



01/16/12

Technical Report for

KRW Consulting, Inc.

XOM FRU 197-33A

1103-03A

Accutest Job Number: D30890

Sampling Date: 01/06/12


Report to:

KRW Consulting, Inc.
8000 West 14th Avenue Suite 200
Lakewood, CO 80214
cburger@krwconsulting.com; gknell@krwconsulting.com;
dknudson@krwconsulting.com; jhess@krwconsulting.com;
ATTN: Dwayne Knudson

Total number of pages in report: 137



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.


Brad Madadian
Laboratory Director

Client Service contact: 303-425-6021

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

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Test results relate only to samples analyzed.

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Sample Summary

KRW Consulting, Inc.

Job No: D30890

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

Sample Number	Collected			Received	Matrix		Client Sample ID
	Date	Time	By		Code	Type	
D30890-1	01/06/12	12:30	CH	01/10/12	SO	Soil	CUT #1 CONTENTS
D30890-1A	01/06/12	12:30	CH	01/10/12	SO	Soil	CUT #1 CONTENTS

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: KRW Consulting, Inc.

Job No D30890

Site: XOM FRU 197-33A

Report Dat 1/16/2012 1:56:36 PM

On 01/10/2012, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D30890 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: V5V1121

- All samples were analyzed within the recommended method holding time.
- Sample(s) D30798-1MS, D30798-1MSD 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: OP5134

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D30831-1MS, D30831-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- The matrix spike (MS) recovery(s) of Anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Acenaphthene are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- The matrix spike duplicate (MSD) recovery(s) of Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene, Naphthalene are outside control limits. Outside control limits due to possible matrix interference.
- The matrix spike (MS) recovery(s) of Pyrene are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- The RPD(s) for the MS and MSD recoveries of Acenaphthene, Benzo(a)anthracene, Benzo(k)fluoranthene are outside control limits for sample OP5134-MSD. Probable cause due to sample homogeneity.

Volatiles by GC By Method SW846 8015B

Matrix SO

Batch ID: GGB824

- All samples were analyzed within the recommended method holding time.
- Sample(s) D30879-1MS, D30879-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GC By Method SW846-8015B

Matrix SO

Batch ID: OP5149

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30955-1MS, D30955-1MSD were used as the QC samples indicated.

Metals By Method SW846 6010C

Matrix AQ

Batch ID: MP6639

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30890-1AMS, D30890-1AMSD were used as the QC samples for the metals analysis.

Matrix SO

Batch ID: MP6643

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30887-1MS, D30887-1MSD, D30887-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Cadmium, Silver are outside control limits for sample MP6643-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- The serial dilution RPD(s) for Barium, Chromium, Nickel, Zinc are outside control limits for sample MP6643-SD1. Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix SO

Batch ID: MP6644

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30887-1MS, D30887-1MSD, D30887-1SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471B

Matrix SO

Batch ID: MP6645

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30887-1MS, D30887-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO

Batch ID: GN13195

- Sample(s) D30587-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN13201

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO

Batch ID: R11412

- The data for SW846 3060/7196A M meets quality control requirements.
- D30890-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO

Batch ID: M:GP14035

- The data for SW846 3060A/7196A meets quality control requirements.
- D30890-1 for Chromium, Hexavalent: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method SW846 9045C**Matrix** SO**Batch ID:** GN13205

- The following sample was run outside of holding time for method SW846 9045C: D30890-1.

Wet Chemistry By Method USDA HANDBOOK 60**Matrix** SO**Batch ID:** MP6639

- D30890-1A 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 D30890

Site: KRWCCOL: XOM FRU 197-33A

Report Date 1/12/2012 4:42:55 PM

1 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 01/06/2012 and were received at Accutest on 01/10/2012 properly preserved, at 1.8 Deg. C and intact. These Samples received an Accutest job number of D30890. 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: GP14035

- 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) D30848-1DUP, D30848-1MS 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(D30890).

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

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Client Sample ID:	CUT #1 CONTENTS	
Lab Sample ID:	D30890-1	Date Sampled: 01/06/12
Matrix:	SO - Soil	Date Received: 01/10/12
Method:	SW846 8260B	Percent Solids: 79.7
Project:	XOM FRU 197-33A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V18727.D	1	01/10/12	KV	n/a	n/a	V5V1121
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.02 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.108	0.075	0.033	mg/kg	
108-88-3	Toluene	0.845	0.15	0.075	mg/kg	
100-41-4	Ethylbenzene	0.243	0.15	0.038	mg/kg	
1330-20-7	Xylene (total)	1.33	0.30	0.15	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	89%		61-130%
460-00-4	4-Bromofluorobenzene	104%		53-131%
17060-07-0	1,2-Dichloroethane-D4	95%		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:	CUT #1 CONTENTS	
Lab Sample ID:	D30890-1	Date Sampled: 01/06/12
Matrix:	SO - Soil	Date Received: 01/10/12
Method:	SW846 8270C BY SIM SW846 3546	Percent Solids: 79.7
Project:	XOM FRU 197-33A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G07556.D	4	01/12/12	DC	01/10/12	OP5134	E3G285
Run #2							

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

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.033	0.027	mg/kg	
120-12-7	Anthracene	ND	0.033	0.030	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.084	0.043	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.084	0.060	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.084	0.062	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.084	0.037	mg/kg	
218-01-9	Chrysene	ND	0.084	0.037	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.084	0.062	mg/kg	
206-44-0	Fluoranthene	ND	0.033	0.033	mg/kg	
86-73-7	Fluorene	0.0525	0.033	0.028	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.092	mg/kg	
91-20-3	Naphthalene	0.315	0.033	0.032	mg/kg	
129-00-0	Pyrene	ND	0.033	0.032	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	12%		10-145%
321-60-8	2-Fluorobiphenyl	45%		10-130%
1718-51-0	Terphenyl-d14	84%		22-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

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Client Sample ID:	CUT #1 CONTENTS	
Lab Sample ID:	D30890-1	Date Sampled: 01/06/12
Matrix:	SO - Soil	Date Received: 01/10/12
Method:	SW846 8015B	Percent Solids: 79.7
Project:	XOM FRU 197-33A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB14553.D	1	01/11/12	SK	n/a	n/a	GGB824
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	57.0	15	7.5	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	85%		60-140%		

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

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

Accutest Laboratories

Report of Analysis

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Client Sample ID:	CUT #1 CONTENTS	
Lab Sample ID:	D30890-1	Date Sampled: 01/06/12
Matrix:	SO - Soil	Date Received: 01/10/12
Method:	SW846-8015B SW846 3546	Percent Solids: 79.7
Project:	XOM FRU 197-33A	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD12755.D	1	01/12/12	TR	01/12/12	OP5149	GFD661
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)	483	17	11	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	66%		43-136%		

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

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

Report of Analysis

Client Sample ID: CUT #1 CONTENTS

Lab Sample ID: D30890-1

Matrix: SO - Soil

Project: XOM FRU 197-33A

Date Sampled: 01/06/12

Date Received: 01/10/12

Percent Solids: 79.7

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	10.4	0.49	mg/kg	5	01/11/12	01/11/12 GJ	SW846 6020A ²	SW846 3050B ⁶
Barium	3640	1.2	mg/kg	1	01/11/12	01/12/12 JB	SW846 6010C ³	SW846 3050B ⁵
Cadmium	1.8	1.2	mg/kg	1	01/11/12	01/12/12 JB	SW846 6010C ³	SW846 3050B ⁵
Chromium	13.1	1.2	mg/kg	1	01/11/12	01/12/12 JB	SW846 6010C ³	SW846 3050B ⁵
Copper	29.9	1.2	mg/kg	1	01/11/12	01/13/12 JB	SW846 6010C ⁴	SW846 3050B ⁵
Lead	40.5	6.1	mg/kg	1	01/11/12	01/12/12 JB	SW846 6010C ³	SW846 3050B ⁵
Mercury	< 0.12	0.12	mg/kg	1	01/11/12	01/11/12 JB	SW846 7471B ¹	SW846 7471B ⁷
Nickel	13.1	3.7	mg/kg	1	01/11/12	01/12/12 JB	SW846 6010C ³	SW846 3050B ⁵
Selenium	< 6.1	6.1	mg/kg	1	01/11/12	01/12/12 JB	SW846 6010C ³	SW846 3050B ⁵
Silver	< 3.7	3.7	mg/kg	1	01/11/12	01/12/12 JB	SW846 6010C ³	SW846 3050B ⁵
Zinc	37.5	3.7	mg/kg	1	01/11/12	01/12/12 JB	SW846 6010C ³	SW846 3050B ⁵

(1) Instrument QC Batch: MA2106

(2) Instrument QC Batch: MA2107

(3) Instrument QC Batch: MA2110

(4) Instrument QC Batch: MA2111

(5) Prep QC Batch: MP6643

(6) Prep QC Batch: MP6644

(7) Prep QC Batch: MP6645

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUT #1 CONTENTS**Lab Sample ID:** D30890-1**Matrix:** SO - Soil**Project:** XOM FRU 197-33A**Date Sampled:** 01/06/12**Date Received:** 01/10/12**Percent Solids:** 79.7**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent ^a	< 0.49	0.49	mg/kg	1	01/12/12 15:53	AMA	SW846 3060A/7196A
Chromium, Trivalent ^b	12.9	1.7	mg/kg	1	01/12/12 22:07	JB	SW846 3060/7196A M
Redox Potential Vs H2	237		mv	1	01/10/12 11:10	JK	ASTM D1498-76M
Solids, Percent	79.7		%	1	01/10/12	SWT	SM19 2540B M
Specific Conductivity	6050	1.0	umhos/cm	1	01/11/12	JD	DEPT.OF AG, BOOK N9
pH	11.85		su	1	01/10/12 14:30	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:	CUT #1 CONTENTS	Date Sampled:	01/06/12
Lab Sample ID:	D30890-1A	Date Received:	01/10/12
Matrix:	SO - Soil	Percent Solids:	79.7
Project:	XOM FRU 197-33A		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	10.9	2.0	mg/l	1	01/11/12	01/12/12 JB	SW846 6010C ¹	EPA 200.7 ²
Magnesium	< 1.0	1.0	mg/l	1	01/11/12	01/12/12 JB	SW846 6010C ¹	EPA 200.7 ²
Sodium	1120	2.0	mg/l	1	01/11/12	01/12/12 JB	SW846 6010C ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA2110
(2) Prep QC Batch: MP6639

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CUT #1 CONTENTS	Date Sampled:	01/06/12
Lab Sample ID:	D30890-1A	Date Received:	01/10/12
Matrix:	SO - Soil	Percent Solids:	79.7
Project:	XOM FRU 197-33A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	89.1		ratio	1	01/12/12 18:59	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 Sample Receipt Summary

Accutest Job Number: D30890

Client: KRW CONSULTING

Immediate Client Services Action Required: No

Date / Time Received: 1/10/2012 12:20:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XTO FRU 197-33A

Airbill #'s: HD/CO

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

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

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

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

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

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

Comments

 Accutest Laboratories
 V:(303) 425-6021

 4036 Youngfield Street
 F: (303) 425-6854

 Wheat Ridge, CO
 www.accutest.com

GC/MS Volatiles

5

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

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Job Number: D30890
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1121-MB	5V18712.D	1	01/10/12	KV	n/a	n/a	V5V1121

The QC reported here applies to the following samples:

Method: SW846 8260B

D30890-1

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	106% 61-130%
460-00-4	4-Bromofluorobenzene	93% 53-131%
17060-07-0	1,2-Dichloroethane-D4	119% 62-130%

Blank Spike Summary

Page 1 of 1

Job Number: D30890

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1121-BS	5V18713.D	1	01/10/12	KV	n/a	n/a	V5V1121

The QC reported here applies to the following samples:

Method: SW846 8260B

D30890-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	48.4	97	70-130
100-41-4	Ethylbenzene	50	52.2	104	70-130
108-88-3	Toluene	50	44.7	89	70-130
1330-20-7	Xylene (total)	150	169	113	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	94%	61-130%
460-00-4	4-Bromofluorobenzene	102%	53-131%
17060-07-0	1,2-Dichloroethane-D4	95%	62-130%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D30890

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D30798-1MS	5V18721.D	1	01/10/12	KV	n/a	n/a	V5V1121
D30798-1MSD	5V18722.D	1	01/10/12	KV	n/a	n/a	V5V1121
D30798-1	5V18720.D	1	01/10/12	KV	n/a	n/a	V5V1121

The QC reported here applies to the following samples:

Method: SW846 8260B

D30890-1

CAS No.	Compound	D30798-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	895		6890	7320	93	8050	104	9	70-134/30
100-41-4	Ethylbenzene	1800		6890	8620	99	9620	114	11	70-137/30
108-88-3	Toluene	6090		6890	10900	70	12000	86	10	70-130/30
1330-20-7	Xylene (total)	37200		20700	49800	61	53800	80	8	61-131/30

CAS No.	Surrogate Recoveries	MS	MSD	D30798-1	Limits
2037-26-5	Toluene-D8	92%	99%	105%	61-130%
460-00-4	4-Bromofluorobenzene	118%	122%	121%	53-131%
17060-07-0	1,2-Dichloroethane-D4	95%	98%	119%	62-130%

GC/MS Volatiles

Raw Data



Quantitation Report (No Status)

Data Path : C:\msdchem\1\DATA\V5011012.S\
Data File : 5V18727.D
Acq On : 10 Jan 2012 9:21 pm
Operator : KOROUSHV
Sample : D30890-1
Misc : MS3210,V5V1121,5.017,,100,5,,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 11 15:32:41 2012
Quant Title :
QLast Update : Wed Dec 28 09:30:42 2011
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	292920	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	345222	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	348921	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	252939	50.00	ug/l	0.00

System Monitoring Compounds						
33) 1,2-Dichloroethane-d4	12.035	102	31810	47.62	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	95.24%
61) Toluene-d8	13.850	98	611018	44.67	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	89.34%
69) 4-Bromofluorobenzene	16.042	95	257904	52.20	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	104.40%

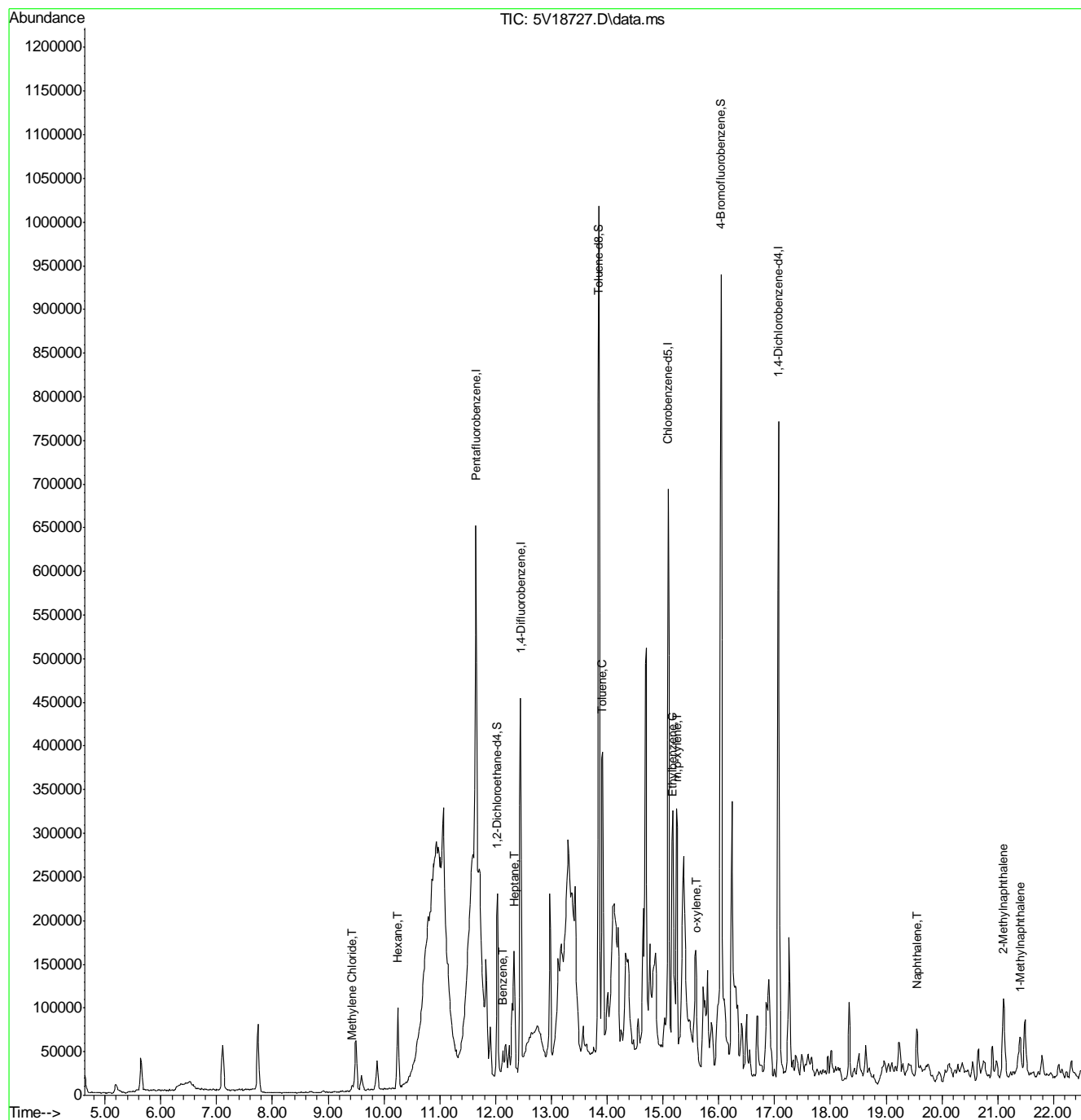
Target Compounds					Qvalue	
17) Methylene Chloride	9.432	84	2332	0.63	ug/l	96
41) Hexane	10.243	57	46425	10.65	ug/l	100
43) Heptane	12.332	43	54798	10.76	ug/l	93
50) Benzene	12.126	78	17996	1.43	ug/l	100
62) Toluene	13.907	92	114495	11.23	ug/l	97
66) Ethylbenzene	15.163	91	56770	3.23	ug/l	99
72) m,p-xylene	15.255	106	94769	15.81	ug/l	87
73) o-xylene	15.597	106	10078	1.87	ug/l	99
91) Naphthalene	19.559	128	24393	2.88	ug/l	100
94) 2-Methylnaphthalene	21.100	142	62102	23.49	ug/l	100
95) 1-Methylnaphthalene	21.397	142	31204	12.21	ug/l	94

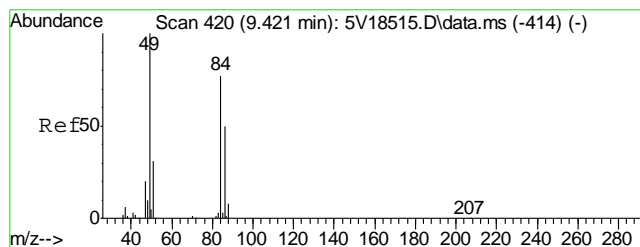
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (No Status)

Data Path : C:\msdchem\1\DATA\V5011012.S\
Data File : 5V18727.D
Acq On : 10 Jan 2012 9:21 pm
Operator : KOROUSHV
Sample : D30890-1
Misc : MS3210,V5V1121,5.017,,100,5,,1
ALS Vial : 19 Sample Multiplier: 1

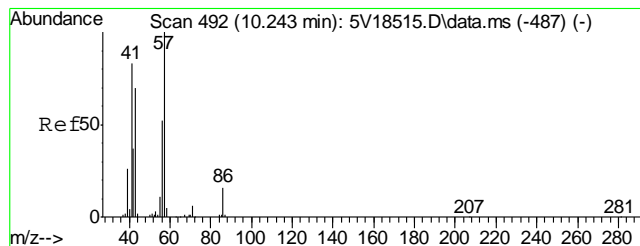
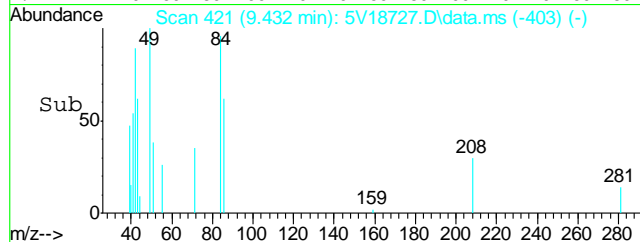
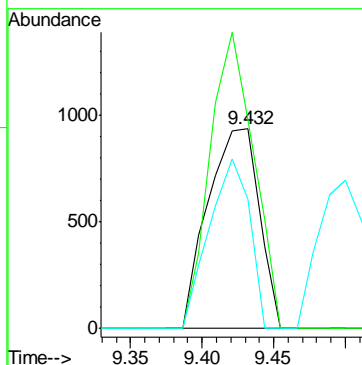
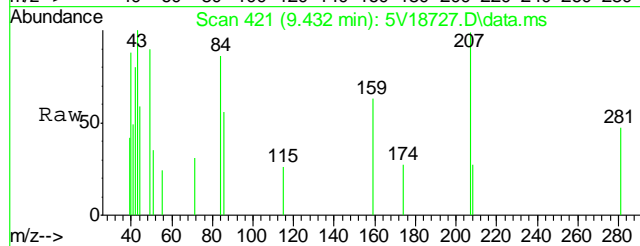
Quant Time: Jan 11 15:32:41 2012
Quant Title :
QLast Update : Wed Dec 28 09:30:42 2011
Response via : Initial Calibration





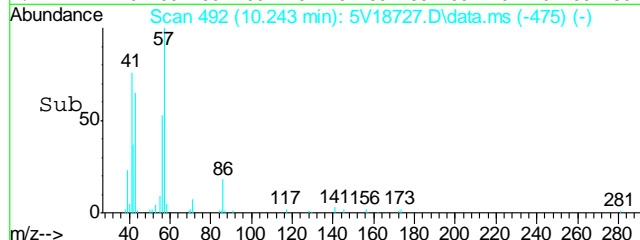
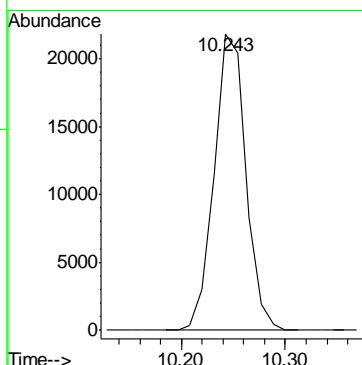
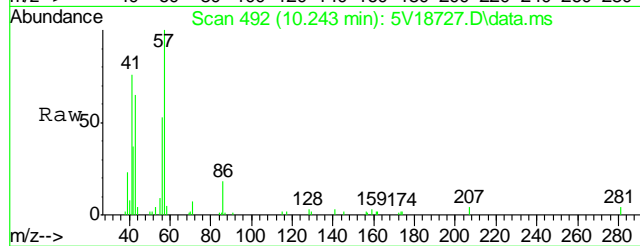
#17
Methylene Chloride
Concen: 0.63 ug/l
RT: 9.432 min Scan# 421
Delta R.T. 0.011 min
Lab File: 5V18727.D
Acq: 10 Jan 2012 9:21 pm

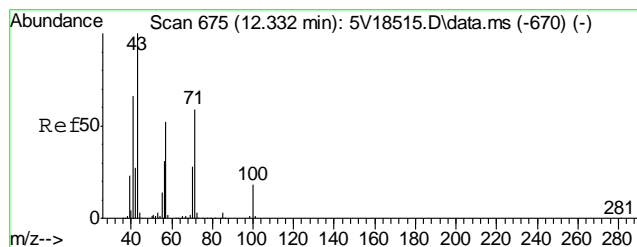
Tgt Ion: 84 Resp: 2332
Ion Ratio Lower Upper
84 100
49 126.0 110.4 150.4
86 66.7 44.0 84.0



#41
Hexane
Concen: 10.65 ug/l
RT: 10.243 min Scan# 492
Delta R.T. -0.000 min
Lab File: 5V18727.D
Acq: 10 Jan 2012 9:21 pm

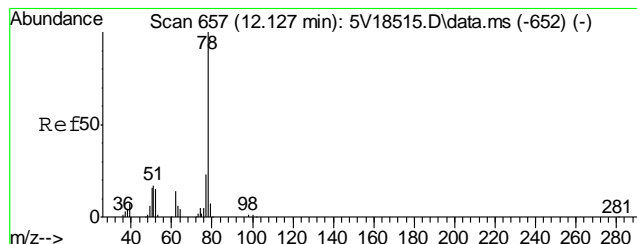
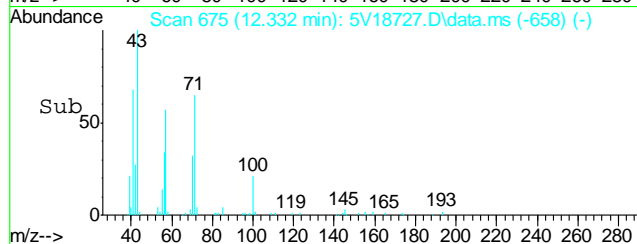
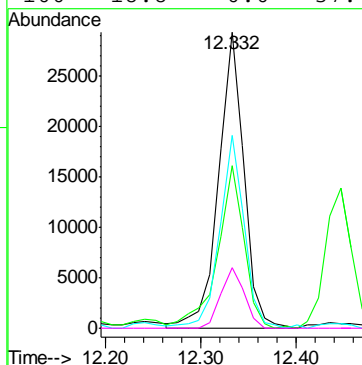
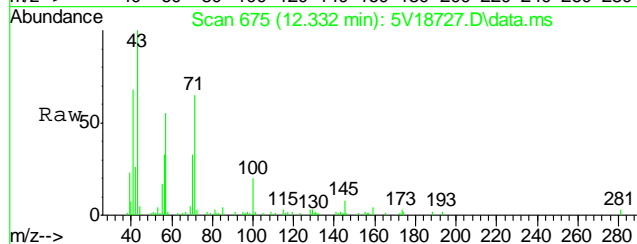
Tgt Ion: 57 Resp: 46425





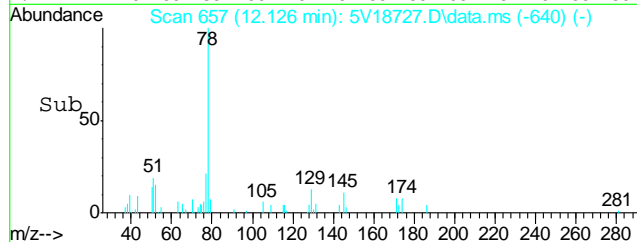
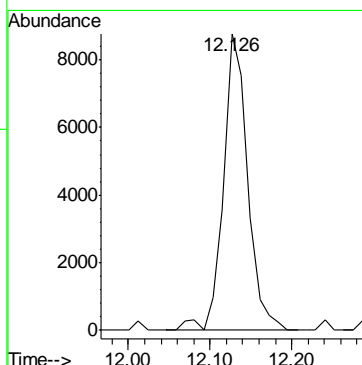
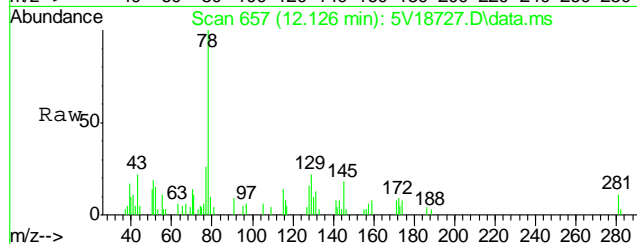
#43
Heptane
Concen: 10.76 ug/l
RT: 12.332 min Scan# 675
Delta R.T. -0.000 min
Lab File: 5V18727.D
Acq: 10 Jan 2012 9:21 pm

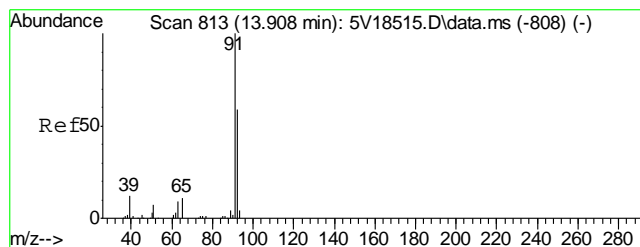
Tgt Ion	Ratio	Lower	Upper
43	100		
57	57.4	30.6	70.6
71	62.8	38.9	78.9
100	18.8	0.0	37.4



#50
Benzene
Concen: 1.43 ug/l
RT: 12.126 min Scan# 657
Delta R.T. -0.000 min
Lab File: 5V18727.D
Acq: 10 Jan 2012 9:21 pm

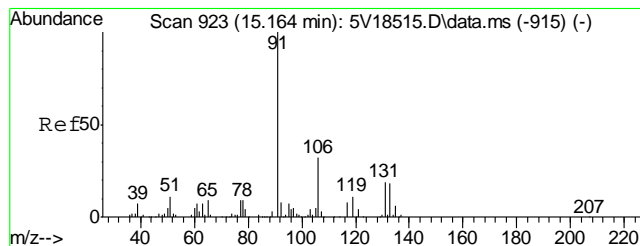
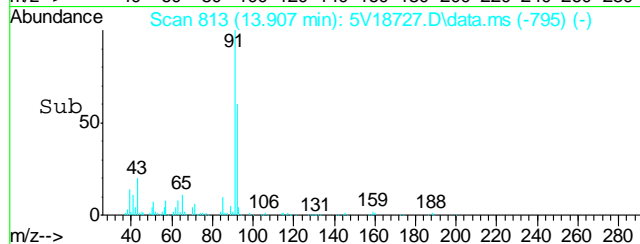
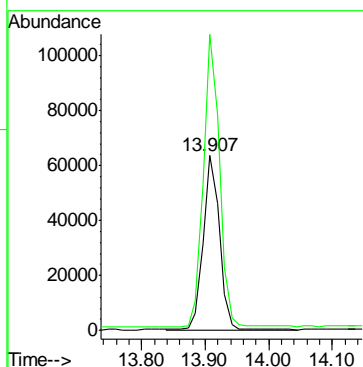
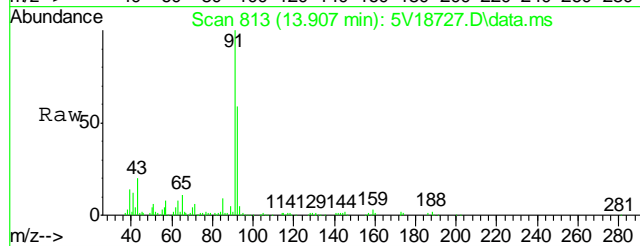
Tgt Ion: 78 Resp: 17996





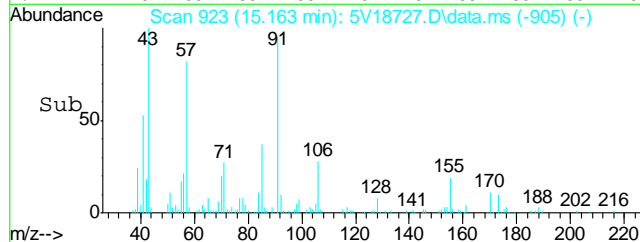
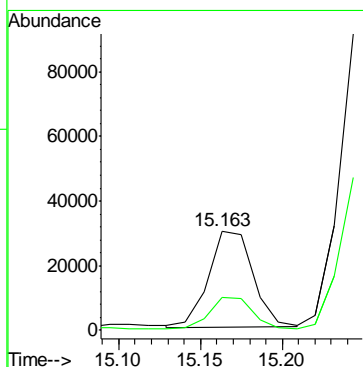
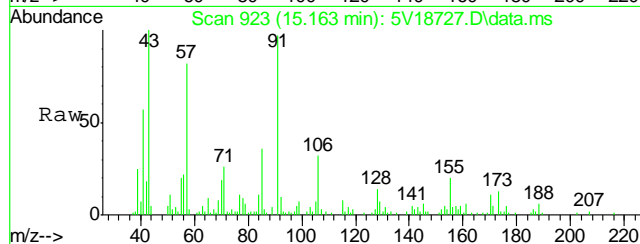
#62
Toluene
Concen: 11.23 ug/l
RT: 13.907 min Scan# 813
Delta R.T. 0.000 min
Lab File: 5V18727.D
Acq: 10 Jan 2012 9:21 pm

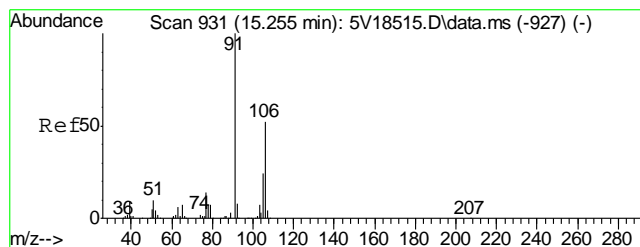
Tgt Ion: 92 Resp: 114495
Ion Ratio Lower Upper
92 100
91 165.1 149.8 189.8



#66
Ethylbenzene
Concen: 3.23 ug/l
RT: 15.163 min Scan# 923
Delta R.T. 0.000 min
Lab File: 5V18727.D
Acq: 10 Jan 2012 9:21 pm

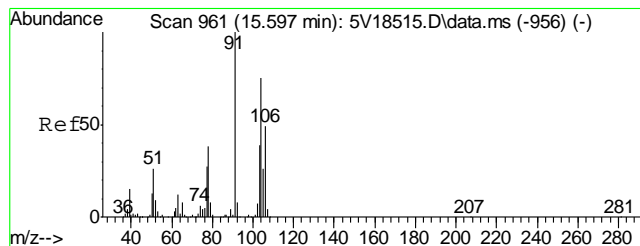
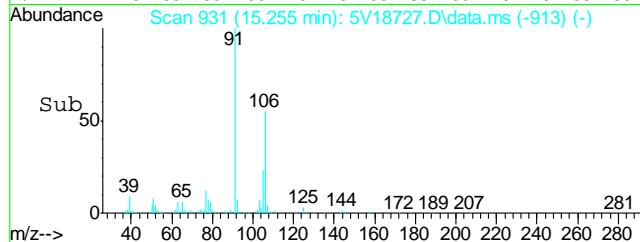
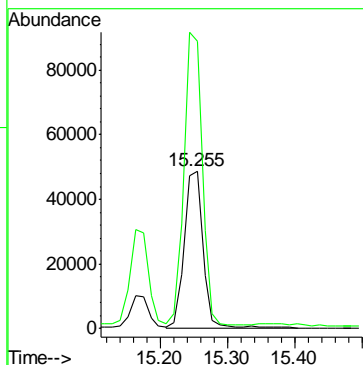
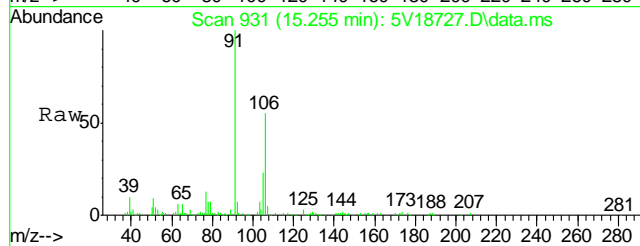
Tgt Ion: 91 Resp: 56770
Ion Ratio Lower Upper
91 100
106 31.1 11.7 51.7





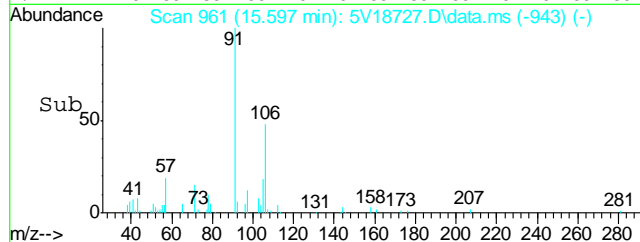
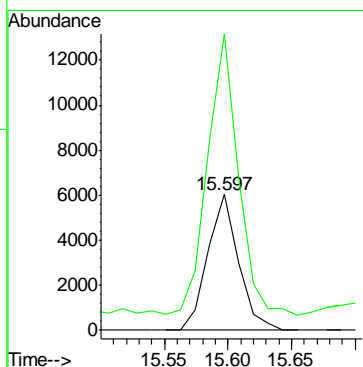
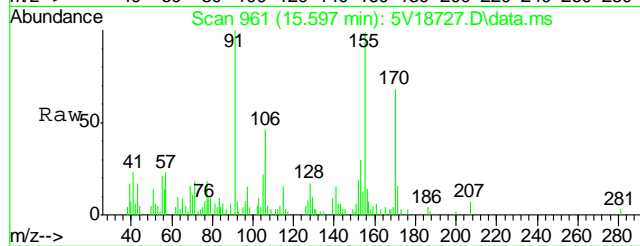
#72
m,p-xylene
Concen: 15.81 ug/l
RT: 15.255 min Scan# 931
Delta R.T. 0.001 min
Lab File: 5V18727.D
Acq: 10 Jan 2012 9:21 pm

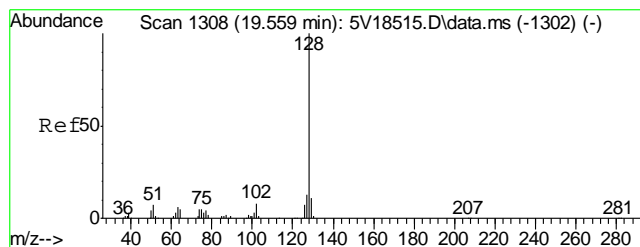
Tgt Ion:106 Resp: 94769
Ion Ratio Lower Upper
106 100
91 177.9 177.1 217.1



#73
o-xylene
Concen: 1.87 ug/l
RT: 15.597 min Scan# 961
Delta R.T. 0.000 min
Lab File: 5V18727.D
Acq: 10 Jan 2012 9:21 pm

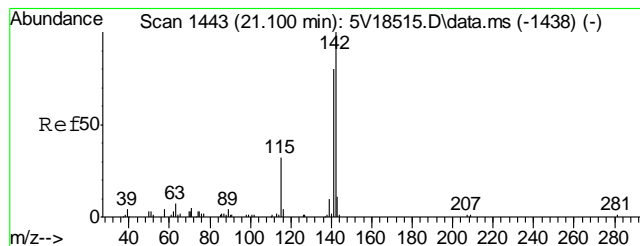
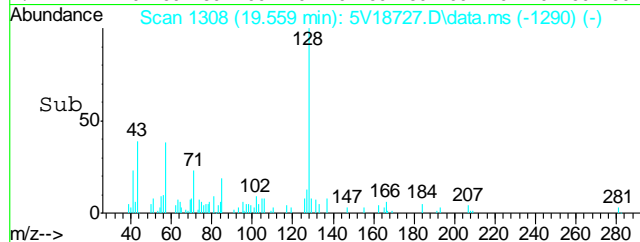
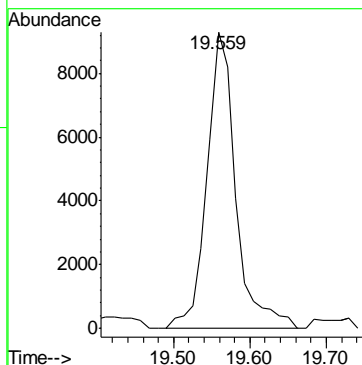
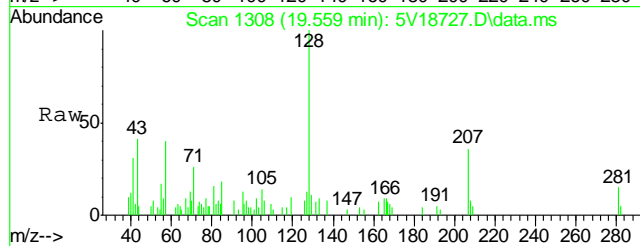
Tgt Ion:106 Resp: 10078
Ion Ratio Lower Upper
106 100
91 209.3 166.6 249.8





#91
Naphthalene
Concen: 2.88 ug/l
RT: 19.559 min Scan# 1308
Delta R.T. -0.000 min
Lab File: 5V18727.D
Acq: 10 Jan 2012 9:21 pm

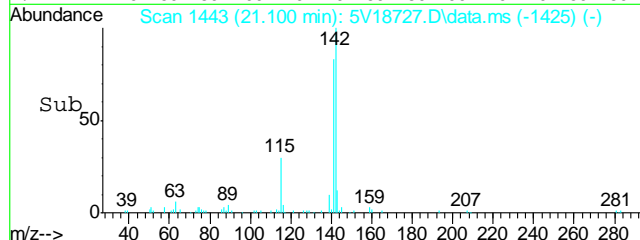
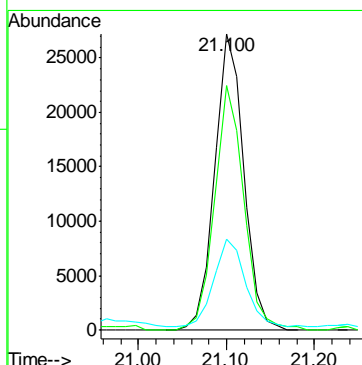
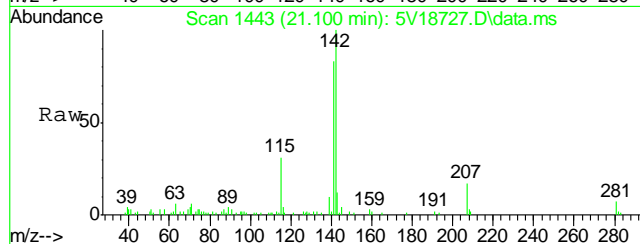
Tgt Ion:128 Resp: 24393

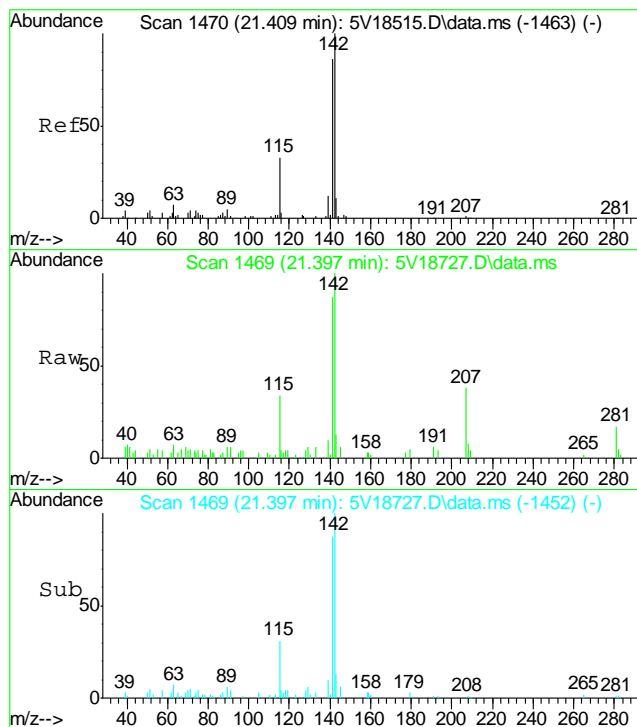


#94
2-Methylnaphthalene
Concen: 23.49 ug/l
RT: 21.100 min Scan# 1443
Delta R.T. 0.000 min
Lab File: 5V18727.D
Acq: 10 Jan 2012 9:21 pm

Tgt Ion:142 Resp: 62102

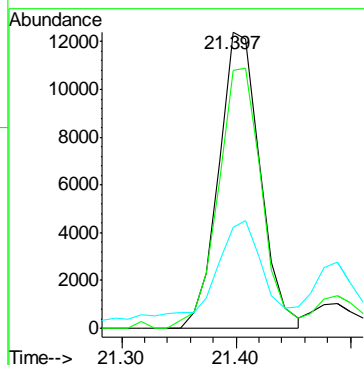
Ion	Ratio	Lower	Upper
142	100		
141	83.0	66.2	99.4
115	32.3	25.9	38.9





#95
 1-Methylnaphthalene
 Concen: 12.21 ug/l
 RT: 21.397 min Scan# 1469
 Delta R.T. -0.011 min
 Lab File: 5V18727.D
 Acq: 10 Jan 2012 9:21 pm

Tgt Ion:142	Resp:	31204
Ion Ratio	Lower	Upper
142	100	
141	91.9	68.9 103.3
115	38.1	27.3 40.9



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5011012.S\
Data File : 5V18712.D
Acq On : 10 Jan 2012 1:21 pm
Operator : KOROUSHV
Sample : MB
Misc : MS3210,V5V1121,5.00,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 11 15:01:23 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1106TVH1106.M
Quant Title : 8260
QLast Update : Wed Dec 28 09:30:42 2011
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	204757	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	266072	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	228971	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	138334	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.035	102	27306	59.31	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	118.62%
61) Toluene-d8	13.850	98	475797	53.00	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	106.00%
69) 4-Bromofluorobenzene	16.042	95	151240	46.65	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	93.30%

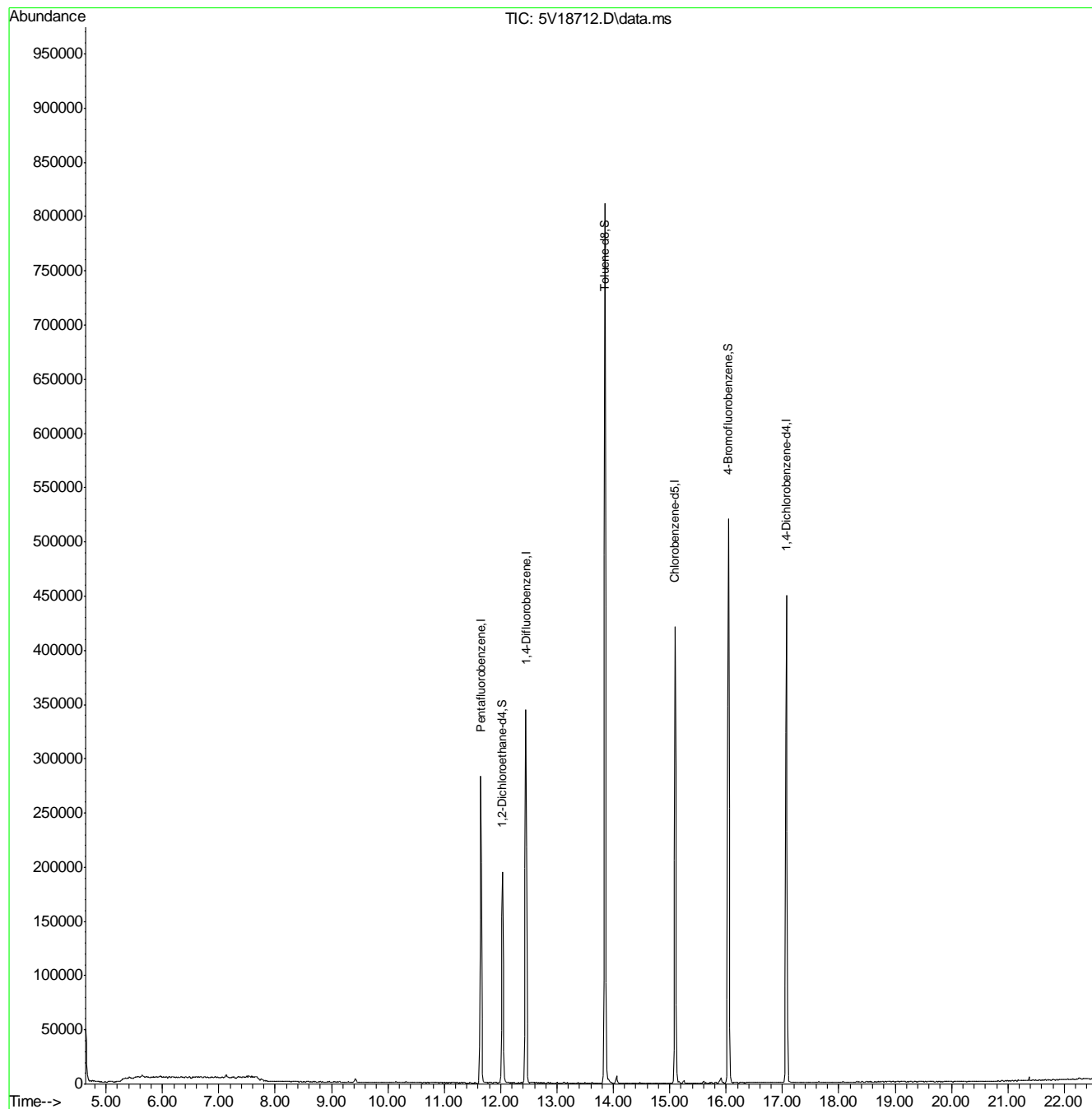
Target Compounds	Qvalue
------------------	--------

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5011012.S\
Data File : 5V18712.D
Acq On : 10 Jan 2012 1:21 pm
Operator : KOROUHV
Sample : MB
Misc : MS3210,V5V1121,5.00,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 11 15:01:23 2012
Quant Method : C:\msdchem\1\METHODS\V5AP1106TVH1106.M
Quant Title : 8260
QLast Update : Wed Dec 28 09:30:42 2011
Response via : Initial Calibration



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: D30890**Account:** KRWCCOL KRW Consulting, Inc.**Project:** XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5134-MB	3G07549.D	1	01/11/12	DC	01/10/12	OP5134	E3G285

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

D30890-1

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	69% 10-145%
321-60-8	2-Fluorobiphenyl	66% 10-130%
1718-51-0	Terphenyl-d14	76% 22-130%

Blank Spike Summary

Page 1 of 1

Job Number: D30890

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5134-BS	3G07550.D	1	01/11/12	DC	01/10/12	OP5134	E3G285

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D30890-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	68.5	82	34-130
120-12-7	Anthracene	83.3	77.1	93	35-130
56-55-3	Benzo(a)anthracene	83.3	74.5	89	36-130
50-32-8	Benzo(a)pyrene	83.3	80.6	97	36-130
205-99-2	Benzo(b)fluoranthene	83.3	75.5	91	35-130
207-08-9	Benzo(k)fluoranthene	83.3	81.5	98	37-130
218-01-9	Chrysene	83.3	77.2	93	40-130
53-70-3	Dibenzo(a,h)anthracene	83.3	70.1	84	32-130
206-44-0	Fluoranthene	83.3	76.7	92	38-130
86-73-7	Fluorene	83.3	72.1	87	35-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	68.7	82	28-130
91-20-3	Naphthalene	83.3	68.3	82	35-130
129-00-0	Pyrene	83.3	71.6	86	37-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	76%	10-145%
321-60-8	2-Fluorobiphenyl	70%	10-130%
1718-51-0	Terphenyl-d14	73%	22-130%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D30890
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5134-MS ^a	3G07552.D	10	01/11/12	DC	01/10/12	OP5134	E3G285
OP5134-MSD ^a	3G07553.D	10	01/12/12	DC	01/10/12	OP5134	E3G285
D30831-1	3G07557.D	4	01/12/12	DC	01/10/12	OP5134	E3G285
D30831-1 ^b	3G07551.D	10	01/11/12	DC	01/10/12	OP5134	E3G285

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D30890-1

CAS No.	Compound	D30831-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	261		107	1020	707* ^c	383	114	91*	10-155/30
120-12-7	Anthracene	ND		107	585	545*	468	436*	22	10-155/30
56-55-3	Benzo(a)anthracene	ND		107	126	117	ND	0*	200*	10-175/30
50-32-8	Benzo(a)pyrene	ND		107	177	165*	152	142	15	10-164/30
205-99-2	Benzo(b)fluoranthene	ND		107	ND	0*	ND	0*	nc	10-165/30
207-08-9	Benzo(k)fluoranthene	ND		107	102	95	ND	0*	200*	10-178/30
218-01-9	Chrysene	70.9	J	107	213	132	169	91	23	10-147/30
53-70-3	Dibenzo(a,h)anthracene	ND		107	ND	0*	ND	0*	nc	10-144/30
206-44-0	Fluoranthene	196		107	487	271*	398	188	20	10-207/30
86-73-7	Fluorene	ND		107	3200	2979*	2620	2441*	20	10-163/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		107	ND	0*	ND	0*	nc	10-180/30
91-20-3	Naphthalene	ND		107	380	354*	480	447*	23	10-198/30
129-00-0	Pyrene	918		107	2640	1603* ^c	2240	1232* ^c	16	10-189/30

CAS No.	Surrogate Recoveries	MS	MSD	D30831-1	D30831-1	Limits
4165-60-0	Nitrobenzene-d5	49%	20%	14%	14%	10-145%
321-60-8	2-Fluorobiphenyl	39%	25%	14%	16%	10-130%
1718-51-0	Terphenyl-d14	44%	36%	15% * ^e	16% * ^d	22-130%

(a) Outside control limits due to possible matrix interference.

(b) Confirmation run.

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

(d) Outside control limits due to matrix interference.

(e) Outside control limits due to possible matrix interference. Confirmed by reanalysis.

GC/MS Semi-volatiles

Raw Data

∞

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\011112\
 Data File : 3g07556.D
 Acq On : 12 Jan 2012 2:00 am
 Operator : DONC
 Sample : D30890-1, 4X
 Misc : OP5134,E3G285,30.03,,,1,4
 ALS Vial : 26 Sample Multiplier: 1

Quant Time: Jan 12 12:44:26 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G284.M
 Quant Title : PAHSIM BASE
 QLast Update : Wed Jan 11 17:27:03 2012
 Response via : Initial Calibration

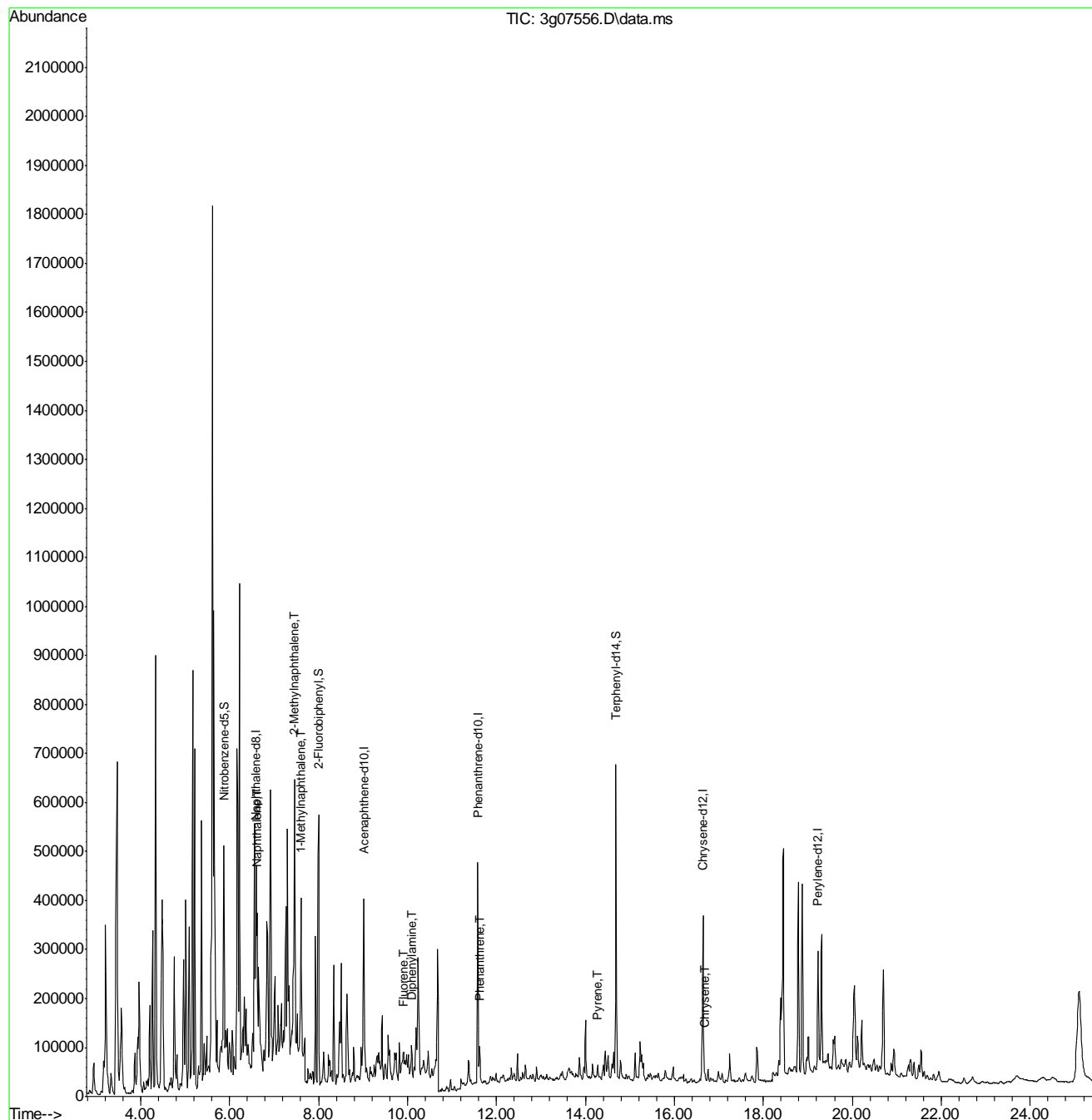
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.595	136	322408	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.027	164	248971	4.00	ug/mL	0.01
14) Phenanthrene-d10	11.580	188	422128	4.00	ug/mL	0.00
18) Chrysene-d12	16.646	240	356775	4.00	ug/mL	0.00
23) Perylene-d12	19.227	264	299960	4.00	ug/mL	0.01
System Monitoring Compounds						
2) Nitrobenzene-d5	5.872	82	114174	1.54	ug/mL	0.00
7) 2-Fluorobiphenyl	8.000	172	557977	5.64	ug/mL	0.00
20) Terphenyl-d14	14.690	244	709154	10.47	ug/mL	0.00
Target Compounds						
					Qvalue	
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	6.620	128	190065	1.88	ug/mL	89
8) 2-Methylnaphthalene	7.455	142	319667	4.05	ug/mL	94
9) 1-Methylnaphthalene	7.605	142	145624	1.94	ug/mL#	88
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	9.914	166	28455	0.31	ug/mL#	69
13) Diphenylamine	10.091	169	30890	0.43	ug/mL	79
15) Phenanthrene	11.619	178	81982	0.58	ug/mL	98
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	14.279	202	14881	0.11	ug/mL#	55
21) Benzo(a)anthracene	0.000		0	N.D.	d	
22) Chrysene	16.686	228	19392	0.16	ug/mL	84
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	

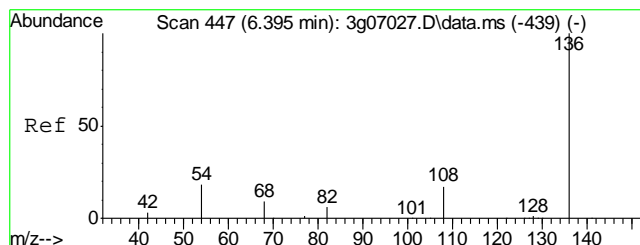
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\011112\
Data File : 3g07556.D
Acq On : 12 Jan 2012 2:00 am
Operator : DONC
Sample : D30890-1, 4X
Misc : OP5134,E3G285,30.03,,,1,4
ALS Vial : 26 Sample Multiplier: 1

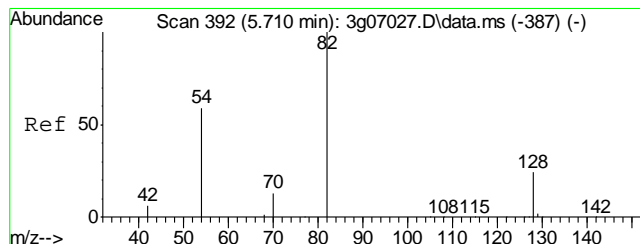
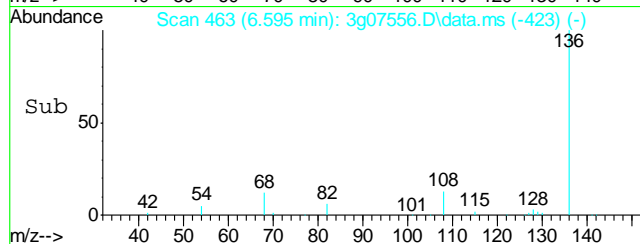
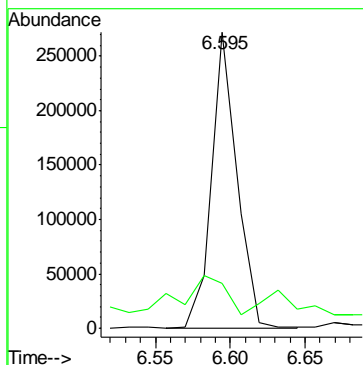
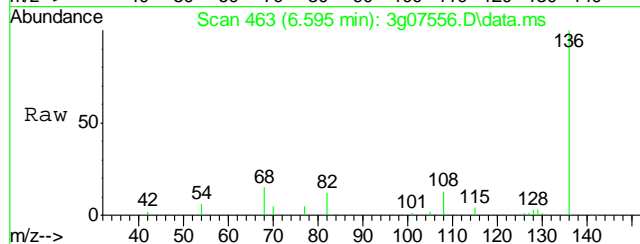
Quant Time: Jan 12 12:44:26 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G284.M
Quant Title : PAHSIM BASE
QLast Update : Wed Jan 11 17:27:03 2012
Response via : Initial Calibration





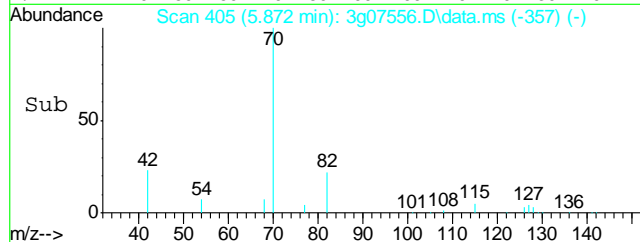
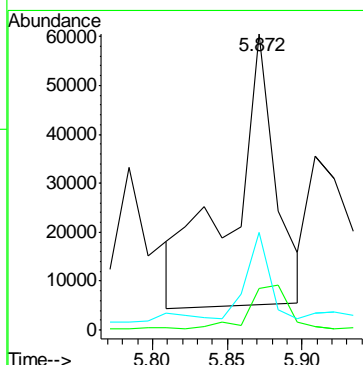
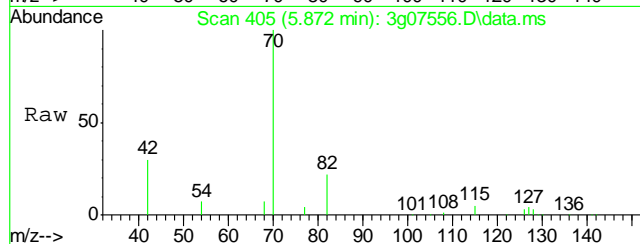
#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.595 min Scan# 463
Delta R.T. 0.000 min
Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

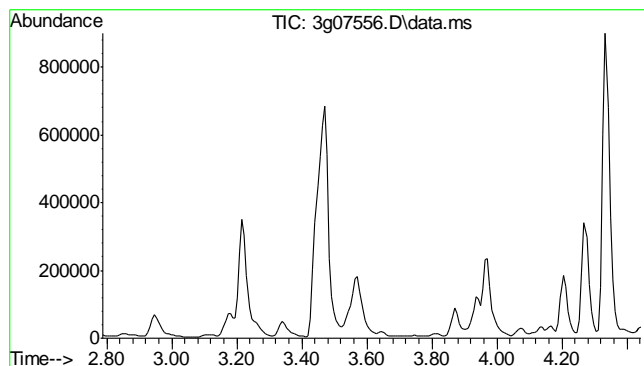
Tgt Ion: 136 Resp: 322408
Ion Ratio Lower Upper
136 100
68 34.3 0.0 38.8



#2
Nitrobenzene-d5
Concen: 1.54 ug/mL
RT: 5.872 min Scan# 405
Delta R.T. 0.000 min
Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

Tgt Ion: 82 Resp: 114174
Ion Ratio Lower Upper
82 100
128 15.2 2.1 42.1
54 16.4 0.0 37.9

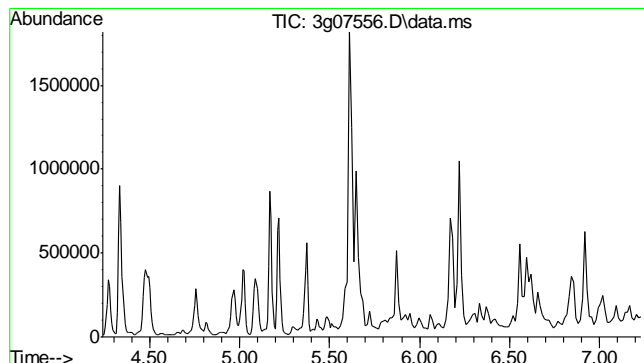
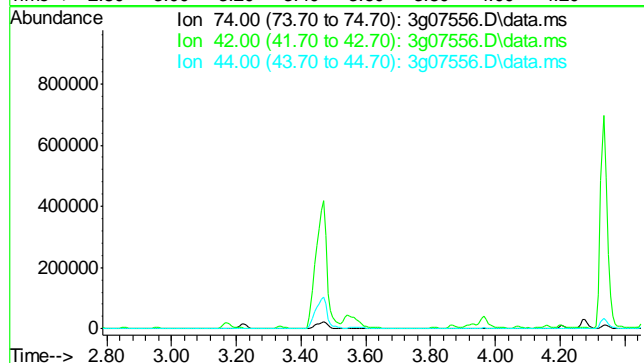




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.95 min

Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

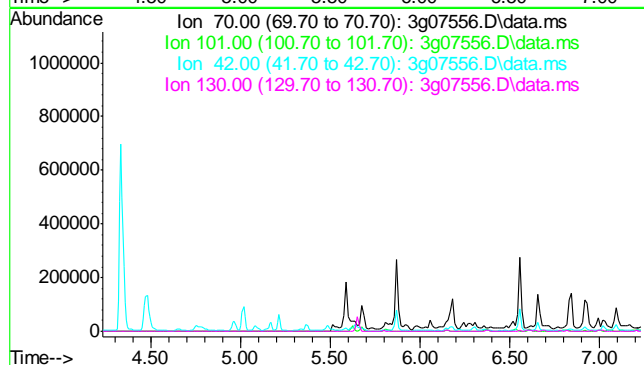
Tgt Ion	Exp Ratio
74	100
42	21.2
44	1.5

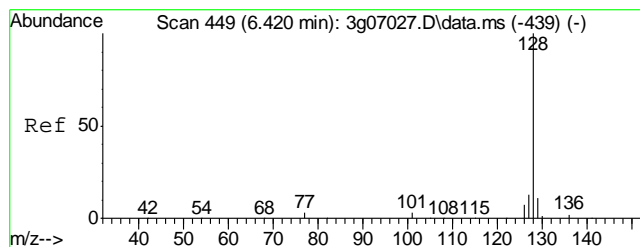


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.73 min

Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

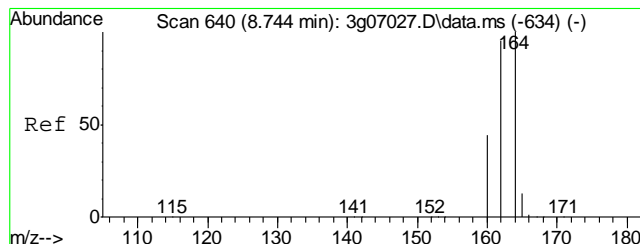
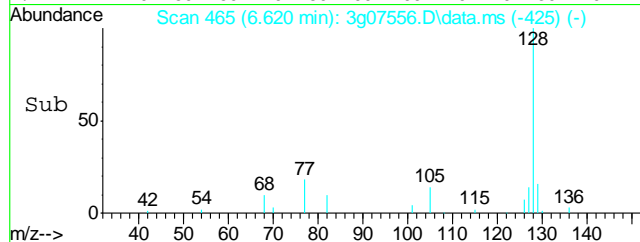
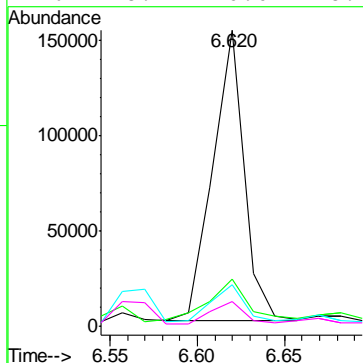
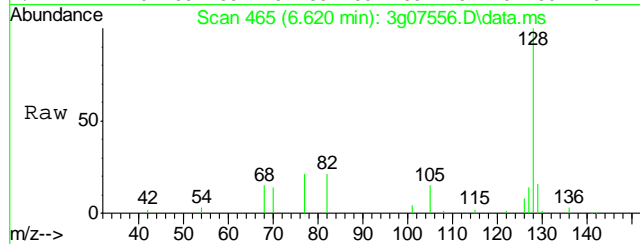
Tgt Ion	Exp Ratio
70	100
101	9.3
42	17.4
130	11.0





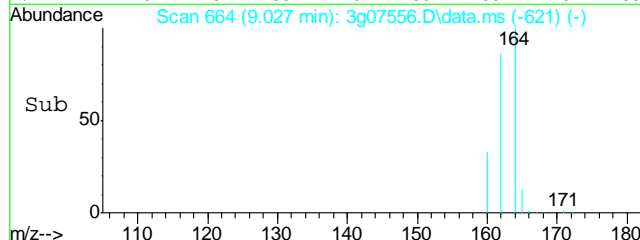
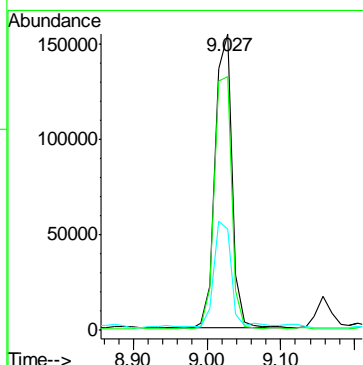
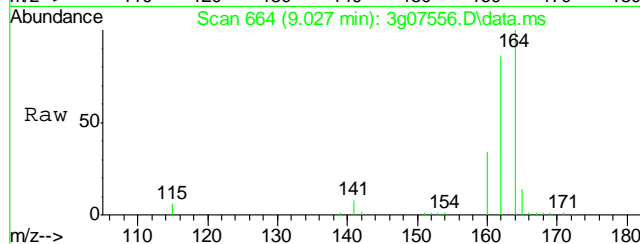
#5
Naphthalene
Concen: 1.88 ug/mL
RT: 6.620 min Scan# 465
Delta R.T. 0.000 min
Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

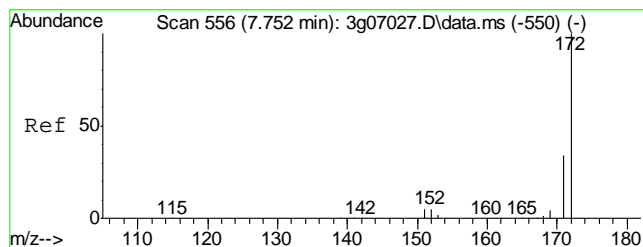
Tgt Ion	Ratio	Lower	Upper
128	100		
129	23.0	0.0	30.8
127	13.2	0.0	34.0
126	8.1	0.0	28.1



#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 9.027 min Scan# 664
Delta R.T. 0.012 min
Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

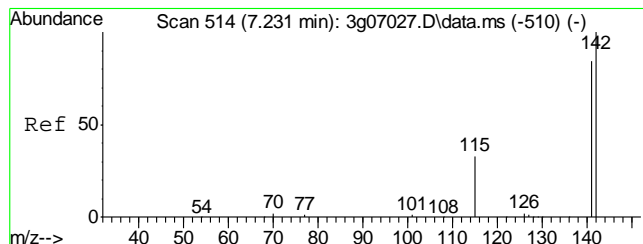
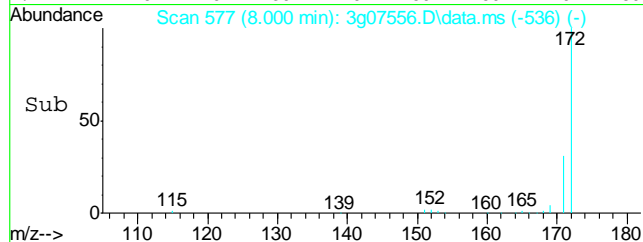
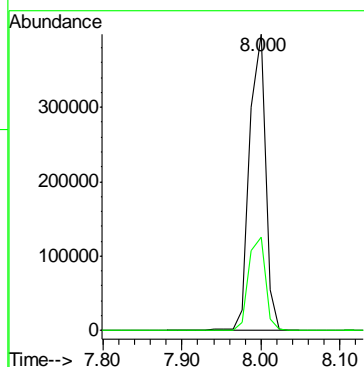
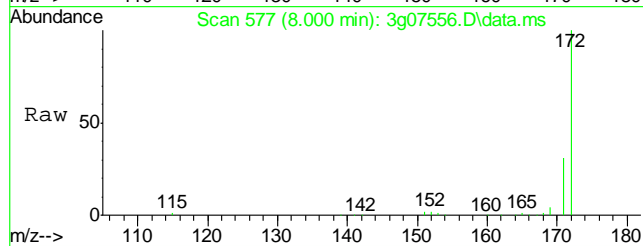
Tgt Ion	Ratio	Lower	Upper
164	100		
162	87.7	71.4	111.4
160	36.2	17.6	57.6





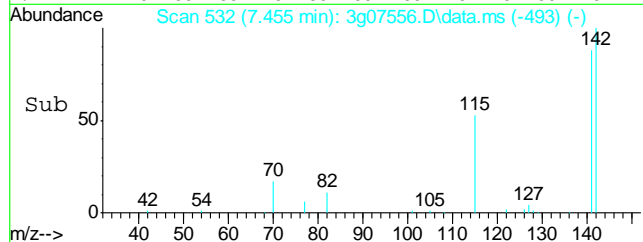
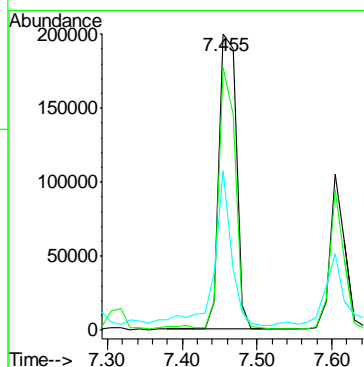
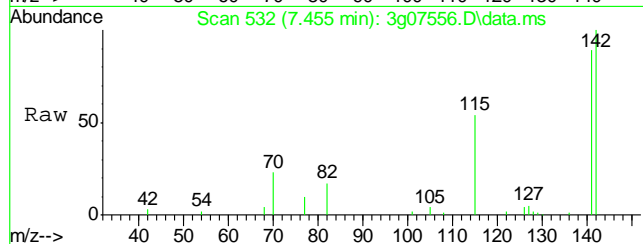
#7
2-Fluorobiphenyl
Concen: 5.64 ug/mL
RT: 8.000 min Scan# 577
Delta R.T. 0.000 min
Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

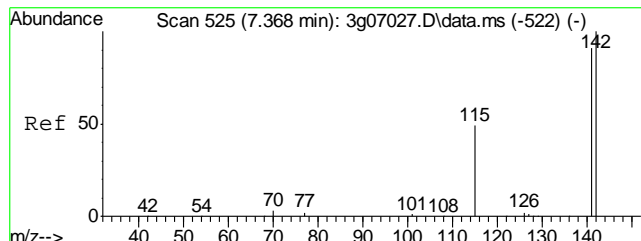
Tgt Ion	Ratio	Lower	Upper
172	100		
171	33.2	13.4	53.4



#8
2-Methylnaphthalene
Concen: 4.05 ug/mL
RT: 7.455 min Scan# 532
Delta R.T. -0.012 min
Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

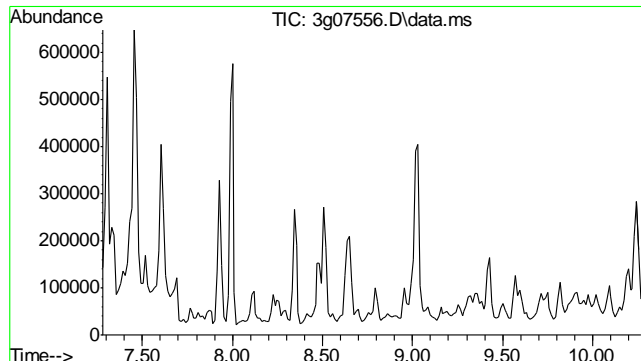
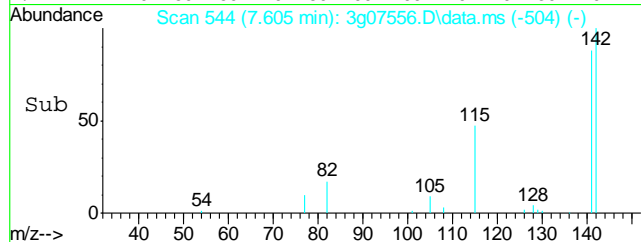
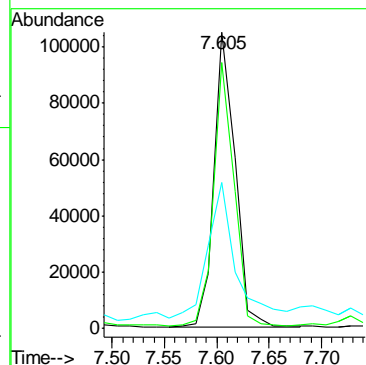
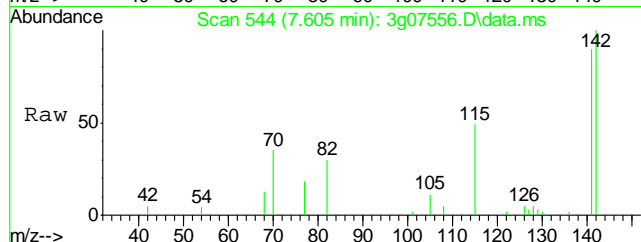
Tgt Ion	Ratio	Lower	Upper
142	100		
141	83.3	63.1	103.1
115	52.8	21.5	61.5





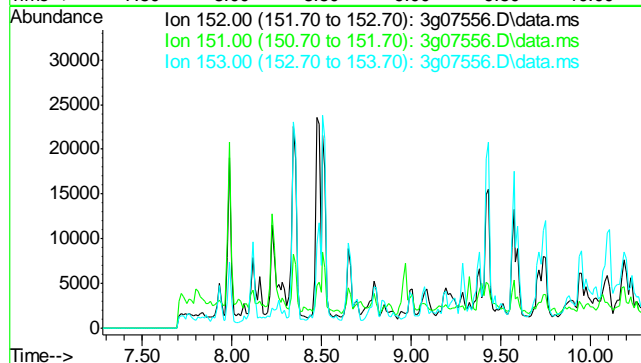
#9
1-Methylnaphthalene
Concen: 1.94 ug/mL
RT: 7.605 min Scan# 544
Delta R.T. 0.000 min
Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

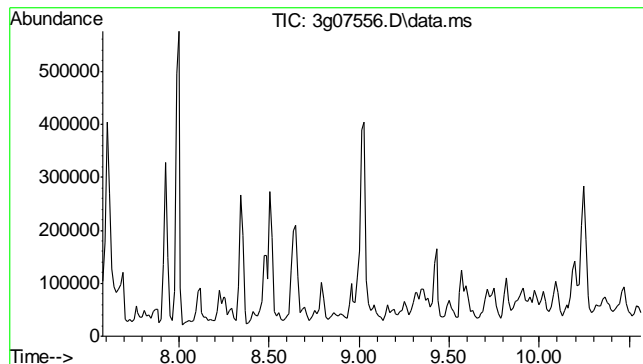
Tgt Ion: 142	Resp: 145624
Ion Ratio	Lower Upper
142	100
141	86.5 68.3 102.5
115	64.9 34.9 52.3#



#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.78 min
Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

Tgt Ion: 152	
Sig	Exp Ratio
152	100
151	19.2
153	12.9



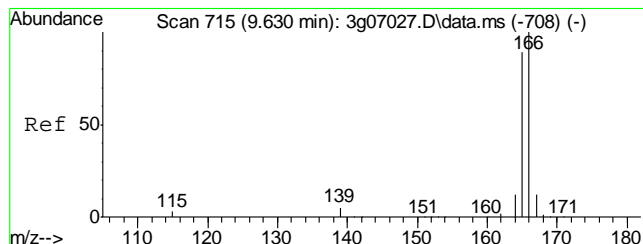
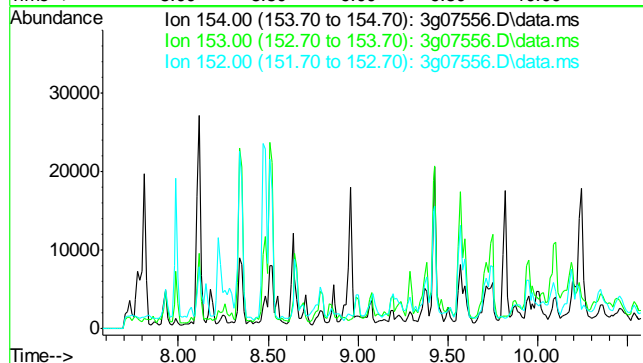


#11
 Acenaphthene
 Concen: N.D. ug/mL
 Expected RT: 9.07 min

 Lab File: 3g07556.D
 Acq: 12 Jan 12 2:00 am

Tgt Ion: 154

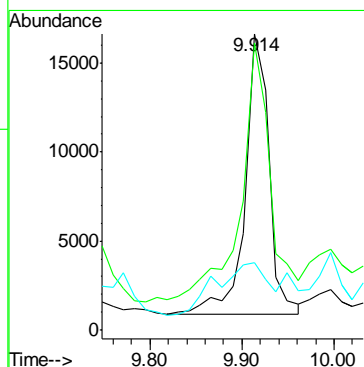
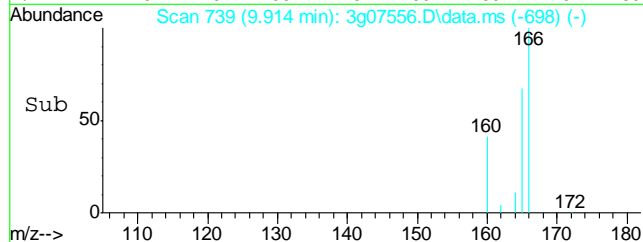
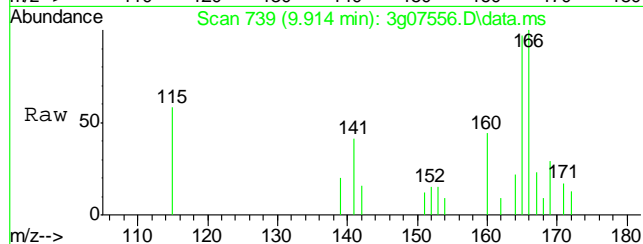
Sig	Exp Ratio
154	100
153	104.7
152	49.5

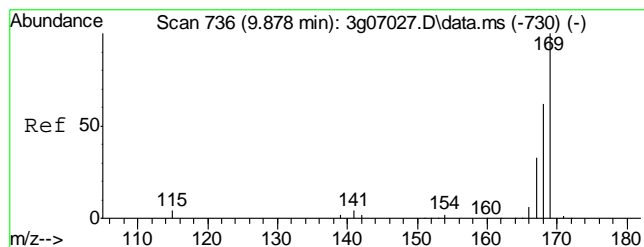


#12
 Fluorene
 Concen: 0.31 ug/mL
 RT: 9.914 min Scan# 739
 Delta R.T. -0.012 min
 Lab File: 3g07556.D
 Acq: 12 Jan 12 2:00 am

Tgt Ion: 166 Resp: 28455

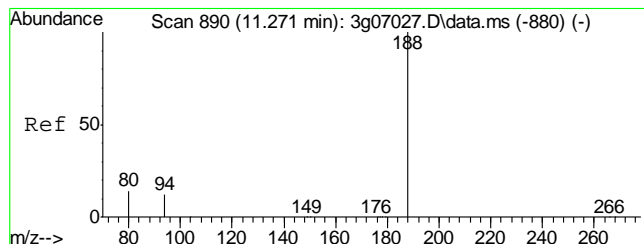
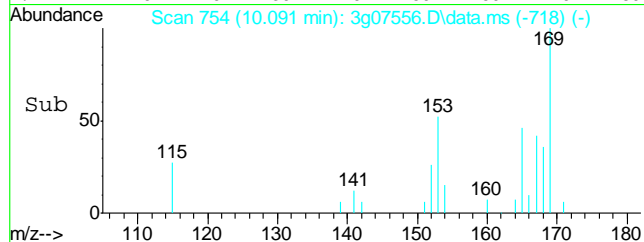
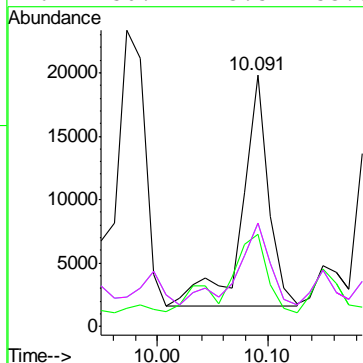
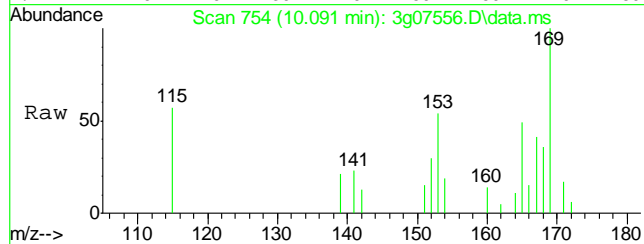
Ion	Ratio	Lower	Upper
166	100		
165	114.9	71.3	111.3#
167	41.2	0.0	33.2#





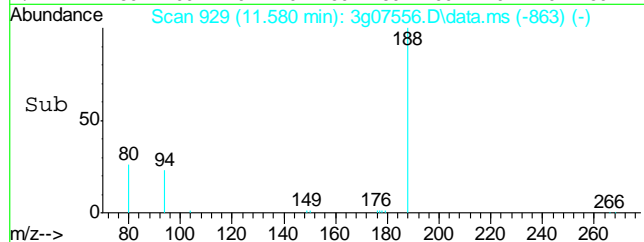
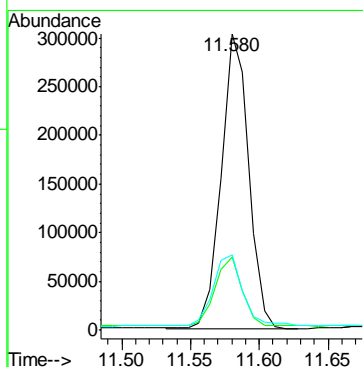
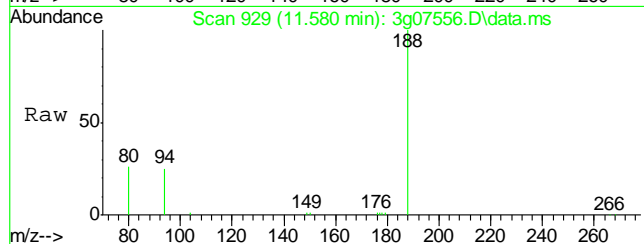
#13
Diphenylamine
Concen: 0.43 ug/mL
RT: 10.091 min Scan# 754
Delta R.T. -0.071 min
Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

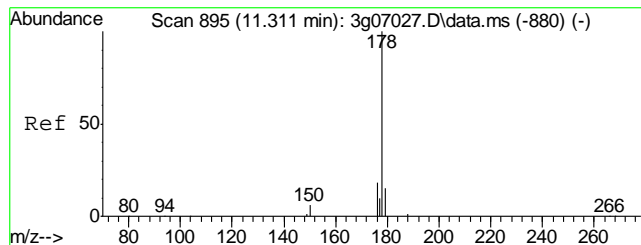
Tgt Ion:	169	Resp:	30890
Ion Ratio	Lower	Upper	
169	100		
168	53.5	42.3	82.3
167	50.7	13.5	53.5
167	50.7	13.5	53.5



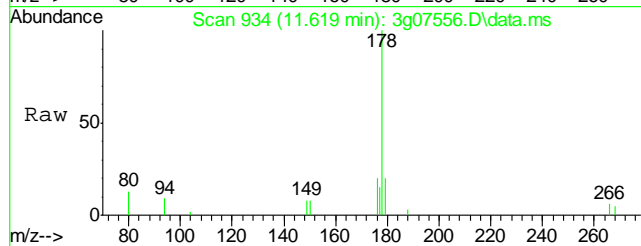
#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.580 min Scan# 929
Delta R.T. 0.000 min
Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

Tgt Ion:	188	Resp:	422128
Ion Ratio	Lower	Upper	
188	100		
94	23.2	5.3	45.3
80	25.8	8.0	48.0

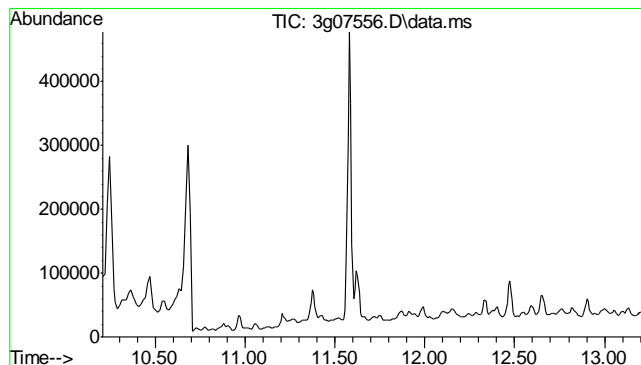
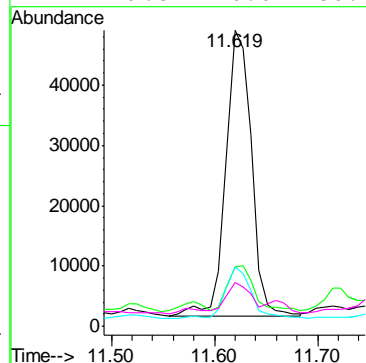
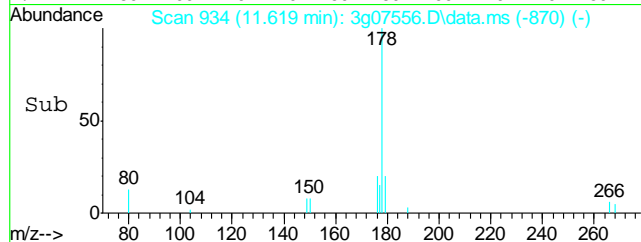




#15
Phenanthrene
Concen: 0.58 ug/mL
RT: 11.619 min Scan# 934
Delta R.T. -0.008 min
Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

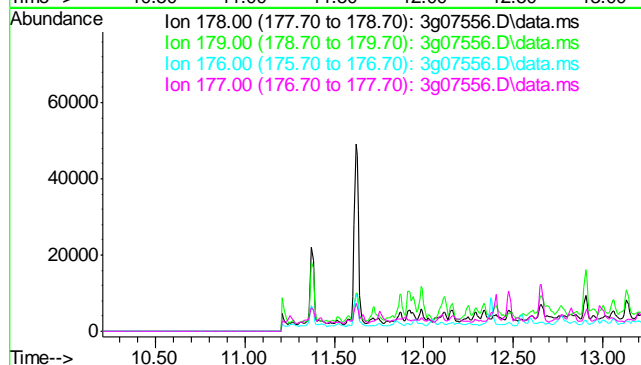


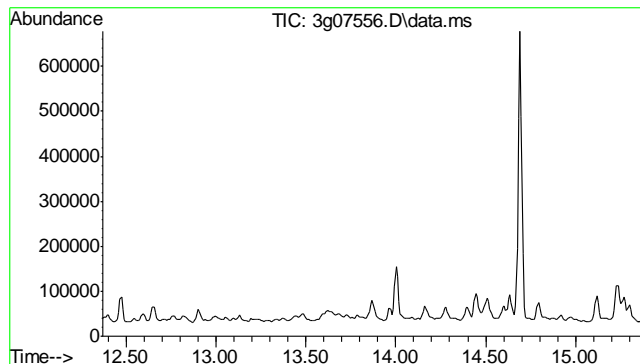
Tgt Ion	Ratio	Lower	Upper
178	100		
179	16.0	0.0	35.1
176	17.4	0.0	38.6
177	9.5	0.0	30.2



#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.71 min
Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

Tgt Ion	Sig	Exp Ratio
178	100	
179	15.1	
176	18.0	
177	8.7	

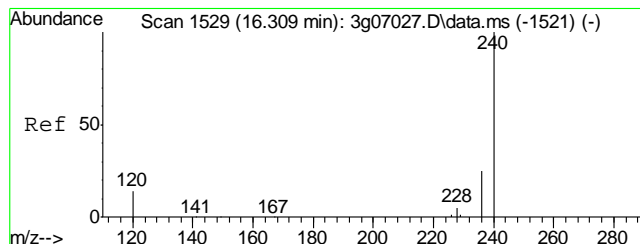
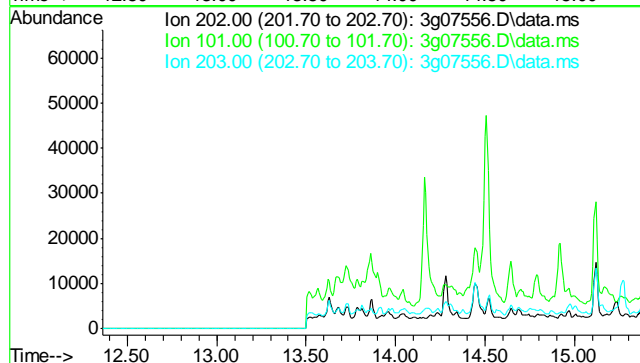




#17
 Fluoranthene
 Concen: N.D. ug/mL
 Expected RT: 13.87 min

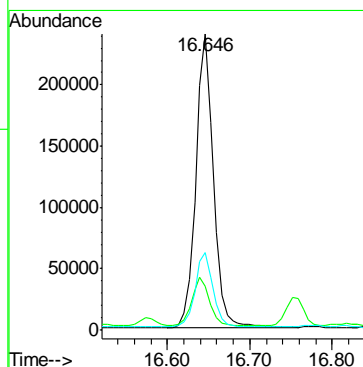
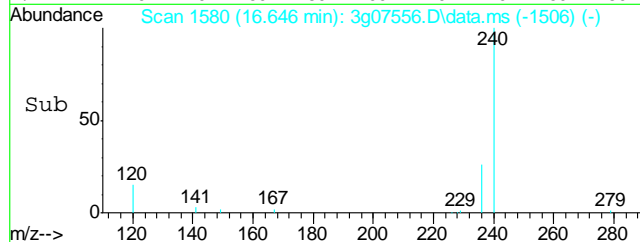
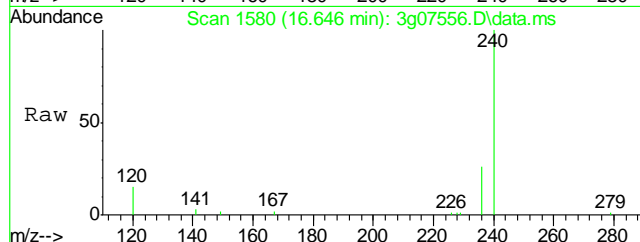
 Lab File: 3g07556.D
 Acq: 12 Jan 12 2:00 am

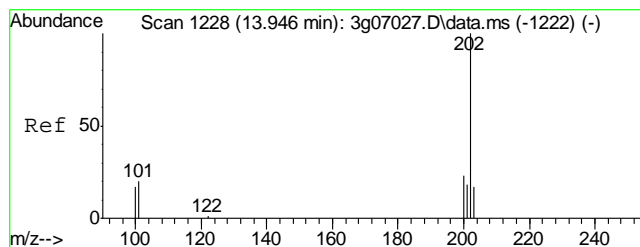
Tgt Ion: 202
 Sig Exp Ratio
 202 100
 101 23.7
 203 17.2



#18
 Chrysene-d12
 Concen: 4.00 ug/mL
 RT: 16.646 min Scan# 1580
 Delta R.T. 0.000 min
 Lab File: 3g07556.D
 Acq: 12 Jan 12 2:00 am

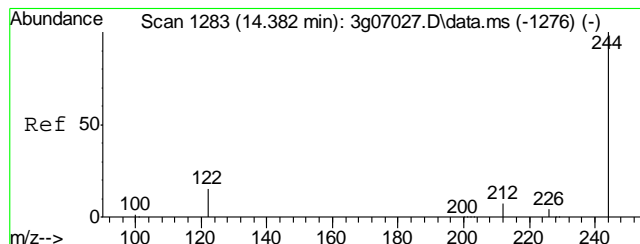
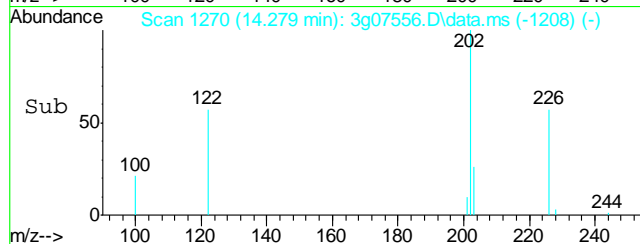
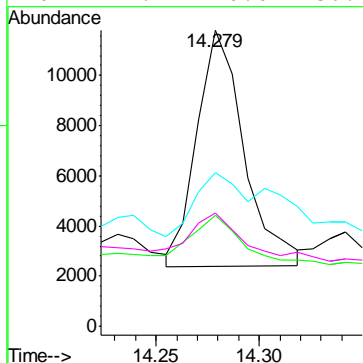
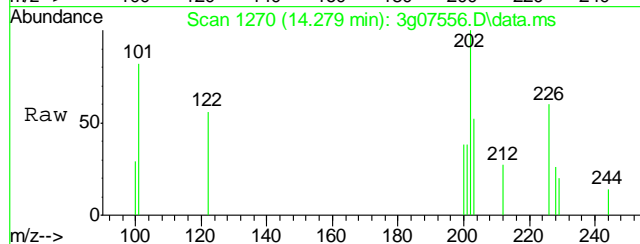
Tgt Ion: 240 Resp: 356775
 Ion Ratio Lower Upper
 240 100
 120 16.8 0.3 40.3
 236 25.7 5.5 45.5





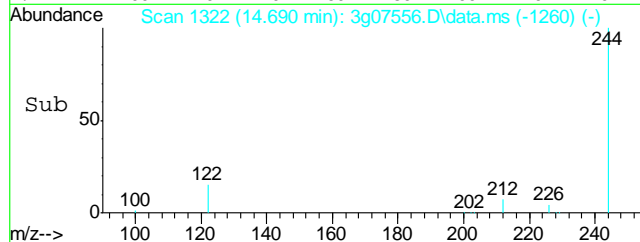
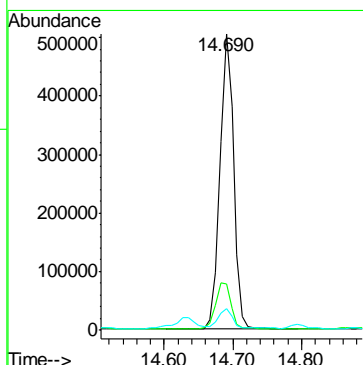
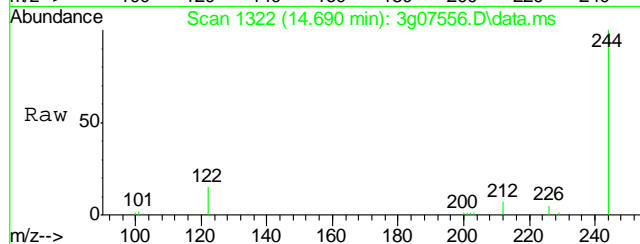
#19
Pyrene
Concen: 0.11 ug/mL
RT: 14.279 min Scan# 1270
Delta R.T. -0.008 min
Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

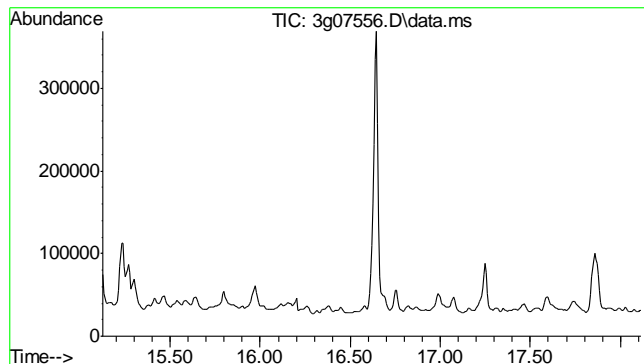
Tgt Ion:	202	Resp:	14881
Ion Ratio	Lower	Upper	
202	100		
200	33.3	0.2	40.2
203	54.1	0.0	37.8#
201	27.2	0.0	36.7



#20
Terphenyl-d14
Concen: 10.47 ug/mL
RT: 14.690 min Scan# 1322
Delta R.T. -0.008 min
Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

Tgt Ion:	244	Resp:	709154
Ion Ratio	Lower	Upper	
244	100		
122	17.4	0.0	39.6
212	7.0	0.0	26.8

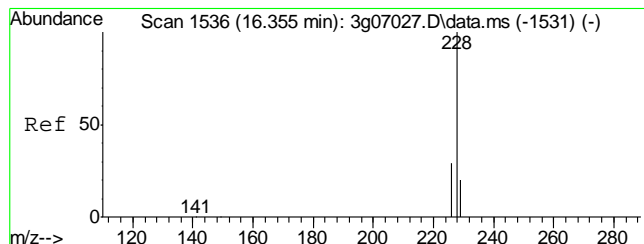
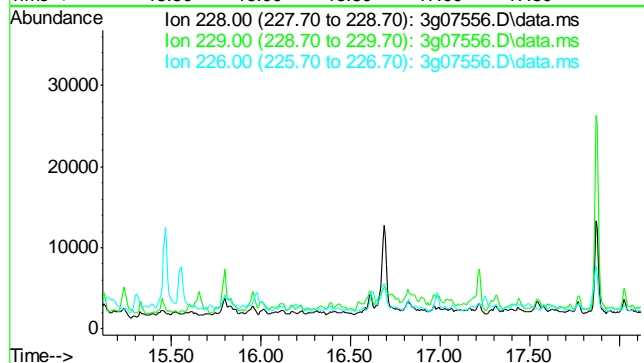




#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.62 min

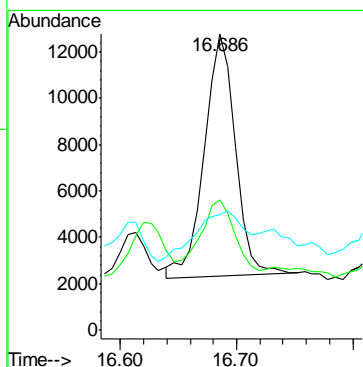
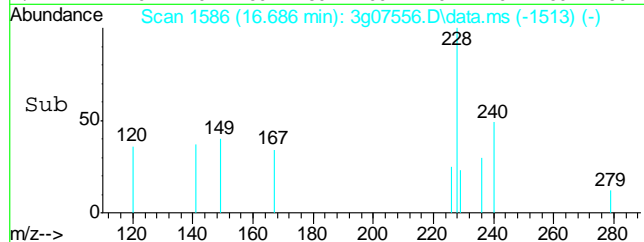
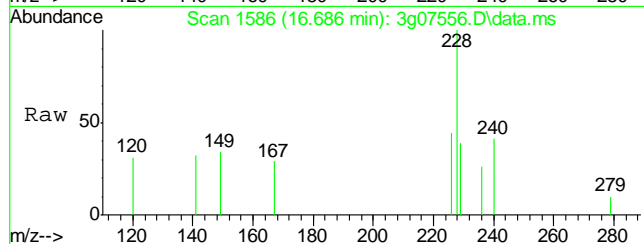
Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

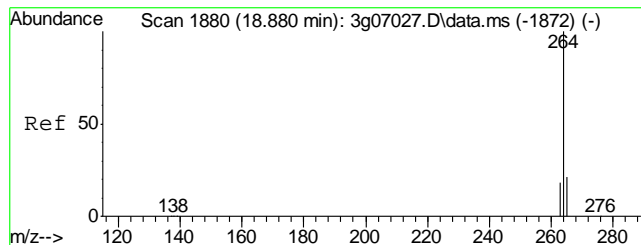
Tgt Ion: 228
Sig Exp Ratio
228 100
229 19.6
226 26.3



#22
Chrysene
Concen: 0.16 ug/mL
RT: 16.686 min Scan# 1586
Delta R.T. -0.013 min
Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

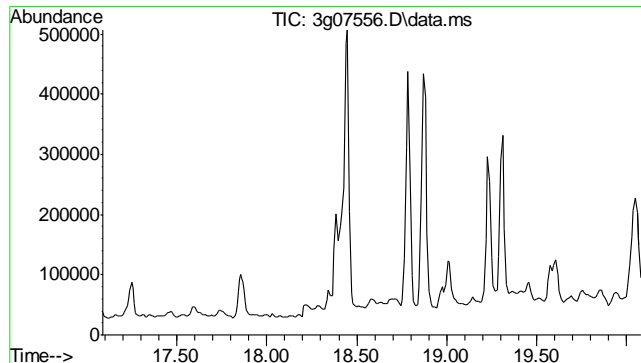
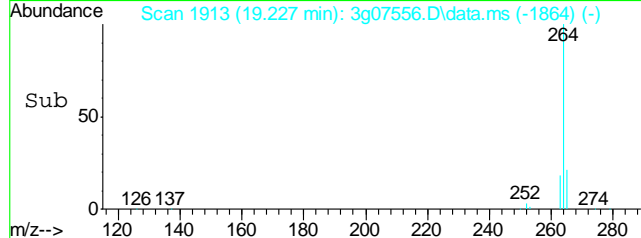
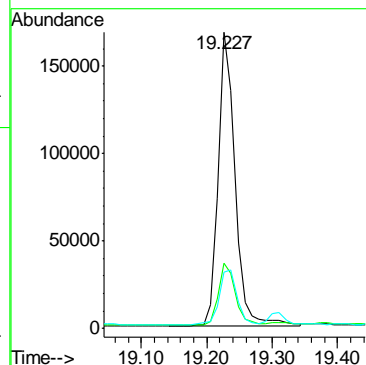
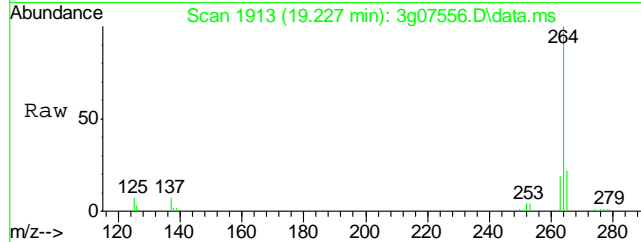
Tgt Ion: 228 Resp: 19392
Ion Ratio Lower Upper
228 100
226 32.4 8.3 48.3
229 32.3 0.0 39.2





#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 19.227 min Scan# 1913
Delta R.T. 0.011 min
Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

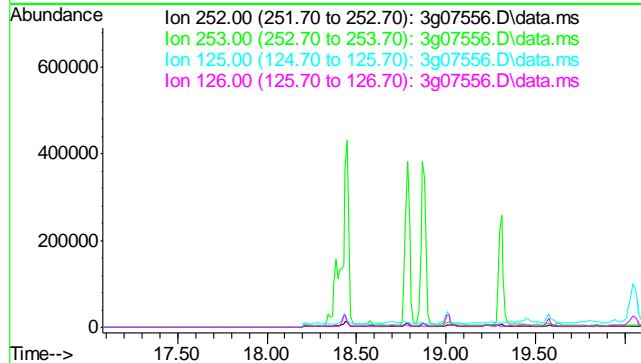
Tgt Ion:	264	Resp:	299960
Ion Ratio	Lower	Upper	
264	100		
265	20.5	1.1	41.1
263	20.5	0.0	38.4

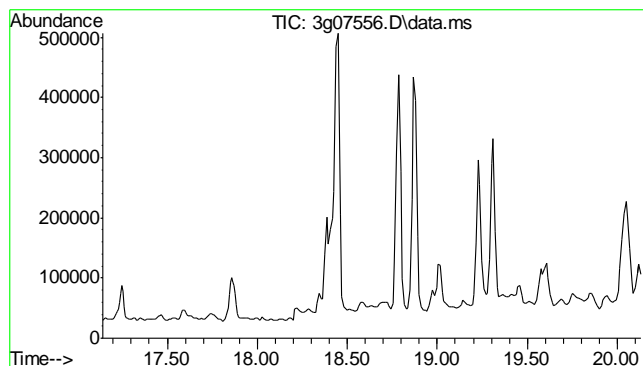


#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.59 min

Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.5
125	13.2
126	18.4

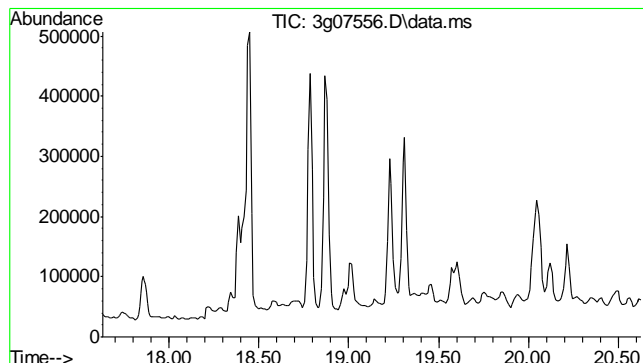
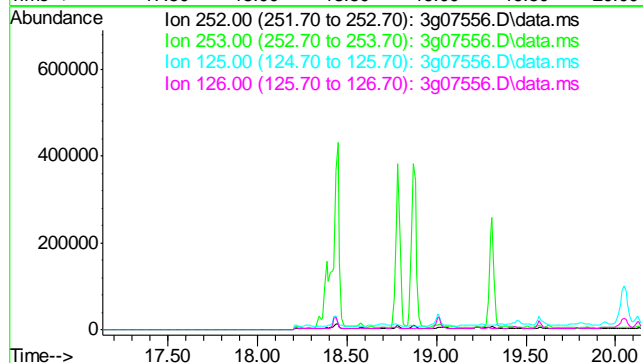




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.64 min

Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

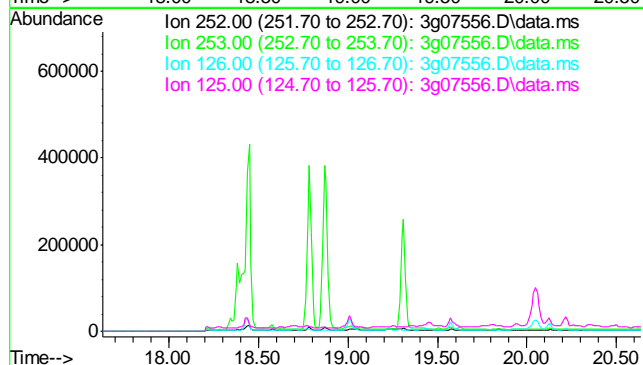
Tgt Ion	Sig	Exp Ratio
252	100	
253	21.7	
125	11.5	
126	17.7	

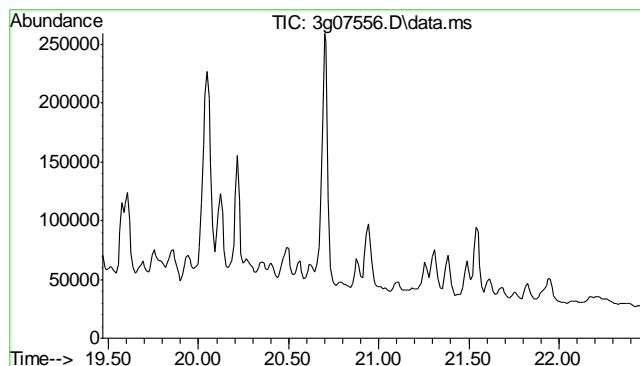


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 19.13 min

Lab File: 3g07556.D
Acq: 12 Jan 12 2:00 am

Tgt Ion	Sig	Exp Ratio
252	100	
253	21.5	
126	17.4	
125	13.5	

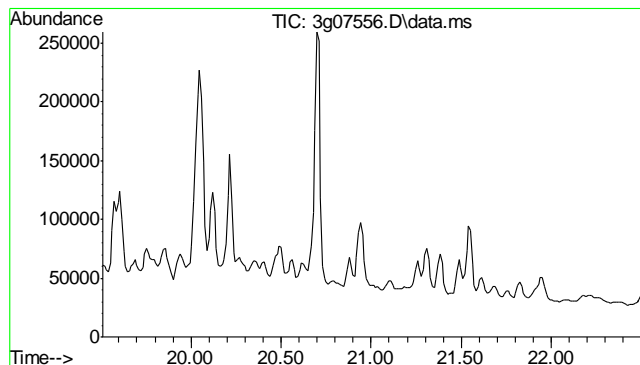
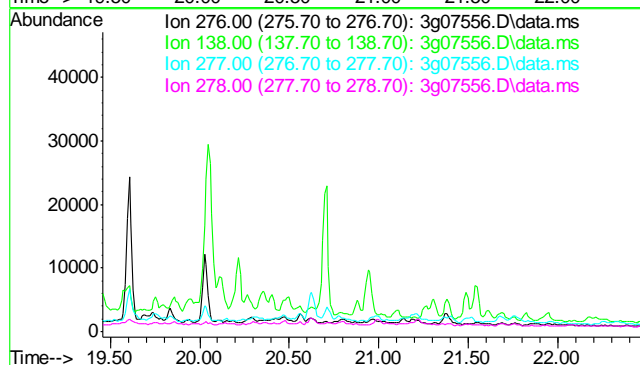




#27
 Indeno(1,2,3-cd)pyrene
 Concen: N.D. ug/mL
 Expected RT: 20.96 min

 Lab File: 3g07556.D
 Acq: 12 Jan 12 2:00 am

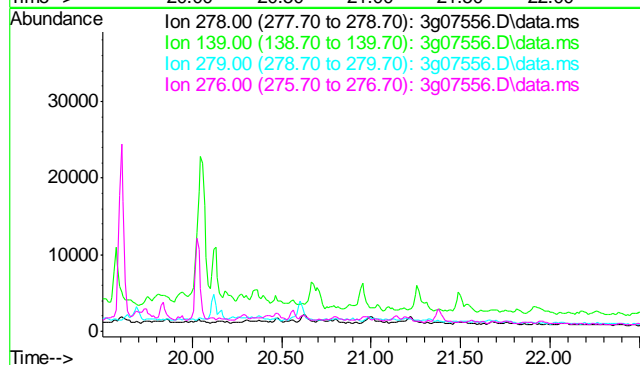
Tgt Ion	Exp Ratio
276	100
138	22.3
277	34.3
278	105.9

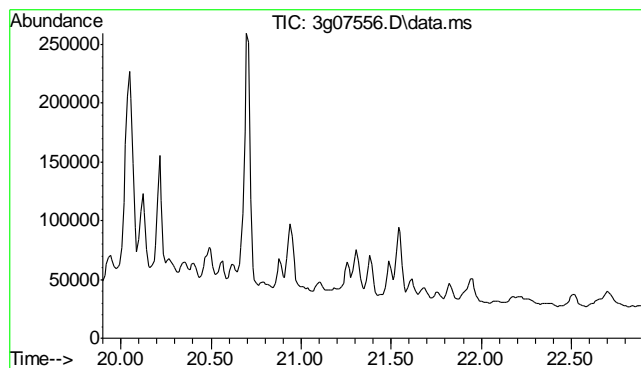


#28
 Dibenz(a,h)anthracene
 Concen: N.D. ug/mL
 Expected RT: 21.00 min

 Lab File: 3g07556.D
 Acq: 12 Jan 12 2:00 am

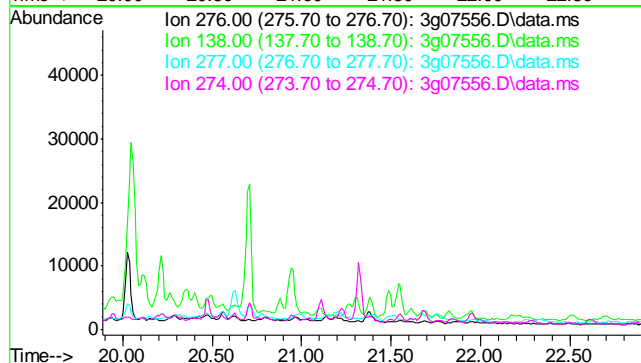
Tgt Ion	Exp Ratio
278	100
139	19.4
279	23.0
276	130.8





#29
 Benzo(g,h,i)perylene
 Concen: N.D. ug/mL
 Expected RT: 21.39 min
 Lab File: 3g07556.D
 Acq: 12 Jan 12 2:00 am

Tgt Ion: 276	
Sig	Exp Ratio
276	100
138	23.6
277	23.2
274	22.2



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\011112\
 Data File : 3g07549.D
 Acq On : 11 Jan 2012 9:50 pm
 Operator : DONC
 Sample : OP5134-MB
 Misc : OP5134,E3G285,30.00,,,1,1
 ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 12 11:51:50 2012
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G284.M
 Quant Title : PAHSIM BASE
 QLast Update : Wed Jan 11 17:27:03 2012
 Response via : Initial Calibration

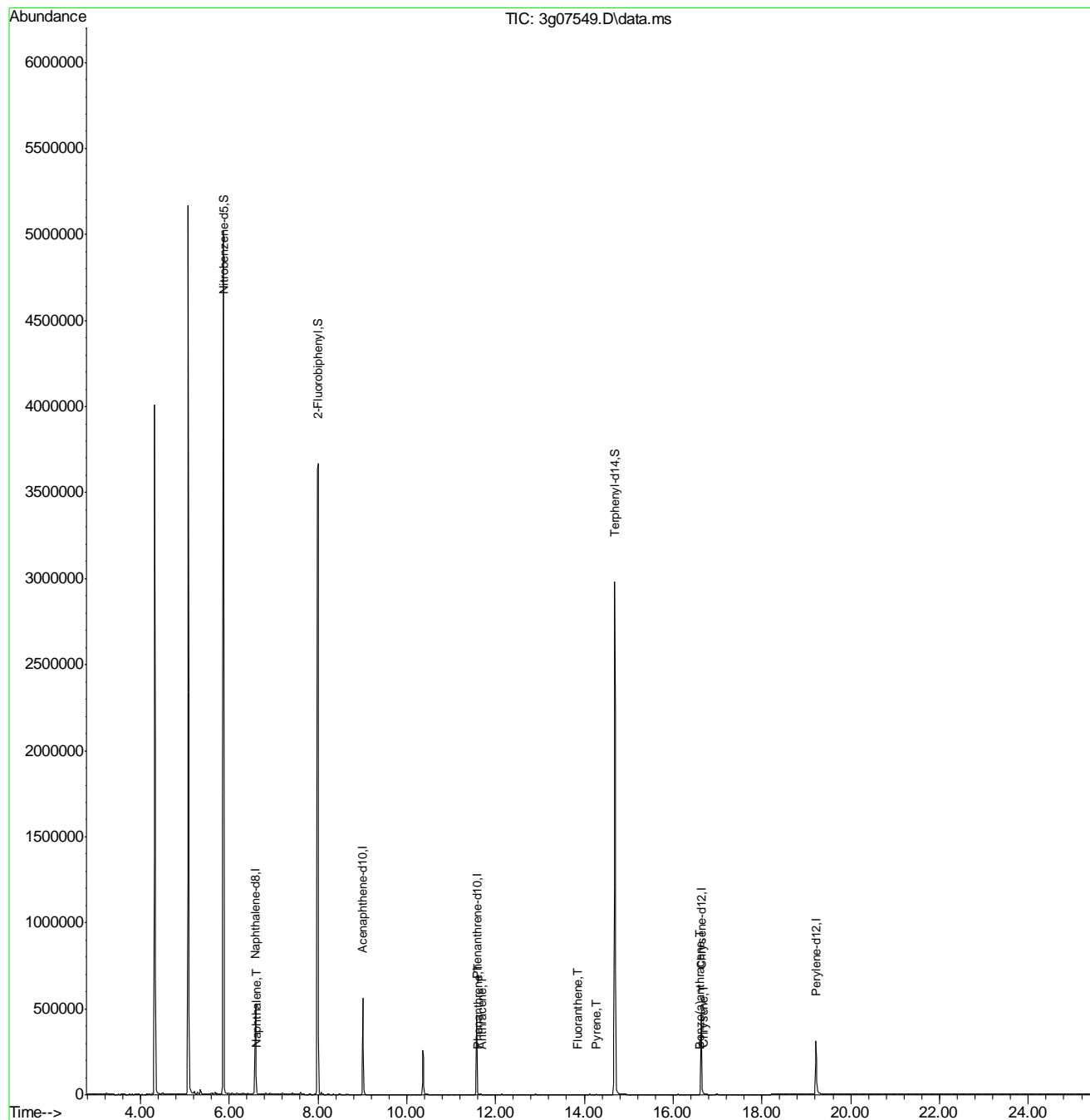
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.595	136	467825	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.016	164	300328	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.580	188	469853	4.00	ug/mL	0.00
18) Chrysene-d12	16.633	240	515260	4.00	ug/mL	-0.01
23) Perylene-d12	19.216	264	409481	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.872	82	3702711	34.45	ug/mL	0.00
7) 2-Fluorobiphenyl	8.000	172	3930801	32.94	ug/mL	0.00
20) Terphenyl-d14	14.690	244	3724041	38.05	ug/mL	0.00
Target Compounds						
						Qvalue
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	6.620	128	3367	0.02	ug/mL	82
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	11.611	178	1127	0.01	ug/mL#	85
16) Anthracene	11.698	178	823	0.01	ug/mL	87
17) Fluoranthene	13.859	202	1268	0.01	ug/mL	91
19) Pyrene	14.271	202	1624	0.01	ug/mL	96
21) Benzo(a)anthracene	16.600	228	3194m	0.02	ug/mL	
22) Chrysene	16.679	228	2416	0.01	ug/mL	96
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	

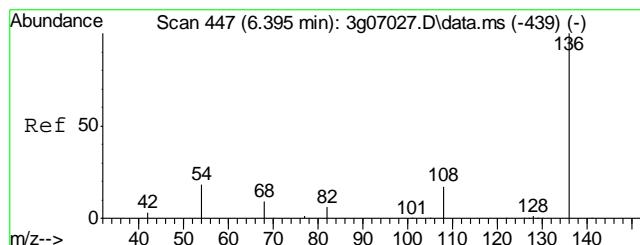
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\011112\
Data File : 3g07549.D
Acq On : 11 Jan 2012 9:50 pm
Operator : DONC
Sample : OP5134-MB
Misc : OP5134,E3G285,30.00,,,1,1
ALS Vial : 19 Sample Multiplier: 1

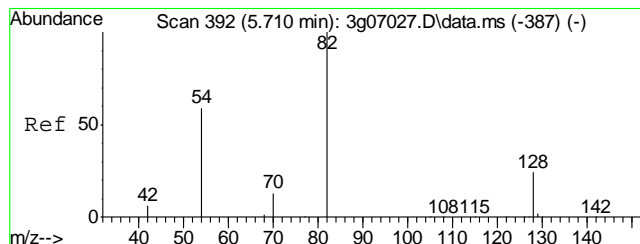
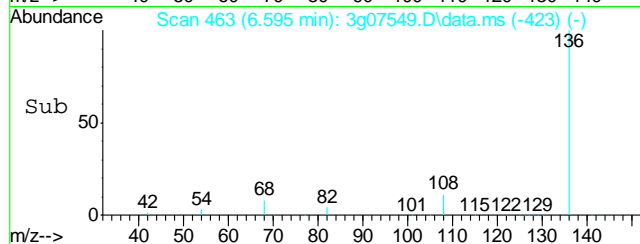
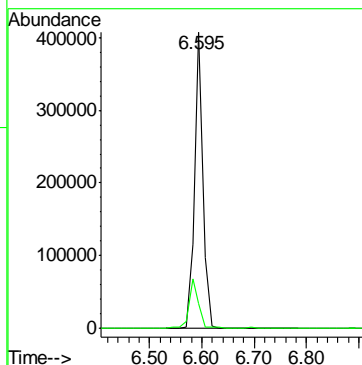
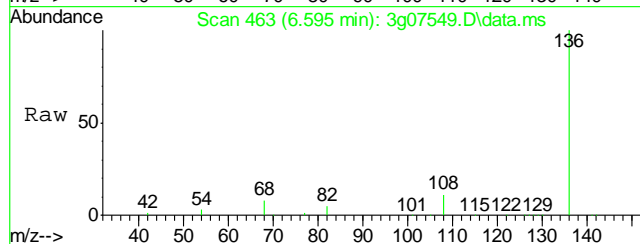
Quant Time: Jan 12 11:51:50 2012
Quant Method : C:\msdchem\1\METHODS\SIMPE3G284.M
Quant Title : PAHSIM BASE
QLast Update : Wed Jan 11 17:27:03 2012
Response via : Initial Calibration





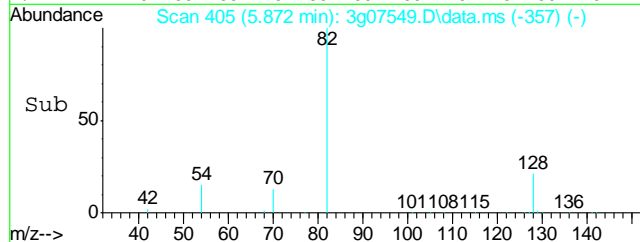
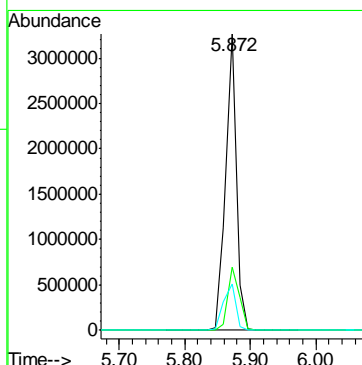
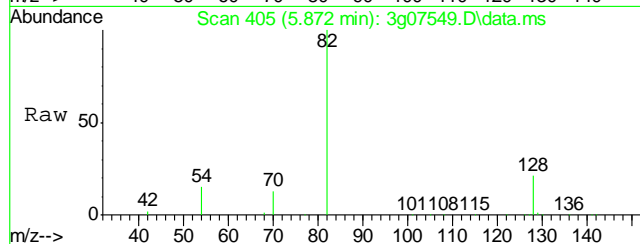
#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.595 min Scan# 463
Delta R.T. 0.000 min
Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

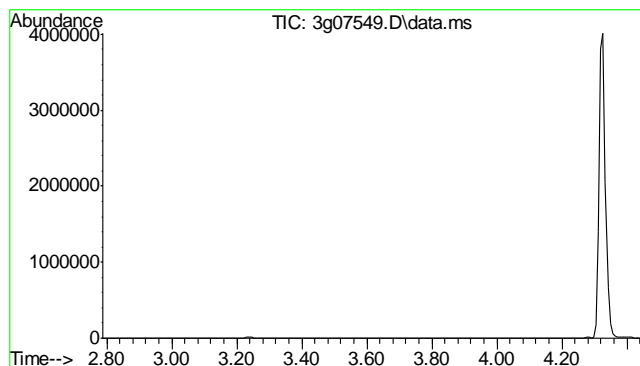
Tgt Ion: 136	Resp: 467825
Ion Ratio	Lower Upper
136	100
68	18.3 0.0 38.8



#2
Nitrobenzene-d5
Concen: 34.45 ug/mL
RT: 5.872 min Scan# 405
Delta R.T. 0.000 min
Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

Tgt Ion: 82	Resp: 3702711
Ion Ratio	Lower Upper
82	100
128	22.9 2.1 42.1
54	17.5 0.0 37.9

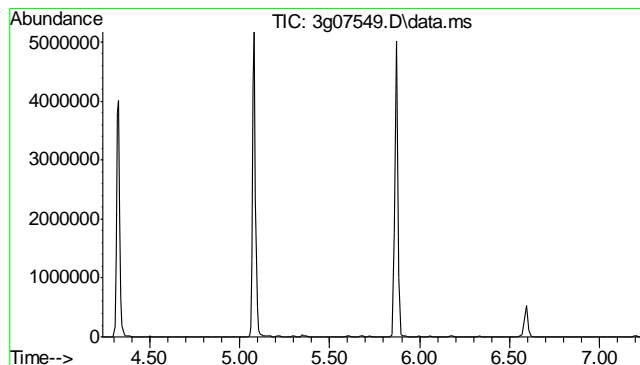
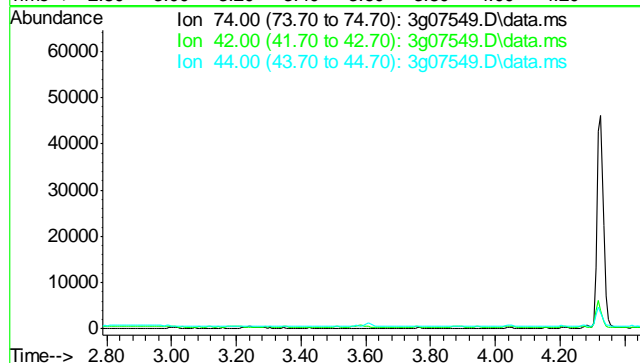




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 2.95 min

Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

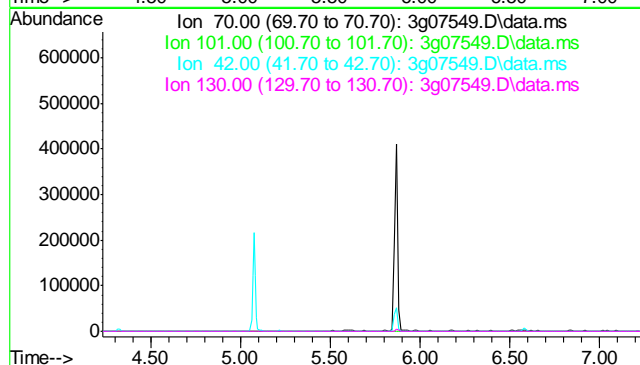
Tgt Ion:	74
Sig	Exp Ratio
74	100
42	21.2
44	1.5

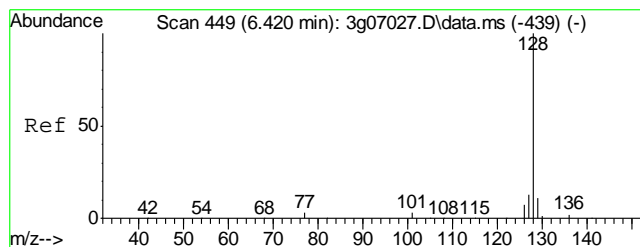


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.73 min

Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

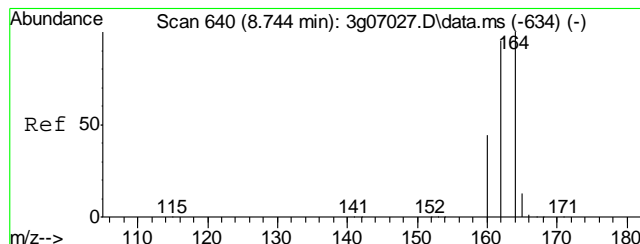
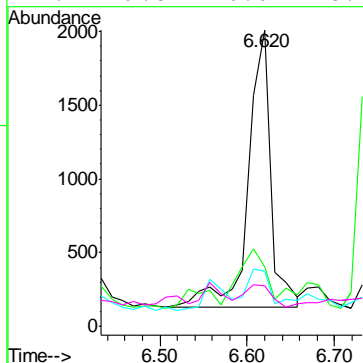
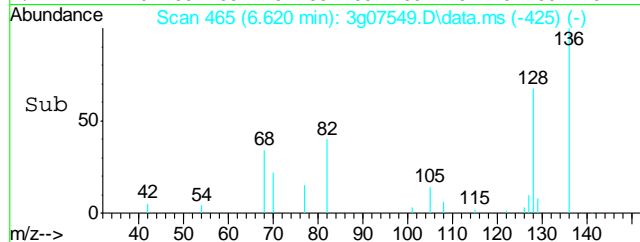
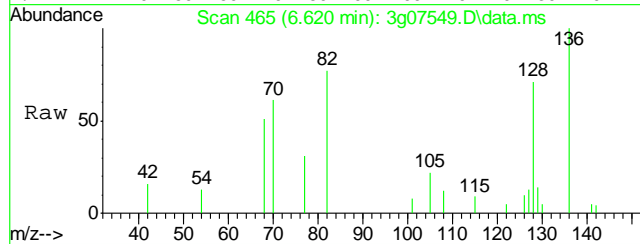
Tgt Ion:	70
Sig	Exp Ratio
70	100
101	9.3
42	17.4
130	11.0





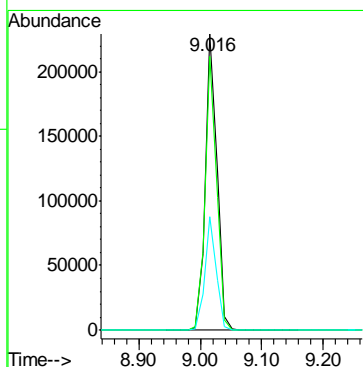
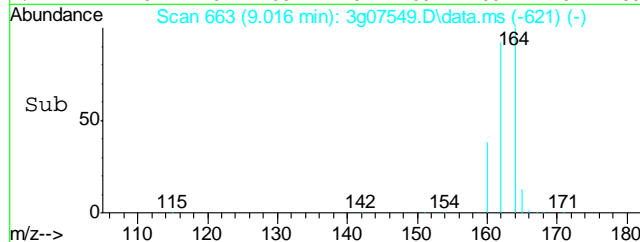
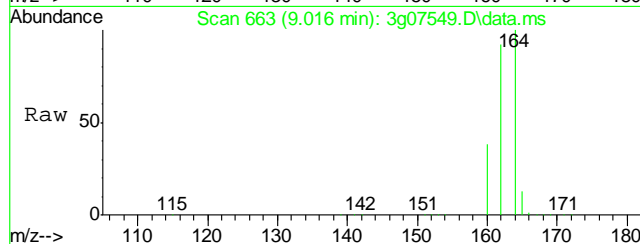
#5
Naphthalene
Concen: 0.02 ug/mL
RT: 6.620 min Scan# 465
Delta R.T. 0.000 min
Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

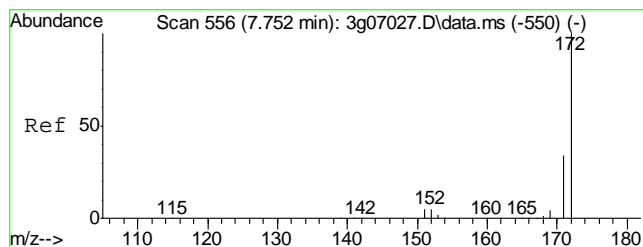
Tgt Ion	128	Resp	3367
Ion Ratio	100		
Lower	0.0		
Upper	30.8		
129	28.8		
127	15.6		
126	9.8		



#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 9.016 min Scan# 663
Delta R.T. -0.000 min
Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

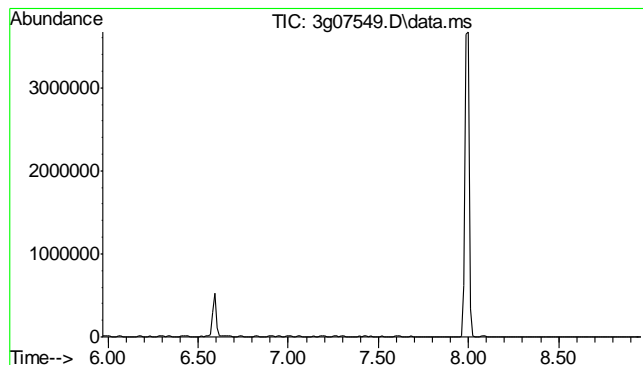
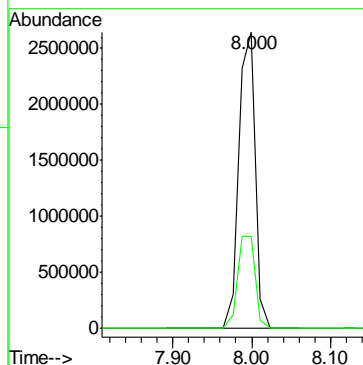
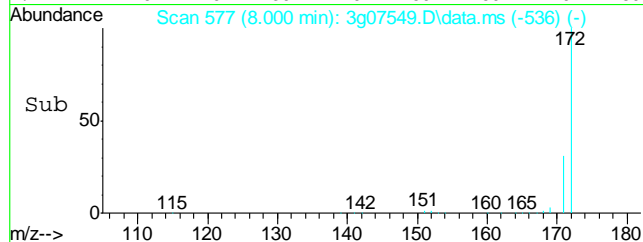
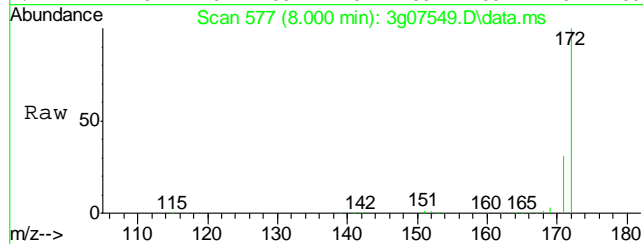
Tgt Ion	164	Resp	300328
Ion Ratio	100		
Lower	71.4		
Upper	111.4		
162	90.8		
160	37.2		





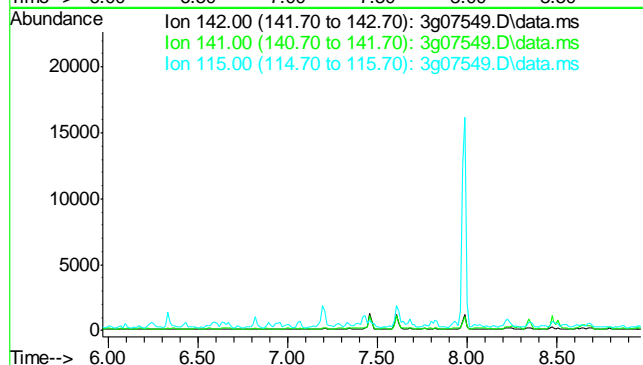
#7
2-Fluorobiphenyl
Concen: 32.94 ug/mL
RT: 8.000 min Scan# 577
Delta R.T. -0.000 min
Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

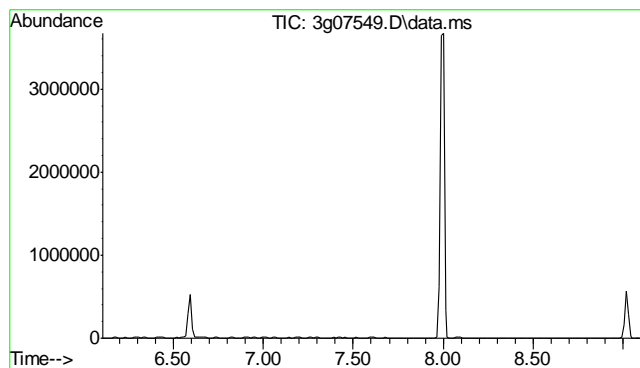
Tgt Ion: 172 Resp: 3930801
Ion Ratio Lower Upper
172 100
171 33.1 13.4 53.4



#8
2-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.47 min
Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

Tgt Ion: 142
Sig Exp Ratio
142 100
141 83.1
115 41.5

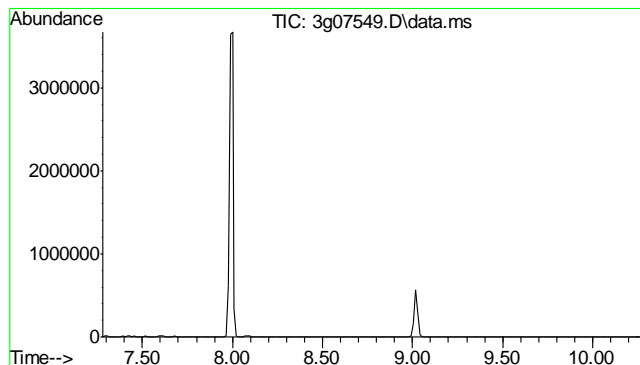
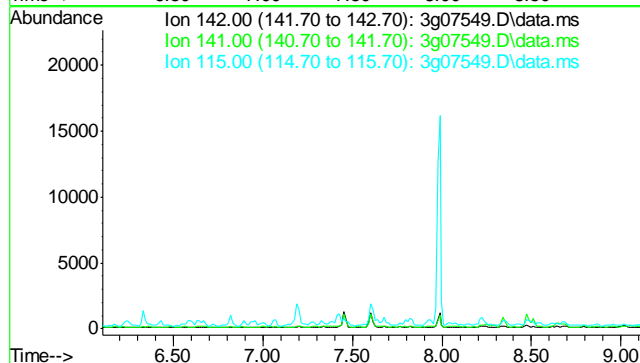




#9
1-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.60 min

Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

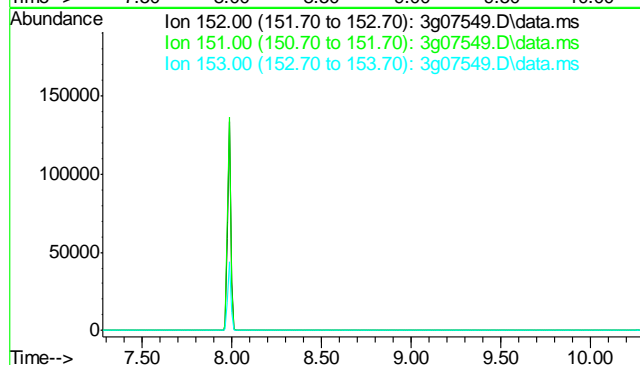
Tgt Ion:	142
Sig	Exp Ratio
142	100
141	85.4
115	43.6

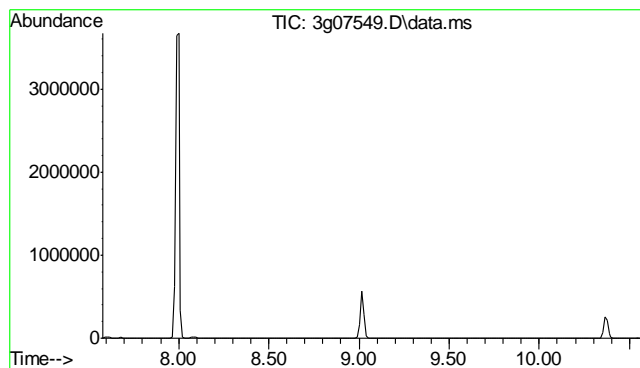


#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.78 min

Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

Tgt Ion:	152
Sig	Exp Ratio
152	100
151	19.2
153	12.9

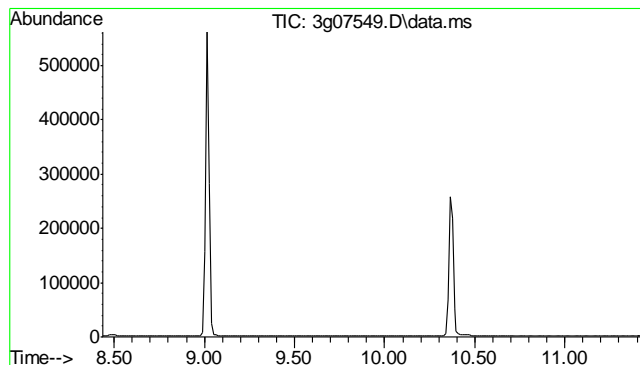
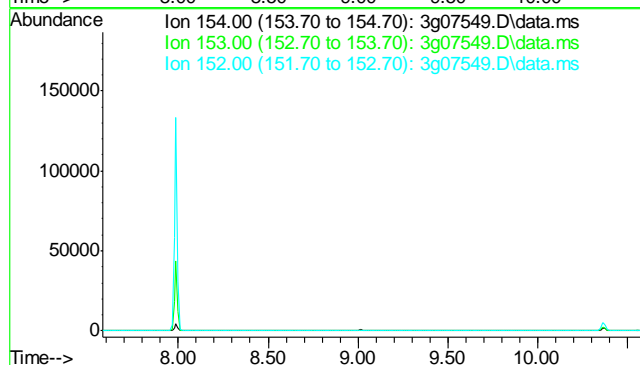




#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 9.07 min

Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

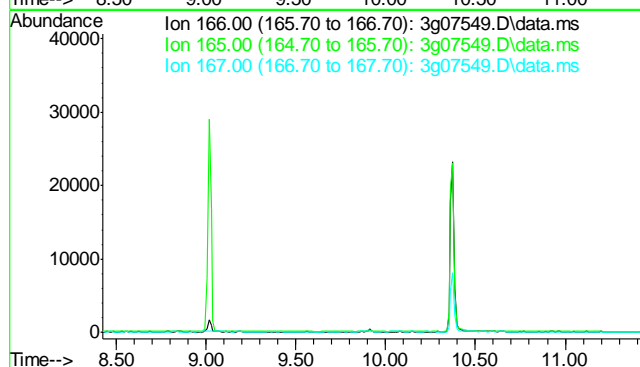
Tgt Ion: 154
Sig Exp Ratio
154 100
153 104.7
152 49.5

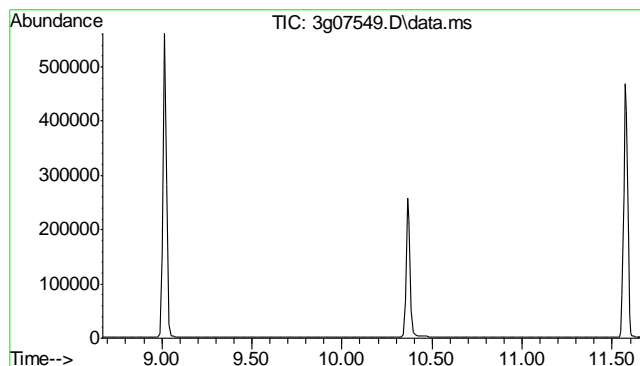


#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 9.93 min

Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

Tgt Ion: 166
Sig Exp Ratio
166 100
165 91.3
167 13.2

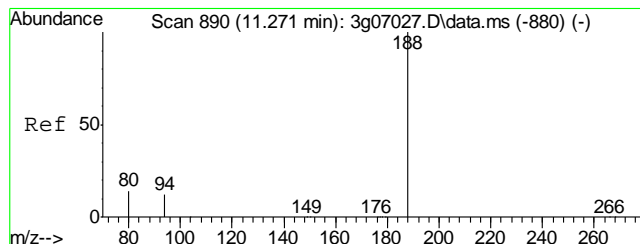
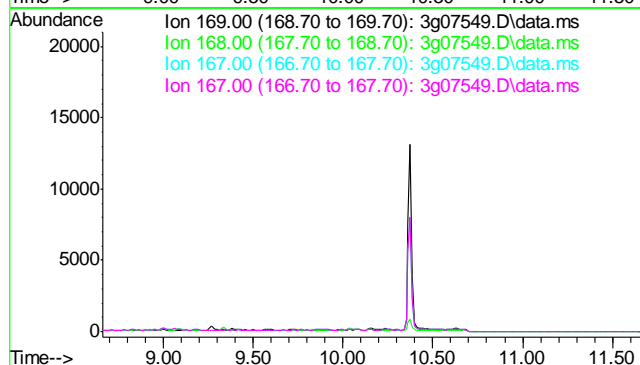




#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.16 min

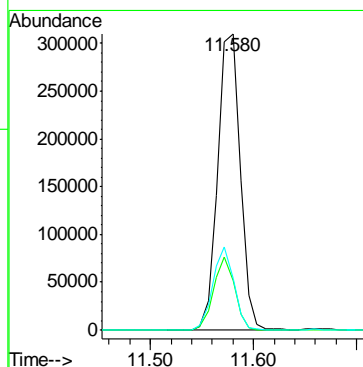
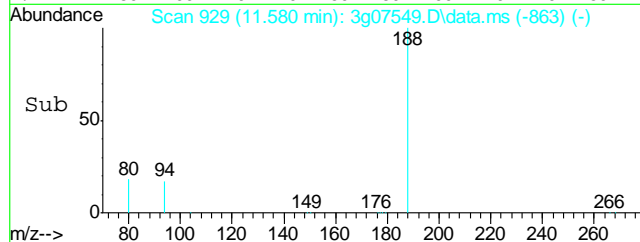
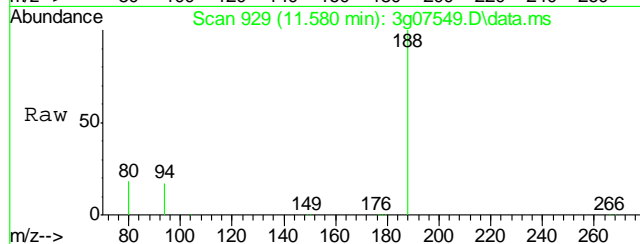
Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

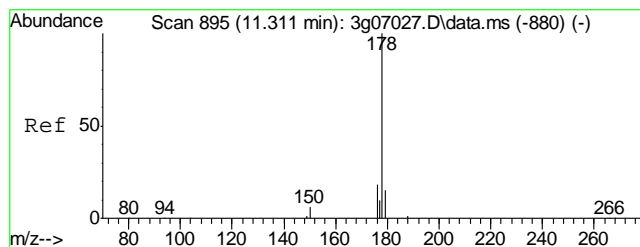
Tgt Ion: 169
Sig Exp Ratio
169 100
168 62.3
167 33.5
167 33.5



#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.580 min Scan# 929
Delta R.T. 0.000 min
Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

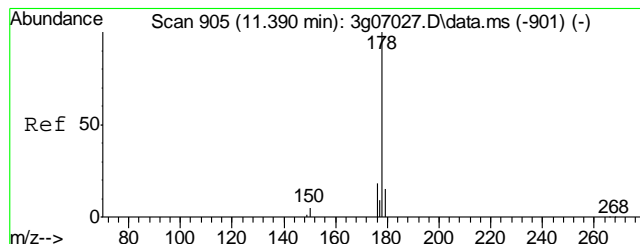
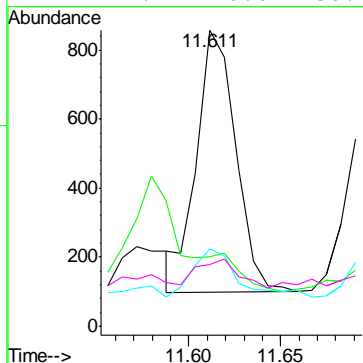
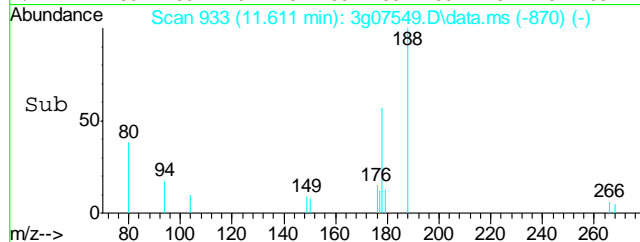
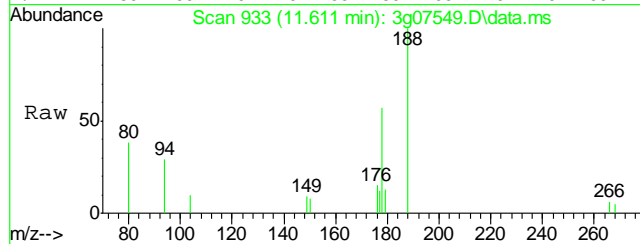
Tgt Ion: 188 Resp: 469853
Ion Ratio Lower Upper
188 100
94 23.0 5.3 45.3
80 26.0 8.0 48.0





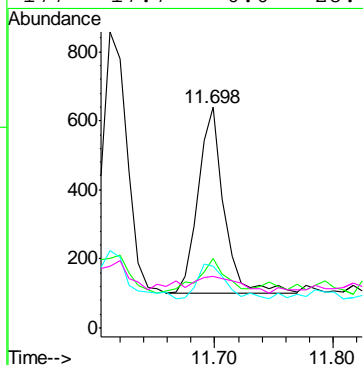
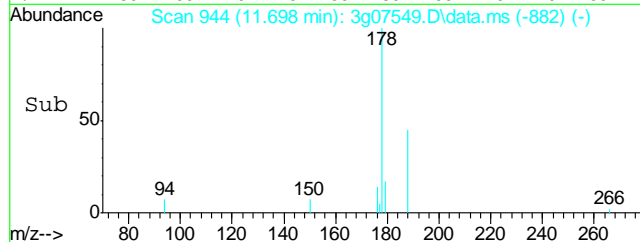
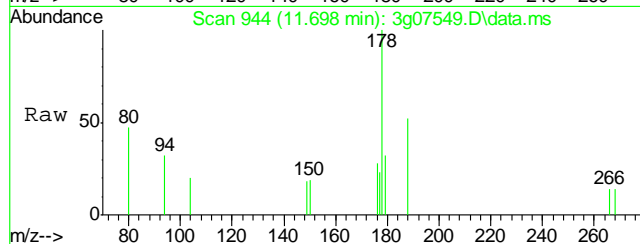
#15
Phenanthrene
Concen: 0.01 ug/mL
RT: 11.611 min Scan# 933
Delta R.T. -0.016 min
Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

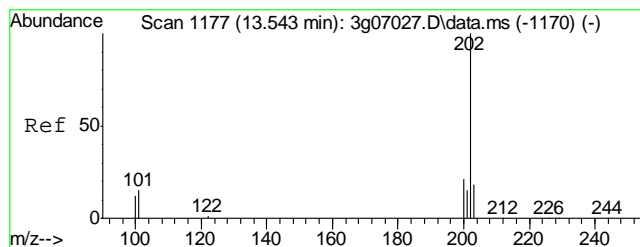
Tgt Ion: 178 Resp: 1127
Ion Ratio Lower Upper
178 100
179 0.0 0.0 35.1
176 20.5 0.0 38.6
177 11.2 0.0 30.2



#16
Anthracene
Concen: 0.01 ug/mL
RT: 11.698 min Scan# 944
Delta R.T. -0.008 min
Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

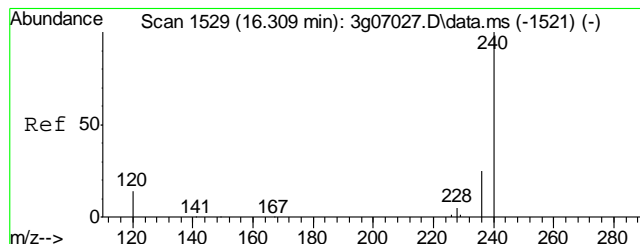
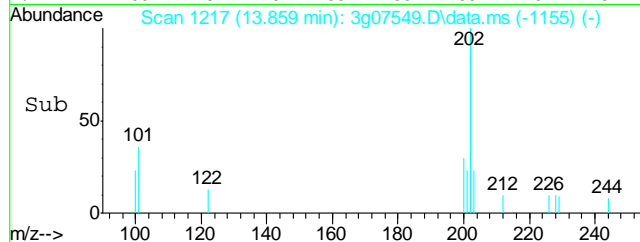
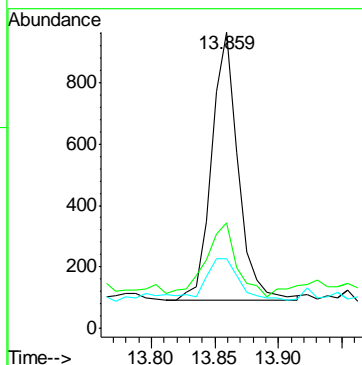
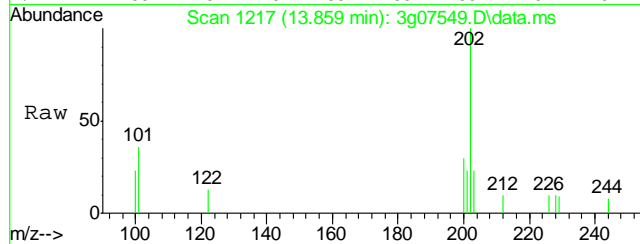
Tgt Ion: 178 Resp: 823
Ion Ratio Lower Upper
178 100
179 21.1 0.0 35.1
176 20.3 0.0 38.0
177 17.7 0.0 28.7





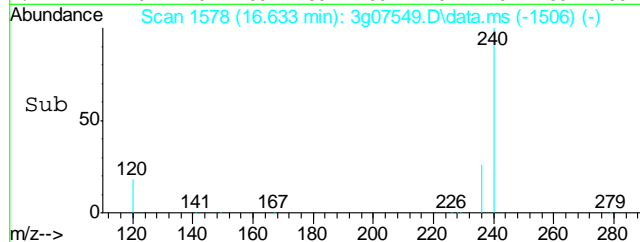
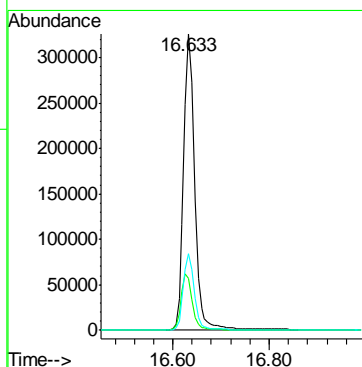
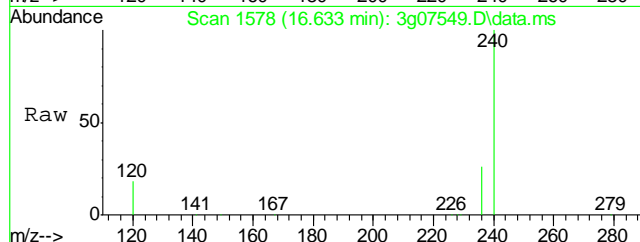
#17
Fluoranthene
Concen: 0.01 ug/mL
RT: 13.859 min Scan# 1217
Delta R.T. -0.008 min
Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

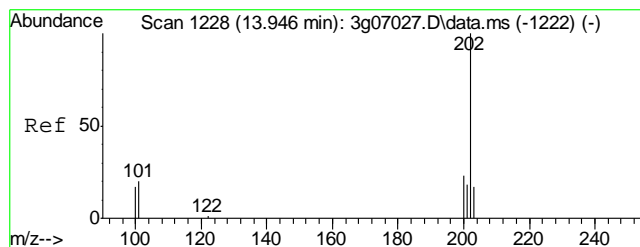
Tgt Ion: 202	Resp: 1268
Ion Ratio	Lower Upper
202 100	
101 30.7	3.7 43.7
203 18.1	0.0 37.2



#18
Chrysene-d12
Concen: 4.00 ug/mL
RT: 16.633 min Scan# 1578
Delta R.T. -0.013 min
Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

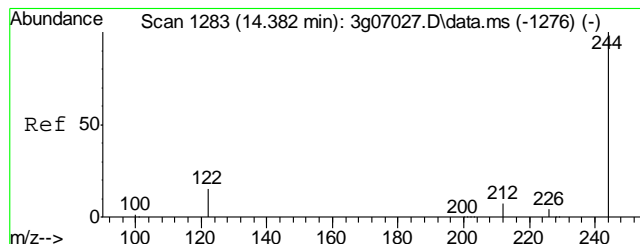
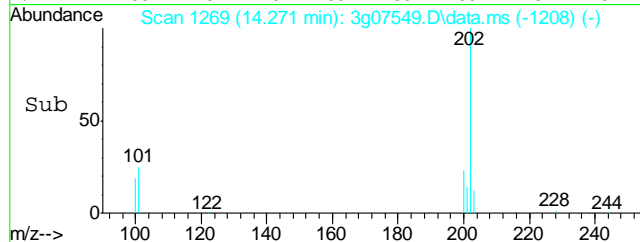
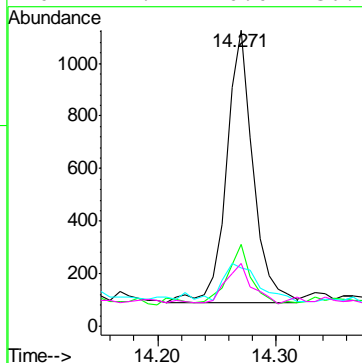
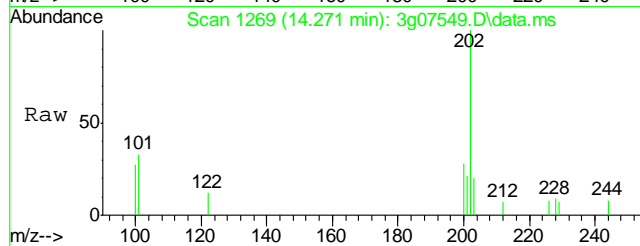
Tgt Ion: 240	Resp: 515260
Ion Ratio	Lower Upper
240 100	
120 19.1	0.3 40.3
236 25.8	5.5 45.5





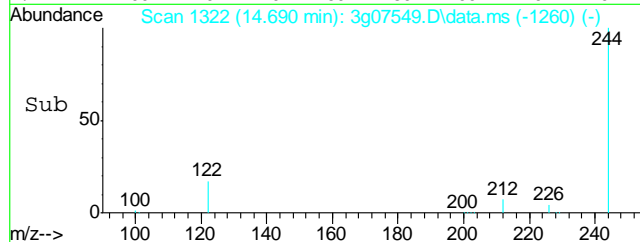
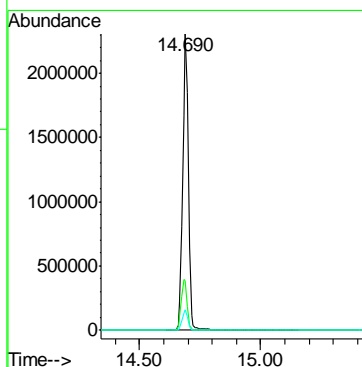
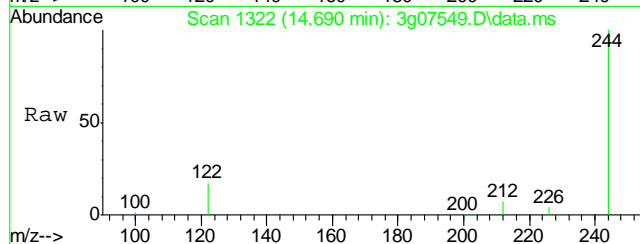
#19
Pyrene
Concen: 0.01 ug/mL
RT: 14.271 min Scan# 1269
Delta R.T. -0.016 min
Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

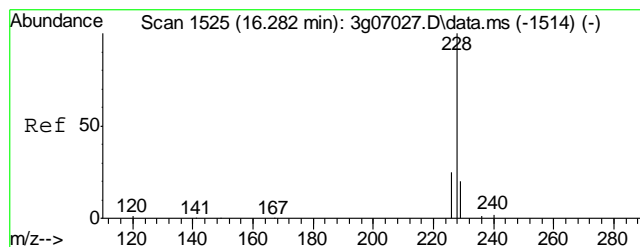
Tgt Ion: 202	Resp: 1624
Ion Ratio	Lower Upper
202 100	
200 18.4	0.2 40.2
203 18.3	0.0 37.8
201 14.2	0.0 36.7



#20
Terphenyl-d14
Concen: 38.05 ug/mL
RT: 14.690 min Scan# 1322
Delta R.T. -0.008 min
Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

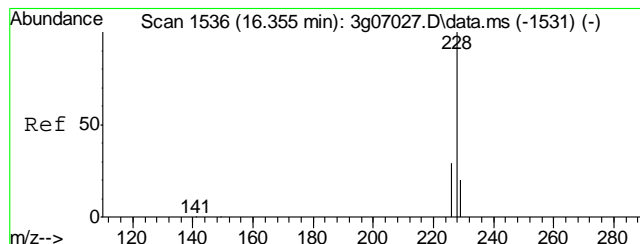
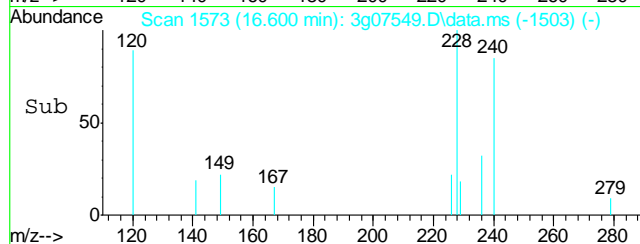
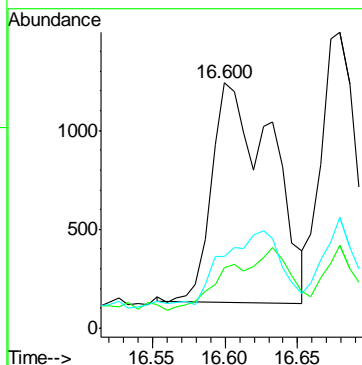
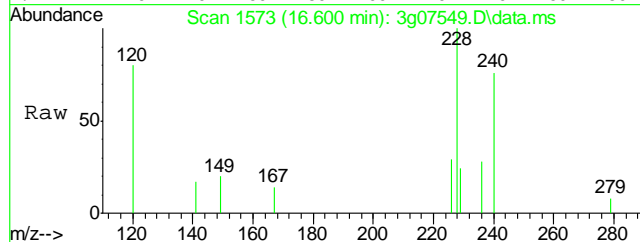
Tgt Ion: 244	Resp: 3724041
Ion Ratio	Lower Upper
244 100	
122 18.2	0.0 39.6
212 6.8	0.0 26.8





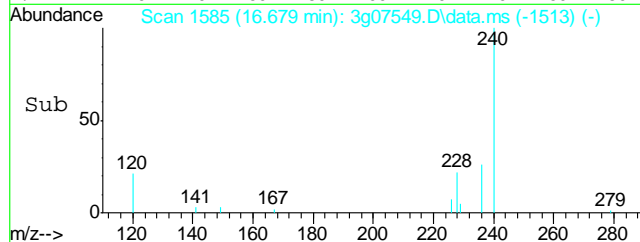
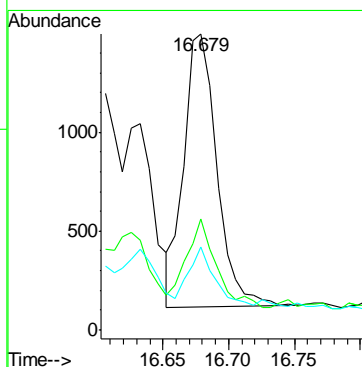
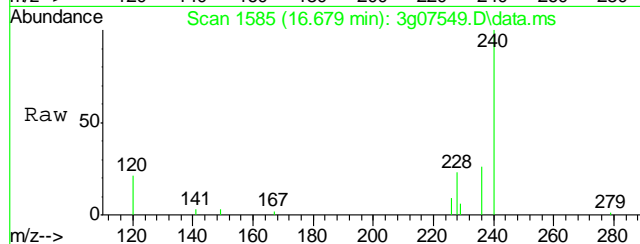
#21
Benzo(a)anthracene
Concen: 0.02 ug/mL m
RT: 16.600 min Scan# 1573
Delta R.T. -0.020 min
Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

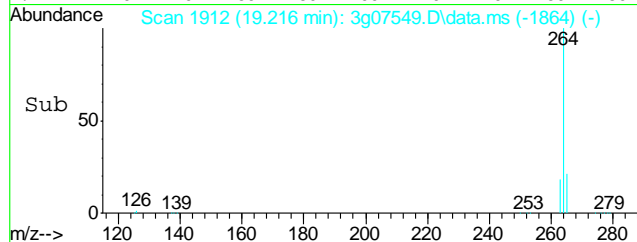
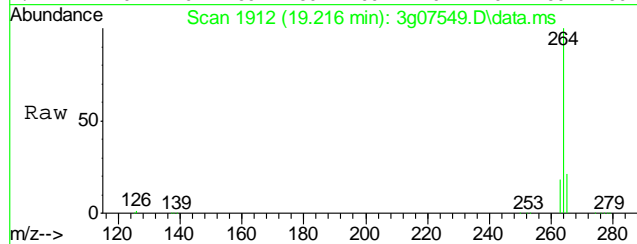
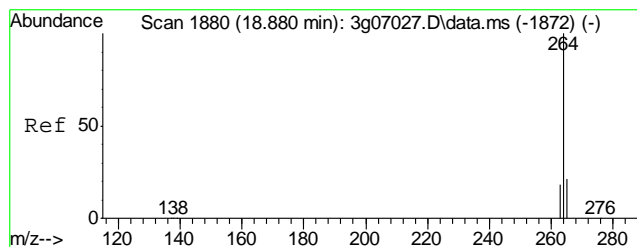
Tgt Ion:	228	Resp:	3194
Ion Ratio	Lower	Upper	
228	100		
229	12.5	0.0	39.6
226	22.6	6.3	46.3



#22
Chrysene
Concen: 0.01 ug/mL
RT: 16.679 min Scan# 1585
Delta R.T. -0.020 min
Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

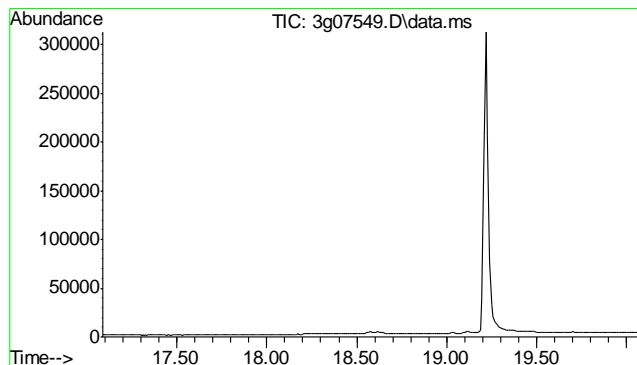
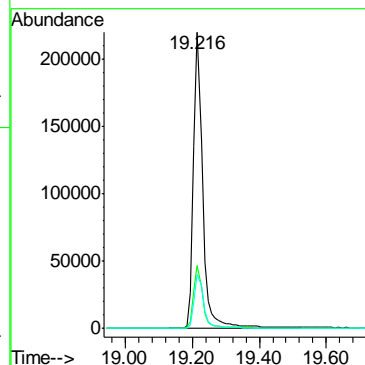
Tgt Ion:	228	Resp:	2416
Ion Ratio	Lower	Upper	
228	100		
226	29.9	8.3	48.3
229	16.6	0.0	39.2





#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 19.216 min Scan# 1912
Delta R.T. 0.000 min
Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

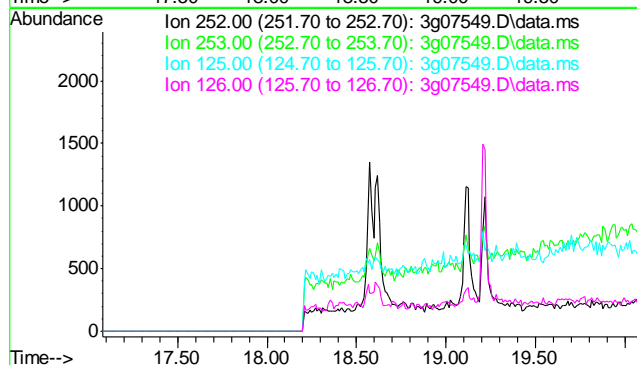
Tgt Ion	264	Resp	409481
Ion Ratio	100		
265	21.1	1.1	41.1
263	18.8	0.0	38.4

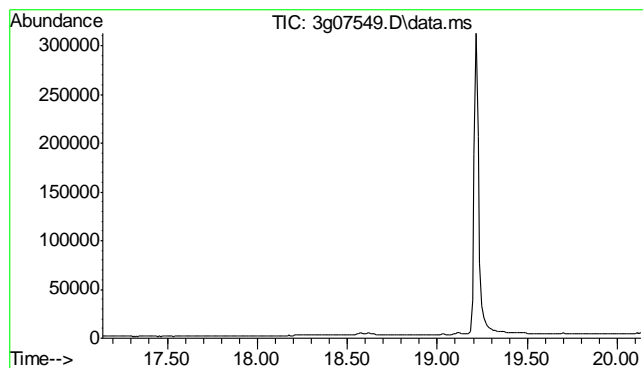


#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.59 min

Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

Tgt Ion	252
Sig	Exp Ratio
252	100
253	21.5
125	13.2
126	18.4

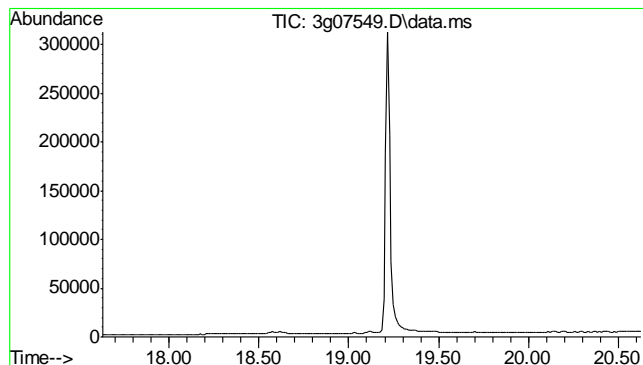
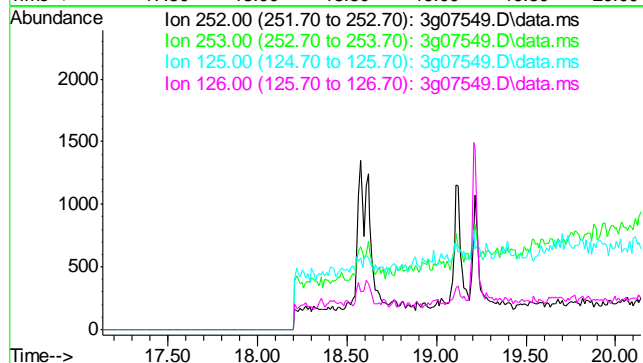




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.64 min

Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

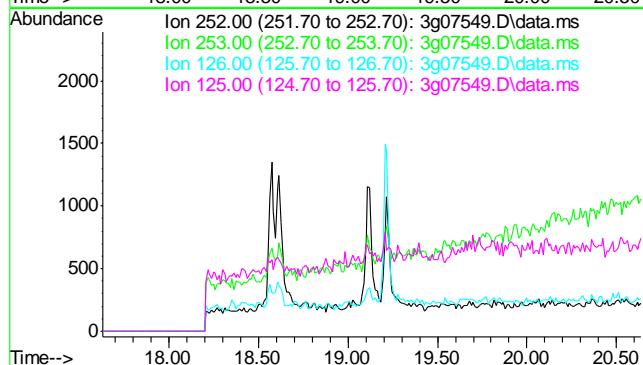
Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.7
125	11.5
126	17.7

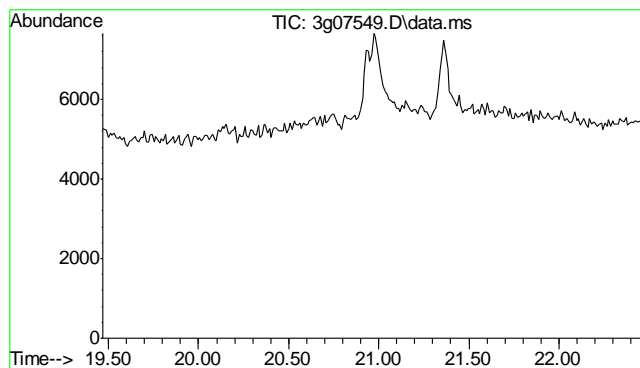


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 19.13 min

Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.5
126	17.4
125	13.5

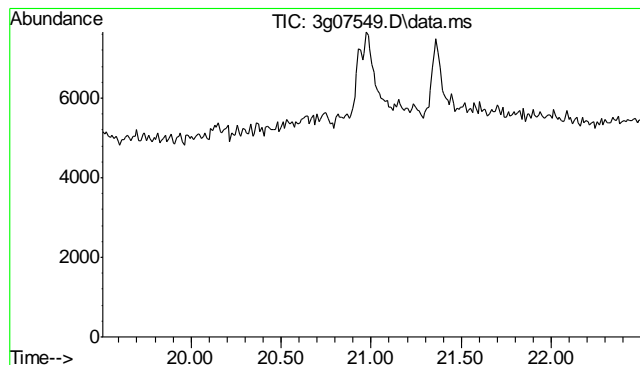
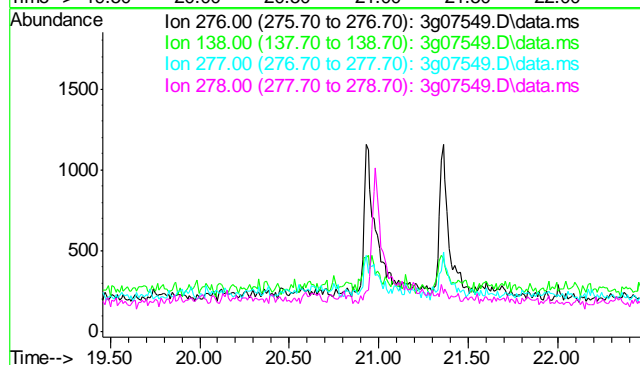




#27
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 20.96 min

Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

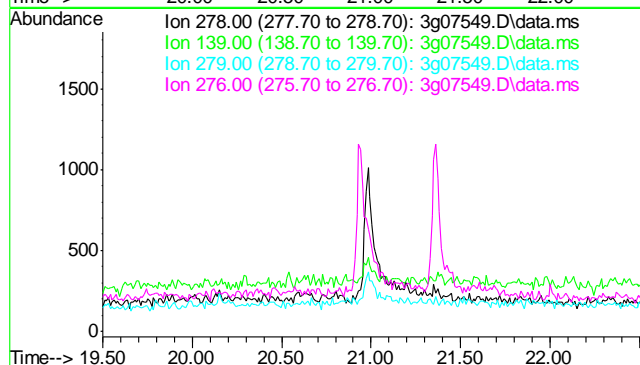
Tgt Ion:	276
Sig	Exp Ratio
276	100
138	22.3
277	34.3
278	105.9

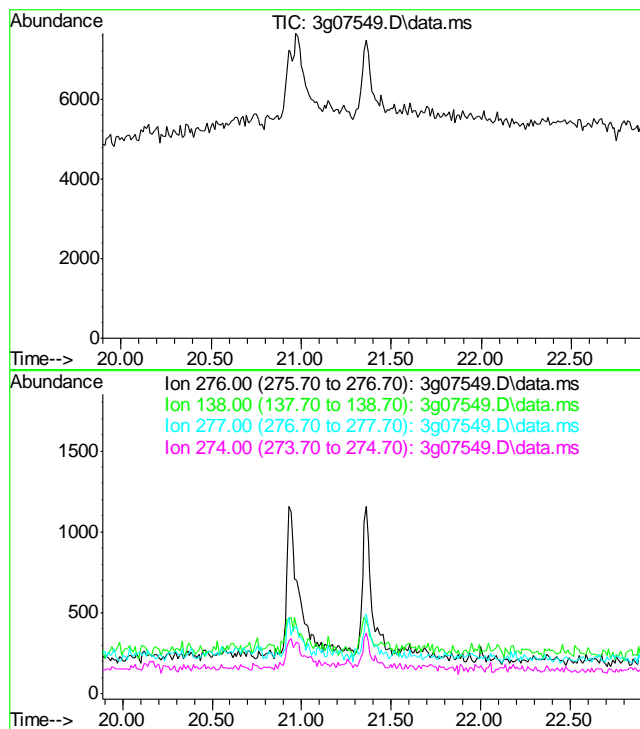


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 21.00 min

Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

Tgt Ion:	278
Sig	Exp Ratio
278	100
139	19.4
279	23.0
276	130.8





#29
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 21.39 min

Lab File: 3g07549.D
Acq: 11 Jan 12 9:50 pm

Tgt Ion: 276

Sig	Exp Ratio
276	100
138	23.6
277	23.2
274	22.2

GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D30890**Account:** KRWCCOL KRW Consulting, Inc.**Project:** XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB824-MB	GB14547.D	1	01/11/12	SK	n/a	n/a	GGB824

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

D30890-1

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	95% 60-140%

9.1.1

9

Blank Spike Summary

Page 1 of 1

Job Number: D30890

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB824-BS	GB14548.D	1	01/11/12	SK	n/a	n/a	GGB824

The QC reported here applies to the following samples:

Method: SW846 8015B

D30890-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	112	102	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	105%	60-140%

9.2.1

9

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D30890
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D30879-1MS	GB14550.D	1	01/11/12	SK	n/a	n/a	GGB824
D30879-1MSD	GB14551.D	1	01/11/12	SK	n/a	n/a	GGB824
D30879-1	GB14549.D	1	01/11/12	SK	n/a	n/a	GGB824

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

D30890-1

CAS No.	Compound	D30879-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		133	131	99	131	99	0	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D30879-1	Limits
120-82-1	1,2,4-Trichlorobenzene	101%	100%	94%	60-140%



GC Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\011112\GB14553.D\FID1A.CH Vial: 10
Signal #2 : Y:\1\DATA\011112\GB14553.D\FID2B.CH
Acq On : 11 Jan 2012 4:07 pm Operator: StephK
Sample : D30890-1, 50X Inst : GC/MS Ins
Misc : GC2542,GGB824,5.017,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jan 11 17:08:10 2012 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Wed Jan 11 15:16:42 2012
Response via : Initial Calibration
DataAcq Meth : TVB4.M

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

Compound	R.T.	Response	Conc	Units

System Monitoring Compounds				
2) S 1,2,4-Trichlorobenzene	14.37	2481180	84.812 %	m
10) S 1,2,4-Trichlorobenzene (P)	14.37	24405048	106.183 %	
Target Compounds				
1) H TVH-Gasoline	7.32	53939325	0.757 mg/L	
4) T Methyl-t-butyl-ether	2.22	264137	1.414 ug/L	
5) T Benzene	4.13	1948371	3.406 ug/L	
6) T Toluene	7.65	14566893	25.707 ug/L	
7) T Ethylbenzene	10.29	3351689	6.878 ug/L	
8) T m,p-Xylene	10.47	14762141	26.084 ug/L	
9) T o-Xylene	10.97	1549994	3.060 ug/L	
11) T Naphthalene	14.56	5532335	21.494 ug/L	

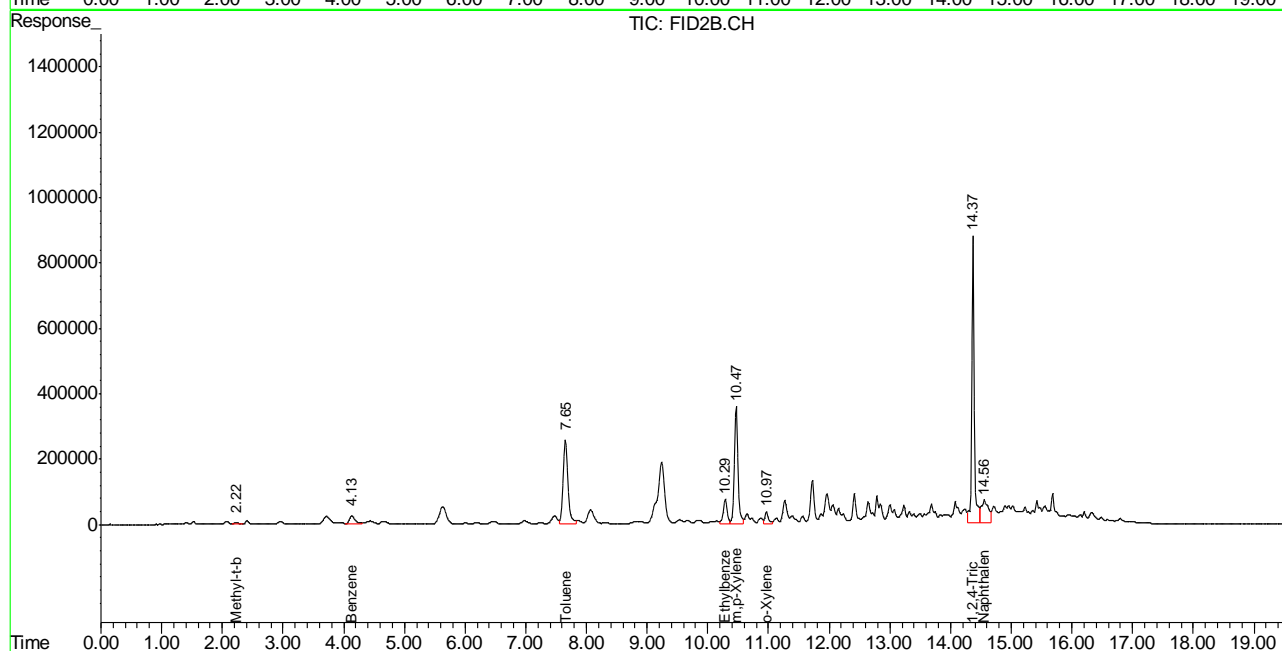
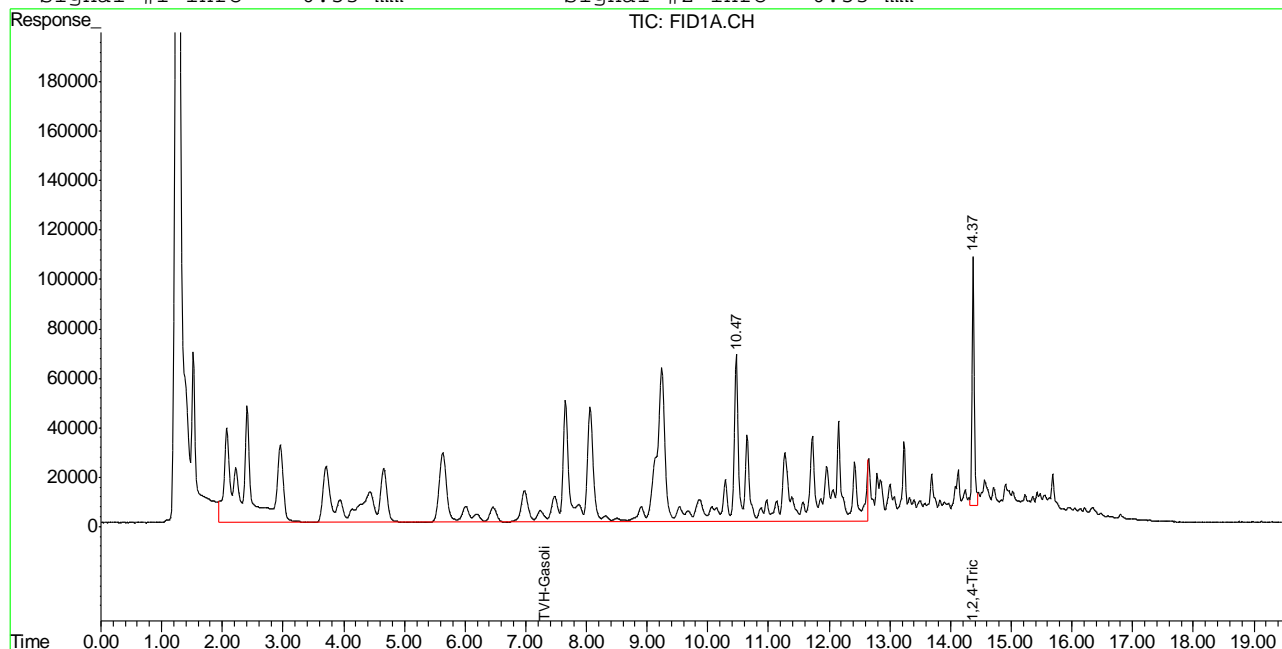
10.1.1
10

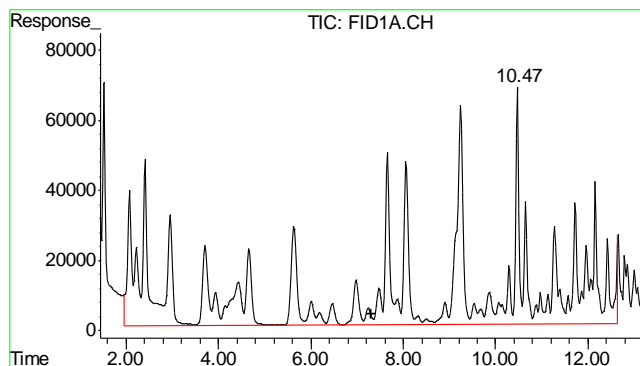
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\011112\GB14553.D\FID1A.CH Vial: 10
Signal #2 : Y:\1\DATA\011112\GB14553.D\FID2B.CH
Acq On : 11 Jan 2012 4:07 pm Operator: StephK
Sample : D30890-1, 50X Inst : GC/MS Ins
Misc : GC2542,GGB824,5.017,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jan 11 16:10 2012 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Wed Jan 11 15:16:42 2012
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

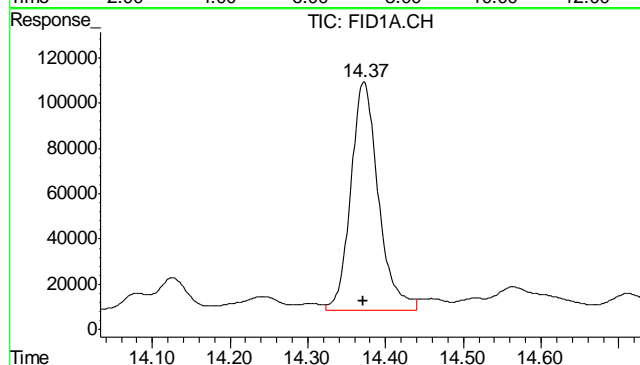
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





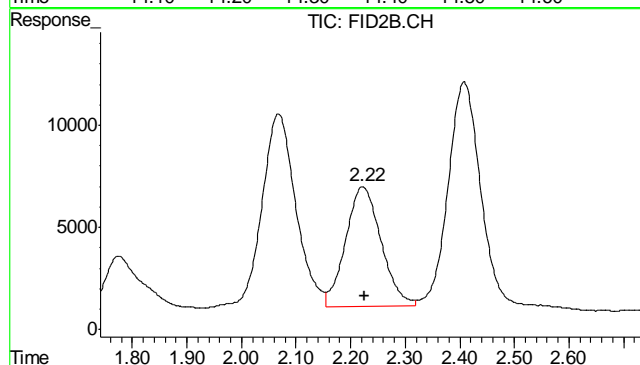
#1 TVH-Gasoline

R.T.: 7.315 min
Delta R.T.: 0.000 min
Response: 53939325
Conc: 0.76 mg/L m



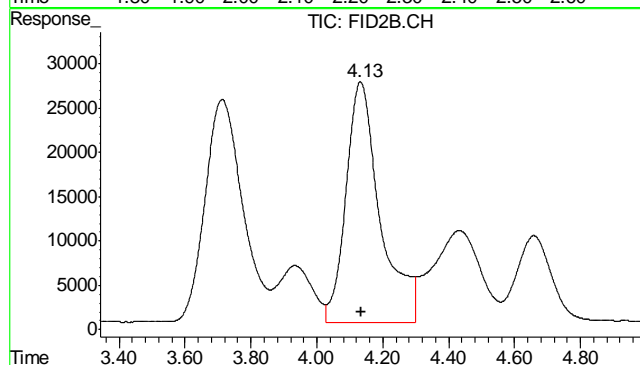
#2 1,2,4-Trichlorobenzene

R.T.: 14.372 min
Delta R.T.: 0.000 min
Response: 2481180
Conc: 84.81 % m



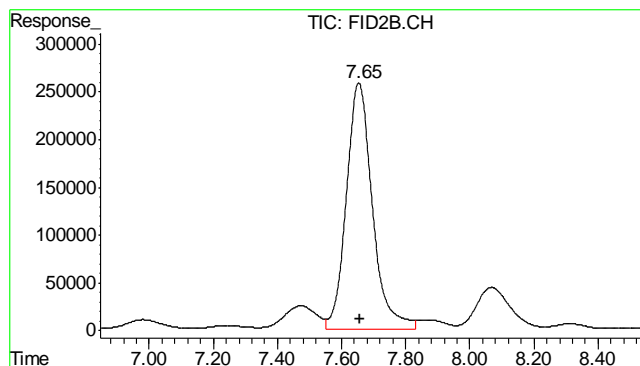
#4 Methyl-t-butyl-ether

R.T.: 2.222 min
Delta R.T.: -0.004 min
Response: 264137
Conc: 1.41 ug/L



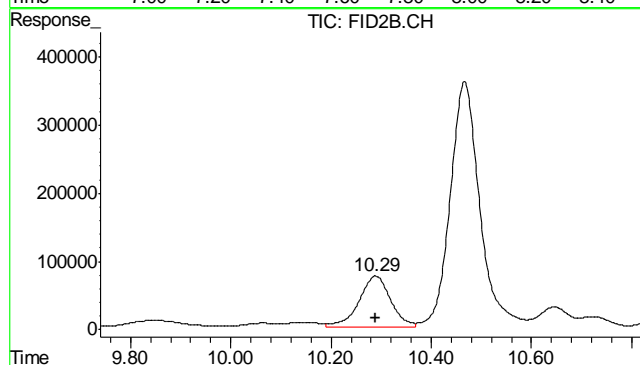
#5 Benzene

R.T.: 4.132 min
Delta R.T.: 0.000 min
Response: 1948371
Conc: 3.41 ug/L



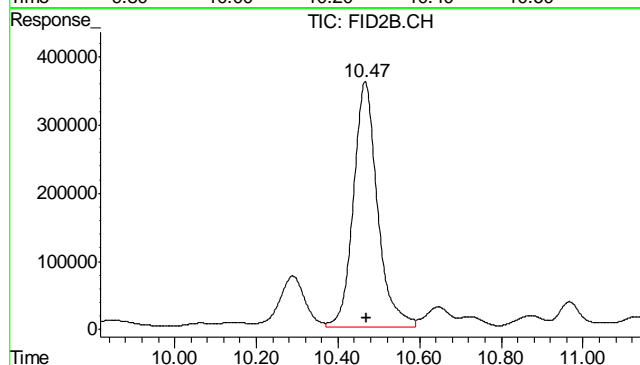
#6 Toluene

R.T.: 7.654 min
Delta R.T.: -0.004 min
Response: 14566893
Conc: 25.71 ug/L



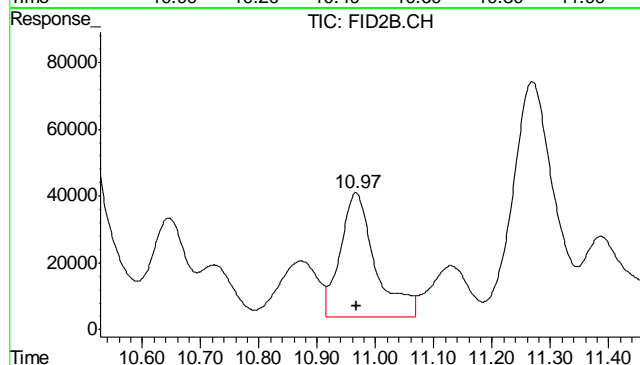
#7 Ethylbenzene

R.T.: 10.289 min
Delta R.T.: -0.001 min
Response: 3351689
Conc: 6.88 ug/L



#8 m,p-Xylene

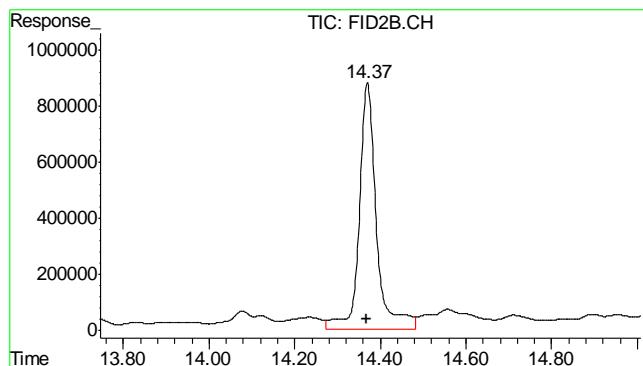
R.T.: 10.467 min
Delta R.T.: -0.004 min
Response: 14762141
Conc: 26.08 ug/L



#9 o-Xylene

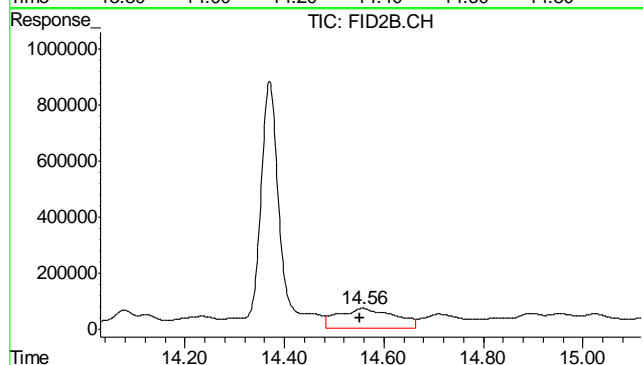
R.T.: 10.967 min
Delta R.T.: 0.000 min
Response: 1549994
Conc: 3.06 ug/L

10.1.1 10



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

R.T.: 14.370 min
Delta R.T.: 0.000 min
Response: 24405048
Conc: 106.18 %



#11 Naphthalene

R.T.: 14.558 min
Delta R.T.: 0.007 min
Response: 5532335
Conc: 21.49 ug/L

10.1.1
10

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\011112\GB14547.D\FID1A.CH Vial: 4
Signal #2 : Y:\1\DATA\011112\GB14547.D\FID2B.CH
Acq On : 11 Jan 2012 12:33 pm Operator: StephK
Sample : MB, S Inst : GC/MS Ins
Misc : GC2542,GGB824,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jan 11 13:25:50 2012 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Wed Jan 11 12:26:10 2012
Response via : Initial Calibration
DataAcq Meth : TVB4.M

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

Compound		R.T.	Response	Conc	Units

System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.38	2765321	94.524	%
10) S	1,2,4-Trichlorobenzene (P)	14.38	22879385	99.545	%
Target Compounds					
1) H	TVH-Gasoline	7.32	5253425	<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	7.68	146401	0.258	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	14.57	416376	1.618	ug/L m

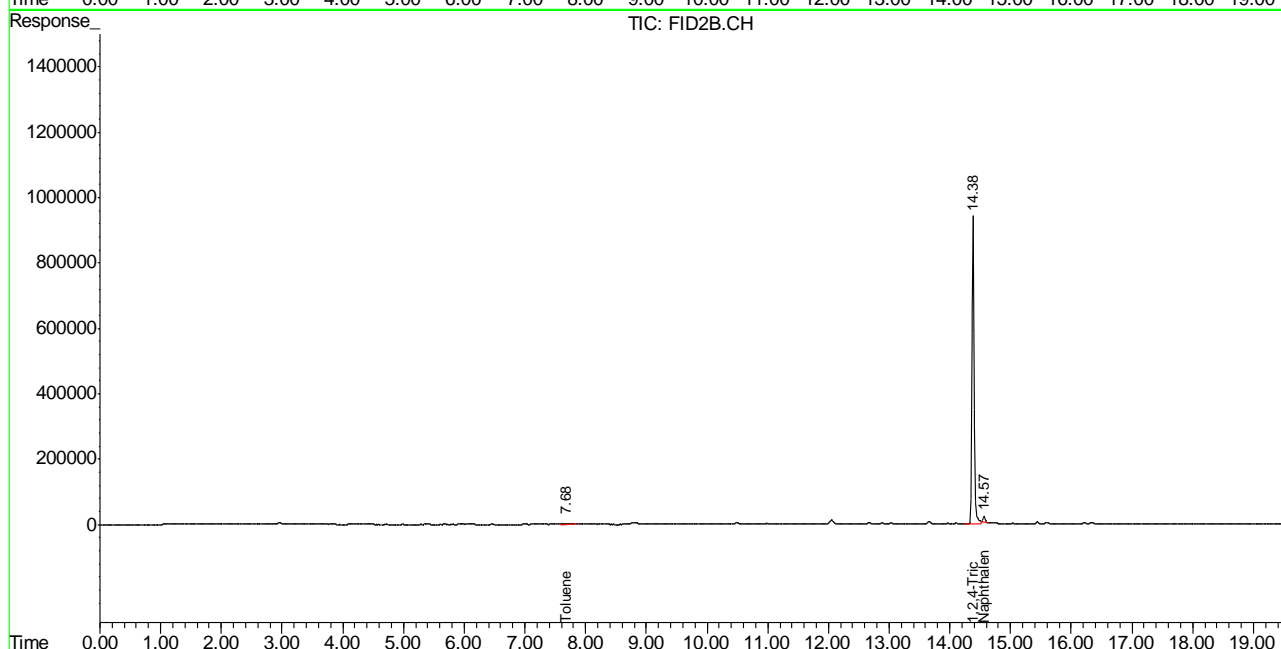
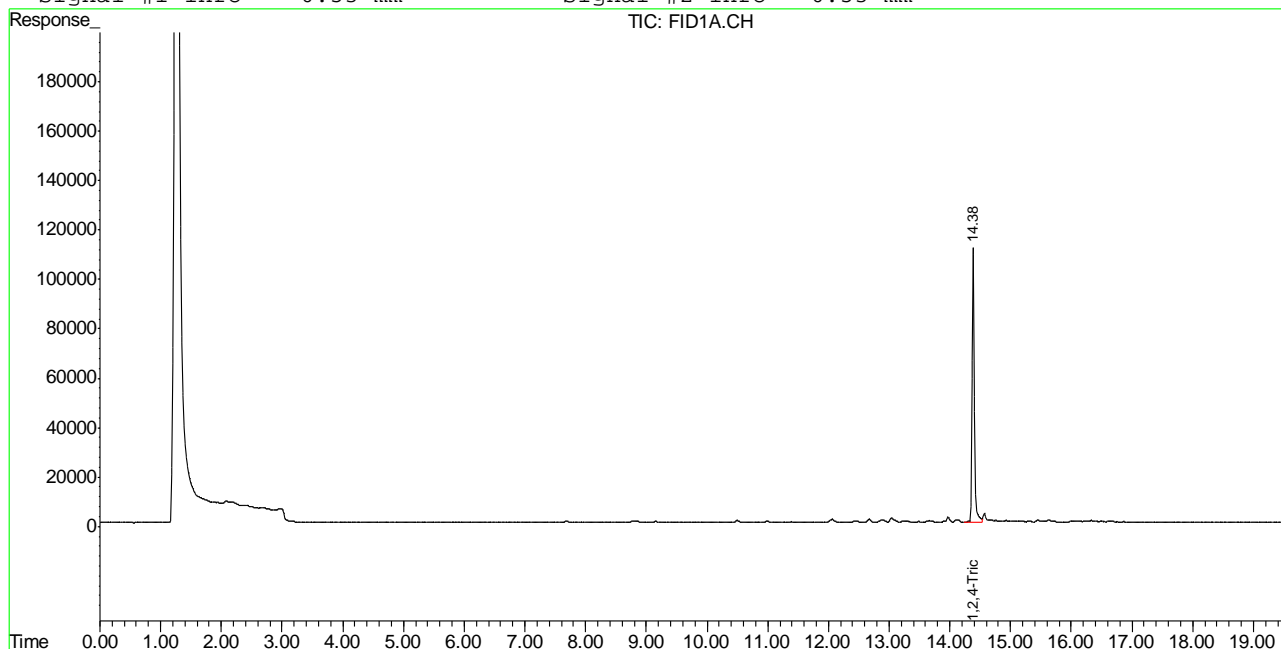
(f)=RT Delta > 1/2 Window (m)=manual int.
GB14547.D TB791GB791SOIL.M Thu Jan 12 08:53:09 2012 GC

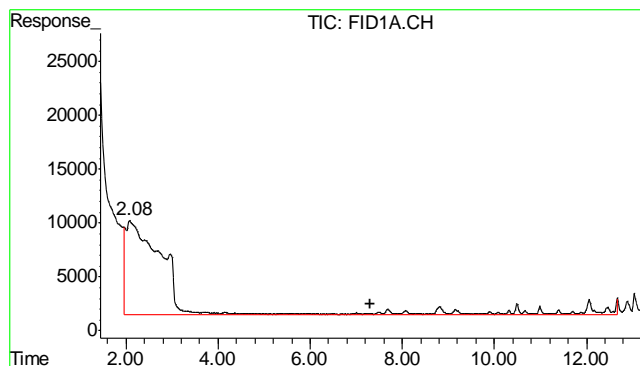
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\011112\GB14547.D\FID1A.CH Vial: 4
Signal #2 : Y:\1\DATA\011112\GB14547.D\FID2B.CH
Acq On : 11 Jan 2012 12:33 pm Operator: StephK
Sample : MB, S Inst : GC/MS Ins
Misc : GC2542,GGB824,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jan 11 12:25 2012 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Wed Jan 11 12:26:10 2012
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

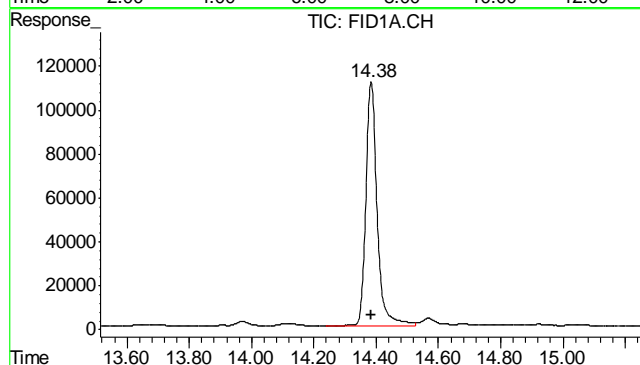
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





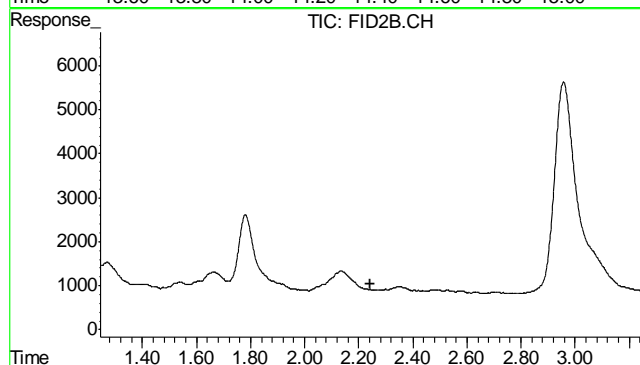
#1 TVH-Gasoline

R.T.: 7.315 min
Delta R.T.: 0.000 min
Response: 5253425
Conc: N.D.



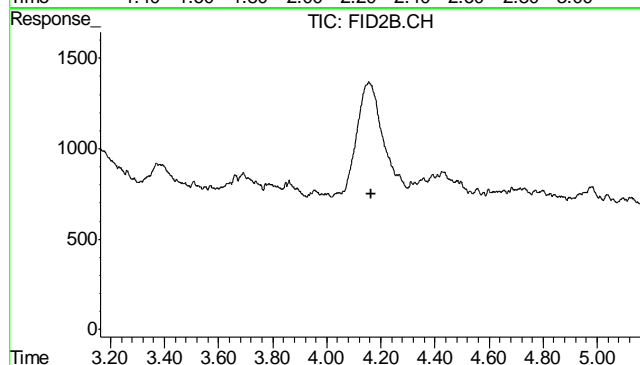
#2 1,2,4-Trichlorobenzene

R.T.: 14.384 min
Delta R.T.: -0.001 min
Response: 2765321
Conc: 94.52 %



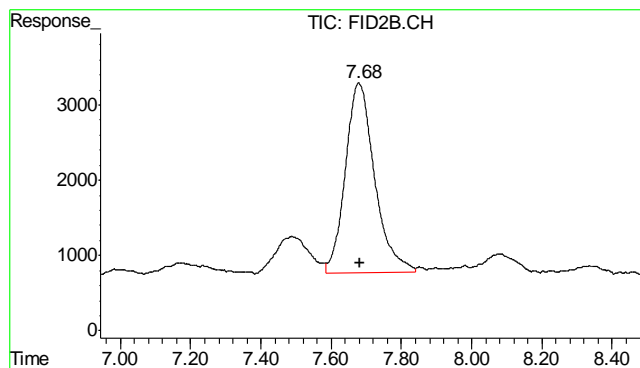
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T.: 2.244 min
Response: 0
Conc: N.D.



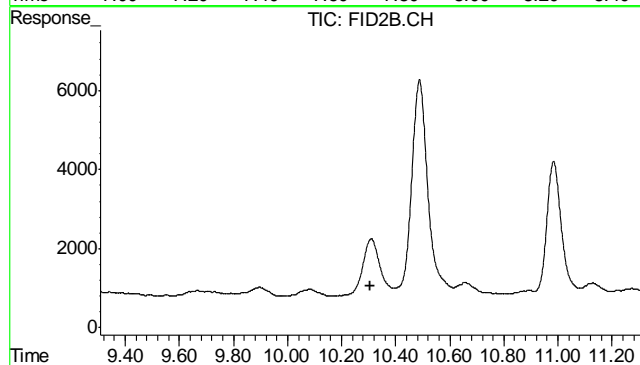
#5 Benzene

R.T.: 0.000 min
Exp R.T.: 4.163 min
Response: 0
Conc: N.D.



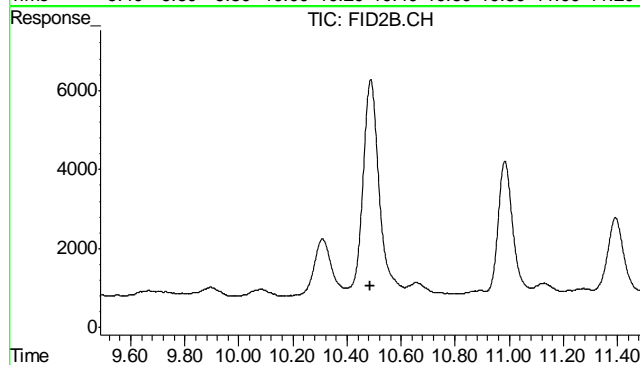
#6 Toluene

R.T.: 7.679 min
Delta R.T.: -0.003 min
Response: 146401
Conc: 0.26 ug/L



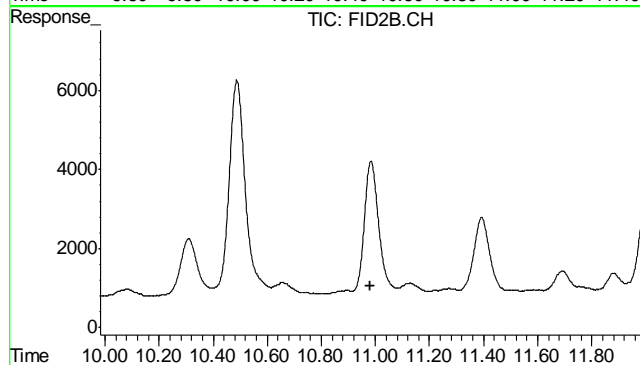
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.307 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

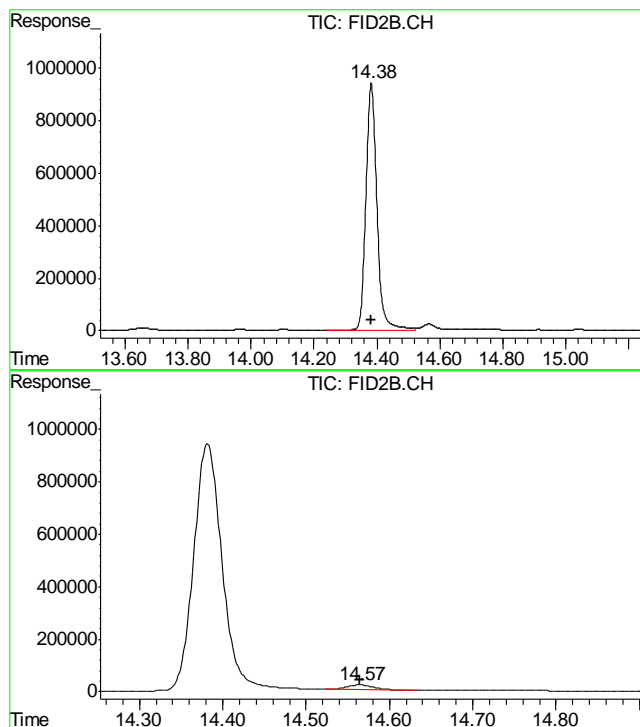
R.T.: 0.000 min
Exp R.T. : 10.487 min
Response: 0
Conc: N.D.



#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 10.982 min
Response: 0
Conc: N.D.

10.2.1 10



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

R.T.: 14.382 min
Delta R.T.: 0.000 min
Response: 22879385
Conc: 99.54 %

#11 Naphthalene

R.T.: 14.565 min
Delta R.T.: 0.000 min
Response: 416376
Conc: 1.62 ug/L m

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: D30890**Account:** KRWCCOL KRW Consulting, Inc.**Project:** XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5149-MB	FD12750.D	1	01/12/12	TR	01/12/12	OP5149	GFD661

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

D30890-1

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	72% 43-136%

Blank Spike Summary

Page 1 of 1

Job Number: D30890

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5149-BS	FD12751.D	1	01/12/12	TR	01/12/12	OP5149	GFD661

The QC reported here applies to the following samples:

Method: SW846-8015B

D30890-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	438	66	58-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	74%	43-136%

11.2.1
11

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D30890
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 197-33A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5149-MS	FD12752.D	1	01/12/12	TR	01/12/12	OP5149	GFD661
OP5149-MSD	FD12753.D	1	01/12/12	TR	01/12/12	OP5149	GFD661
D30955-1	FD12754.D	1	01/12/12	TR	01/12/12	OP5149	GFD661

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

D30890-1

CAS No.	Compound	D30955-1 mg/kg	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	369	760	873	66	803	57	8	20-183/43

CAS No.	Surrogate Recoveries	MS	MSD	D30955-1	Limits
84-15-1	o-Terphenyl	70%	69%	79%	43-136%

11.3.1
11

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\JAN\FD011212\FD12755.D Vial: 8
Acq On : 1-12-2012 06:29:47 PM Operator: TEDR
Sample : D30890-1 Inst : FID5
Misc : OP5149,GFD661,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Jan 13 08:10:53 2012 Quant Results File: GFD624.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD624.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Dec 09 12:22:03 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	9.61	29356623	657.441 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	7.42	241421969	5774.314 mg/L

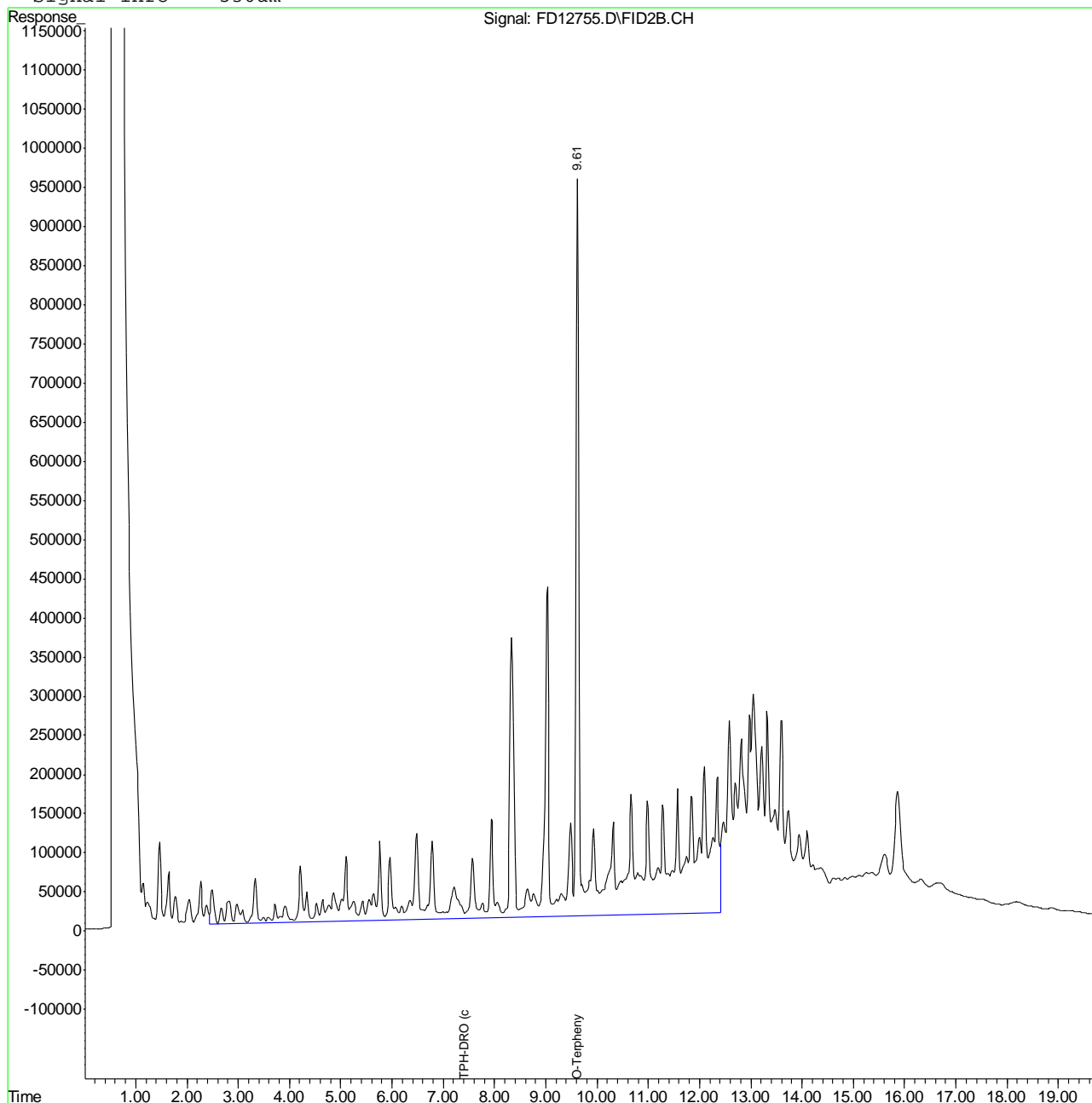
12.1.1
12

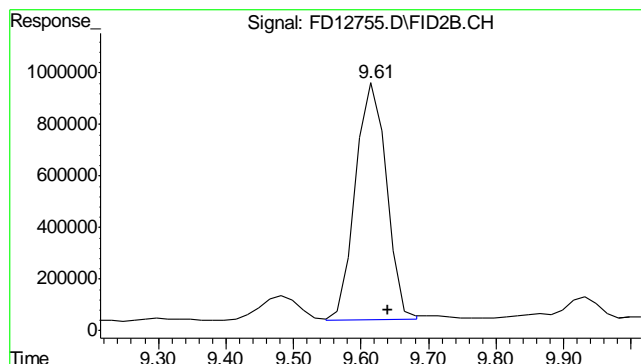
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\JAN\FD011212\FD12755.D Vial: 8
Acq On : 1-12-2012 06:29:47 PM Operator: TEDR
Sample : D30890-1 Inst : FID5
Misc : OP5149,GFD661,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Jan 13 8:15 2012 Quant Results File: GFD624.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD624.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Dec 09 12:22:03 2011
Response via : Multiple Level Calibration
DataAcq Meth : JH080911.M

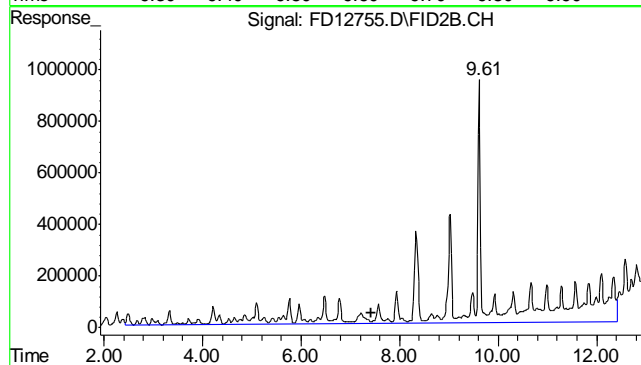
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.615 min
 Delta R.T.: -0.025 min
 Response: 29356623
 Conc: 657.44 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 7.420 min
 Delta R.T.: 0.000 min
 Response: 241421969
 Conc: 5774.31 mg/L m

12.1.1
12

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\JAN\FD011212\FD12750.D Vial: 3
Acq On : 1-12-2012 04:21:39 PM Operator: TEDR
Sample : OP5149-MB Inst : FID5
Misc : OP5149,GFD661,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Jan 13 08:10:48 2012 Quant Results File: GFD624.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD624.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Dec 09 12:22:03 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	9.62	32226117	721.704 mg/L
Target Compounds			
2) H TPH-DRO (c10-c28)	7.42	1145224	27.391 mg/L

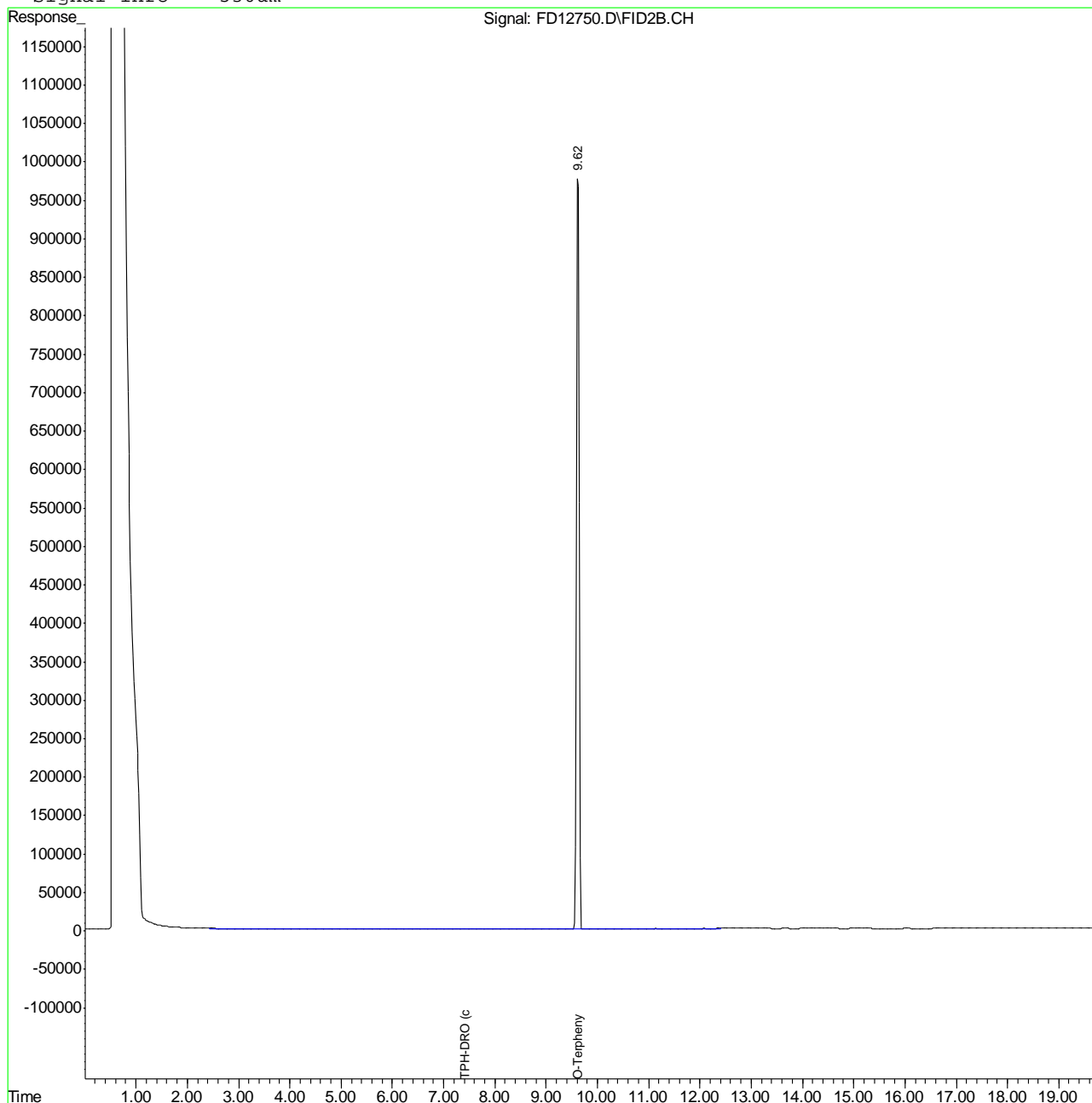
(f)=RT Delta > 1/2 Window (m)=manual int.
FD12750.D GFD624.M Fri Jan 13 08:44:23 2012 GC

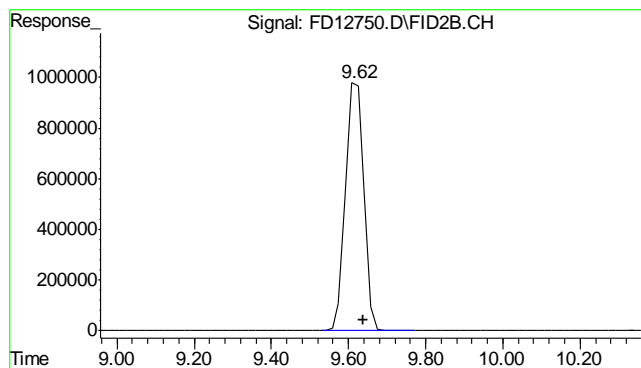
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\JAN\FD011212\FD12750.D Vial: 3
Acq On : 1-12-2012 04:21:39 PM Operator: TEDR
Sample : OP5149-MB Inst : FID5
Misc : OP5149,GFD661,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Jan 13 8:10 2012 Quant Results File: GFD624.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD624.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Dec 09 12:22:03 2011
Response via : Multiple Level Calibration
DataAcq Meth : JH080911.M

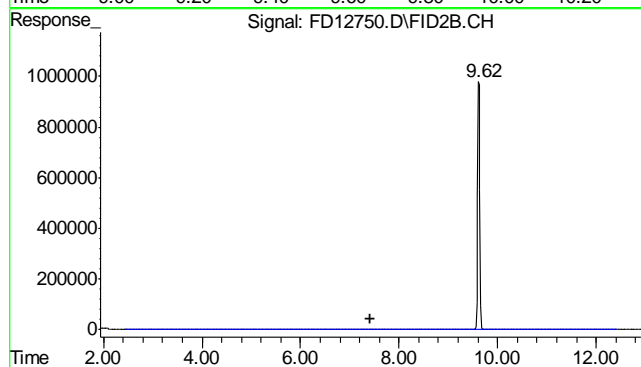
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.623 min
Delta R.T.: -0.017 min
Response: 32226117
Conc: 721.70 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 7.420 min
Delta R.T.: 0.000 min
Response: 1145224
Conc: 27.39 mg/L m

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: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6639
Matrix Type: AQUEOUS

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

Prep Date: 01/11/12

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	-10	<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	-24	<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	110	<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 MP6639: D30890-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6639
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30890
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 197-33A

QC Batch ID: MP6639
 Matrix Type: AQUEOUS

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

Prep Date: 01/11/12

Metal	D30890-1A Original MS		Spikelot MPICPAL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	10900	145000	125000	107.3	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	645	125000	125000	99.5	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	1120000	1270000	125000	120.0	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6639: D30890-1A

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

13.1.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6639
Matrix Type: AQUEOUS

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

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6639
Matrix Type: AQUEOUS

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

Prep Date: 01/11/12

Metal	D30890-1A Original MSD		Spikelot MPICPAL % Rec		MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	10900	147000	125000	108.9	1.4	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	645	127000	125000	101.1	1.6	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	1120000	1220000	125000	80.0	4.0	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP6639: D30890-1A

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

13.1.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6639
Matrix Type: AQUEOUS

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

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6639
Matrix Type: AQUEOUS

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

Prep Date: 01/11/12

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	134000	125000	107.2	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	127000	125000	101.6	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 MP6639: D30890-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6639
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6643
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 01/11/12

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	0.13	<1.0
Beryllium	1.0	.044	.1		
Boron	5.0	.48	.48		
Cadmium	1.0	.027	.27	0.020	<1.0
Calcium	40	.96	1.1		
Chromium	1.0	.018	.031	0.030	<1.0
Cobalt	0.50	.035	.035		
Copper	1.0	.085	.16	-0.27	<1.0
Iron	7.0	.34	2		
Lead	5.0	.16	.21	0.030	<5.0
Lithium	0.20	.028	.031		
Magnesium	20	.58	1.4		
Manganese	0.50	.0053	.012		
Molybdenum	1.0	.045	.054		
Nickel	3.0	.043	.099	-0.010	<3.0
Phosphorus	10	1.1	1.2		
Potassium	200	5.5	9.2		
Selenium	5.0	.38	.5	0.060	<5.0
Silicon	5.0	.38	.51		
Silver	3.0	.018	.051	-0.050	<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	0.18	<3.0

Associated samples MP6643: D30890-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6643
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

13.2.1

13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6643
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 01/11/12

Metal	D30887-1 Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium	295	528	219	106.3	75-125
Beryllium					
Boron					
Cadmium	0.15	46.3	54.8	84.2	75-125
Calcium					
Chromium	30.8	77.7	54.8	85.6	75-125
Cobalt					
Copper	13.2	65.5	54.8	95.5	75-125
Iron					
Lead	11.0	103	110	84.0	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	15.0	59.4	54.8	81.0	75-125
Phosphorus					
Potassium					
Selenium	0.0	86.6	110	79.0	75-125
Silicon					
Silver	0.11	19.4	21.9	88.0	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	40.6	82.0	54.8	75.6	75-125

Associated samples MP6643: D30890-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6643
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6643
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 01/11/12

Metal	D30887-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium	295	531	223	105.7	0.6	20
Beryllium						
Boron						
Cadmium	0.15	47.4	55.8	84.6	2.3	20
Calcium						
Chromium	30.8	81.0	55.8	89.9	4.2	20
Cobalt						
Copper	13.2	66.9	55.8	96.2	2.1	20
Iron						
Lead	11.0	104	112	83.3	1.0	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	15.0	60.8	55.8	82.0	2.3	20
Phosphorus						
Potassium						
Selenium	0.0	89.1	112	79.8	2.8	20
Silicon						
Silver	0.11	19.8	22.3	88.2	2.0	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	40.6	83.5	55.8	76.8	1.8	20

Associated samples MP6643: D30890-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6643
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

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

13.2.2
13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6643
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 01/11/12

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	193	200	96.5	80-120
Beryllium				
Boron				
Cadmium	48.3	50	96.6	80-120
Calcium				
Chromium	50.1	50	100.2	80-120
Cobalt				
Copper	49.0	50	98.0	80-120
Iron				
Lead	98.7	100	98.7	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	48.2	50	96.4	80-120
Phosphorus				
Potassium				
Selenium	91.9	100	91.9	80-120
Silicon				
Silver	20.0	20	100.0	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	48.5	50	97.0	80-120

Associated samples MP6643: D30890-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6643
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D30890
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 197-33A

QC Batch ID: MP6643
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: ug/l

Prep Date: 01/11/12

Metal	D30887-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	2620	2890	10.4*(a)	0-10
Beryllium				
Boron				
Cadmium	1.30	0.00	100.0(b)	0-10
Calcium				
Chromium	273	311	13.6*(a)	0-10
Cobalt				
Copper	111	123	4.8	0-10
Iron				
Lead	97.4	88.0	9.7	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	133	154	16.0*(a)	0-10
Phosphorus				
Potassium				
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver	1.00	4.50	350.0(b)	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	360	450	24.8*(a)	0-10

Associated samples MP6643: D30890-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6643
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6644
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 01/11/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.3		
Antimony	0.20	.001	.012		
Arsenic	0.40	.049	.1	0.15	<0.40
Barium	1.0	.0035	.025		
Beryllium	0.10	.0075	.055		
Boron	20	.97	.6		
Cadmium	0.050	.023	.034		
Calcium	200	1.8	9.5		
Chromium	1.0	.021	.041		
Cobalt	0.10	.0033	.0085		
Copper	1.0	.011	.055		
Iron	20	.81	18		
Lead	0.25	.0012	.023		
Magnesium	50	.067	.6		
Manganese	0.50	.007	.039		
Molybdenum	0.50	.0044	.025		
Nickel	1.0	.0029	.031		
Phosphorus	30	1.8	3.5		
Potassium	100	2	6		
Selenium	0.20	.075	.19		
Silver	0.050	.0008	.022		
Sodium	250	.8	3		
Strontium	10	.004	.024		
Thallium	0.10	.015	.013		
Tin	5.0	.006	.15		
Titanium	1.0	.035	.12		
Uranium	0.25	.00038	.008		
Vanadium	2.0	.052	.19		
Zinc	5.0	.039	.23		

Associated samples MP6644: D30890-1

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: D30890
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 197-33A

QC Batch ID: MP6644
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: mg/kg

Prep Date: 01/11/12

Metal	D30887-1 Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	5.2	107	110	92.9	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 MP6644: D30890-1

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

13.3.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30890
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 197-33A

QC Batch ID: MP6644
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: mg/kg

Prep Date: 01/11/12

Metal	D30887-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	5.2	112	112	95.6	4.6	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 MP6644: D30890-1

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: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6644
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 01/11/12

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	102	100	102.0	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP6644: D30890-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D30890
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 197-33A

QC Batch ID: MP6644
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: ug/l

Prep Date: 01/11/12

Metal	D30887-1			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic	41.7	48.0	4.1	0-10	
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6644: D30890-1

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

13.3.4
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BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D30890
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 197-33A

QC Batch ID: MP6645
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 01/11/12

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.10	.0011	.013	0.0015	<0.10

Associated samples MP6645: D30890-1

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: D30890
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 197-33A

QC Batch ID: MP6645
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 01/11/12

Metal	D30887-1		Spikelot	QC	
	Original MS		HGWSR1	% Rec	Limits
Mercury	0.011	0.44	0.455	94.2	75-125

Associated samples MP6645: D30890-1

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: D30890
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 197-33A

QC Batch ID: MP6645
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 01/11/12

Metal	D30887-1 Original MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.011	0.42	0.447	91.6	4.7

Associated samples MP6645: D30890-1

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: D30890
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 197-33A

QC Batch ID: MP6645
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 01/11/12

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
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Mercury	0.42	0.4	105.0	80-120
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Associated samples MP6645: D30890-1

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

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D30890
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	GP6280/GN13217			umhos/cm	10008	10000	100.0	90-110%
pH	GN13205			su	8.00	8.05	100.6	99.3-100.7%

Associated Samples:
Batch GN13205: D30890-1
Batch GP6280: D30890-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D30890
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	GN13195	D30587-1	mv	309	311	0.6	0-20%

Associated Samples:
Batch GN13195: D30890-1
(*) 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

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: D30890
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	GP14035/GN37530	0.40	0.0	mg/kg	40	38.5	96.3	80-120%
Chromium, Hexavalent	GP14035/GN37530			mg/kg	1180	1260	106.8	80-120%

Associated Samples:
Batch GP14035: D30890-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D30890
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	GP14035/GN37530	D30848-1	mg/kg	0.24	0.20	18.2	0-20%

Associated Samples:
Batch GP14035: D30890-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D30890
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	GP14035/GN37530	D30848-1	mg/kg	0.24	43.9	44.0	99.7	75-125%
Chromium, Hexavalent	GP14035/GN37530	D30848-1	mg/kg	0.24	922	1000	108.4	75-125%

Associated Samples:
Batch GP14035: D30890-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits