



10/20/11

Technical Report for

KRW Consulting, Inc.

XOM FRU 297-28C

1108-08A

Accutest Job Number: D28640

Sampling Date: 10/14/11

Report to:

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Total number of pages in report: 140



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: D28640

XOM FRU 297-28C
Project No: 1108-08A

Sample Number	Collected			Received	Matrix		Client Sample ID
	Date	Time	By		Code	Type	
D28640-1	10/14/11	14:30	CB	10/15/11	SO	Sludge	RESERVE PIT CONTENTS
D28640-1A	10/14/11	14:30	CB	10/15/11	SO	Sludge	RESERVE PIT 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** D28640**Site:** XOM FRU 297-28C**Report Dat** 10/20/2011 3:55:01 PM

On 10/15/2011, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 0.2 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D28640 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:** V3V810

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D28640-1MS, D28640-1MSD were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO**Batch ID:** OP4673

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D28641-1MS, D28641-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- The matrix spike (MS) and matrix spike duplicate (MSD) recovery(s) of multiple analytes are outside control limits. Probable cause due to dilution.
- The RPD(s) for the MS and MSD recoveries of Benzo(b)fluoranthene are outside control limits for sample OP4673-MSD. Probable cause due to sample homogeneity.
- D28640-1: Elevated RL due to matrix interference.

Volatiles by GC By Method SW846 8015B

Matrix SO**Batch ID:** GGB767

- All samples were analyzed within the recommended method holding time.
- Sample(s) D28641-2MS, D28641-2MSD 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:** OP4672

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D28641-1MS, D28641-1MSD were used as the QC samples indicated.
- The matrix spike (MS) recovery(s) of TPH-DRO (C10-C28) are outside control limits. Outside control limits due to high level in sample relative to spike amount.

Metals By Method SW846 6010B

Matrix AQ

Batch ID: MP6056

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D28641-1AMS, D28641-1AMSD were used as the QC samples for the metals analysis.

Matrix SO

Batch ID: MP6047

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D28641-1MS, D28641-1MSD, D28641-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Zinc are outside control limits for sample MP6047-SD1. High RPD due to possible sample matrix or nonhomogeneity.
- D28640-1 for Selenium: Elevated detection limit due to dilution required for possible matrix interference.
- The serial dilution RPD(s) for Selenium, Silver are outside control limits for sample MP6047-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Metals By Method SW846 6020

Matrix SO

Batch ID: MP6048

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D28641-1MS, D28641-1MSD, D28641-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Arsenic are outside control limits for sample MP6048-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Metals By Method SW846 7471A

Matrix SO

Batch ID: MP6062

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D28640-1MSD, D28640-1MS were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Mercury are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO

Batch ID: GN12081

- Sample(s) D28640-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN12045

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO

Batch ID: R10365

- The data for SW846 3060/7196A M meets quality control requirements.
- D28640-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO

Batch ID: M:GP13675

- The data for SW846 3060A/7196A meets quality control requirements.
- D28640-1 for Chromium, Hexavalent: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method SW846 9045C

Matrix SO

Batch ID: GN12075

- The following sample was run outside of holding time for method SW846 9045C: D28640-1.

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO

Batch ID: MP6056

- D28640-1A 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 D28640

Site: KRWCCOL: XOM FRU 297-28C

Report Date 10/20/2011 4:25:04 PM

1 Sample was collected on 10/14/2011 and were received at Accutest on 10/15/2011 properly preserved, at 1.8 Deg. C and intact. These Samples received an Accutest job number of D28640. 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: GP13675

- 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) D28641-2DUP, D28641-2MS were used as the QC samples for Chromium, Hexavalent.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety. The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(D28640).

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

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Client Sample ID:	RESERVE PIT CONTENTS			Date Sampled:	10/14/11
Lab Sample ID:	D28640-1			Date Received:	10/15/11
Matrix:	SO - Sludge			Percent Solids:	27.3
Method:	SW846 8260B				
Project:	XOM FRU 297-28C				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V14162.D	1	10/17/11	DC	n/a	n/a	V3V810
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	2.50 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	500	220	ug/kg	
108-88-3	Toluene	ND	1000	500	ug/kg	
100-41-4	Ethylbenzene	ND	1000	250	ug/kg	
1330-20-7	Xylene (total)	1290	2000	1000	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	102%		61-130%
460-00-4	4-Bromofluorobenzene	95%		53-131%
17060-07-0	1,2-Dichloroethane-D4	98%		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:	RESERVE PIT CONTENTS			Date Sampled:	10/14/11
Lab Sample ID:	D28640-1			Date Received:	10/15/11
Matrix:	SO - Sludge			Percent Solids:	27.3
Method:	SW846 8270C BY SIM SW846 3546				
Project:	XOM FRU 297-28C				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	3G06557.D	5	10/17/11	TMB	10/17/11	OP4673	E3G239
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	120	98	ug/kg	
120-12-7	Anthracene	ND	120	110	ug/kg	
56-55-3	Benzo(a)anthracene	ND	310	160	ug/kg	
50-32-8	Benzo(a)pyrene	ND	310	220	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	310	230	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	310	130	ug/kg	
218-01-9	Chrysene	ND	310	130	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	310	230	ug/kg	
206-44-0	Fluoranthene	ND	120	120	ug/kg	
86-73-7	Fluorene	ND	120	100	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	370	340	ug/kg	
91-20-3	Naphthalene	ND	120	120	ug/kg	
129-00-0	Pyrene	ND	120	120	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	42%		10-145%
321-60-8	2-Fluorobiphenyl	45%		10-130%
1718-51-0	Terphenyl-d14	70%		22-130%

(a) Elevated RL due to matrix interference.

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:	RESERVE PIT CONTENTS			Date Sampled:	10/14/11
Lab Sample ID:	D28640-1			Date Received:	10/15/11
Matrix:	SO - Sludge			Percent Solids:	27.3
Method:	SW846 8015B				
Project:	XOM FRU 297-28C				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB13500.D	1	10/18/11	SK	n/a	n/a	GGB767
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	2.5 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	96.1	100	50	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	80%		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:	RESERVE PIT CONTENTS					Date Sampled:	10/14/11
Lab Sample ID:	D28640-1					Date Received:	10/15/11
Matrix:	SO - Sludge					Percent Solids:	27.3
Method:	SW846-8015B SW846 3546						
Project:	XOM FRU 297-28C						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD10868.D	1	10/17/11	CS	10/17/11	OP4672	GFD527
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	110	49	32	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	75%		61-142%		

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

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

Report of Analysis

Client Sample ID: RESERVE PIT CONTENTS**Lab Sample ID:** D28640-1**Matrix:** SO - Sludge**Project:** XOM FRU 297-28C**Date Sampled:** 10/14/11**Date Received:** 10/15/11**Percent Solids:** 27.3**Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	8.7	1.5	mg/kg	5	10/17/11	10/17/11 GJ	SW846 6020 ¹	SW846 3050B ⁶
Barium	20500	39	mg/kg	10	10/17/11	10/19/11 JB	SW846 6010B ⁴	SW846 3050B ⁵
Cadmium	< 3.9	3.9	mg/kg	1	10/17/11	10/18/11 JB	SW846 6010B ²	SW846 3050B ⁵
Chromium	15.7	3.9	mg/kg	1	10/17/11	10/18/11 JB	SW846 6010B ²	SW846 3050B ⁵
Copper	20.9	3.9	mg/kg	1	10/17/11	10/18/11 JB	SW846 6010B ²	SW846 3050B ⁵
Lead	< 19	19	mg/kg	1	10/17/11	10/18/11 JB	SW846 6010B ²	SW846 3050B ⁵
Mercury	< 0.38	0.38	mg/kg	1	10/19/11	10/19/11 JB	SW846 7471A ³	SW846 7471A ⁷
Nickel	15.8	12	mg/kg	1	10/17/11	10/18/11 JB	SW846 6010B ²	SW846 3050B ⁵
Selenium ^a	< 96	96	mg/kg	5	10/17/11	10/19/11 JB	SW846 6010B ⁴	SW846 3050B ⁵
Silver	< 12	12	mg/kg	1	10/17/11	10/18/11 JB	SW846 6010B ²	SW846 3050B ⁵
Zinc	46.6	12	mg/kg	1	10/17/11	10/18/11 JB	SW846 6010B ²	SW846 3050B ⁵

(1) Instrument QC Batch: MA1900

(2) Instrument QC Batch: MA1902

(3) Instrument QC Batch: MA1905

(4) Instrument QC Batch: MA1906

(5) Prep QC Batch: MP6047

(6) Prep QC Batch: MP6048

(7) Prep QC Batch: MP6062

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: RESERVE PIT CONTENTS**Lab Sample ID:** D28640-1**Matrix:** SO - Sludge**Project:** XOM FRU 297-28C**Date Sampled:** 10/14/11**Date Received:** 10/15/11**Percent Solids:** 27.3**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent ^a	< 1.5	1.5	mg/kg	1	10/20/11 13:18	AMA	SW846 3060A/7196A
Chromium, Trivalent ^b	15.7	5.4	mg/kg	1	10/20/11 13:18	AMA	SW846 3060/7196A M
Redox Potential Vs H2	299		mv	1	10/18/11	JD	ASTM D1498-76M
Solids, Percent	27.3		%	1	10/17/11	SWT	SM19 2540B M
Specific Conductivity	1650	1.0	umhos/cm	1	10/18/11	JD	DEPT.OF AG, BOOK N9
pH	8.88		su	1	10/18/11 15:05	JD	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: RESERVE PIT CONTENTS**Lab Sample ID:** D28640-1A**Matrix:** SO - Sludge**Project:** XOM FRU 297-28C**Date Sampled:** 10/14/11**Date Received:** 10/15/11**Percent Solids:** 27.3

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	13.1	2.0	mg/l	1	10/18/11	10/19/11 JB	SW846 6010B ¹	EPA 200.7 ²
Magnesium	2.18	1.0	mg/l	1	10/18/11	10/19/11 JB	SW846 6010B ¹	EPA 200.7 ²
Sodium	432	2.0	mg/l	1	10/18/11	10/19/11 JB	SW846 6010B ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA1902

(2) Prep QC Batch: MP6056

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RESERVE PIT CONTENTS	Date Sampled:	10/14/11
Lab Sample ID:	D28640-1A	Date Received:	10/15/11
Matrix:	SO - Sludge	Percent Solids:	27.3
Project:	XOM FRU 297-28C		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	29.1		ratio	1	10/19/11 02:44	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

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

[illegible]

D28640: Chain of Custody

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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D28640

Client: KRW

Immediate Client Services Action Required: No

Date / Time Received: 10/15/2011 8:30:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XOM

Airbill #'s: FEDEX

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

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

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

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

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

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

Comments

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www.accutest.com

GC/MS Volatiles

5

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D28640**Account:** KRWCCOL KRW Consulting, Inc.**Project:** XOM FRU 297-28C

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V810-MB	3V14160.D	1	10/17/11	DC	n/a	n/a	V3V810

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

D28640-1

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	103% 61-130%
460-00-4	4-Bromofluorobenzene	85% 53-131%
17060-07-0	1,2-Dichloroethane-D4	96% 62-130%

Blank Spike Summary

Page 1 of 1

Job Number: D28640

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-28C

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V810-BS	3V14161.D	1	10/17/11	DC	n/a	n/a	V3V810

The QC reported here applies to the following samples:

Method: SW846 8260B

D28640-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	48.6	97	70-130
100-41-4	Ethylbenzene	50	48.5	97	70-130
108-88-3	Toluene	50	47.9	96	70-130
1330-20-7	Xylene (total)	150	157	105	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	94%	61-130%
460-00-4	4-Bromofluorobenzene	104%	53-131%
17060-07-0	1,2-Dichloroethane-D4	99%	62-130%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D28640

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-28C

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D28640-1MS	3V14163.D	1	10/17/11	DC	n/a	n/a	V3V810
D28640-1MSD	3V14164.D	1	10/17/11	DC	n/a	n/a	V3V810
D28640-1	3V14162.D	1	10/17/11	DC	n/a	n/a	V3V810

The QC reported here applies to the following samples:

Method: SW846 8260B

D28640-1

CAS No.	Compound	D28640-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		25000	23600	95	24800	99	5	70-134/30
100-41-4	Ethylbenzene	ND		25000	24600	99	25600	103	4	70-137/30
108-88-3	Toluene	ND		25000	23100	93	24200	97	5	70-130/30
1330-20-7	Xylene (total)	1290	J	74900	78800	104	83400	110	6	61-131/30

CAS No.	Surrogate Recoveries	MS	MSD	D28640-1	Limits
2037-26-5	Toluene-D8	95%	94%	102%	61-130%
460-00-4	4-Bromofluorobenzene	108%	110%	95%	53-131%
17060-07-0	1,2-Dichloroethane-D4	87%	84%	98%	62-130%

GC/MS Volatiles

Raw Data



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3101711.S\
 Data File : 3V14162.D
 Acq On : 17 Oct 2011 12:36 pm
 Operator : DONC
 Sample : D28640-1, 100x
 Misc : MS2835,V3V810,2.503,,100,5,1
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 18 13:32:02 2011
 Quant Method : C:\msdchem\1\METHODS\V3AP794TVH794.M
 Quant Title : 8260
 QLast Update : Fri Aug 26 09:59:31 2011
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.888	168	154650	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.681	114	268826	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.315	117	245834	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.314	152	141645	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.286	102	22783	48.90	ug/l	0.00
Spiked Amount	50.000	Range 70 - 130	Recovery	=	97.80%	
61) Toluene-d8	14.073	98	385644	51.18	ug/l	0.00
Spiked Amount	50.000	Range 70 - 130	Recovery	=	102.36%	
69) 4-Bromofluorobenzene	16.265	95	132152	47.54	ug/l	0.00
Spiked Amount	50.000	Range 70 - 130	Recovery	=	95.08%	

Target Compounds

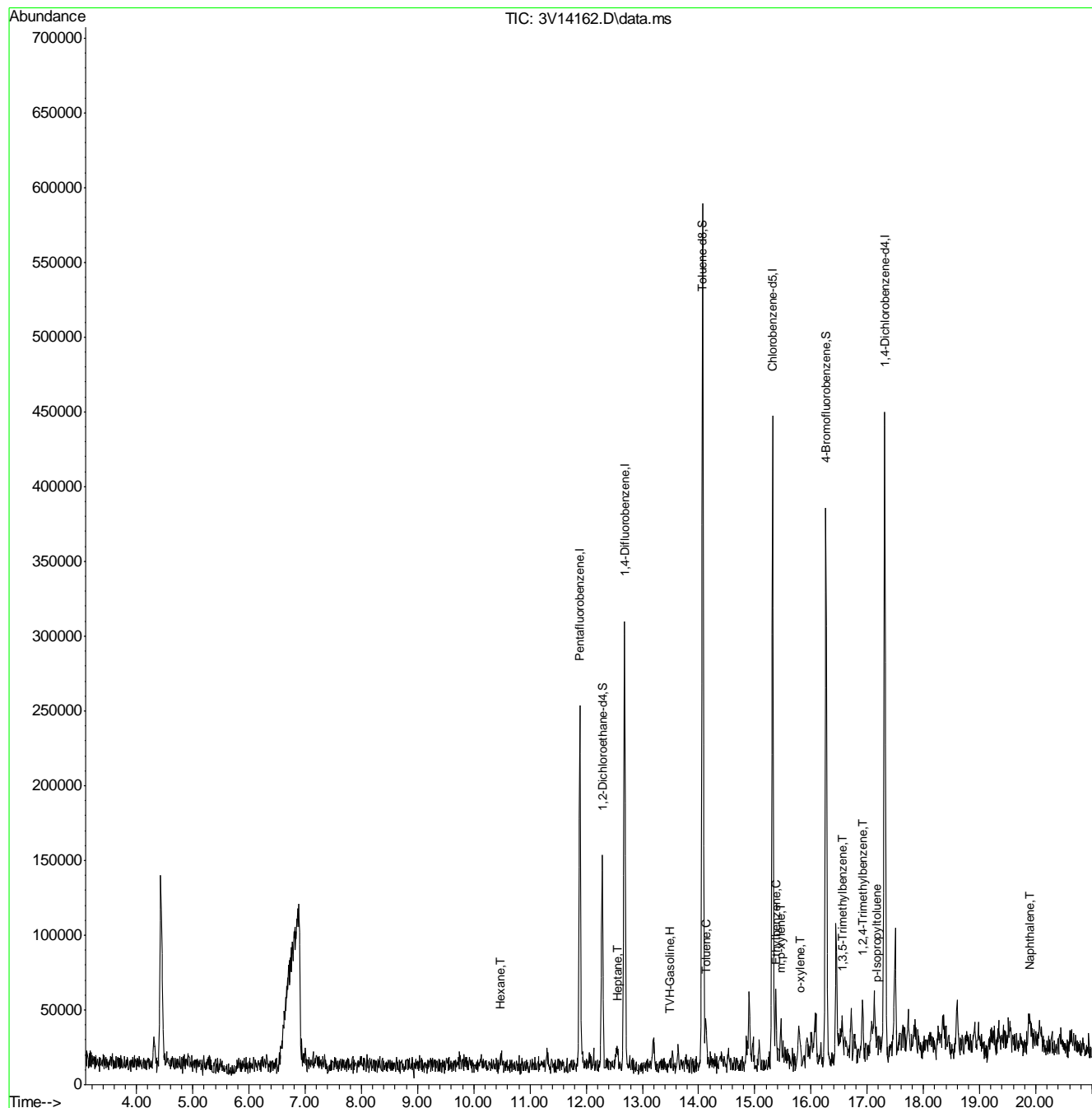
						Qvalue
1) TVH-Gasoline	13.491	TIC	884896m	58.19	ug/l	
41) Hexane	10.480	57	3815m	1.49	ug/l	
43) Heptane	12.549	43	2822	0.86	ug/l #	61
62) Toluene	14.134	92	4837	0.89	ug/l	97
66) Ethylbenzene	15.389	91	4800m	0.47	ug/l	
72) m,p-xylene	15.466	106	7085	1.67	ug/l #	85
73) o-xylene	15.816	106	3875m	0.91	ug/l	
80) 1,3,5-Trimethylbenzene	16.563	105	3095	0.34	ug/l	95
82) 1,2,4-Trimethylbenzene	16.916	105	13723	1.48	ug/l	89
86) p-Isopropyltoluene	17.173	119	4341	0.42	ug/l #	89
91) Naphthalene	19.888	128	23008m	2.87	ug/l	

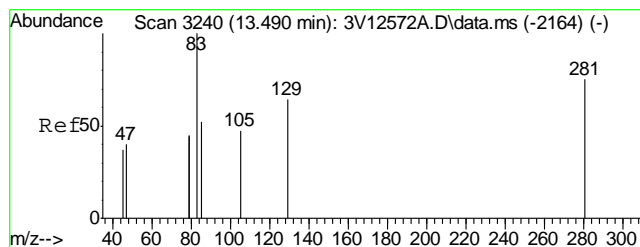
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3101711.S\
Data File : 3V14162.D
Acq On : 17 Oct 2011 12:36 pm
Operator : DONC
Sample : D28640-1, 100x
Misc : MS2835,V3V810,2.503,,100,5,1
ALS Vial : 7 Sample Multiplier: 1

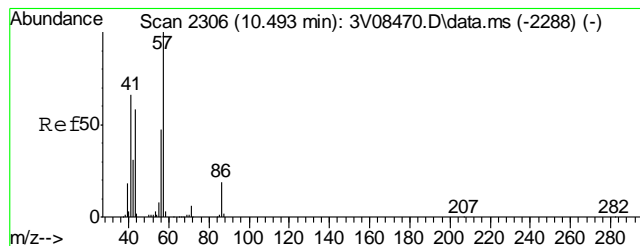
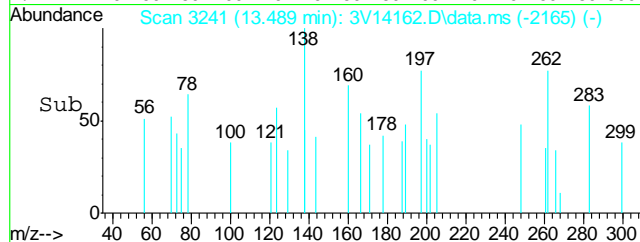
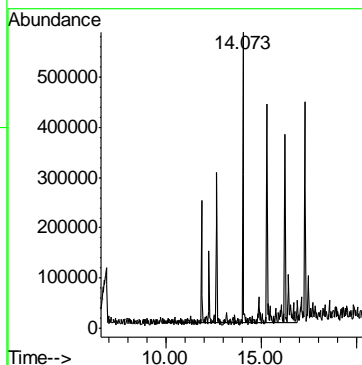
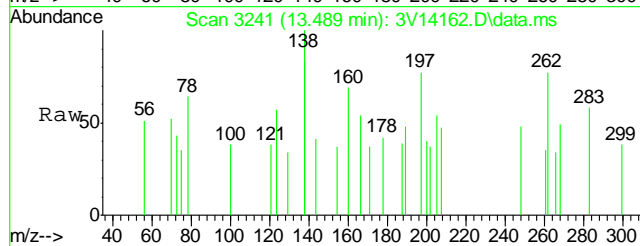
Quant Time: Oct 18 13:32:02 2011
Quant Method : C:\msdchem\1\METHODS\V3AP794TVH794.M
Quant Title : 8260
QLast Update : Fri Aug 26 09:59:31 2011
Response via : Initial Calibration





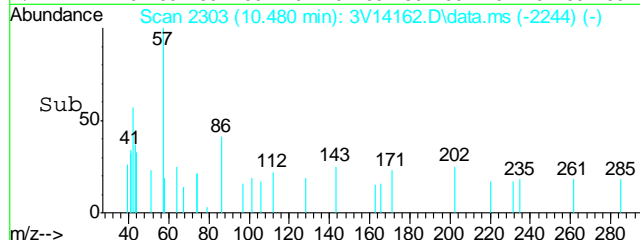
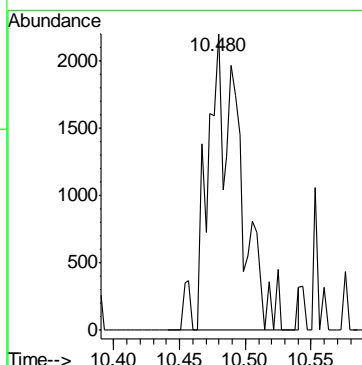
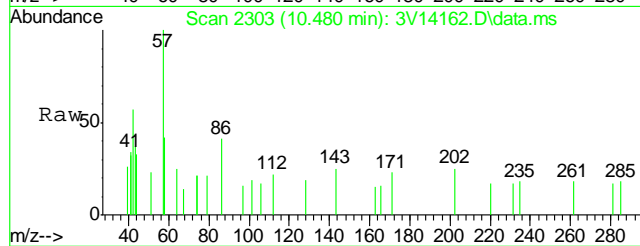
#1
TVH-Gasoline
Concen: 58.19 ug/l m
RT: 13.491 min Scan# 3241
Delta R.T. 0.000 min
Lab File: 3V14162.D
Acq: 17 Oct 2011 12:36 pm

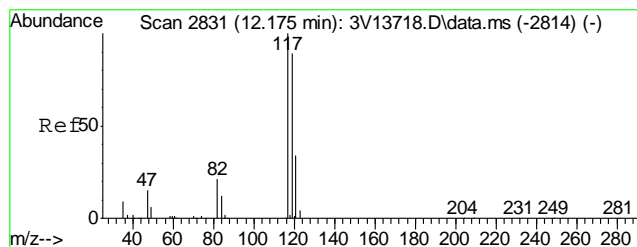
Tgt Ion:TIC Resp: 884896



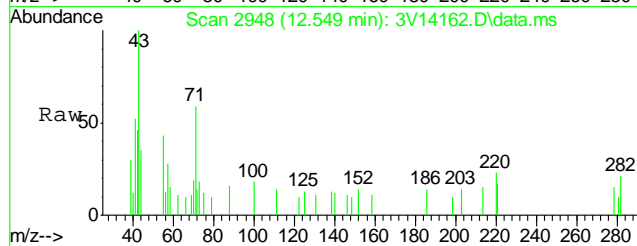
#41
Hexane
Concen: 1.49 ug/l m
RT: 10.480 min Scan# 2303
Delta R.T. -0.009 min
Lab File: 3V14162.D
Acq: 17 Oct 2011 12:36 pm

Tgt Ion: 57 Resp: 3815

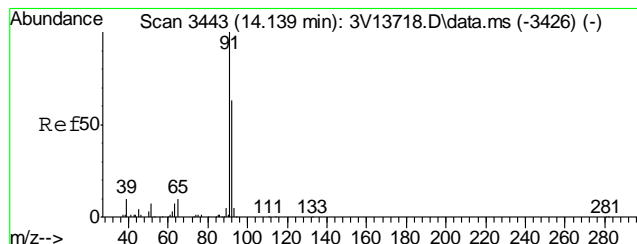
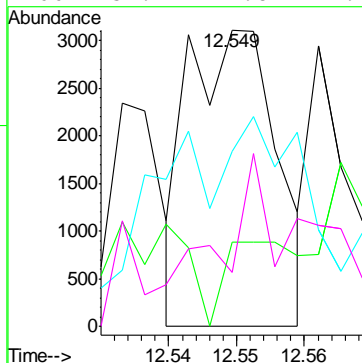
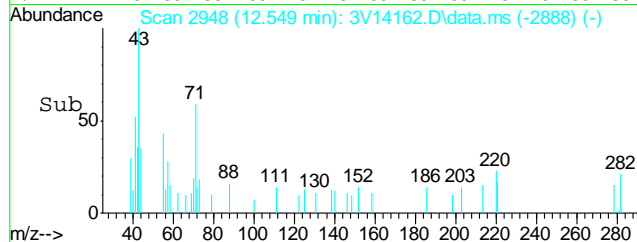




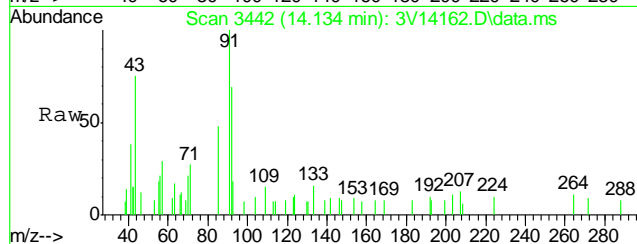
#43
Heptane
Concen: 0.86 ug/l
RT: 12.549 min Scan# 2948
Delta R.T. -0.006 min
Lab File: 3V14162.D
Acq: 17 Oct 2011 12:36 pm



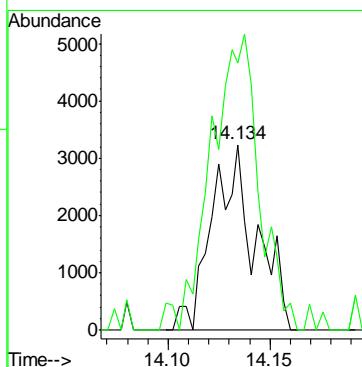
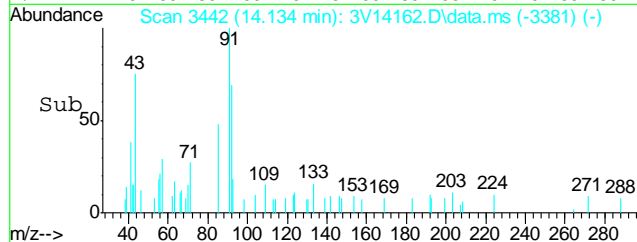
Tgt Ion: 43 Resp: 2822
Ion Ratio Lower Upper
43 100
57 23.2 32.4 72.4#
71 76.3 38.3 78.3
100 57.2 1.8 41.8#

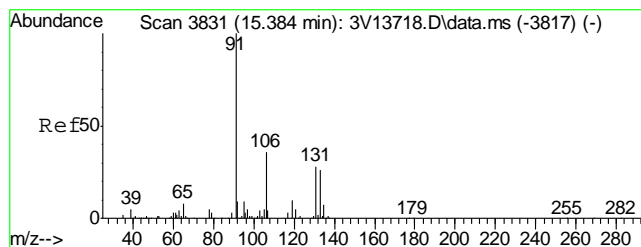


#62
Toluene
Concen: 0.89 ug/l
RT: 14.134 min Scan# 3442
Delta R.T. -0.003 min
Lab File: 3V14162.D
Acq: 17 Oct 2011 12:36 pm



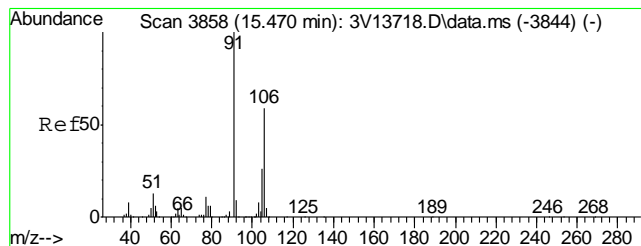
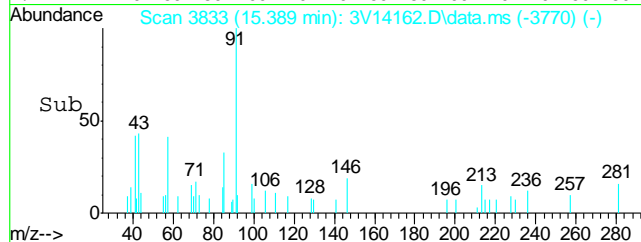
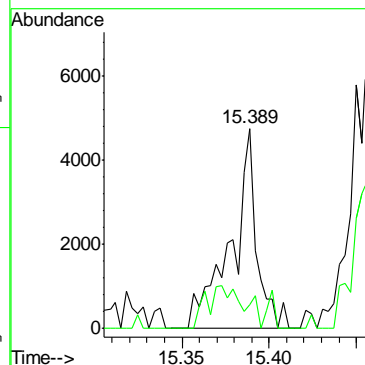
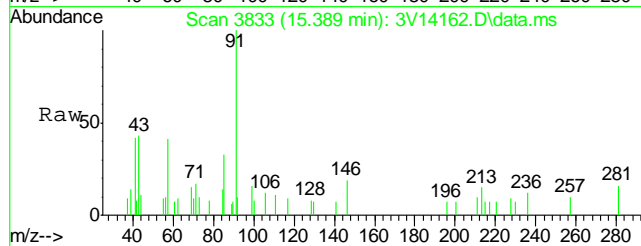
Tgt Ion: 92 Resp: 4837
Ion Ratio Lower Upper
92 100
91 175.7 152.1 192.1





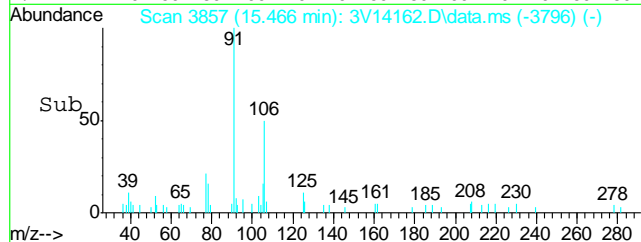
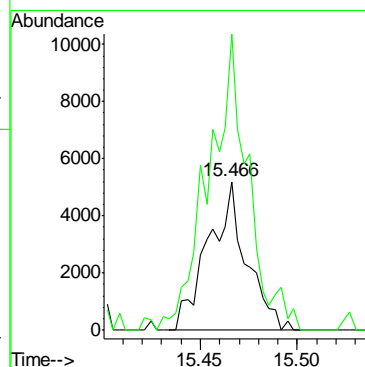
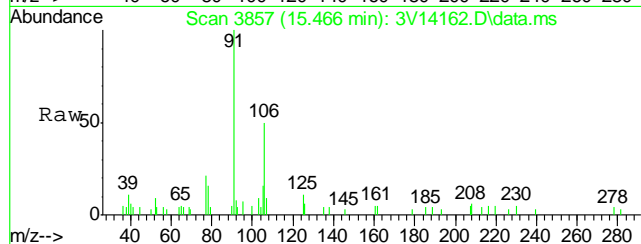
#66
Ethylbenzene
Concen: 0.47 ug/l m
RT: 15.389 min Scan# 3833
Delta R.T. 0.003 min
Lab File: 3V14162.D
Acq: 17 Oct 2011 12:36 pm

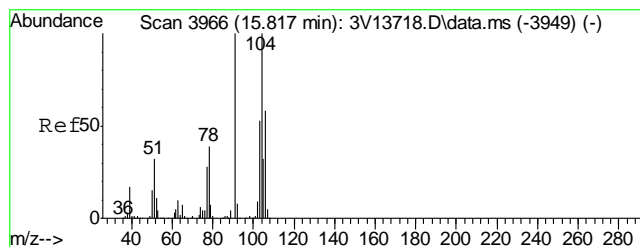
Tgt Ion: 91 Resp: 4800
Ion Ratio Lower Upper
91 100
106 147.6 13.3 53.3#



#72
m,p-xylene
Concen: 1.67 ug/l
RT: 15.466 min Scan# 3857
Delta R.T. -0.003 min
Lab File: 3V14162.D
Acq: 17 Oct 2011 12:36 pm

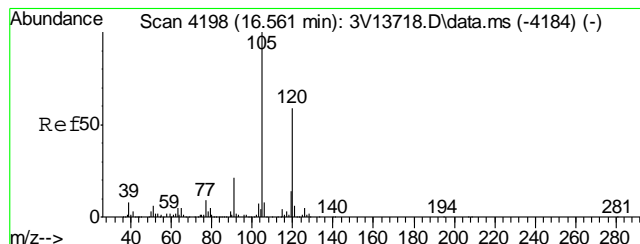
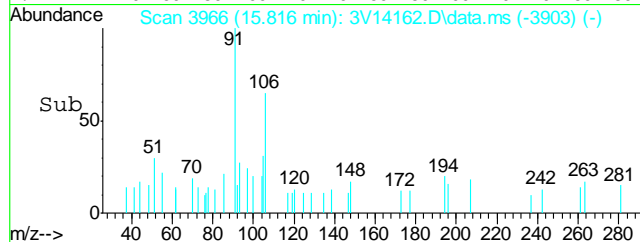
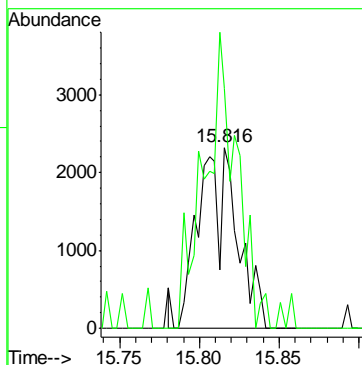
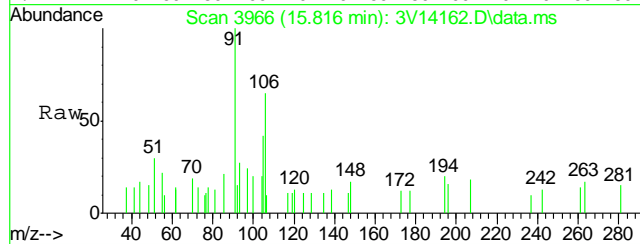
Tgt Ion: 106 Resp: 7085
Ion Ratio Lower Upper
106 100
91 207.3 165.2 205.2#





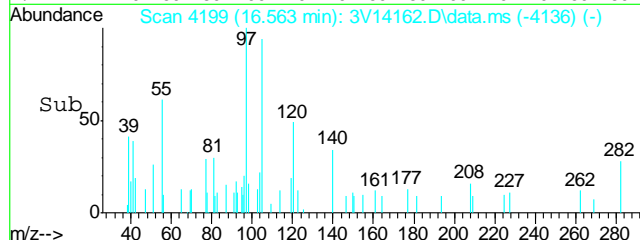
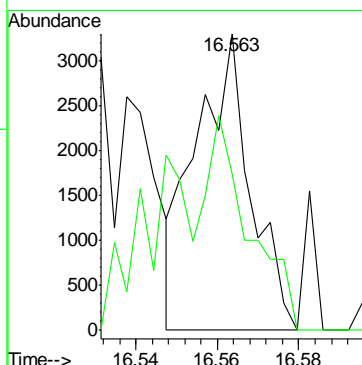
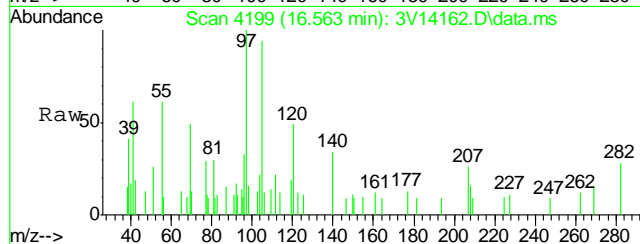
#73
o-xylene
Concen: 0.91 ug/l m
RT: 15.816 min Scan# 3966
Delta R.T. 0.003 min
Lab File: 3V14162.D
Acq: 17 Oct 2011 12:36 pm

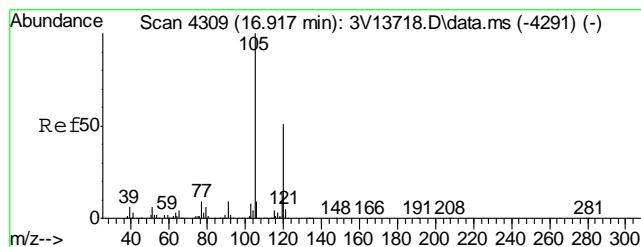
Tgt Ion:106 Resp: 3875
Ion Ratio Lower Upper
106 100
91 0.0 157.0 235.4#



#80
1,3,5-Trimethylbenzene
Concen: 0.34 ug/l
RT: 16.563 min Scan# 4199
Delta R.T. 0.003 min
Lab File: 3V14162.D
Acq: 17 Oct 2011 12:36 pm

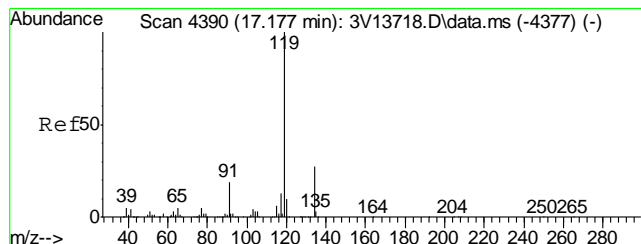
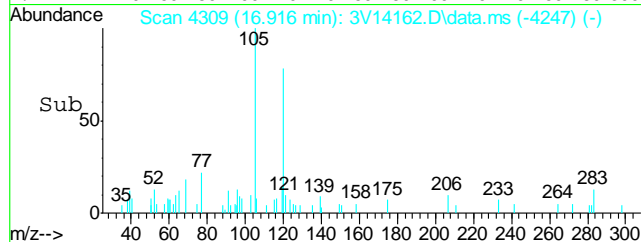
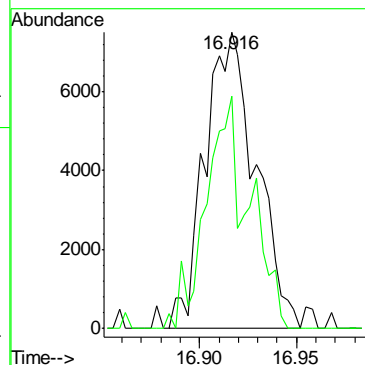
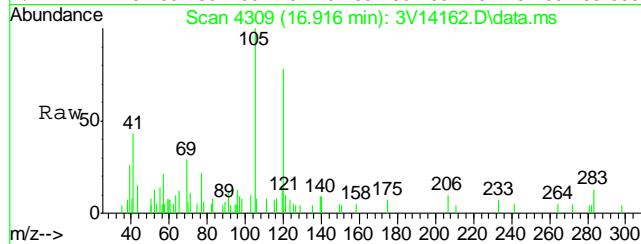
Tgt Ion:105 Resp: 3095
Ion Ratio Lower Upper
105 100
120 57.4 42.9 64.3





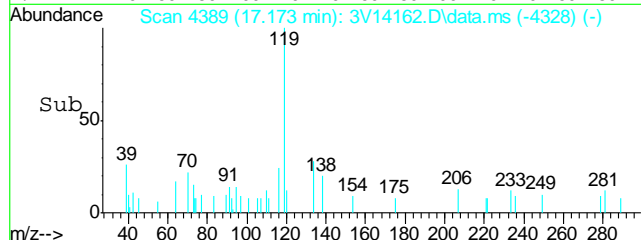
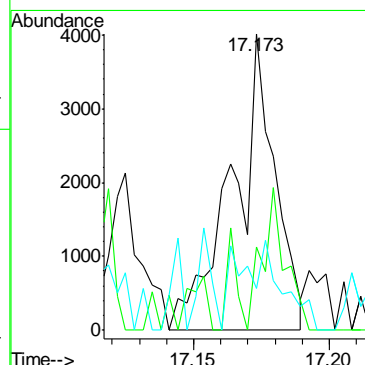
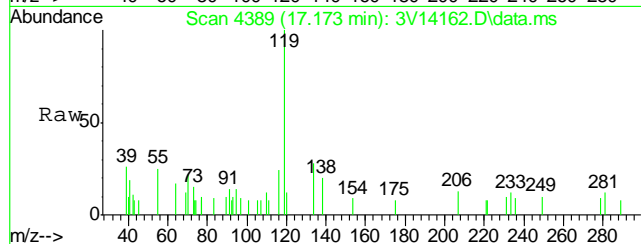
#82
1,2,4-Trimethylbenzene
Concen: 1.48 ug/l
RT: 16.916 min Scan# 4309
Delta R.T. 0.000 min
Lab File: 3V14162.D
Acq: 17 Oct 2011 12:36 pm

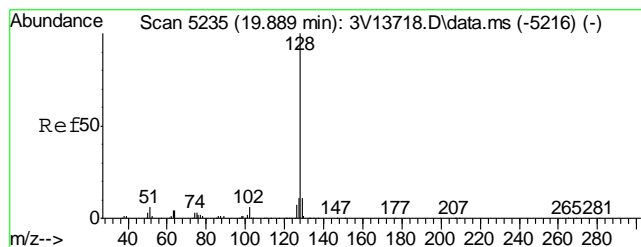
Tgt Ion	Ratio	Lower	Upper
105	100		
120	66.2	46.6	69.8



#86
p-Isopropyltoluene
Concen: 0.42 ug/l
RT: 17.173 min Scan# 4389
Delta R.T. -0.003 min
Lab File: 3V14162.D
Acq: 17 Oct 2011 12:36 pm

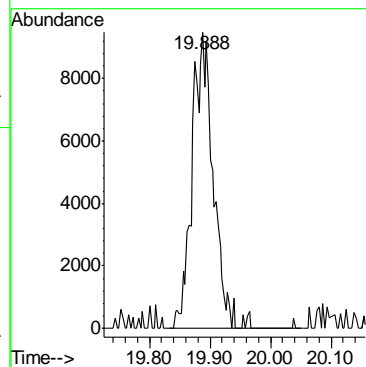
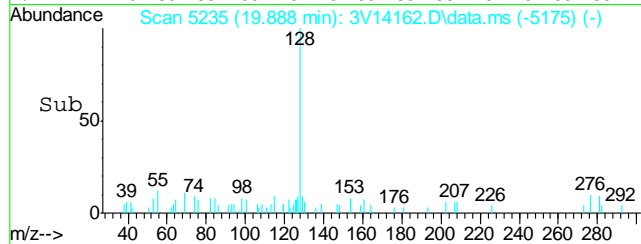
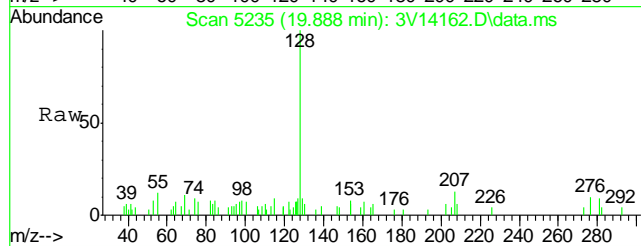
Tgt Ion	Ratio	Lower	Upper
119	100		
134	26.3	21.8	32.8
91	10.3	16.7	25.1#





#91
Naphthalene
Concen: 2.87 ug/l m
RT: 19.888 min Scan# 5235
Delta R.T. -0.006 min
Lab File: 3V14162.D
Acq: 17 Oct 2011 12:36 pm

Tgt Ion:128 Resp: 23008



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3101711.S\
Data File : 3V14160.D
Acq On : 17 Oct 2011 11:28 am
Operator : DONC
Sample : MB
Misc : MS2835,V3V810,5,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 18 13:27:53 2011
Quant Method : C:\msdchem\1\METHODS\V3AP794TVH794.M
Quant Title : 8260
QLast Update : Fri Aug 26 09:59:31 2011
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.889	168	155932	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.678	114	267539	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.316	117	242667	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.309	152	123082	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.287	102	22553	48.01	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	96.02%
61) Toluene-d8	14.074	98	384555	51.71	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	103.42%
69) 4-Bromofluorobenzene	16.266	95	117044	42.65	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	85.30%

Target Compounds

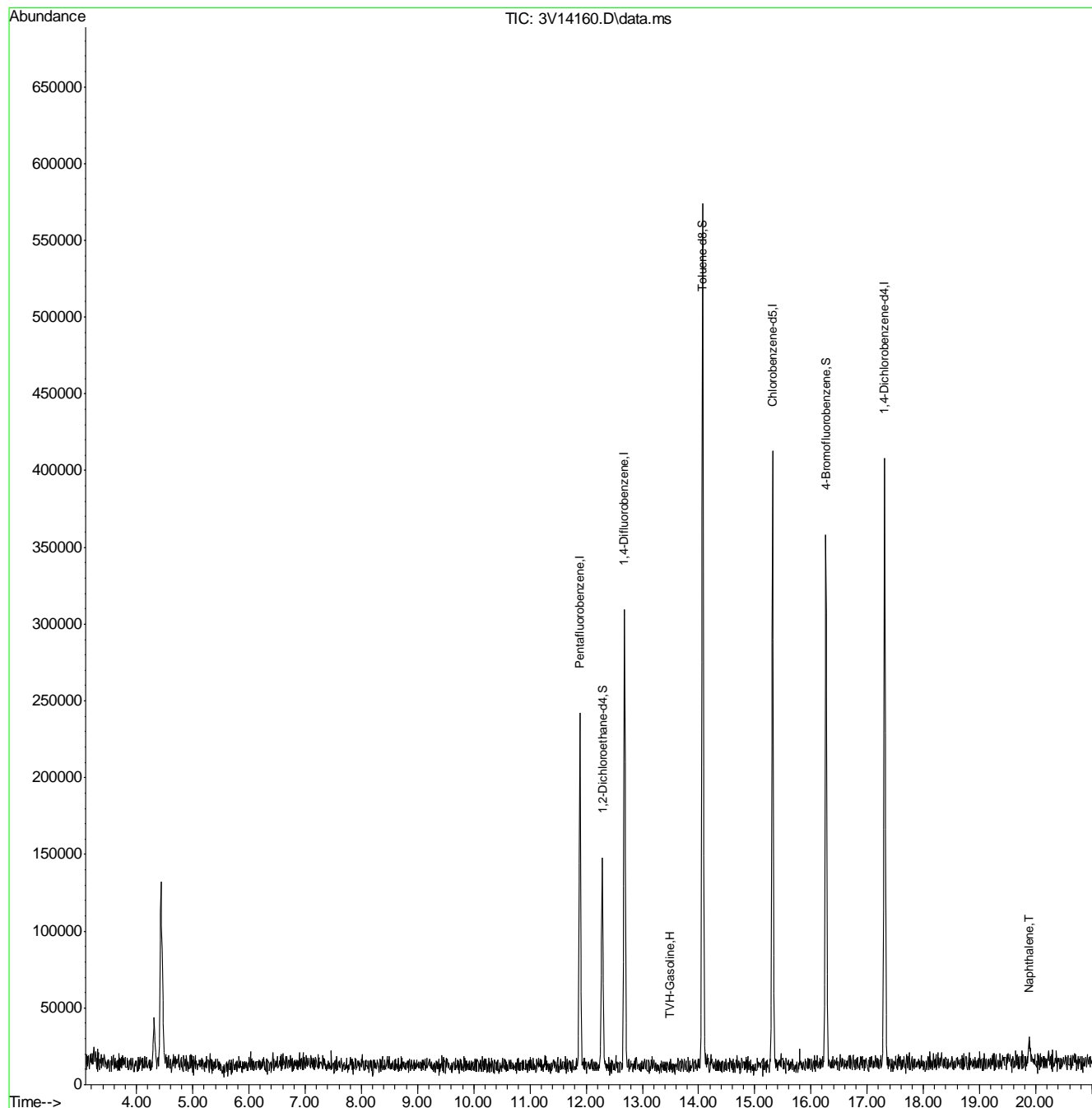
					Qvalue
1) TVH-Gasoline	13.491	TIC	89112m	1.18	ug/l
91) Naphthalene	19.892	128	15768	2.27	ug/l

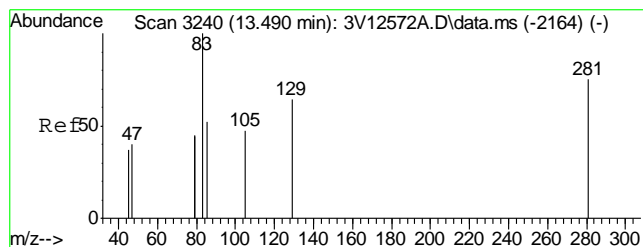
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3101711.S\
Data File : 3V14160.D
Acq On : 17 Oct 2011 11:28 am
Operator : DONC
Sample : MB
Misc : MS2835,V3V810,5,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

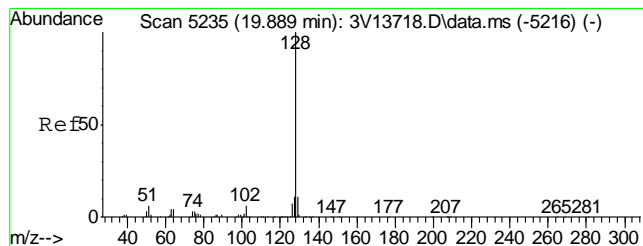
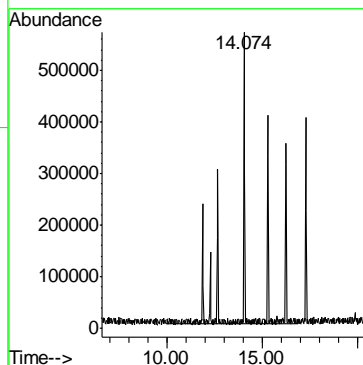
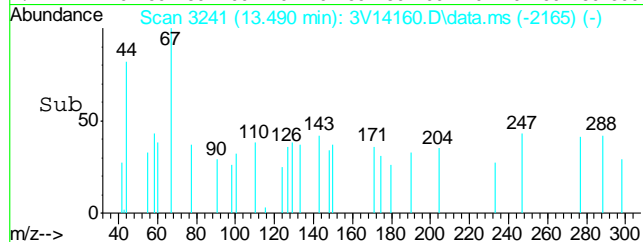
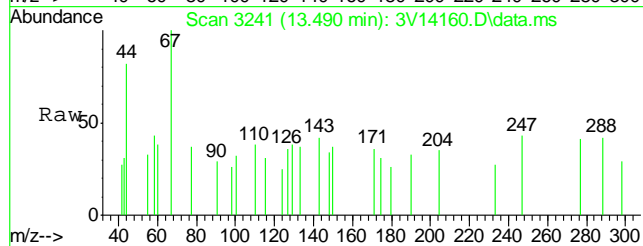
Quant Time: Oct 18 13:27:53 2011
Quant Method : C:\msdchem\1\METHODS\V3AP794TVH794.M
Quant Title : 8260
QLast Update : Fri Aug 26 09:59:31 2011
Response via : Initial Calibration





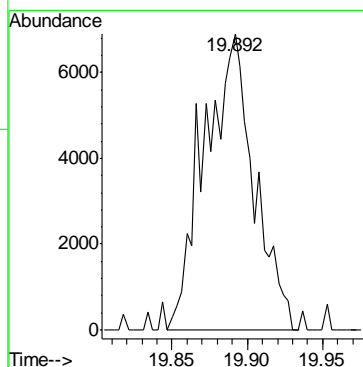
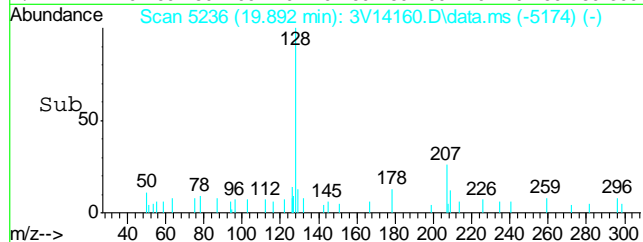
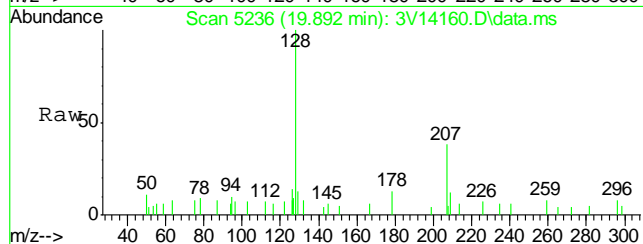
#1
TVH-Gasoline
Concen: 1.18 ug/l m
RT: 13.491 min Scan# 3241
Delta R.T. 0.000 min
Lab File: 3V14160.D
Acq: 17 Oct 2011 11:28 am

Tgt Ion:TIC Resp: 89112



#91
Naphthalene
Concen: 2.27 ug/l
RT: 19.892 min Scan# 5236
Delta R.T. -0.002 min
Lab File: 3V14160.D
Acq: 17 Oct 2011 11:28 am

Tgt Ion:128 Resp: 15768



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: D28640**Account:** KRWCCOL KRW Consulting, Inc.**Project:** XOM FRU 297-28C

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4673-MB	3G06555.D	1	10/17/11	TMB	10/17/11	OP4673	E3G239

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

D28640-1

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	61% 10-145%
321-60-8	2-Fluorobiphenyl	61% 10-130%
1718-51-0	Terphenyl-d14	76% 22-130%

Blank Spike Summary

Page 1 of 1

Job Number: D28640

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-28C

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4673-BS	3G06556.D	1	10/17/11	TMB	10/17/11	OP4673	E3G239

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D28640-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	62.4	75	34-130
120-12-7	Anthracene	83.3	68.1	82	35-130
56-55-3	Benzo(a)anthracene	83.3	72.3	87	36-130
50-32-8	Benzo(a)pyrene	83.3	65.2	78	36-130
205-99-2	Benzo(b)fluoranthene	83.3	70.7	85	35-130
207-08-9	Benzo(k)fluoranthene	83.3	66.0	79	37-130
218-01-9	Chrysene	83.3	66.0	79	40-130
53-70-3	Dibenzo(a,h)anthracene	83.3	65.3	78	32-130
206-44-0	Fluoranthene	83.3	64.2	77	38-130
86-73-7	Fluorene	83.3	64.9	78	35-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	57.1	69	28-130
91-20-3	Naphthalene	83.3	65.1	78	35-130
129-00-0	Pyrene	83.3	69.6	84	37-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	84%	10-145%
321-60-8	2-Fluorobiphenyl	80%	10-130%
1718-51-0	Terphenyl-d14	96%	22-130%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D28640
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-28C

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4673-MS ^a	3G06559.D	10	10/18/11	TMB	10/17/11	OP4673	E3G239
OP4673-MSD ^a	3G06560.D	10	10/18/11	TMB	10/17/11	OP4673	E3G239
D28641-1	3G06558.D	10	10/18/11	TMB	10/17/11	OP4673	E3G239

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D28640-1

CAS No.	Compound	D28641-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		87.4	151	173*	145	166*	4	10-155/30
120-12-7	Anthracene	ND		87.4	ND	0*	ND	0*	nc	10-155/30
56-55-3	Benzo(a)anthracene	ND		87.4	139	159	149	171	7	10-175/30
50-32-8	Benzo(a)pyrene	ND		87.4	ND	0*	ND	0*	nc	10-164/30
205-99-2	Benzo(b)fluoranthene	ND		87.4	ND	0*	133	152	200*	10-165/30
207-08-9	Benzo(k)fluoranthene	ND		87.4	ND	0*	ND	0*	nc	10-178/30
218-01-9	Chrysene	115	J	87.4	152	42	157	48	3	10-147/30
53-70-3	Dibenzo(a,h)anthracene	ND		87.4	ND	0*	ND	0*	nc	10-144/30
206-44-0	Fluoranthene	ND		87.4	118	135	121	138	3	10-207/30
86-73-7	Fluorene	ND		87.4	337	385*	332	380*	1	10-163/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		87.4	194	222*	197	225*	2	10-180/30
91-20-3	Naphthalene	350		87.4	370	23	365	17	1	10-198/30
129-00-0	Pyrene	113		87.4	179	75	187	85	4	10-189/30

CAS No.	Surrogate Recoveries	MS	MSD	D28641-1	Limits
4165-60-0	Nitrobenzene-d5	73%	77%	68%	10-145%
321-60-8	2-Fluorobiphenyl	60%	60%	65%	10-130%
1718-51-0	Terphenyl-d14	76%	81%	89%	22-130%

(a) Outside control limits due to dilution.

GC/MS Semi-volatiles

Raw Data

∞

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\101711\
 Data File : 3g06557.D
 Acq On : 17 Oct 2011 11:25 pm
 Operator : TamiB
 Sample : D28640-1,5x
 Misc : OP4673,E3G239,30.02,,,1,5
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 19 12:05:26 2011
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G239.M
 Quant Title : PAHSIM BASE
 QLast Update : Wed Oct 19 11:59:35 2011
 Response via : Initial Calibration

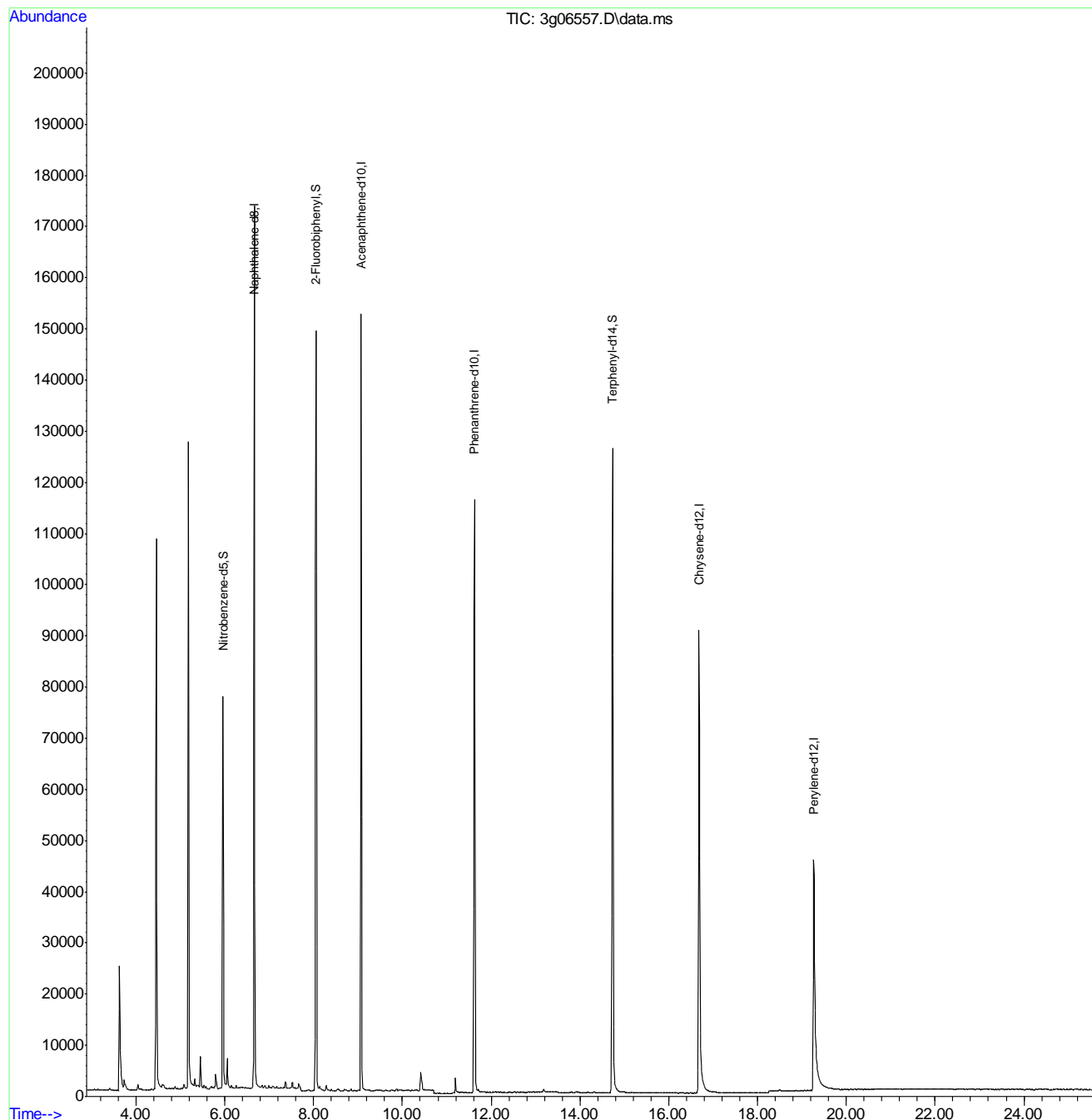
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.668	136	160884	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.074	164	80059	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.625	188	132774	4.00	ug/mL	0.00
18) Chrysene-d12	16.683	240	129542	4.00	ug/mL	0.00
23) Perylene-d12	19.267	264	98874	4.00	ug/mL	-0.01
System Monitoring Compounds						
2) Nitrobenzene-d5	5.957	82	43744	4.18	ug/mL	0.00
7) 2-Fluorobiphenyl	8.058	172	137657	4.45	ug/mL	0.00
20) Terphenyl-d14	14.735	244	154381	6.98	ug/mL	0.00
Target Compounds						
					Qvalue	
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	0.000		0	N.D.	d	
8) 2-Methylnaphthalene	0.000		0	N.D.	d	
9) 1-Methylnaphthalene	0.000		0	N.D.	d	
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	0.000		0	N.D.	d	
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	0.000		0	N.D.	d	
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	0.000		0	N.D.	d	
21) Benzo(a)anthracene	0.000		0	N.D.	d	
22) Chrysene	0.000		0	N.D.	d	
24) Benzo(b)fluoranthene	0.000		0	N.D.	d	
25) Benzo(k)fluoranthene	0.000		0	N.D.	d	
26) Benzo(a)pyrene	0.000		0	N.D.	d	
27) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
28) Dibenz(a,h)anthracene	0.000		0	N.D.	d	
29) Benzo(g,h,i)perylene	0.000		0	N.D.	d	

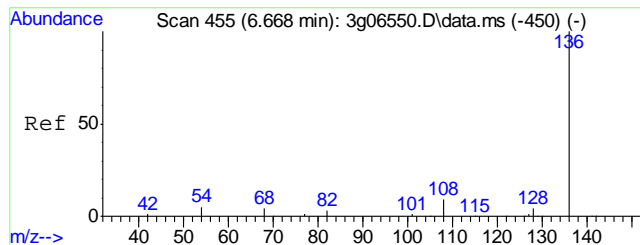
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\101711\
Data File : 3g06557.D
Acq On : 17 Oct 2011 11:25 pm
Operator : TamiB
Sample : D28640-1,5x
Misc : OP4673,E3G239,30.02,,,1,5
ALS Vial : 15 Sample Multiplier: 1

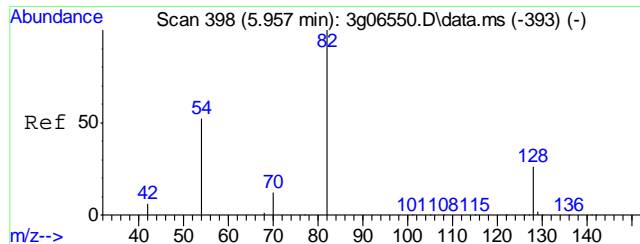
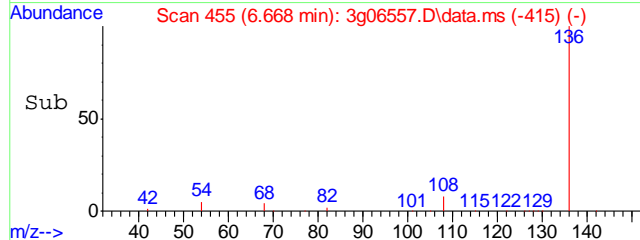
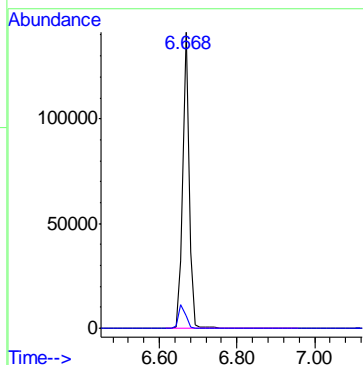
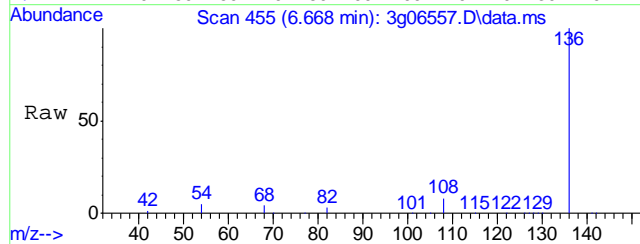
Quant Time: Oct 19 12:05:26 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G239.M
Quant Title : PAHSIM BASE
QLast Update : Wed Oct 19 11:59:35 2011
Response via : Initial Calibration





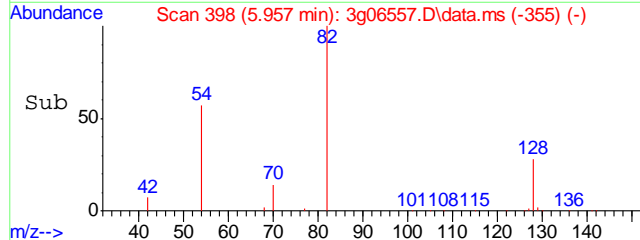
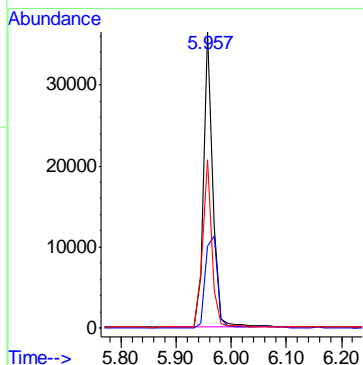
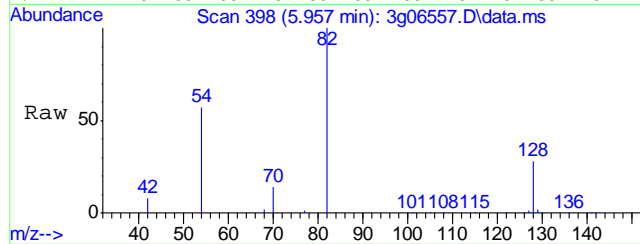
#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.668 min Scan# 455
Delta R.T. -0.000 min
Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

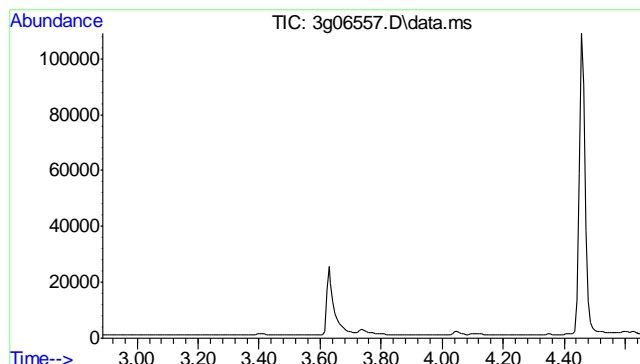
Tgt Ion: 136 Resp: 160884
Ion Ratio Lower Upper
136 100
68 8.7 0.0 28.7



#2
Nitrobenzene-d5
Concen: 4.18 ug/mL
RT: 5.957 min Scan# 398
Delta R.T. -0.000 min
Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

Tgt Ion: 82 Resp: 43744
Ion Ratio Lower Upper
82 100
128 40.1 18.7 58.7
54 57.7 34.6 74.6

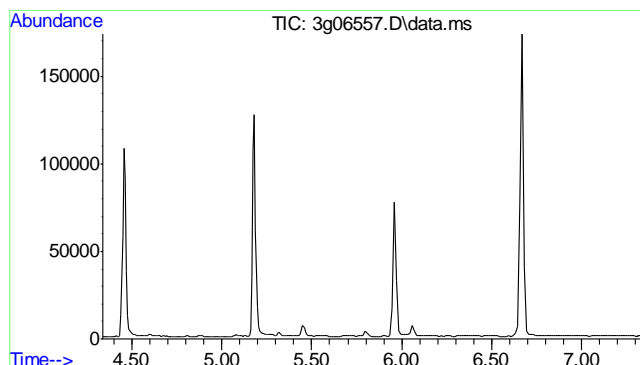
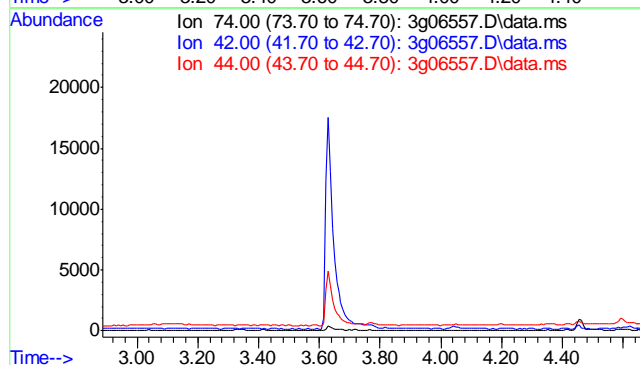




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 3.16 min

Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

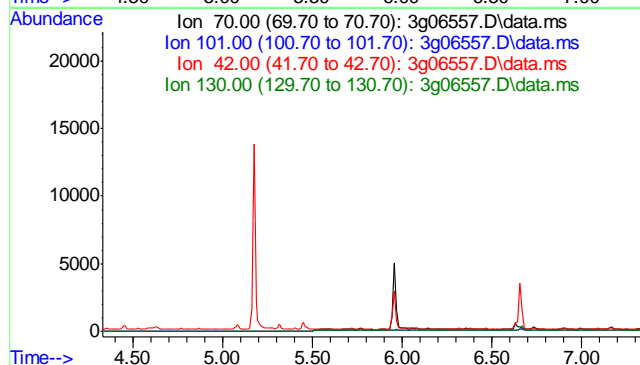
Tgt Ion	Exp Ratio
74	100
42	65.1
44	4.0

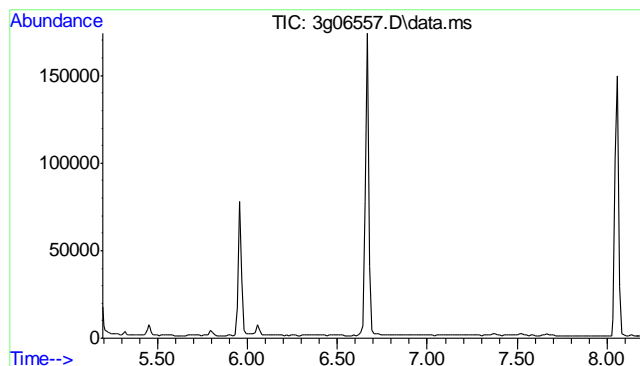


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.83 min

Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

Tgt Ion	Exp Ratio
70	100
101	11.5
42	55.1
130	23.5

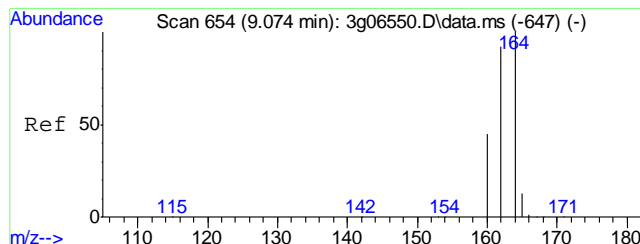
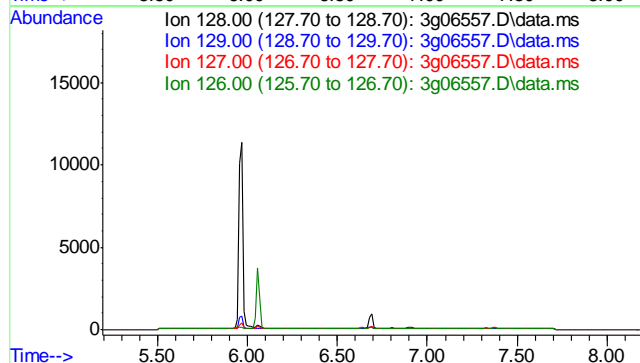




#5
Naphthalene
Concen: N.D. ug/mL
Expected RT: 6.69 min

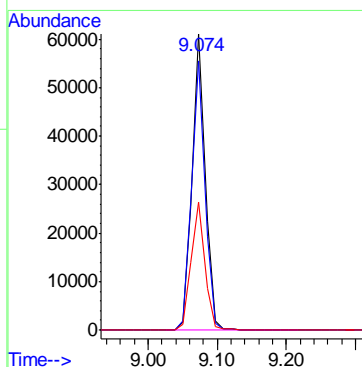
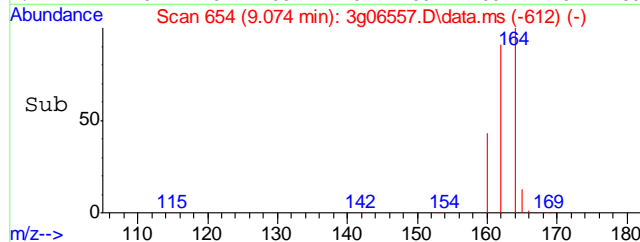
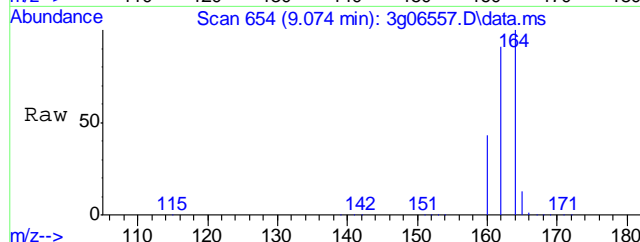
Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

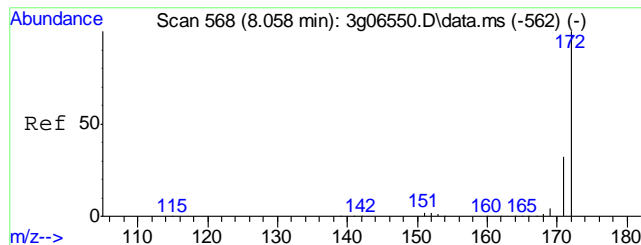
Tgt Ion: 128
Sig Exp Ratio
128 100
129 10.8
127 12.6
126 7.3



#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 9.074 min Scan# 654
Delta R.T. -0.000 min
Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

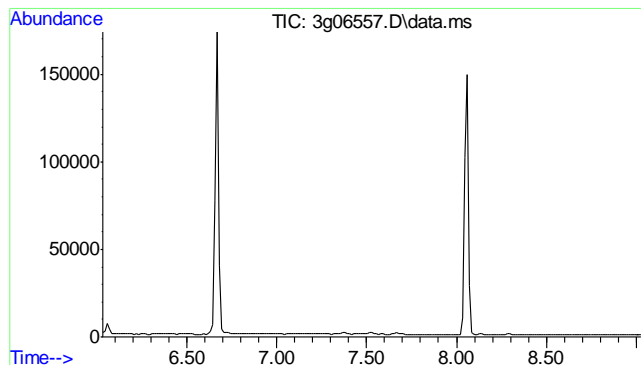
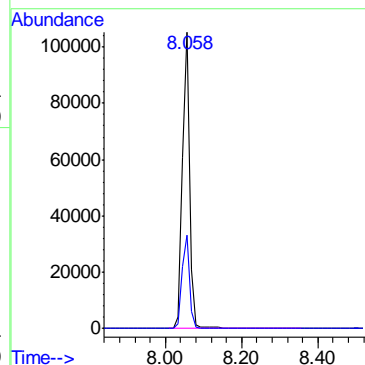
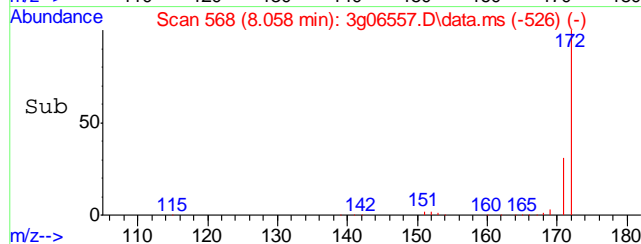
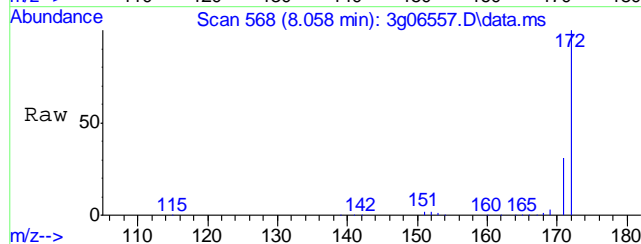
Tgt Ion: 164 Resp: 80059
Ion Ratio Lower Upper
164 100
162 92.8 74.0 114.0
160 45.1 26.2 66.2





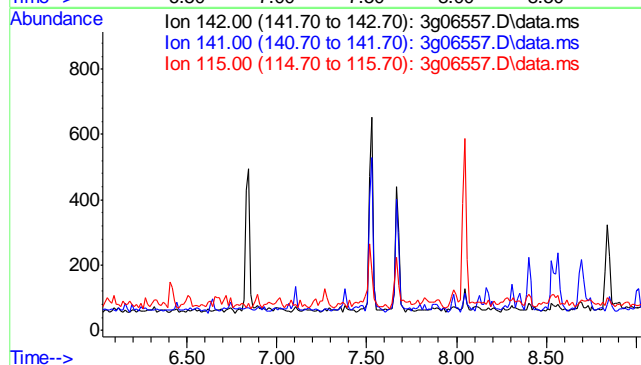
#7
2-Fluorobiphenyl
Concen: 4.45 ug/mL
RT: 8.058 min Scan# 568
Delta R.T. -0.000 min
Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

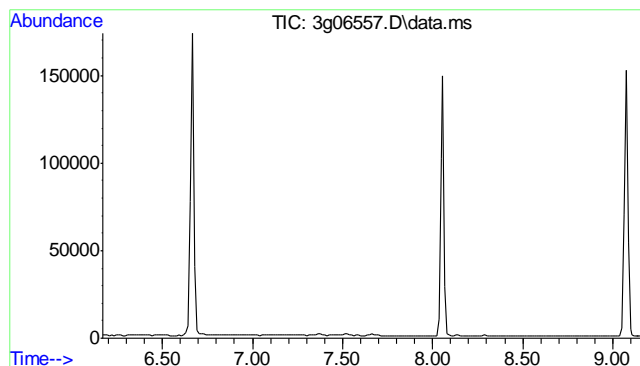
Tgt Ion	Resp	Ion Ratio	Lower	Upper
172	137657	100		
171		32.8	13.2	53.2



#8
2-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.53 min
Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

Tgt Ion	Sig	Exp Ratio
142	100	
141		84.2
115		34.6

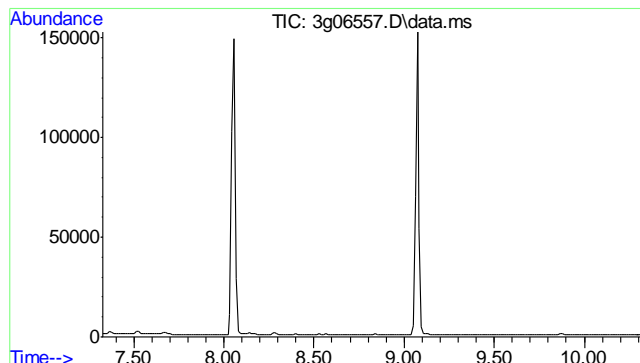
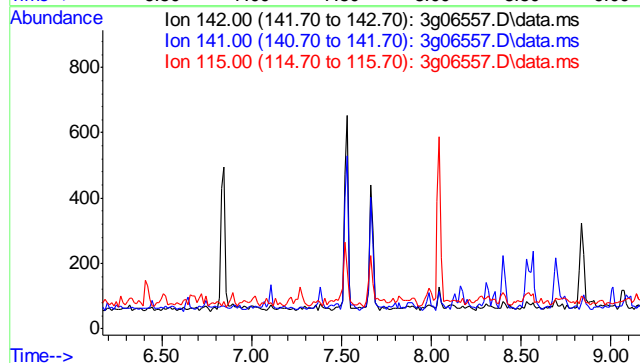




#9
 1-Methylnaphthalene
 Concen: N.D. ug/mL
 Expected RT: 7.67 min

Lab File: 3g06557.D
 Acq: 17 Oct 11 11:25 pm

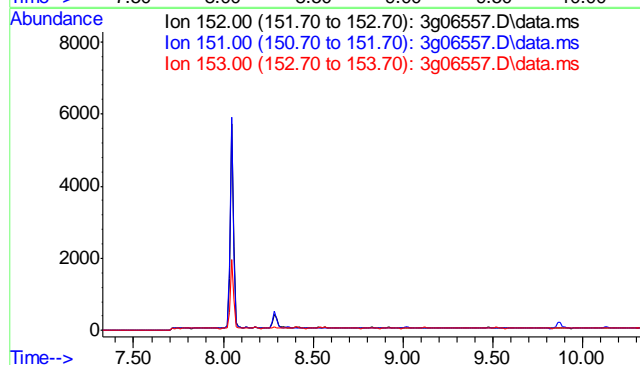
Tgt Ion: 142
 Sig Exp Ratio
 142 100
 141 86.3
 115 35.7

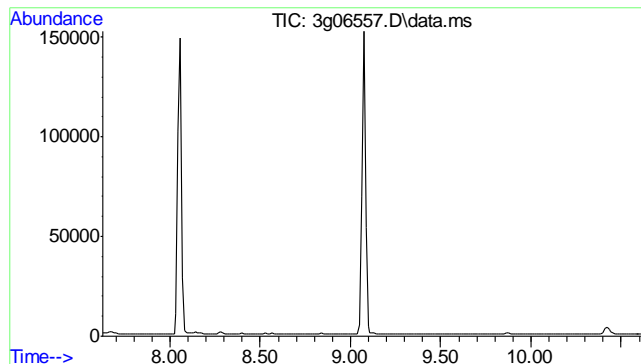


#10
 Acenaphthylene
 Concen: N.D. ug/mL
 Expected RT: 8.83 min

Lab File: 3g06557.D
 Acq: 17 Oct 11 11:25 pm

Tgt Ion: 152
 Sig Exp Ratio
 152 100
 151 19.1
 153 12.7

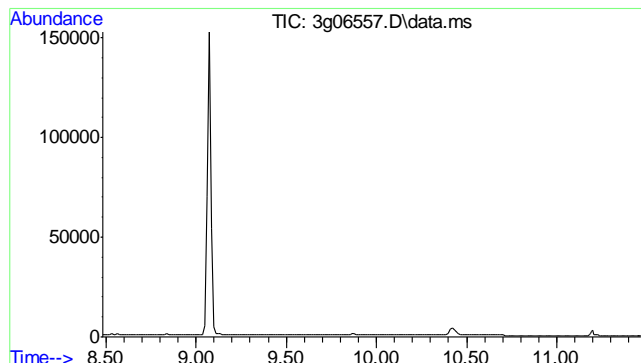
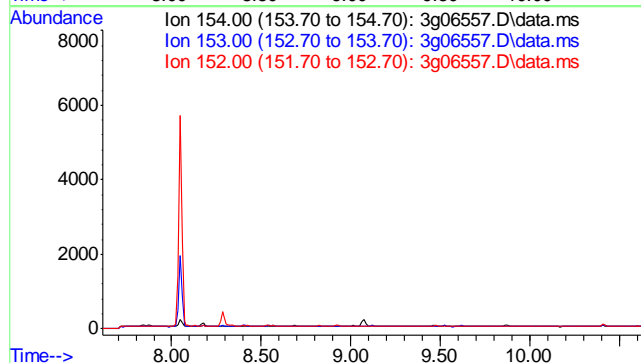




#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 9.12 min

Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

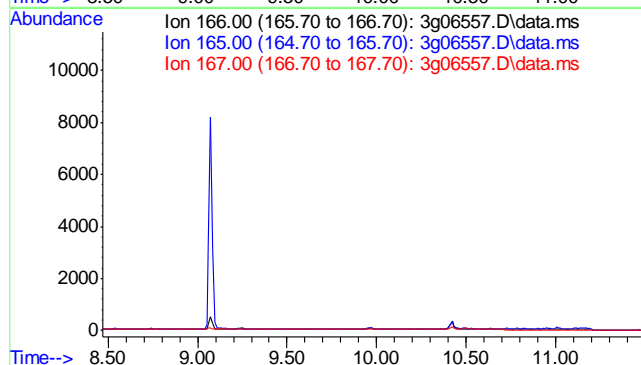
Tgt Ion: 154
Sig Exp Ratio
154 100
153 104.0
152 49.7

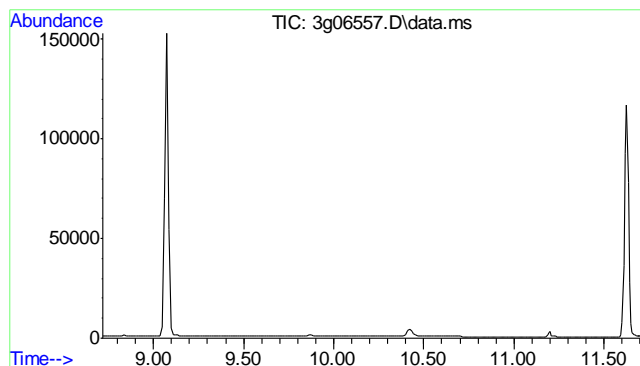


#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 9.97 min

Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

Tgt Ion: 166
Sig Exp Ratio
166 100
165 90.1
167 13.6

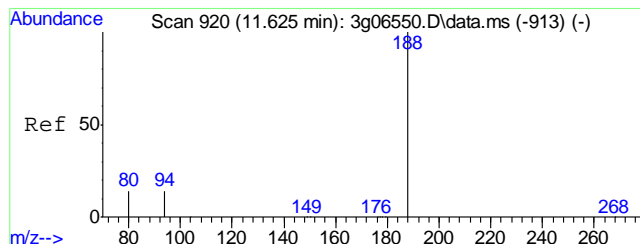
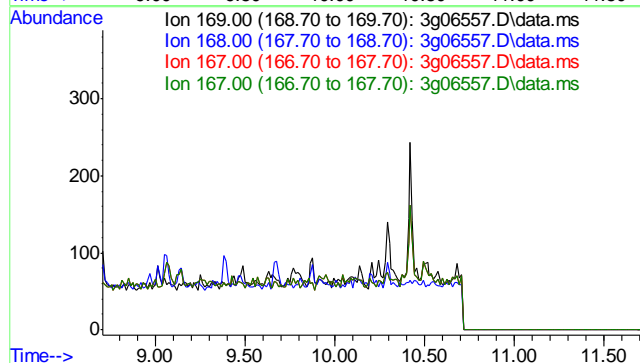




#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.21 min

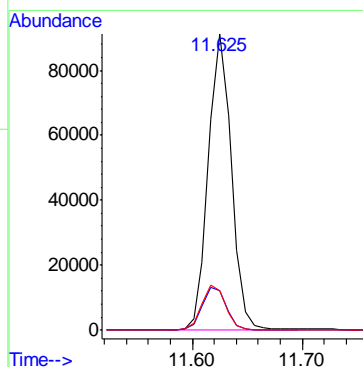
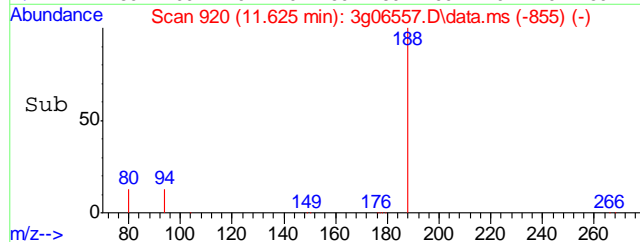
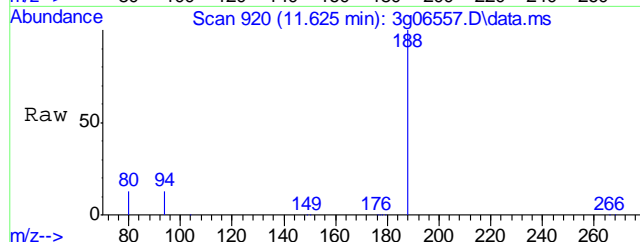
Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

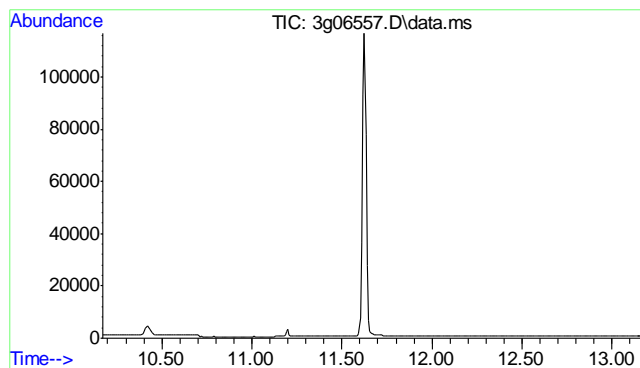
Tgt Ion: 169
Sig Exp Ratio
169 100
168 60.4
167 32.6
167 32.6



#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.625 min Scan# 920
Delta R.T. -0.000 min
Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

Tgt Ion: 188 Resp: 132774
Ion Ratio Lower Upper
188 100
94 15.0 0.0 36.5
80 15.6 0.0 36.9

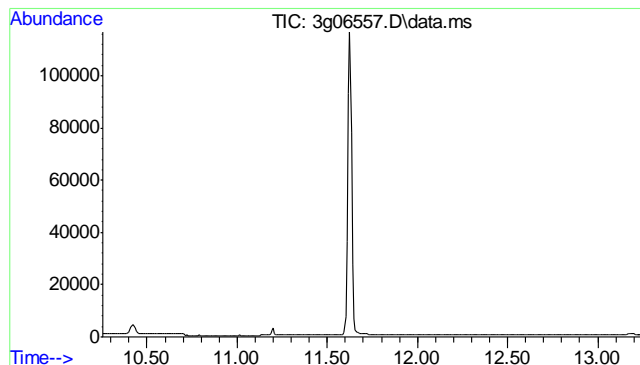
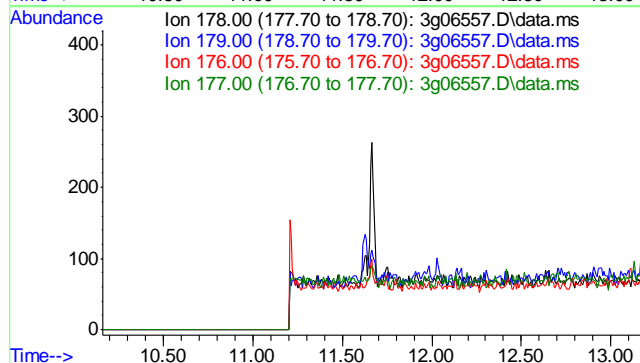




#15
 Phenanthrene
 Concen: N.D. ug/mL
 Expected RT: 11.66 min

 Lab File: 3G06557.D
 Acq: 17 Oct 11 11:25 pm

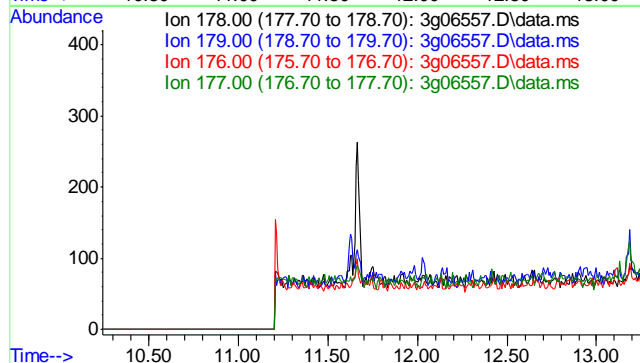
Tgt Ion	Exp Ratio
178	100
179	15.1
176	18.2
177	10.2

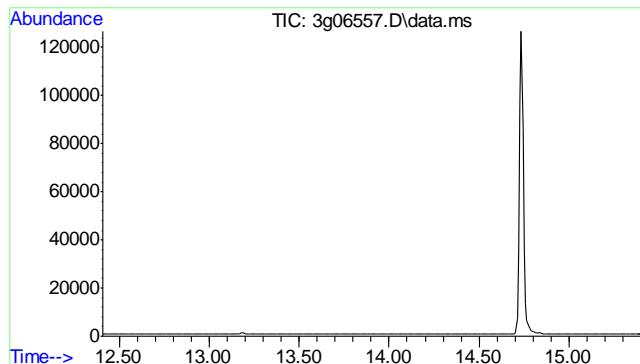


#16
 Anthracene
 Concen: N.D. ug/mL
 Expected RT: 11.74 min

 Lab File: 3G06557.D
 Acq: 17 Oct 11 11:25 pm

Tgt Ion	Exp Ratio
178	100
179	14.9
176	17.2
177	8.7

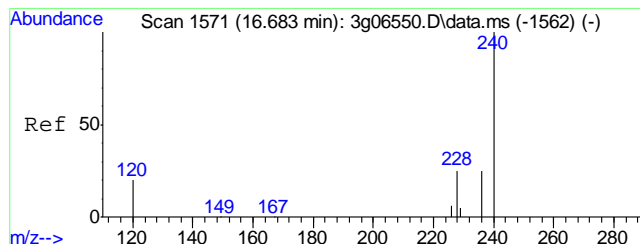
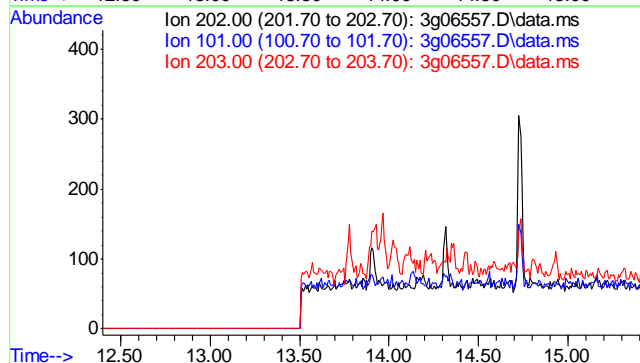




#17
 Fluoranthene
 Concen: N.D. ug/mL
 Expected RT: 13.90 min

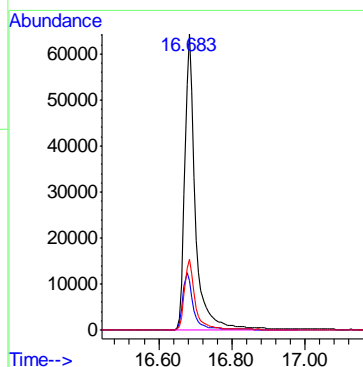
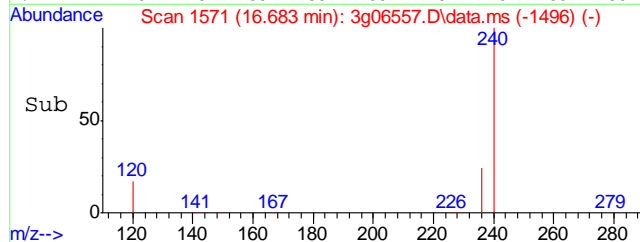
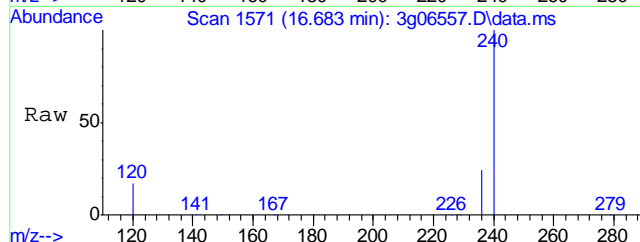
 Lab File: 3g06557.D
 Acq: 17 Oct 11 11:25 pm

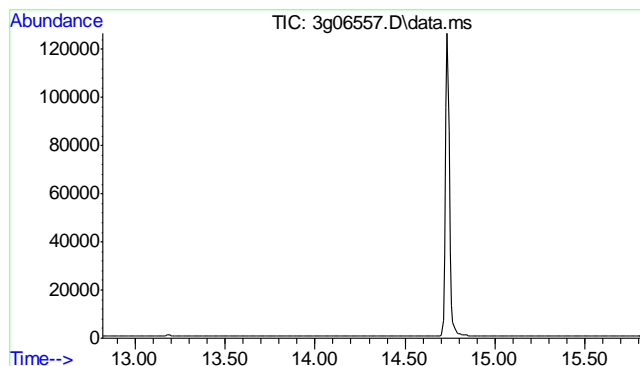
Tgt Ion: 202
 Sig Exp Ratio
 202 100
 101 19.4
 203 17.0



#18
 Chrysene-d12
 Concen: 4.00 ug/mL
 RT: 16.683 min Scan# 1571
 Delta R.T. -0.000 min
 Lab File: 3g06557.D
 Acq: 17 Oct 11 11:25 pm

Tgt Ion: 240 Resp: 129542
 Ion Ratio Lower Upper
 240 100
 120 19.0 1.2 41.2
 236 24.1 4.1 44.1

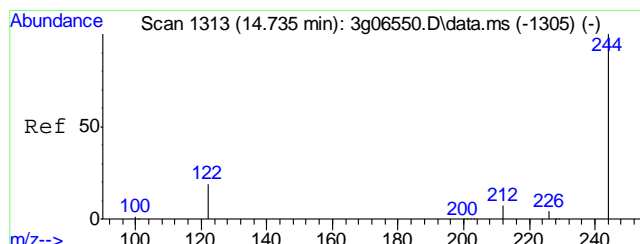
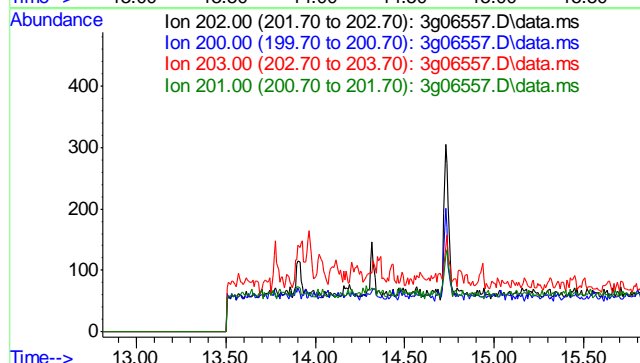




#19
 Pyrene
 Concen: N.D. ug/mL
 Expected RT: 14.32 min

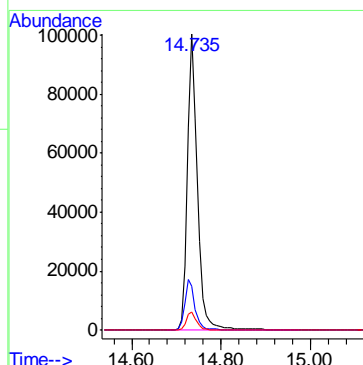
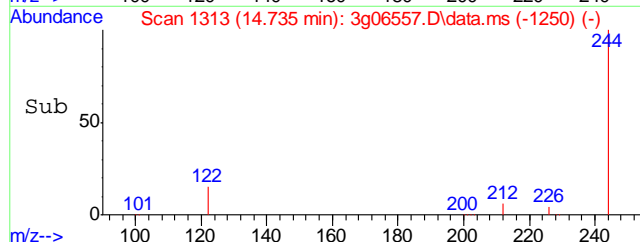
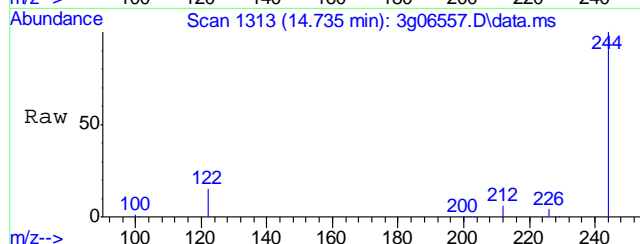
 Lab File: 3g06557.D
 Acq: 17 Oct 11 11:25 pm

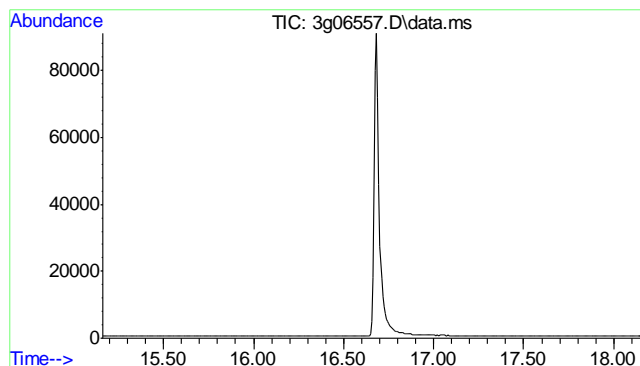
Tgt Ion: 202
 Sig Exp Ratio
 202 100
 200 19.4
 203 17.6
 201 16.2



#20
 Terphenyl-d14
 Concen: 6.98 ug/mL
 RT: 14.735 min Scan# 1313
 Delta R.T. -0.000 min
 Lab File: 3g06557.D
 Acq: 17 Oct 11 11:25 pm

Tgt Ion: 244 Resp: 154381
 Ion Ratio Lower Upper
 244 100
 122 17.4 0.0 39.4
 212 6.2 0.0 26.4

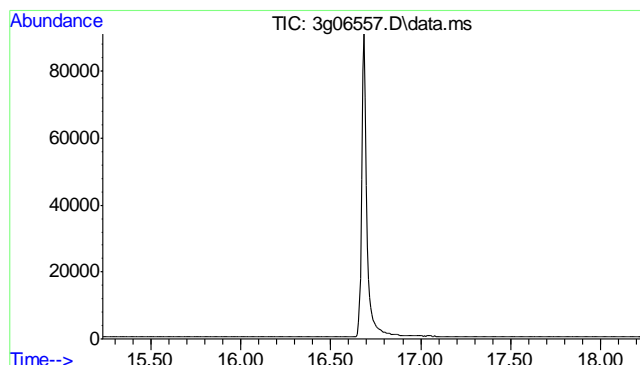
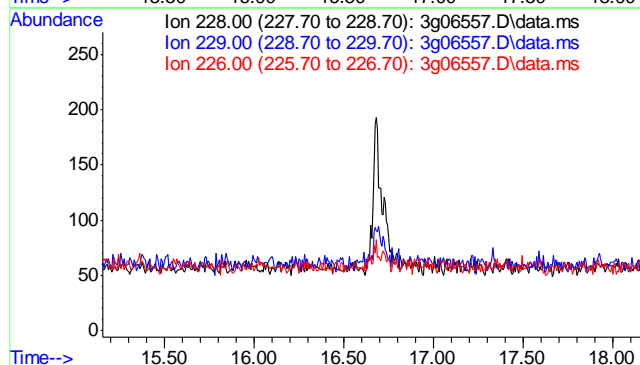




#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.66 min

Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

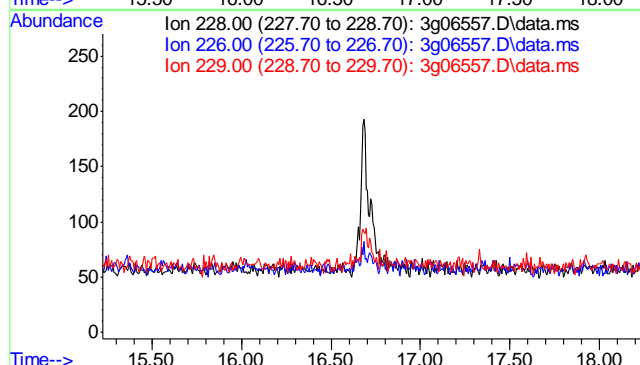
Tgt Ion	Exp Ratio
228	100
229	19.7
226	25.3

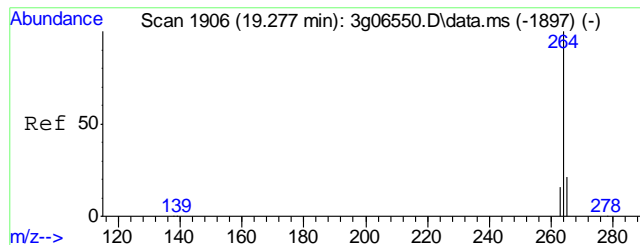


#22
Chrysene
Concen: N.D. ug/mL
Expected RT: 16.73 min

Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

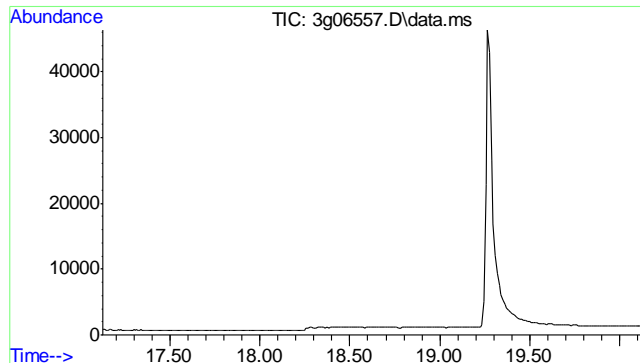
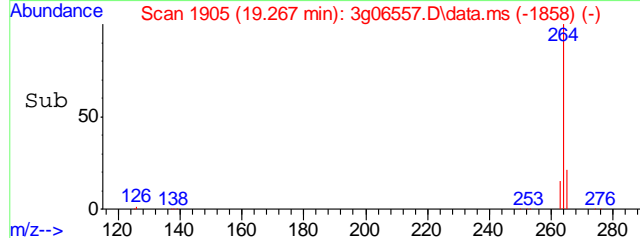
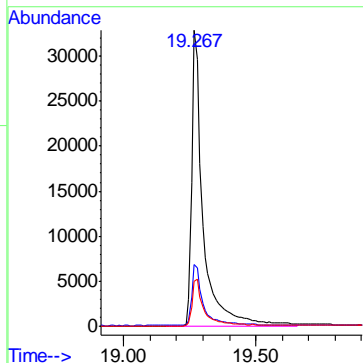
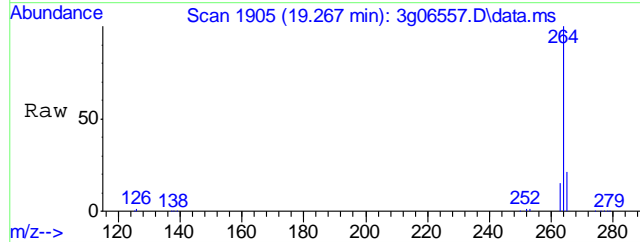
Tgt Ion	Exp Ratio
228	100
226	26.8
229	18.7





#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 19.267 min Scan# 1905
Delta R.T. -0.011 min
Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

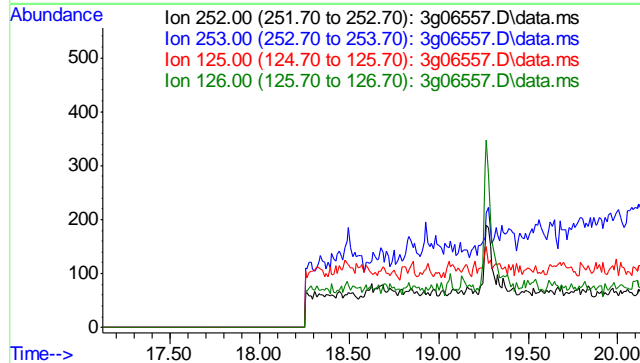
Tgt Ion:	264	Resp:	98874
Ion Ratio	Lower	Upper	
264	100		
265	21.0	0.0	40.0
263	16.8	0.0	36.3

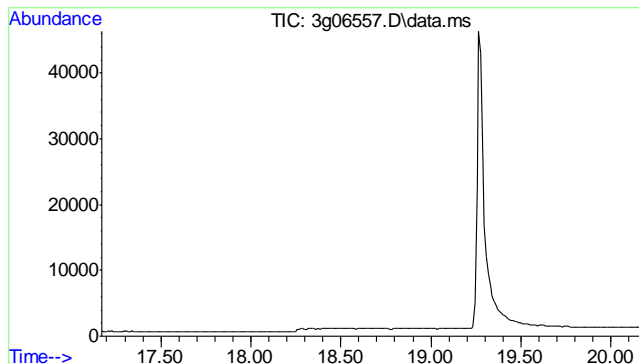


#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.63 min

Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	76.4
125	34.8
126	78.6

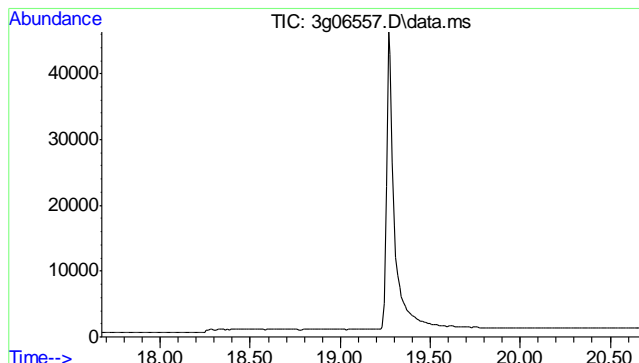
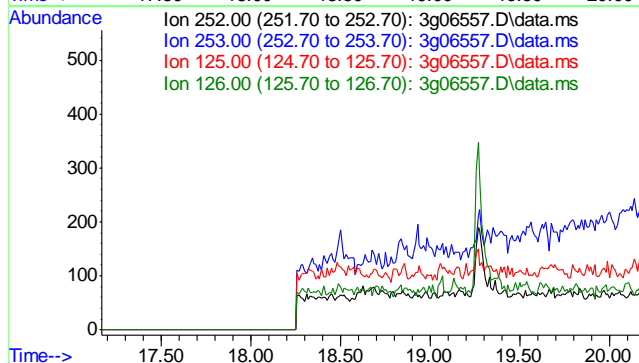




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.67 min

Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

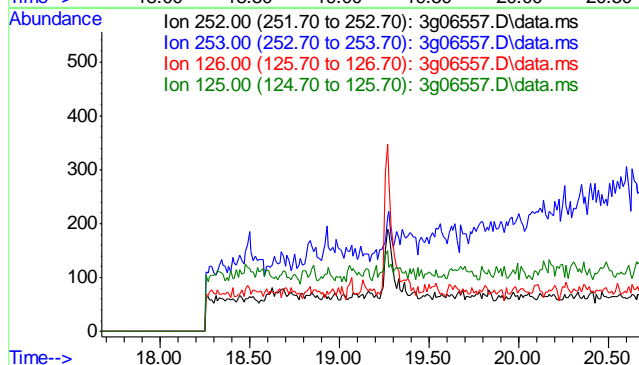
Tgt Ion	Exp Ratio
252	100
253	35.6
125	16.2
126	36.7

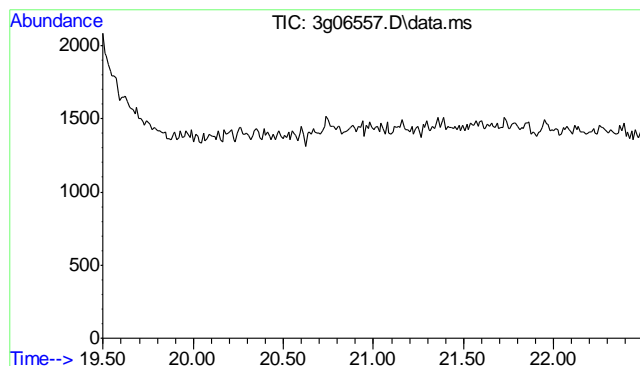


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 19.17 min

Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

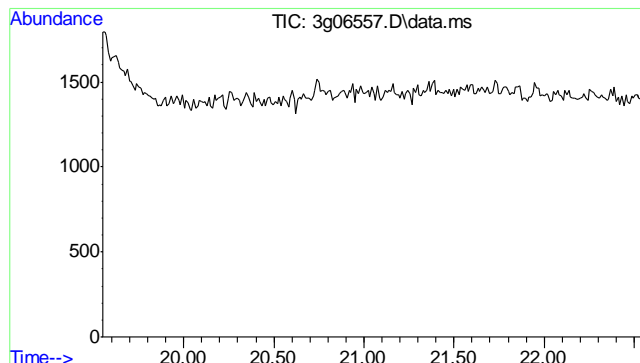
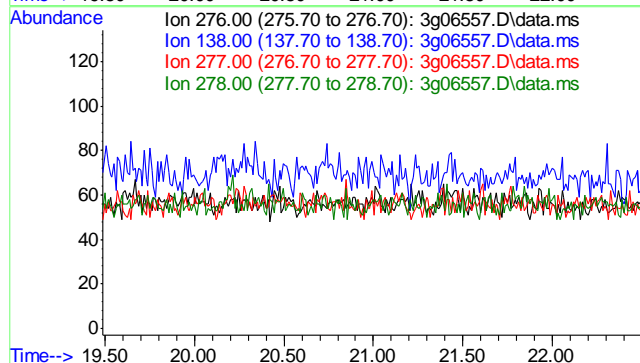
Tgt Ion	Exp Ratio
252	100
253	21.1
126	22.6
125	16.8





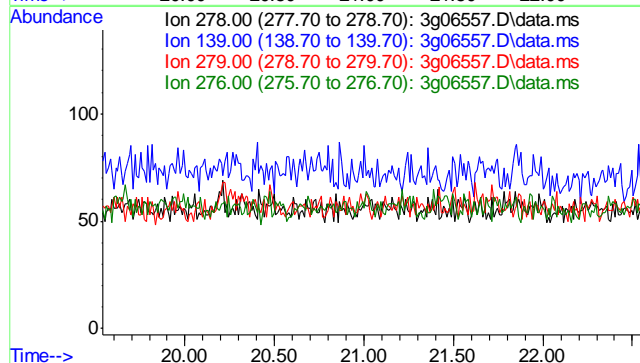
#27
 Indeno(1,2,3-cd)pyrene
 Concen: N.D. ug/mL
 Expected RT: 20.99 min
 Lab File: 3g06557.D
 Acq: 17 Oct 11 11:25 pm

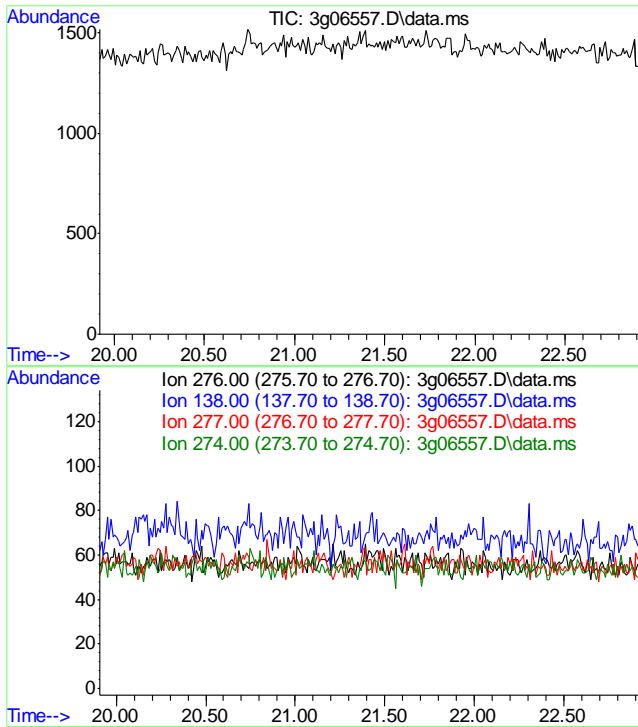
Tgt Ion	Exp Ratio
276	100
138	22.3
277	52.6
278	0.0



#28
 Dibenzo(a,h)anthracene
 Concen: N.D. ug/mL
 Expected RT: 21.04 min
 Lab File: 3g06557.D
 Acq: 17 Oct 11 11:25 pm

Tgt Ion	Exp Ratio
278	100
139	19.0
279	17.7
276	144.5





#29
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 21.41 min

Lab File: 3g06557.D
Acq: 17 Oct 11 11:25 pm

Tgt Ion: 276

Sig	Exp Ratio
276	100
138	32.7
277	24.3
274	23.1

8.1.1

8

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\101711\
 Data File : 3g06555.D
 Acq On : 17 Oct 2011 10:09 pm
 Operator : TamiB
 Sample : OP4673-MB
 Misc : OP4673,E3G239,30,,,1,1
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 19 12:03:52 2011
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G239.M
 Quant Title : PAHSIM BASE
 QLast Update : Wed Oct 19 11:59:35 2011
 Response via : Initial Calibration

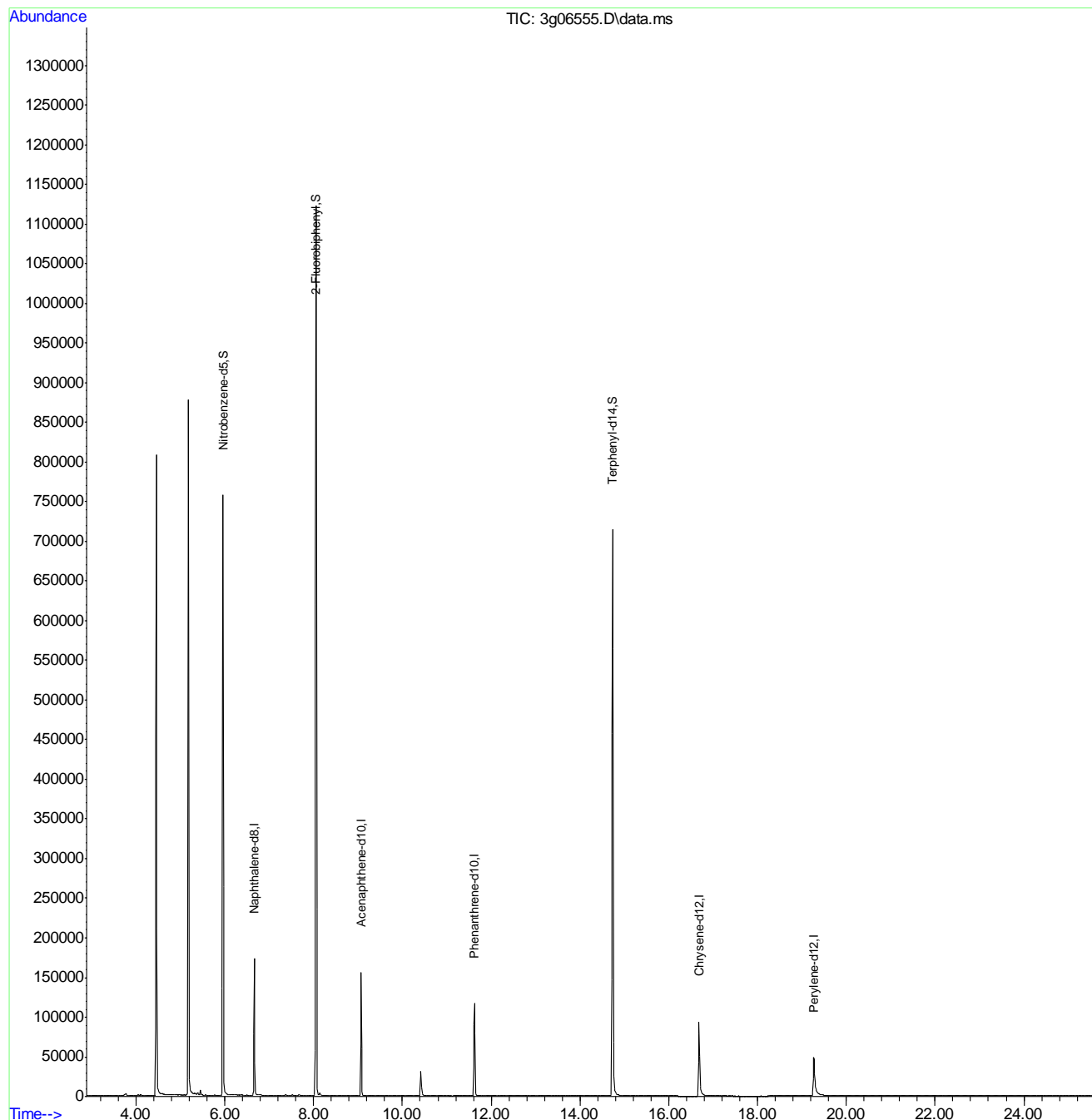
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.668	136	163555	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.074	164	81945	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.625	188	134873	4.00	ug/mL	0.00
18) Chrysene-d12	16.683	240	131315	4.00	ug/mL	0.00
23) Perylene-d12	19.267	264	103079	4.00	ug/mL	-0.01
System Monitoring Compounds						
2) Nitrobenzene-d5	5.957	82	394328	30.66	ug/mL	0.00
7) 2-Fluorobiphenyl	8.058	172	960453	30.36	ug/mL	0.00
20) Terphenyl-d14	14.735	244	852684	38.04	ug/mL	0.00
Target Compounds						
						Qvalue
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	0.000		0	N.D.	d	
8) 2-Methylnaphthalene	0.000		0	N.D.	d	
9) 1-Methylnaphthalene	0.000		0	N.D.	d	
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	0.000		0	N.D.	d	
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	0.000		0	N.D.	d	
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	0.000		0	N.D.	d	
21) Benzo(a)anthracene	0.000		0	N.D.	d	
22) Chrysene	0.000		0	N.D.	d	
24) Benzo(b)fluoranthene	0.000		0	N.D.	d	
25) Benzo(k)fluoranthene	0.000		0	N.D.	d	
26) Benzo(a)pyrene	0.000		0	N.D.	d	
27) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
28) Dibenz(a,h)anthracene	0.000		0	N.D.	d	
29) Benzo(g,h,i)perylene	0.000		0	N.D.	d	

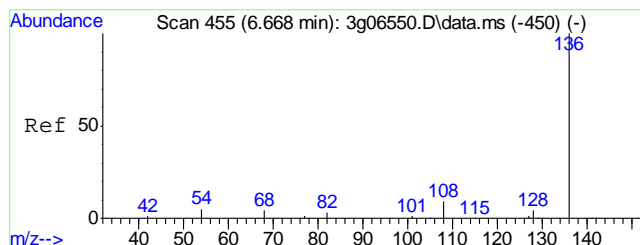
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\101711\
Data File : 3g06555.D
Acq On : 17 Oct 2011 10:09 pm
Operator : TamiB
Sample : OP4673-MB
Misc : OP4673,E3G239,30,,,1,1
ALS Vial : 13 Sample Multiplier: 1

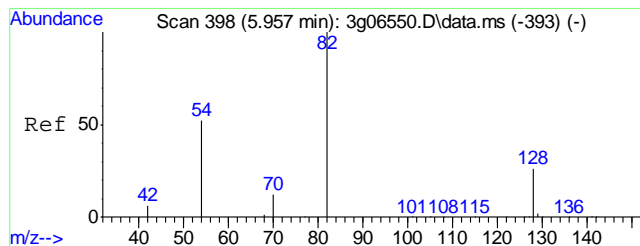
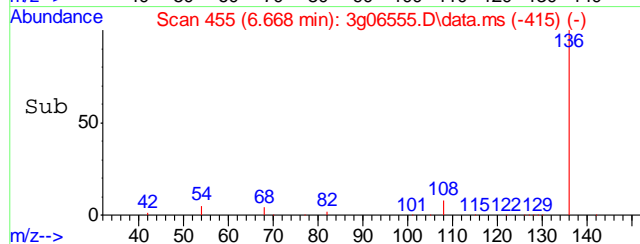
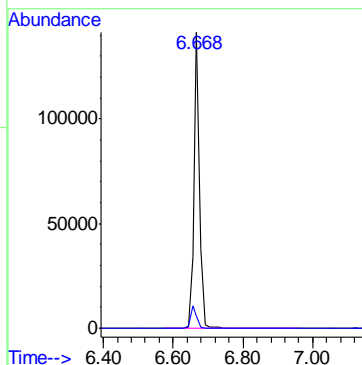
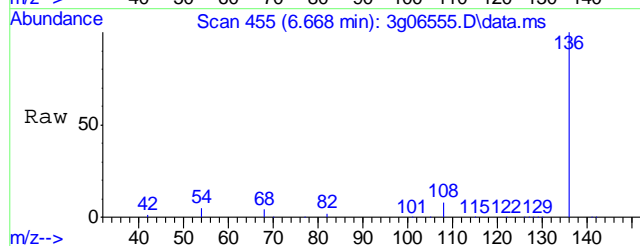
Quant Time: Oct 19 12:03:52 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G239.M
Quant Title : PAHSIM BASE
QLast Update : Wed Oct 19 11:59:35 2011
Response via : Initial Calibration





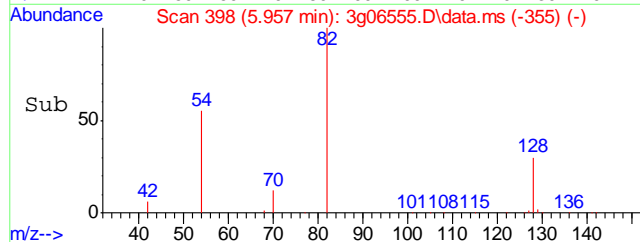
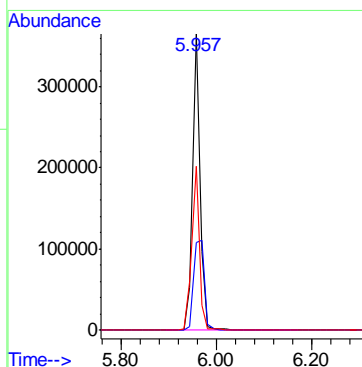
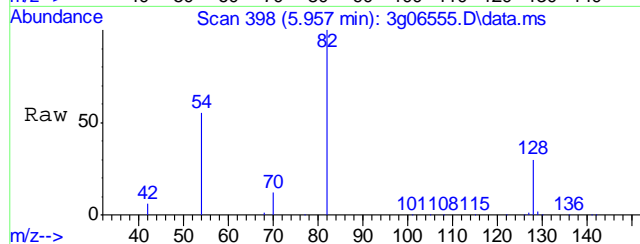
#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.668 min Scan# 455
Delta R.T. -0.000 min
Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

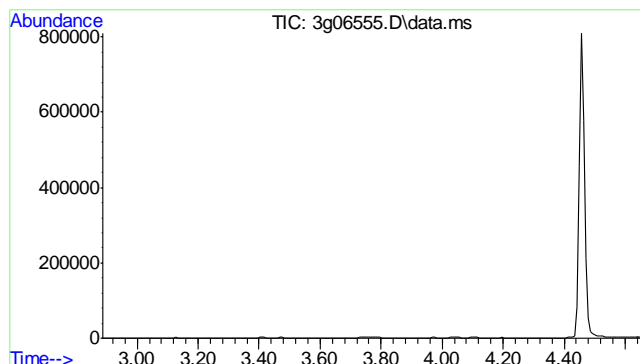
Tgt Ion: 136 Resp: 163555
Ion Ratio Lower Upper
136 100
68 8.4 0.0 28.7



#2
Nitrobenzene-d5
Concen: 30.66 ug/mL
RT: 5.957 min Scan# 398
Delta R.T. -0.000 min
Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

Tgt Ion: 82 Resp: 394328
Ion Ratio Lower Upper
82 100
128 44.1 18.7 58.7
54 56.6 34.6 74.6

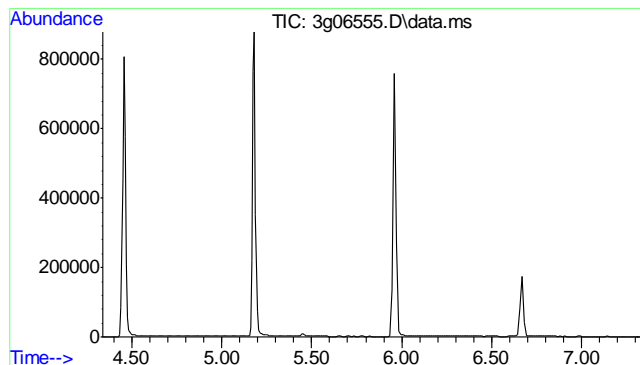
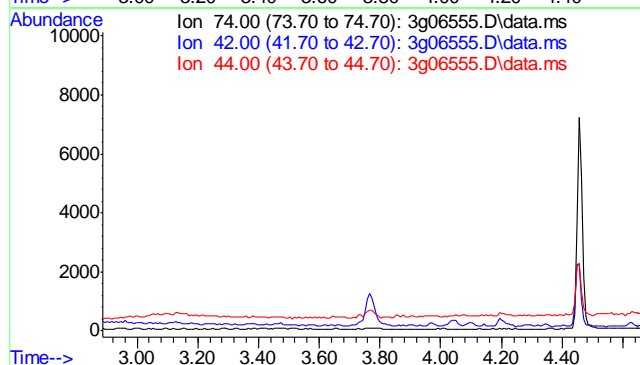




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 3.16 min

Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

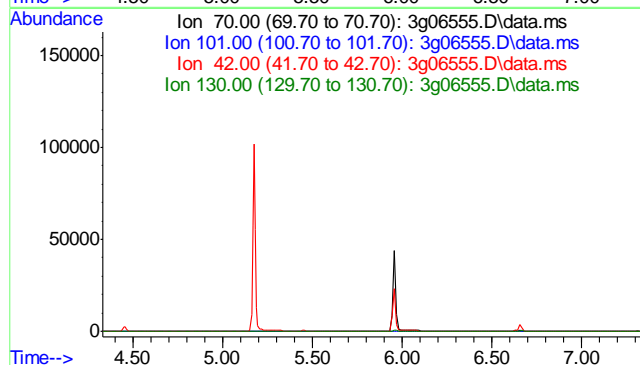
Tgt Ion:	74
Sig	Exp Ratio
74	100
42	65.1
44	4.0

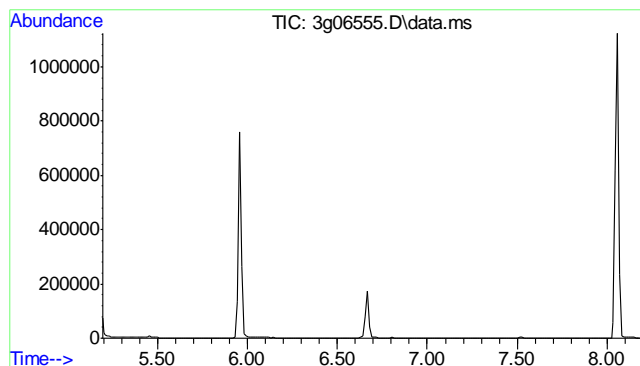


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.83 min

Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

Tgt Ion:	70
Sig	Exp Ratio
70	100
101	11.5
42	55.1
130	23.5

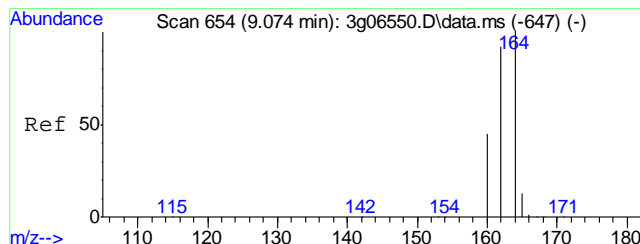
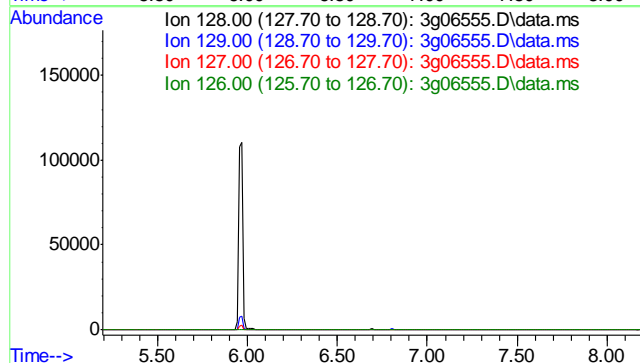




#5
Naphthalene
Concen: N.D. ug/mL
Expected RT: 6.69 min

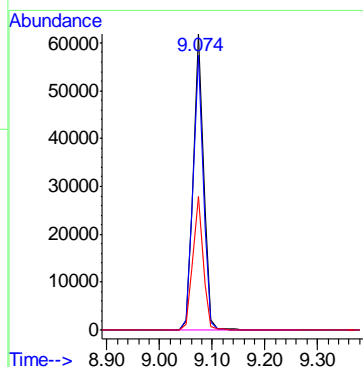
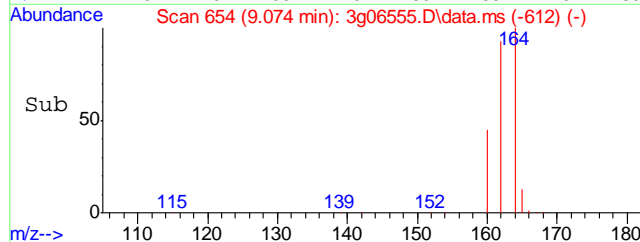
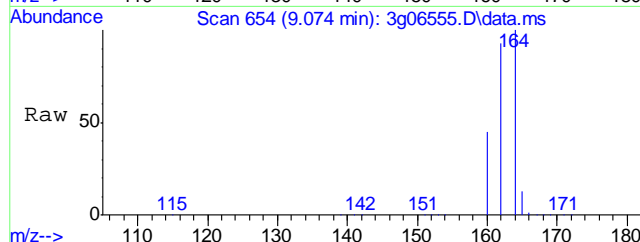
Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

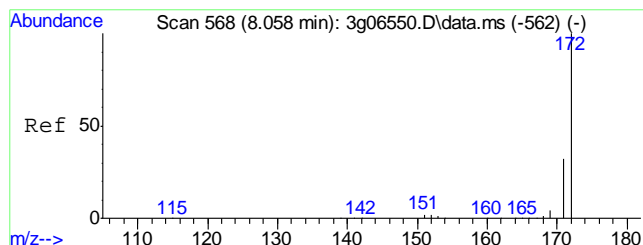
Tgt Ion: 128
Sig Exp Ratio
128 100
129 10.8
127 12.6
126 7.3



#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 9.074 min Scan# 654
Delta R.T. -0.000 min
Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

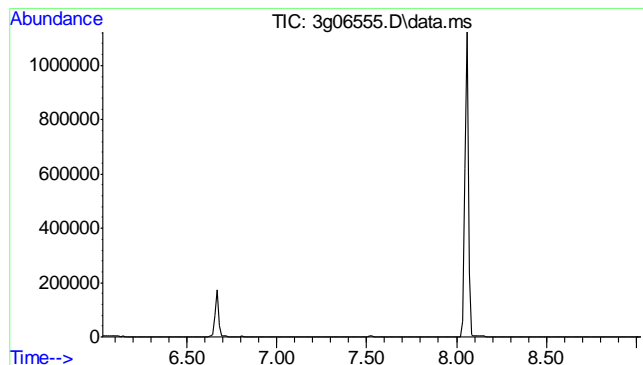
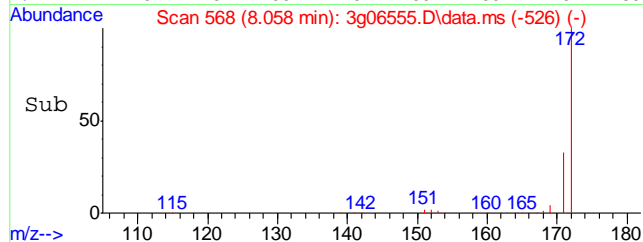
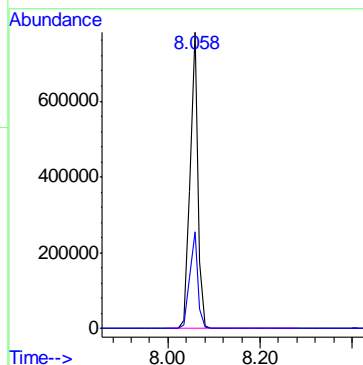
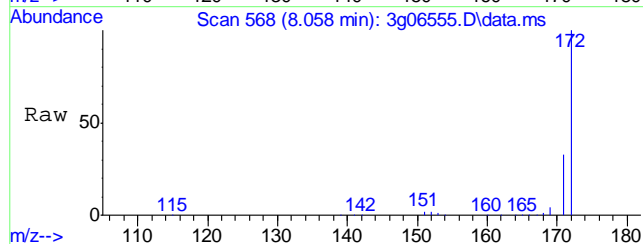
Tgt Ion: 164 Resp: 81945
Ion Ratio Lower Upper
164 100
162 92.7 74.0 114.0
160 44.9 26.2 66.2





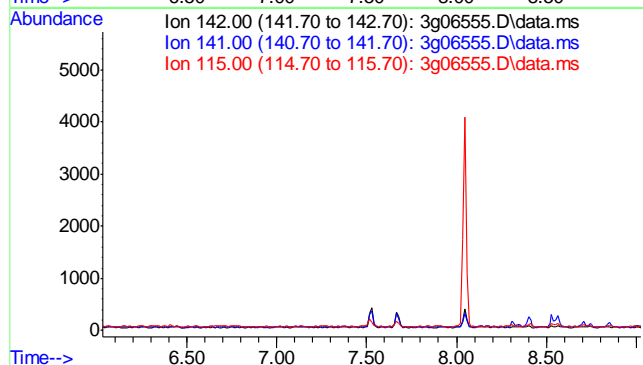
#7
2-Fluorobiphenyl
Concen: 30.36 ug/mL
RT: 8.058 min Scan# 568
Delta R.T. -0.000 min
Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

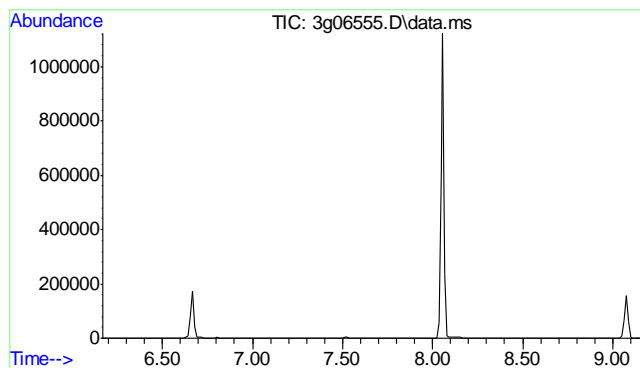
Tgt Ion: 172 Resp: 960453
Ion Ratio Lower Upper
172 100
171 33.3 13.2 53.2



#8
2-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.53 min
Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

Tgt Ion: 142
Sig Exp Ratio
142 100
141 84.2
115 34.6

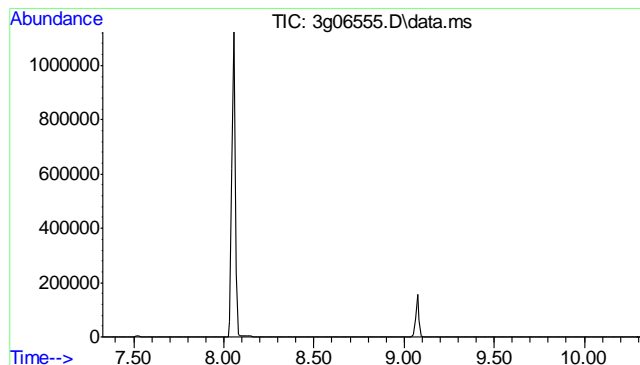
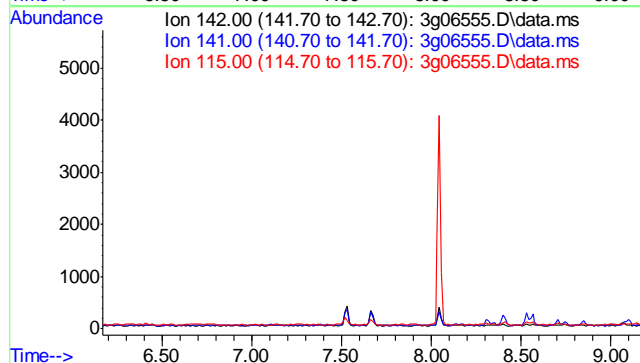




#9
1-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.67 min

Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

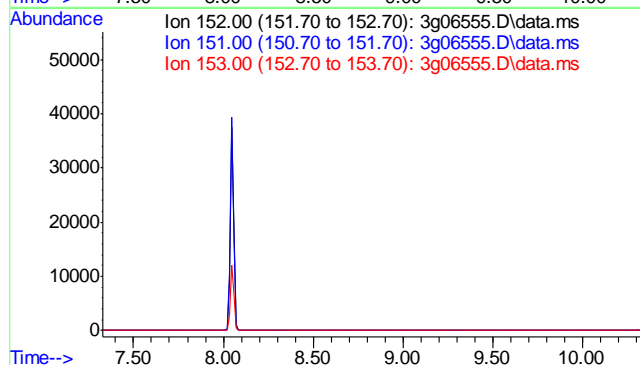
Tgt Ion:	142
Sig	Exp Ratio
142	100
141	86.3
115	35.7

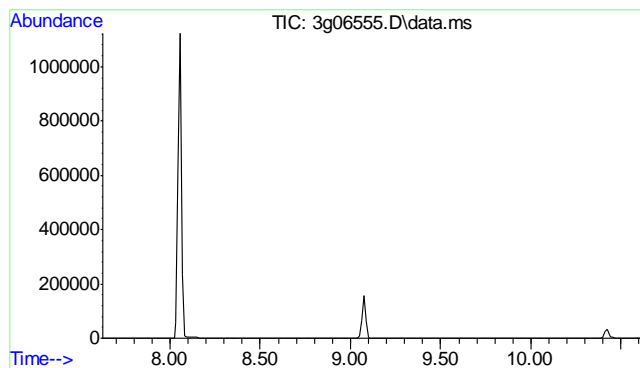


#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.83 min

Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

Tgt Ion:	152
Sig	Exp Ratio
152	100
151	19.1
153	12.7

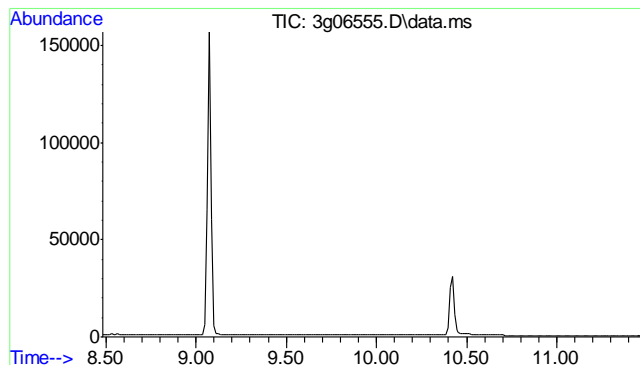
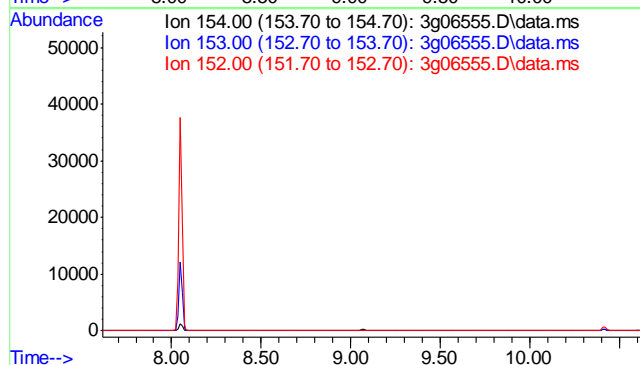




#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 9.12 min

Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

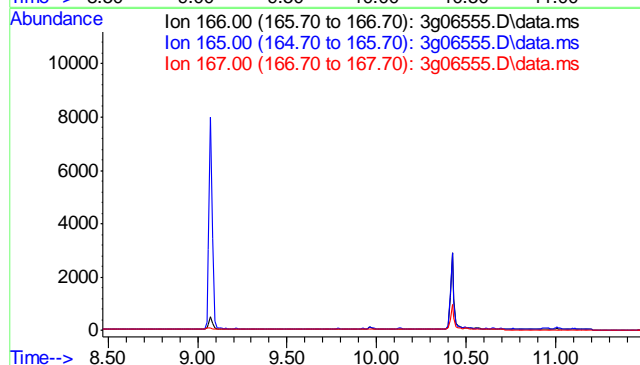
Tgt Ion: 154
Sig Exp Ratio
154 100
153 104.0
152 49.7

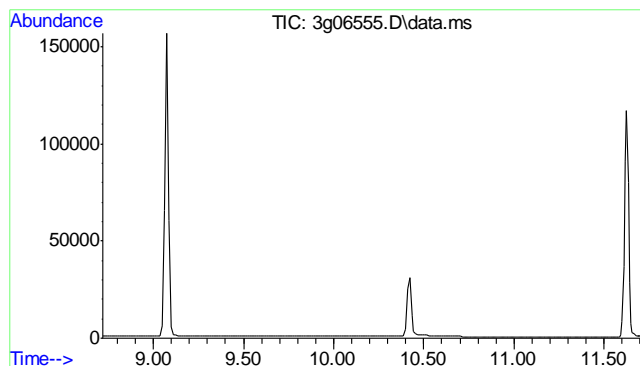


#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 9.97 min

Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

Tgt Ion: 166
Sig Exp Ratio
166 100
165 90.1
167 13.6

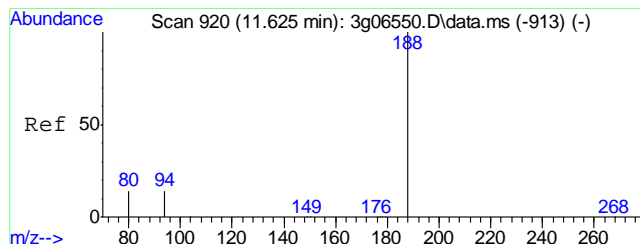
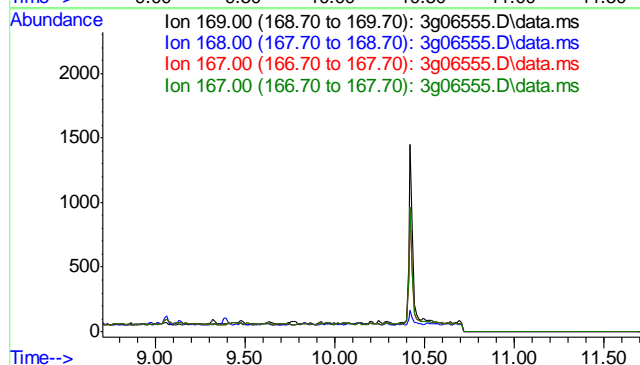




#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.21 min

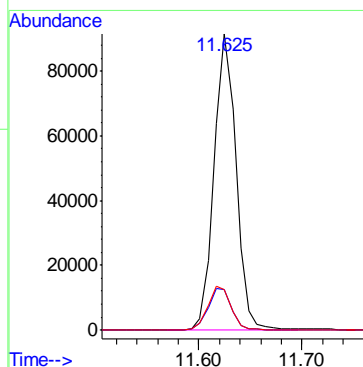
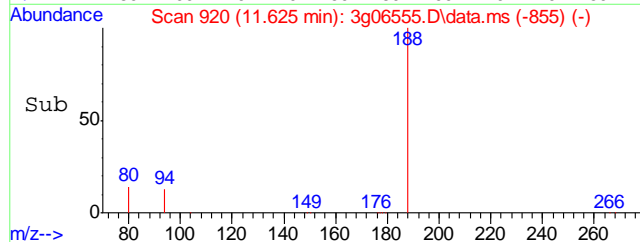
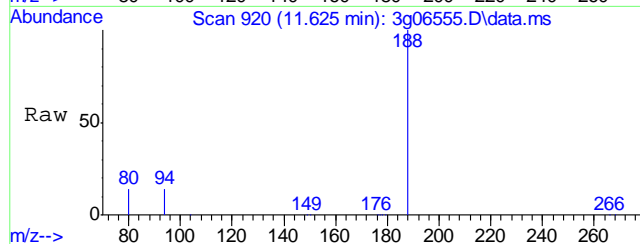
Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

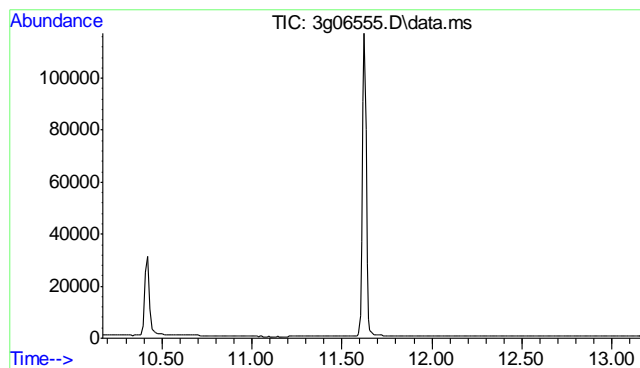
Tgt Ion: 169
Sig Exp Ratio
169 100
168 60.4
167 32.6
167 32.6



#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.625 min Scan# 920
Delta R.T. -0.000 min
Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

Tgt Ion: 188 Resp: 134873
Ion Ratio Lower Upper
188 100
94 14.8 0.0 36.5
80 15.3 0.0 36.9

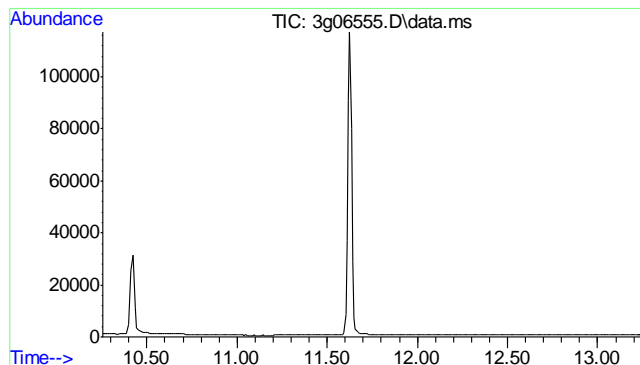
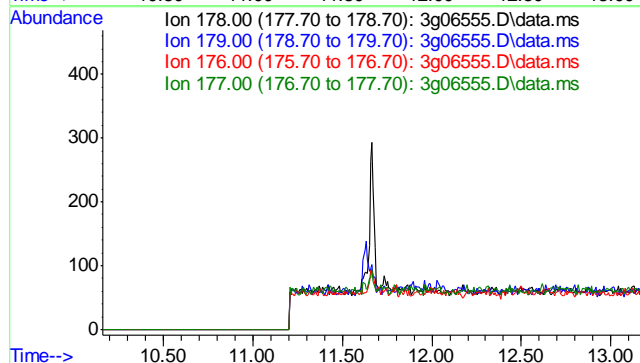




#15
Phenanthrene
Concen: N.D. ug/mL
Expected RT: 11.66 min

Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

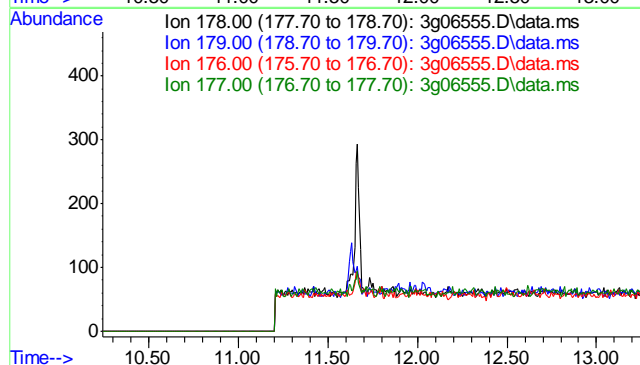
Tgt Ion: 178
Sig Exp Ratio
178 100
179 15.1
176 18.2
177 10.2

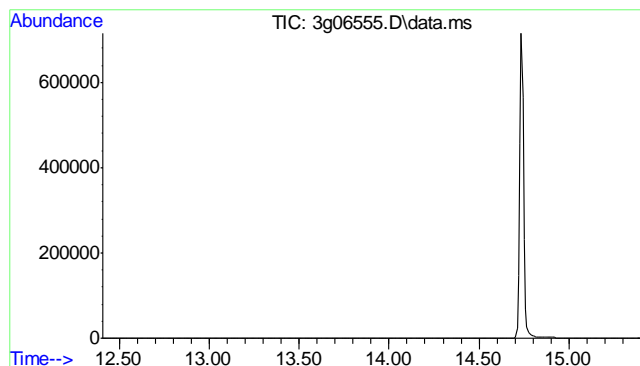


#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.74 min

Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

Tgt Ion: 178
Sig Exp Ratio
178 100
179 14.9
176 17.2
177 8.7

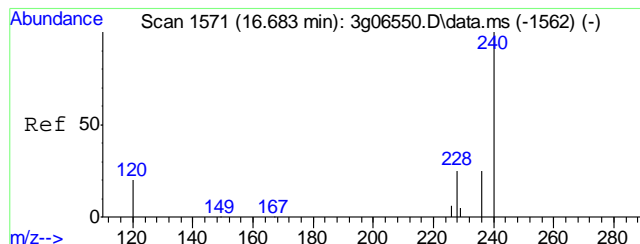
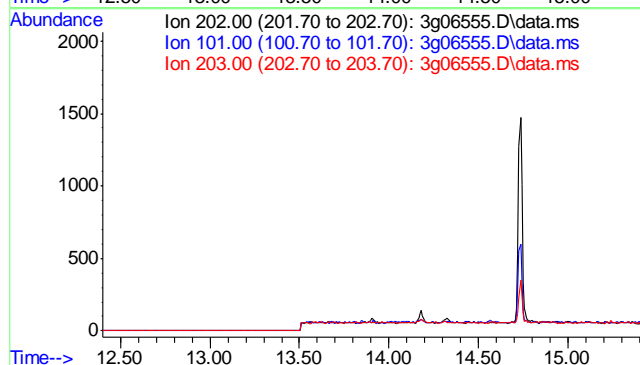




#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 13.90 min

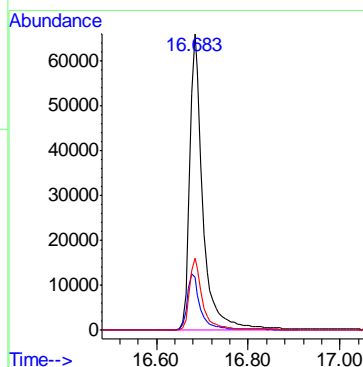
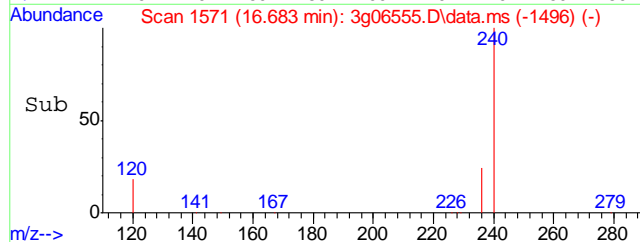
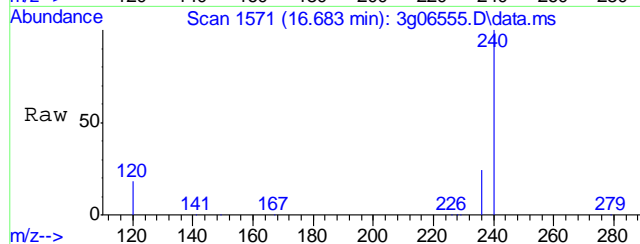
Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

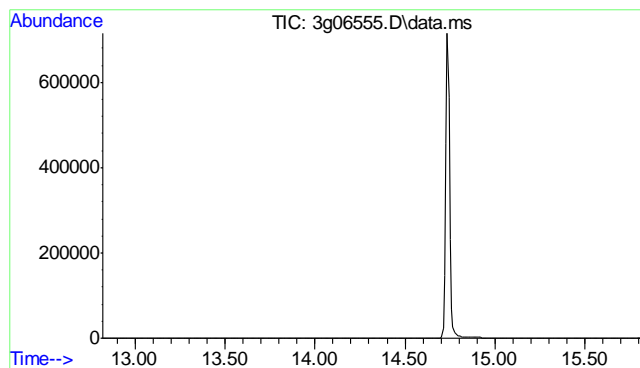
Tgt Ion: 202
Sig Exp Ratio
202 100
101 19.4
203 17.0



#18
Chrysene-d12
Concen: 4.00 ug/mL
RT: 16.683 min Scan# 1571
Delta R.T. -0.000 min
Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

Tgt Ion: 240 Resp: 131315
Ion Ratio Lower Upper
240 100
120 19.0 1.2 41.2
236 24.2 4.1 44.1

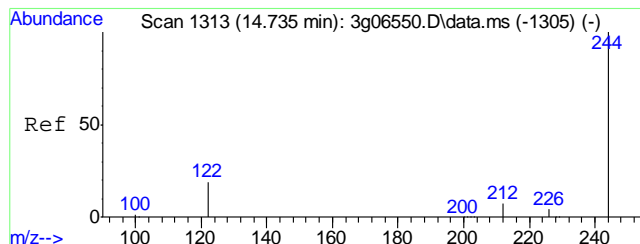
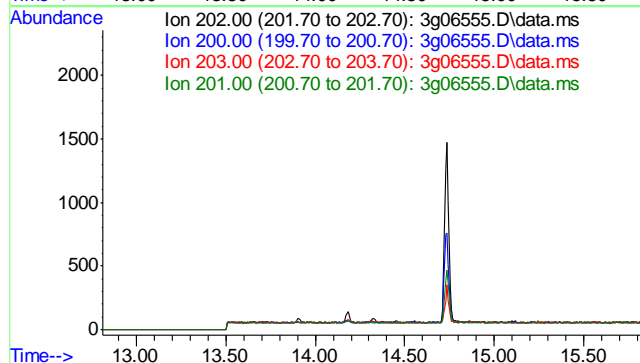




#19
Pyrene
Concen: N.D. ug/mL
Expected RT: 14.32 min

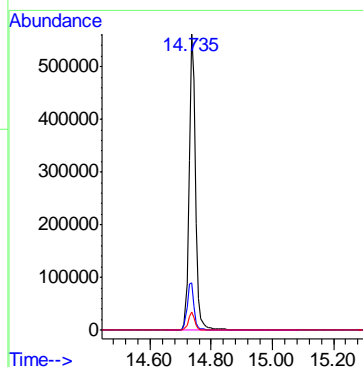
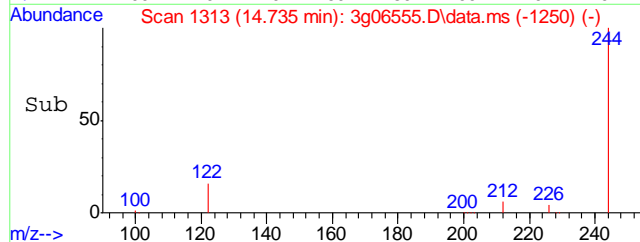
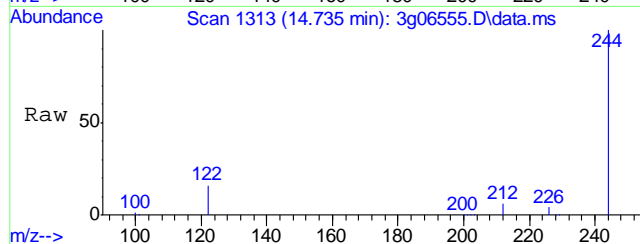
Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

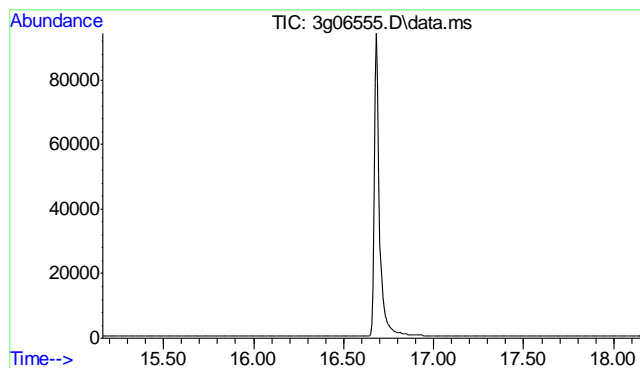
Tgt Ion: 202
Sig Exp Ratio
202 100
200 19.4
203 17.6
201 16.2



#20
Terphenyl-d14
Concen: 38.04 ug/mL
RT: 14.735 min Scan# 1313
Delta R.T. -0.000 min
Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

Tgt Ion: 244 Resp: 852684
Ion Ratio Lower Upper
244 100
122 16.8 0.0 39.4
212 6.1 0.0 26.4

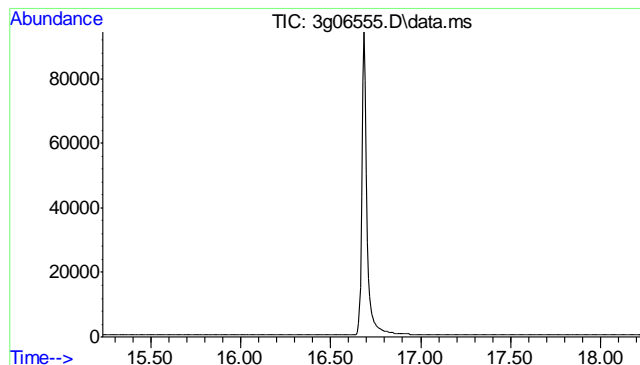
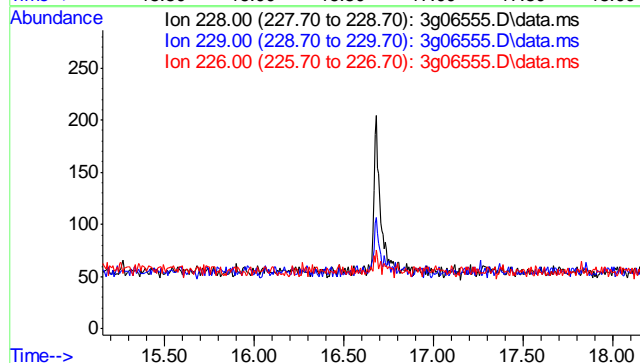




#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.66 min

Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

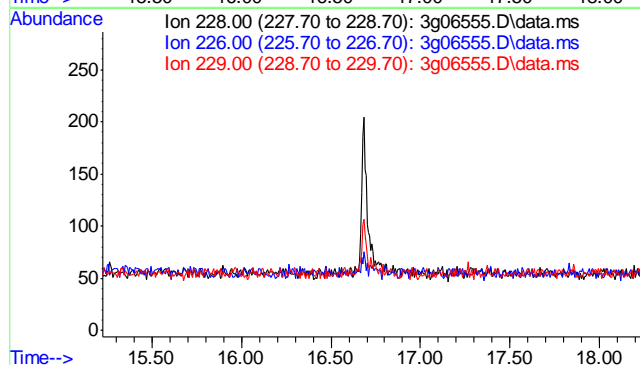
Tgt Ion:	228
Sig	Exp Ratio
228	100
229	19.7
226	25.3

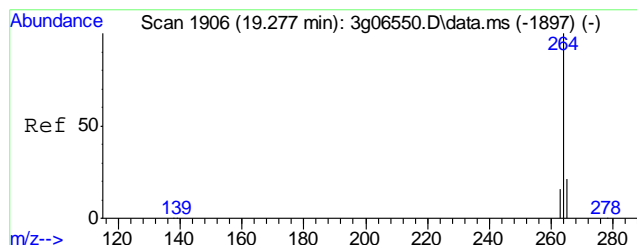


#22
Chrysene
Concen: N.D. ug/mL
Expected RT: 16.73 min

Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

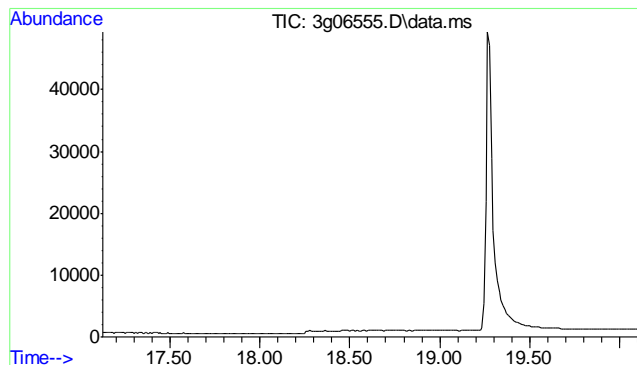
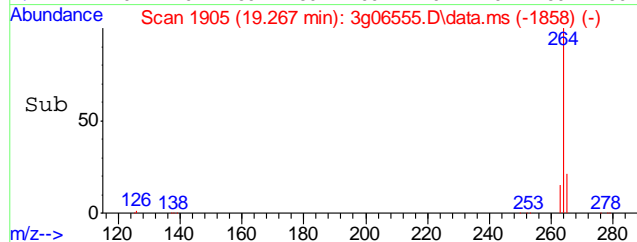
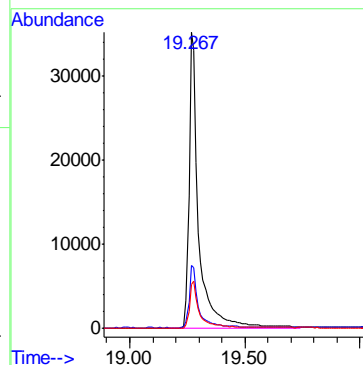
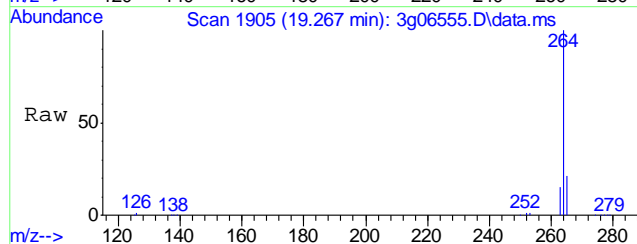
Tgt Ion:	228
Sig	Exp Ratio
228	100
226	26.8
229	18.7





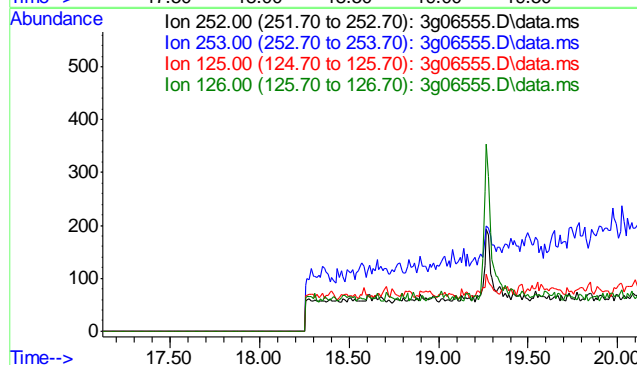
#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 19.267 min Scan# 1905
Delta R.T. -0.011 min
Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

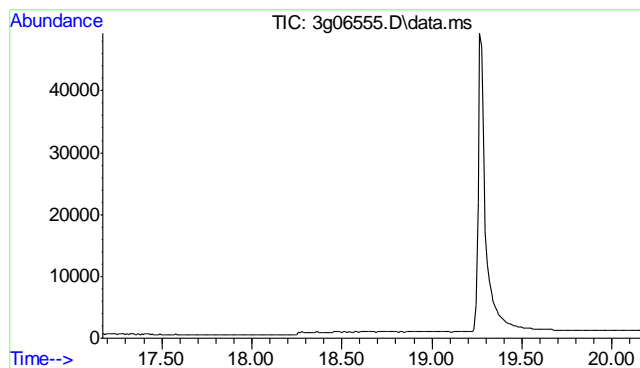
Tgt Ion	264	265	263
Resp	103079		
Ratio	100	20.3	16.5
Lower		0.0	0.0
Upper		40.0	36.3



#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.63 min
Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

Tgt Ion	252	253	125	126
Sig				
Exp Ratio	100	76.4	34.8	78.6

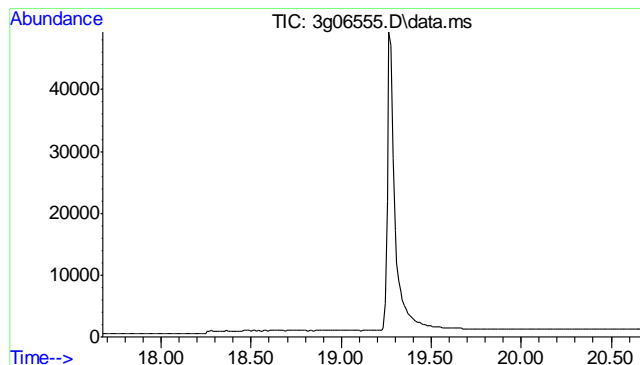
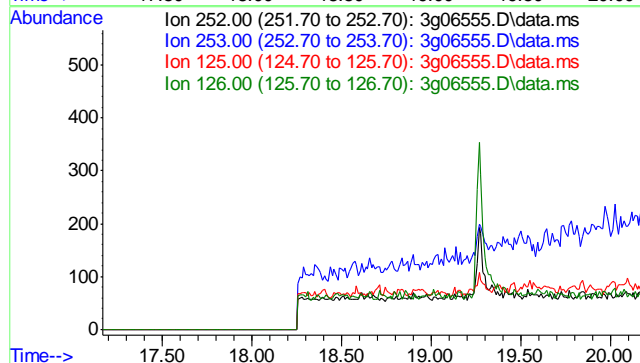




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.67 min

Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

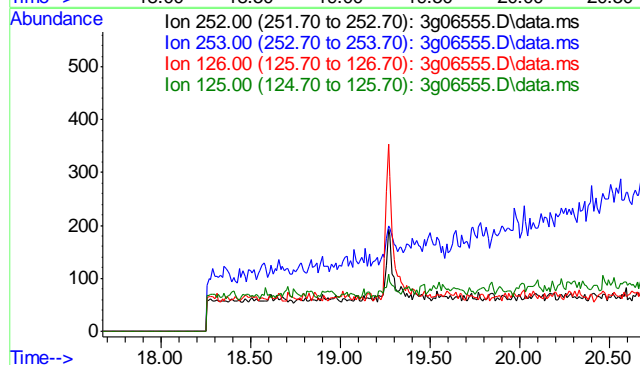
Tgt Ion:	252
Sig	Exp Ratio
252	100
253	35.6
125	16.2
126	36.7

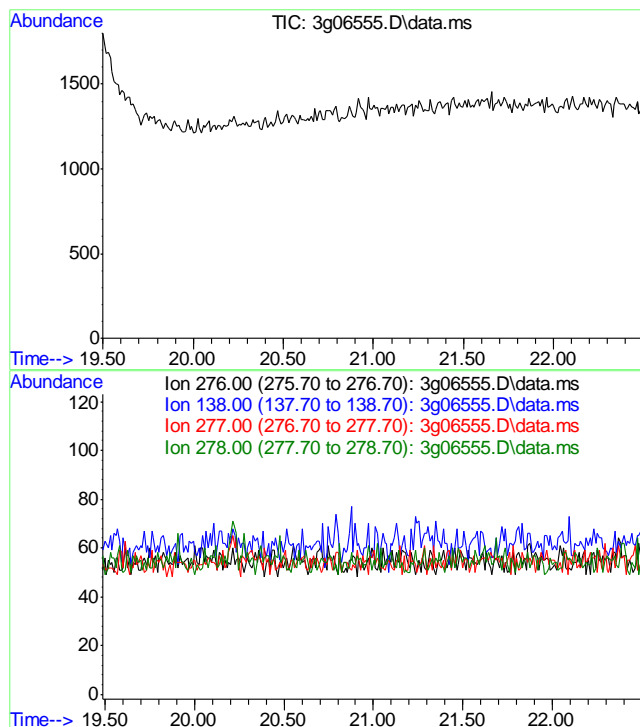


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 19.17 min

Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.1
126	22.6
125	16.8

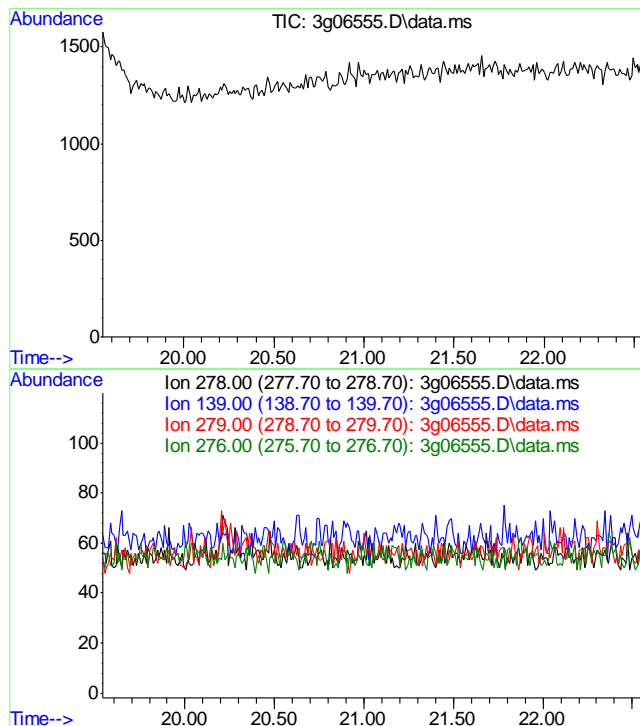




#27
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 20.99 min

Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

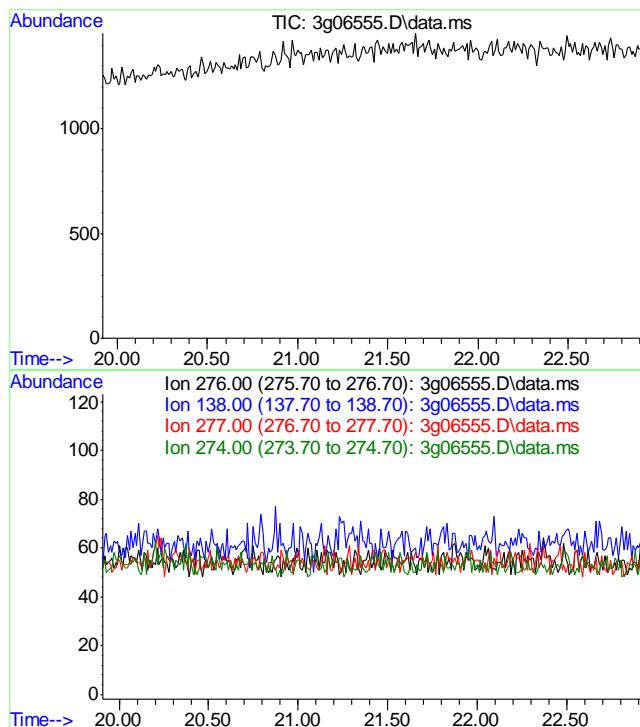
Tgt Ion	276
Sig	Exp Ratio
276	100
138	22.3
277	52.6
278	0.0



#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 21.04 min

Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

Tgt Ion	278
Sig	Exp Ratio
278	100
139	19.0
279	17.7
276	144.5



#29
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 21.41 min

Lab File: 3g06555.D
Acq: 17 Oct 11 10:09 pm

Tgt Ion: 276

Sig	Exp Ratio
276	100
138	32.7
277	24.3
274	23.1

GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D28640**Account:** KRWCCOL KRW Consulting, Inc.**Project:** XOM FRU 297-28C

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB767-MB	GB13495.D	1	10/18/11	SK	n/a	n/a	GGB767

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

D28640-1

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

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

9.1.1

9

Blank Spike Summary

Job Number: D28640
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-28C

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB767-BS	GB13496.D	1	10/18/11	SK	n/a	n/a	GGB767

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

D28640-1

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

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	95%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D28640
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-28C

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D28641-2MS	GB13498.D	1	10/18/11	SK	n/a	n/a	GGB767
D28641-2MSD	GB13499.D	1	10/18/11	SK	n/a	n/a	GGB767
D28641-2	GB13497.D	1	10/18/11	SK	n/a	n/a	GGB767

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

D28640-1

CAS No.	Compound	D28641-2 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	9.04	J	124	139	105	140	105	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D28641-2	Limits
120-82-1	1,2,4-Trichlorobenzene	111%	111%	109%	60-140%

GC Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\101811\GB13500.D\FID1A.CH Vial: 7
Signal #2 : Y:\1\DATA\101811\GB13500.D\FID2B.CH
Acq On : 18 Oct 2011 1:42 pm Operator: StephK
Sample : D28640-1, 100X Inst : GC/MS Ins
Misc : GC2337,GGB767,2.503,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Oct 18 14:14:31 2011 Quant Results File: TB740GB740SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Tue Oct 18 13:33:58 2011
Response via : Initial Calibration
DataAcq Meth : TVB4.M

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

	Compound	R.T.	Response	Conc	Units	

System Monitoring Compounds						
2) S	1,2,4-Trichlorobenzene	14.46	2772849	79.915 %	m	
10) S	1,2,4-Trichlorobenzene (P)	14.46	22208537	110.432 %		
Target Compounds						
1) H	TVH-Gasoline	7.33	14854196	0.193 mg/L		
4) T	Methyl-t-butyl-ether	0.00	0	N.D. ug/L	d	
5) T	Benzene	4.23	177271	0.367 ug/L		
6) T	Toluene	7.79	664005	1.429 ug/L		
7) T	Ethylbenzene	10.40	316092	0.785 ug/L		
8) T	m,p-Xylene	10.58	1494928	2.641 ug/L		
9) T	o-Xylene	11.07	411424	0.799 ug/L		
11) T	Naphthalene	14.65	3872000	16.777 ug/L		

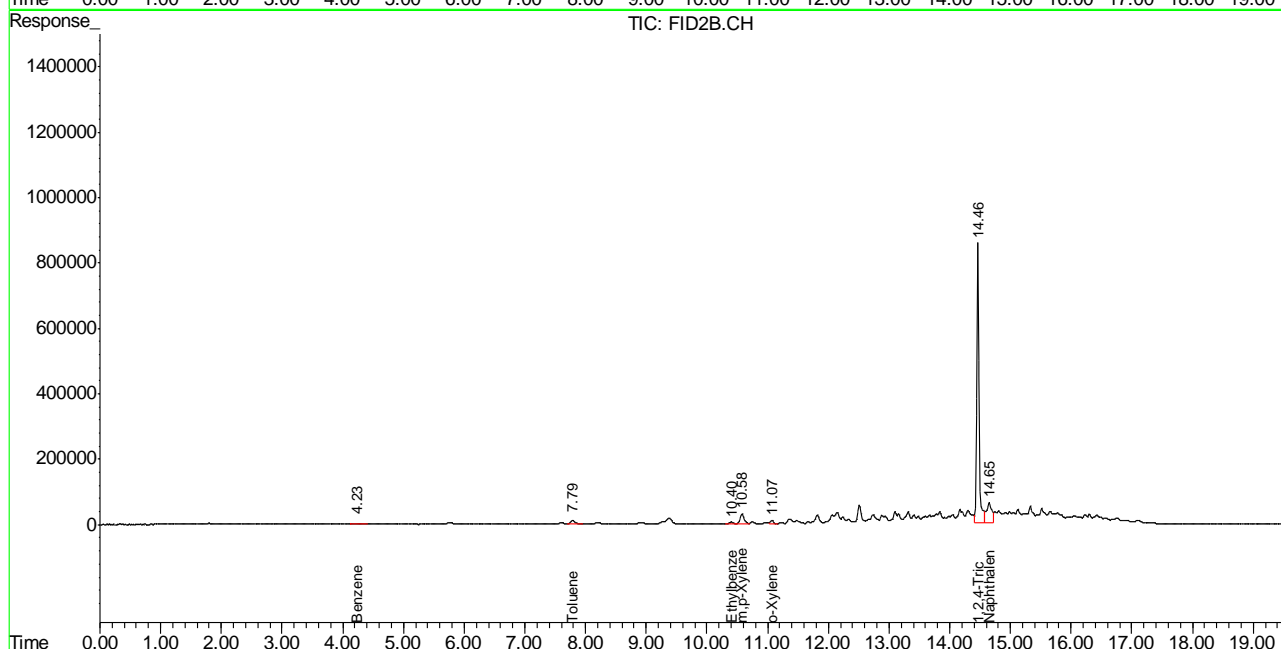
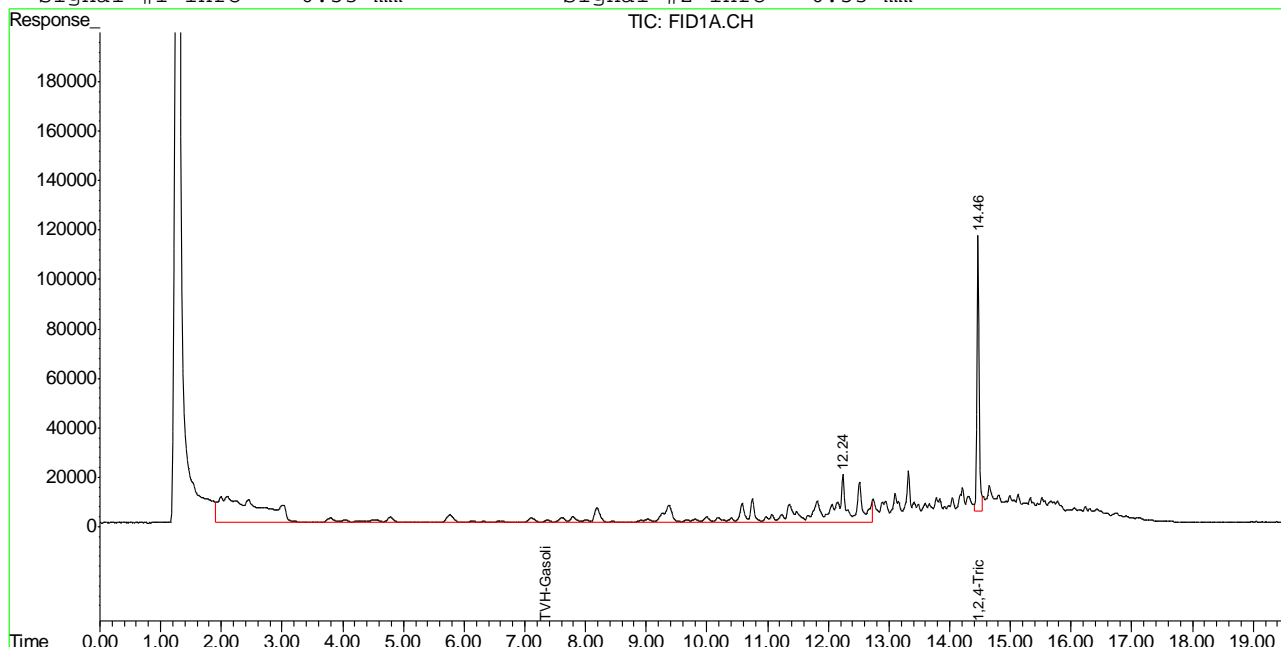
10.1.1
10

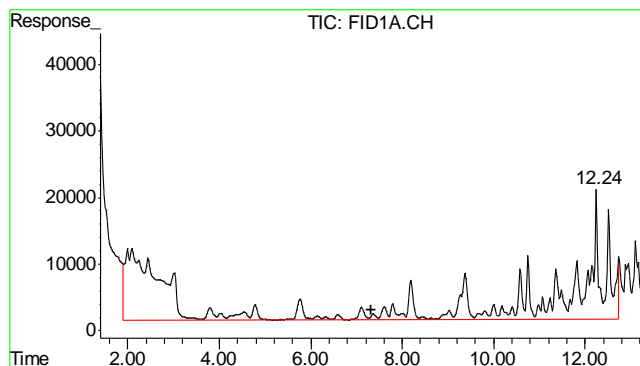
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\101811\GB13500.D\FID1A.CH Vial: 7
 Signal #2 : Y:\1\DATA\101811\GB13500.D\FID2B.CH
 Acq On : 18 Oct 2011 1:42 pm Operator: StephK
 Sample : D28640-1, 100X Inst : GC/MS Ins
 Misc : GC2337,GGB767,2.503,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Oct 18 13:15 2011 Quant Results File: TB740GB740SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Tue Oct 18 13:33:58 2011
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

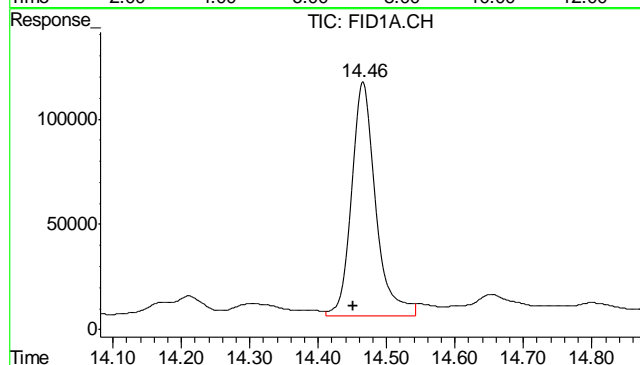
Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





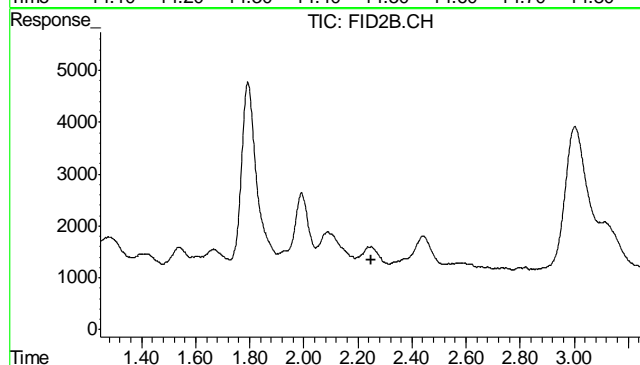
#1 TVH-Gasoline

R.T.: 7.330 min
Delta R.T.: 0.000 min
Response: 14854196
Conc: 0.19 mg/L m



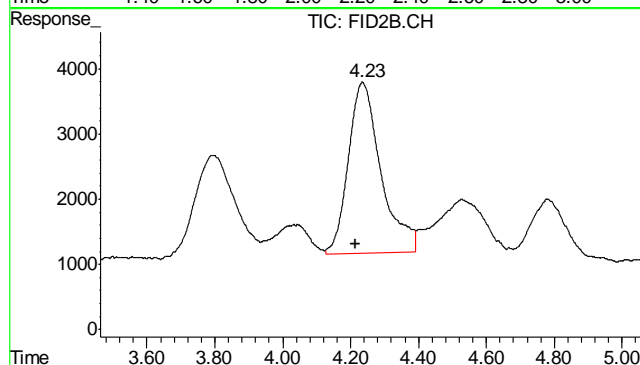
#2 1,2,4-Trichlorobenzene

R.T.: 14.465 min
Delta R.T.: 0.013 min
Response: 2772849
Conc: 79.91 % m



#4 Methyl-t-butyl-ether

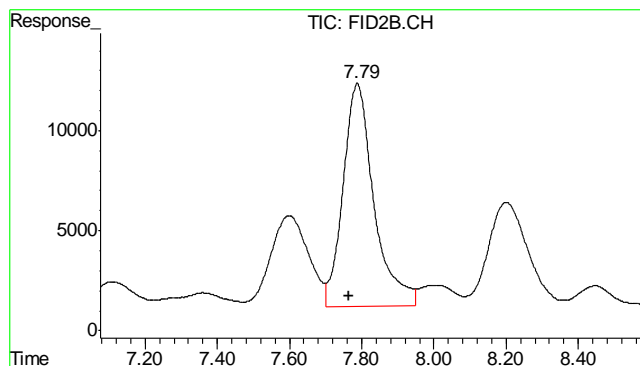
R.T.: 0.000 min
Exp R.T.: 2.248 min
Response: 0
Conc: N.D.



#5 Benzene

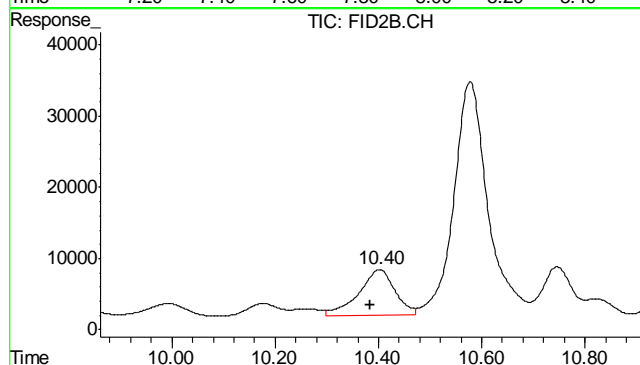
R.T.: 4.234 min
Delta R.T.: 0.018 min
Response: 177271
Conc: 0.37 ug/L

10.1.1
10



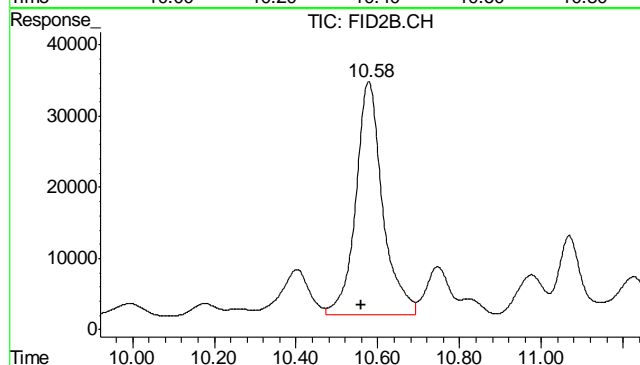
#6 Toluene

R.T.: 7.788 min
Delta R.T.: 0.023 min
Response: 664005
Conc: 1.43 ug/L



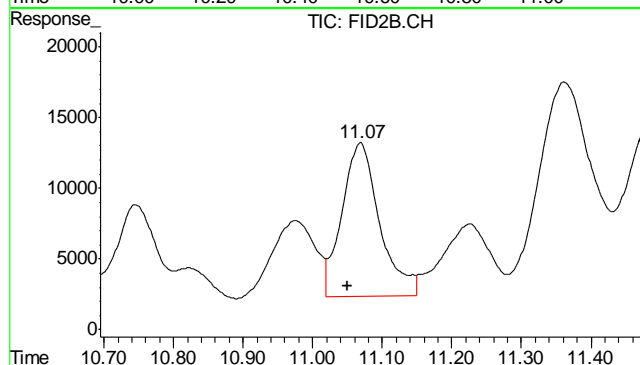
#7 Ethylbenzene

R.T.: 10.402 min
Delta R.T.: 0.019 min
Response: 316092
Conc: 0.78 ug/L



#8 m,p-Xylene

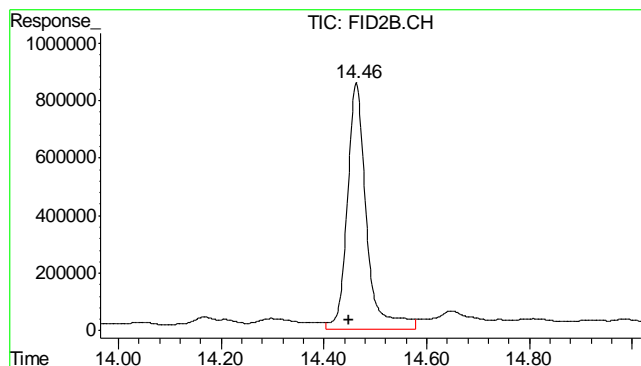
R.T.: 10.578 min
Delta R.T.: 0.017 min
Response: 1494928
Conc: 2.64 ug/L



#9 o-Xylene

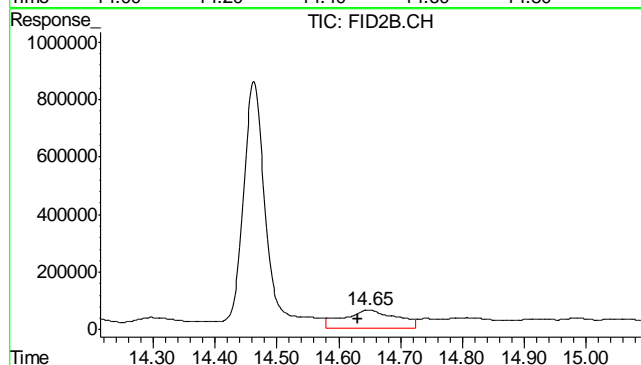
R.T.: 11.068 min
Delta R.T.: 0.018 min
Response: 411424
Conc: 0.80 ug/L

10.1.1 10



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

R.T.: 14.463 min
Delta R.T.: 0.015 min
Response: 22208537
Conc: 110.43 %



#11 Naphthalene

R.T.: 14.648 min
Delta R.T.: 0.017 min
Response: 3872000
Conc: 16.78 ug/L

10.1.1
10

Judy Melson
10/19/11 11:34

Quantitation Report (QT Reviewed)

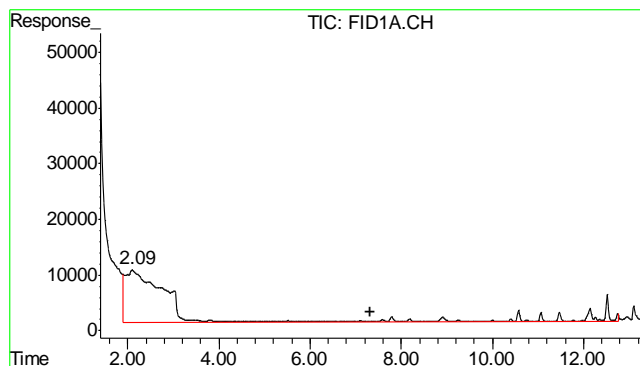
Signal #1 : Y:\1\DATA\101811\GB13495.D\FID1A.CH Vial: 2
Signal #2 : Y:\1\DATA\101811\GB13495.D\FID2B.CH
Acq On : 18 Oct 2011 10:44 am Operator: StephK
Sample : MB, S Inst : GC/MS Ins
Misc : GC2337,GGB767,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Oct 18 11:04:09 2011 Quant Results File: TB740GB740SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB740GB740SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Sat Oct 15 12:05:32 2011
Response via : Initial Calibration
DataAcq Meth : TVB4.M

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

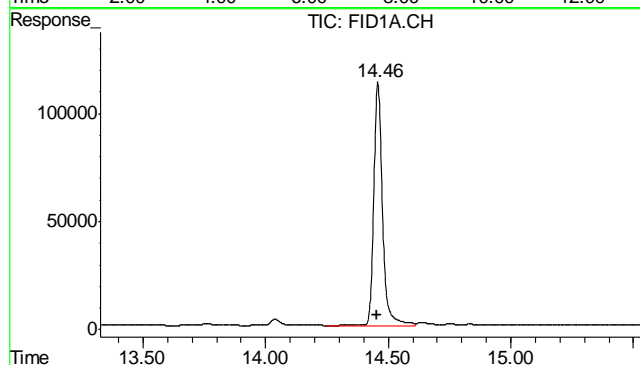
Compound		R.T.	Response	Conc	Units

System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.46	2787130	80.326 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.46	20543469	102.153 %	
Target Compounds					
1) H	TVH-Gasoline	7.33	6378008	<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	7.78	227614	0.490	ug/L
7) T	Ethylbenzene	10.40	82605	0.205	ug/L
8) T	m,p-Xylene	10.57	371231	0.250	ug/L
9) T	o-Xylene	11.06	234341	0.348	ug/L
11) T	Naphthalene	14.64	257238	1.357	ug/L



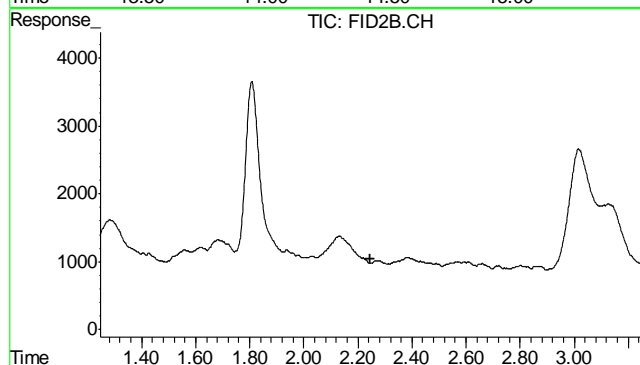
#1 TVH-Gasoline

R.T.: 7.330 min
Delta R.T.: 0.000 min
Response: 6378008
Conc: N.D.



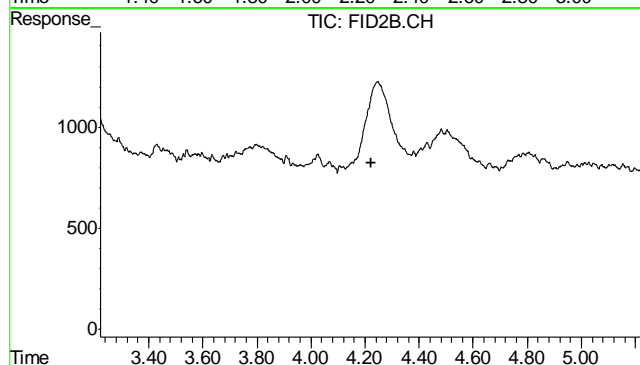
#2 1,2,4-Trichlorobenzene

R.T.: 14.457 min
Delta R.T.: 0.001 min
Response: 2787130
Conc: 80.33 % m



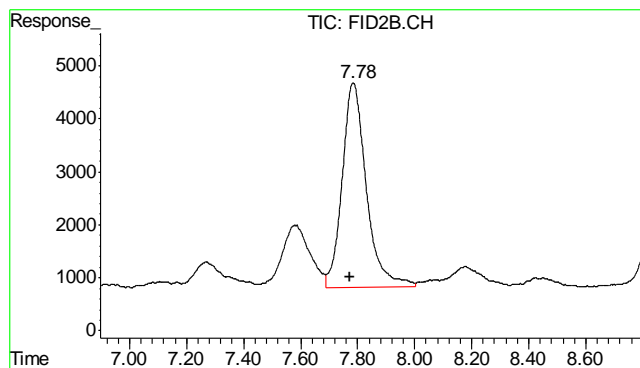
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T.: 2.247 min
Response: 0
Conc: N.D.



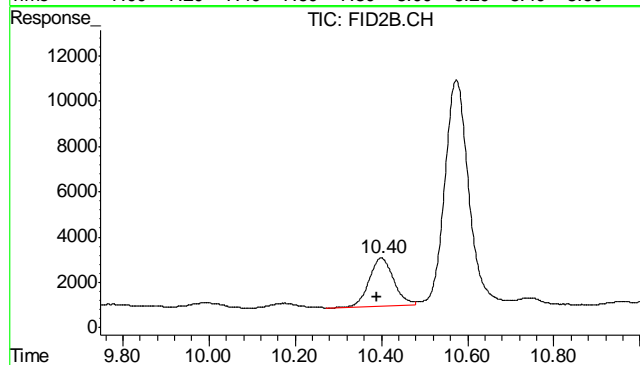
#5 Benzene

R.T.: 0.000 min
Exp R.T.: 4.221 min
Response: 0
Conc: N.D.



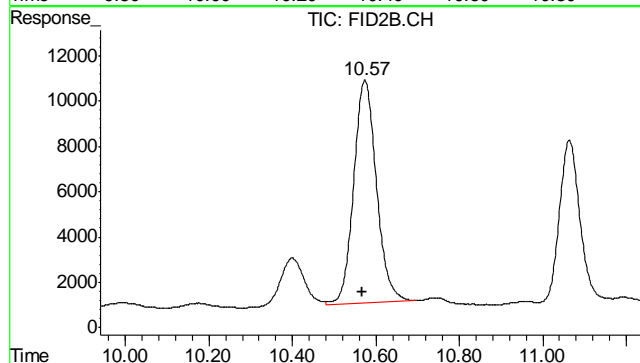
#6 Toluene

R.T.: 7.785 min
Delta R.T.: 0.013 min
Response: 227614
Conc: 0.49 ug/L



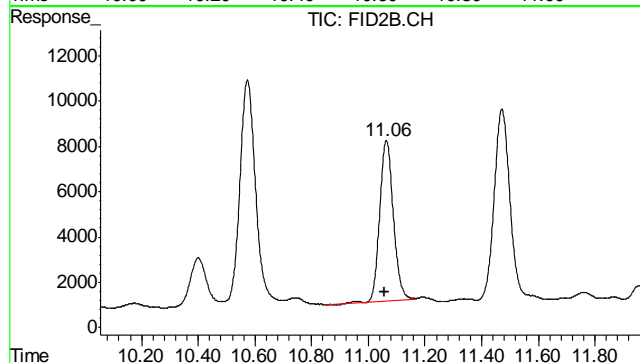
#7 Ethylbenzene

R.T.: 10.400 min
Delta R.T.: 0.009 min
Response: 82605
Conc: 0.21 ug/L



#8 m,p-Xylene

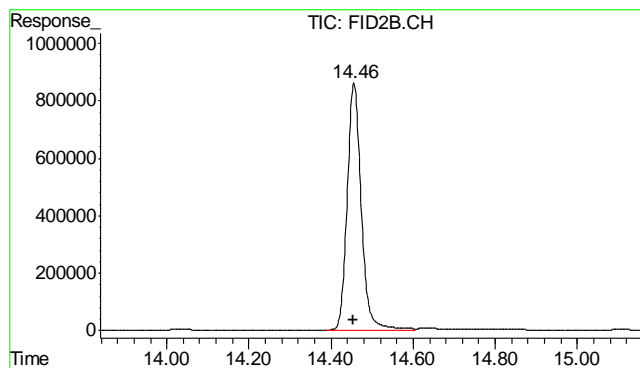
R.T.: 10.574 min
Delta R.T.: 0.007 min
Response: 371231
Conc: 0.25 ug/L



#9 o-Xylene

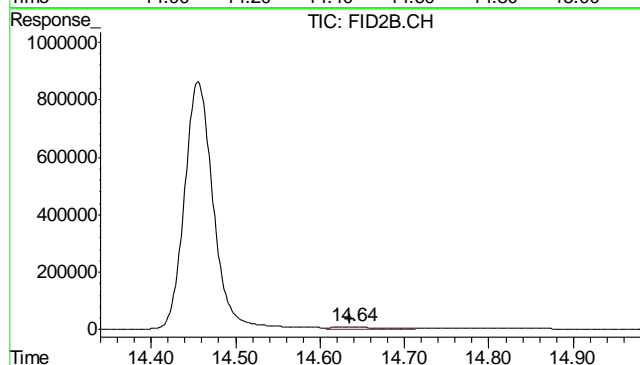
R.T.: 11.064 min
Delta R.T.: 0.008 min
Response: 234341
Conc: 0.35 ug/L

10.2.1 10



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

R.T.: 14.456 min
Delta R.T.: 0.003 min
Response: 20543469
Conc: 102.15 %



#11 Naphthalene

R.T.: 14.638 min
Delta R.T.: 0.002 min
Response: 257238
Conc: 1.36 ug/L

10.2.1
10

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D28640
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-28C

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4672-MB	FD10858.D	1	10/17/11	CS	10/17/11	OP4672	GFD527

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

D28640-1

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	97% 61-142%

11.1.1
11

Blank Spike Summary

Job Number: D28640
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-28C

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4672-BS	FD10859.D	1	10/17/11	CS	10/17/11	OP4672	GFD527

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

D28640-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	572	86	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	101%	61-142%

11.2.1
11

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D28640
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-28C

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4672-MS	FI04137.D	2	10/18/11	CS	10/17/11	OP4672	GFI299
OP4672-MSD	FI04138.D	2	10/18/11	CS	10/17/11	OP4672	GFI299
D28641-1	FI04139.D	2	10/18/11	CS	10/17/11	OP4672	GFI299

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

D28640-1

CAS No.	Compound	D28641-1 mg/kg	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	3810	701	3550	-37* a	4060	36	13	24-157/35

CAS No.	Surrogate Recoveries	MS	MSD	D28641-1	Limits
84-15-1	o-Terphenyl	63%	74%	74%	61-142%

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

11.3.1
11

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\OCT\FD101711\FD10868.D Vial: 20
Acq On : 10-17-2011 07:16:08 PM Operator: CHAVALIT
Sample : D28640-1 Inst : FID5
Misc : OP4672,GFD527,30.15,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Oct 18 08:15:33 2011 Quant Results File: GFD356.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD356.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Mon Oct 17 09:44:16 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	9.31	34136938	746.611 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	7.43	19928853	453.013 mg/L

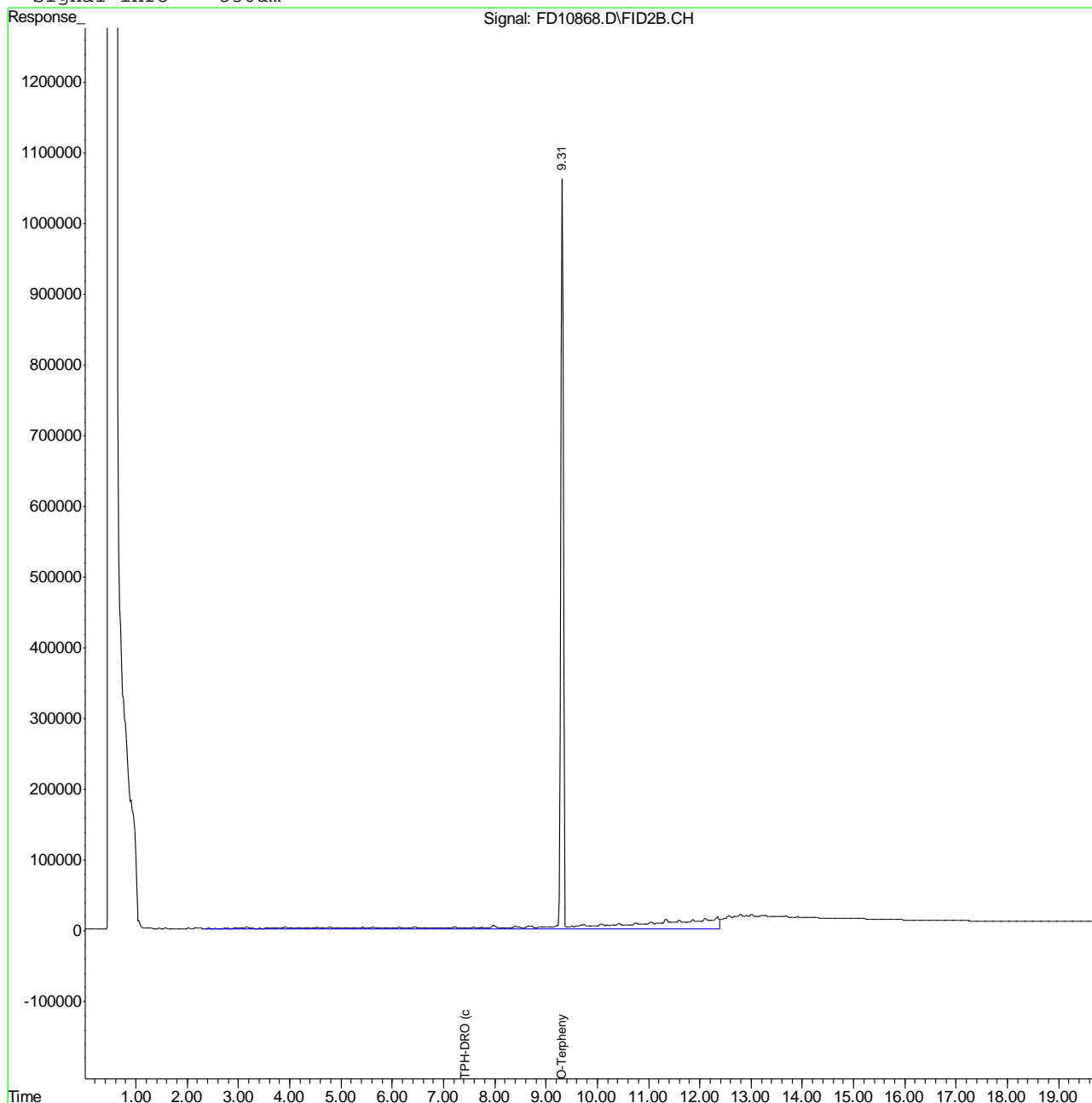
12.1.1
12

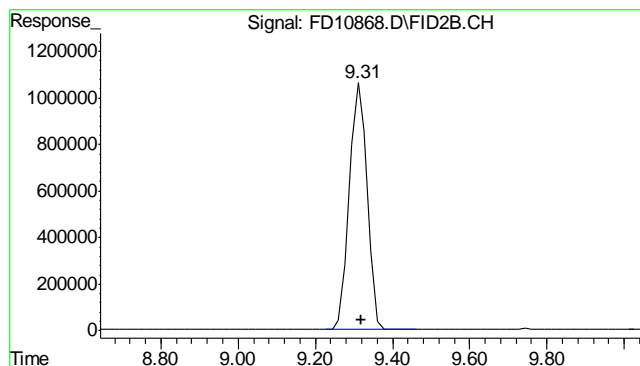
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\OCT\FD101711\FD10868.D Vial: 20
 Acq On : 10-17-2011 07:16:08 PM Operator: CHAVALIT
 Sample : D28640-1 Inst : FID5
 Misc : OP4672,GFD527,30.15,,,2,1 Multiplr: 1.00
 IntFile : DF-GFC101.E
 Quant Time: Oct 18 8:16 2011 Quant Results File: GFD356.RES

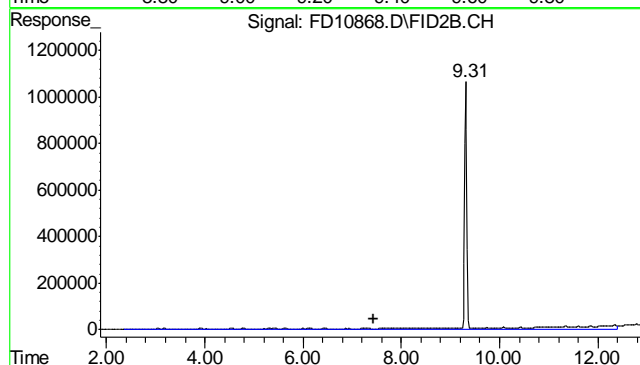
Quant Method : C:\MSDCHEM\2\METHODS\GFD356.M (Chemstation Integrator)
 Title : 8015B TEH
 Last Update : Mon Oct 17 09:44:16 2011
 Response via : Multiple Level Calibration
 DataAcq Meth : JH080911.M

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

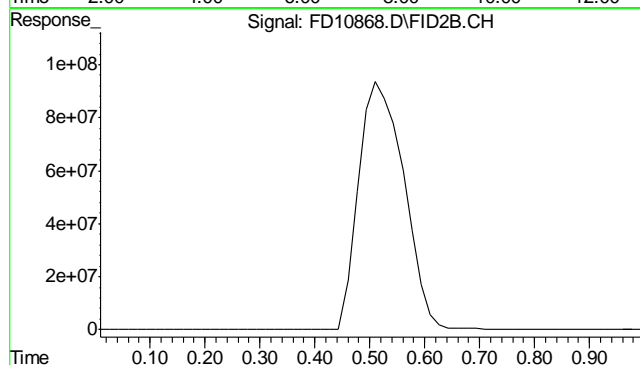




#1 O-Terphenyl
 R.T.: 9.311 min
 Delta R.T.: -0.009 min
 Response: 34136938
 Conc: 746.61 mg/L m



#2 TPH-DRO (c10-c28)
 R.T.: 7.435 min
 Delta R.T.: 0.000 min
 Response: 19928853
 Conc: 453.01 mg/L m



#9 5a-Androstane
 R.T.: 0.000 min
 Exp R.T.: 0.000 min
 Response: 0
 Conc: N.D.

12.1.1
12

Judy Melson
10/19/11 12:18

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\OCT\FD101711\FD10858.D Vial: 10
Acq On : 10-17-2011 02:58:32 PM Operator: CHAVALIT
Sample : OP4672-MB Inst : FID5
Misc : OP4672,GFD527,30.00,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Oct 17 16:49:15 2011 Quant Results File: GFD356.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD356.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Mon Oct 17 09:44:16 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	9.31	44320668	969.340 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	7.43	3545405	80.592 mg/L

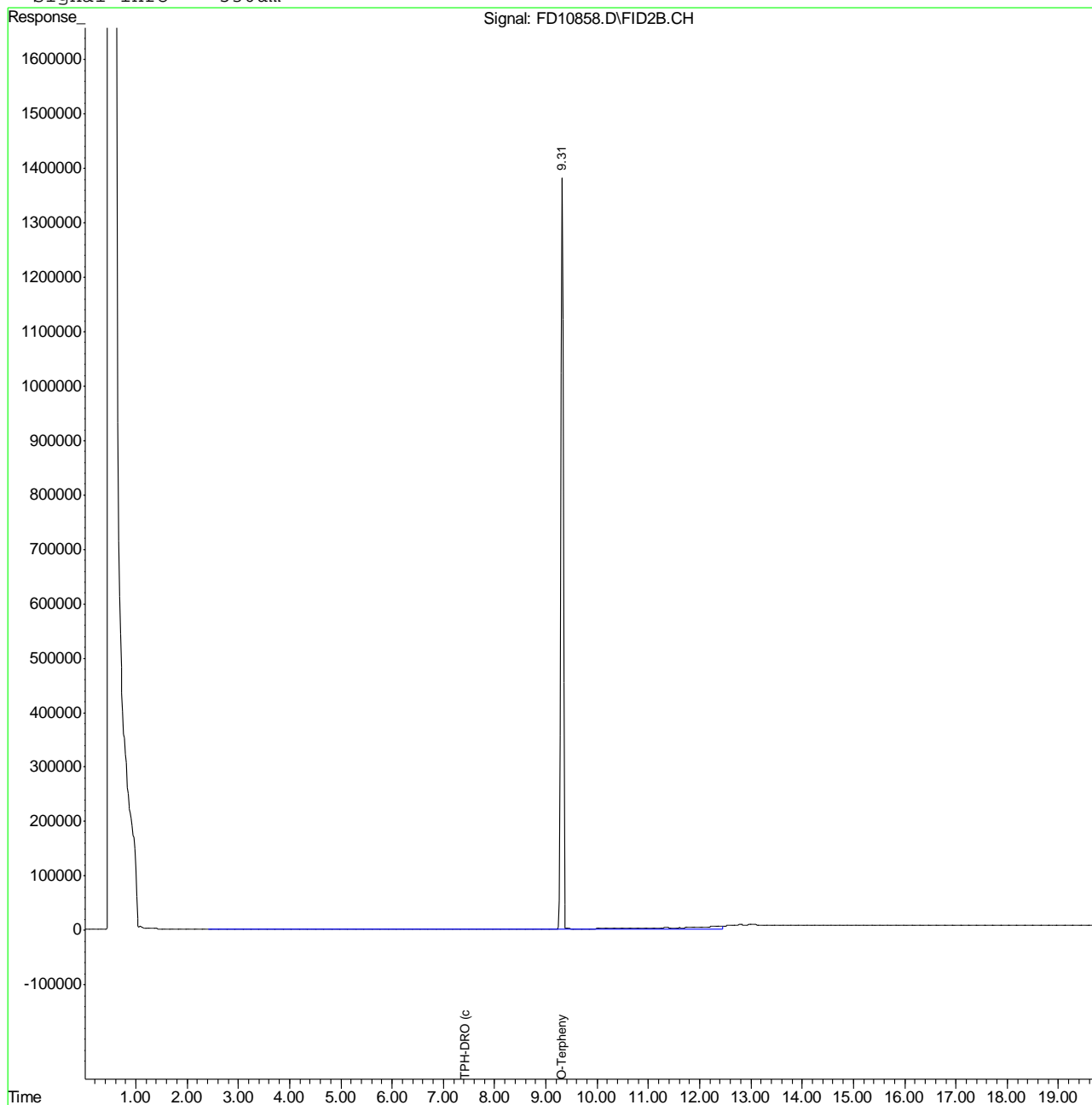
(f)=RT Delta > 1/2 Window (m)=manual int.
FD10858.D GFD356.M Tue Oct 18 10:24:09 2011 GC

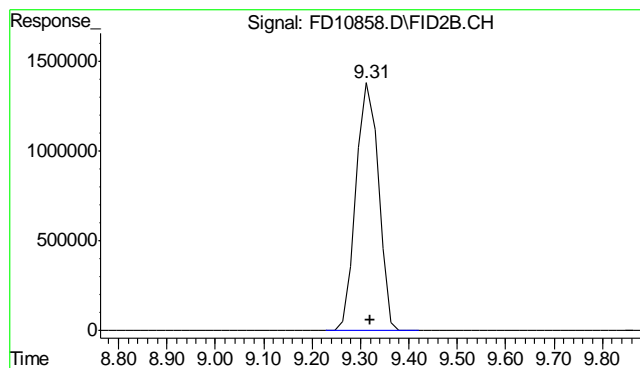
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\OCT\FD101711\FD10858.D Vial: 10
Acq On : 10-17-2011 02:58:32 PM Operator: CHAVALIT
Sample : OP4672-MB Inst : FID5
Misc : OP4672,GFD527,30.00,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Oct 18 9:59 2011 Quant Results File: GFD356.RES

Quant Method : C:\MSDCHEM\2\METHODS\GFD356.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Mon Oct 17 09:44:16 2011
Response via : Multiple Level Calibration
DataAcq Meth : JH080911.M

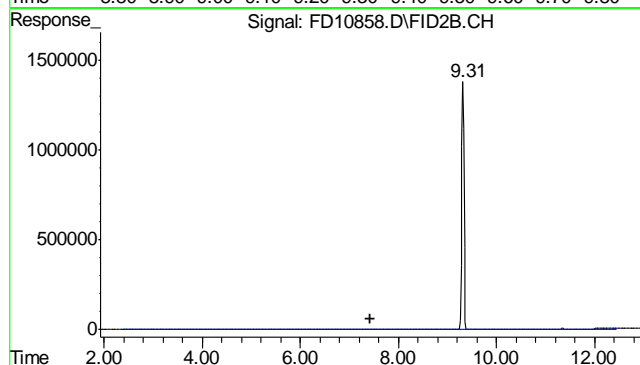
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





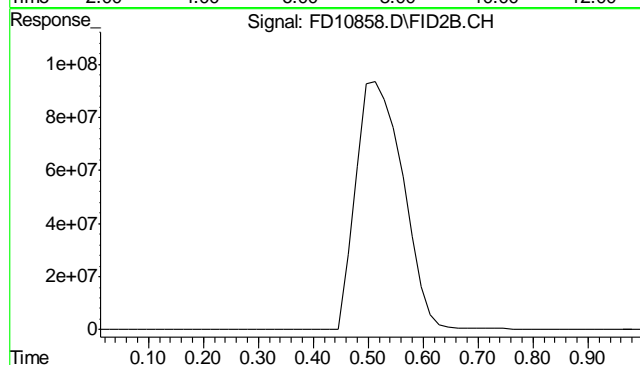
#1 O-Terphenyl

R.T.: 9.314 min
Delta R.T.: -0.006 min
Response: 44320668
Conc: 969.34 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 7.435 min
Delta R.T.: 0.000 min
Response: 3545405
Conc: 80.59 mg/L m



#9 5a-Androstane

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

12.2.1
12

Metals Analysis

QC Data Summaries

Includes the following where applicable:

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

QC Batch ID: MP6047
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 10/17/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.59	.59		
Antimony	3.0	.31	.31		
Arsenic	2.5	.59	.59		
Barium	1.0	.11	.11	0.030	<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	0.040	<1.0
Cobalt	0.50	.035	.035		
Copper	1.0	.085	.16	-0.11	<1.0
Iron	7.0	.34	2		
Lead	5.0	.16	.21	0.34	<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	0.020	<3.0
Phosphorus	10	1.1	1.2		
Potassium	200	5.5	9.2		
Selenium	5.0	.38	.5	0.52	<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	0.15	<3.0

Associated samples MP6047: D28640-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

QC Batch ID: MP6047
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

QC Batch ID: MP6047
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 10/17/11

Metal	D28641-1 Original MS		Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium	270	492	221	100.3	75-125
Beryllium					
Boron					
Cadmium	0.0	53.2	55.3	96.1	75-125
Calcium					
Chromium	2.8	56.5	55.3	97.0	75-125
Cobalt					
Copper	14.1	70.3	55.3	101.5	75-125
Iron					
Lead	3.4	111	111	97.2	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	2.3	54.2	55.3	93.8	75-125
Phosphorus					
Potassium					
Selenium	1.0	104	111	93.1	75-125
Silicon					
Silver	0.021	22.0	22.1	99.3	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	6.0	60.5	55.3	98.5	75-125

Associated samples MP6047: D28640-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

QC Batch ID: MP6047
Matrix Type: SOLID

Methods: SW846 6010B
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: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

QC Batch ID: MP6047
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 10/17/11

Metal	D28641-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium	270	481	219	96.3	2.3	20
Beryllium						
Boron						
Cadmium	0.0	52.8	54.8	96.4	0.8	20
Calcium						
Chromium	2.8	55.8	54.8	96.8	1.2	20
Cobalt						
Copper	14.1	67.7	54.8	97.9	3.8	20
Iron						
Lead	3.4	109	110	96.4	1.8	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	2.3	53.8	54.8	94.0	0.7	20
Phosphorus						
Potassium						
Selenium	1.0	103	110	93.1	1.0	20
Silicon						
Silver	0.021	21.9	21.9	99.9	0.5	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	6.0	58.3	54.8	95.5	3.7	20

Associated samples MP6047: D28640-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

QC Batch ID: MP6047
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D28640
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-28C

QC Batch ID: MP6047
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: mg/kg

Prep Date: 10/17/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	183	200	91.5	80-120
Beryllium				
Boron				
Cadmium	47.1	50	94.2	80-120
Calcium				
Chromium	47.8	50	95.6	80-120
Cobalt				
Copper	47.8	50	95.6	80-120
Iron				
Lead	94.8	100	94.8	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	46.5	50	93.0	80-120
Phosphorus				
Potassium				
Selenium	93.1	100	93.1	80-120
Silicon				
Silver	19.6	20	98.0	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	47.7	50	95.4	80-120

Associated samples MP6047: D28640-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

QC Batch ID: MP6047
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D28640
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-28C

QC Batch ID: MP6047
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: ug/l

Prep Date: 10/17/11

Metal	D28641-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	2540	2660	4.7	0-10
Beryllium				
Boron				
Cadmium	0.00	0.00	NC	0-10
Calcium				
Chromium	26.7	26.0	2.6	0-10
Cobalt				
Copper	133	127	4.7	0-10
Iron				
Lead	32.2	32.5	0.9	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	21.6	23.5	8.8	0-10
Phosphorus				
Potassium				
Selenium	9.70	39.0	302.1(a)	0-10
Silicon				
Silver	0.200	0.00	100.0(a)	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	56.9	68.5	20.4*(b)	0-10

Associated samples MP6047: D28640-1

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

13.1.4
13

SERIAL DILUTION RESULTS SUMMARY

Login Number: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

QC Batch ID: MP6047
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

- (anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
(b) High RPD due to possible sample matrix or nonhomogeneity.

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

QC Batch ID: MP6048
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 10/17/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	-0.046	<0.40
Barium	1.0	.0035	.1		
Beryllium	0.10	.0075	.014		
Boron	20	.97	1		
Cadmium	0.050	.023	.048		
Calcium	200	1.8	8.2		
Chromium	1.0	.021	.24		
Cobalt	0.10	.0033	.003		
Copper	1.0	.011	.063		
Iron	20	.81	3.7		
Lead	0.25	.0012	.015		
Magnesium	50	.067	2.6		
Manganese	0.50	.007	.029		
Molybdenum	0.50	.0044	.023		
Nickel	1.0	.0029	.031		
Phosphorus	30	1.8	3.5		
Potassium	100	2	3.2		
Selenium	0.20	.075	.19		
Silver	0.050	.0008	.002		
Sodium	250	.8	4.4		
Strontium	10	.004	.04		
Thallium	0.10	.015	.02		
Tin	5.0	.006	.028		
Titanium	1.0	.035	.062		
Uranium	0.25	.00038	.0009		
Vanadium	2.0	.052	.29		
Zinc	5.0	.039	.12		

Associated samples MP6048: D28640-1

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: D28640
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-28C

QC Batch ID: MP6048
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 10/17/11

Metal	D28641-1 Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	0.29	114	111	102.7	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 MP6048: D28640-1

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: D28640
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-28C

QC Batch ID: MP6048
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 10/17/11

Metal	D28641-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	0.29	109	110	99.2	4.5	20
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP6048: D28640-1

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: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

QC Batch ID: MP6048
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 10/17/11

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 MP6048: D28640-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D28640
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-28C

QC Batch ID: MP6048
 Matrix Type: SOLID

Methods: SW846 6020
 Units: ug/l

Prep Date: 10/17/11

Metal	D28641-1			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic	2.75	5.44	97.5 (a)	0-10	
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6048: D28640-1

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

QC Batch ID: MP6056
Matrix Type: AQUEOUS

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

Prep Date: 10/18/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	30	30		
Antimony	150	16	16		
Arsenic	130	30	30		
Barium	50	5.5	5.5		
Beryllium	50	2.2	2.5		
Boron	250	24	24		
Cadmium	50	1.4	1.4		
Calcium	2000	48	75	-8.0	<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	0.50	<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	90.0	<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 MP6056: D28640-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

QC Batch ID: MP6056
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28640
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-28C

QC Batch ID: MP6056
 Matrix Type: AQUEOUS

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

Prep Date: 10/18/11

Metal	D28641-1A Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	11500	149000	125000	110.0	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	1170	132000	125000	104.7	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	81400	216000	125000	107.7	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6056: D28640-1A

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

13.32
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

QC Batch ID: MP6056
Matrix Type: AQUEOUS

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

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28640
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-28C

QC Batch ID: MP6056
 Matrix Type: AQUEOUS

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

Prep Date: 10/18/11

Metal	D28641-1A Original MSD		Spikelot MPICPAL % Rec		MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	11500	146000	125000	107.6	2.0	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	1170	128000	125000	101.5	3.1	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	81400	209000	125000	102.1	3.3	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP6056: D28640-1A

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

13.32
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

QC Batch ID: MP6056
Matrix Type: AQUEOUS

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

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

QC Batch ID: MP6056
Matrix Type: AQUEOUS

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

Prep Date: 10/18/11

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	126000	125000	100.8	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP6056: D28640-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

QC Batch ID: MP6056
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

QC Batch ID: MP6062
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 10/19/11

Metal	RL	IDL	MDL	MB	
				raw	final

Mercury	0.10	.0011	.013	-0.00061	<0.10
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Associated samples MP6062: D28640-1

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: D28640
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-28C

QC Batch ID: MP6062
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 10/19/11

Metal	D28640-1 Original MS	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.027	1.2	1.47	80.1N(a) 85-115

Associated samples MP6062: D28640-1

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D28640
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-28C

QC Batch ID: MP6062
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 10/19/11

Metal	D28640-1 Original MSD		Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.027	1.2	1.36	86.5	0.0	20

Associated samples MP6062: D28640-1

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: D28640
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-28C

QC Batch ID: MP6062
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 10/19/11

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

Associated samples MP6062: D28640-1

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: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP5723/GN12070			umhos/cm	9980	9850	98.7	90-110%
Specific Conductivity	GP5723/GN12070			umhos/cm	9980	9850	98.7	90-110%
pH	GN12075			su	8.00	7.95	99.4	99.3-100.7%

Associated Samples:
Batch GN12075: D28640-1
Batch GP5723: D28640-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D28640
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-28C

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Redox Potential Vs H2	GN12081	D28640-1	mv	299	312	4.2	0-20%

Associated Samples:
Batch GN12081: D28640-1
(*) Outside of QC limits

14.2
14

Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Chain of Custody



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

[illegible]**Accutest Labs of New England, Inc.**

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D28640

Client: AMS

Immediate Client Services Action Required: No

Date / Time Received: 10/19/2011

Delivery Method:

Client Service Action Required at Login: No

Project:

No. Coolers: 1

Airbill #'s:

Cooler Security

Y or N

Y or N

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

Cooler Temperature

Y or N

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

Quality Control Preservation

Y or N

N/A

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

Sample Integrity - Documentation

Y or N

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

Sample Integrity - Condition

Y or N

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

Sample Integrity - Instructions

Y or N N/A

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

Comments

General Chemistry

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D28640
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: XOM FRU 297-28C

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP13675/GN36611	0.40	0.0	mg/kg	40	37.9	94.8	80-120%
Chromium, Hexavalent	GP13675/GN36611			mg/kg	689	792	114.9	80-120%

Associated Samples:
Batch GP13675: D28640-1
(*) Outside of QC limits

BLANK SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D28640
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: XOM FRU 297-28C

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
Chromium, Hexavalent	GP13675/GN36611	mg/kg	40	38.1	0.5	

Associated Samples:
Batch GP13675: D28640-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D28640
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: XOM FRU 297-28C

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP13675/GN36611	D28641-2	mg/kg	0.85	0.73	15.2	0-20%

Associated Samples:
Batch GP13675: D28640-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D28640
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: XOM FRU 297-28C

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP13675/GN36611	D28641-2	mg/kg	0.85	42.5	36.8	84.6	75-125%
Chromium, Hexavalent	GP13675/GN36611	D28641-2	mg/kg	0.85	1090	1290	118.6	75-125%

Associated Samples:
Batch GP13675: D28640-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits