) 1,3,5-Trimethylbenzene	16.557	105	183317	14.68	ug/l	99
82) 1,2,4-Trimethylbenzene	16.913	105	119223	8.73	ug/l	89
83) sec-Butylbenzene	17.077	105	6466	0.36	ug/l	94
86) p-Isopropyltoluene	17.177	119	17666m	1.15	ug/l	
88) n-Butylbenzene	17.565	91	9103	0.69	ug/l #	77
90) 1,2,4-Trichlorobenzene	19.503	180	3512	0.70	ug/l #	83
91) Naphthalene	19.891	128	84672	6.80	ug/l	100

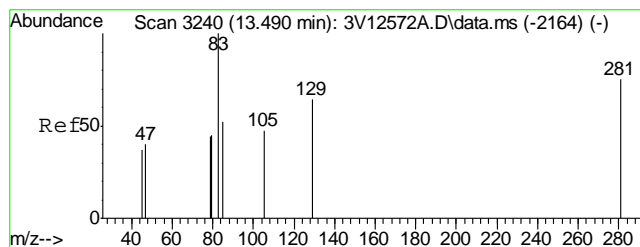
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3110711.S\
 Data File : 3V14473.D
 Acq On : 7 Nov 2011 6:46 pm
 Operator : DONC
 Sample : D29207-1, 50x
 Misc : MS2923,V3V832,5.065,,100,5,1
 ALS Vial : 13 Sample Multiplier: 1

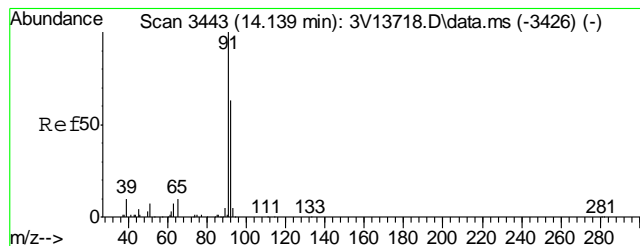
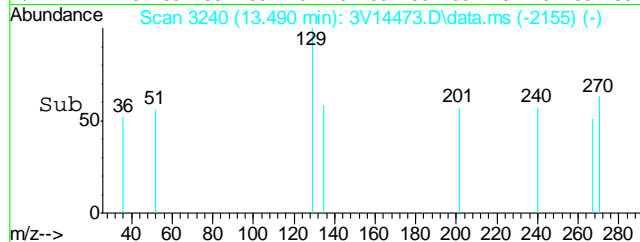
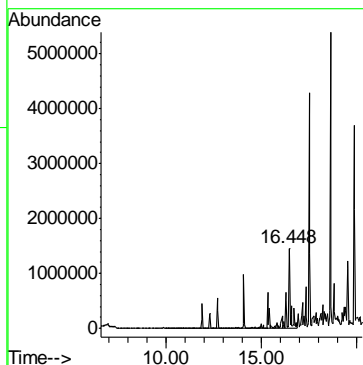
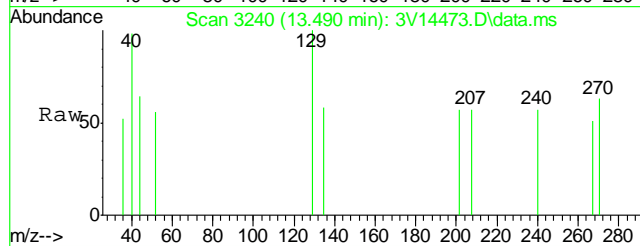
Quant Time: Nov 09 11:35:35 2011
 Quant Method : C:\msdchem\1\METHODS\V3AP830TVH830.M
 Quant Title : 8260
 QLast Update : Mon Nov 07 14:42:41 2011
 Response via : Initial Calibration





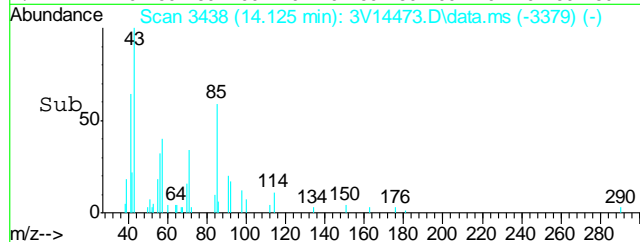
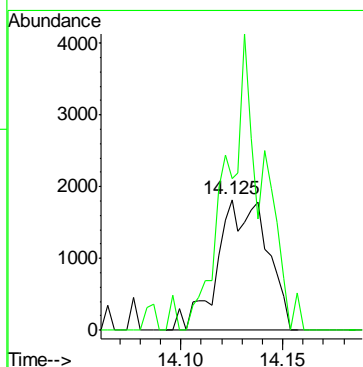
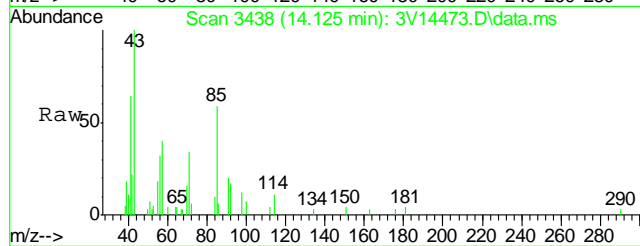
#1
TVH-Gasoline
Concen: 388.54 ug/l m
RT: 13.491 min Scan# 3240
Delta R.T. 0.000 min
Lab File: 3V14473.D
Acq: 7 Nov 2011 6:46 pm

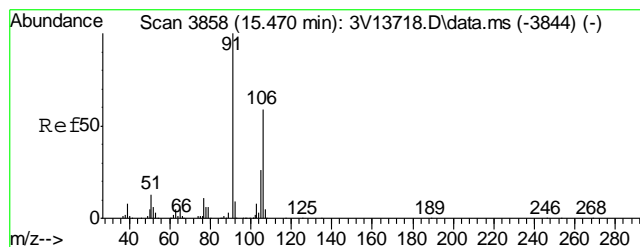
Tgt Ion:TIC Resp: 6699431



#62
Toluene
Concen: 0.38 ug/l
RT: 14.125 min Scan# 3438
Delta R.T. -0.010 min
Lab File: 3V14473.D
Acq: 7 Nov 2011 6:46 pm

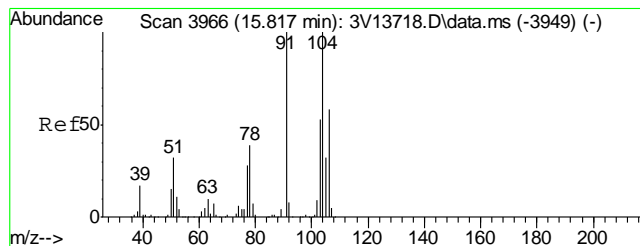
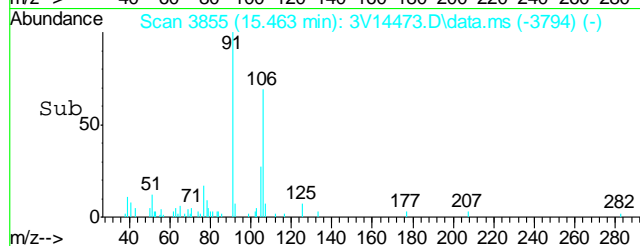
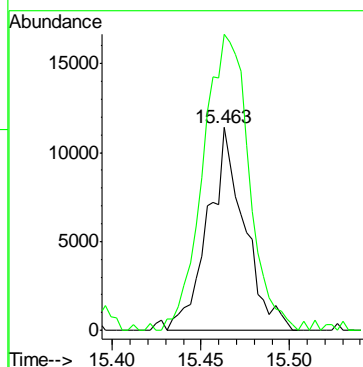
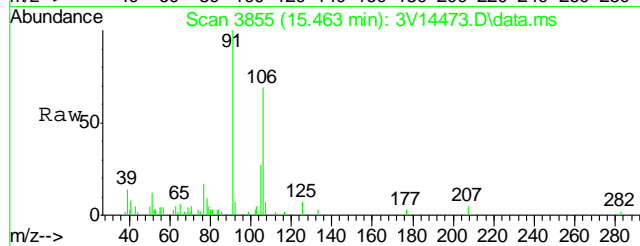
Tgt Ion: 92 Resp: 3079
Ion Ratio Lower Upper
92 100
91 165.5 156.8 196.8





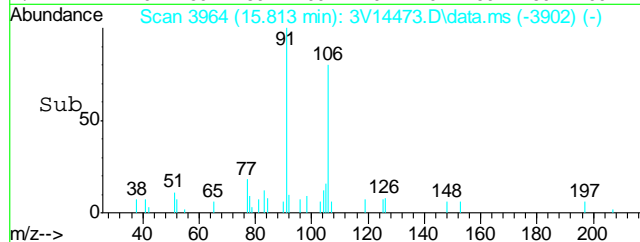
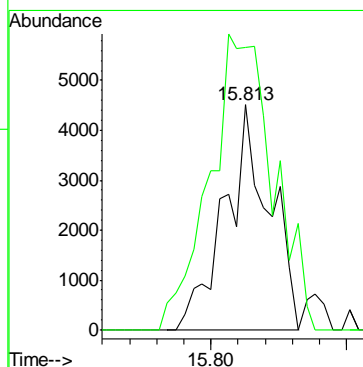
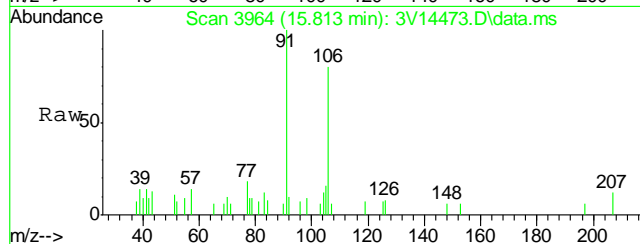
#72
m,p-xylene
Concen: 2.84 ug/l
RT: 15.463 min Scan# 3855
Delta R.T. -0.003 min
Lab File: 3V14473.D
Acq: 7 Nov 2011 6:46 pm

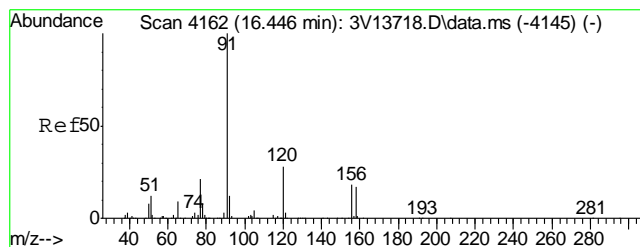
Tgt Ion:106 Resp: 16438
Ion Ratio Lower Upper
106 100
91 183.5 164.7 204.7



#73
o-xylene
Concen: 0.62 ug/l
RT: 15.813 min Scan# 3964
Delta R.T. -0.000 min
Lab File: 3V14473.D
Acq: 7 Nov 2011 6:46 pm

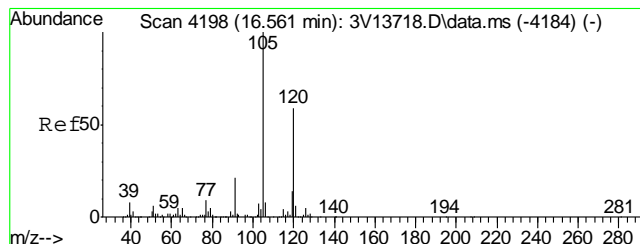
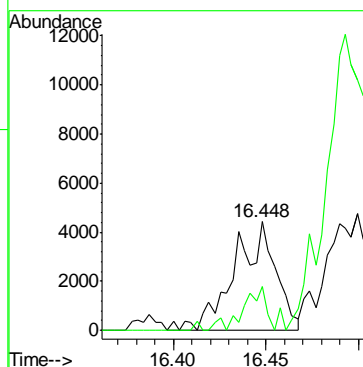
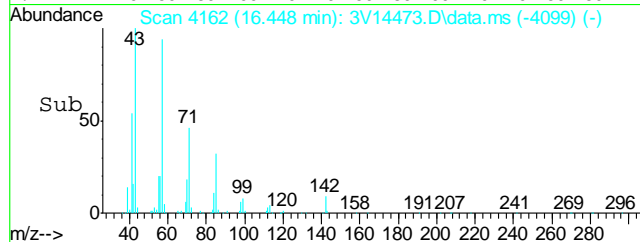
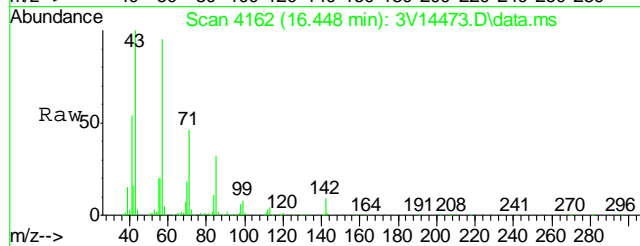
Tgt Ion:106 Resp: 5118
Ion Ratio Lower Upper
106 100
91 187.9 154.8 232.2





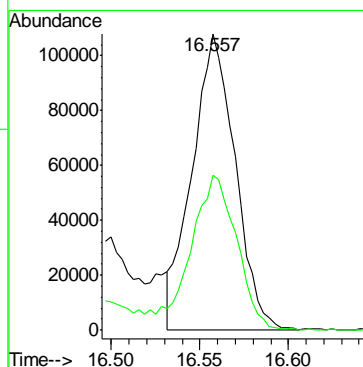
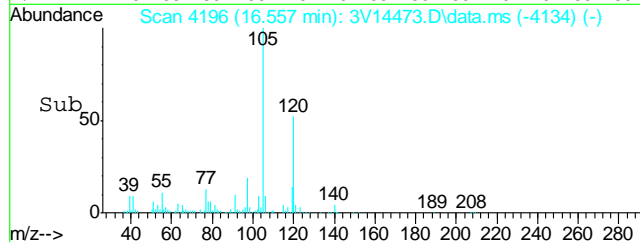
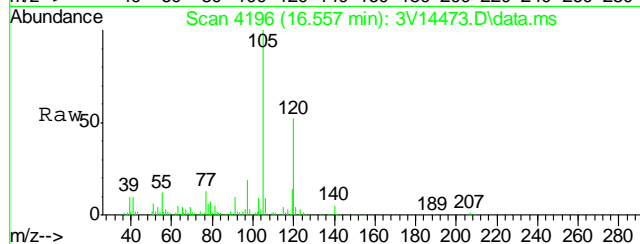
#77
n-Propylbenzene
Concen: 0.44 ug/l
RT: 16.448 min Scan# 4162
Delta R.T. 0.003 min
Lab File: 3V14473.D
Acq: 7 Nov 2011 6:46 pm

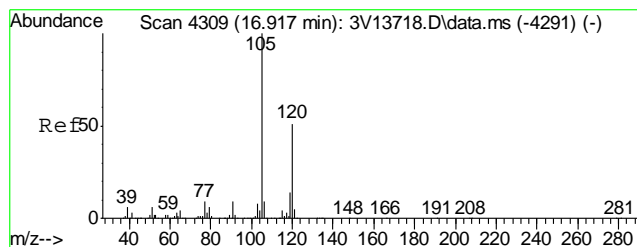
Tgt Ion: 91 Resp: 6975
Ion Ratio Lower Upper
91 100
120 0.0 20.8 31.2#



#80
1,3,5-Trimethylbenzene
Concen: 14.68 ug/l
RT: 16.557 min Scan# 4196
Delta R.T. 0.000 min
Lab File: 3V14473.D
Acq: 7 Nov 2011 6:46 pm

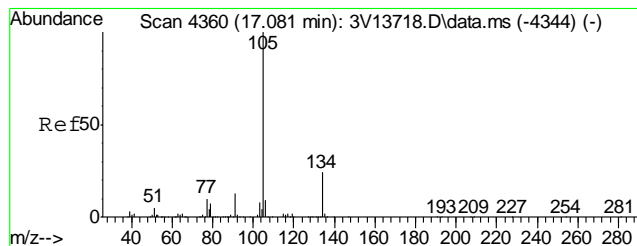
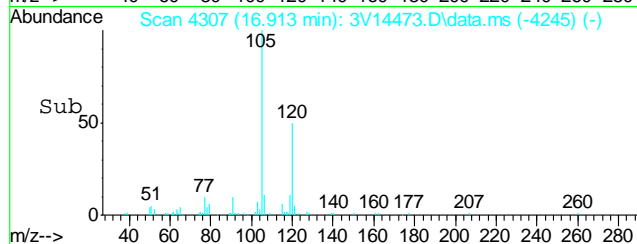
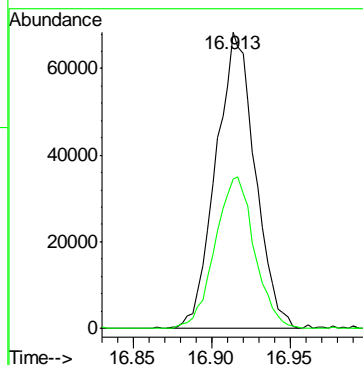
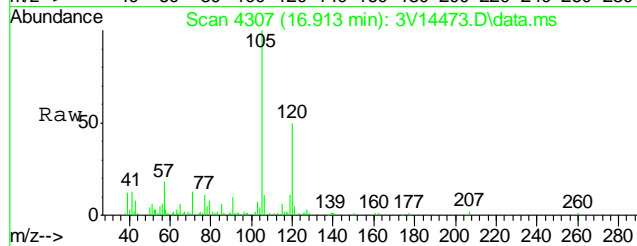
Tgt Ion: 105 Resp: 183317
Ion Ratio Lower Upper
105 100
120 55.4 43.8 65.8





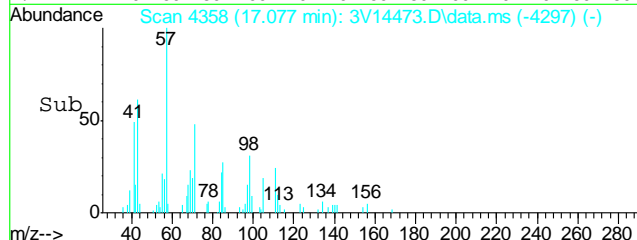
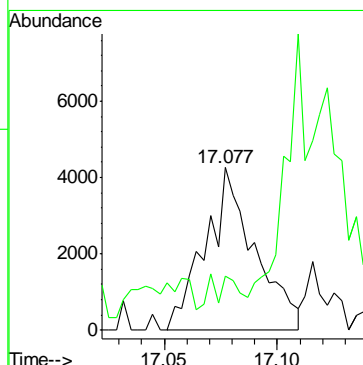
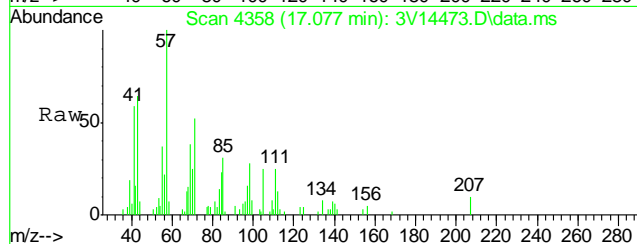
#82
1,2,4-Trimethylbenzene
Concen: 8.73 ug/l
RT: 16.913 min Scan# 4307
Delta R.T. -0.001 min
Lab File: 3V14473.D
Acq: 7 Nov 2011 6:46 pm

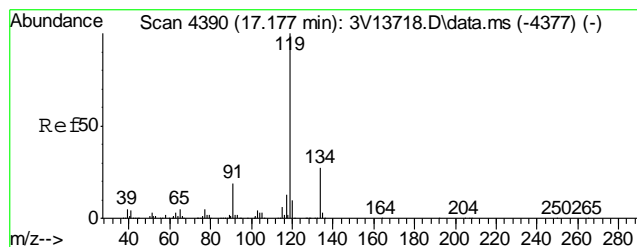
Tgt Ion	Ratio	Lower	Upper
105	100		
120	51.5	47.8	71.6



#83
sec-Butylbenzene
Concen: 0.36 ug/l
RT: 17.077 min Scan# 4358
Delta R.T. -0.004 min
Lab File: 3V14473.D
Acq: 7 Nov 2011 6:46 pm

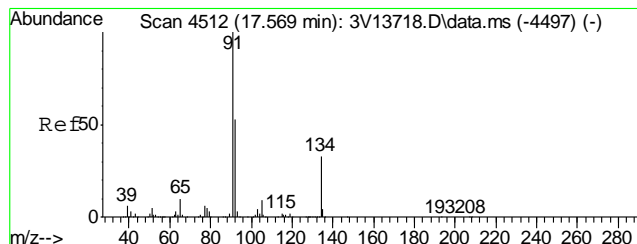
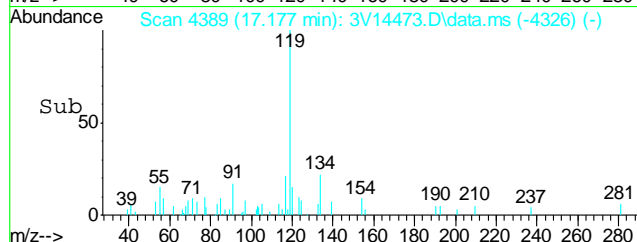
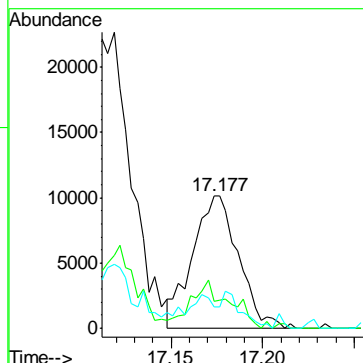
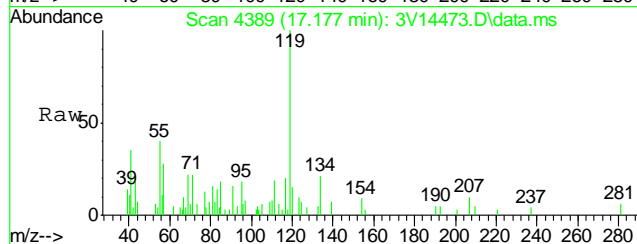
Tgt Ion	Ratio	Lower	Upper
105	100		
134	20.0	18.4	27.6





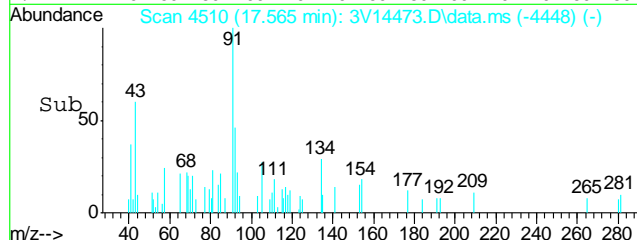
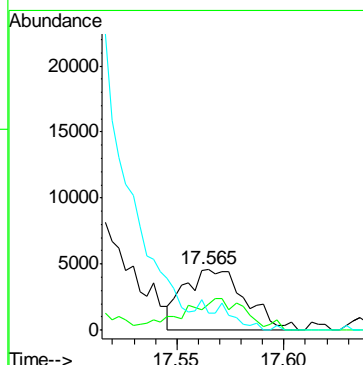
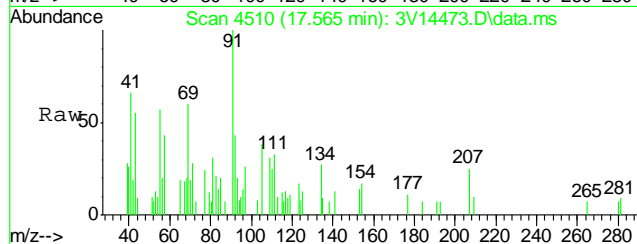
#86
p-Isopropyltoluene
Concen: 1.15 ug/l m
RT: 17.177 min Scan# 4389
Delta R.T. 0.002 min
Lab File: 3V14473.D
Acq: 7 Nov 2011 6:46 pm

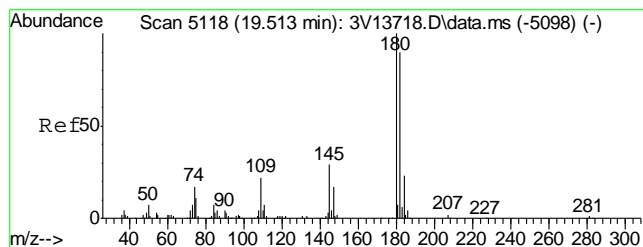
Tgt Ion	Ratio	Lower	Upper
119	100		
134	67.9	23.4	35.0#
91	54.4	16.3	24.5#



#88
n-Butylbenzene
Concen: 0.69 ug/l
RT: 17.565 min Scan# 4510
Delta R.T. -0.001 min
Lab File: 3V14473.D
Acq: 7 Nov 2011 6:46 pm

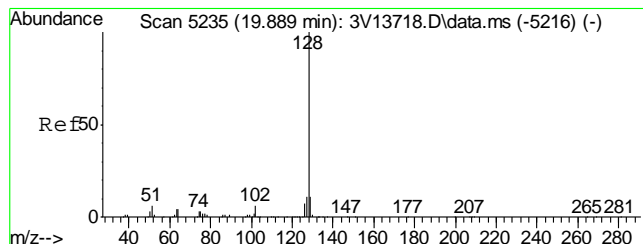
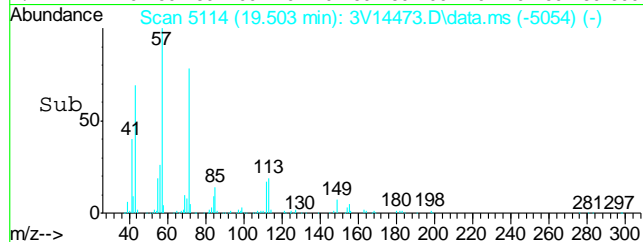
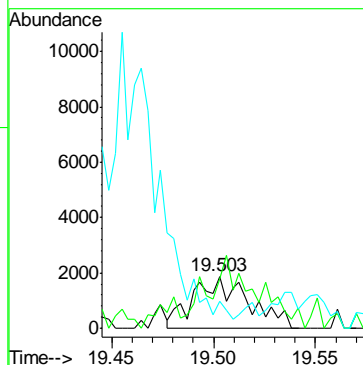
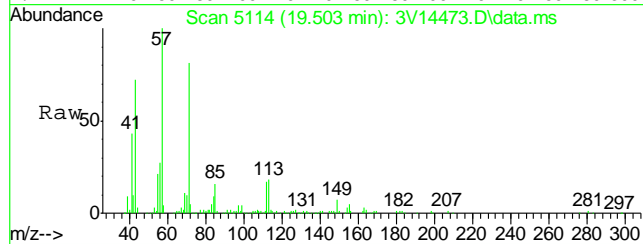
Tgt Ion	Ratio	Lower	Upper
91	100		
92	53.9	41.5	62.3
134	0.0	25.4	38.0#





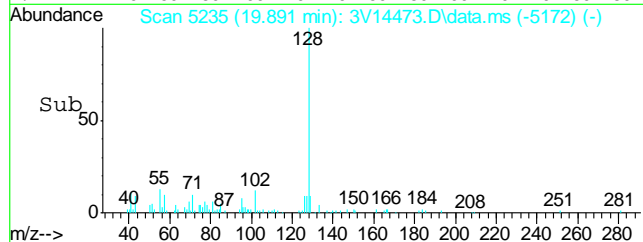
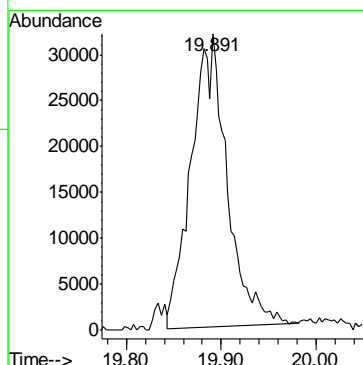
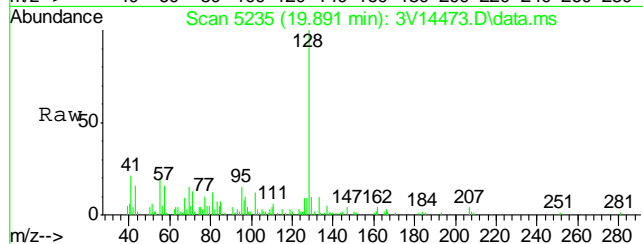
#90
1,2,4-Trichlorobenzene
Concen: 0.70 ug/l
RT: 19.503 min Scan# 5114
Delta R.T. -0.007 min
Lab File: 3V14473.D
Acq: 7 Nov 2011 6:46 pm

Tgt Ion:180	Resp:	3512
Ion Ratio	Lower	Upper
180	100	
182	92.4	76.6 115.0
145	0.0	25.3 37.9#



#91
Naphthalene
Concen: 6.80 ug/l
RT: 19.891 min Scan# 5235
Delta R.T. 0.002 min
Lab File: 3V14473.D
Acq: 7 Nov 2011 6:46 pm

Tgt Ion:128	Resp:	84672
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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3110711.S\
Data File : 3V14464A.D
Acq On : 7 Nov 2011 11:29 am
Operator : DONC
Sample : MB
Misc : MS2923,V3V832,5,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 09 09:42:41 2011
Quant Method : C:\msdchem\1\METHODS\V3AP830TVH830.M
Quant Title : 8260
QLast Update : Mon Nov 07 14:42:41 2011
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.884	168	313896	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.683	114	498139	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.314	117	409451	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.310	152	213188	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.285	102	41759	50.36	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	100.72%
61) Toluene-d8	14.072	98	658097	53.88	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	107.76%
69) 4-Bromofluorobenzene	16.264	95	196998	49.57	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	99.14%

Target Compounds

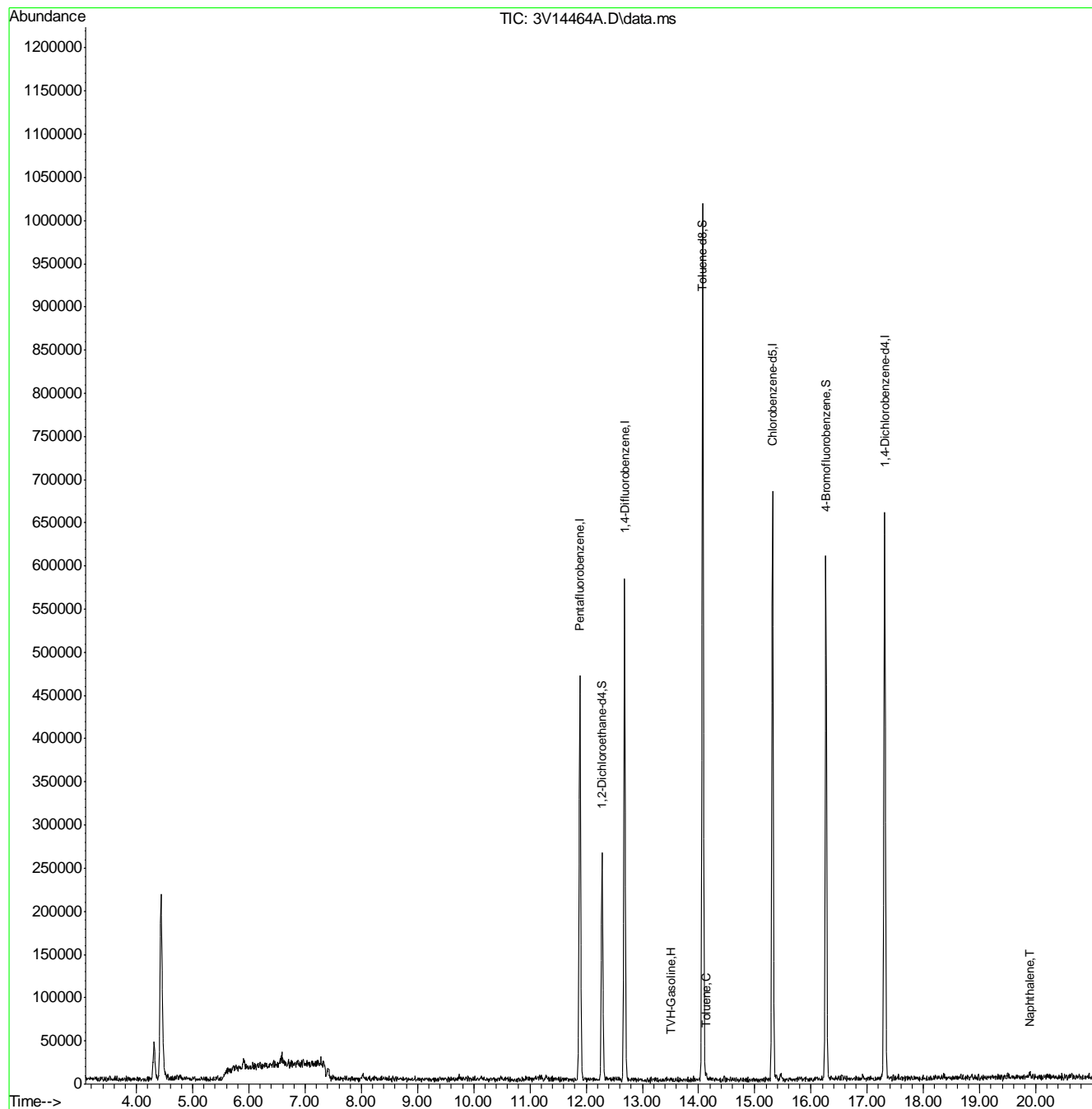
					Qvalue
1) TVH-Gasoline	13.491	TIC	124794m	19.44	ug/l
62) Toluene	14.139	92	2913	0.35	ug/l # 75
91) Naphthalene	19.899	128	5939	0.50	ug/l 100

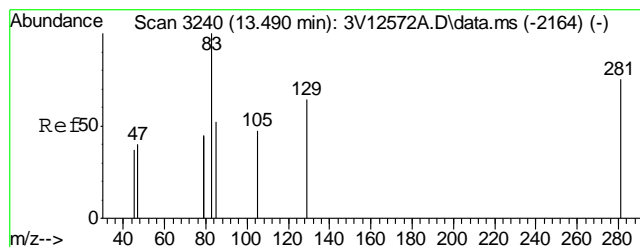
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3110711.S\
Data File : 3V14464A.D
Acq On : 7 Nov 2011 11:29 am
Operator : DONC
Sample : MB
Misc : MS2923,V3V832,5,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

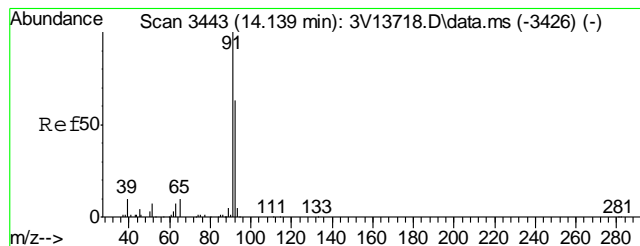
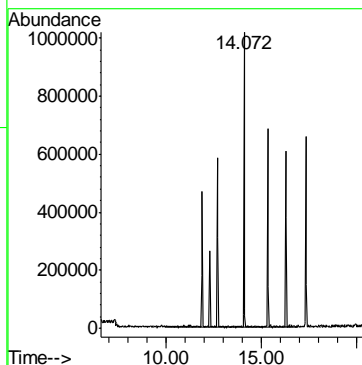
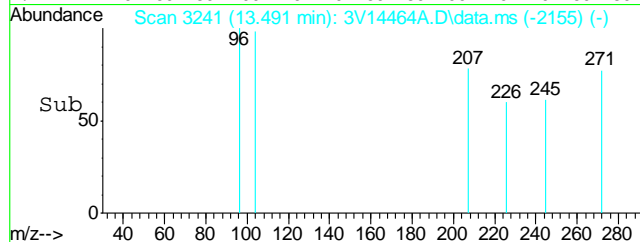
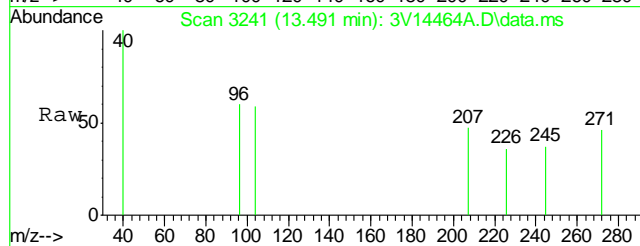
Quant Time: Nov 09 09:42:41 2011
Quant Method : C:\msdchem\1\METHODS\V3AP830TVH830.M
Quant Title : 8260
QLast Update : Mon Nov 07 14:42:41 2011
Response via : Initial Calibration





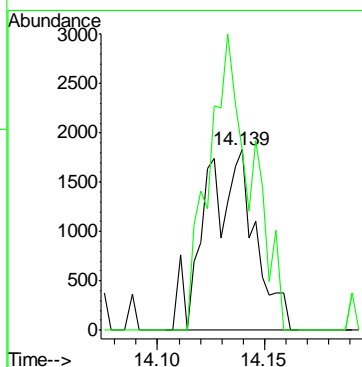
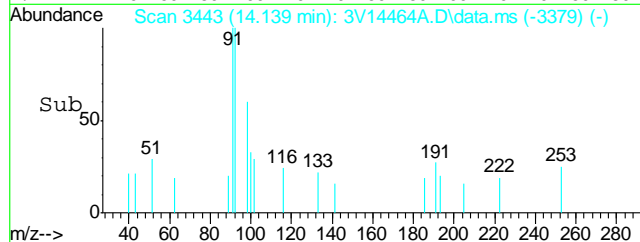
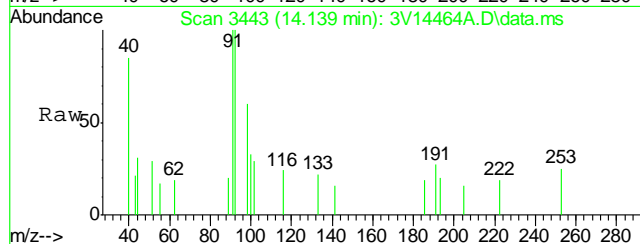
#1
TVH-Gasoline
Concen: 19.44 ug/l m
RT: 13.491 min Scan# 3241
Delta R.T. 0.000 min
Lab File: 3V14464A.D
Acq: 7 Nov 2011 11:29 am

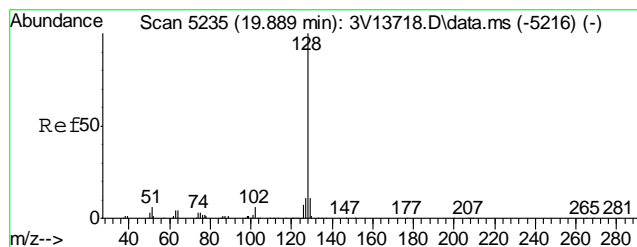
Tgt Ion:TIC Resp: 124794



#62
Toluene
Concen: 0.35 ug/l
RT: 14.139 min Scan# 3443
Delta R.T. 0.004 min
Lab File: 3V14464A.D
Acq: 7 Nov 2011 11:29 am

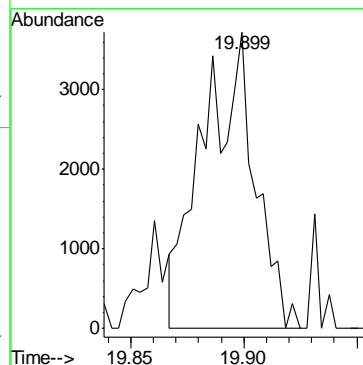
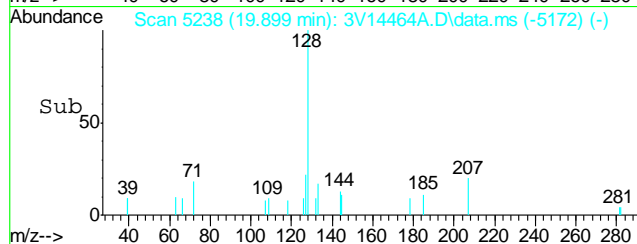
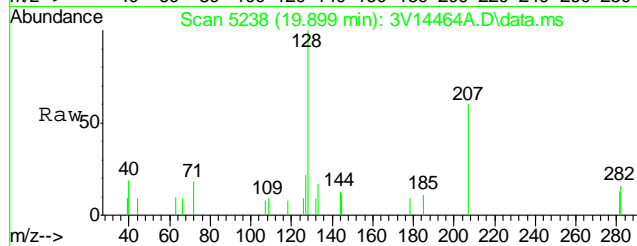
Tgt Ion: 92 Resp: 2913
Ion Ratio Lower Upper
92 100
91 141.8 156.8 196.8#





#91
Naphthalene
Concen: 0.50 ug/l
RT: 19.899 min Scan# 5238
Delta R.T. 0.011 min
Lab File: 3V14464A.D
Acq: 7 Nov 2011 11:29 am

Tgt Ion:128 Resp: 5939



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: D29207
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4805-MB	3G06824.D	1	11/08/11	TMB	11/08/11	OP4805	E3G252

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

D29207-1

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	71% 10-145%
321-60-8	2-Fluorobiphenyl	63% 10-130%
1718-51-0	Terphenyl-d14	111% 22-130%

Blank Spike Summary

Page 1 of 1

Job Number: D29207

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4805-BS	3G06825.D	1	11/08/11	TMB	11/08/11	OP4805	E3G252

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D29207-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	65.7	79	34-130
120-12-7	Anthracene	83.3	74.3	89	35-130
56-55-3	Benzo(a)anthracene	83.3	69.6	84	36-130
50-32-8	Benzo(a)pyrene	83.3	71.6	86	36-130
205-99-2	Benzo(b)fluoranthene	83.3	69.3	83	35-130
207-08-9	Benzo(k)fluoranthene	83.3	77.3	93	37-130
218-01-9	Chrysene	83.3	73.4	88	40-130
53-70-3	Dibenzo(a,h)anthracene	83.3	68.6	82	32-130
206-44-0	Fluoranthene	83.3	72.1	87	38-130
86-73-7	Fluorene	83.3	68.8	83	35-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	59.6	72	28-130
91-20-3	Naphthalene	83.3	70.2	84	35-130
129-00-0	Pyrene	83.3	73.5	88	37-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	98%	10-145%
321-60-8	2-Fluorobiphenyl	81%	10-130%
1718-51-0	Terphenyl-d14	103%	22-130%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D29207
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4805-MS ^a	3G06852.D	10	11/10/11	TMB	11/08/11	OP4805	E3G253
OP4805-MSD ^a	3G06853.D	10	11/10/11	TMB	11/08/11	OP4805	E3G253
D29207-1	3G06851.D	10	11/10/11	TMB	11/08/11	OP4805	E3G253

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D29207-1

CAS No.	Compound	D29207-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		93.9	81.0	60	101	82	28	10-155/30
120-12-7	Anthracene	ND		93.9	71.7	76	89.9	96	21	10-155/30
56-55-3	Benzo(a)anthracene	ND		93.9	ND	0*	ND	0*	nc	10-175/30
50-32-8	Benzo(a)pyrene	ND		93.9	ND	0*	ND	0*	nc	10-164/30
205-99-2	Benzo(b)fluoranthene	ND		93.9	ND	0*	ND	0*	nc	10-165/30
207-08-9	Benzo(k)fluoranthene	ND		93.9	ND	0*	ND	0*	nc	10-178/30
218-01-9	Chrysene	ND		93.9	ND	0*	ND	0*	nc	10-147/30
53-70-3	Dibenzo(a,h)anthracene	ND		93.9	ND	0*	ND	0*	nc	10-144/30
206-44-0	Fluoranthene	ND		93.9	91.6	98	114	121	24	10-207/30
86-73-7	Fluorene	166		93.9	225	71	296	147	34*	10-163/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		93.9	ND	0*	ND	0*	nc	10-180/30
91-20-3	Naphthalene	ND		93.9	104	54	136	88	25	10-198/30
129-00-0	Pyrene	ND		93.9	ND	0*	74.2	79	12	10-189/30

CAS No.	Surrogate Recoveries	MS	MSD	D29207-1	Limits
4165-60-0	Nitrobenzene-d5	12%	116%	111%	10-145%
321-60-8	2-Fluorobiphenyl	66%	79%	70%	10-130%
1718-51-0	Terphenyl-d14	60%	71%	67%	22-130%

(a) Outside control limits due to dilution.

GC/MS Semi-volatiles

Raw Data

∞

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\110911\
 Data File : 3g06851.D
 Acq On : 10 Nov 2011 12:16 am
 Operator : TamiB
 Sample : D29207-1,10x
 Misc : OP4805,E3G253,30.02,,,1,10
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 10 10:50:16 2011
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G253.M
 Quant Title : PAHSIM BASE
 QLast Update : Thu Nov 10 10:44:39 2011
 Response via : Initial Calibration

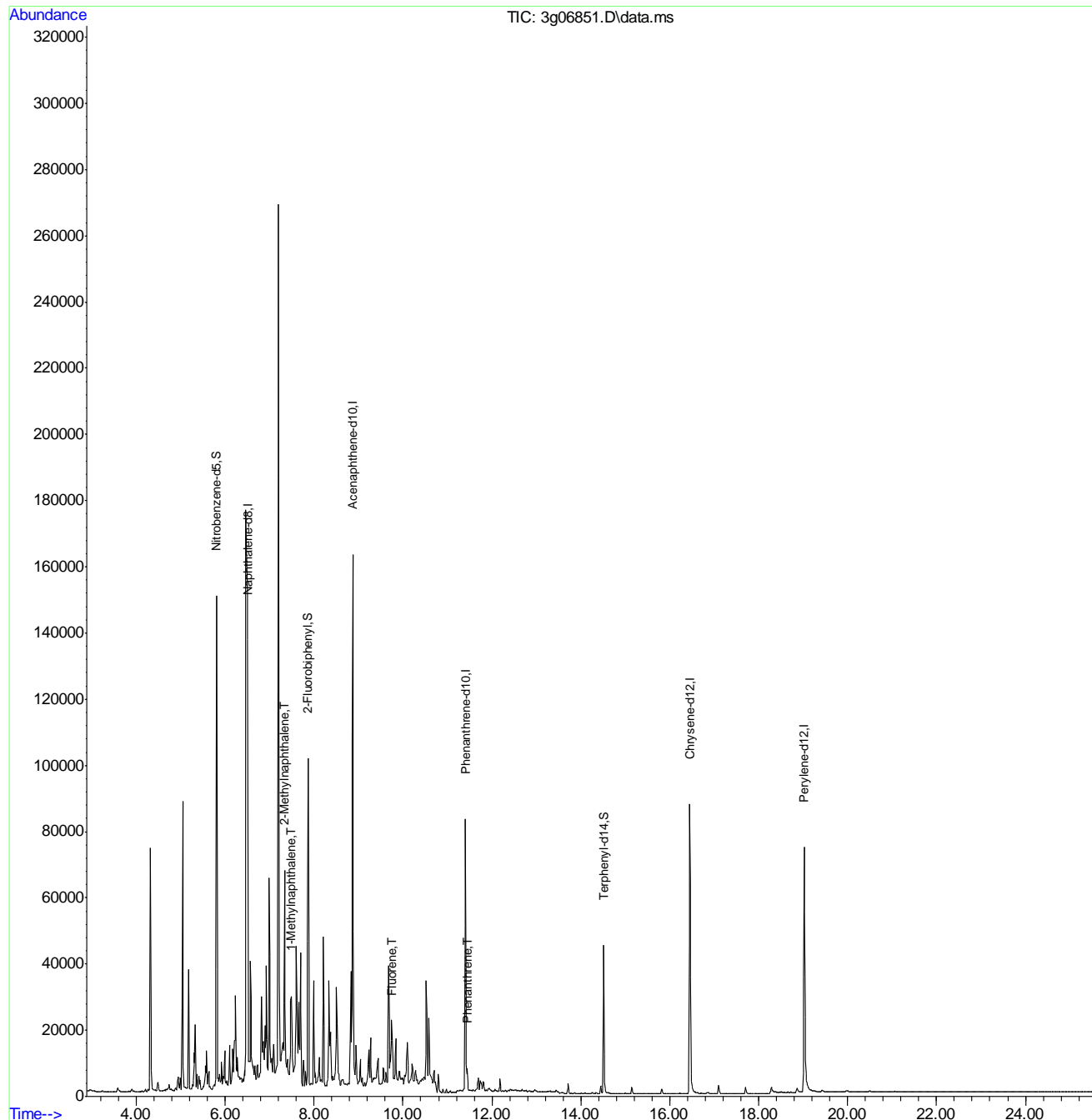
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.506	136	147688	4.00	ug/mL	0.00
6) Acenaphthene-d10	8.873	164	79157	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.403	188	99652	4.00	ug/mL	0.00
18) Chrysene-d12	16.452	240	109304	4.00	ug/mL	0.00
23) Perylene-d12	19.025	264	106117	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.808	82	33252	5.55	ug/mL	0.00
7) 2-Fluorobiphenyl	7.869	172	82318	3.50	ug/mL	0.00
20) Terphenyl-d14	14.514	244	51823	3.37	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	7.341	142	26596	1.26	ug/mL	87
9) 1-Methylnaphthalene	7.491	142	10672	0.52	ug/mL#	72
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	9.759	166	8857	0.44	ug/mL#	18
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	11.443	178	6531	0.24	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	

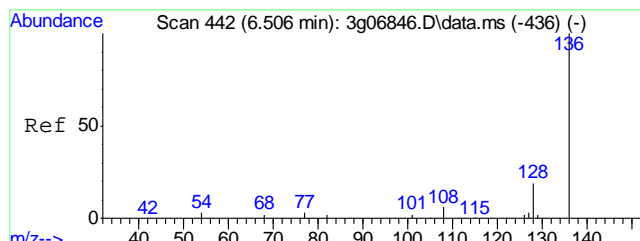
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\110911\
Data File : 3g06851.D
Acq On : 10 Nov 2011 12:16 am
Operator : TamiB
Sample : D29207-1,10x
Misc : OP4805,E3G253,30.02,,,1,10
ALS Vial : 13 Sample Multiplier: 1

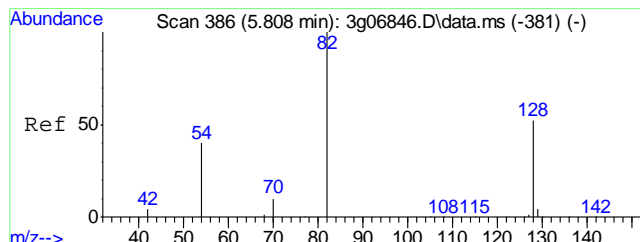
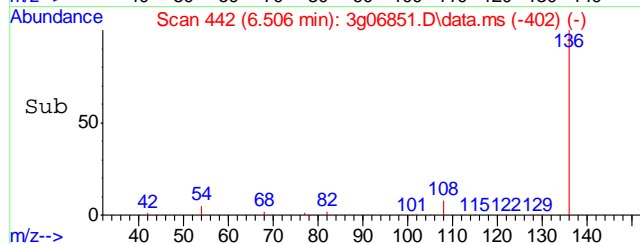
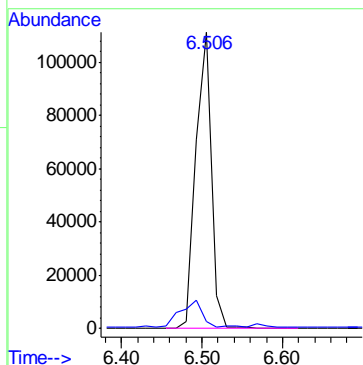
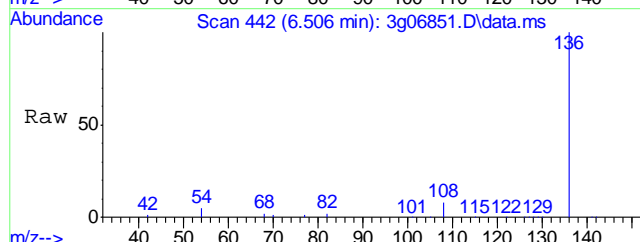
Quant Time: Nov 10 10:50:16 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G253.M
Quant Title : PAHSIM BASE
QLast Update : Thu Nov 10 10:44:39 2011
Response via : Initial Calibration





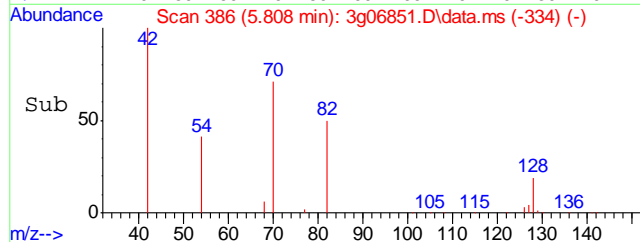
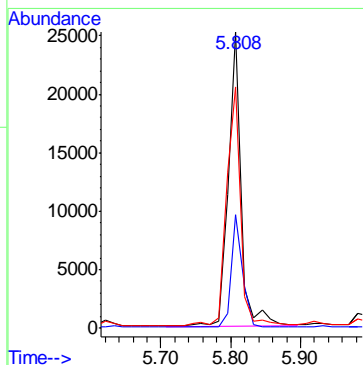
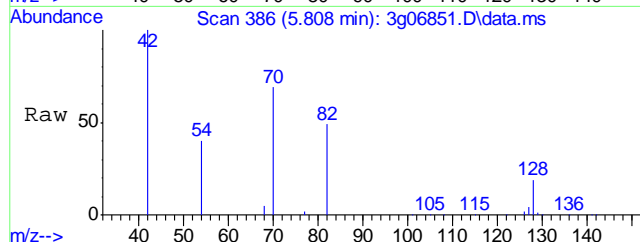
#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.506 min Scan# 442
Delta R.T. -0.000 min
Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

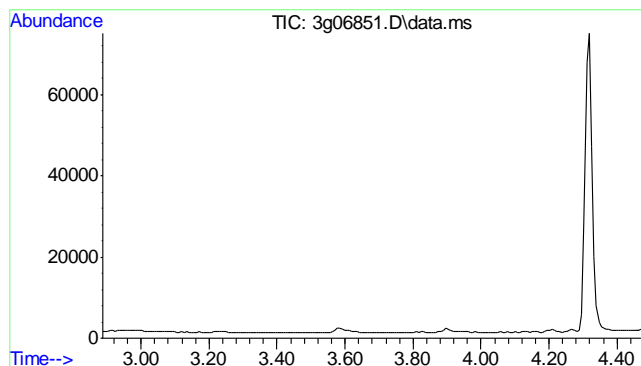
Tgt Ion	Ratio	Lower	Upper
136	100		
68	14.3	0.0	28.4



#2
Nitrobenzene-d5
Concen: 5.55 ug/mL
RT: 5.808 min Scan# 386
Delta R.T. -0.000 min
Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

Tgt Ion	Ratio	Lower	Upper
82	100		
128	33.1	20.9	60.9
54	87.7	38.1	78.1#

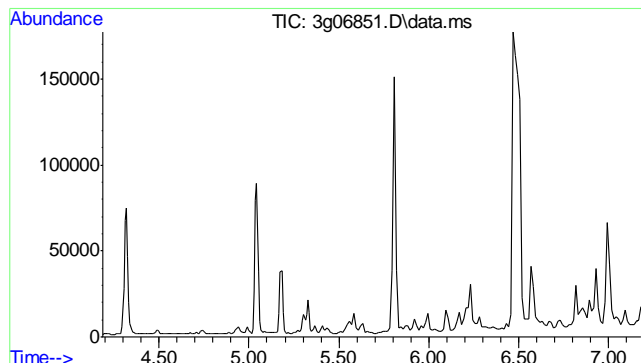
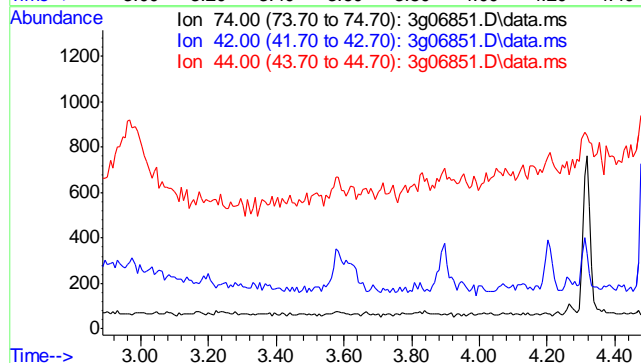




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.97 min

Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

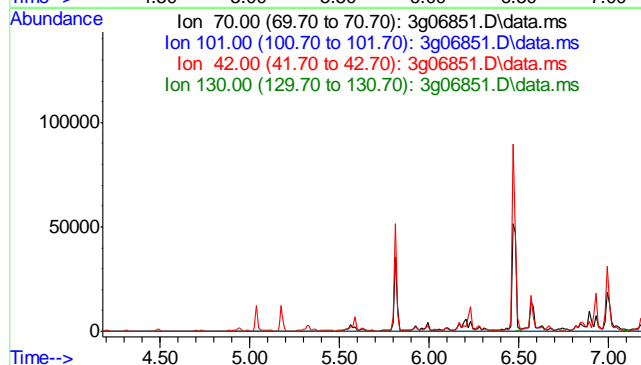
Tgt Ion	Exp Ratio
74	100
42	66.2
44	6.5

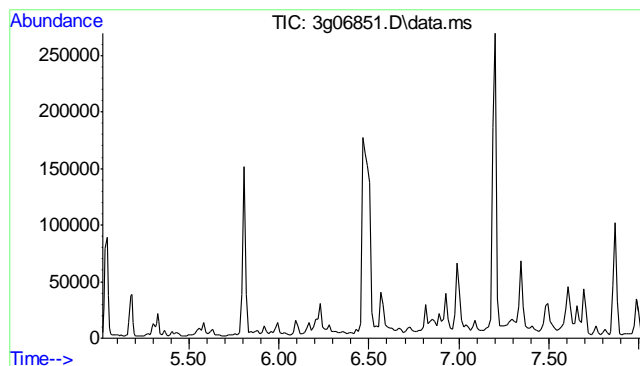


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.68 min

Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

Tgt Ion	Exp Ratio
70	100
101	11.6
42	56.4
130	22.2

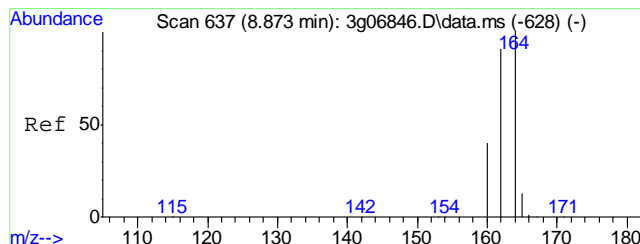
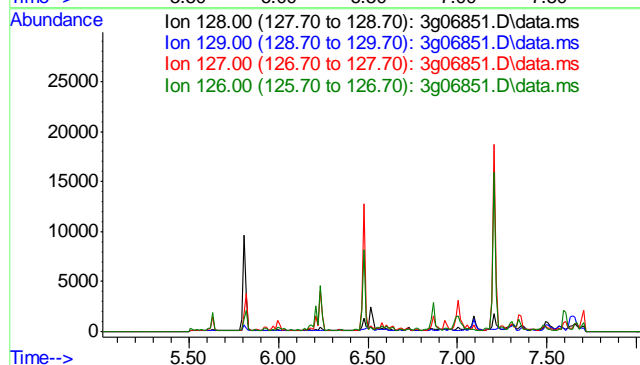




#5
Naphthalene
Concen: N.D. ug/mL
Expected RT: 6.52 min

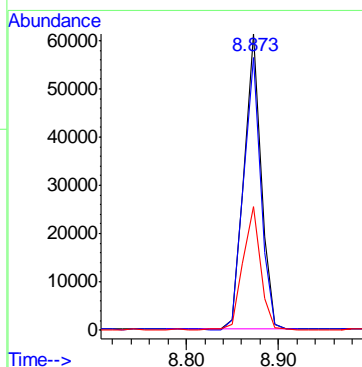
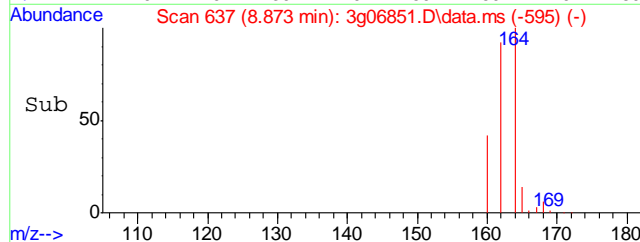
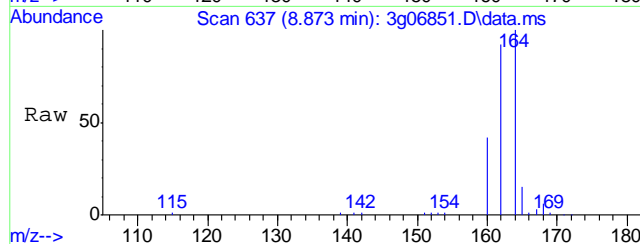
Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

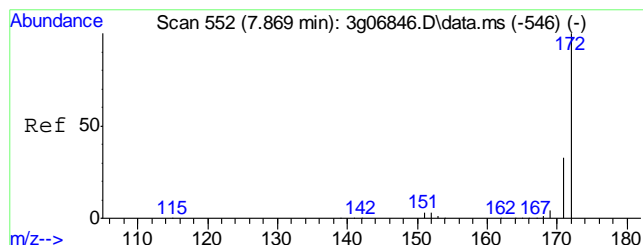
Tgt Ion: 128
Sig Exp Ratio
128 100
129 11.0
127 12.6
126 7.3



#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 8.873 min Scan# 637
Delta R.T. -0.000 min
Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

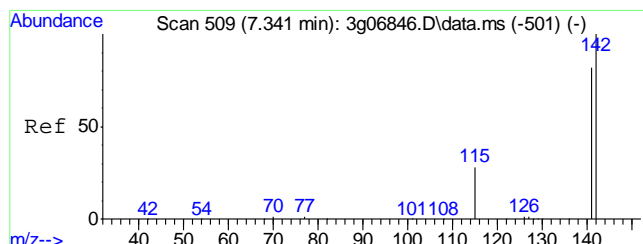
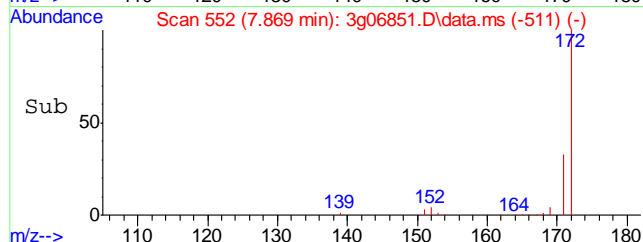
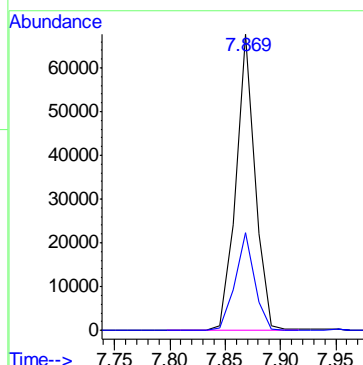
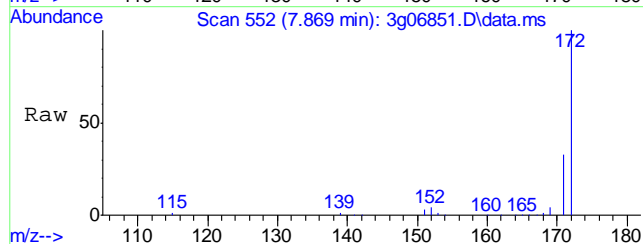
Tgt Ion: 164 Resp: 79157
Ion Ratio Lower Upper
164 100
162 92.5 71.4 111.4
160 42.7 21.7 61.7





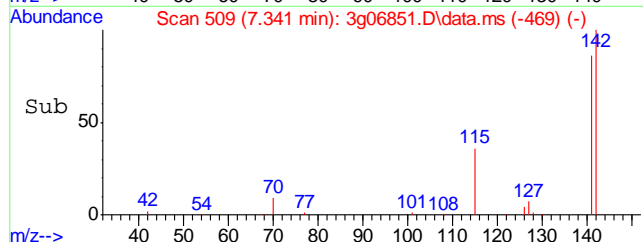
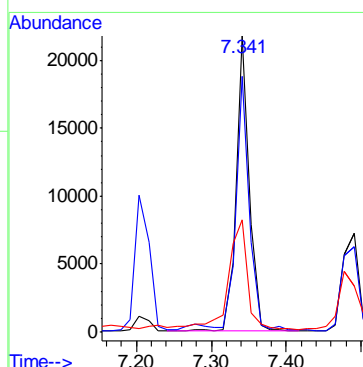
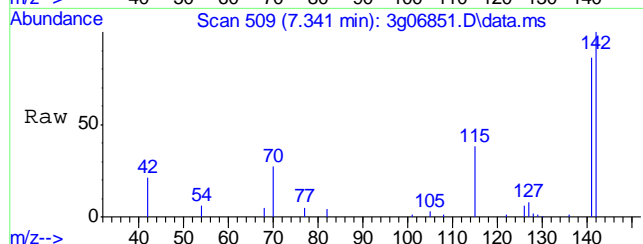
#7
2-Fluorobiphenyl
Concen: 3.50 ug/mL
RT: 7.869 min Scan# 552
Delta R.T. -0.000 min
Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

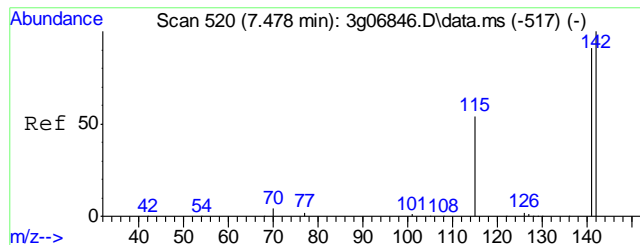
Tgt Ion	Ratio	Lower	Upper
172	100		
171	33.0	13.1	53.1



#8
2-Methylnaphthalene
Concen: 1.26 ug/mL
RT: 7.341 min Scan# 509
Delta R.T. -0.000 min
Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

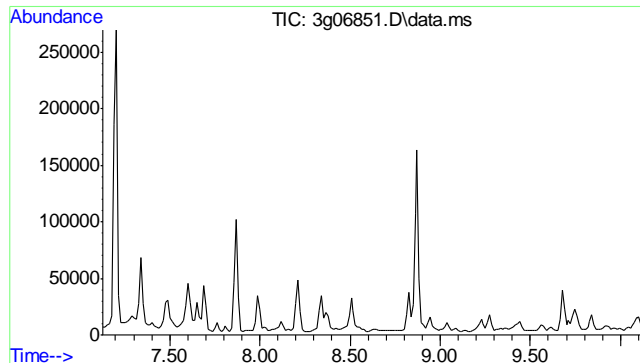
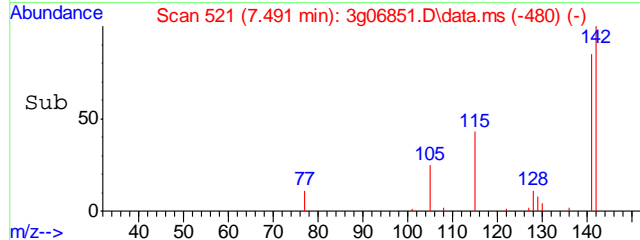
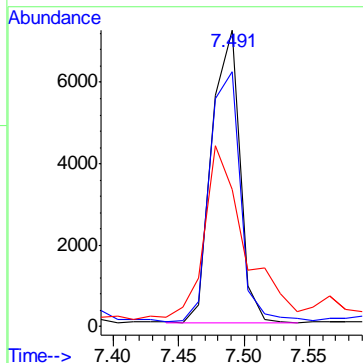
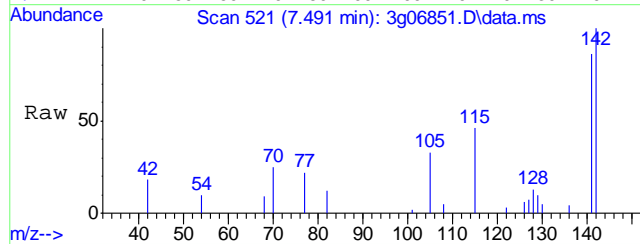
Tgt Ion	Ratio	Lower	Upper
142	100		
141	87.5	62.3	102.3
115	53.9	16.3	56.3





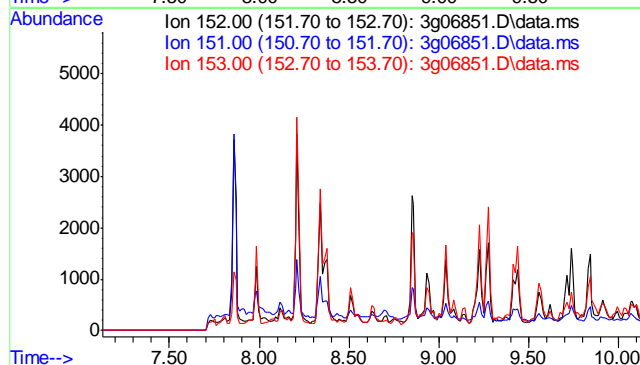
#9
1-Methylnaphthalene
Concen: 0.52 ug/mL
RT: 7.491 min Scan# 521
Delta R.T. 0.012 min
Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

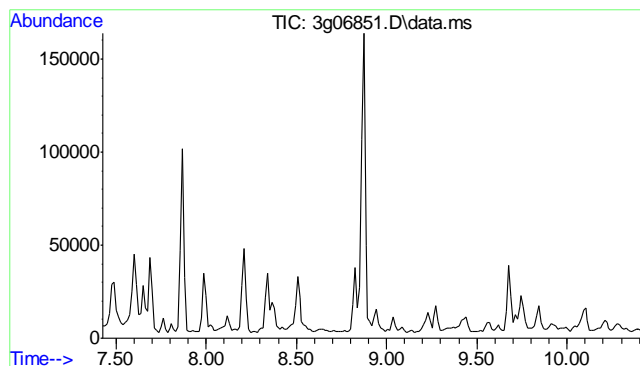
Tgt Ion	Ratio	Lower	Upper
142	100		
141	93.6	69.3	103.9
115	85.1	32.0	48.0



#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.62 min
Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

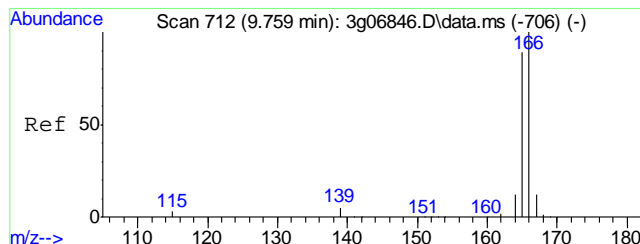
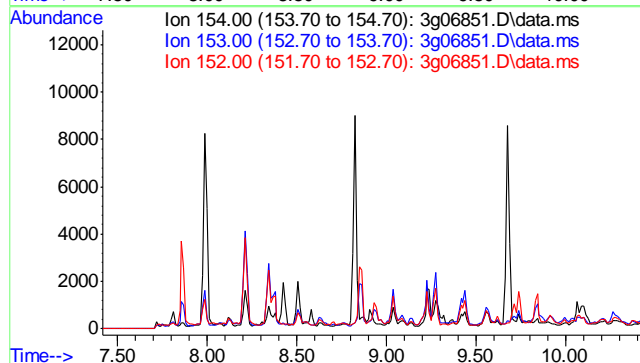
Tgt Ion	Sig	Exp Ratio
152	100	
151	18.9	
153	13.1	





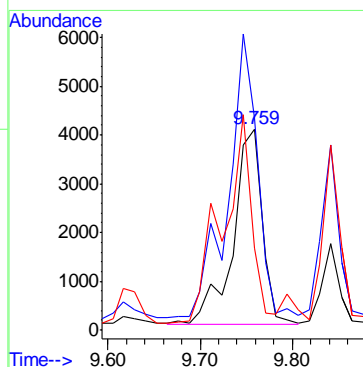
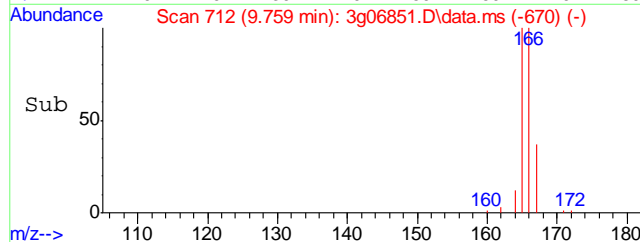
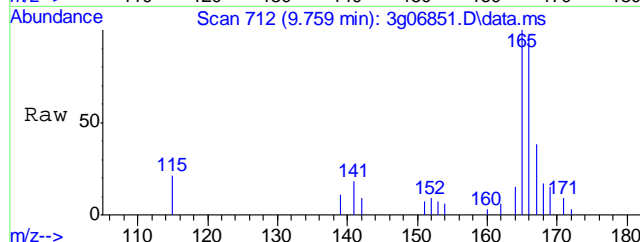
#11
 Acenaphthene
 Concen: N.D. ug/mL
 Expected RT: 8.92 min
 Lab File: 3g06851.D
 Acq: 10 Nov 11 12:16 am

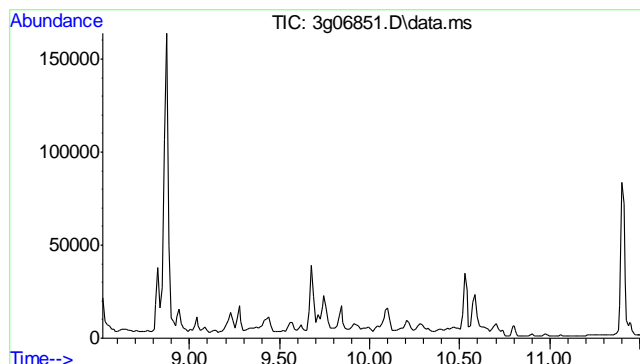
Tgt Ion: 154
 Sig Exp Ratio
 154 100
 153 103.4
 152 49.4



#12
 Fluorene
 Concen: 0.44 ug/mL
 RT: 9.759 min Scan# 712
 Delta R.T. -0.000 min
 Lab File: 3g06851.D
 Acq: 10 Nov 11 12:16 am

Tgt Ion: 166 Resp: 8857
 Ion Ratio Lower Upper
 166 100
 165 146.0 69.7 109.7#
 167 106.8 0.0 32.1#

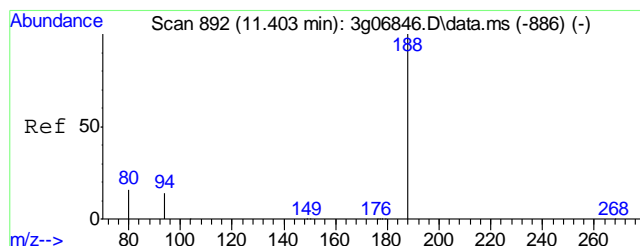
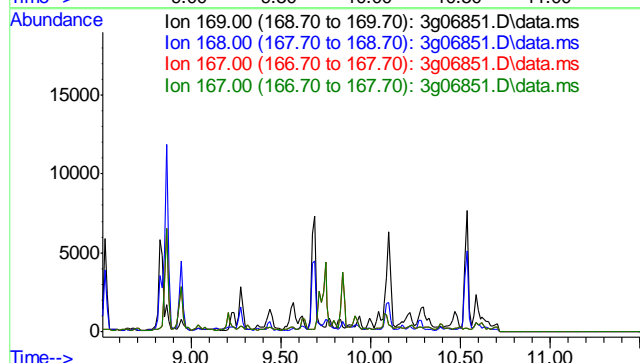




#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.01 min

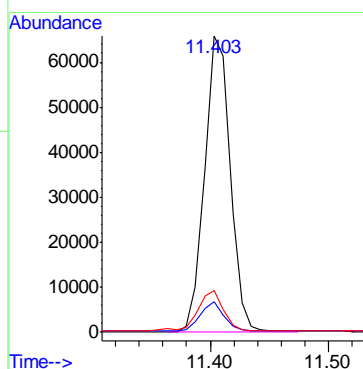
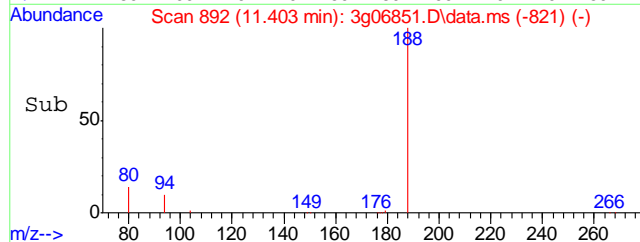
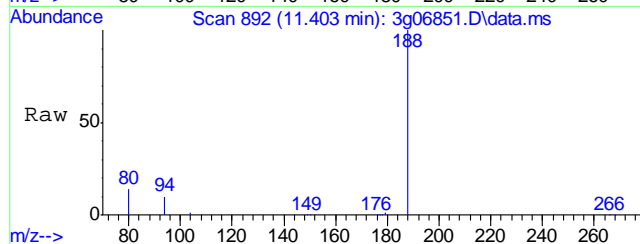
Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

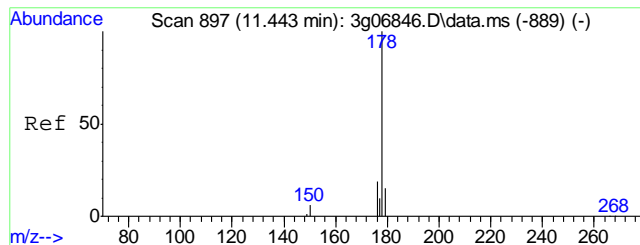
Tgt Ion: 169
Sig Exp Ratio
169 100
168 60.8
167 32.6
167 32.6



#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.403 min Scan# 892
Delta R.T. -0.000 min
Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

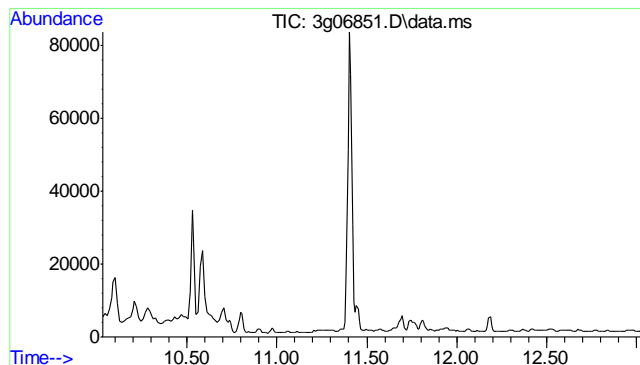
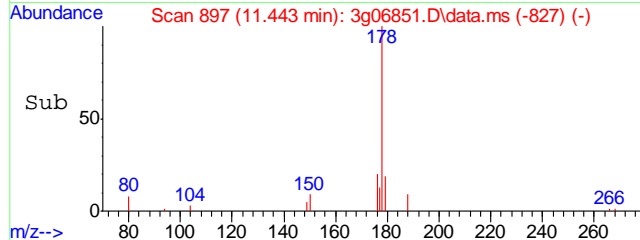
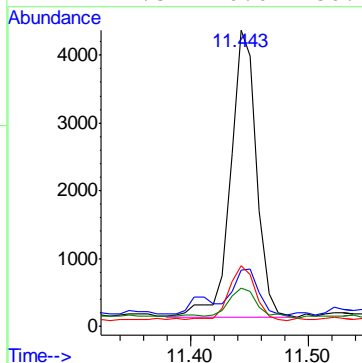
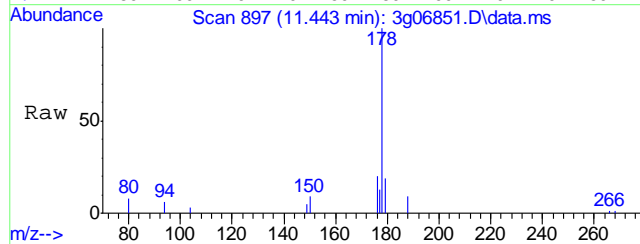
Tgt Ion: 188 Resp: 99652
Ion Ratio Lower Upper
188 100
94 9.4 0.0 34.0
80 13.9 0.0 36.6





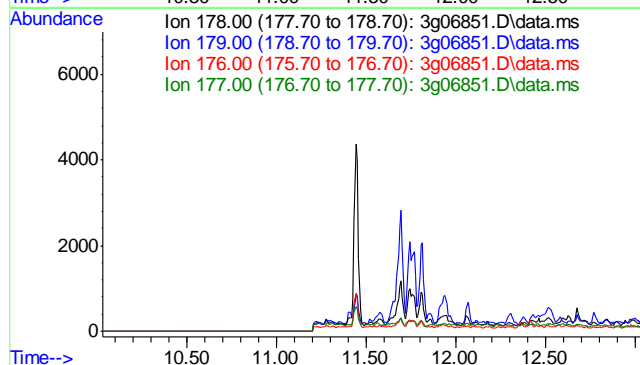
#15
Phenanthrene
Concen: 0.24 ug/mL
RT: 11.443 min Scan# 897
Delta R.T. -0.000 min
Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

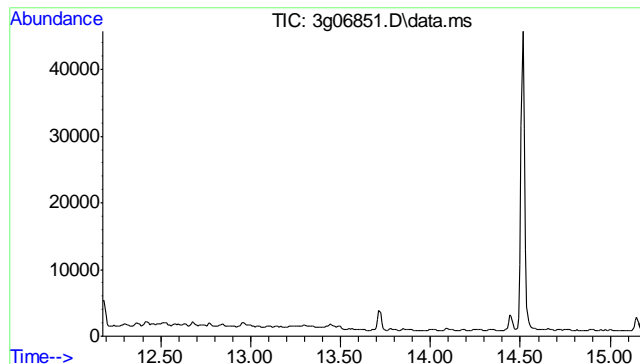
Tgt Ion	Ratio	Lower	Upper
178	100		
179	14.9	0.0	35.3
176	19.4	0.0	38.1
177	11.5	0.0	30.2



#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.53 min
Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

Tgt Ion	Sig	Exp Ratio
178	100	
179	15.1	
176	17.5	
177	8.6	

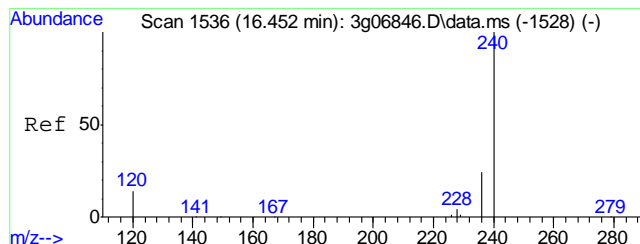
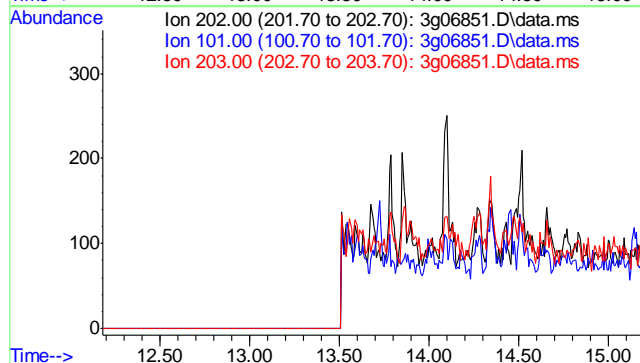




#17
 Fluoranthene
 Concen: N.D. ug/mL
 Expected RT: 13.68 min

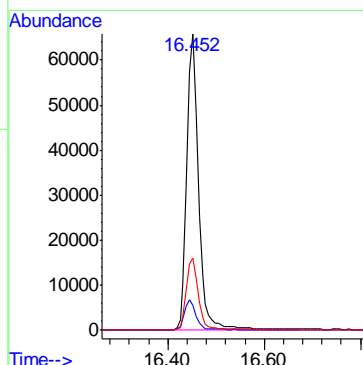
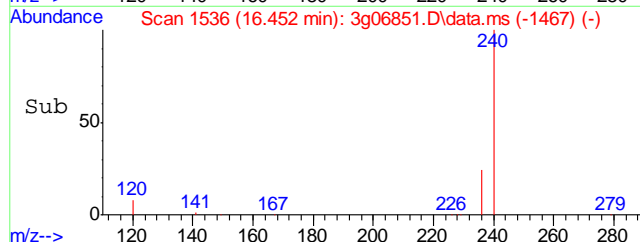
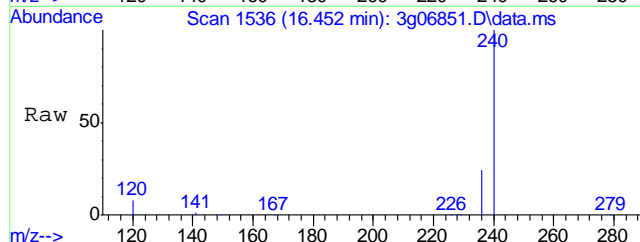
 Lab File: 3g06851.D
 Acq: 10 Nov 11 12:16 am

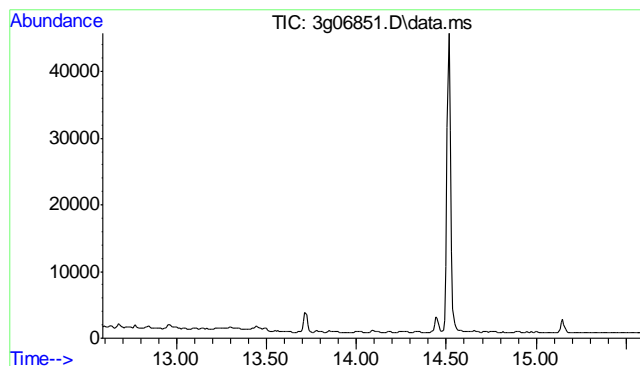
Tgt Ion: 202
 Sig Exp Ratio
 202 100
 101 17.2
 203 17.0



#18
 Chrysene-d12
 Concen: 4.00 ug/mL
 RT: 16.452 min Scan# 1536
 Delta R.T. -0.000 min
 Lab File: 3g06851.D
 Acq: 10 Nov 11 12:16 am

Tgt Ion: 240 Resp: 109304
 Ion Ratio Lower Upper
 240 100
 120 9.9 0.0 35.9
 236 24.5 4.6 44.6

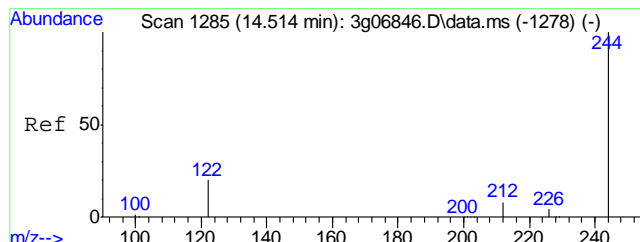
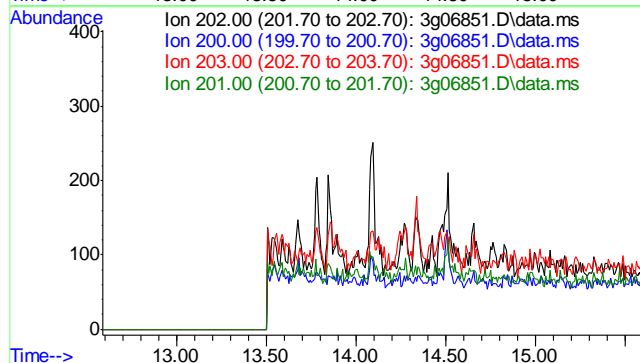




#19
 Pyrene
 Concen: N.D. ug/mL
 Expected RT: 14.09 min

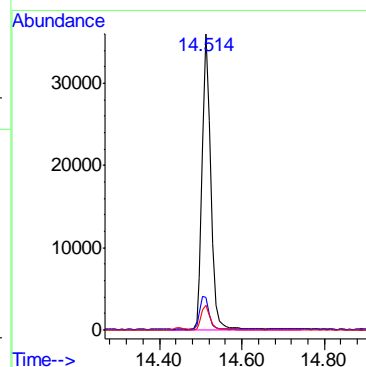
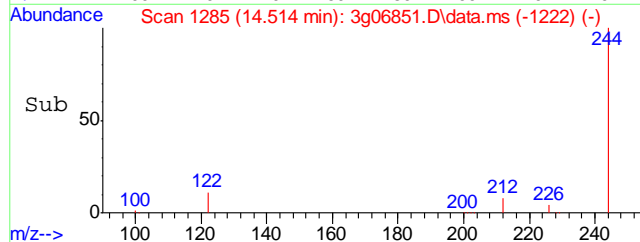
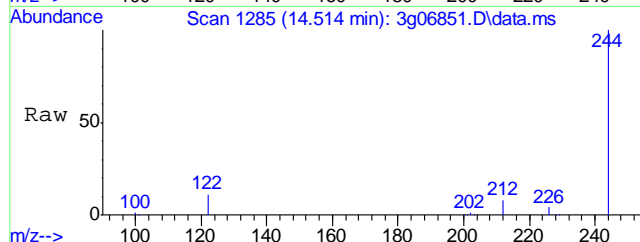
 Lab File: 3g06851.D
 Acq: 10 Nov 11 12:16 am

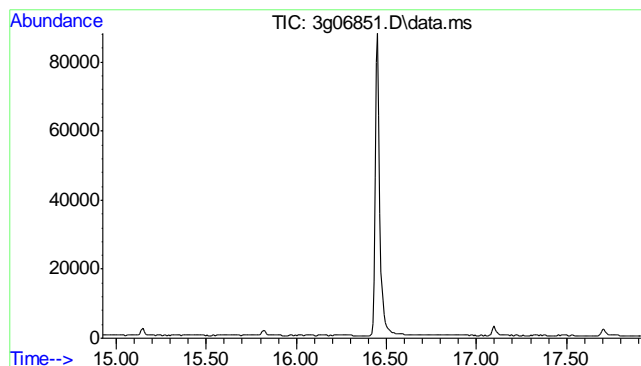
Tgt Ion	Exp Ratio
202	100
200	21.8
203	17.6
201	18.1



#20
 Terphenyl-d14
 Concen: 3.37 ug/mL
 RT: 14.514 min Scan# 1285
 Delta R.T. -0.000 min
 Lab File: 3g06851.D
 Acq: 10 Nov 11 12:16 am

Tgt Ion	Ratio	Lower	Upper
244	100		
122	12.2	0.0	38.9
212	8.3	0.0	27.4

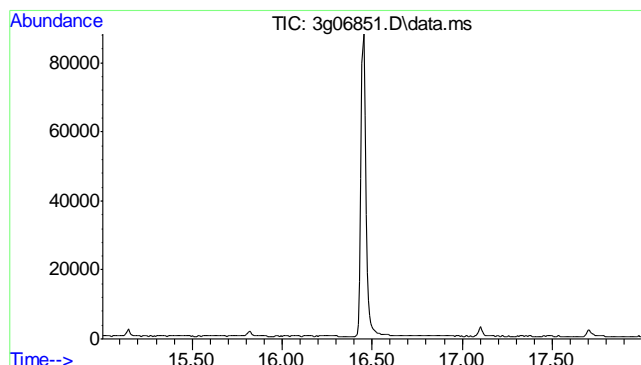
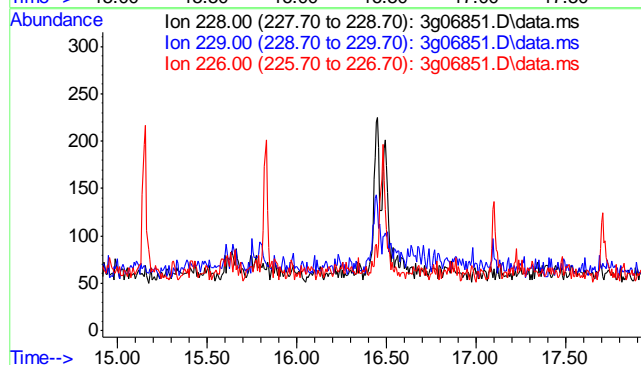




#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.42 min

Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

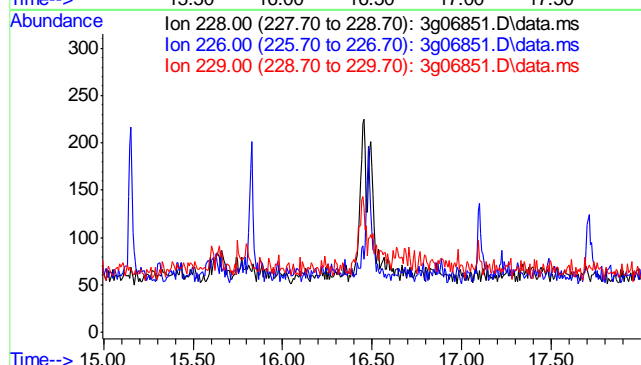
Tgt Ion:	228
Sig	Exp Ratio
228	100
229	19.5
226	25.7

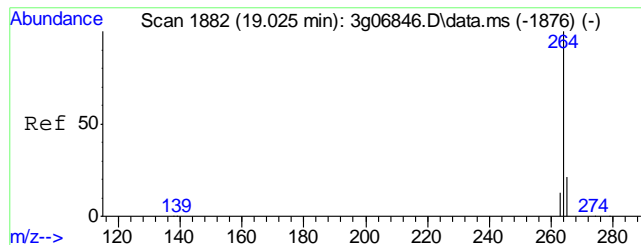


#22
Chrysene
Concen: N.D. ug/mL
Expected RT: 16.50 min

Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

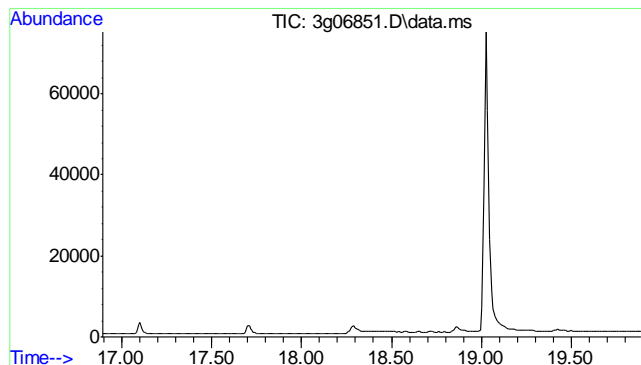
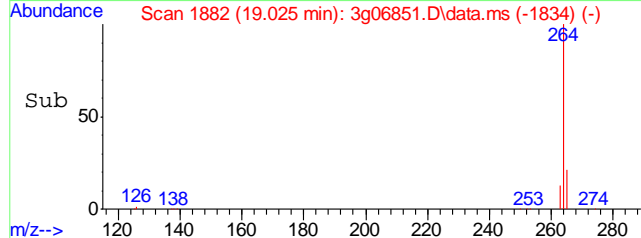
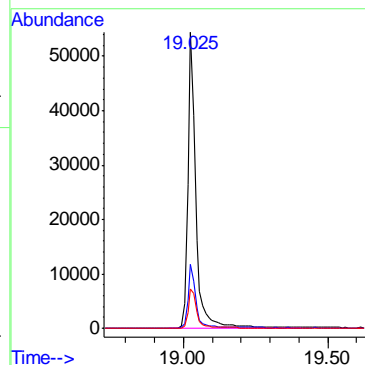
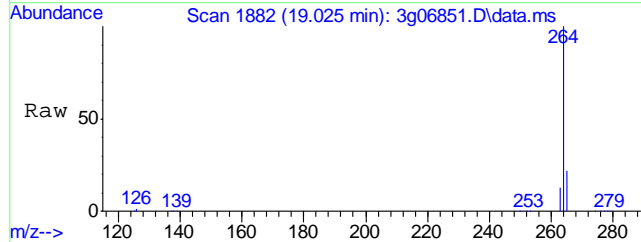
Tgt Ion:	228
Sig	Exp Ratio
228	100
226	28.2
229	19.6





#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 19.025 min Scan# 1882
Delta R.T. -0.000 min
Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

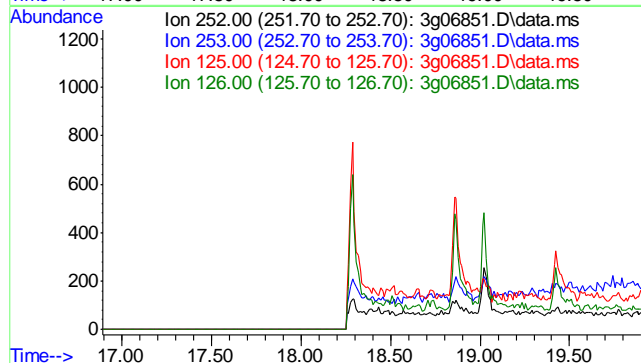
Tgt Ion:	264	Resp:	106117
Ion Ratio	Lower	Upper	
264	100		
265	20.9	1.0	41.0
263	14.1	0.0	34.6

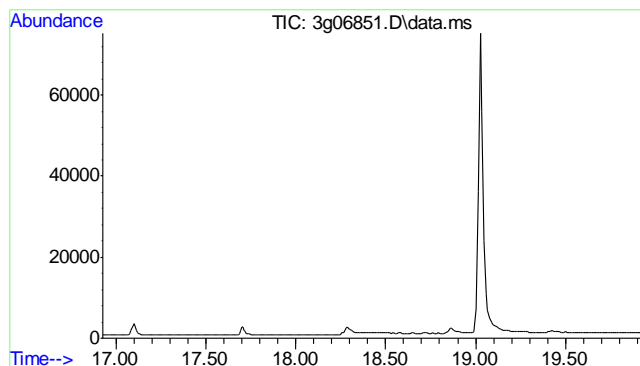


#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.39 min

Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.5
125	13.1
126	17.4

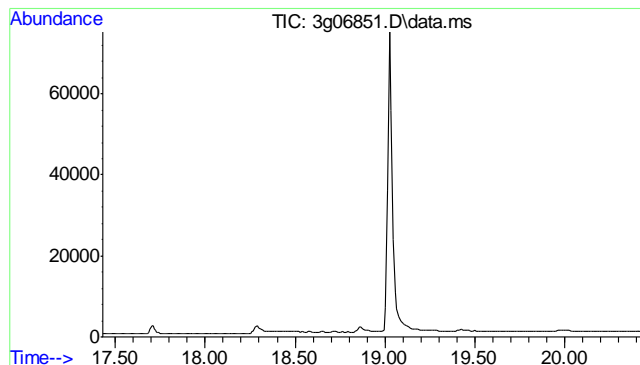
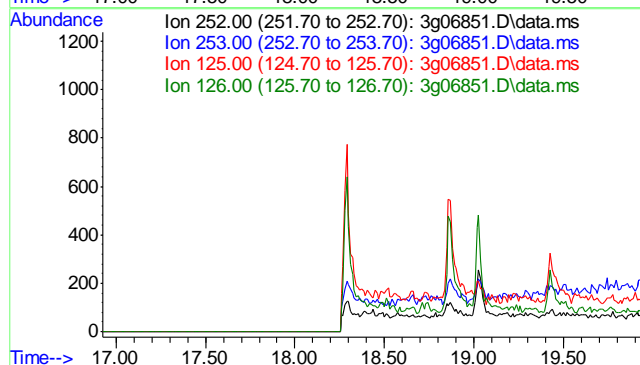




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.43 min

Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

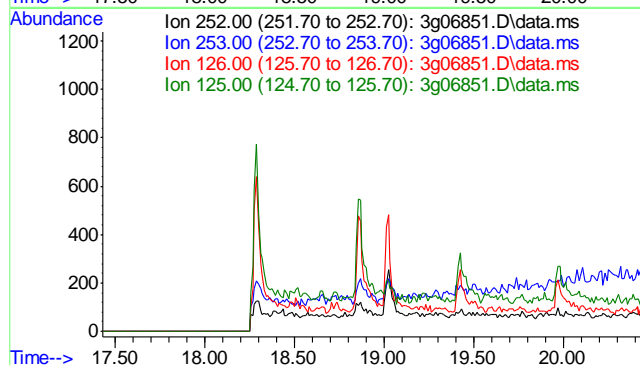
Tgt Ion	Sig	Exp Ratio
252	100	
253	21.6	
125	11.3	
126	16.6	

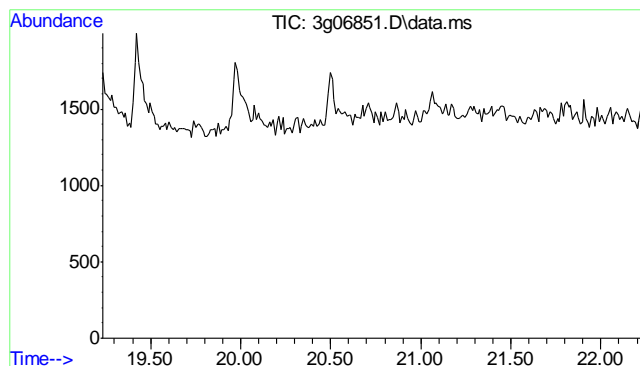


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 18.93 min

Lab File: 3g06851.D
Acq: 10 Nov 11 12:16 am

Tgt Ion	Sig	Exp Ratio
252	100	
253	21.3	
126	17.3	
125	13.3	

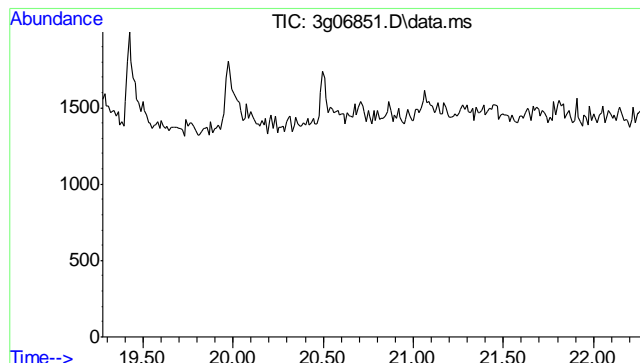
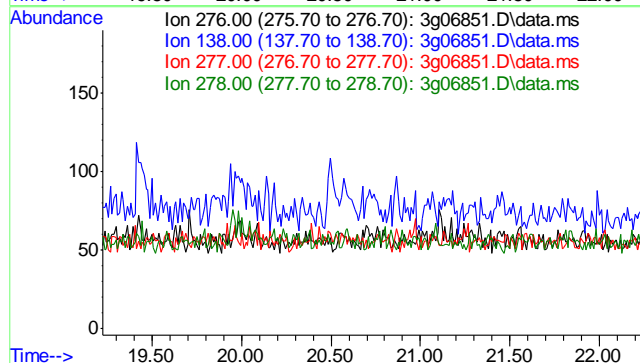




#27
 Indeno(1,2,3-cd)pyrene
 Concen: N.D. ug/mL
 Expected RT: 20.73 min

 Lab File: 3g06851.D
 Acq: 10 Nov 11 12:16 am

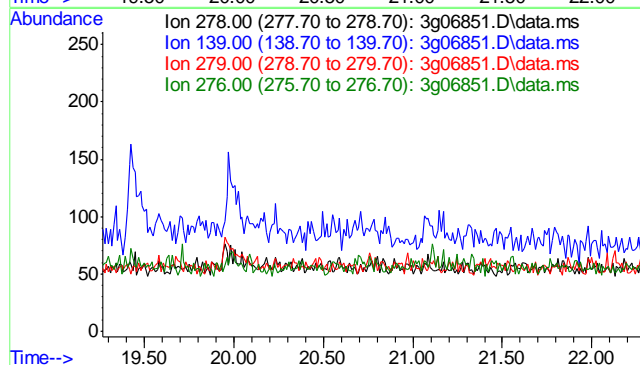
Tgt Ion	Exp Ratio
276	100
138	21.7
277	48.9
278	155.1

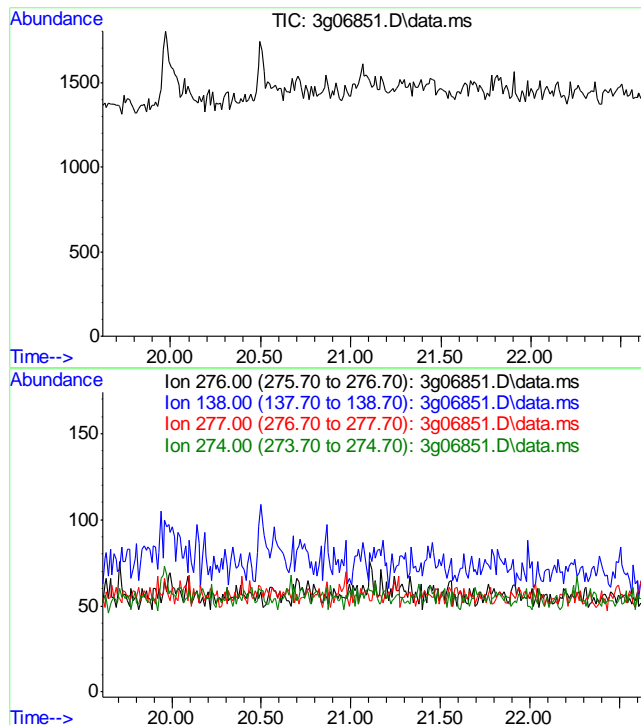


#28
 Dibenzo(a,h)anthracene
 Concen: N.D. ug/mL
 Expected RT: 20.77 min

 Lab File: 3g06851.D
 Acq: 10 Nov 11 12:16 am

Tgt Ion	Exp Ratio
278	100
139	19.1
279	23.5
276	125.5





#29
 Benzo(g,h,i)perylene
 Concen: N.D. ug/mL
 Expected RT: 21.12 min

Lab File: 3g06851.D
 Acq: 10 Nov 11 12:16 am

Tgt Ion	Exp Ratio
276	100
138	21.8
277	22.7
274	20.2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\110811\
Data File : 3g06824.D
Acq On : 8 Nov 2011 8:44 pm
Operator : TamiB
Sample : OP4805-MB
Misc : OP4805,E3G252,30,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 09 14:42:53 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G252.M
Quant Title : PAHSIM BASE
QLast Update : Wed Nov 09 14:40:27 2011
Response via : Initial Calibration

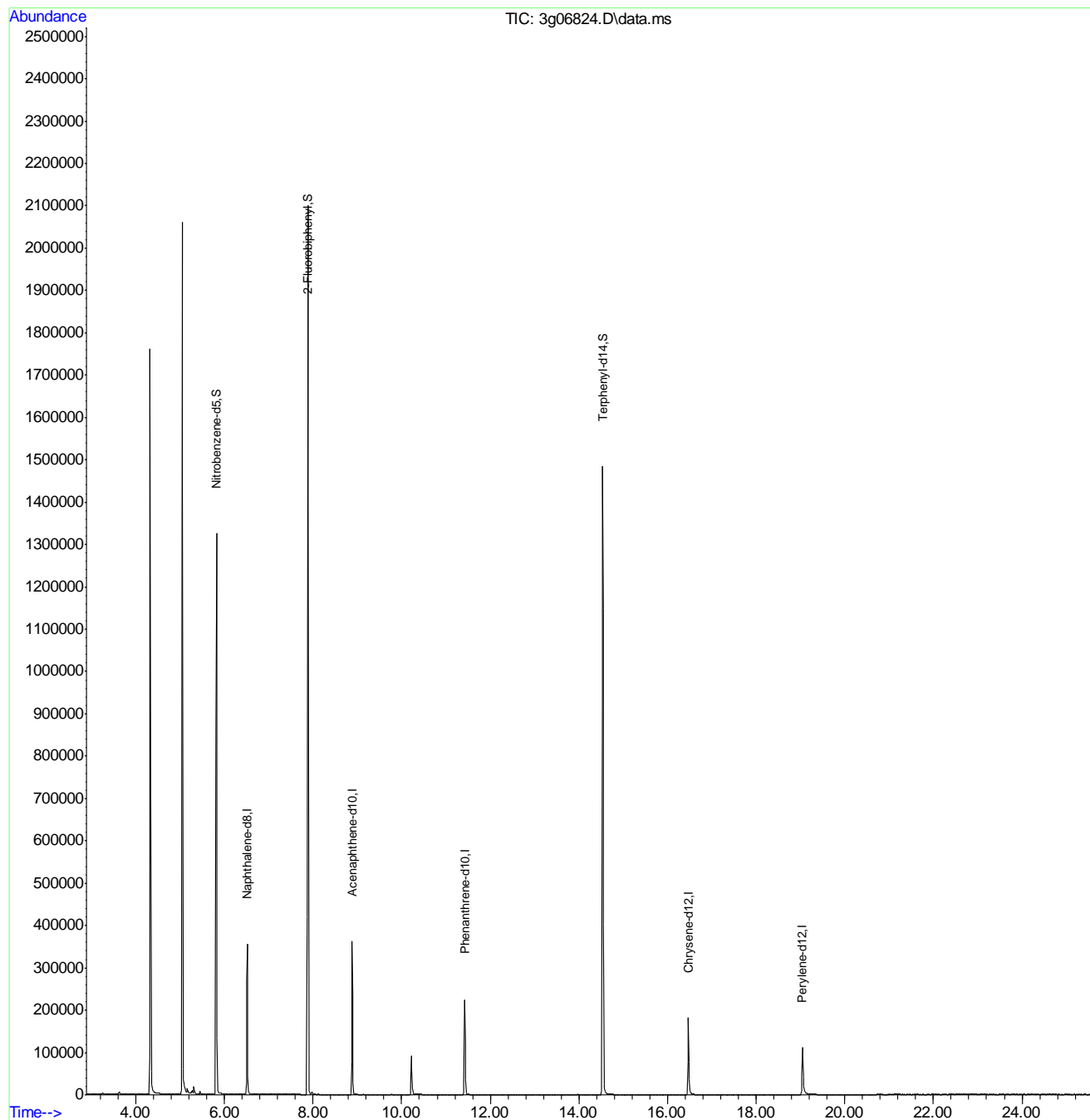
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.518	136	365591	4.00	ug/mL	0.00
6) Acenaphthene-d10	8.885	164	204639	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.427	188	275930	4.00	ug/mL	0.00
18) Chrysene-d12	16.472	240	217153	4.00	ug/mL	0.00
23) Perylene-d12	19.046	264	170951	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.820	82	791946	35.55	ug/mL	0.00
7) 2-Fluorobiphenyl	7.880	172	1914243	31.52	ug/mL	0.00
20) Terphenyl-d14	14.537	244	1659673	55.37	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	

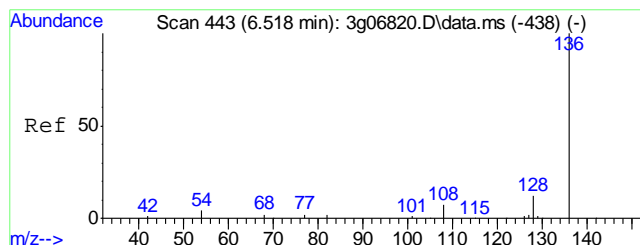
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\110811\
Data File : 3g06824.D
Acq On : 8 Nov 2011 8:44 pm
Operator : TamiB
Sample : OP4805-MB
Misc : OP4805,E3G252,30,,,1,1
ALS Vial : 12 Sample Multiplier: 1

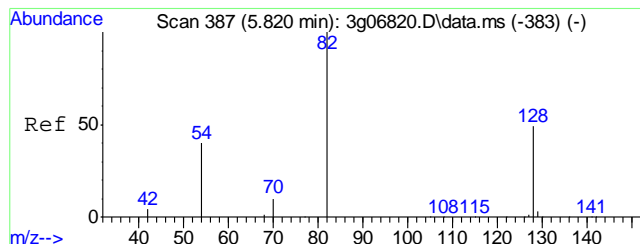
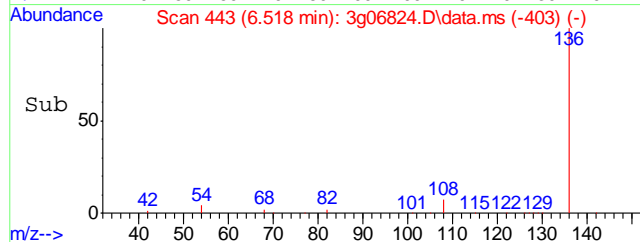
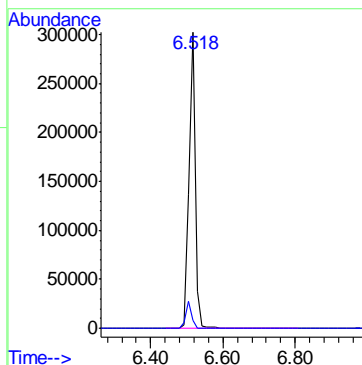
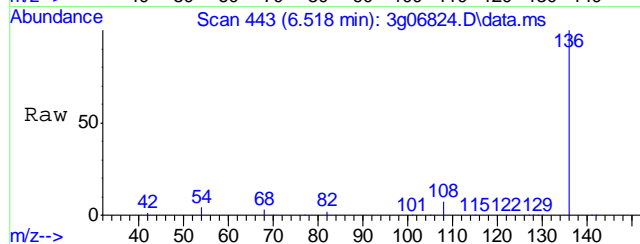
Quant Time: Nov 09 14:42:53 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G252.M
Quant Title : PAHSIM BASE
QLast Update : Wed Nov 09 14:40:27 2011
Response via : Initial Calibration





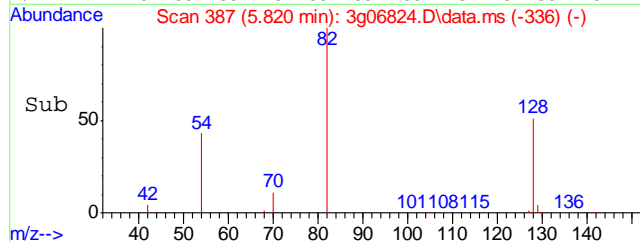
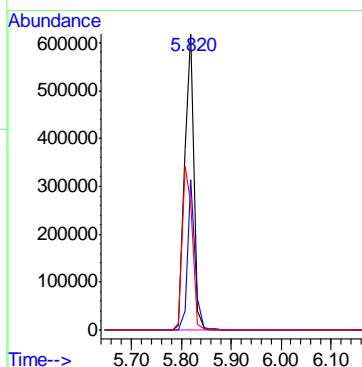
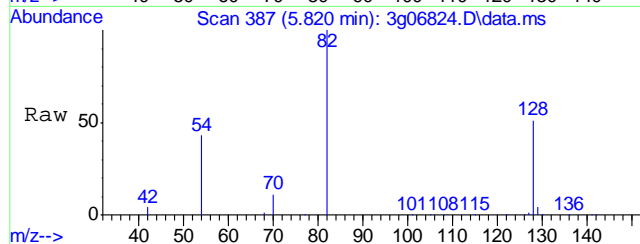
#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.518 min Scan# 443
Delta R.T. -0.000 min
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

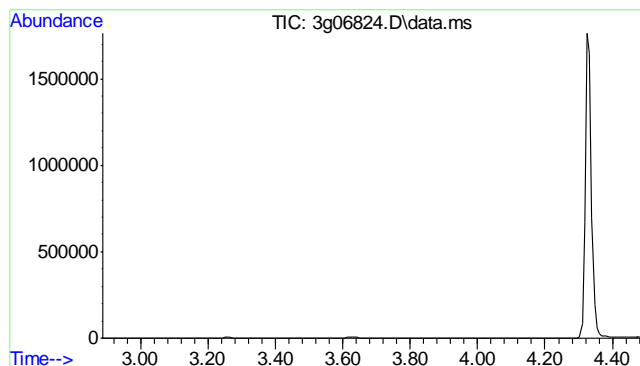
Tgt Ion:	136	Resp:	365591
Ion Ratio	Lower	Upper	
136	100		
68	8.5	0.0	28.4



#2
Nitrobenzene-d5
Concen: 35.55 ug/mL
RT: 5.820 min Scan# 387
Delta R.T. -0.000 min
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

Tgt Ion:	82	Resp:	791946
Ion Ratio	Lower	Upper	
82	100		
128	40.3	19.6	59.6
54	60.7	36.6	76.6

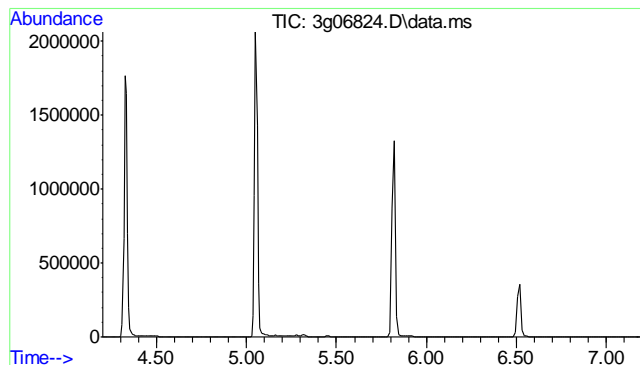
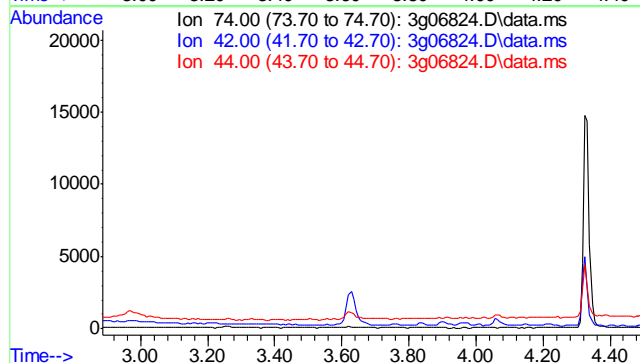




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.99 min

Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

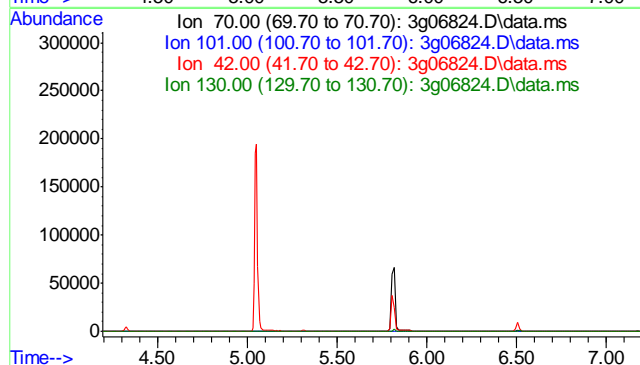
Tgt Ion:	74
Sig	Exp Ratio
74	100
42	40.0
44	6.2

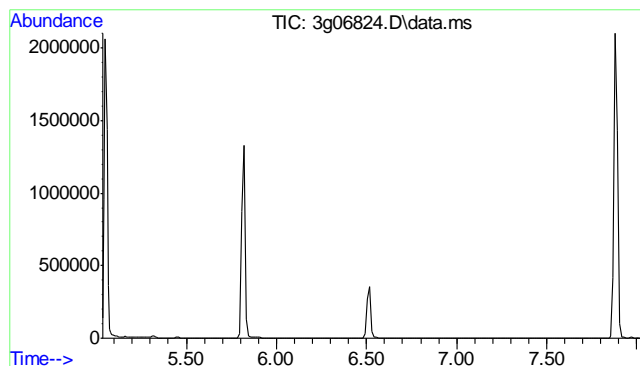


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.70 min

Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

Tgt Ion:	70
Sig	Exp Ratio
70	100
101	11.9
42	54.6
130	22.7

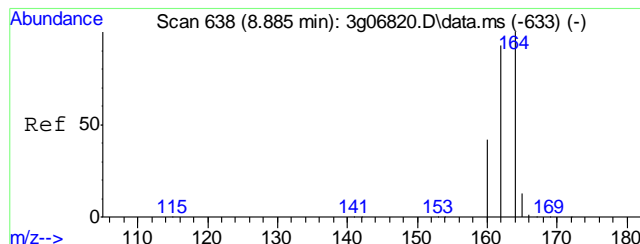
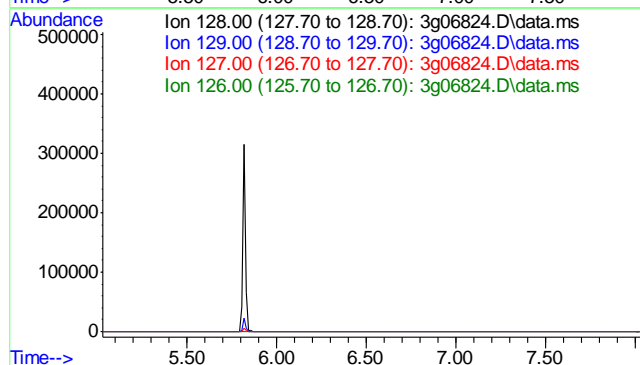




#5
Naphthalene
Concen: N.D. ug/mL
Expected RT: 6.53 min

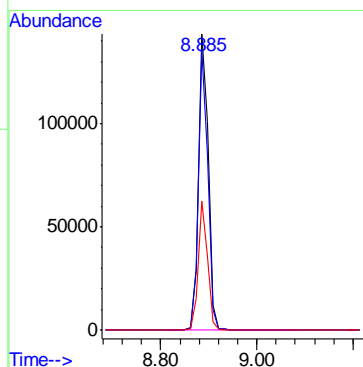
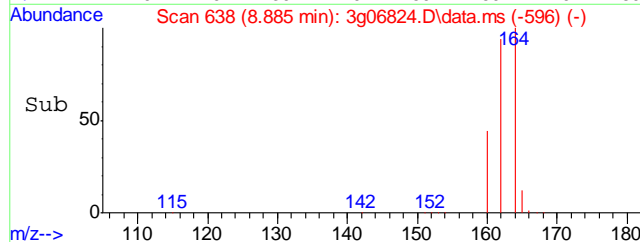
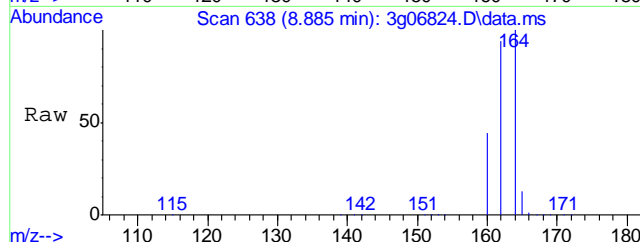
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

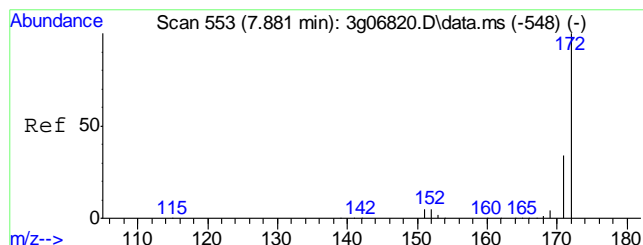
Tgt Ion: 128
Sig Exp Ratio
128 100
129 11.0
127 12.5
126 7.2



#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 8.885 min Scan# 638
Delta R.T. -0.000 min
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

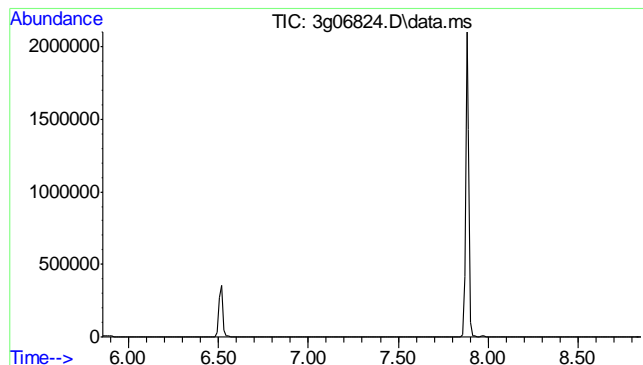
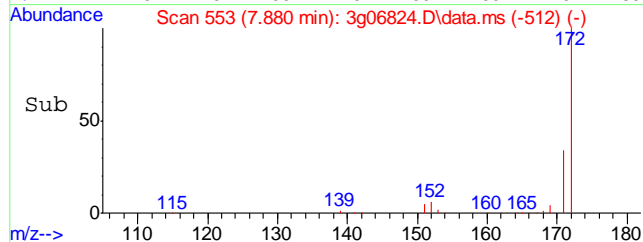
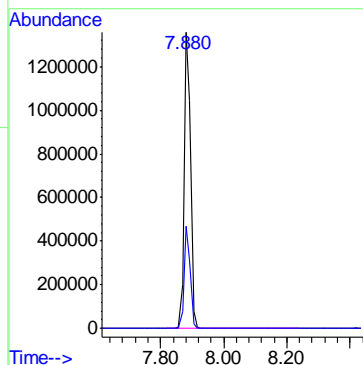
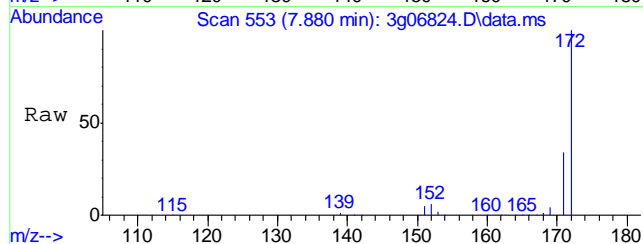
Tgt Ion: 164 Resp: 204639
Ion Ratio Lower Upper
164 100
162 91.2 71.6 111.6
160 41.5 21.2 61.2





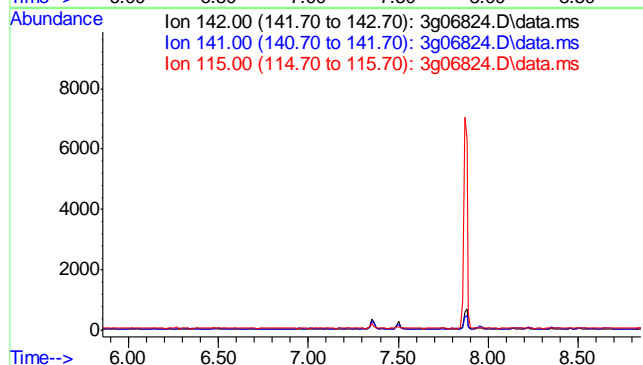
#7
2-Fluorobiphenyl
Concen: 31.52 ug/mL
RT: 7.880 min Scan# 553
Delta R.T. -0.000 min
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

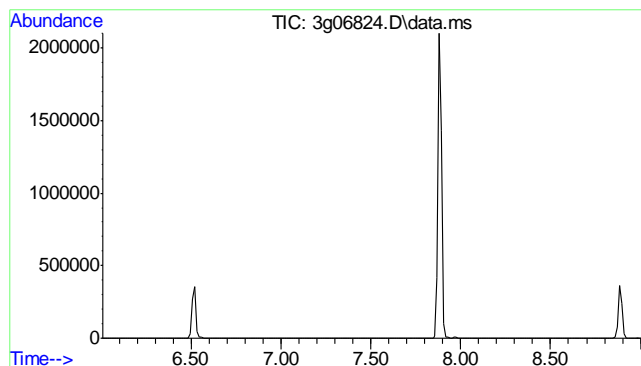
Tgt Ion: 172 Resp: 1914243
Ion Ratio Lower Upper
172 100
171 32.9 13.0 53.0



#8
2-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.35 min
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

Tgt Ion: 142
Sig Exp Ratio
142 100
141 83.0
115 36.0

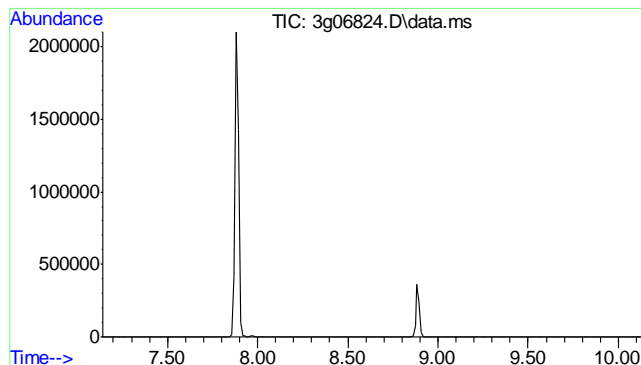
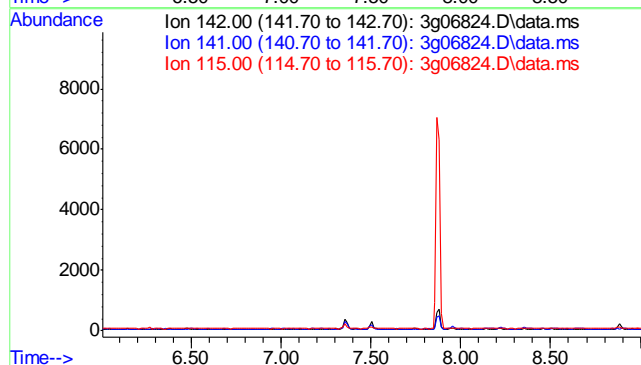




#9
1-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.50 min

Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

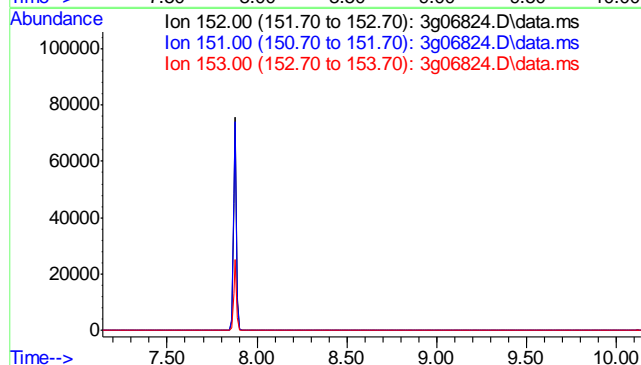
Tgt Ion: 142
Sig Exp Ratio
142 100
141 86.7
115 39.0

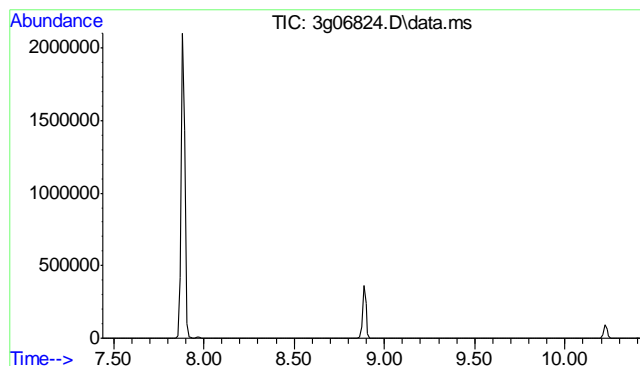


#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.64 min

Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

Tgt Ion: 152
Sig Exp Ratio
152 100
151 18.9
153 13.1

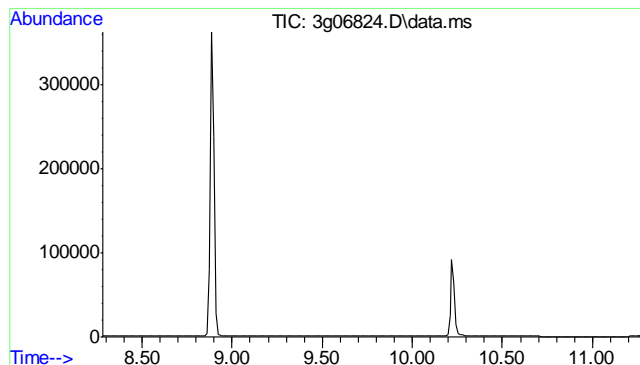
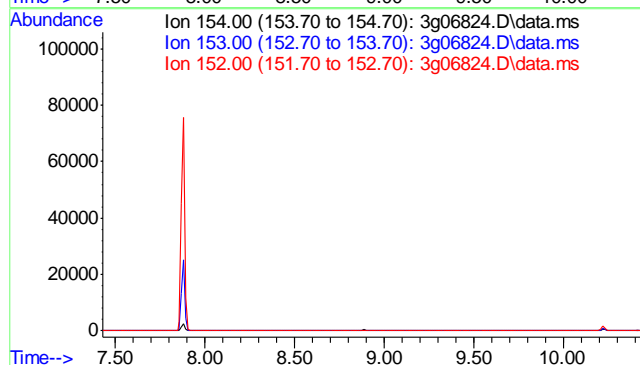




#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 8.93 min

Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

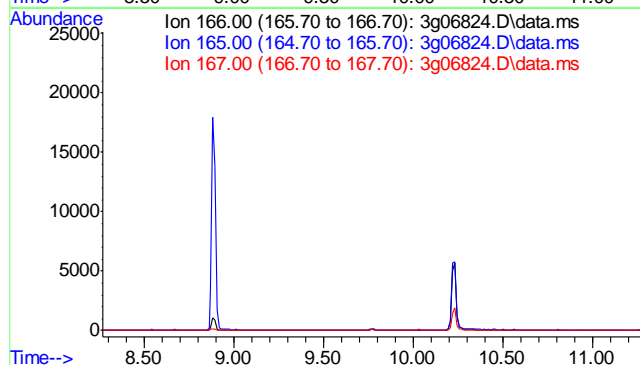
Tgt Ion: 154
Sig Exp Ratio
154 100
153 102.7
152 49.3

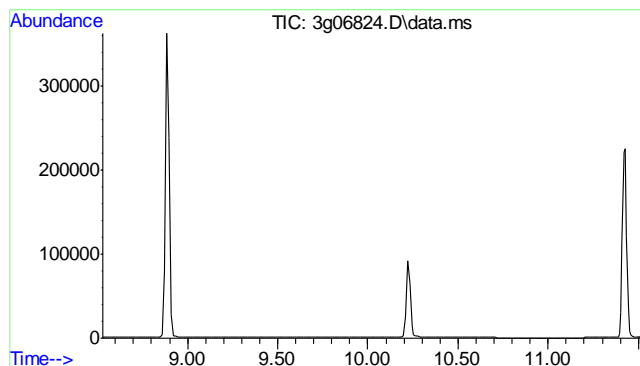


#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 9.77 min

Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

Tgt Ion: 166
Sig Exp Ratio
166 100
165 90.4
167 12.0

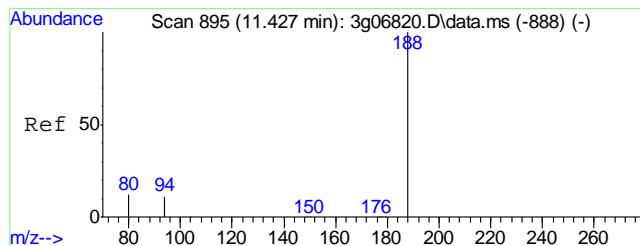
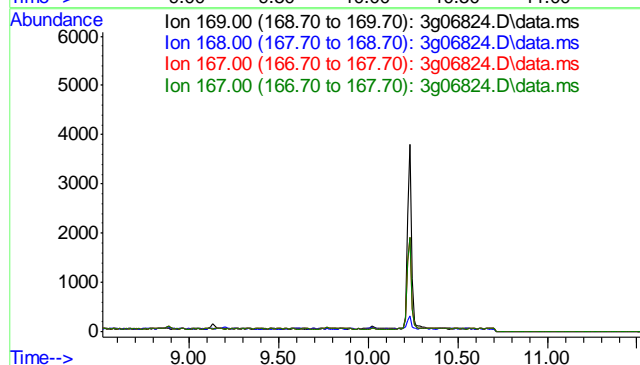




#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.02 min

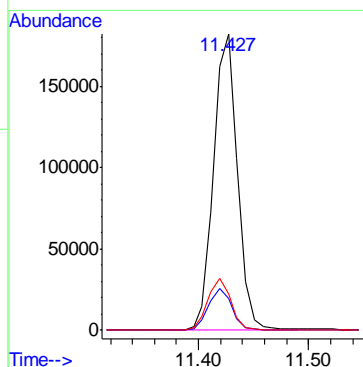
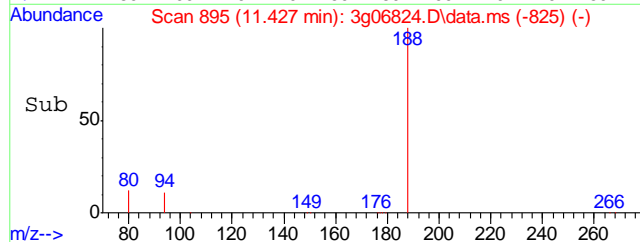
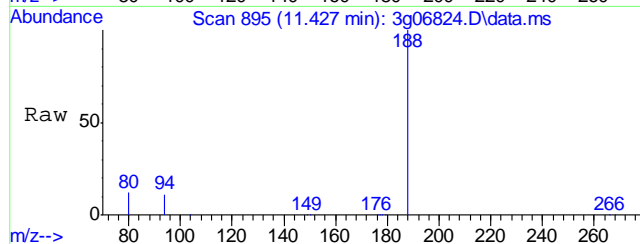
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

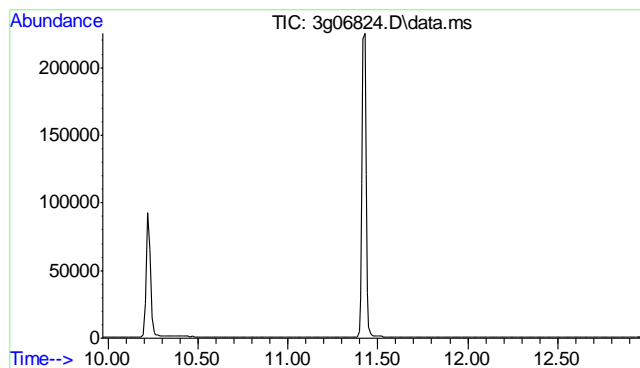
Tgt Ion: 169
Sig Exp Ratio
169 100
168 60.3
167 32.3
167 32.3



#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.427 min Scan# 895
Delta R.T. -0.000 min
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

Tgt Ion: 188 Resp: 275930
Ion Ratio Lower Upper
188 100
94 13.7 0.0 34.9
80 16.7 0.0 37.4

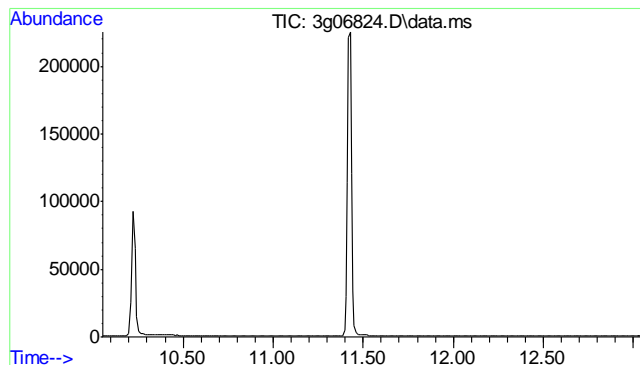
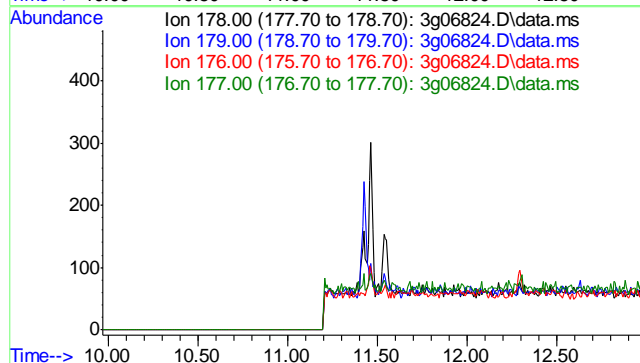




#15
Phenanthrene
Concen: N.D. ug/mL
Expected RT: 11.47 min

Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

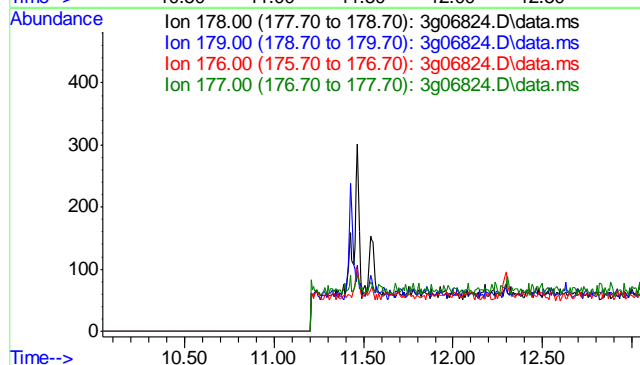
Tgt Ion: 178	
Sig	Exp Ratio
178	100
179	15.2
176	18.3
177	10.1

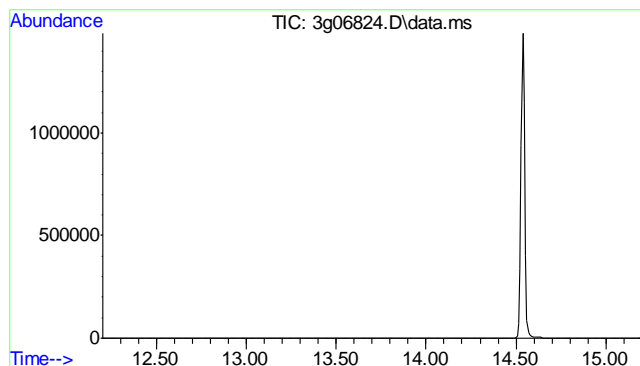


#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.55 min

Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

Tgt Ion: 178	
Sig	Exp Ratio
178	100
179	15.0
176	17.8
177	8.5

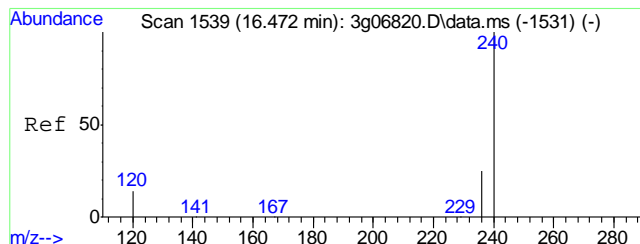
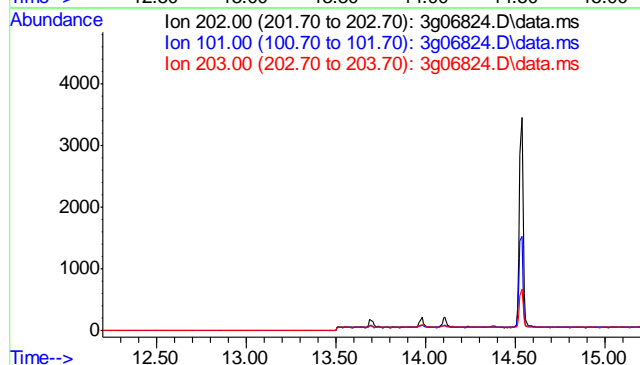




#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 13.70 min

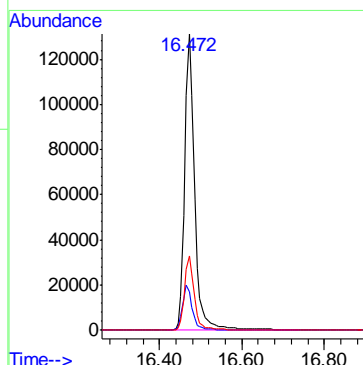
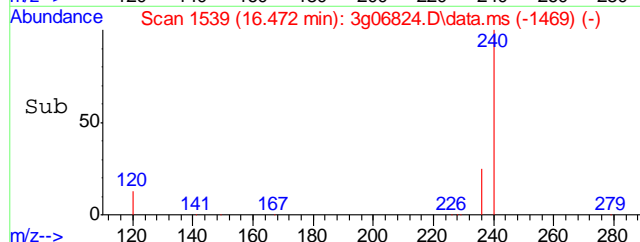
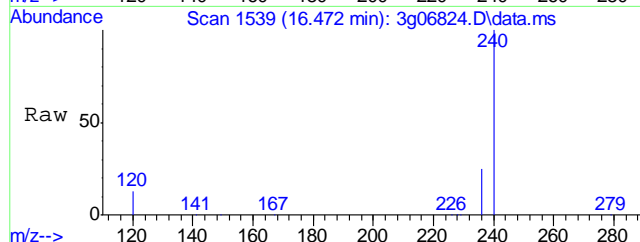
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

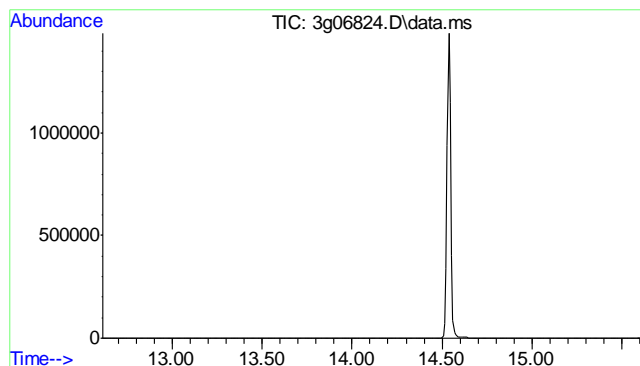
Tgt Ion: 202
Sig Exp Ratio
202 100
101 17.3
203 17.2



#18
Chrysene-d12
Concen: 4.00 ug/mL
RT: 16.472 min Scan# 1539
Delta R.T. -0.000 min
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

Tgt Ion: 240 Resp: 217153
Ion Ratio Lower Upper
240 100
120 14.9 0.0 36.4
236 24.7 4.9 44.9

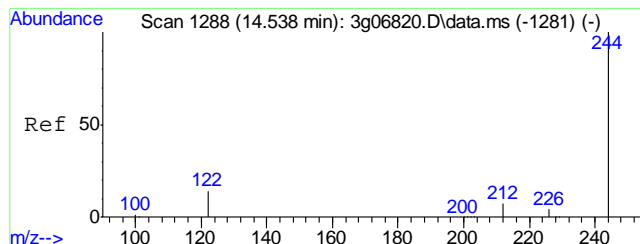
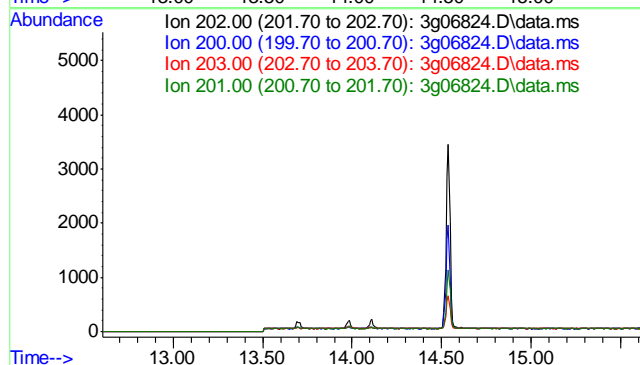




#19
Pyrene
Concen: N.D. ug/mL
Expected RT: 14.11 min

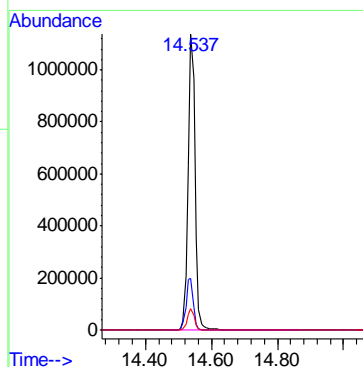
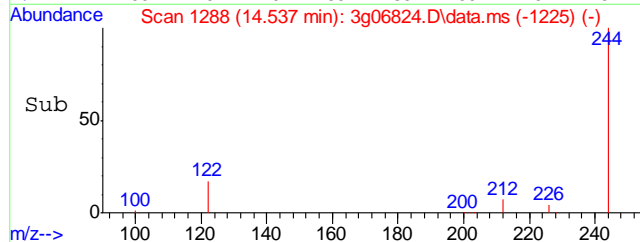
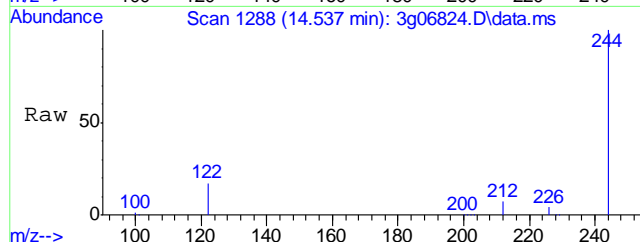
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

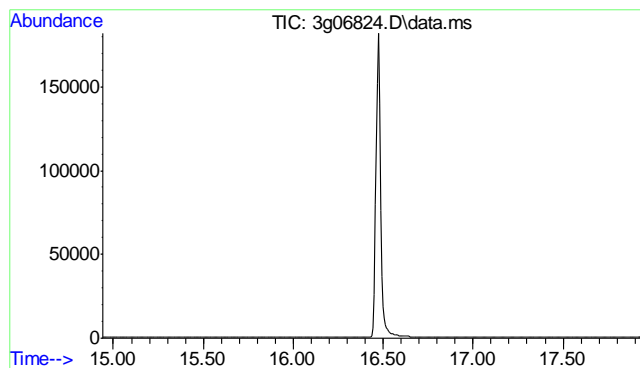
Tgt Ion: 202
Sig Exp Ratio
202 100
200 21.9
203 17.8
201 18.0



#20
Terphenyl-d14
Concen: 55.37 ug/mL
RT: 14.537 min Scan# 1288
Delta R.T. -0.000 min
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

Tgt Ion: 244 Resp: 1659673
Ion Ratio Lower Upper
244 100
122 18.0 0.0 39.6
212 7.3 0.0 27.5

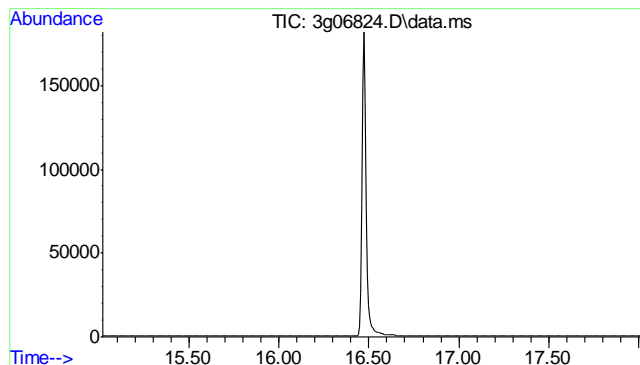
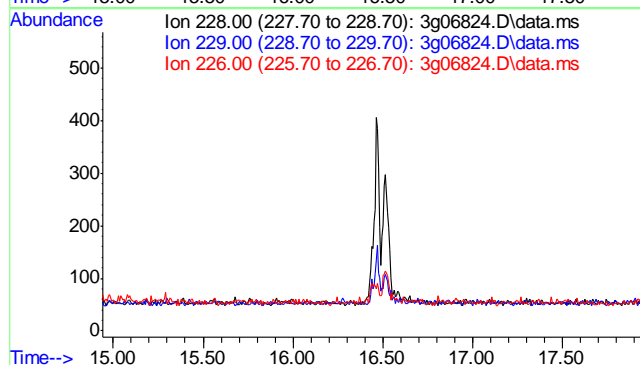




#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.44 min

Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

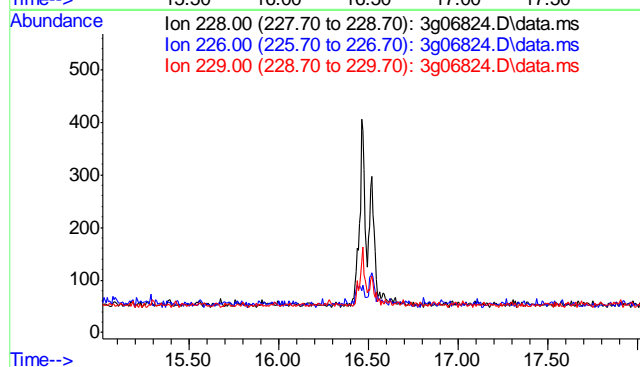
Tgt Ion:	228
Sig	Exp Ratio
228	100
229	19.5
226	25.8

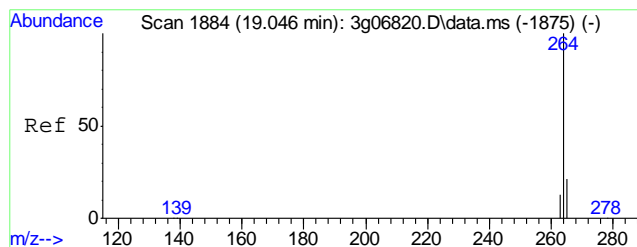


#22
Chrysene
Concen: N.D. ug/mL
Expected RT: 16.52 min

Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

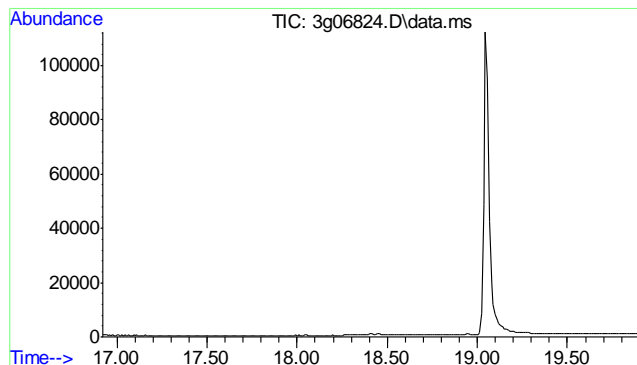
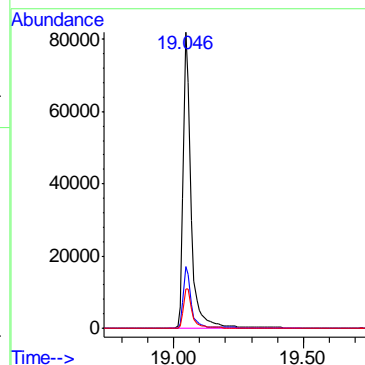
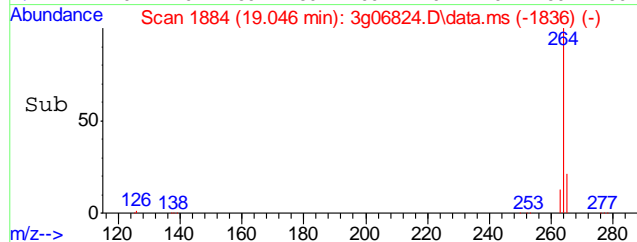
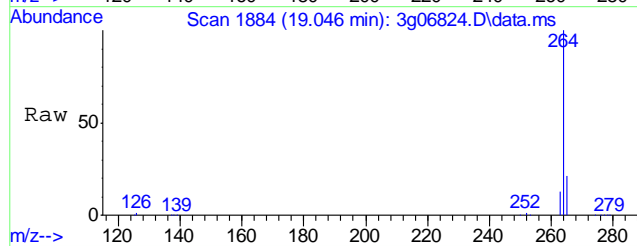
Tgt Ion:	228
Sig	Exp Ratio
228	100
226	28.2
229	19.6





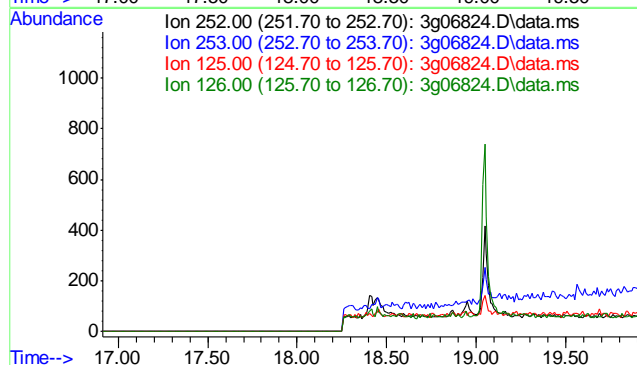
#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 19.046 min Scan# 1884
Delta R.T. -0.000 min
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

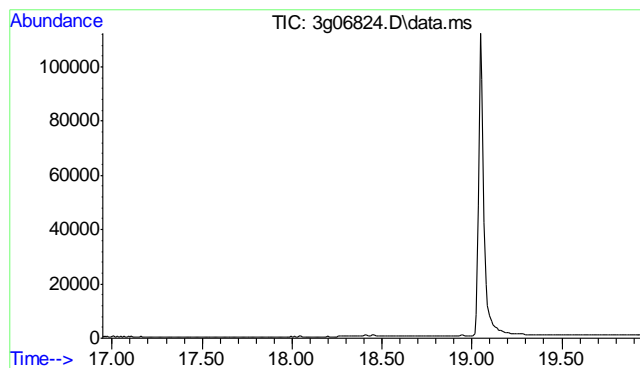
Tgt Ion:	264	Resp:	170951
Ion Ratio	Lower	Upper	
264	100		
265	20.9	1.1	41.1
263	14.5	0.0	34.1



#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.41 min
Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.6
125	12.6
126	17.2

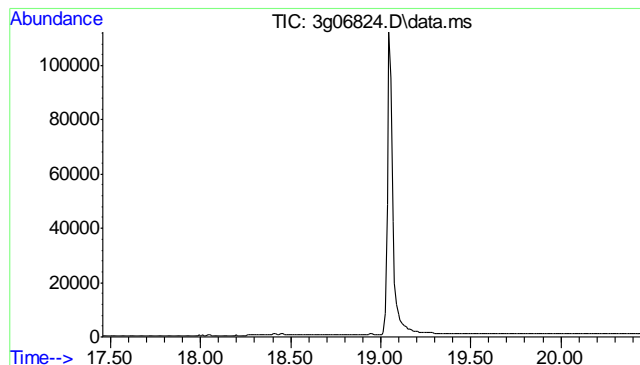
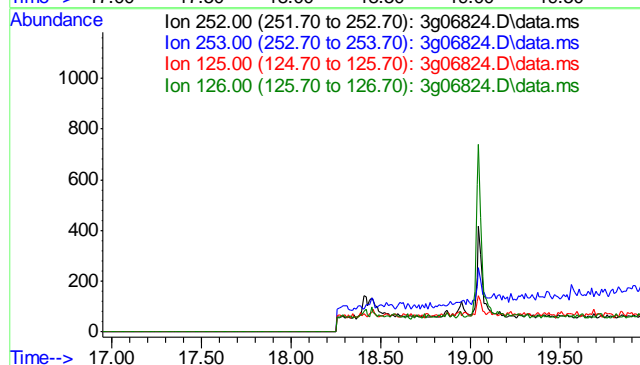




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.45 min

Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

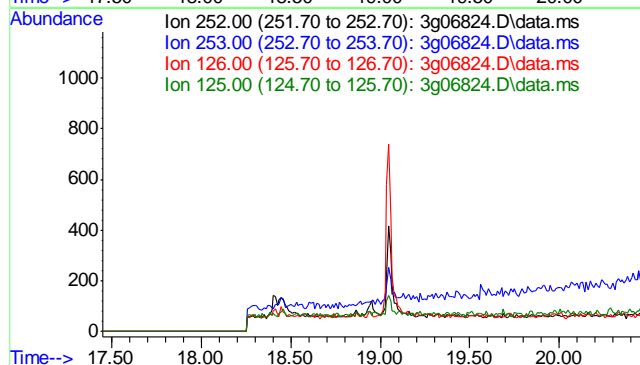
Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.8
125	11.2
126	16.8

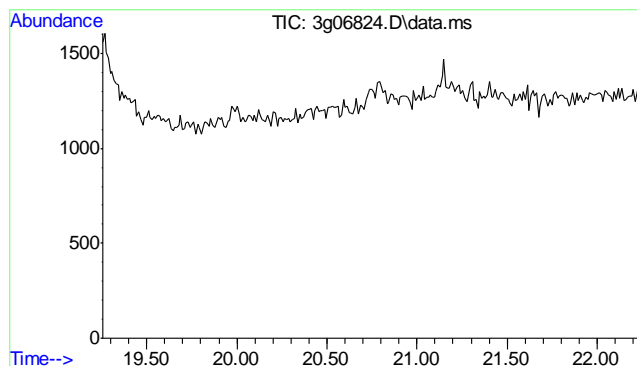


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 18.95 min

Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.6
126	17.1
125	12.9

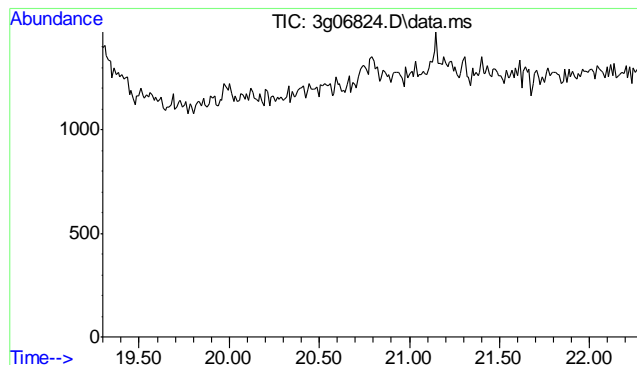
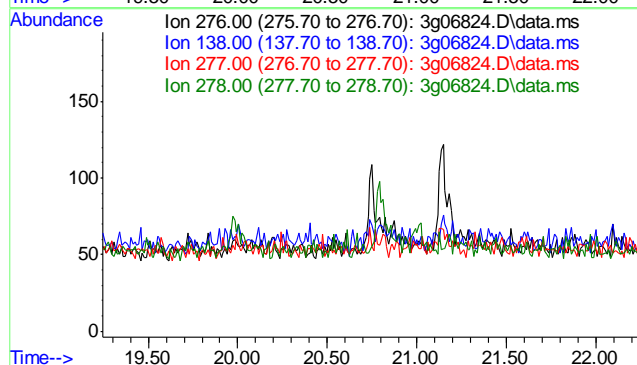




#27
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 20.75 min

Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

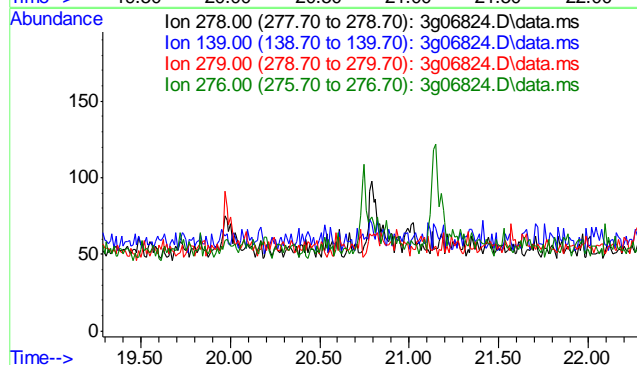
Tgt Ion:	276
Sig	Exp Ratio
276	100
138	22.7
277	40.3
278	128.3

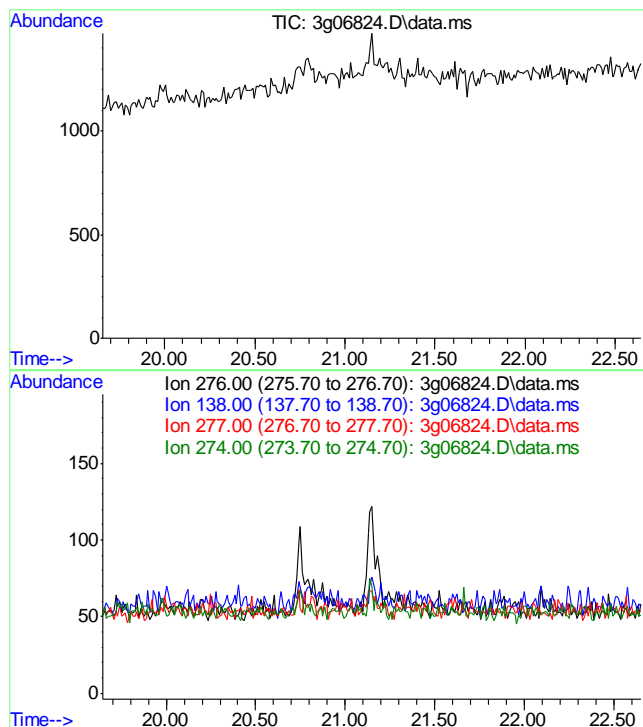


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 20.79 min

Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

Tgt Ion:	278
Sig	Exp Ratio
278	100
139	19.2
279	23.4
276	125.5





#29
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 21.15 min

Lab File: 3g06824.D
Acq: 8 Nov 11 8:44 pm

Tgt Ion: 276
Sig Exp Ratio
276 100
138 22.5
277 24.0
274 21.3

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: D29207
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB778-MB	GB13732.D	1	11/07/11	SK	n/a	n/a	GGB778

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

D29207-1

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: D29207
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB778-BS	GB13733.D	1	11/07/11	SK	n/a	n/a	GGB778

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

D29207-1

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

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	97%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D29207
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D29186-1MS	GB13735.D	1	11/07/11	SK	n/a	n/a	GGB778
D29186-1MSD	GB13736.D	1	11/07/11	SK	n/a	n/a	GGB778
D29186-1	GB13734.D	1	11/07/11	SK	n/a	n/a	GGB778

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

D29207-1

CAS No.	Compound	D29186-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	15.0		144	168	106	167	105	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D29186-1	Limits
120-82-1	1,2,4-Trichlorobenzene	87%	84%	83%	60-140%

GC Volatiles

Raw Data

Judy Melson
11/08/11 11:54

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\110711\GB13743.D\FID1A.CH Vial: 13
 Signal #2 : Y:\1\DATA\110711\GB13743.D\FID2B.CH
 Acq On : 7 Nov 2011 6:38 pm Operator: StephK
 Sample : D29207-1, 50X Inst : GC/MS Ins
 Misc : GC2383,GGB778,5.065,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Nov 08 08:34:51 2011 Quant Results File: TB740GB740SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Mon Nov 07 13:27:40 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	14.44f	3166568	91.262 %	m
10) S 1,2,4-Trichlorobenzene (P)	14.44	30658957	152.452 %	
Target Compounds				
1) H TVH-Gasoline	7.33	32634344	0.483 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	7.76	250459	0.539 ug/L	
7) T Ethylbenzene	10.37	180839	0.449 ug/L	
8) T m,p-Xylene	10.56	2510491	4.802 ug/L	
9) T o-Xylene	11.04	801782	1.794 ug/L	
11) T Naphthalene	14.70	5996836	25.841 ug/L	

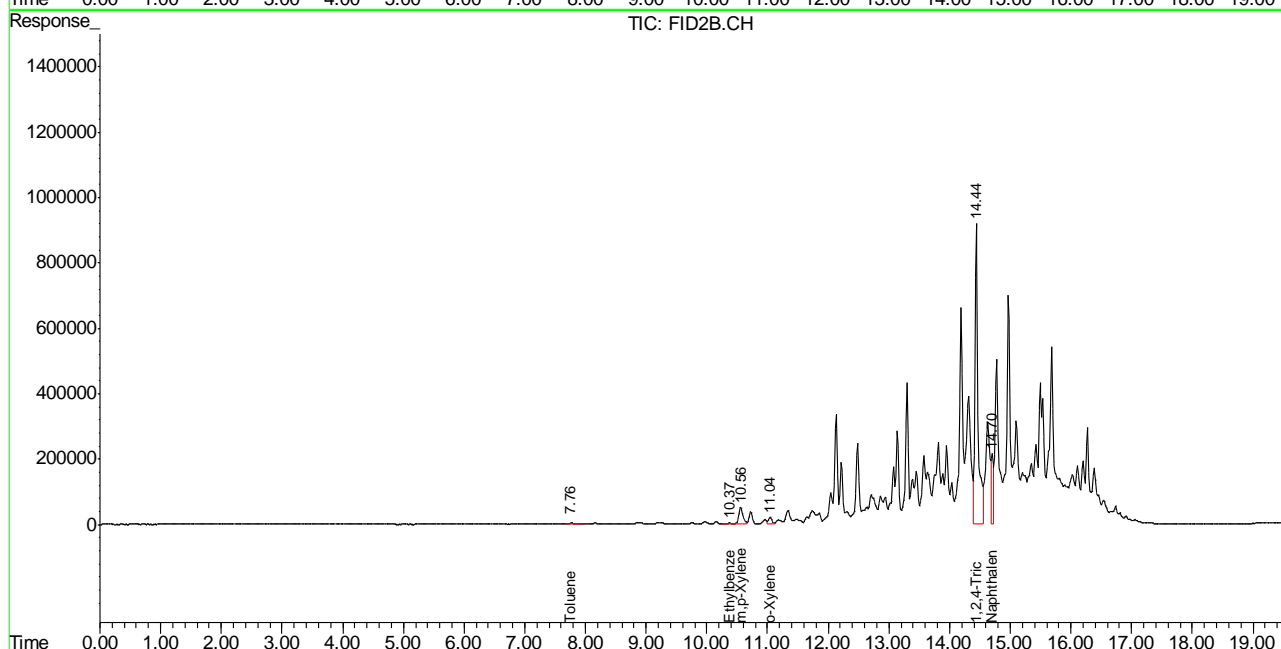
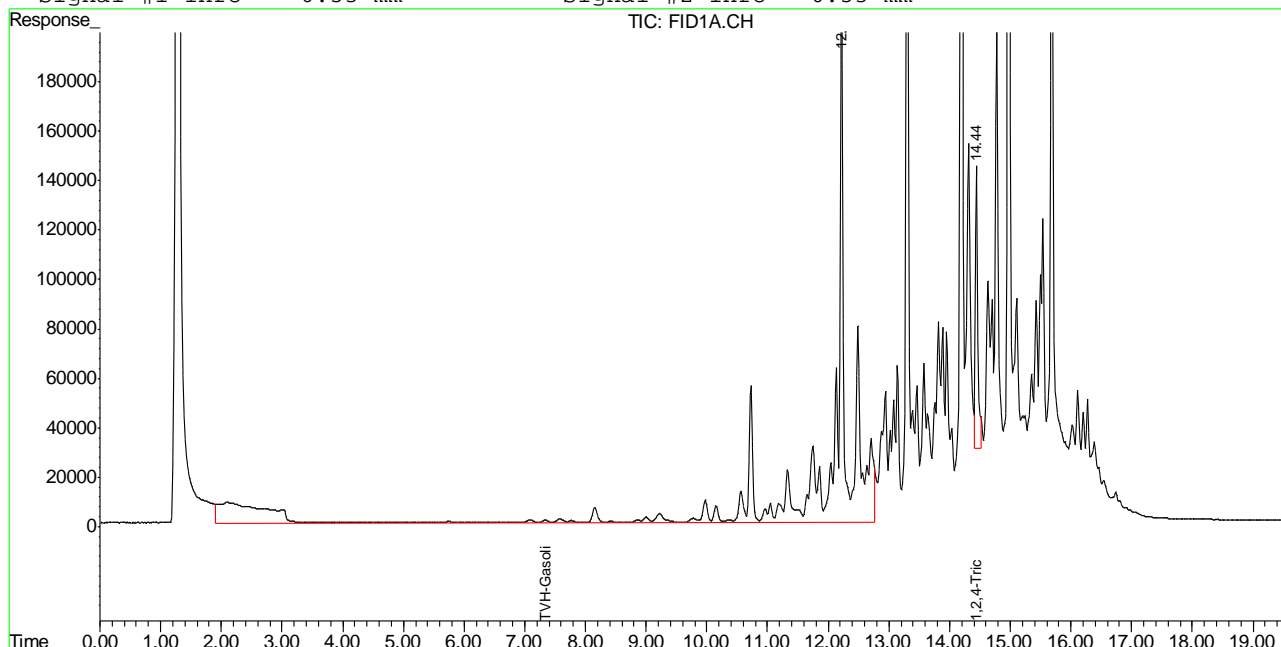
(f)=RT Delta > 1/2 Window (m)=manual int.
 GB13743.D TB740GB740SOIL.M Tue Nov 08 08:39:20 2011 GC

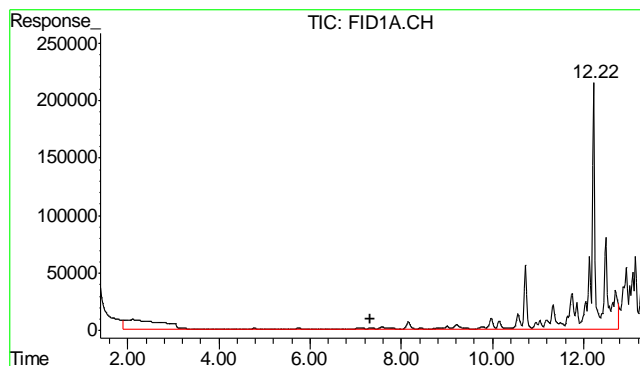
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\110711\GB13743.D\FID1A.CH Vial: 13
 Signal #2 : Y:\1\DATA\110711\GB13743.D\FID2B.CH
 Acq On : 7 Nov 2011 6:38 pm Operator: StephK
 Sample : D29207-1, 50X Inst : GC/MS Ins
 Misc : GC2383,GGB778,5.065,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Nov 8 8:35 2011 Quant Results File: TB740GB740SOIL.RES

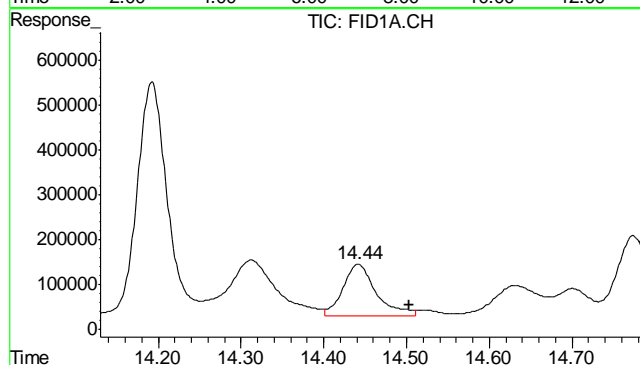
Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Mon Nov 07 13:27:40 2011
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

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

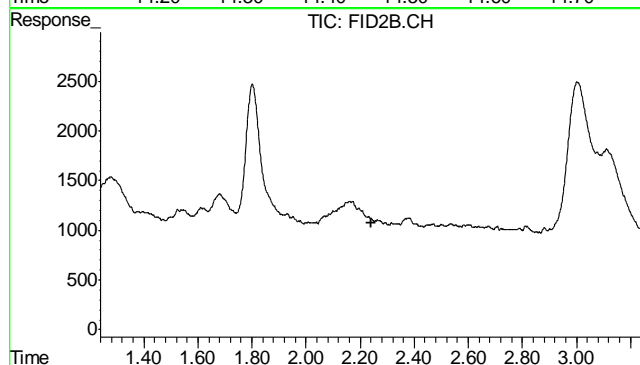




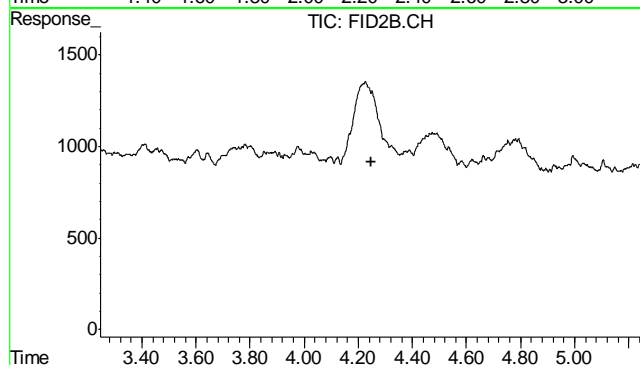
#1 TVH-Gasoline
 R.T.: 7.330 min
 Delta R.T.: 0.000 min
 Response: 32634344
 Conc: 0.48 mg/L m



#2 1,2,4-Trichlorobenzene
 R.T.: 14.441 min
 Delta R.T.: -0.063 min
 Response: 3166568
 Conc: 91.26 % m

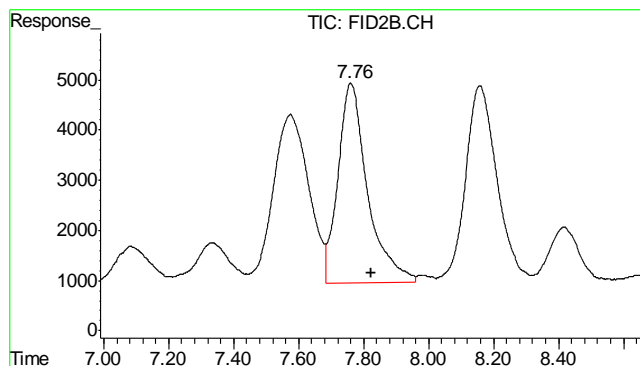


#4 Methyl-t-butyl-ether
 R.T.: 0.000 min
 Exp R.T.: 2.239 min
 Response: 0
 Conc: N.D.



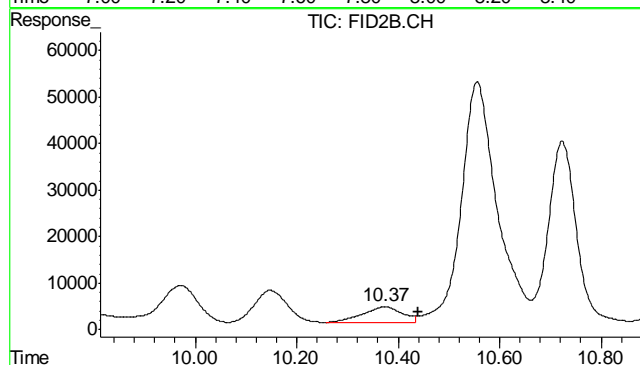
#5 Benzene
 R.T.: 0.000 min
 Exp R.T.: 4.247 min
 Response: 0
 Conc: N.D.

10.1.1
 10



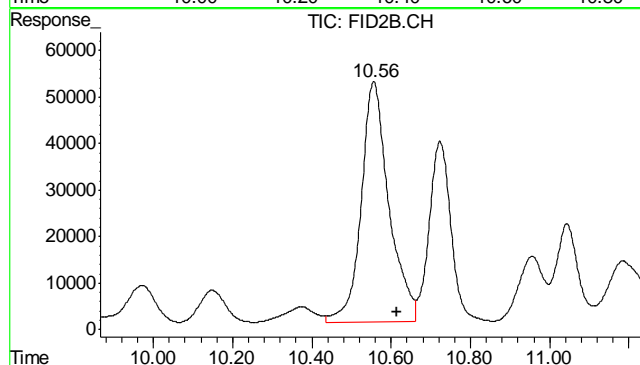
#6 Toluene

R.T.: 7.759 min
Delta R.T.: -0.064 min
Response: 250459
Conc: 0.54 ug/L



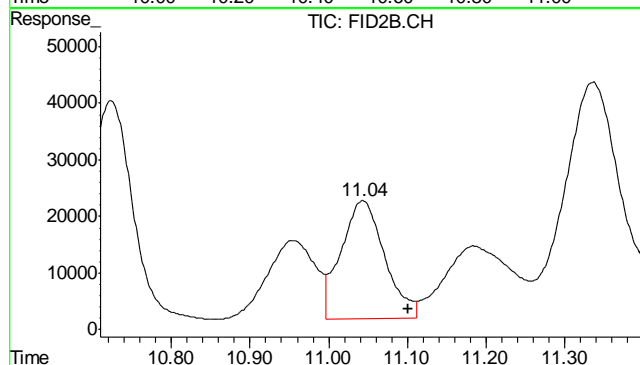
#7 Ethylbenzene

R.T.: 10.373 min
Delta R.T.: -0.066 min
Response: 180839
Conc: 0.45 ug/L



#8 m,p-Xylene

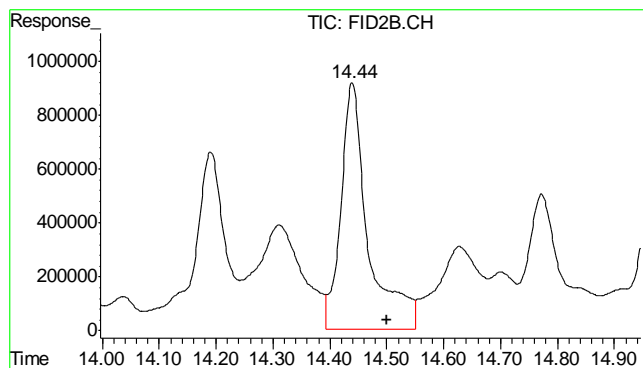
R.T.: 10.556 min
Delta R.T.: -0.059 min
Response: 2510491
Conc: 4.80 ug/L



#9 o-Xylene

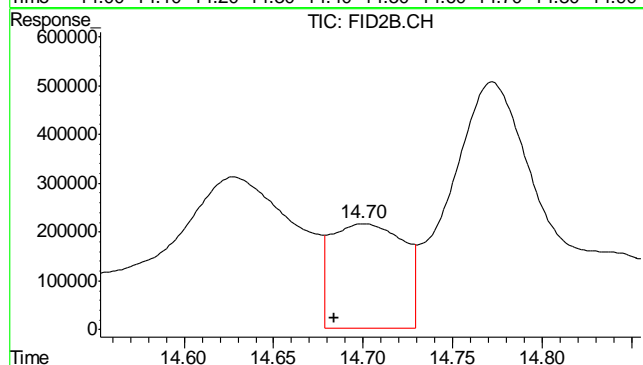
R.T.: 11.043 min
Delta R.T.: -0.058 min
Response: 801782
Conc: 1.79 ug/L

10.1.1 10



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

R.T.: 14.439 min
Delta R.T.: -0.061 min
Response: 30658957
Conc: 152.45 %



#11 Naphthalene

R.T.: 14.701 min
Delta R.T.: 0.017 min
Response: 5996836
Conc: 25.84 ug/L

10.1.1
10

Judy Melson
11/08/11 11:54

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\110711\GB13732.D\FID1A.CH Vial: 2
Signal #2 : Y:\1\DATA\110711\GB13732.D\FID2B.CH
Acq On : 7 Nov 2011 12:05 pm Operator: StephK
Sample : MB, S Inst : GC/MS Ins
Misc : GC2383,GGB778,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 07 12:02:23 2011 Quant Results File: TB740GB740SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Nov 07 12:02:10 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

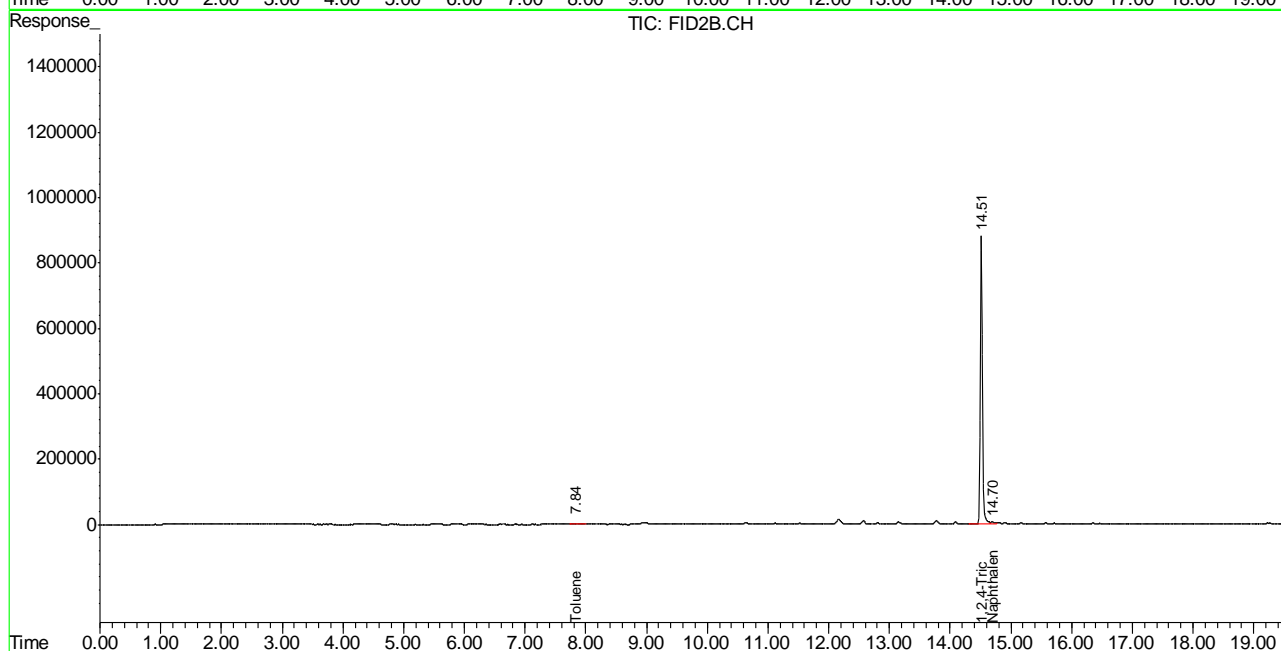
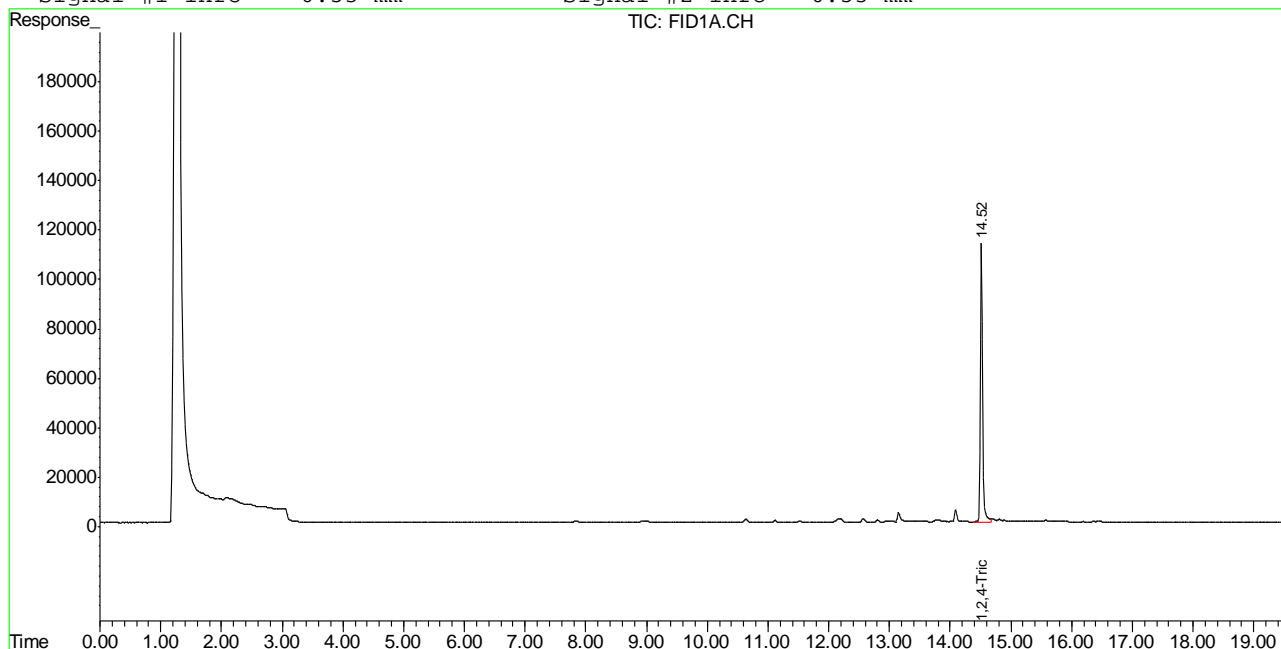
System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.52	2787271	80.331 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.52	21007422	104.460 %	
Target Compounds					
1) H	TVH-Gasoline	7.33	6371267	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	7.84	149913	0.323	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	0.00	0	N.D.	ug/L d
9) T	o-Xylene	0.00	0	N.D.	ug/L d
11) T	Naphthalene	14.70	243196	1.297	ug/L

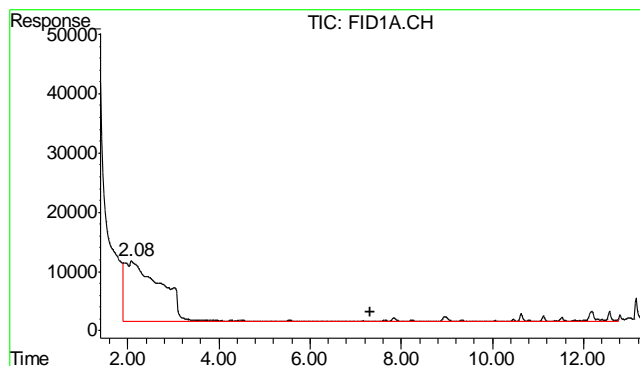
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\110711\GB13732.D\FID1A.CH Vial: 2
Signal #2 : Y:\1\DATA\110711\GB13732.D\FID2B.CH
Acq On : 7 Nov 2011 12:05 pm Operator: StephK
Sample : MB, S Inst : GC/MS Ins
Misc : GC2383,GGB778,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Nov 7 12:02 2011 Quant Results File: TB740GB740SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Nov 07 12:02:10 2011
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

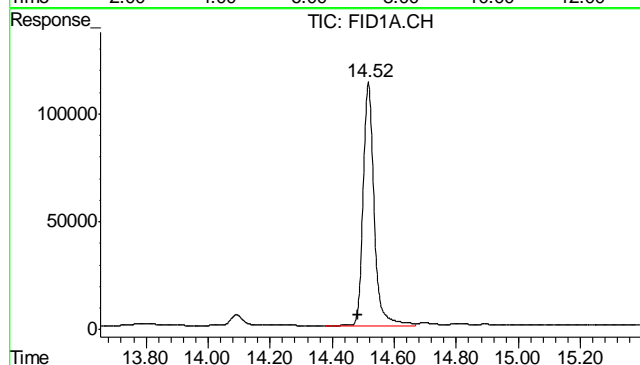
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





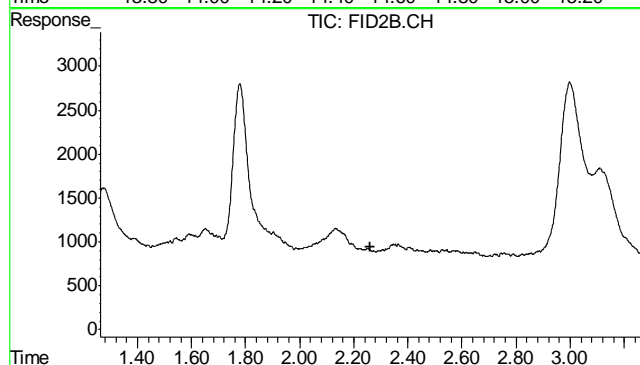
#1 TVH-Gasoline

R.T.: 7.330 min
Delta R.T.: 0.000 min
Response: 6371267
Conc: N.D.



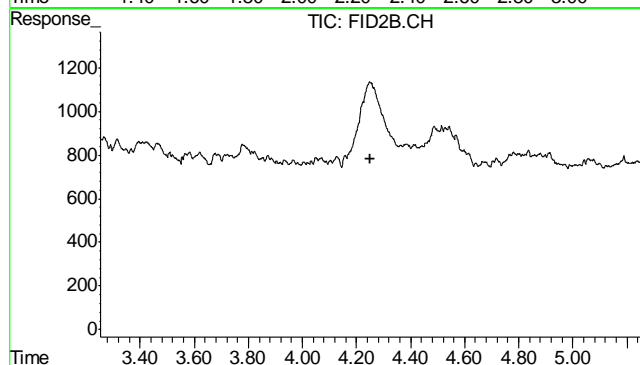
#2 1,2,4-Trichlorobenzene

R.T.: 14.516 min
Delta R.T.: 0.035 min
Response: 2787271
Conc: 80.33 % m



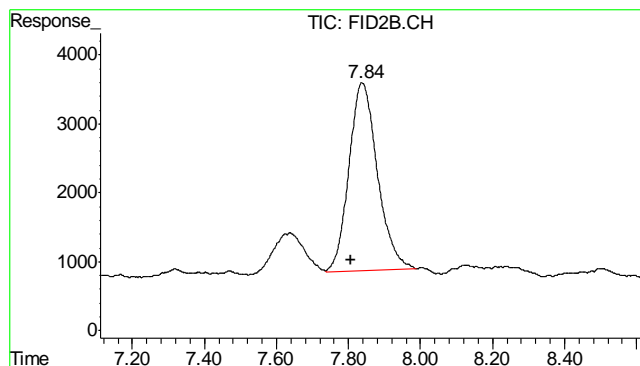
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T.: 2.262 min
Response: 0
Conc: N.D.



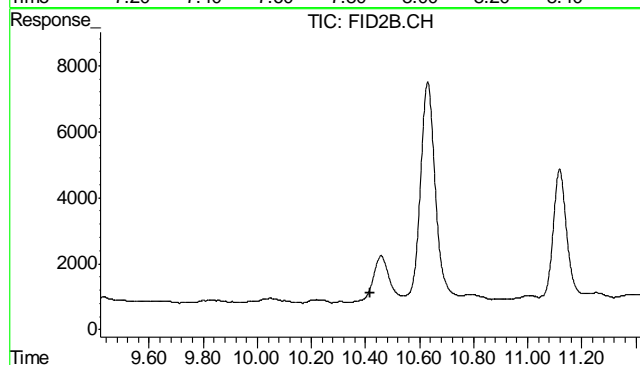
#5 Benzene

R.T.: 0.000 min
Exp R.T.: 4.252 min
Response: 0
Conc: N.D.



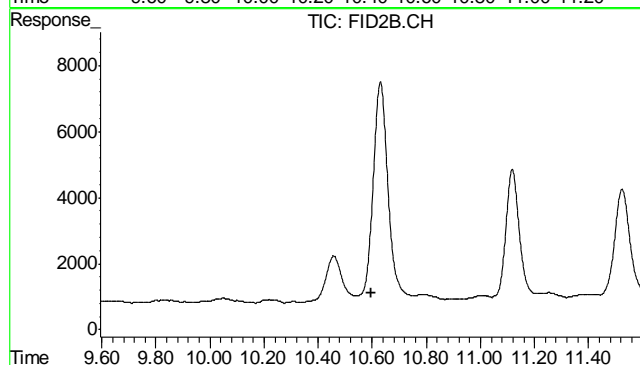
#6 Toluene

R.T.: 7.837 min
Delta R.T.: 0.031 min
Response: 149913
Conc: 0.32 ug/L



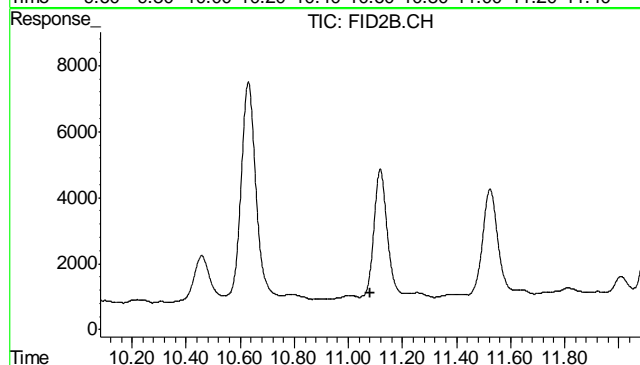
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.419 min
Response: 0
Conc: N.D.



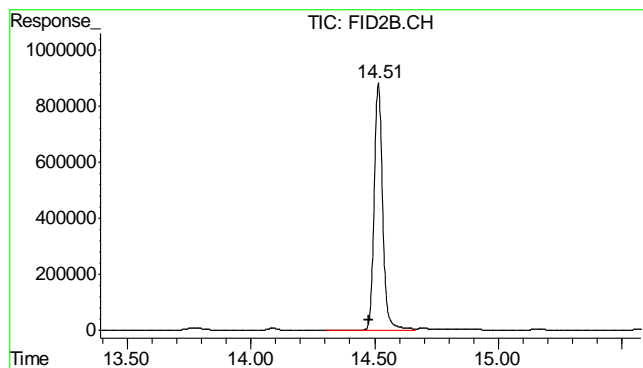
#8 m,p-Xylene

R.T.: 0.000 min
Exp R.T. : 10.594 min
Response: 0
Conc: N.D.



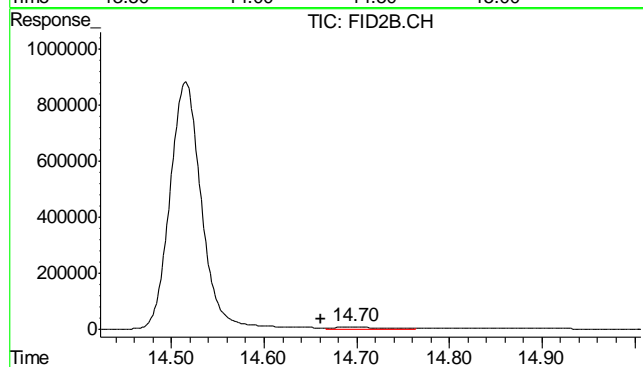
#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 11.082 min
Response: 0
Conc: N.D.



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

R.T.: 14.515 min
Delta R.T.: 0.037 min
Response: 21007422
Conc: 104.46 %



#11 Naphthalene

R.T.: 14.697 min
Delta R.T.: 0.036 min
Response: 243196
Conc: 1.30 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: D29207
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4801-MB	FD11383.D	1	11/08/11	TR	11/08/11	OP4801	GFD571

The QC reported here applies to the following samples:

Method: SW846-8015B

D29207-1

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	98% 61-142%

Blank Spike Summary

Job Number: D29207
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4801-BS	FD11384.D	1	11/08/11	TR	11/08/11	OP4801	GFD571

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

D29207-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	608	91	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	96%	61-142%

11.2.1
11

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D29207
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4801-MS	FD11385.D	1	11/08/11	TR	11/08/11	OP4801	GFD571
OP4801-MSD	FD11386.D	1	11/08/11	TR	11/08/11	OP4801	GFD571
D29207-1	FD11387.D	1	11/08/11	TR	11/08/11	OP4801	GFD571

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

D29207-1

CAS No.	Compound	D29207-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	752		752	1060	41	1100	46	4	24-157/35

CAS No.	Surrogate Recoveries	MS	MSD	D29207-1	Limits
84-15-1	o-Terphenyl	77%	78%	101%	61-142%

11.3.1
11

GC Semi-volatiles

Raw Data

Judy Melson
11/09/11 09:21

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\NOV\FD110811\FD11387.D Vial: 7
Acq On : 11-8-2011 01:24:41 PM Operator: TEDR
Sample : D29207-1 Inst : FID5
Misc : OP4801,GFD571,30.01,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Nov 09 06:51:22 2011 Quant Results File: GFD530.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD530.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Nov 04 08:29:32 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	9.69	41747271	1007.693 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	7.48	408067721	10003.924 mg/L

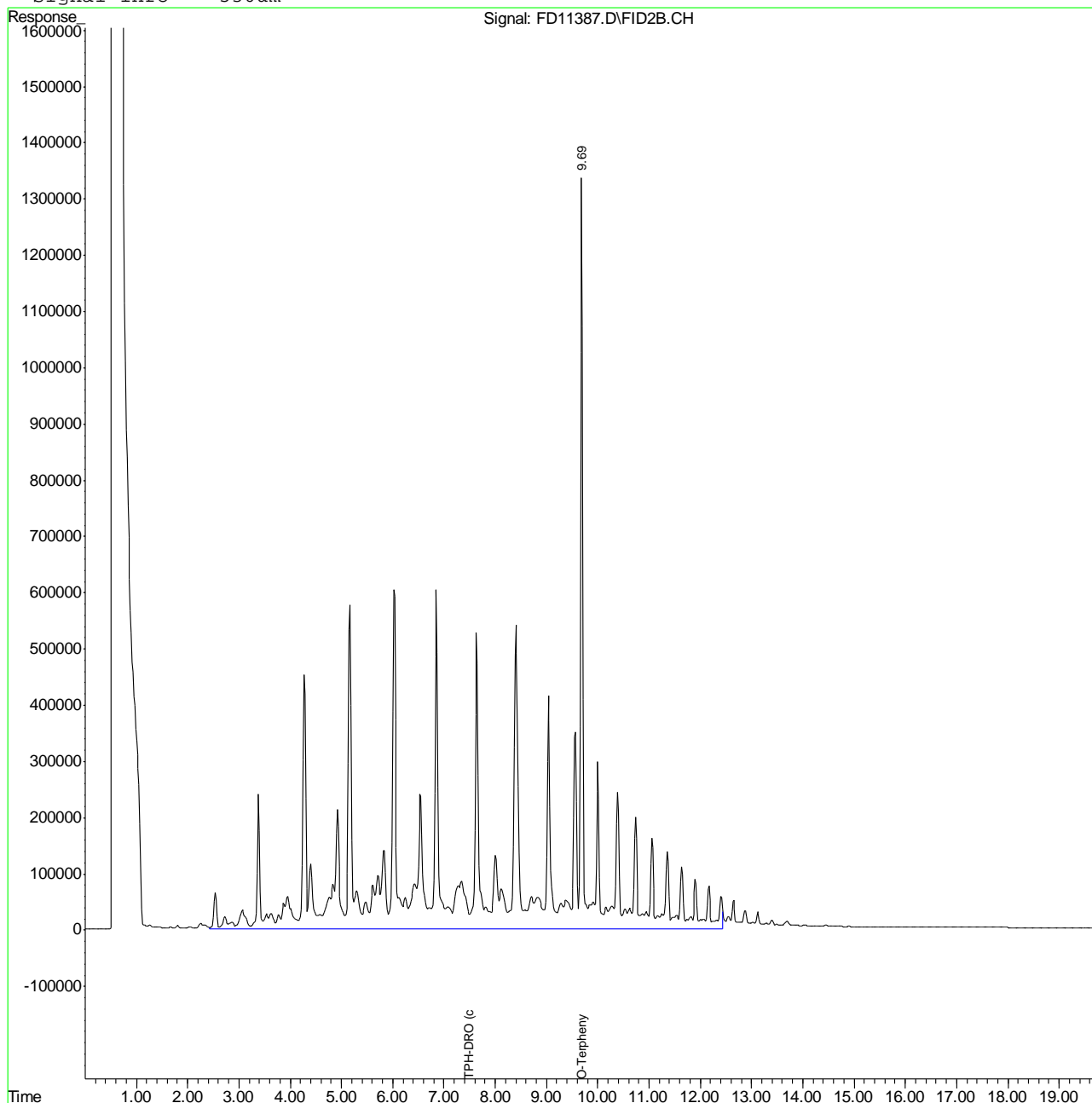
12.1.1
12

Quantitation Report (QT Reviewed)

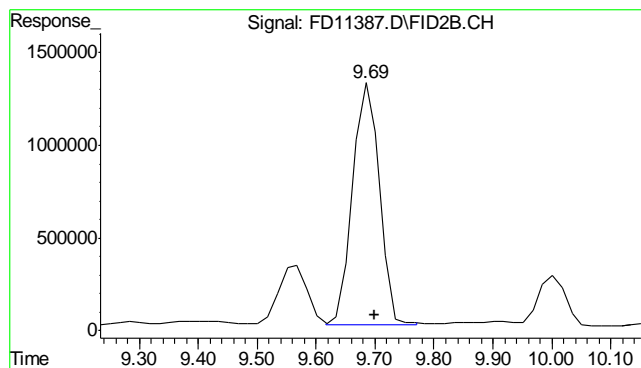
Data File : C:\MSDCHEM\2\DATA\2011\NOV\FD110811\FD11387.D Vial: 7
 Acq On : 11-8-2011 01:24:41 PM Operator: TEDR
 Sample : D29207-1 Inst : FID5
 Misc : OP4801,GFD571,30.01,,,2,1 Multiplr: 1.00
 IntFile : DF-GFC101.E
 Quant Time: Nov 9 6:51 2011 Quant Results File: GFD530.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD530.M (Chemstation Integrator)
 Title : 8015B TEH
 Last Update : Fri Nov 04 08:29:32 2011
 Response via : Multiple Level Calibration
 DataAcq Meth : JH080911.M

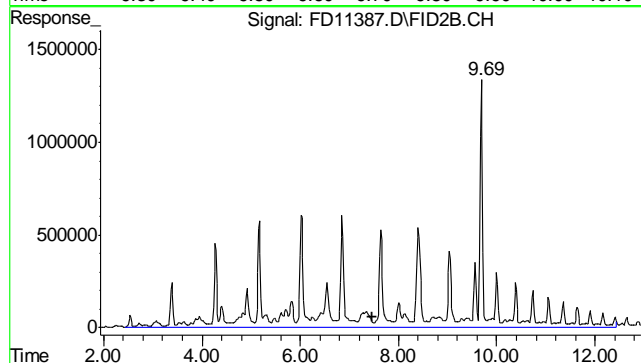
Volume Inj. : 1ul
 Signal Phase : RTX-5
 Signal Info : 530um



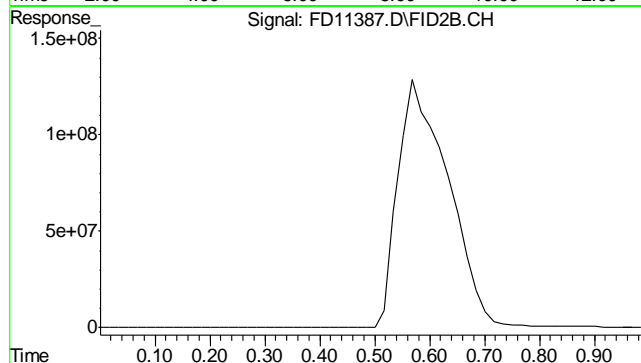
12.1.1
12



#1 O-Terphenyl
R.T.: 9.685 min
Delta R.T.: -0.015 min
Response: 41747271
Conc: 1007.69 mg/L m



#2 TPH-DRO (c10-c28)
R.T.: 7.480 min
Delta R.T.: 0.000 min
Response: 408067721
Conc: 10003.92 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
11/09/11 09:21

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\NOV\FD110811\FD11383.D Vial: 3
Acq On : 08 Nov 2011 10:48 am Operator: TEDR
Sample : OP4801-MB Inst : FID5
Misc : OP4801,GFD571,30.00,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Nov 08 13:05:42 2011 Quant Results File: GFD530.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD530.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Nov 04 08:29:32 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

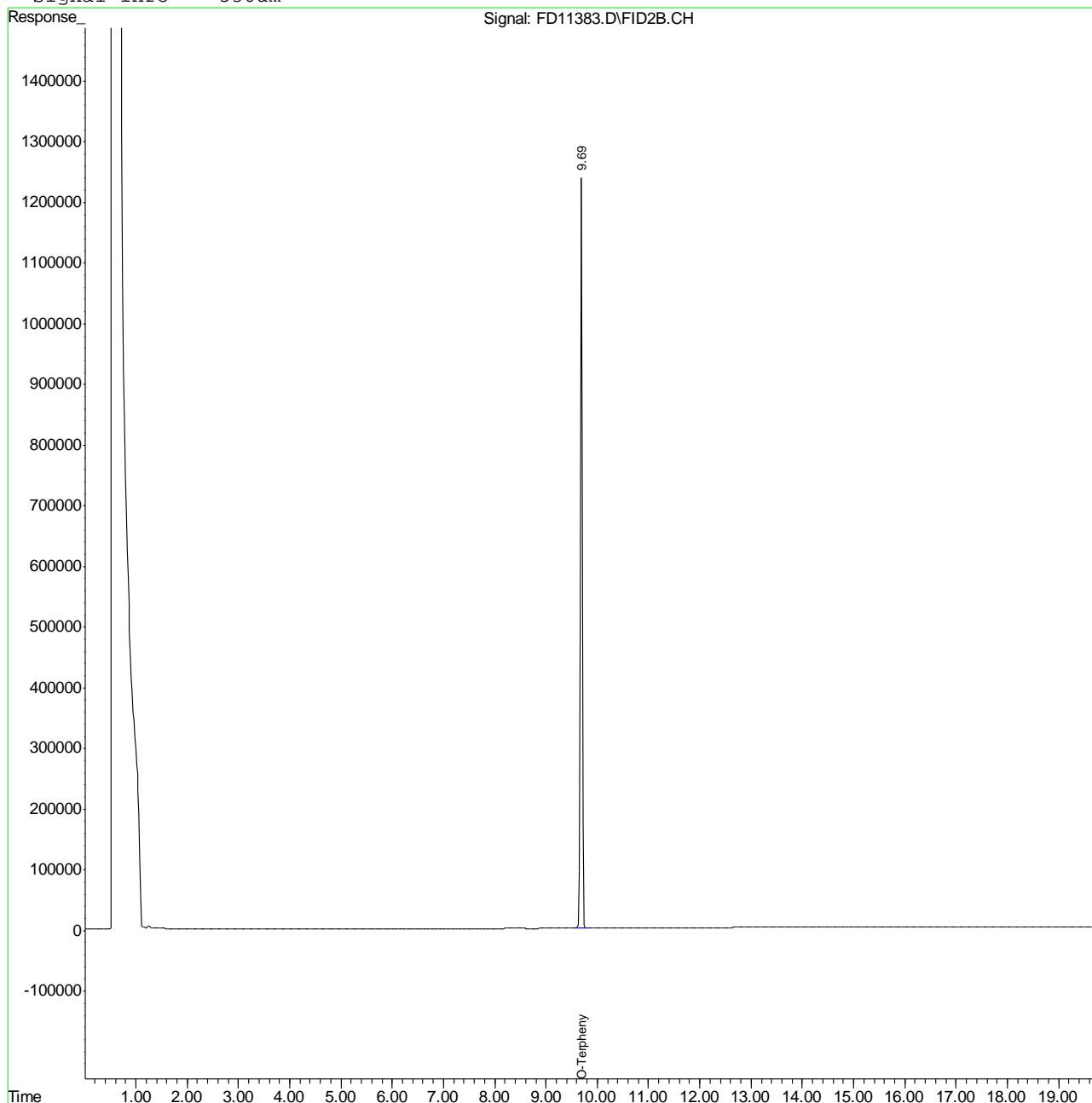
System Monitoring Compounds			
1) S O-Terphenyl	9.69	40126030	975.919 mg/L m
Target Compounds			

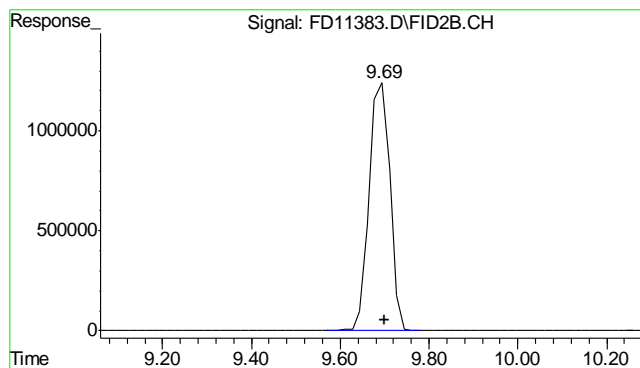
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\NOV\FD110811\FD11383.D Vial: 3
Acq On : 08 Nov 2011 10:48 am Operator: TEDR
Sample : OP4801-MB Inst : FID5
Misc : OP4801,GFD571,30.00,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Nov 8 13:06 2011 Quant Results File: GFD530.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD530.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Nov 04 08:29:32 2011
Response via : Multiple Level Calibration
DataAcq Meth : JH080911.M

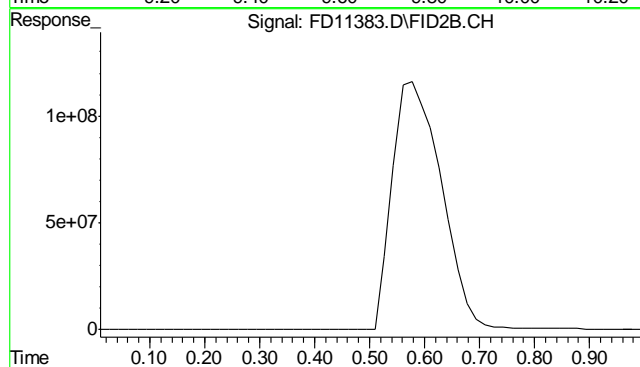
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.688 min
Delta R.T.: -0.012 min
Response: 40126030
Conc: 975.92 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: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6206
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/07/11

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	0.25	<1.0
Beryllium	1.0	.044	.1		
Boron	5.0	.48	.48		
Cadmium	1.0	.027	.27	0.010	<1.0
Calcium	40	.96	1.1		
Chromium	1.0	.018	.031	0.15	<1.0
Cobalt	0.50	.035	.035		
Copper	1.0	.085	.16	-0.12	<1.0
Iron	7.0	.34	2		
Lead	5.0	.16	.21	-0.070	<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	0.0	<3.0
Phosphorus	10	1.1	1.2		
Potassium	200	5.5	9.2		
Selenium	5.0	.38	.5	-0.19	<5.0
Silicon	5.0	.38	.51		
Silver	3.0	.018	.051	0.0	<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	0.56	<3.0

Associated samples MP6206: D29207-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6206
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6206
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/07/11

Metal	D29206-1 Original MS		Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium	34400	42000	971	782.8(a)	75-125
Beryllium					
Boron					
Cadmium	0.0	223	243	91.9	75-125
Calcium					
Chromium	21.2	252	243	95.1	75-125
Cobalt					
Copper	111	315	243	84.0	75-125
Iron					
Lead	89.7	480	485	80.4	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	16.4	237	243	90.9	75-125
Phosphorus					
Potassium					
Selenium	0.0	684	485	140.9N(b)	75-125
Silicon					
Silver	0.30	93.7	97.1	96.2	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	51.1	275	243	92.2	75-125

Associated samples MP6206: D29207-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6206
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: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6206
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/07/11

Metal	D29206-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium	34400	39100	943	498.6(a)	7.2	20
Beryllium						
Boron						
Cadmium	0.0	218	236	92.5	2.3	20
Calcium						
Chromium	21.2	244	236	94.5	3.2	20
Cobalt						
Copper	111	314	236	86.1	0.3	20
Iron						
Lead	89.7	468	471	80.3	2.5	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	16.4	230	236	90.6	3.0	20
Phosphorus						
Potassium						
Selenium	0.0	666	471	141.3N(b)	2.7	20
Silicon						
Silver	0.30	91.5	94.3	96.8	2.4	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	51.1	287	236	100.1	4.3	20

Associated samples MP6206: D29207-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6206
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: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6206
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/07/11

Metal	BSP Result	Spikelot MPICPAL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	176	200	88.0	80-120
Beryllium				
Boron				
Cadmium	44.2	50	88.4	80-120
Calcium				
Chromium	45.2	50	90.4	80-120
Cobalt				
Copper	43.5	50	87.0	80-120
Iron				
Lead	91.3	100	91.3	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	43.9	50	87.8	80-120
Phosphorus				
Potassium				
Selenium	91.2	100	91.2	80-120
Silicon				
Silver	18.4	20	92.0	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	45.2	50	90.4	80-120

Associated samples MP6206: D29207-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6206
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6206
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date: 11/07/11

Metal	D29206-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	54100	70500	1.4	0-10
Beryllium				
Boron				
Cadmium	0.00	0.00	NC	0-10
Calcium				
Chromium	42.7	43.0	0.7	0-10
Cobalt				
Copper	225	222	1.2	0-10
Iron				
Lead	181	185	2.2	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	33.2	35.5	6.9	0-10
Phosphorus				
Potassium				
Selenium	11.7	190		0-10
Silicon				
Silver	0.600	3.00	400.0(a)	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	103	141	36.6*(b)	0-10

Associated samples MP6206: D29207-1

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

13.1.4
13

SERIAL DILUTION RESULTS SUMMARY

Login Number: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6206
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6207
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 11/07/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	0.16	<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 MP6207: D29207-1

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: D29207
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 197-33A

QC Batch ID: MP6207
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 11/07/11

Metal	D29206-1 Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	5.1	500	485	101.9	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 MP6207: D29207-1

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: D29207
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 197-33A

QC Batch ID: MP6207
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 11/07/11

Metal	D29206-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	5.1	464	471	97.4	7.5	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 MP6207: D29207-1

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: D29207
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 197-33A

QC Batch ID: MP6207
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 11/07/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	97.1	100	97.1	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 MP6207: D29207-1

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

13.2.3
13

SERIAL DILUTION RESULTS SUMMARY

Login Number: D29207
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 197-33A

QC Batch ID: MP6207
 Matrix Type: SOLID

Methods: SW846 6020
 Units: ug/l

Prep Date: 11/07/11

Metal	D29206-1 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	10.3	11.7	13.3 (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 MP6207: D29207-1

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6224
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 11/09/11

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.10	.0011	.013	0.0022	<0.10

Associated samples MP6224: D29207-1

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: D29207
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 197-33A

QC Batch ID: MP6224
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 11/09/11

Metal	D29206-1		Spikelot		QC
	Original	MS	HGWSR1	% Rec	Limits

Mercury	0.16	2.1	1.94	99.9	85-115
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Associated samples MP6224: D29207-1

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: D29207
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 197-33A

QC Batch ID: MP6224
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 11/09/11

Metal	D29206-1 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.16	2.0	1.9	96.7	4.9	20

Associated samples MP6224: D29207-1

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: D29207
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 197-33A

QC Batch ID: MP6224
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 11/09/11

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
-------	---------------	--------------------	-------	--------------

Mercury	0.43	0.4	107.5	80-120
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Associated samples MP6224: D29207-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6227
Matrix Type: AQUEOUS

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

Prep Date: 11/09/11

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	32.0	<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	-57	<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 MP6227: D29207-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6227
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

13.4.1

13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6227
Matrix Type: AQUEOUS

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

Prep Date: 11/09/11

Metal	D29236-1A Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	37700	175000	125000	109.8	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	3850	133000	125000	103.3	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	78800	206000	125000	101.8	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6227: D29207-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6227
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

13.4.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29207
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 197-33A

QC Batch ID: MP6227
 Matrix Type: AQUEOUS

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

Prep Date: 11/09/11

Metal	D29236-1A Original MSD	Spikelot MPICPALL % Rec	MSD RPD	QC Limit
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	37700	171000	125000	106.6
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	3850	132000	125000	102.5
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	78800	202000	125000	98.6
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP6227: D29207-1A

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

13.4.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6227
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

13.4.2
13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6227
Matrix Type: AQUEOUS

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

Prep Date: 11/09/11

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	130000	125000	104.0	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	128000	125000	102.4	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP6227: D29207-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6227
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(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: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP5881/GN12392			umhos/cm	9980	9970	99.9	90-110%
pH	GN12401			su	8.00	8.01	100.1	99.3-100.7%

Associated Samples:
Batch GN12401: D29207-1
Batch GP5881: D29207-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D29207
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Redox Potential Vs H2	GN12406	D29207-1	mv	383	149	7.7	0-20%

Associated Samples:
Batch GN12406: D29207-1
(*) 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

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D29207

Client: AMS

Immediate Client Services Action Required: No

Date / Time Received: 11/8/2011

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: D29207
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: XOM FRU 197-33A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP13780/GN36845	0.40	0.26	mg/kg	40	42.8	107.0	80-120%
Chromium, Hexavalent	GP13780/GN36845			mg/kg	1390	1520	109.4	80-120%

Associated Samples:
Batch GP13780: D29207-1
(*) Outside of QC limits

BLANK SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D29207
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: XOM FRU 197-33A

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
Chromium, Hexavalent	GP13780/GN36845	mg/kg	40	43.4	1.4	

Associated Samples:
Batch GP13780: D29207-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D29207
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: XOM FRU 197-33A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP13780/GN36845	D29207-1	mg/kg	0.26	0.26	0.0	0-20%

Associated Samples:
Batch GP13780: D29207-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D29207
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: XOM FRU 197-33A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP13780/GN36845	D29207-1	mg/kg	0.26	43.9	38.2	86.4	75-125%
Chromium, Hexavalent	GP13780/GN36845	D29207-1	mg/kg	0.26	1200	1440	120.3	75-125%

Associated Samples:
Batch GP13780: D29207-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits