



12/19/11

Technical Report for

KRW Consulting, Inc.

XOM FRU 297-32A

1108-12A

Accutest Job Number: D30326

Sampling Date: 12/12/11

Report to:

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Total number of pages in report: 137



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


Brad Madadian
Laboratory Director

Client Service contact: 303-425-6021

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

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Test results relate only to samples analyzed.

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Sample Summary

KRW Consulting, Inc.

Job No: D30326

XOM FRU 297-32A
Project No: 1108-12A

Sample Number	Collected		Time By	Received	Matrix		Client Sample ID
	Date				Code	Type	
D30326-1	12/12/11	15:45	DS	12/14/11	SO	Soil	RESERVE PIT SUBLINER
D30326-1A	12/12/11	15:45	DS	12/14/11	SO	Soil	RESERVE PIT SUBLINER

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

CASE NARRATIVE / CONFORMANCE SUMMARY**Client:** KRW Consulting, Inc.**Job No** D30326**Site:** XOM FRU 297-32A**Report Date** 12/19/2011 6:01:13 PM

On 12/14/2011, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D30326 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:** V3V877

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30165-1MS, D30165-1MSD were used as the QC samples indicated.
- Sample(s) D30165-1MS, D30165-1MSD have surrogates outside control limits. Probable cause due to matrix interference.

Extractables by GCMS By Method SW846 8270C BY SIM**Matrix:** SO**Batch ID:** OP5018

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D30326-1MS, D30326-1MSD 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 Acenaphthene are outside control limits. Outside control limits due to possible matrix interference.

Volatiles by GC By Method SW846 8015B**Matrix:** SO**Batch ID:** GGB808

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30323-1MS, D30323-1MSD were used as the QC samples indicated.

Extractables by GC By Method SW846-8015B**Matrix:** SO**Batch ID:** OP5019

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30205-1MS, D30205-1MSD were used as the QC samples indicated.

Metals By Method SW846 6010B

Matrix: AQ

Batch ID: MP6499

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30364-3AMS, D30364-3AMSD were used as the QC samples for the metals analysis.

Matrix: SO

Batch ID: MP6490

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30323-3MS, D30323-3MSD, D30323-3SDL were used as the QC samples for the metals analysis.
- The matrix spike duplicate (MSD) recovery(s) of Zinc are outside control limits. Probable cause due to matrix interference.
- The serial dilution RPD(s) for Cadmium, Selenium, Barium, Chromium, Lead, Nickel, Zinc are outside control limits for sample MP6490-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Metals By Method SW846 6020

Matrix: SO

Batch ID: MP6491

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30323-3MS, D30323-3MSD, D30323-3SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471A

Matrix: SO

Batch ID: MP6492

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30323-3MS, D30323-3MSD were used as the QC samples for the metals analysis.
- The matrix spike duplicate (MSD) recovery(s) of Mercury are outside control limits. Probable cause due to matrix interference.

Wet Chemistry By Method ASTM D1498-76M

Matrix: SO

Batch ID: GN12915

- Sample(s) D30325-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix: SO

Batch ID: GN12901

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix: SO

Batch ID: R11156

- The data for SW846 3060/7196A M meets quality control requirements.
- D30326-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix: SO

Batch ID: M:GP13932

- The data for SW846 3060A/7196A meets quality control requirements.
- D30326-1 for Chromium, Hexavalent: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method SW846 9045C**Matrix:** SO**Batch ID:** GN12910

- The following samples were run outside of holding time for method SW846 9045C: D30326-1

Wet Chemistry By Method USDA HANDBOOK 60**Matrix:** SO**Batch ID:** MP6499

- D30326-1A 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 D30326

Site: KRWCCOL: XOM FRU 297-32A

Report Date 12/19/2011 6:02:29 PM

1 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 12/12/2011 and were received at Accutest on 12/14/2011 properly preserved, at 1.8 Deg. C and intact. These Samples received an Accutest job number of D30326. 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: GP13932

- 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) D30414-3DUP, D30414-3MS 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(D30326).

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	RESERVE PIT SUBLINER	Date Sampled:	12/12/11
Lab Sample ID:	D30326-1	Date Received:	12/14/11
Matrix:	SO - Soil	Percent Solids:	86.3
Method:	SW846 8260B		
Project:	XOM FRU 297-32A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V15158.D	1	12/16/11	KV	n/a	n/a	V3V877
Run #2							

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.065	0.029	mg/kg	
108-88-3	Toluene	ND	0.13	0.065	mg/kg	
100-41-4	Ethylbenzene	ND	0.13	0.033	mg/kg	
1330-20-7	Xylene (total)	ND	0.26	0.13	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	106%		61-130%
460-00-4	4-Bromofluorobenzene	122%		53-131%
17060-07-0	1,2-Dichloroethane-D4	118%		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 SUBLINER	Date Sampled:	12/12/11
Lab Sample ID:	D30326-1	Date Received:	12/14/11
Matrix:	SO - Soil	Percent Solids:	86.3
Method:	SW846 8270C BY SIM SW846 3546		
Project:	XOM FRU 297-32A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G07308.D	1	12/17/11	ME	12/15/11	OP5018	E3G271
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.0077	0.0062	mg/kg	
120-12-7	Anthracene	ND	0.0077	0.0069	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.019	0.010	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.019	0.014	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.019	0.014	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.019	0.0085	mg/kg	
218-01-9	Chrysene	0.0164	0.019	0.0085	mg/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	0.019	0.014	mg/kg	
206-44-0	Fluoranthene	ND	0.0077	0.0077	mg/kg	
86-73-7	Fluorene	0.0663	0.0077	0.0066	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.023	0.021	mg/kg	
91-20-3	Naphthalene	0.0096	0.0077	0.0073	mg/kg	
129-00-0	Pyrene	0.0079	0.0077	0.0073	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	57%		10-145%
321-60-8	2-Fluorobiphenyl	98%		10-130%
1718-51-0	Terphenyl-d14	108%		22-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	RESERVE PIT SUBLINER			Date Sampled:	12/12/11
Lab Sample ID:	D30326-1			Date Received:	12/14/11
Matrix:	SO - Soil			Percent Solids:	86.3
Method:	SW846 8015B				
Project:	XOM FRU 297-32A				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB14319.D	1	12/15/11	SK	n/a	n/a	GGB808
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	6.57	13	6.5	mg/kg	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	100%		60-140%		

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

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

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	RESERVE PIT SUBLINER					Date Sampled:	12/12/11
Lab Sample ID:	D30326-1					Date Received:	12/14/11
Matrix:	SO - Soil					Percent Solids:	86.3
Method:	SW846-8015B SW846 3546						
Project:	XOM FRU 297-32A						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD12345.D	1	12/16/11	TR	12/15/11	OP5019	GFD639
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)	1140	15	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	69%		43-136%		

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

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

Report of Analysis

Client Sample ID: RESERVE PIT SUBLINER**Lab Sample ID:** D30326-1**Matrix:** SO - Soil**Project:** XOM FRU 297-32A**Date Sampled:** 12/12/11**Date Received:** 12/14/11**Percent Solids:** 86.3**Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	3.6	0.47	mg/kg	5	12/15/11	12/16/11 GJ	SW846 6020 ¹	SW846 3050B ⁵
Barium	915	1.2	mg/kg	1	12/15/11	12/16/11 JB	SW846 6010B ³	SW846 3050B ⁴
Cadmium	< 1.2	1.2	mg/kg	1	12/15/11	12/16/11 JB	SW846 6010B ³	SW846 3050B ⁴
Chromium	47.6	1.2	mg/kg	1	12/15/11	12/16/11 JB	SW846 6010B ³	SW846 3050B ⁴
Copper	9.3	1.2	mg/kg	1	12/15/11	12/16/11 JB	SW846 6010B ³	SW846 3050B ⁴
Lead	11.3	5.9	mg/kg	1	12/15/11	12/16/11 JB	SW846 6010B ³	SW846 3050B ⁴
Mercury	< 0.12	0.12	mg/kg	1	12/16/11	12/16/11 JB	SW846 7471A ²	SW846 7471A ⁶
Nickel	17.3	3.5	mg/kg	1	12/15/11	12/16/11 JB	SW846 6010B ³	SW846 3050B ⁴
Selenium	< 5.9	5.9	mg/kg	1	12/15/11	12/16/11 JB	SW846 6010B ³	SW846 3050B ⁴
Silver	< 3.5	3.5	mg/kg	1	12/15/11	12/16/11 JB	SW846 6010B ³	SW846 3050B ⁴
Zinc	41.9	3.5	mg/kg	1	12/15/11	12/16/11 JB	SW846 6010B ³	SW846 3050B ⁴

(1) Instrument QC Batch: MA2056

(2) Instrument QC Batch: MA2057

(3) Instrument QC Batch: MA2059

(4) Prep QC Batch: MP6490

(5) Prep QC Batch: MP6491

(6) Prep QC Batch: MP6492

RL = Reporting Limit

Report of Analysis

Client Sample ID: RESERVE PIT SUBLINER**Lab Sample ID:** D30326-1**Matrix:** SO - Soil**Project:** XOM FRU 297-32A**Date Sampled:** 12/12/11**Date Received:** 12/14/11**Percent Solids:** 86.3

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent ^a	< 0.46	0.46	mg/kg	1	12/19/11 15:36	AMA	SW846 3060A/7196A
Chromium, Trivalent ^b	47.6	1.7	mg/kg	1	12/19/11 15:36	AMA	SW846 3060/7196A M
Redox Potential Vs H2	326		mv	1	12/15/11	CJ	ASTM D1498-76M
Solids, Percent	86.3		%	1	12/15/11	SWT	SM19 2540B M
Specific Conductivity	1580	1.0	umhos/cm	1	12/19/11	CJ	DEPT.OF AG, BOOK N9
pH	10.26		su	1	12/15/11 12:30	JK	SW846 9045C

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RESERVE PIT SUBLINER	Date Sampled:	12/12/11
Lab Sample ID:	D30326-1A	Date Received:	12/14/11
Matrix:	SO - Soil	Percent Solids:	86.3
Project:	XOM FRU 297-32A		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	15.2	2.0	mg/l	1	12/16/11	12/16/11 JB	SW846 6010B ¹	EPA 200.7 ²
Magnesium	3.44	1.0	mg/l	1	12/16/11	12/16/11 JB	SW846 6010B ¹	EPA 200.7 ²
Sodium	320	2.0	mg/l	1	12/16/11	12/16/11 JB	SW846 6010B ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA2059
(2) Prep QC Batch: MP6499

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RESERVE PIT SUBLINER	Date Sampled:	12/12/11
Lab Sample ID:	D30326-1A	Date Received:	12/14/11
Matrix:	SO - Soil	Percent Solids:	86.3
Project:	XOM FRU 297-32A		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	19.3		ratio	1	12/16/11 18:30	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

FED-EX Tracking #
Bottle Order Control #
Accutest Quote #
Accutest Job # **D30326**

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)												Matrix Codes				
Company Name KRW	Project Name XOM FRU 297-32A													DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank						
Street Address 8000 W 14 Ave Ste 200	Street XOM FRU 297-32A																			
City Lakewood Co	City Lakewood Co																			
State 80014	State 80014																			
Zip 80014	Zip 80014																			
Project Contact Joe Hess	E-mail jhess@krcconsulting	Project# 1108-12A																		
Phone # 970-679-4066	Fax #	Client PO#																		
Sampler(s) Name(s) David Sanders	Phone #	Project Manager Joe Hess																		
Field ID / Point of Collection FRU 297-32A Sublimar	MEOH/DI Vial #	Date 12/12/11	Time 3:45	DS	SO	5														
Reserve Pit Sublimar																				
Turnaround Time (Business days) <input type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> Std. 5 Business Days (By Contract only) <input type="checkbox"/> 5 Day R/SH <input checked="" type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY																				
Approved By (Accutest PM): / Date: <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> Commercial "B" - Narrative <input type="checkbox"/> FULLT1 (Level 3-4)																				
State Forms <input type="checkbox"/> EDD Format <input type="checkbox"/> PDF Commercial "A" = Results Only Commercial "B" = Results + QC Summary																				
Comments / Special Instructions Please email results to xom KRW Piceane Field Team																				
Sample Custody must be documented below each time samples change possession, including courier delivery.																				
Relinquished by Sampler 1	Date Time 12/13/11 15:15	Received By 1	Date Time 12/13/11	Received By 2	Date Time 12/13/11	Received By 3	Date Time 12/13/11	Received By 4	Date Time 12/13/11	Received By 5	Date Time 12/13/11	Received By 6	Date Time 12/13/11	Received By 7	Date Time 12/13/11	Received By 8				
Relinquished by Sampler 2	Date Time 12/13/11	Received By 3	Date Time 12/13/11	Received By 4	Date Time 12/13/11	Received By 5	Date Time 12/13/11	Received By 6	Date Time 12/13/11	Received By 7	Date Time 12/13/11	Received By 8	Date Time 12/13/11	Received By 9	Date Time 12/13/11	Received By 10				
Relinquished by Sampler 3	Date Time 12/13/11	Received By 4	Date Time 12/13/11	Received By 5	Date Time 12/13/11	Received By 6	Date Time 12/13/11	Received By 7	Date Time 12/13/11	Received By 8	Date Time 12/13/11	Received By 9	Date Time 12/13/11	Received By 10	Date Time 12/13/11	Received By 11				
Relinquished by Sampler 4	Date Time 12/13/11	Received By 5	Date Time 12/13/11	Received By 6	Date Time 12/13/11	Received By 7	Date Time 12/13/11	Received By 8	Date Time 12/13/11	Received By 9	Date Time 12/13/11	Received By 10	Date Time 12/13/11	Received By 11	Date Time 12/13/11	Received By 12				
Relinquished by Sampler 5	Date Time 12/13/11	Received By 6	Date Time 12/13/11	Received By 7	Date Time 12/13/11	Received By 8	Date Time 12/13/11	Received By 9	Date Time 12/13/11	Received By 10	Date Time 12/13/11	Received By 11	Date Time 12/13/11	Received By 12	Date Time 12/13/11	Received By 13				
Custody Seq # 10100 Intact <input checked="" type="checkbox"/> Not Intact <input type="checkbox"/> Preserved where applicable <input checked="" type="checkbox"/> On Ice <input checked="" type="checkbox"/> Cooler Temp. <input type="checkbox"/>																				

D30326: Chain of Custody

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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D30326

Client: KRW

Immediate Client Services Action Required: No

Date / Time Received: 12/14/2011 4:51:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XOM FRU 297-32A

Airbill #'s: hd/co

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

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

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

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

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

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

Comments

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www.accutest.com

GC/MS Volatiles

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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: D30326
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V877-MB	3V15151.D	1	12/16/11	KV	n/a	n/a	V3V877

The QC reported here applies to the following samples:

Method: SW846 8260B

D30326-1

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	109% 61-130%
460-00-4	4-Bromofluorobenzene	108% 53-131%
17060-07-0	1,2-Dichloroethane-D4	130% 62-130%

Blank Spike Summary

Page 1 of 1

Job Number: D30326

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V877-BS	3V15152.D	1	12/16/11	KV	n/a	n/a	V3V877

The QC reported here applies to the following samples:

Method: SW846 8260B

D30326-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	57.7	115	70-130
100-41-4	Ethylbenzene	50	49.8	100	70-130
108-88-3	Toluene	50	51.1	102	70-130
1330-20-7	Xylene (total)	150	153	102	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	110%	61-130%
460-00-4	4-Bromofluorobenzene	127%	53-131%
17060-07-0	1,2-Dichloroethane-D4	117%	62-130%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D30326

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D30165-1MS	3V15154.D	1	12/16/11	KV	n/a	n/a	V3V877
D30165-1MSD	3V15155.D	1	12/16/11	KV	n/a	n/a	V3V877
D30165-1	3V15153.D	1	12/16/11	KV	n/a	n/a	V3V877

The QC reported here applies to the following samples:

Method: SW846 8260B

D30326-1

CAS No.	Compound	D30165-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3320	3780	114	3850	116	2	70-134/30
100-41-4	Ethylbenzene	66.0	J	3320	3410	101	3440	102	1	70-137/30
108-88-3	Toluene	ND		3320	3300	99	3360	101	2	70-130/30
1330-20-7	Xylene (total)	755		9960	10700	100	10800	101	1	61-131/30

CAS No.	Surrogate Recoveries	MS	MSD	D30165-1	Limits
2037-26-5	Toluene-D8	104%	105%	104%	61-130%
460-00-4	4-Bromofluorobenzene	137% * b	135% * b	133% * a	53-131%
17060-07-0	1,2-Dichloroethane-D4	117%	114%	122%	62-130%

(a) Outside control limits due to matrix interference. Confirmed by MS/MSD.

(b) Outside control limits due to matrix interference.

GC/MS Volatiles

Raw Data



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3121611.S\
 Data File : 3V15158.D
 Acq On : 16 Dec 2011 2:15 pm
 Operator : koroushv
 Sample : D30326-1, 50x
 Misc : MS3099,V3V877,5.040,,100,5,1
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Dec 19 14:26:10 2011
 Quant Method : C:\msdchem\1\METHODS\V3AP850TVH850.M
 Quant Title : 8260
 QLast Update : Sat Nov 26 09:28:41 2011
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.888	168	272480	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.681	114	486005	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.315	117	494812	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.311	152	284699	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.283	102	44054	59.09	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	118.18%
61) Toluene-d8	14.073	98	745136	53.21	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	106.42%
69) 4-Bromofluorobenzene	16.265	95	280586	61.14	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	122.28%

Target Compounds

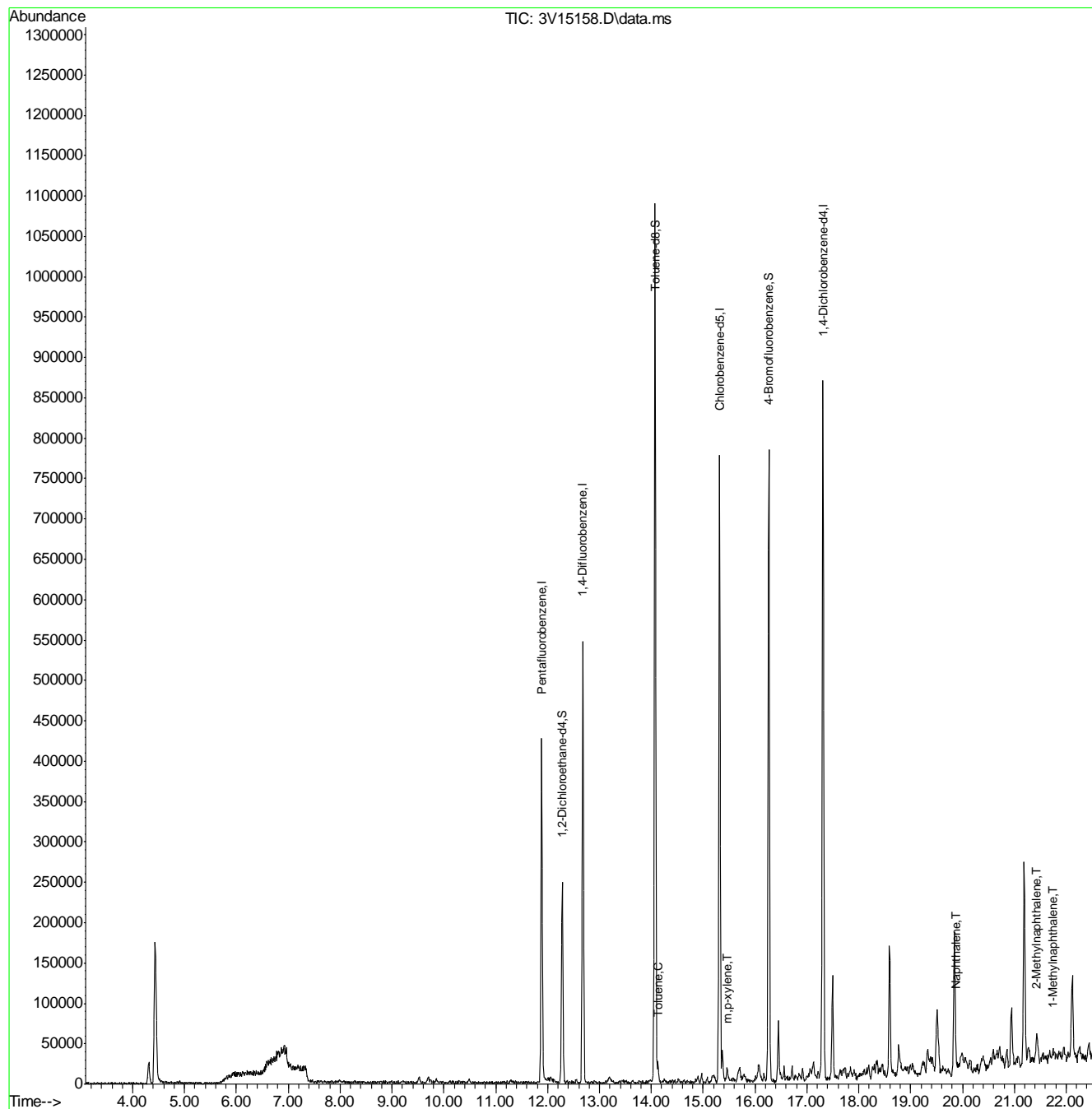
						Qvalue
62) Toluene	14.128	92	5894	0.57	ug/l	98
72) m,p-xylene	15.459	106	5952	1.13	ug/l	87
91) Naphthalene	19.878	128	10246	0.68	ug/l	100
94) 2-Methylnaphthalene	21.434	142	19313	3.94	ug/l	93
95) 1-Methylnaphthalene	21.733	142	7260	1.40	ug/l #	41

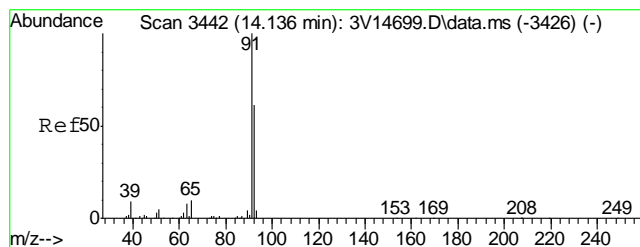
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3121611.S\
Data File : 3V15158.D
Acq On : 16 Dec 2011 2:15 pm
Operator : koroushv
Sample : D30326-1, 50x
Misc : MS3099,V3V877,5.040,,100,5,1
ALS Vial : 12 Sample Multiplier: 1

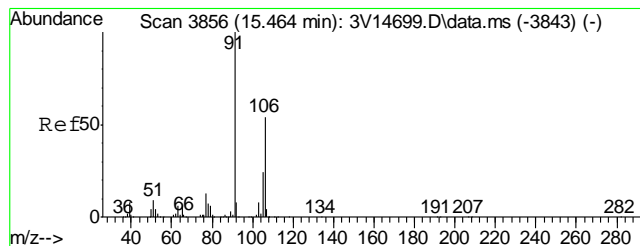
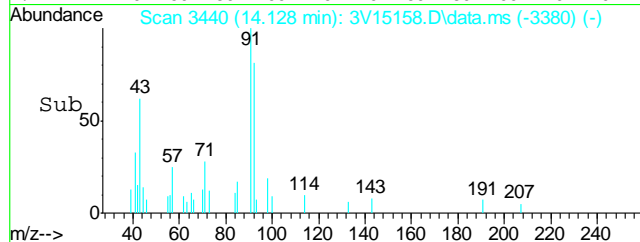
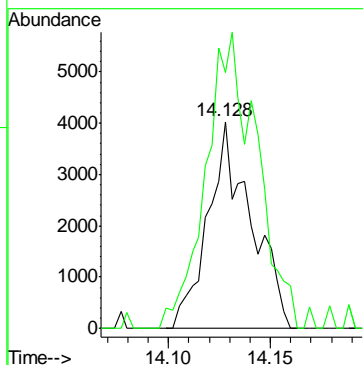
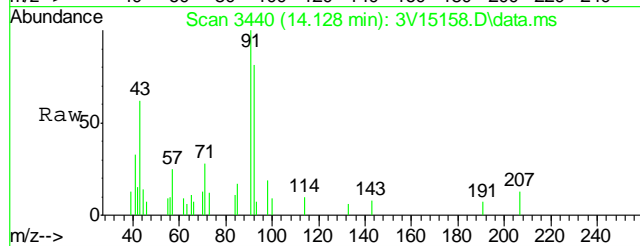
Quant Time: Dec 19 14:26:10 2011
Quant Method : C:\msdchem\1\METHODS\V3AP850TVH850.M
Quant Title : 8260
QLast Update : Sat Nov 26 09:28:41 2011
Response via : Initial Calibration





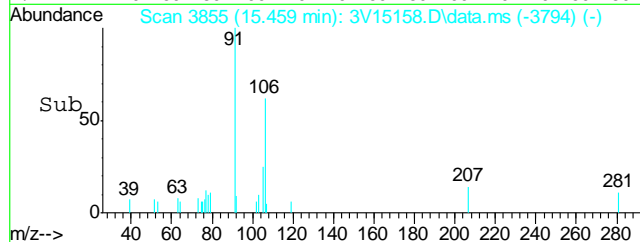
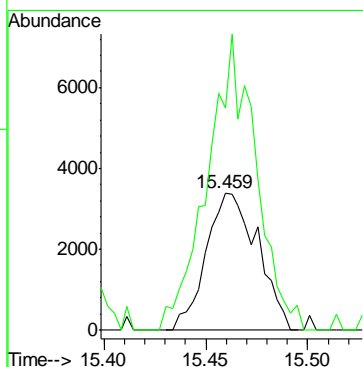
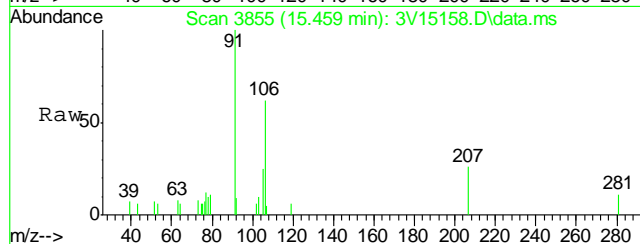
#62
Toluene
Concen: 0.57 ug/l
RT: 14.128 min Scan# 3440
Delta R.T. -0.008 min
Lab File: 3V15158.D
Acq: 16 Dec 2011 2:15 pm

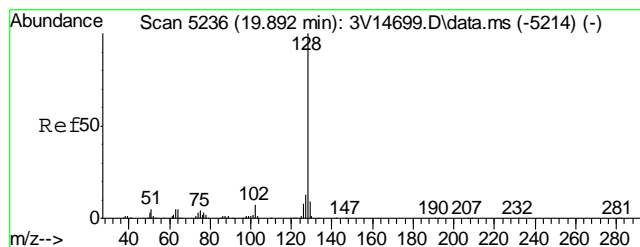
Tgt Ion: 92 Resp: 5894
Ion Ratio Lower Upper
92 100
91 169.6 152.7 192.7



#72
m,p-xylene
Concen: 1.13 ug/l
RT: 15.459 min Scan# 3855
Delta R.T. -0.005 min
Lab File: 3V15158.D
Acq: 16 Dec 2011 2:15 pm

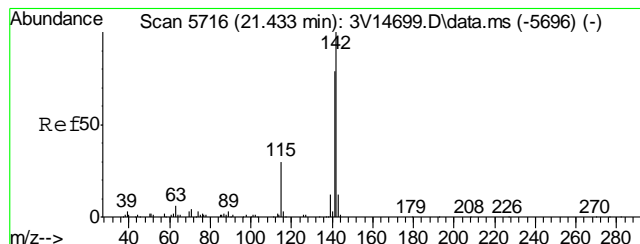
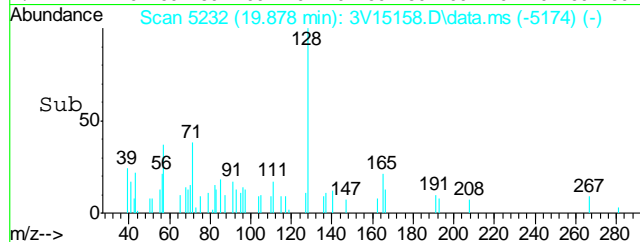
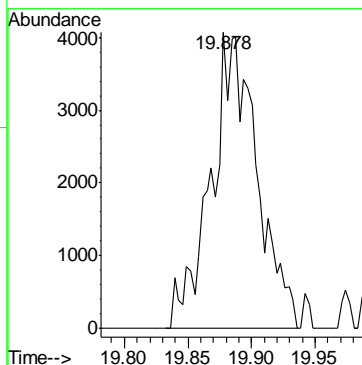
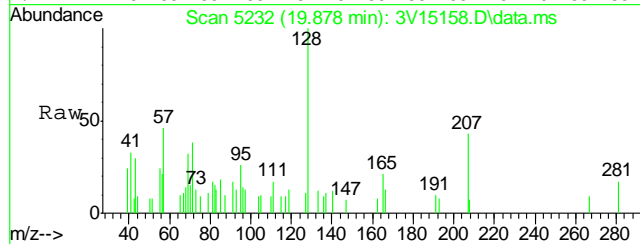
Tgt Ion: 106 Resp: 5952
Ion Ratio Lower Upper
106 100
91 202.7 164.6 204.6





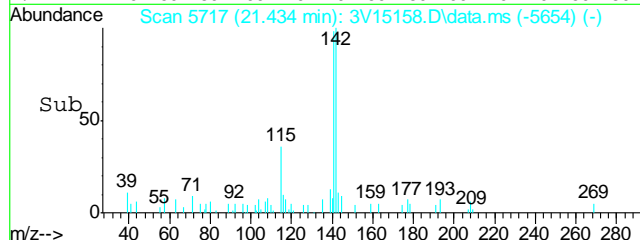
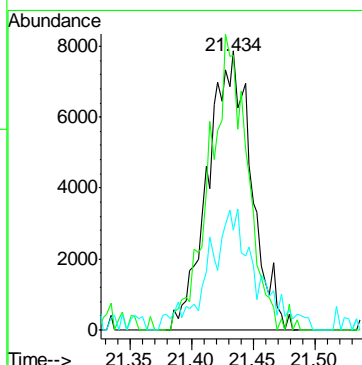
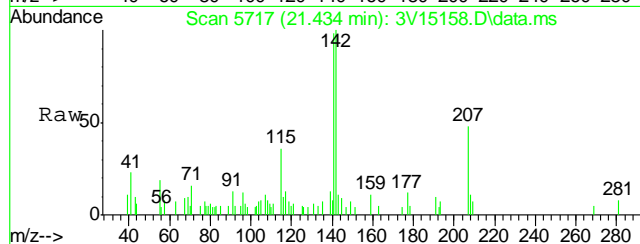
#91
Naphthalene
Concen: 0.68 ug/l
RT: 19.878 min Scan# 5232
Delta R.T. -0.014 min
Lab File: 3V15158.D
Acq: 16 Dec 2011 2:15 pm

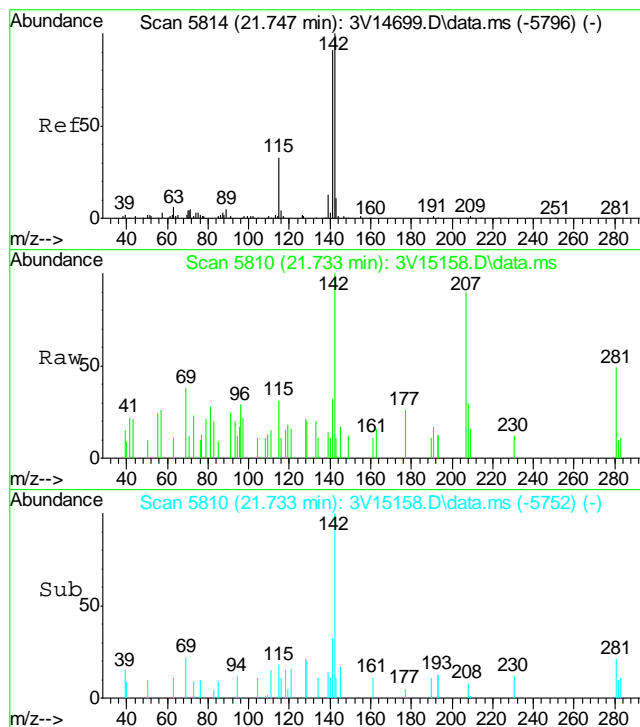
Tgt Ion:128 Resp: 10246



#94
2-Methylnaphthalene
Concen: 3.94 ug/l
RT: 21.434 min Scan# 5717
Delta R.T. 0.002 min
Lab File: 3V15158.D
Acq: 16 Dec 2011 2:15 pm

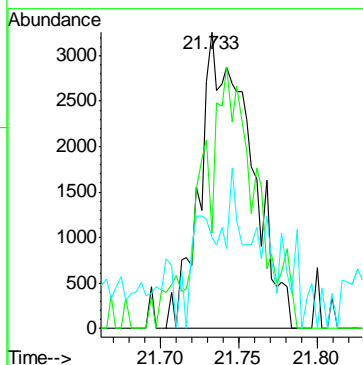
Tgt Ion:142 Resp: 19313
Ion Ratio Lower Upper
142 100
141 91.2 67.4 101.2
115 33.7 24.3 36.5





#95
 1-Methylnaphthalene
 Concen: 1.40 ug/l
 RT: 21.733 min Scan# 5810
 Delta R.T. -0.014 min
 Lab File: 3V15158.D
 Acq: 16 Dec 2011 2:15 pm

Tgt Ion:	142	Resp:	7260
Ion Ratio	Lower	Upper	
142	100		
141	20.4	72.6	109.0#
115	24.2	26.2	39.2#



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3121611.S\
Data File : 3V15151.D
Acq On : 16 Dec 2011 10:39 am
Operator : koroushv
Sample : MB
Misc : MS3099,V3V877,5.00,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 16 11:04:25 2011
Quant Method : C:\msdchem\1\METHODS\V3AP850TVH850.M
Quant Title : 8260
QLast Update : Sat Nov 26 09:28:41 2011
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.888	168	188013	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.681	114	351899	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.315	117	355332	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.308	152	192299	50.00	ug/l	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.283	102	33333	64.80	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	129.60%
61) Toluene-d8	14.074	98	547885	54.48	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	108.96%
69) 4-Bromofluorobenzene	16.262	95	177261	53.79	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	107.58%

Target Compounds

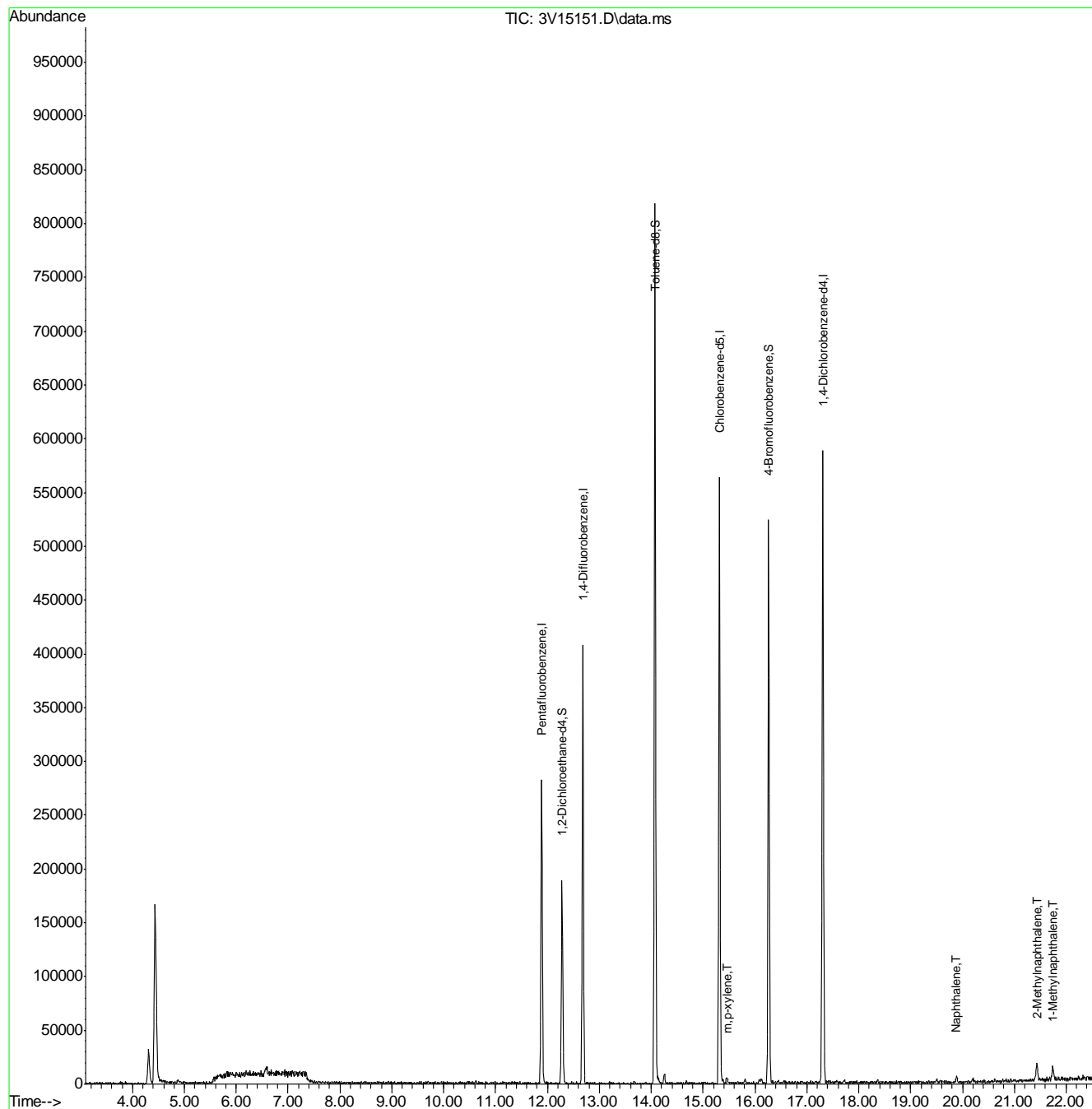
						Qvalue
72) m,p-xylene	15.457	106	1871	0.70	ug/l	# 73
91) Naphthalene	19.878	128	7951	0.79	ug/l	100
94) 2-Methylnaphthalene	21.435	142	11486	3.37	ug/l	93
95) 1-Methylnaphthalene	21.739	142	9100	2.89	ug/l	# 88

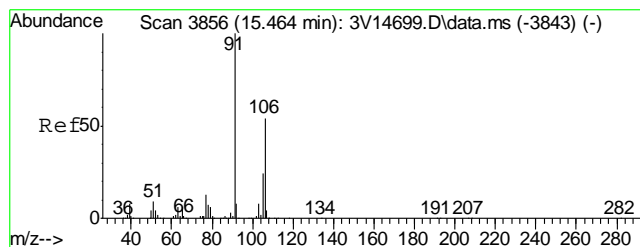
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V3121611.S\
Data File : 3V15151.D
Acq On : 16 Dec 2011 10:39 am
Operator : koroushv
Sample : MB
Misc : MS3099,V3V877,5.00,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

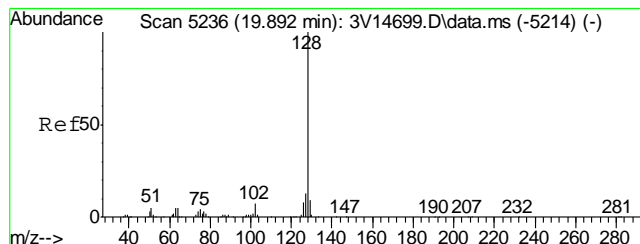
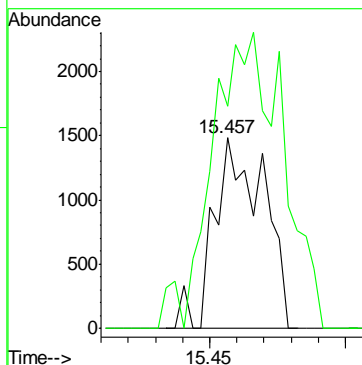
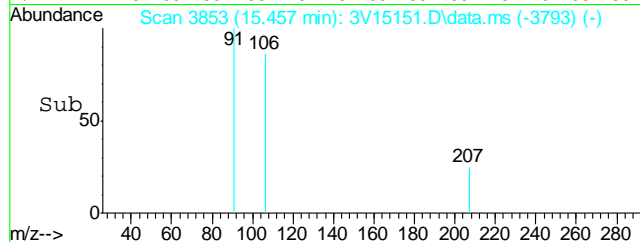
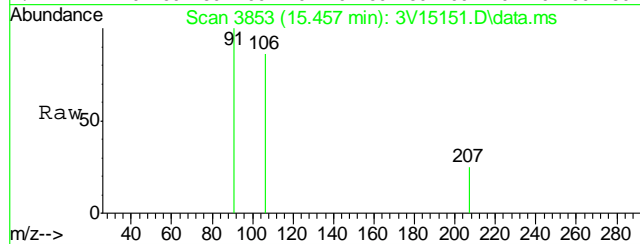
Quant Time: Dec 16 11:04:25 2011
Quant Method : C:\msdchem\1\METHODS\V3AP850TVH850.M
Quant Title : 8260
QLast Update : Sat Nov 26 09:28:41 2011
Response via : Initial Calibration





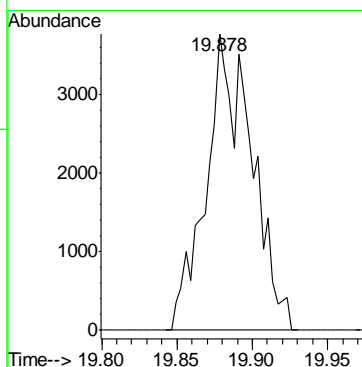
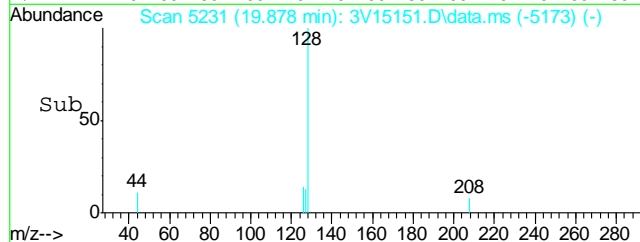
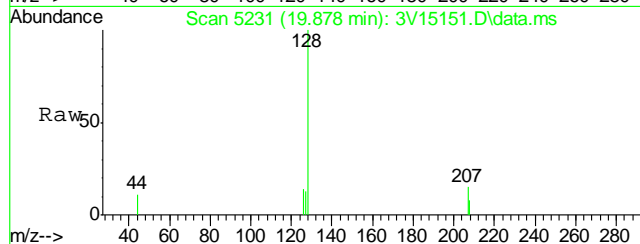
#72
m,p-xylene
Concen: 0.70 ug/l
RT: 15.457 min Scan# 3853
Delta R.T. -0.007 min
Lab File: 3V15151.D
Acq: 16 Dec 2011 10:39 am

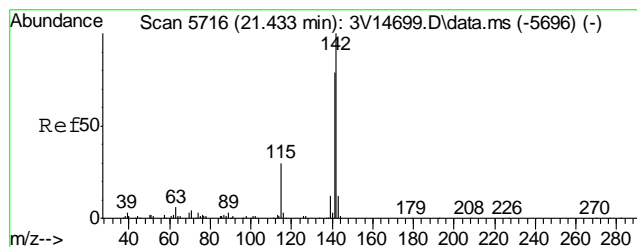
Tgt Ion:106 Resp: 1871
Ion Ratio Lower Upper
106 100
91 223.9 164.6 204.6#



#91
Naphthalene
Concen: 0.79 ug/l
RT: 19.878 min Scan# 5231
Delta R.T. -0.014 min
Lab File: 3V15151.D
Acq: 16 Dec 2011 10:39 am

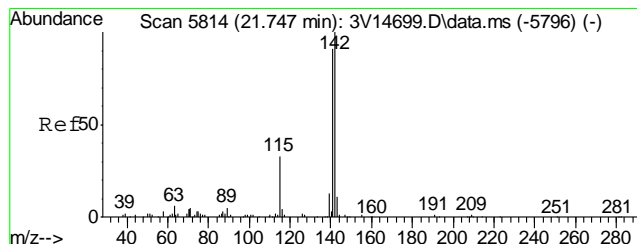
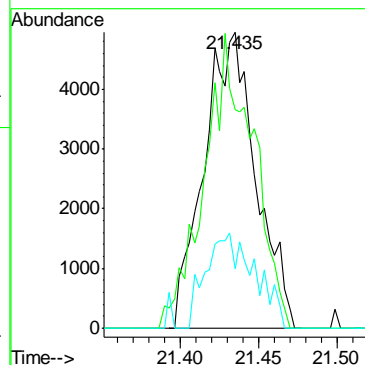
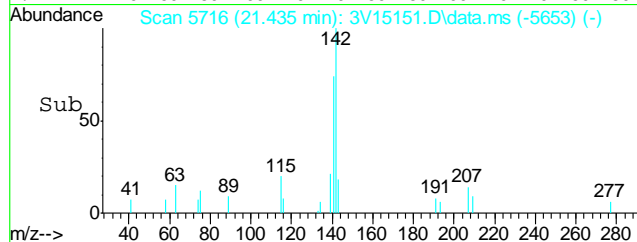
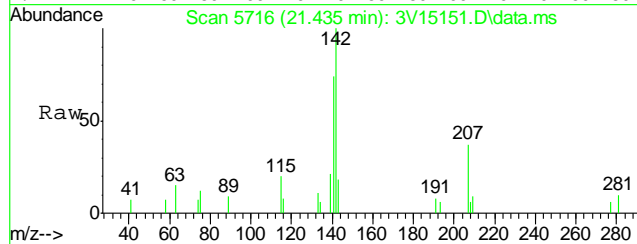
Tgt Ion:128 Resp: 7951





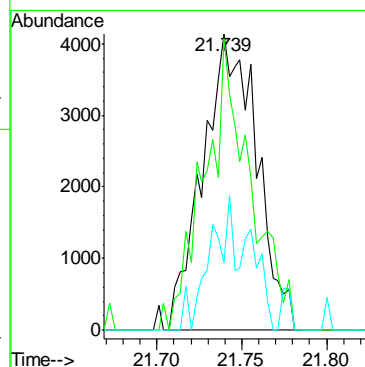
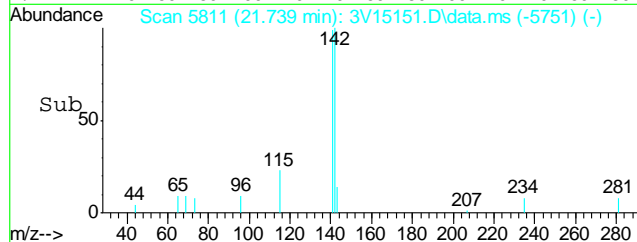
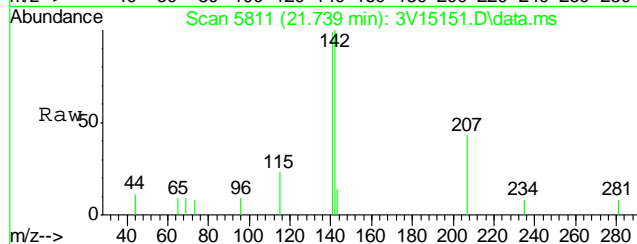
#94
2-Methylnaphthalene
Concen: 3.37 ug/l
RT: 21.435 min Scan# 5716
Delta R.T. 0.003 min
Lab File: 3V15151.D
Acq: 16 Dec 2011 10:39 am

Tgt Ion:	142	Resp:	11486
Ion Ratio	Lower	Upper	
142	100		
141	93.1	67.4	101.2
115	30.3	24.3	36.5



#95
1-Methylnaphthalene
Concen: 2.89 ug/l
RT: 21.739 min Scan# 5811
Delta R.T. -0.008 min
Lab File: 3V15151.D
Acq: 16 Dec 2011 10:39 am

Tgt Ion:	142	Resp:	9100
Ion Ratio	Lower	Upper	
142	100		
141	83.7	72.6	109.0
115	19.7	26.2	39.2#



GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D30326**Account:** KRWCCOL KRW Consulting, Inc.**Project:** XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5018-MB	3G07307.D	1	12/17/11	ME	12/15/11	OP5018	E3G271

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

D30326-1

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	77% 10-145%
321-60-8	2-Fluorobiphenyl	77% 10-130%
1718-51-0	Terphenyl-d14	85% 22-130%

Blank Spike Summary

Page 1 of 1

Job Number: D30326

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5018-BS	3G07306.D	1	12/17/11	ME	12/15/11	OP5018	E3G271

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D30326-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	68.6	82	34-130
120-12-7	Anthracene	83.3	72.8	87	35-130
56-55-3	Benzo(a)anthracene	83.3	67.8	81	36-130
50-32-8	Benzo(a)pyrene	83.3	73.4	88	36-130
205-99-2	Benzo(b)fluoranthene	83.3	71.3	86	35-130
207-08-9	Benzo(k)fluoranthene	83.3	71.1	85	37-130
218-01-9	Chrysene	83.3	73.3	88	40-130
53-70-3	Dibenzo(a,h)anthracene	83.3	73.4	88	32-130
206-44-0	Fluoranthene	83.3	68.4	82	38-130
86-73-7	Fluorene	83.3	67.0	80	35-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	71.0	85	28-130
91-20-3	Naphthalene	83.3	67.8	81	35-130
129-00-0	Pyrene	83.3	66.8	80	37-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	83%	10-145%
321-60-8	2-Fluorobiphenyl	82%	10-130%
1718-51-0	Terphenyl-d14	85%	22-130%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D30326
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5018-MS	3G07309.D	1	12/17/11	ME	12/15/11	OP5018	E3G271
OP5018-MSD	3G07310.D	1	12/17/11	ME	12/15/11	OP5018	E3G271
D30326-1	3G07308.D	1	12/17/11	ME	12/15/11	OP5018	E3G271

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D30326-1

CAS No.	Compound	D30326-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		96.2	162	168* a	152	158* a	6	10-155/30
120-12-7	Anthracene	ND		96.2	146	152	150	155	3	10-155/30
56-55-3	Benzo(a)anthracene	ND		96.2	80.4	84	82.2	85	2	10-175/30
50-32-8	Benzo(a)pyrene	ND		96.2	65.8	68	67.9	70	3	10-164/30
205-99-2	Benzo(b)fluoranthene	ND		96.2	66.5	69	64.1	66	4	10-165/30
207-08-9	Benzo(k)fluoranthene	ND		96.2	56.6	59	52.0	54	8	10-178/30
218-01-9	Chrysene	16.4	J	96.2	114	101	120	107	5	10-147/30
53-70-3	Dibenzo(a,h)anthracene	ND		96.2	68.1	71	69.2	72	2	10-144/30
206-44-0	Fluoranthene	ND		96.2	99.0	103	96.1	100	3	10-207/30
86-73-7	Fluorene	66.3		96.2	154	91	146	83	5	10-163/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		96.2	67.7	70	71.3	74	5	10-180/30
91-20-3	Naphthalene	9.6		96.2	72.2	65	72.3	65	0	10-198/30
129-00-0	Pyrene	7.9		96.2	115	111	117	113	2	10-189/30

CAS No.	Surrogate Recoveries	MS	MSD	D30326-1	Limits
4165-60-0	Nitrobenzene-d5	58%	58%	57%	10-145%
321-60-8	2-Fluorobiphenyl	98%	91%	98%	10-130%
1718-51-0	Terphenyl-d14	102%	102%	108%	22-130%

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

GC/MS Semi-volatiles

Raw Data

∞

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\121611PAH\
 Data File : 3g07308.D
 Acq On : 17 Dec 2011 1:26 am
 Operator : mikee
 Sample : D30326-1
 Misc : OP5018,E3G271,30.05,,,1,
 ALS Vial : 20 Sample Multiplier: 1

Quant Time: Dec 19 10:35:10 2011
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G270.M
 Quant Title : PAHSIM BASE
 QLast Update : Fri Dec 16 17:52:17 2011
 Response via : Initial Calibration

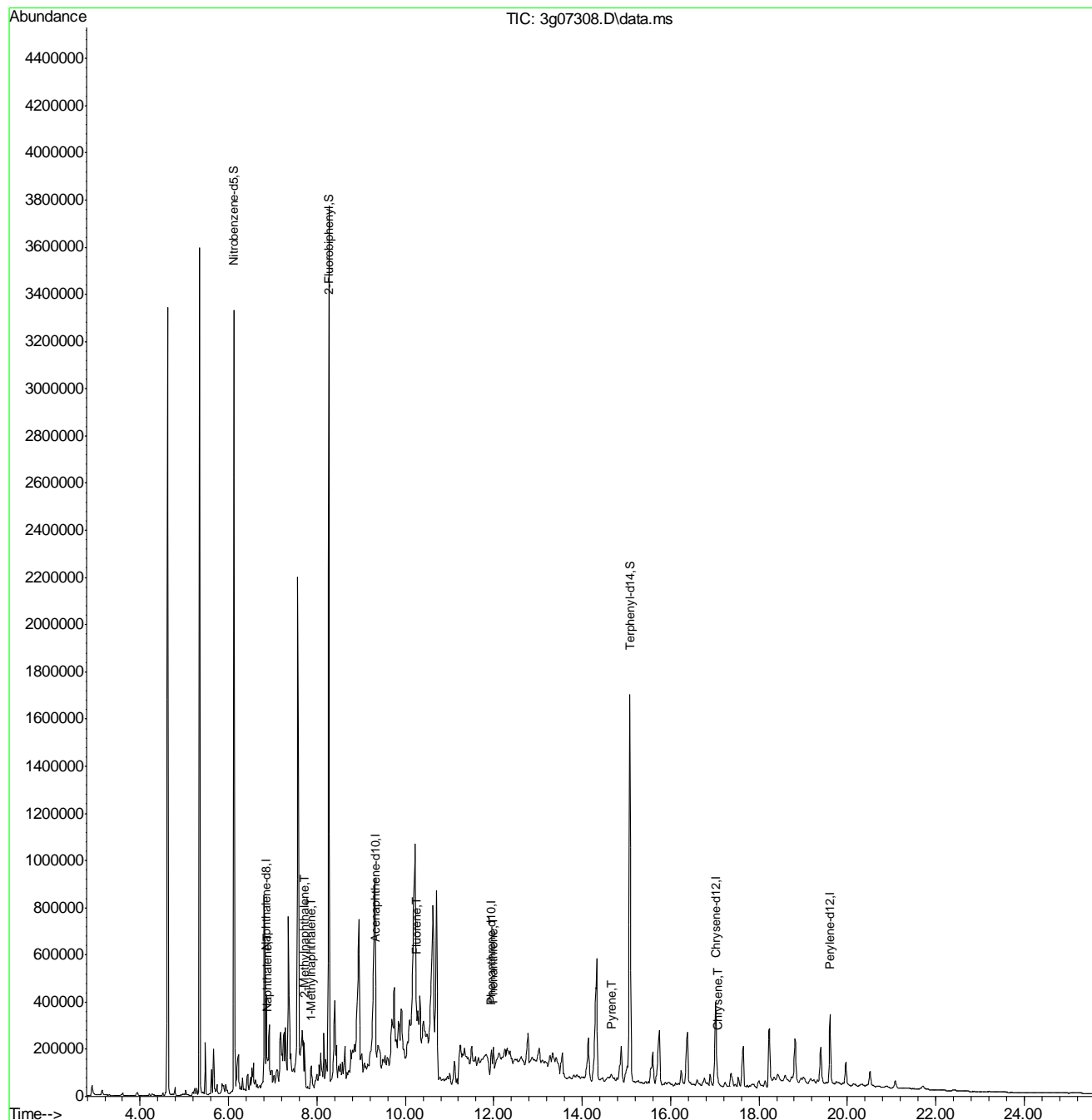
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.857	136	382379	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.323	164	156821	4.00	ug/mL	0.02
14) Phenanthrene-d10	11.944	188	198970	4.00	ug/mL	0.08
18) Chrysene-d12	17.023	240	274464	4.00	ug/mL	0.09
23) Perylene-d12	19.605	264	413922	4.00	ug/mL	0.08
System Monitoring Compounds						
2) Nitrobenzene-d5	6.121	82	2887469	28.44	ug/mL	-0.01
7) 2-Fluorobiphenyl	8.271	172	3650110	49.23	ug/mL	0.01
20) Terphenyl-d14	15.078	244	3133638	53.99	ug/mL	0.10
Target Compounds						
						Qvalue
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	6.869	128	33743	0.25	ug/mL	82
8) 2-Methylnaphthalene	7.716	142	92438	1.61	ug/mL#	76
9) 1-Methylnaphthalene	7.870	142	36053	0.66	ug/mL#	55
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	10.244	166	114448	1.72	ug/mL#	8
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	11.991	178	100233	1.32	ug/mL	77
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	14.667	202	22129	0.20	ug/mL#	10
21) Benzo(a)anthracene	0.000		0	N.D.	d	
22) Chrysene	17.063	228	42709	0.43	ug/mL#	65
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	

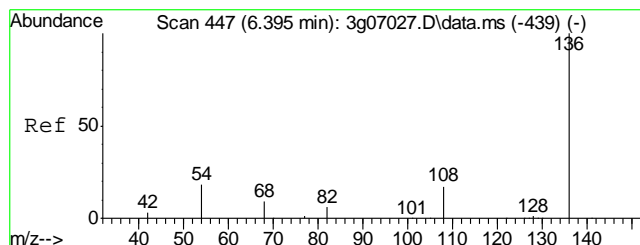
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\121611PAH\
 Data File : 3g07308.D
 Acq On : 17 Dec 2011 1:26 am
 Operator : mikee
 Sample : D30326-1
 Misc : OP5018,E3G271,30.05,,,1,
 ALS Vial : 20 Sample Multiplier: 1

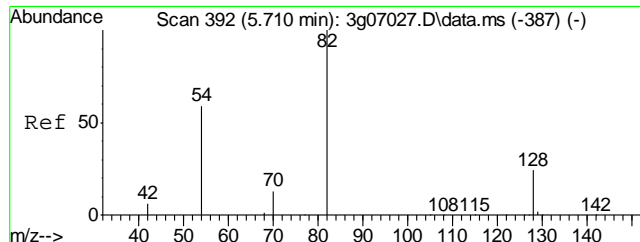
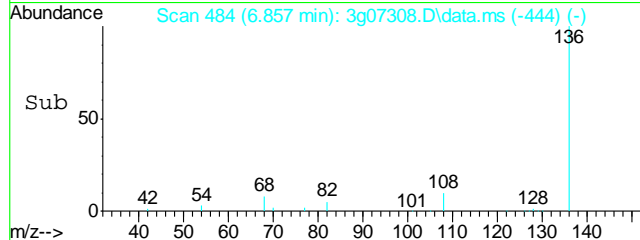
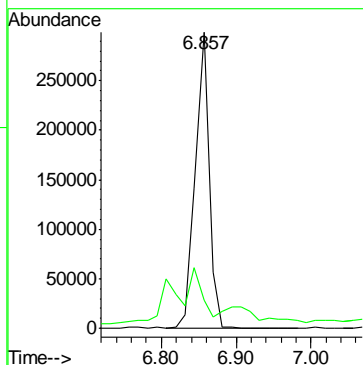
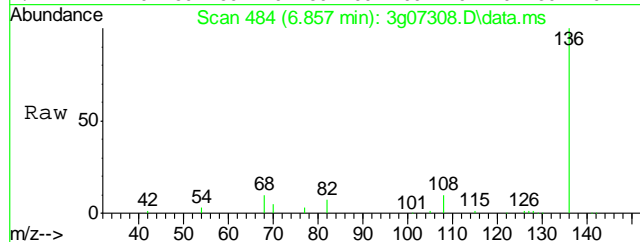
Quant Time: Dec 19 10:35:10 2011
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G270.M
 Quant Title : PAHSIM BASE
 QLast Update : Fri Dec 16 17:52:17 2011
 Response via : Initial Calibration





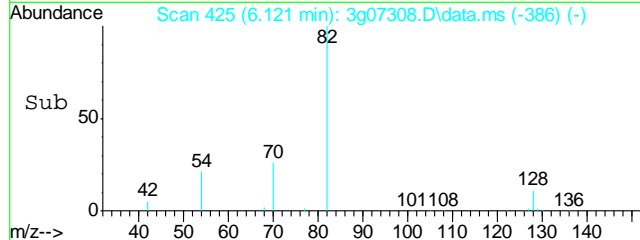
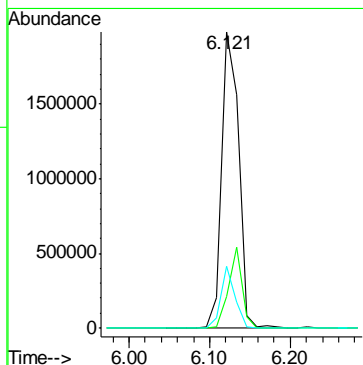
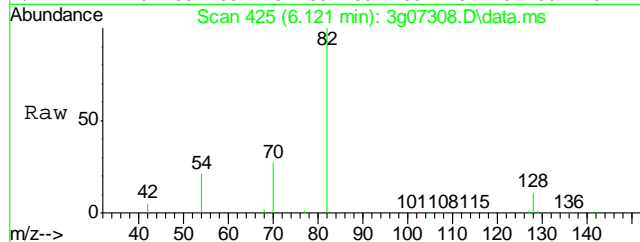
#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.857 min Scan# 484
Delta R.T. 0.000 min
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

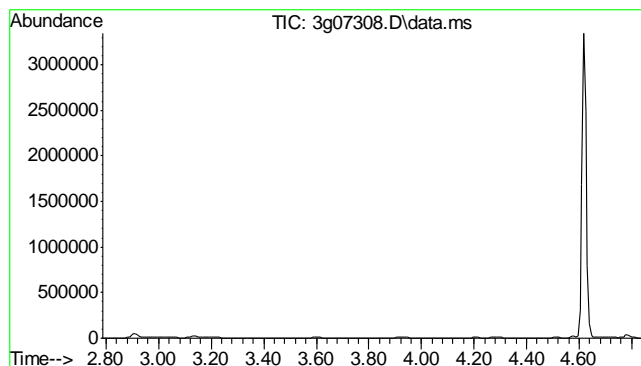
Tgt Ion	Ratio	Lower	Upper
136	100		
68	10.7	0.0	39.9



#2
Nitrobenzene-d5
Concen: 28.44 ug/mL
RT: 6.121 min Scan# 425
Delta R.T. -0.013 min
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

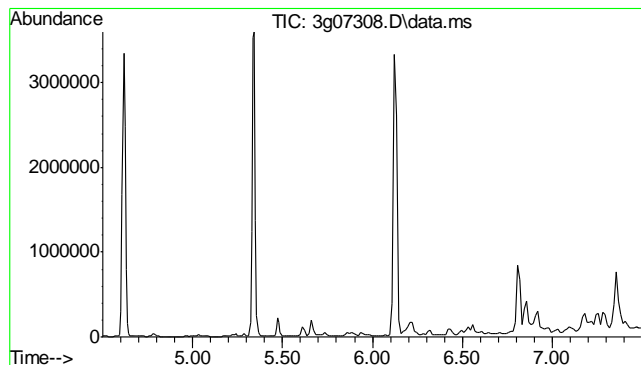
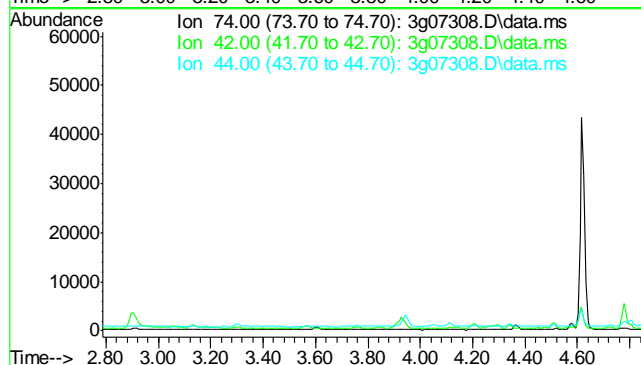
Tgt Ion	Ratio	Lower	Upper
82	100		
128	21.8	0.3	40.3
54	17.2	0.0	37.5





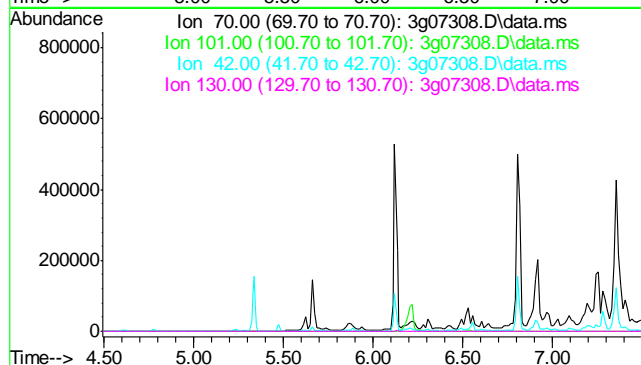
#3
 N-Nitrosodimethylamine
 Concen: N.D. ug/mL
 Expected RT: 3.34 min
 Lab File: 3g07308.D
 Acq: 17 Dec 11 1:26 am

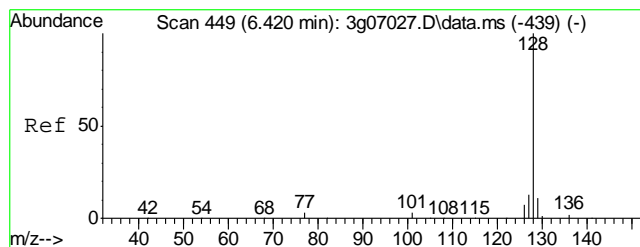
Tgt Ion	Exp Ratio
74	100
42	18.8
44	1.4



#4
 N-Nitrosodi-propylamine
 Concen: N.D. ug/mL
 Expected RT: 6.00 min
 Lab File: 3g07308.D
 Acq: 17 Dec 11 1:26 am

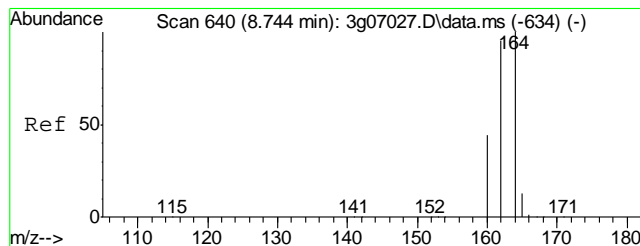
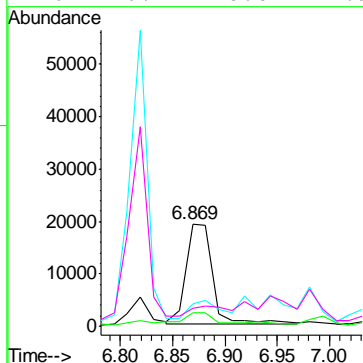
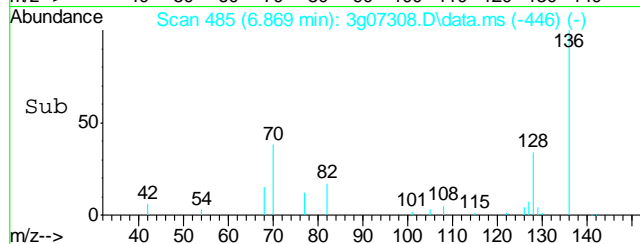
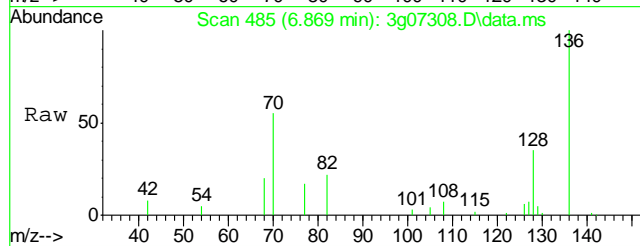
Tgt Ion	Exp Ratio
70	100
101	8.0
42	17.4
130	9.9





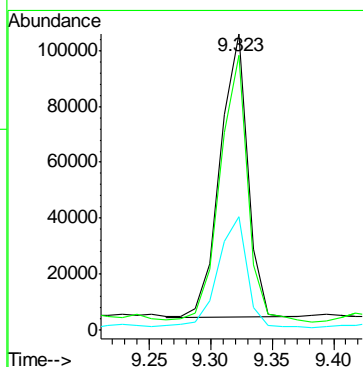
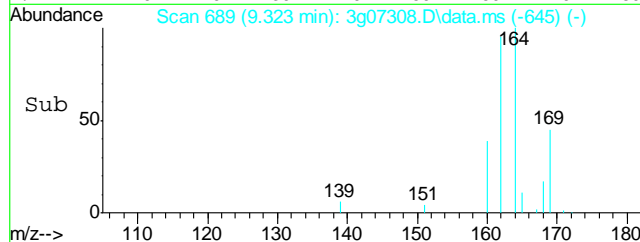
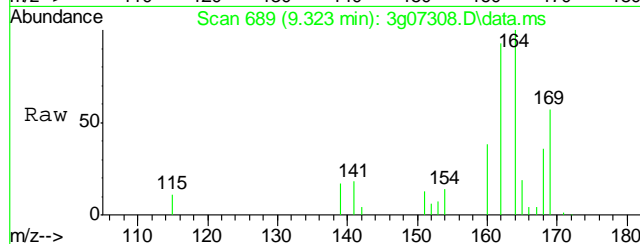
#5
Naphthalene
Concen: 0.25 ug/mL
RT: 6.869 min Scan# 485
Delta R.T. -0.012 min
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

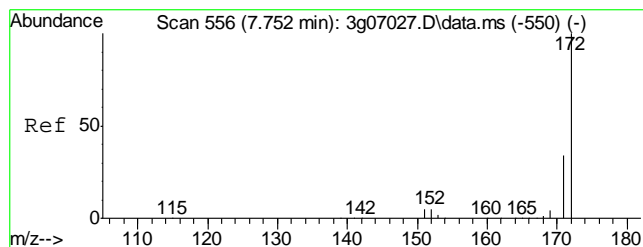
Tgt Ion:	128	Resp:	33743
Ion Ratio	Lower	Upper	
128	100		
129	14.0	0.0	30.9
127	22.6	0.0	33.9
126	16.4	0.0	27.9



#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 9.323 min Scan# 689
Delta R.T. 0.024 min
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

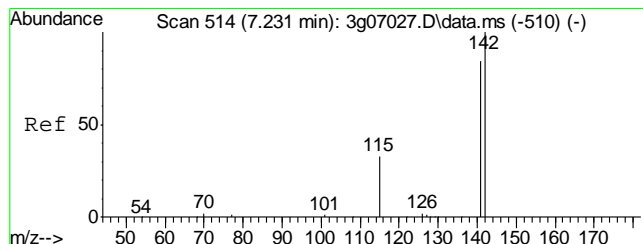
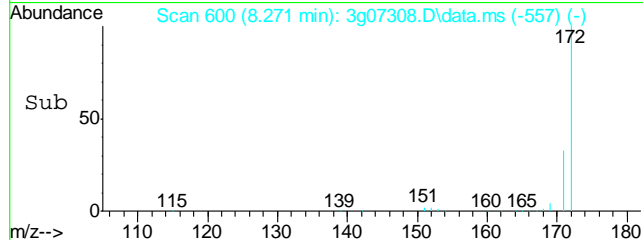
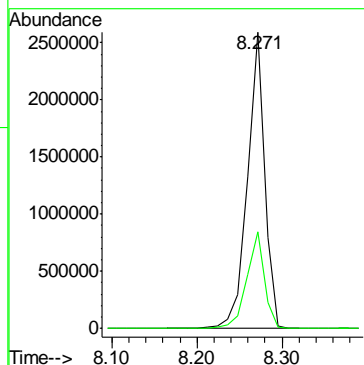
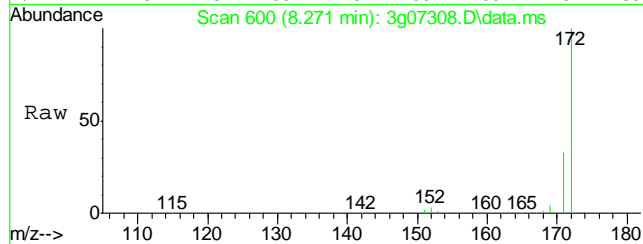
Tgt Ion:	164	Resp:	156821
Ion Ratio	Lower	Upper	
164	100		
162	95.7	71.3	111.3
160	41.7	17.3	57.3





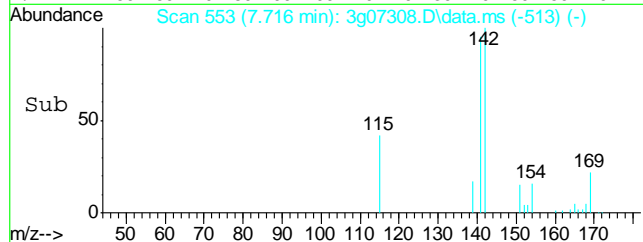
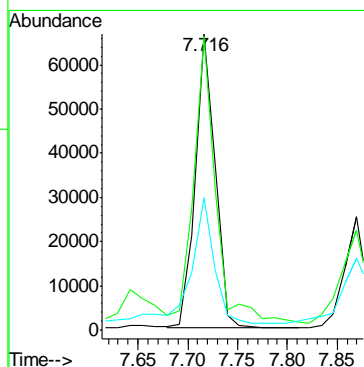
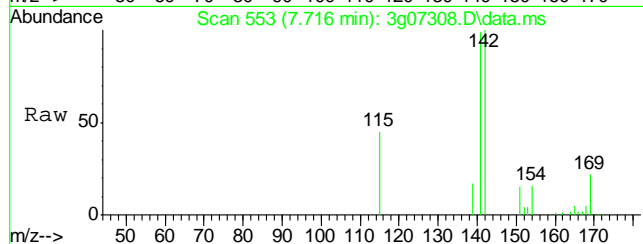
#7
2-Fluorobiphenyl
Concen: 49.23 ug/mL
RT: 8.271 min Scan# 600
Delta R.T. 0.012 min
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

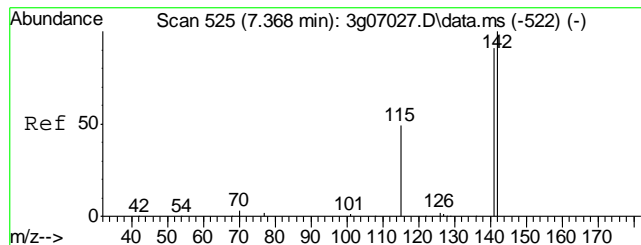
Tgt Ion:172 Resp: 3650110
Ion Ratio Lower Upper
172 100
171 32.9 12.9 52.9



#8
2-Methylnaphthalene
Concen: 1.61 ug/mL
RT: 7.716 min Scan# 553
Delta R.T. -0.001 min
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

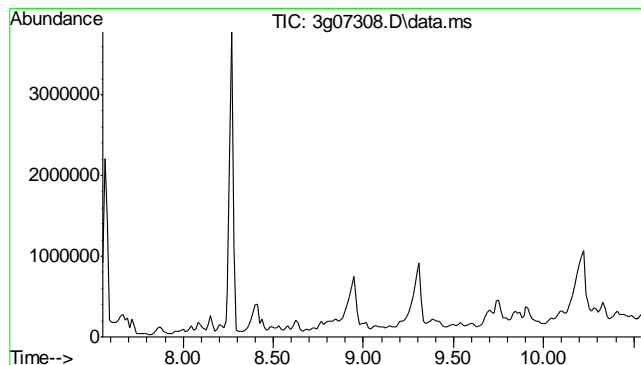
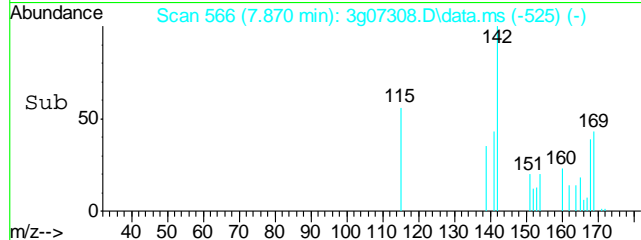
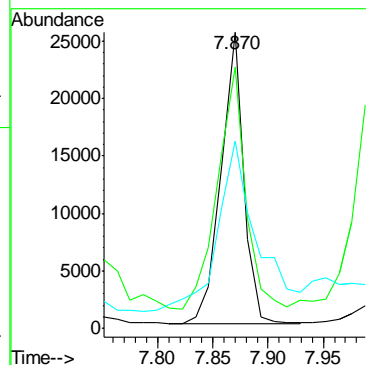
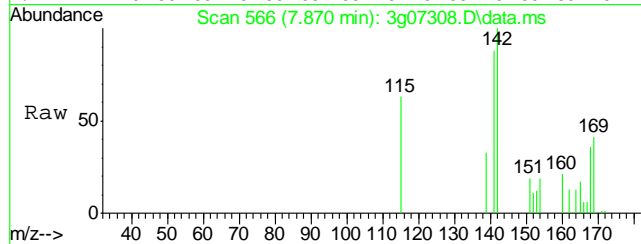
Tgt Ion:142 Resp: 92438
Ion Ratio Lower Upper
142 100
141 106.1 62.0 102.0#
115 52.7 21.4 61.4





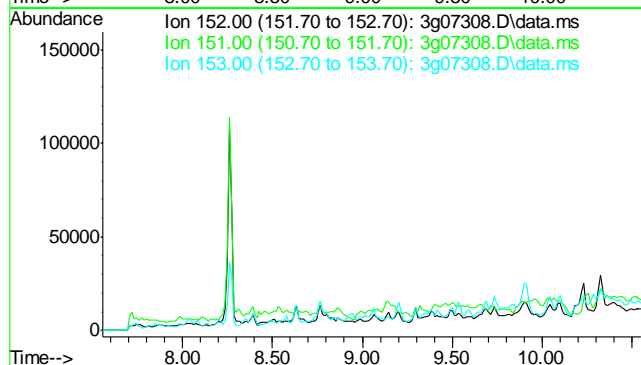
#9
1-Methylnaphthalene
Concen: 0.66 ug/mL
RT: 7.870 min Scan# 566
Delta R.T. 0.001 min
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

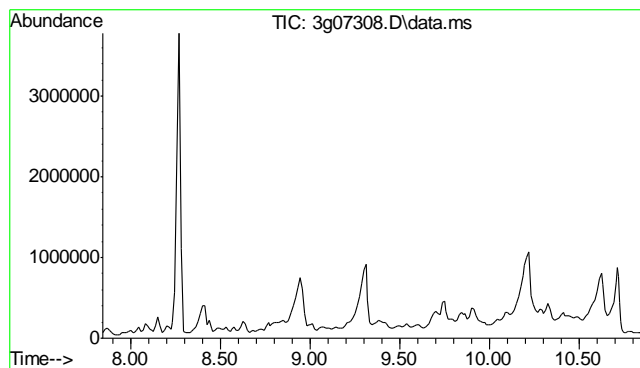
Tgt Ion: 142	Resp: 36053
Ion Ratio	Lower Upper
142	100
141	105.6 68.2 102.4#
115	100.7 34.4 51.6#



#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 9.05 min
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

Tgt Ion: 152	
Sig	Exp Ratio
152	100
151	19.0
153	13.0

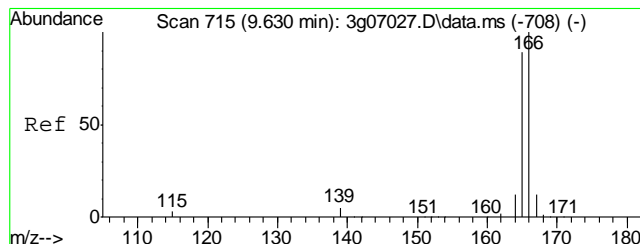
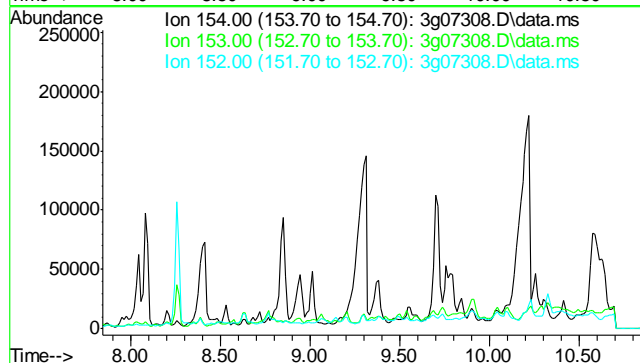




#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 9.35 min

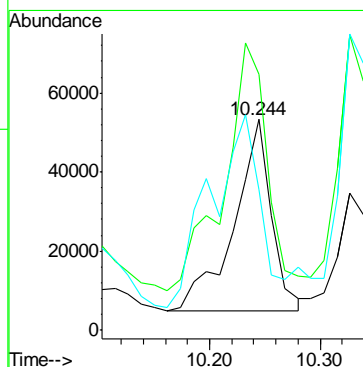
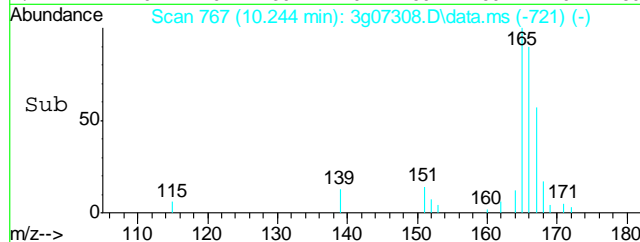
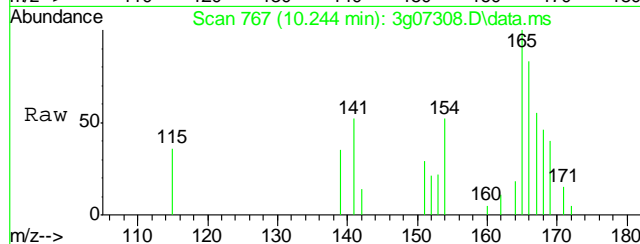
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

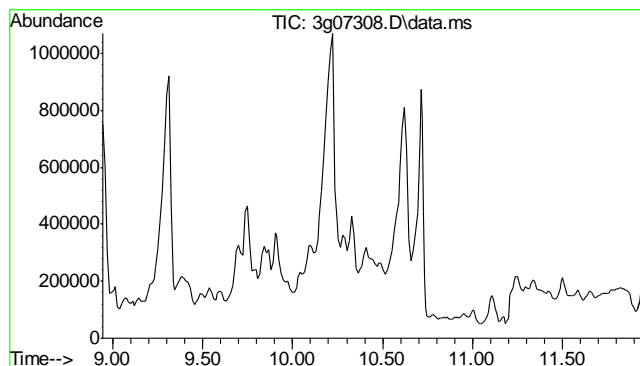
Tgt Ion: 154
Sig Exp Ratio
154 100
153 103.5
152 49.4



#12
Fluorene
Concen: 1.72 ug/mL
RT: 10.244 min Scan# 767
Delta R.T. 0.048 min
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

Tgt Ion: 166 Resp: 114448
Ion Ratio Lower Upper
166 100
165 149.7 71.5 111.5#
167 135.0 0.0 33.2#

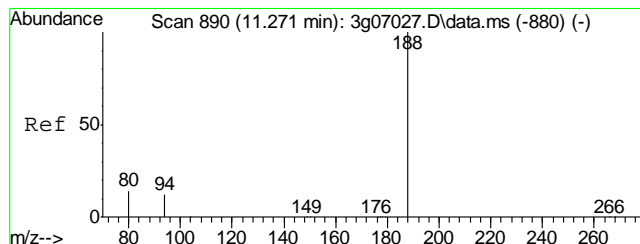
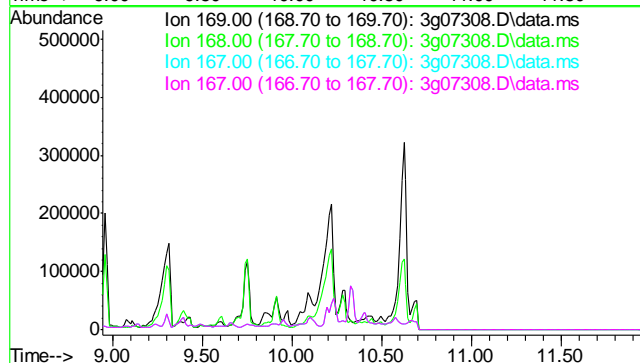




#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.44 min

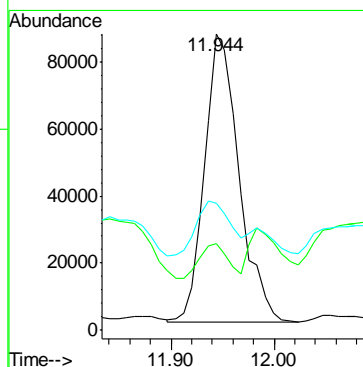
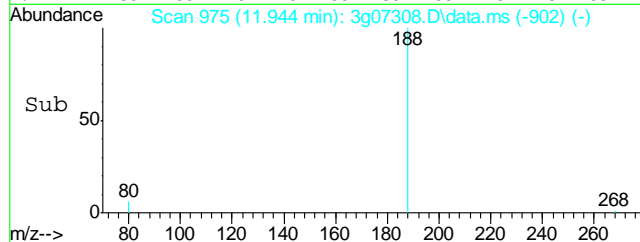
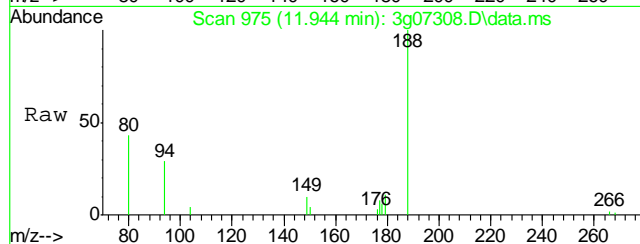
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

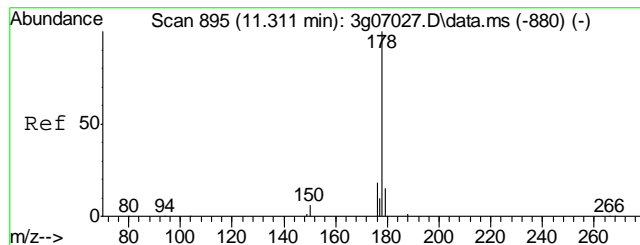
Tgt Ion: 169
Sig Exp Ratio
169 100
168 61.3
167 33.4
167 33.4



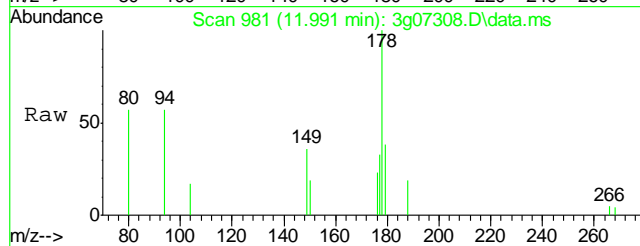
#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.944 min Scan# 975
Delta R.T. 0.078 min
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

Tgt Ion: 188 Resp: 198970
Ion Ratio Lower Upper
188 100
94 9.6 4.1 44.1
80 18.7 8.3 48.3

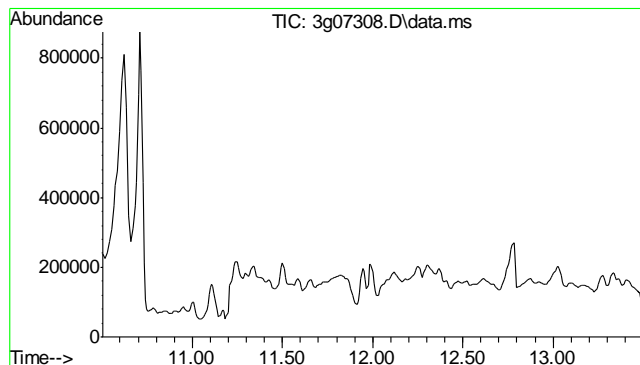
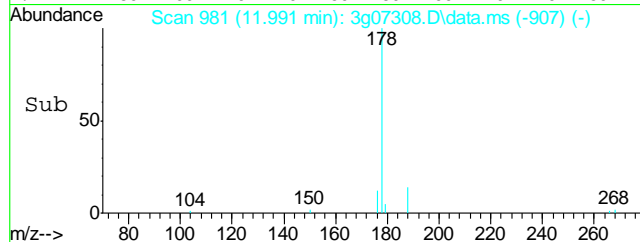
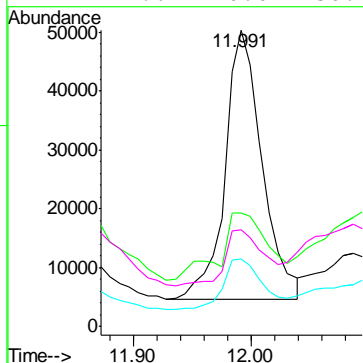




#15
Phenanthrene
Concen: 1.32 ug/mL
RT: 11.991 min Scan# 981
Delta R.T. 0.082 min
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am



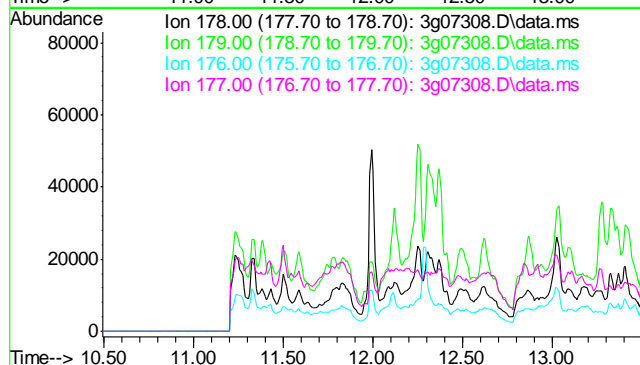
Tgt Ion:	178	Resp:	100233
Ion	Ratio	Lower	Upper
178	100		
179	32.1	0.0	35.2
176	20.5	0.0	38.4
177	21.6	0.0	30.1

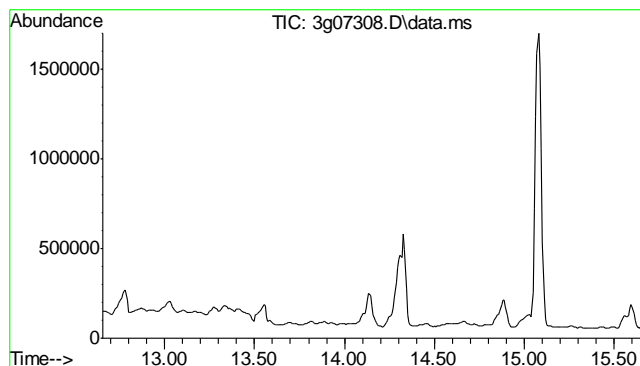


#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.99 min

Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

Tgt Ion:	178
Sig	Exp Ratio
178	100
179	14.9
176	17.8
177	8.7

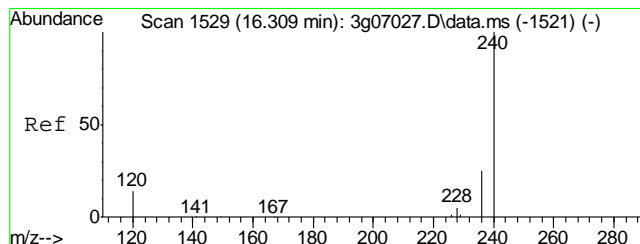
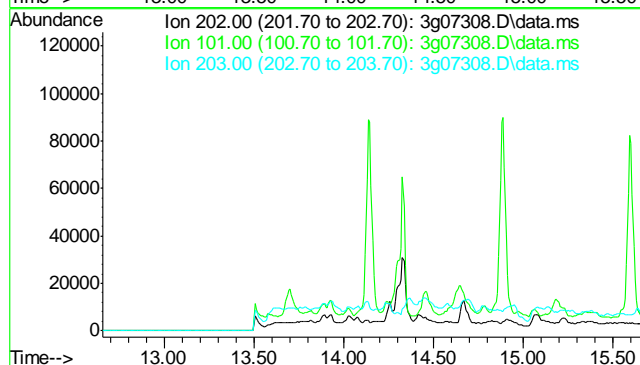




#17
 Fluoranthene
 Concen: N.D. ug/mL
 Expected RT: 14.16 min

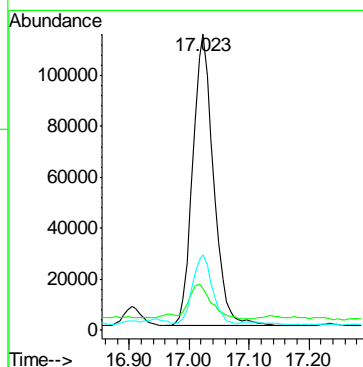
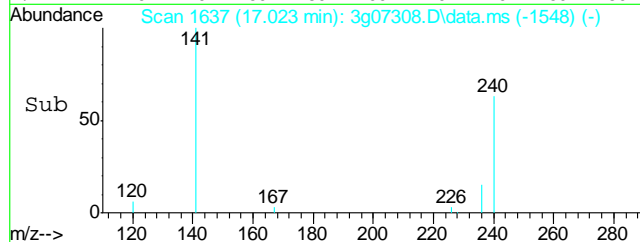
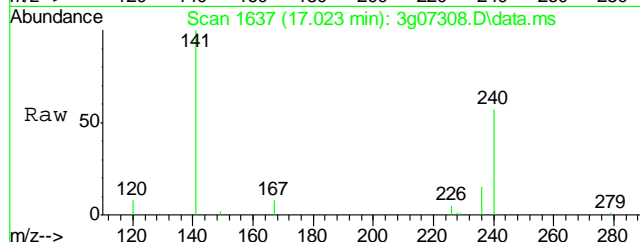
 Lab File: 3g07308.D
 Acq: 17 Dec 11 1:26 am

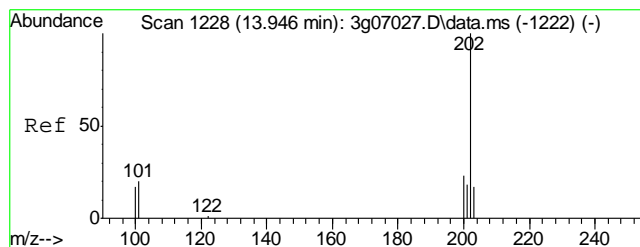
Tgt Ion: 202
 Sig Exp Ratio
 202 100
 101 21.3
 203 17.1



#18
 Chrysene-d12
 Concen: 4.00 ug/mL
 RT: 17.023 min Scan# 1637
 Delta R.T. 0.090 min
 Lab File: 3g07308.D
 Acq: 17 Dec 11 1:26 am

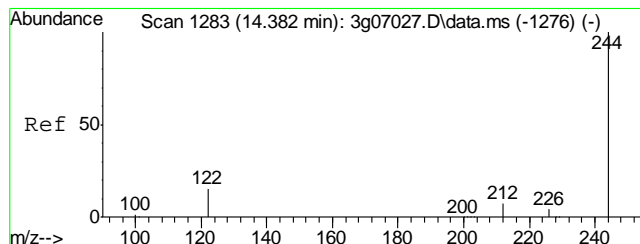
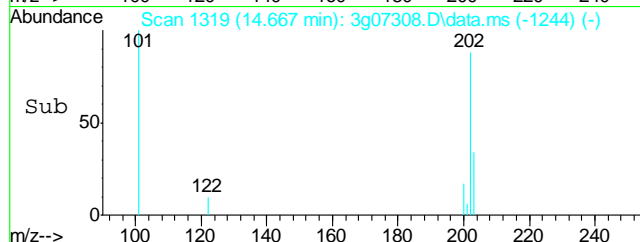
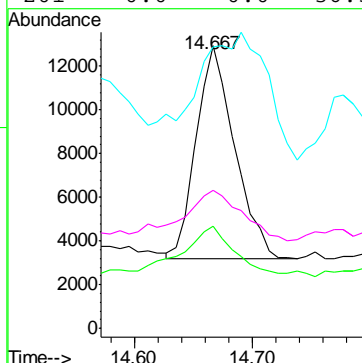
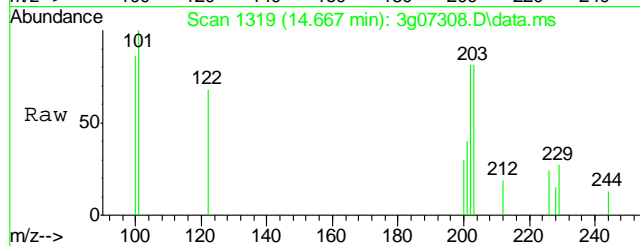
Tgt Ion: 240 Resp: 274464
 Ion Ratio Lower Upper
 240 100
 120 12.5 0.0 38.2
 236 22.3 5.2 45.2





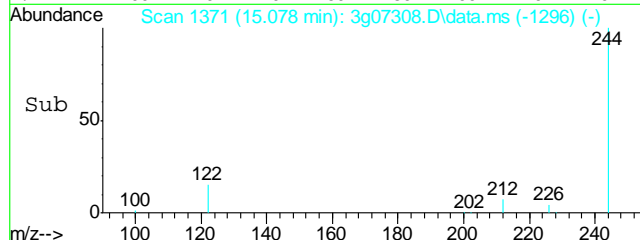
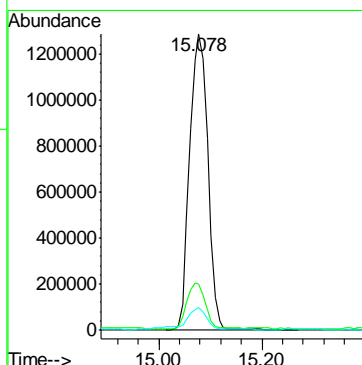
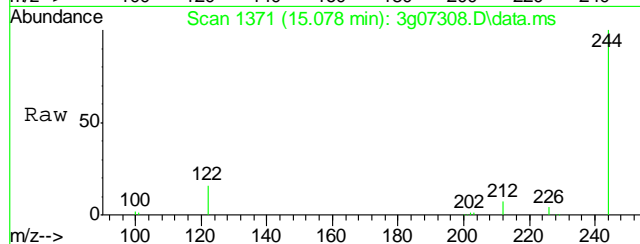
#19
Pyrene
Concen: 0.20 ug/mL
RT: 14.667 min Scan# 1319
Delta R.T. 0.095 min
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

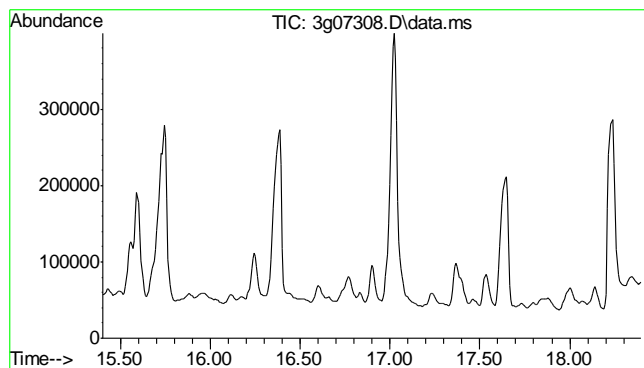
Tgt Ion:	202	Resp:	22129
Ion Ratio	Lower	Upper	
202	100		
200	0.0	0.0	40.0
203	101.9	0.0	37.7#
201	0.0	0.0	36.5



#20
Terphenyl-d14
Concen: 53.99 ug/mL
RT: 15.078 min Scan# 1371
Delta R.T. 0.097 min
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

Tgt Ion:	244	Resp:	3133638
Ion Ratio	Lower	Upper	
244	100		
122	16.1	0.0	37.9
212	8.2	0.0	26.8

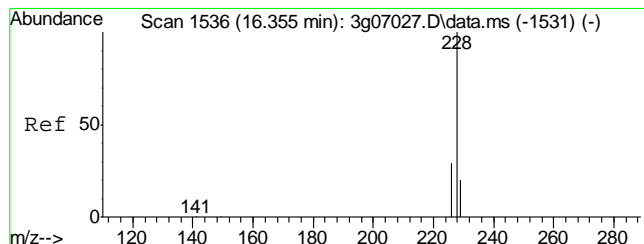
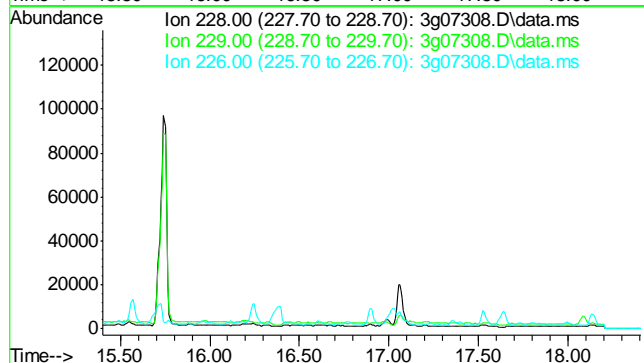




#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.90 min

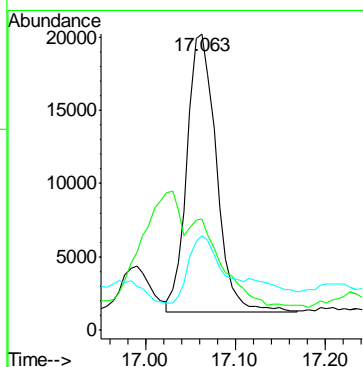
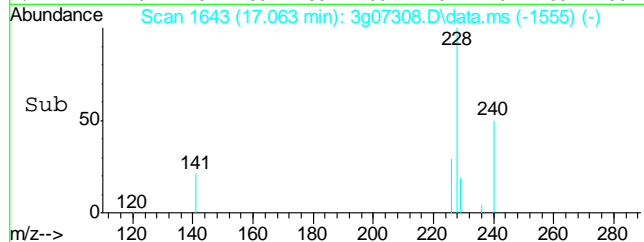
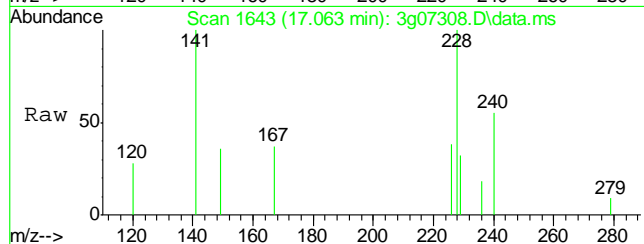
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

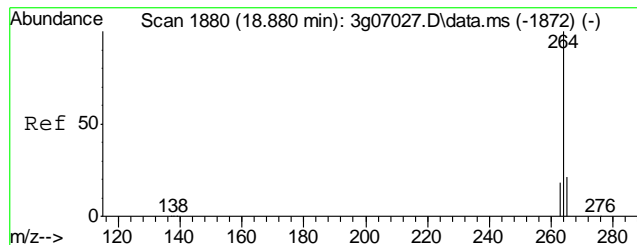
Tgt Ion: 228
Sig Exp Ratio
228 100
229 19.5
226 26.2



#22
Chrysene
Concen: 0.43 ug/mL
RT: 17.063 min Scan# 1643
Delta R.T. 0.083 min
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

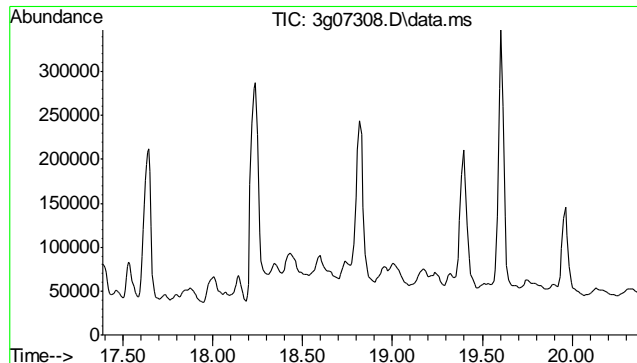
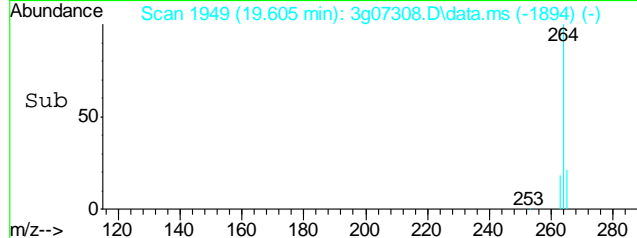
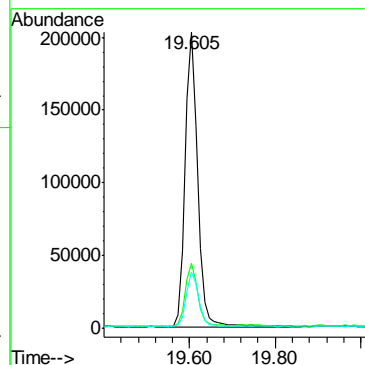
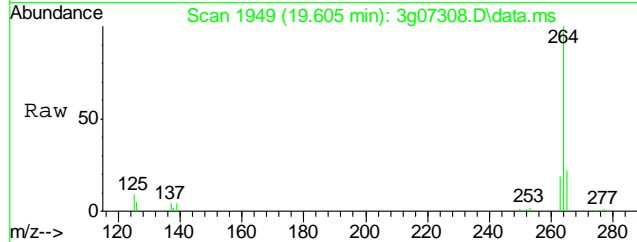
Tgt Ion: 228 Resp: 42709
Ion Ratio Lower Upper
228 100
226 52.4 8.6 48.6#
229 28.4 0.0 39.3





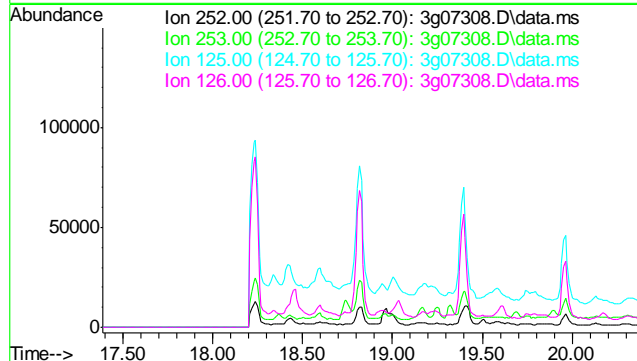
#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 19.605 min Scan# 1949
Delta R.T. 0.078 min
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

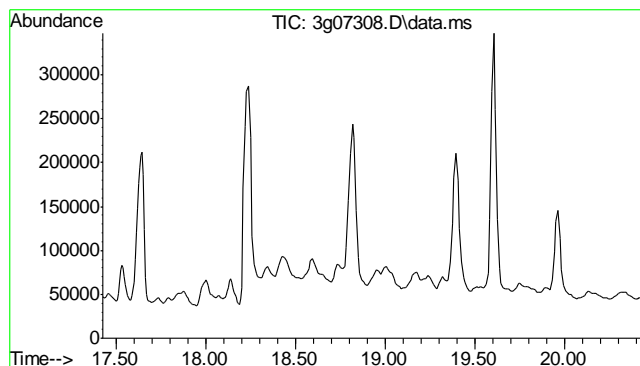
Tgt Ion:	264	Resp:	413922
Ion Ratio	Lower	Upper	
264	100		
265	21.1	1.1	41.1
263	18.7	0.0	38.4



#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.88 min
Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.7
125	12.3
126	17.4

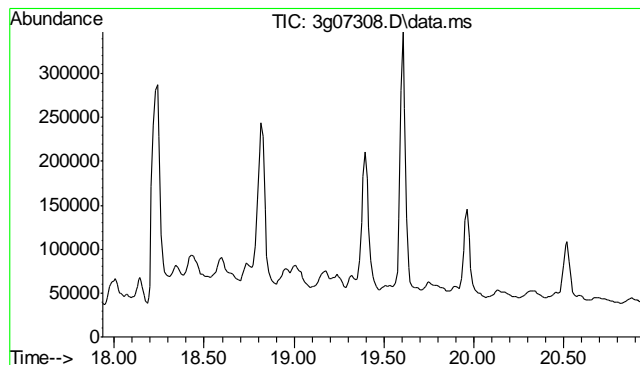
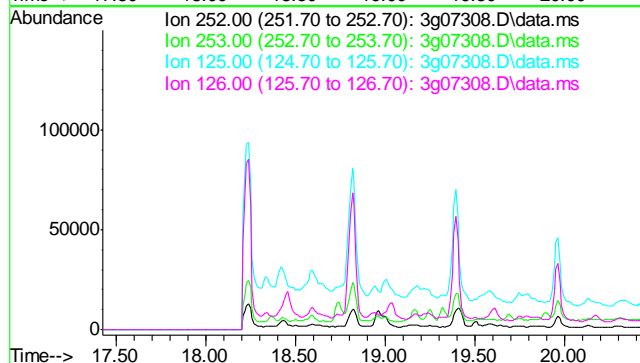




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.93 min

Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

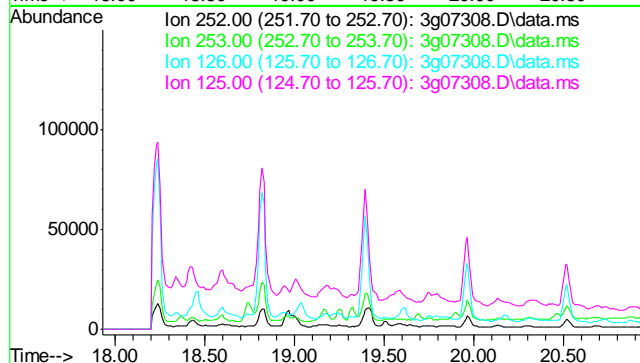
Tgt Ion	Exp Ratio
252	100
253	21.4
125	10.4
126	16.7

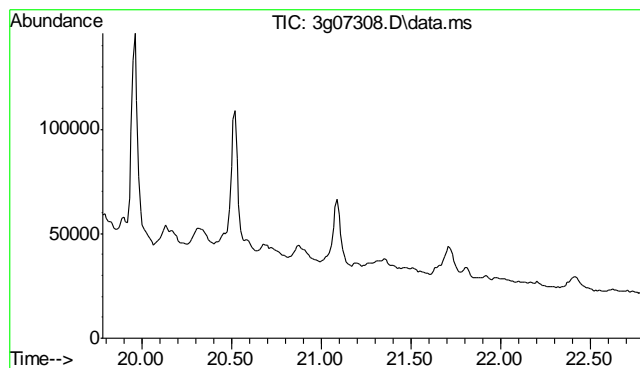


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 19.43 min

Lab File: 3g07308.D
Acq: 17 Dec 11 1:26 am

Tgt Ion	Exp Ratio
252	100
253	21.4
126	17.1
125	13.0

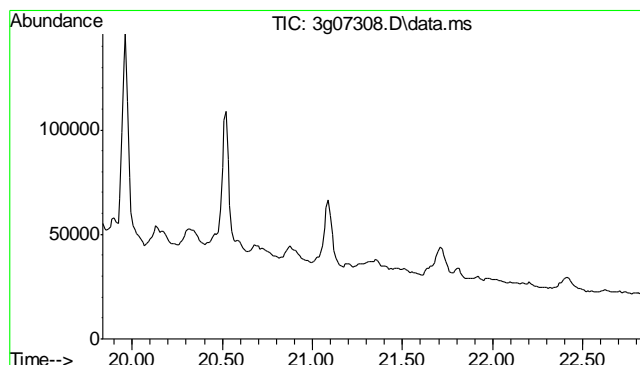
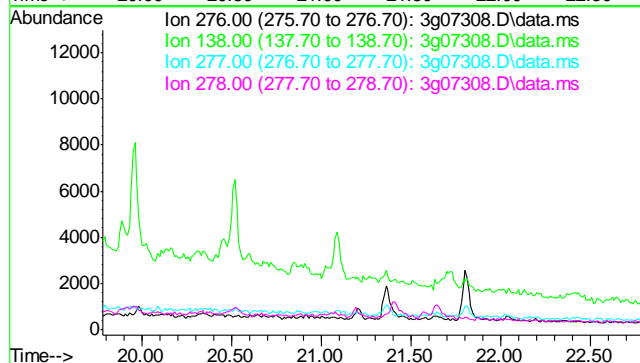




#27
 Indeno(1,2,3-cd)pyrene
 Concen: N.D. ug/mL
 Expected RT: 21.28 min

Lab File: 3g07308.D
 Acq: 17 Dec 11 1:26 am

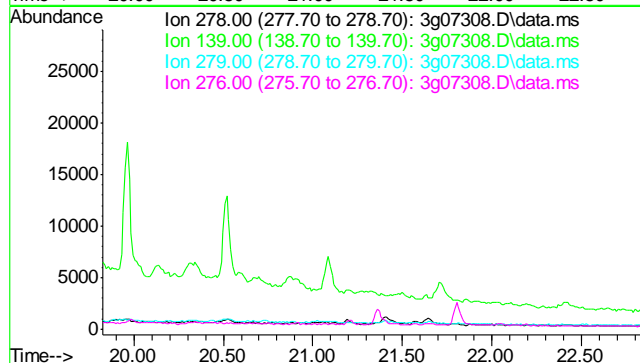
Tgt Ion	Exp Ratio
276	100
138	21.6
277	32.6
278	105.1

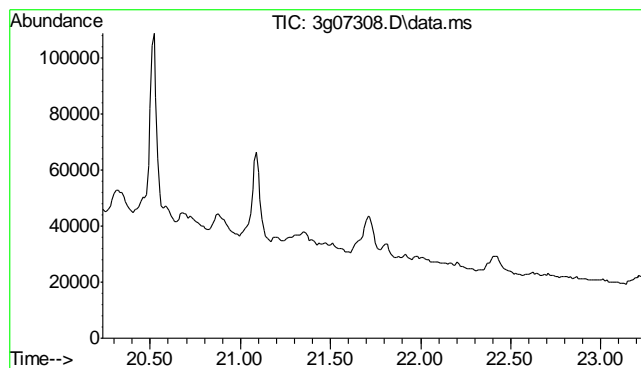


#28
 Dibenzo(a,h)anthracene
 Concen: N.D. ug/mL
 Expected RT: 21.33 min

Lab File: 3g07308.D
 Acq: 17 Dec 11 1:26 am

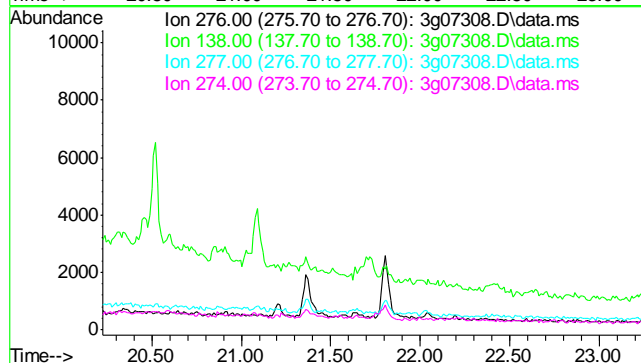
Tgt Ion	Exp Ratio
278	100
139	18.8
279	22.8
276	125.5





#29
 Benzo(g,h,i)perylene
 Concen: N.D. ug/mL
 Expected RT: 21.73 min
 Lab File: 3g07308.D
 Acq: 17 Dec 11 1:26 am

Tgt Ion: 276	
Sig	Exp Ratio
276	100
138	23.5
277	23.2
274	21.7



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\121611PAH\
 Data File : 3g07307.D
 Acq On : 17 Dec 2011 12:47 am
 Operator : mikee
 Sample : OP5018-MB
 Misc : OP5018,E3G271,30.00,,,1,
 ALS Vial : 19 Sample Multiplier: 1

Quant Time: Dec 19 10:33:31 2011
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G270.M
 Quant Title : PAHSIM BASE
 QLast Update : Fri Dec 16 17:52:17 2011
 Response via : Initial Calibration

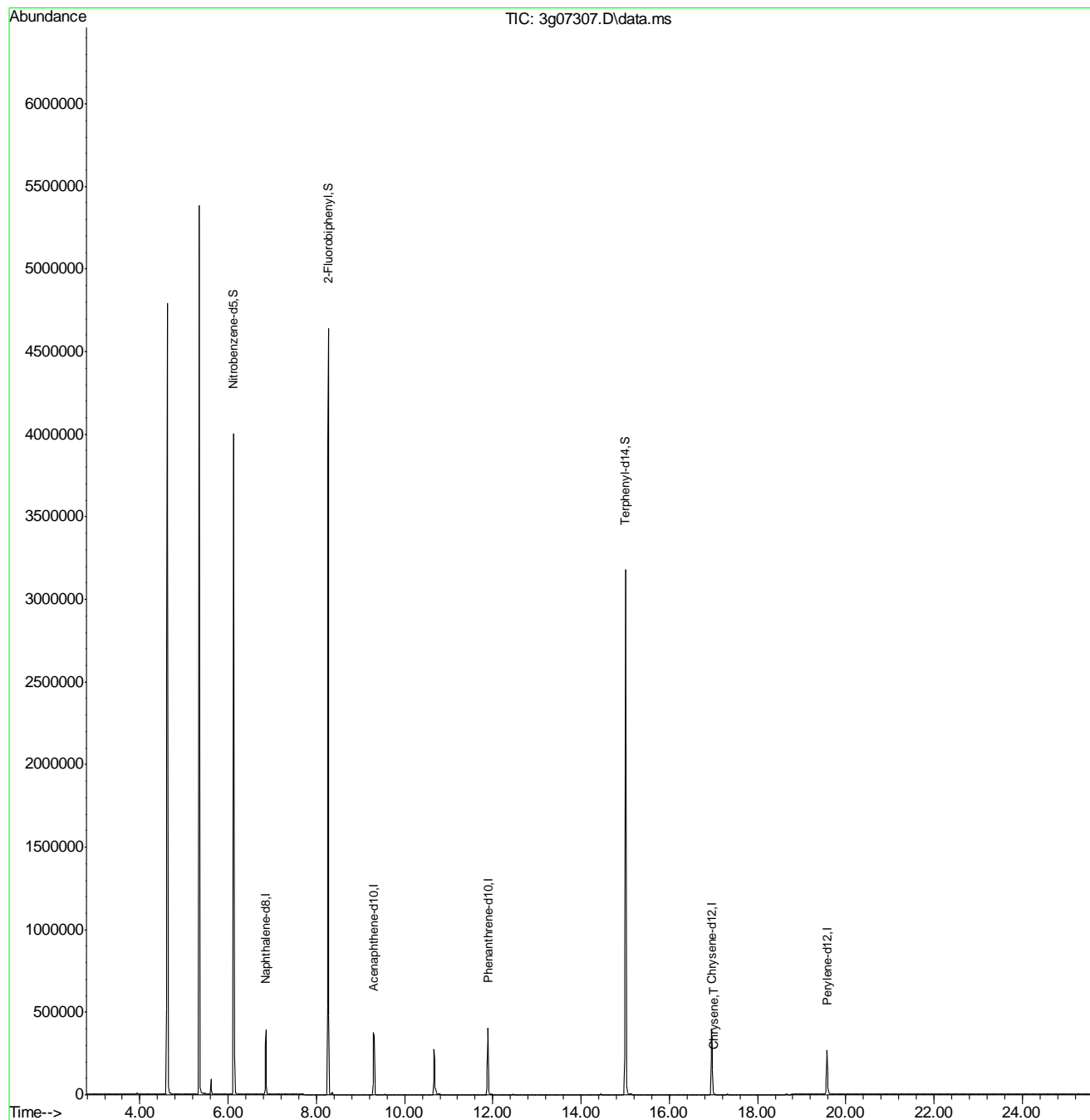
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.857	136	380116	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.311	164	250589	4.00	ug/mL	0.01
14) Phenanthrene-d10	11.889	188	402999	4.00	ug/mL	0.02
18) Chrysene-d12	16.964	240	465632	4.00	ug/mL	0.03
23) Perylene-d12	19.574	264	366702	4.00	ug/mL	0.05
System Monitoring Compounds						
2) Nitrobenzene-d5	6.121	82	3908293	38.72	ug/mL	-0.01
7) 2-Fluorobiphenyl	8.272	172	4538971	38.31	ug/mL	0.01
20) Terphenyl-d14	15.007	244	4168586	42.33	ug/mL	0.03
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	17.010	228	1261	0.01	ug/mL	97
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	

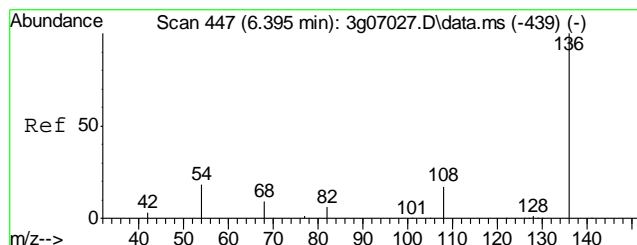
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\121611PAH\
Data File : 3g07307.D
Acq On : 17 Dec 2011 12:47 am
Operator : mikey
Sample : OP5018-MB
Misc : OP5018,E3G271,30.00,,,1,
ALS Vial : 19 Sample Multiplier: 1

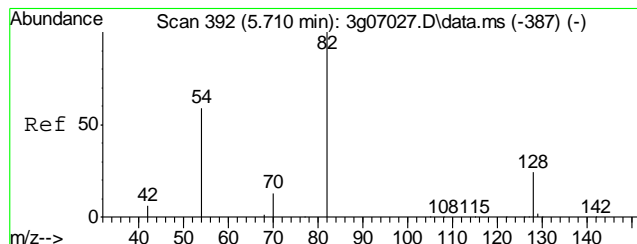
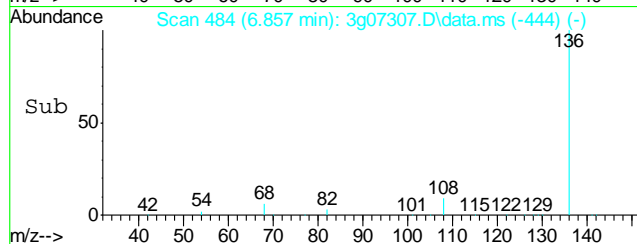
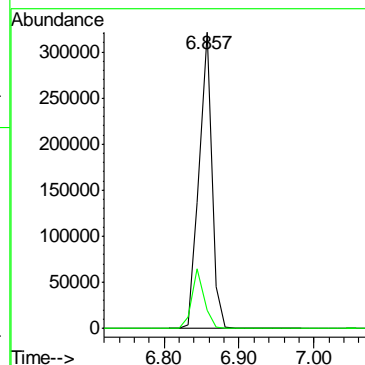
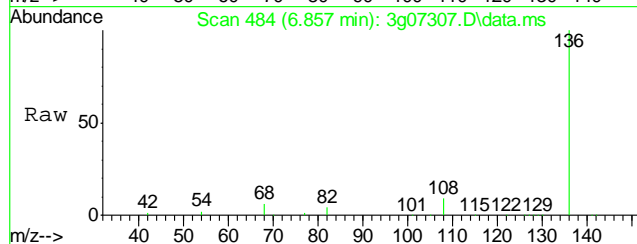
Quant Time: Dec 19 10:33:31 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G270.M
Quant Title : PAHSIM BASE
QLast Update : Fri Dec 16 17:52:17 2011
Response via : Initial Calibration





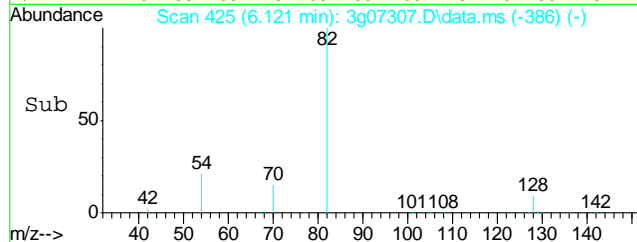
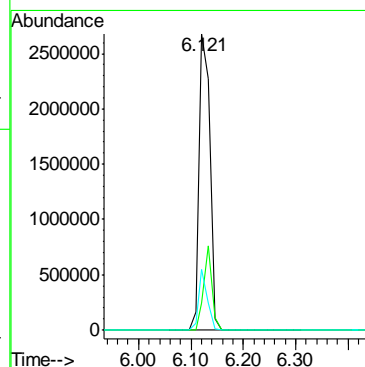
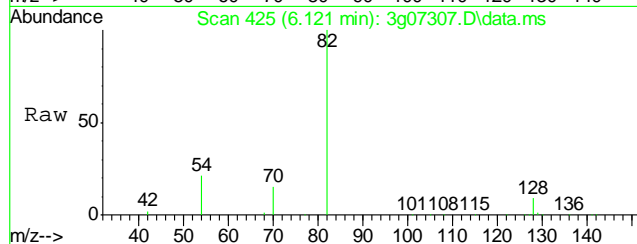
#1
Naphthalene-d8
Concen: 4.00 ug/mL
RT: 6.857 min Scan# 484
Delta R.T. 0.000 min
Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

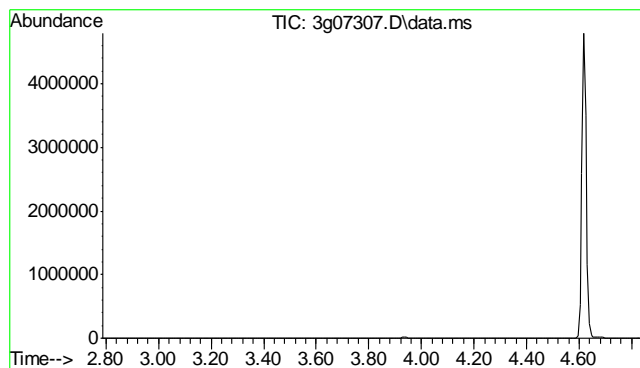
Tgt Ion:	136	Resp:	380116
Ion Ratio	Lower	Upper	
136	100		
68	19.1	0.0	39.9



#2
Nitrobenzene-d5
Concen: 38.72 ug/mL
RT: 6.121 min Scan# 425
Delta R.T. -0.013 min
Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

Tgt Ion:	82	Resp:	3908293
Ion Ratio	Lower	Upper	
82	100		
128	21.5	0.3	40.3
54	16.7	0.0	37.5

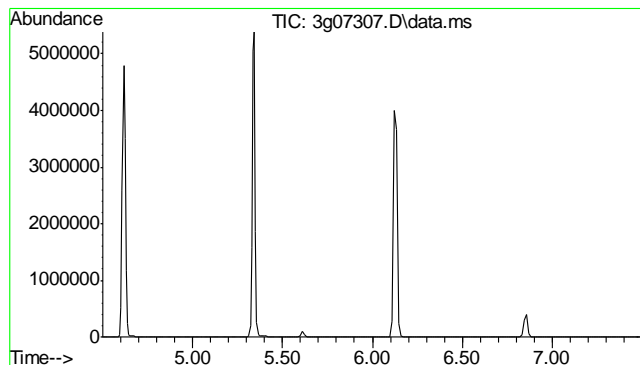
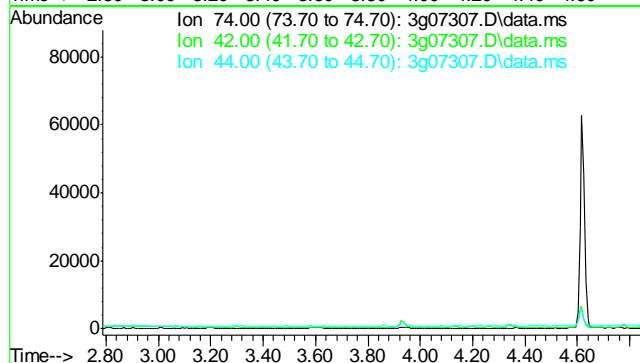




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 3.34 min

Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

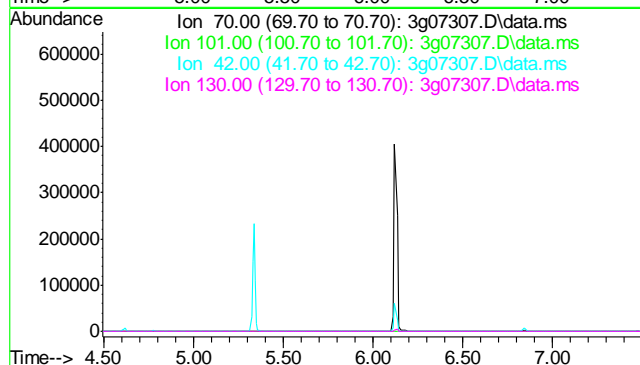
Tgt Ion:	74
Sig	Exp Ratio
74	100
42	18.8
44	1.4

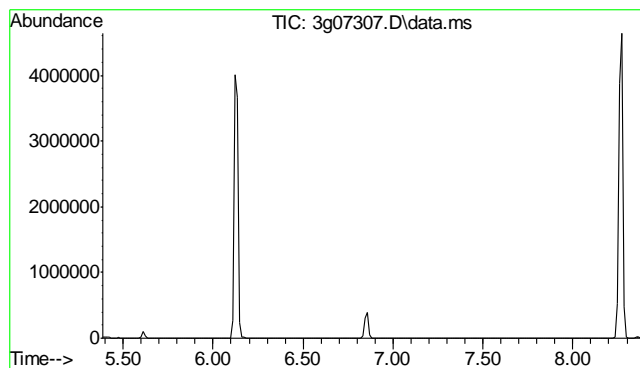


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 6.00 min

Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

Tgt Ion:	70
Sig	Exp Ratio
70	100
101	8.0
42	17.4
130	9.9

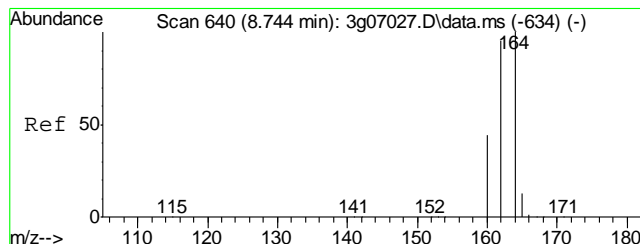
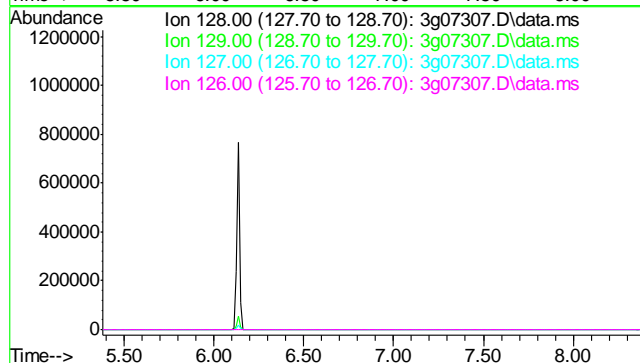




#5
Naphthalene
Concen: N.D. ug/mL
Expected RT: 6.88 min

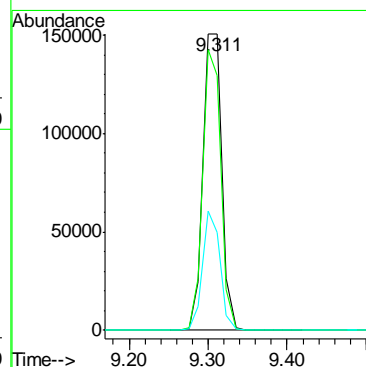
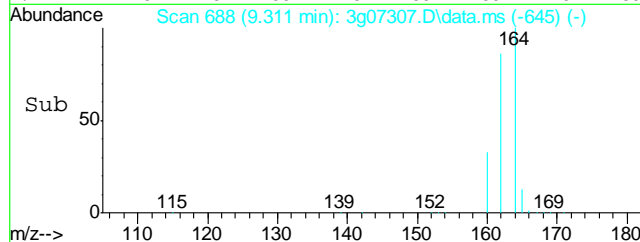
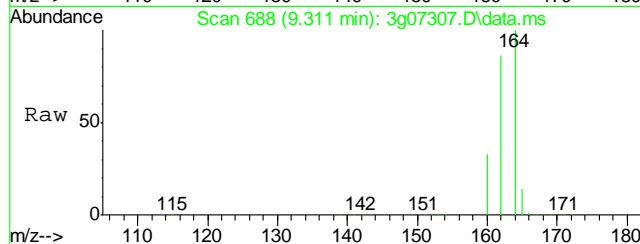
Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

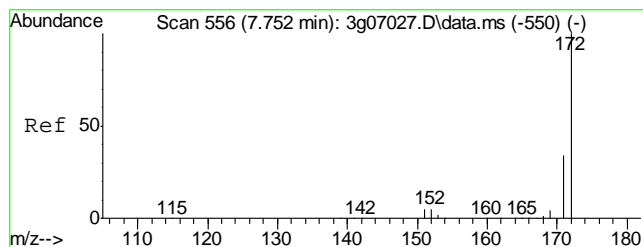
Tgt Ion: 128
Sig Exp Ratio
128 100
129 10.9
127 13.9
126 7.9



#6
Acenaphthene-d10
Concen: 4.00 ug/mL
RT: 9.311 min Scan# 688
Delta R.T. 0.012 min
Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

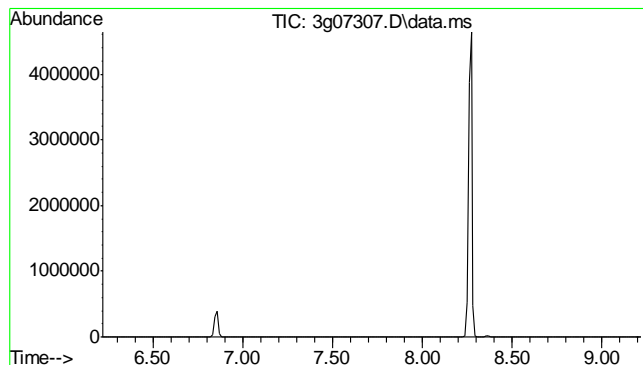
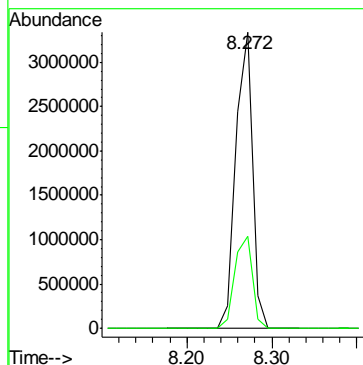
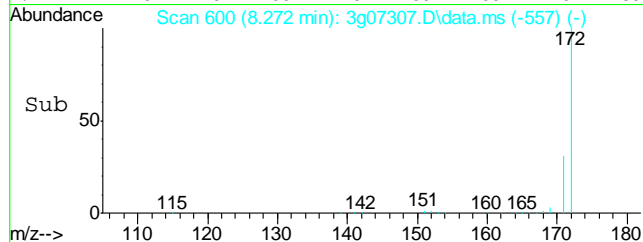
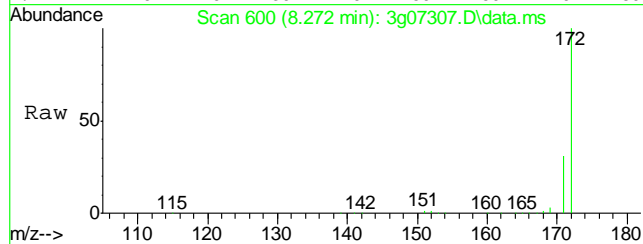
Tgt Ion: 164 Resp: 250589
Ion Ratio Lower Upper
164 100
162 90.6 71.3 111.3
160 37.0 17.3 57.3





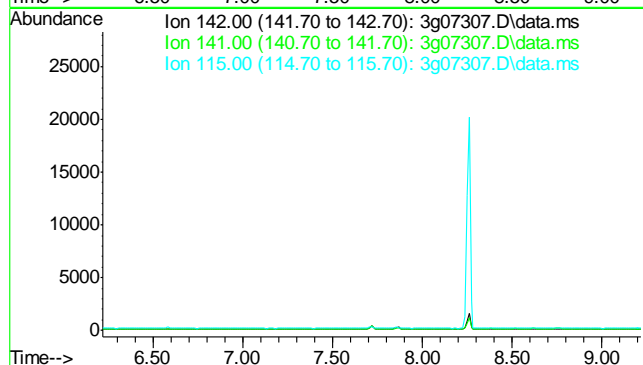
#7
2-Fluorobiphenyl
Concen: 38.31 ug/mL
RT: 8.272 min Scan# 600
Delta R.T. 0.012 min
Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

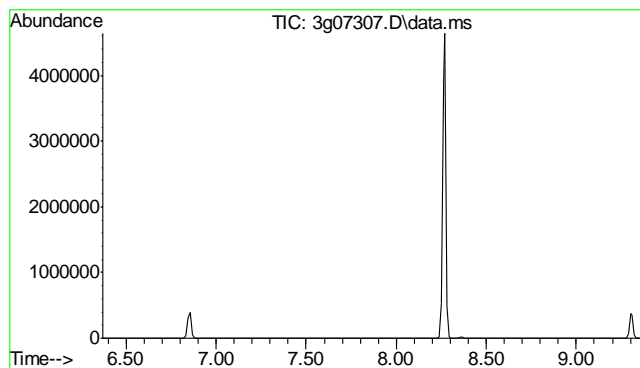
Tgt Ion: 172 Resp: 4538971
Ion Ratio Lower Upper
172 100
171 32.8 12.9 52.9



#8
2-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.72 min
Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

Tgt Ion: 142
Sig Exp Ratio
142 100
141 82.0
115 41.4

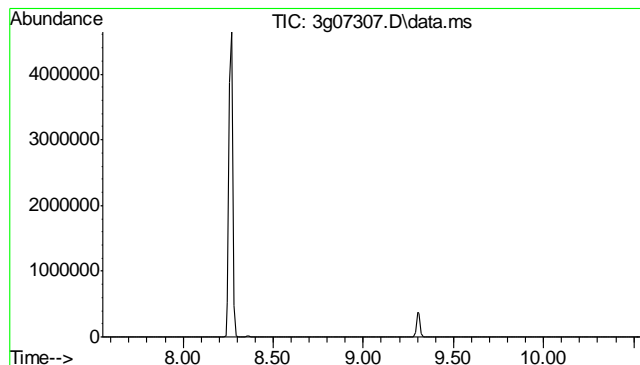
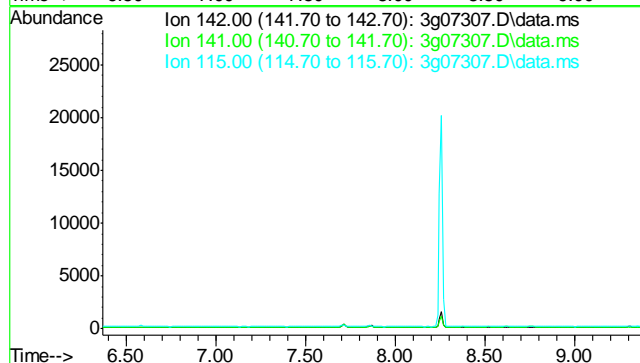




#9
1-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.87 min

Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

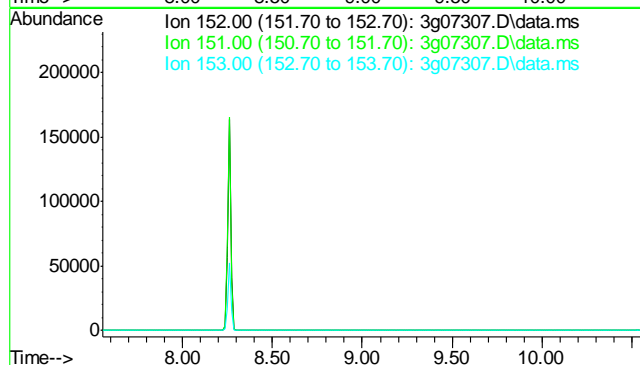
Tgt Ion:	142
Sig	Exp Ratio
142	100
141	85.3
115	43.0

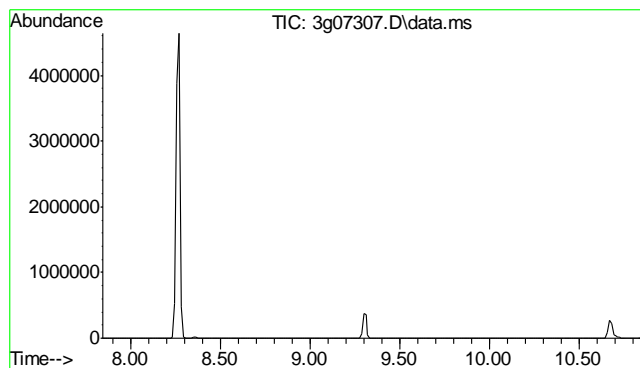


#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 9.05 min

Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

Tgt Ion:	152
Sig	Exp Ratio
152	100
151	19.0
153	13.0

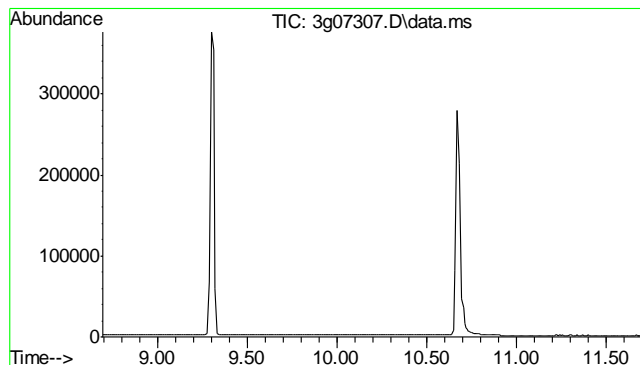
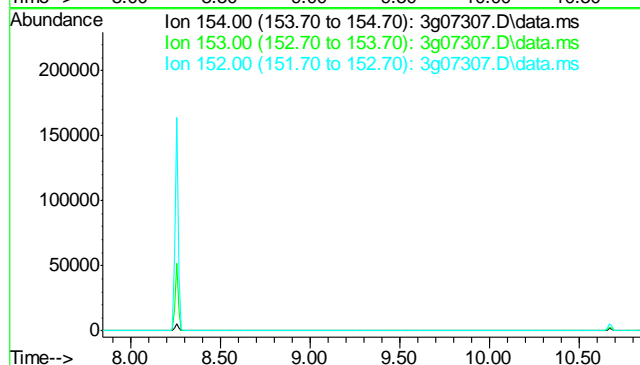




#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 9.35 min

Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

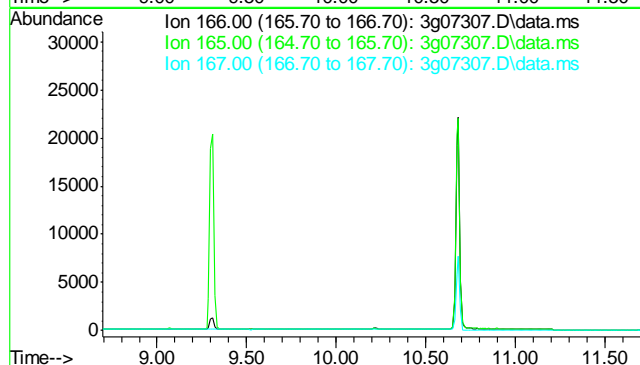
Tgt Ion: 154
Sig Exp Ratio
154 100
153 103.5
152 49.4

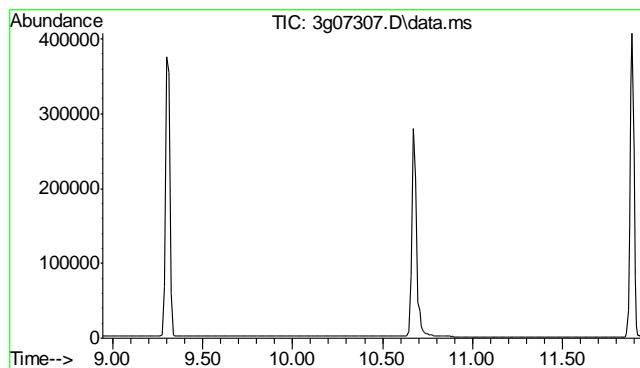


#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 10.20 min

Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

Tgt Ion: 166
Sig Exp Ratio
166 100
165 91.5
167 13.2

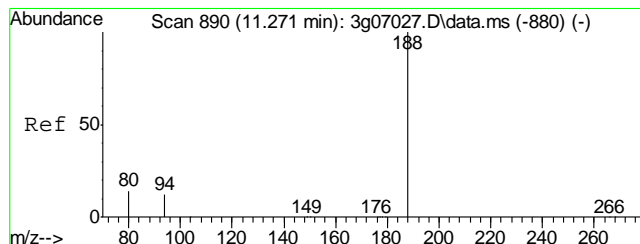
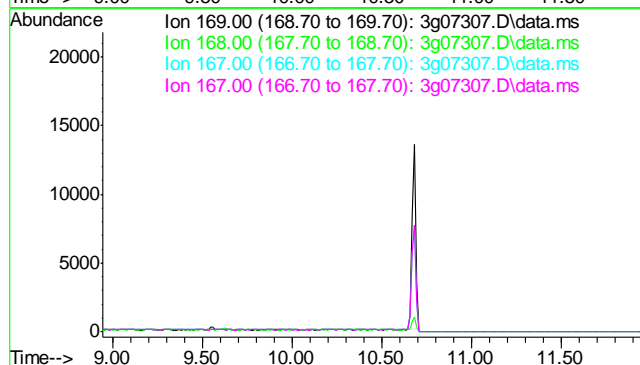




#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.44 min

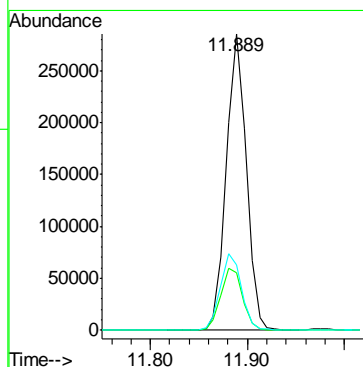
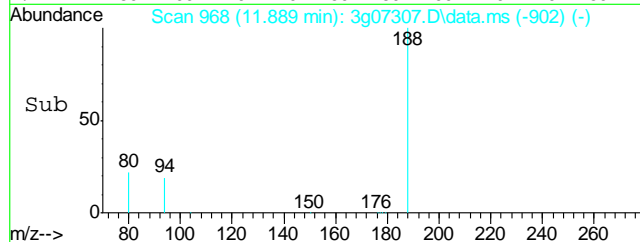
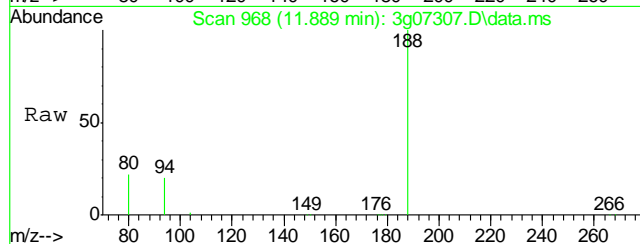
Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

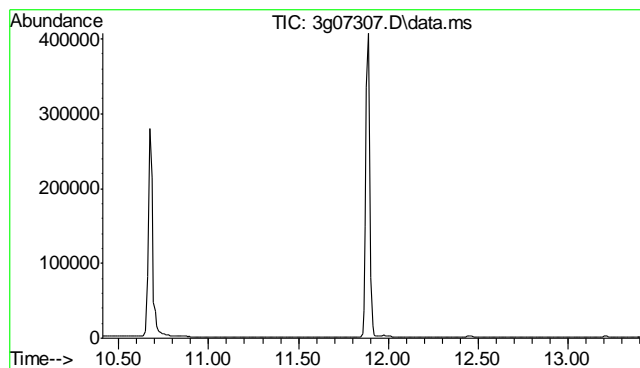
Tgt Ion: 169
Sig Exp Ratio
169 100
168 61.3
167 33.4
167 33.4



#14
Phenanthrene-d10
Concen: 4.00 ug/mL
RT: 11.889 min Scan# 968
Delta R.T. 0.023 min
Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

Tgt Ion: 188 Resp: 402999
Ion Ratio Lower Upper
188 100
94 22.7 4.1 44.1
80 26.8 8.3 48.3

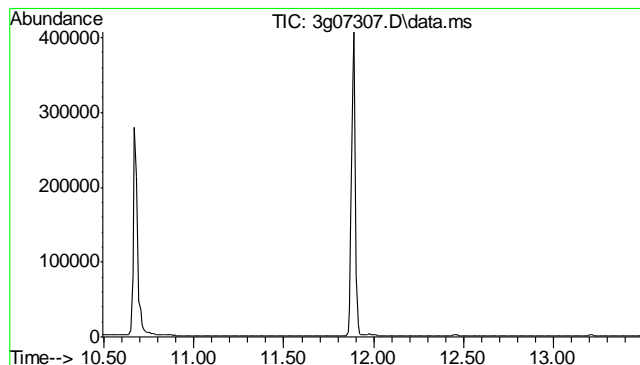
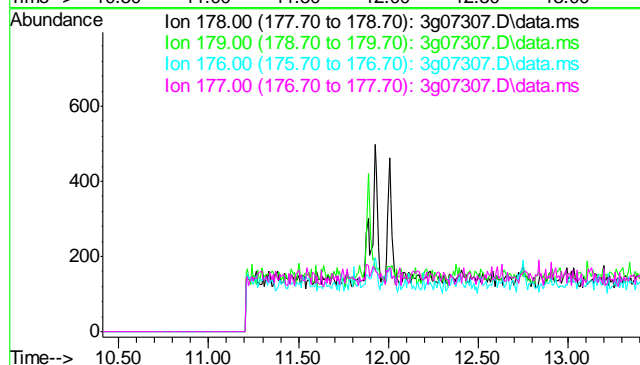




#15
Phenanthrene
Concen: N.D. ug/mL
Expected RT: 11.91 min

Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

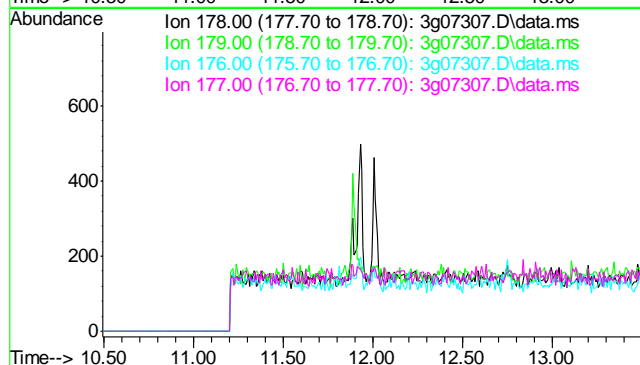
Tgt Ion:	178
Sig	Exp Ratio
178	100
179	15.2
176	18.4
177	10.1

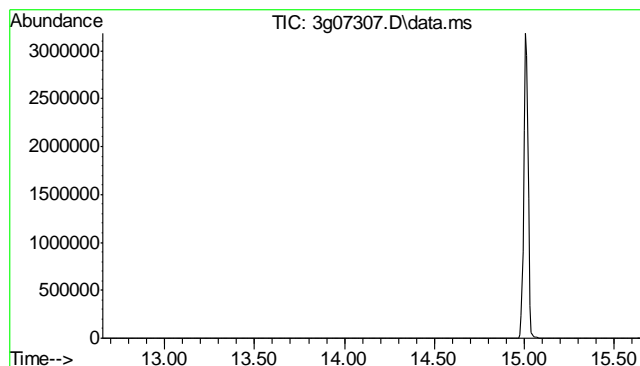


#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.99 min

Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

Tgt Ion:	178
Sig	Exp Ratio
178	100
179	14.9
176	17.8
177	8.7

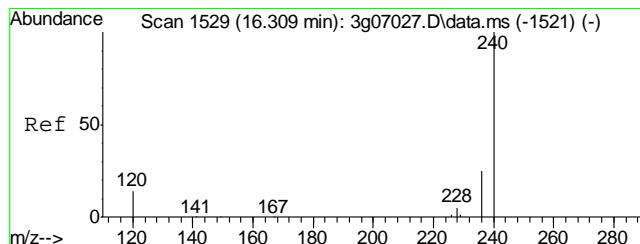
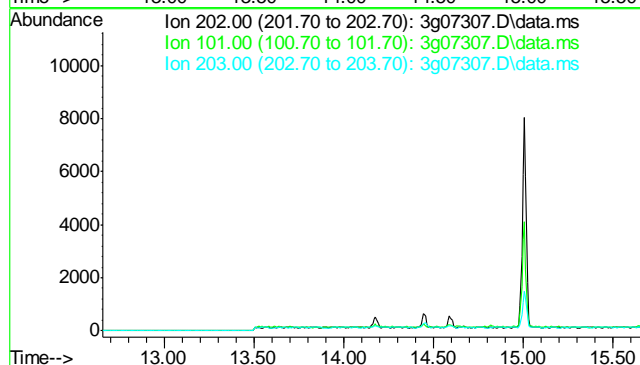




#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 14.16 min

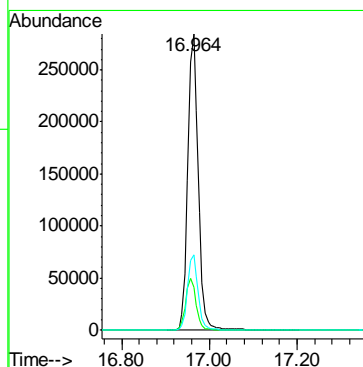
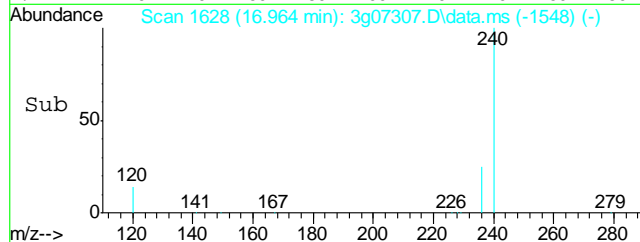
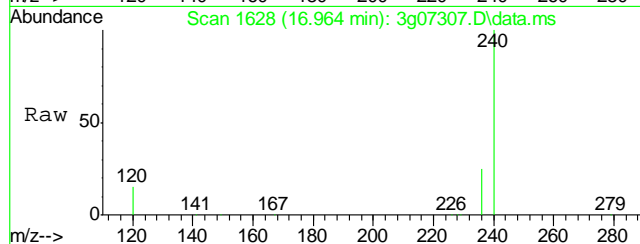
Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

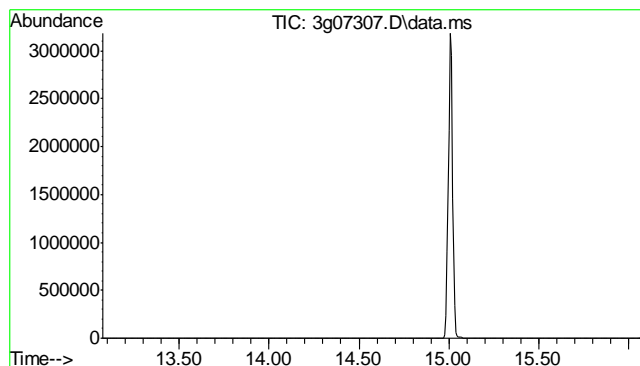
Tgt Ion:	202
Sig	Exp Ratio
202	100
101	21.3
203	17.1



#18
Chrysene-d12
Concen: 4.00 ug/mL
RT: 16.964 min Scan# 1628
Delta R.T. 0.030 min
Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

Tgt Ion:	240	Resp:	465632
Ion	Ratio	Lower	Upper
240	100		
120	17.4	0.0	38.2
236	25.3	5.2	45.2

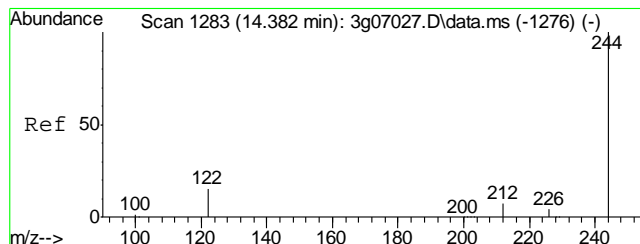
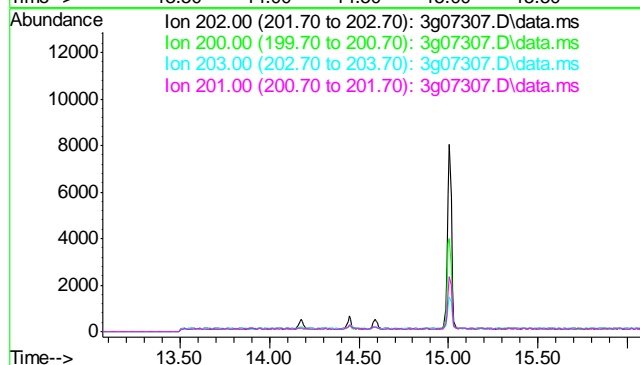




#19
Pyrene
Concen: N.D. ug/mL
Expected RT: 14.57 min

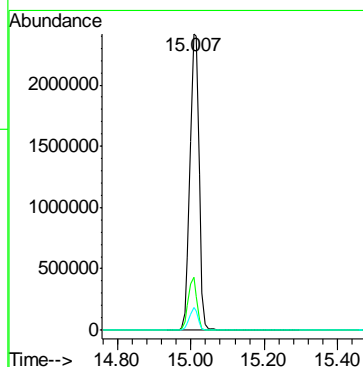
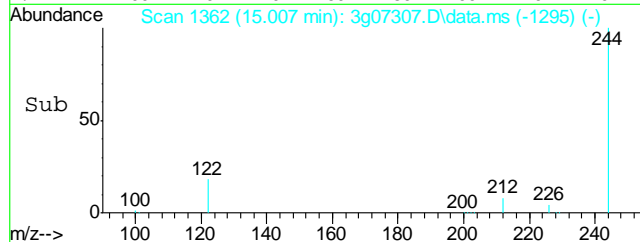
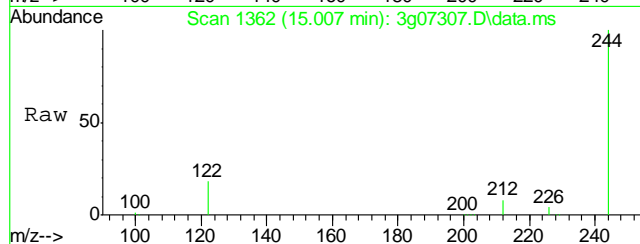
Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

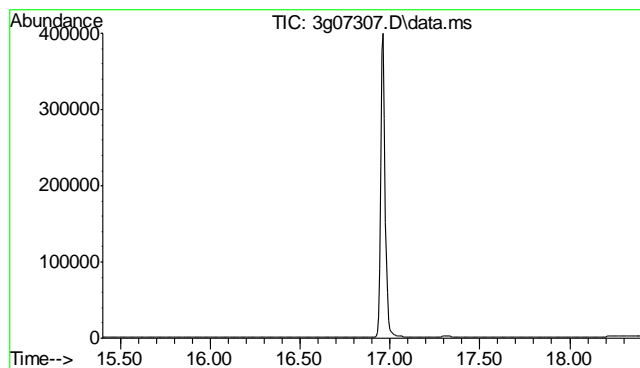
Tgt Ion:	202
Sig	Exp Ratio
202	100
200	20.0
203	17.7
201	16.5



#20
Terphenyl-d14
Concen: 42.33 ug/mL
RT: 15.007 min Scan# 1362
Delta R.T. 0.026 min
Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

Tgt Ion:	244	Resp:	4168586
Ion	Ratio	Lower	Upper
244	100		
122	16.7	0.0	37.9
212	7.1	0.0	26.8

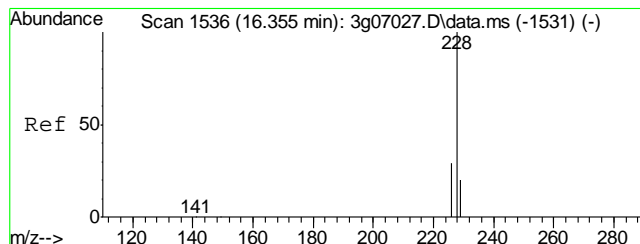
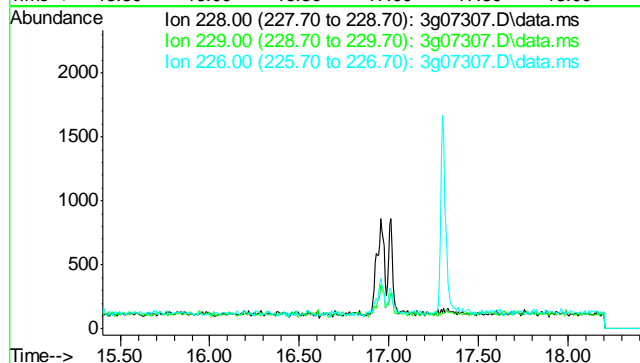




#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.90 min

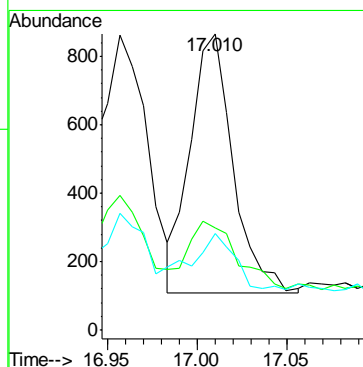
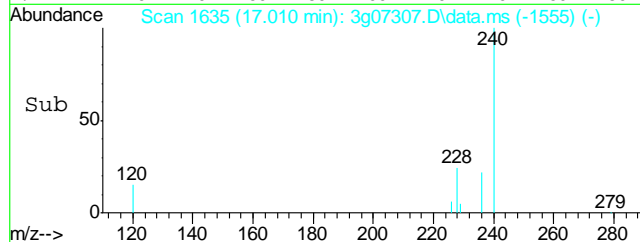
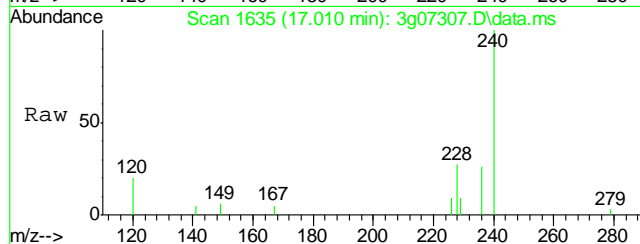
Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

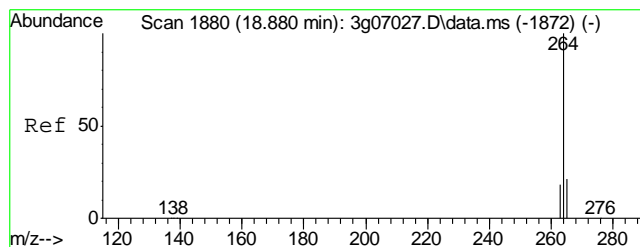
Tgt Ion:	228
Sig	Exp Ratio
228	100
229	19.5
226	26.2



#22
Chrysene
Concen: 0.01 ug/mL
RT: 17.010 min Scan# 1635
Delta R.T. 0.030 min
Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

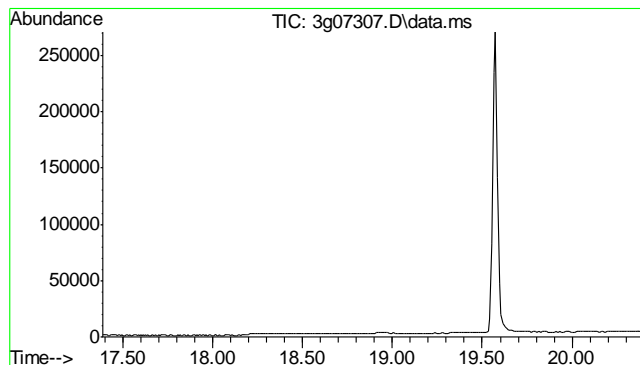
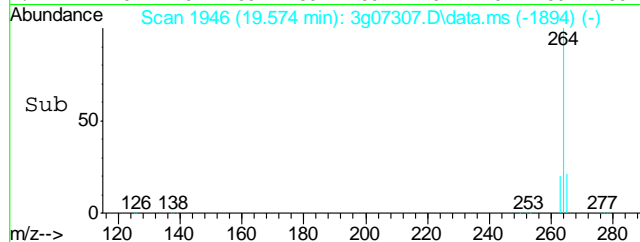
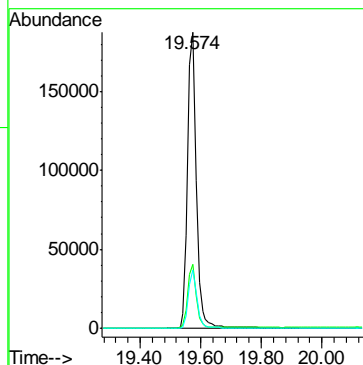
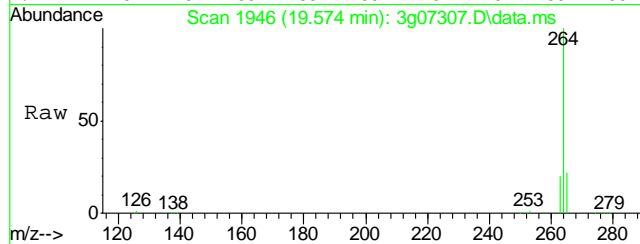
Tgt Ion:	228	Resp:	1261
Ion	Ratio	Lower	Upper
228	100		
226	30.4	8.6	48.6
229	20.5	0.0	39.3





#23
Perylene-d12
Concen: 4.00 ug/mL
RT: 19.574 min Scan# 1946
Delta R.T. 0.047 min
Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

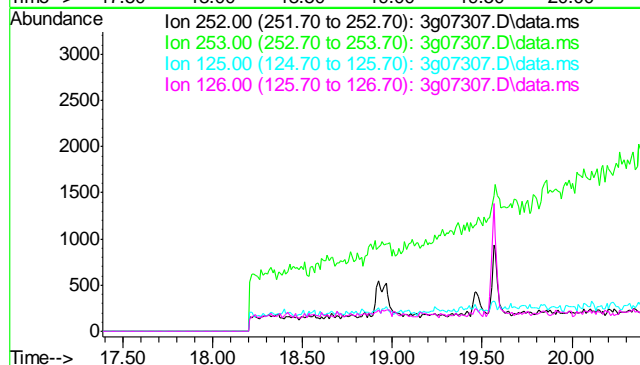
Tgt Ion:	264	Resp:	366702
Ion Ratio	Lower	Upper	
264	100		
265	21.1	1.1	41.1
263	19.2	0.0	38.4

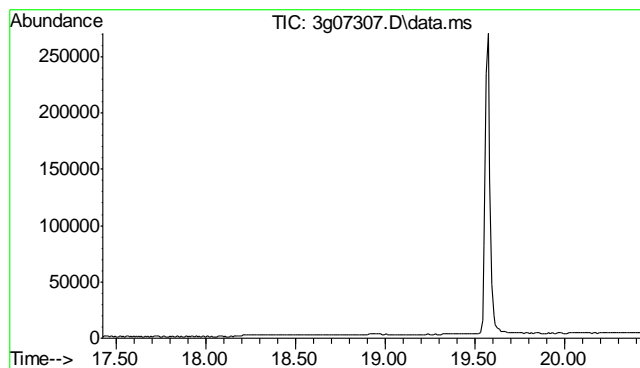


#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.88 min

Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.7
125	12.3
126	17.4

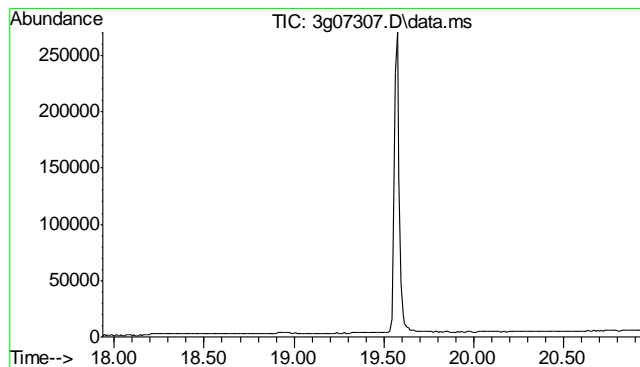
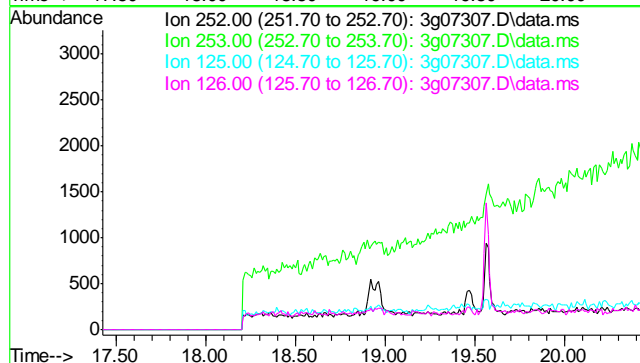




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.93 min

Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

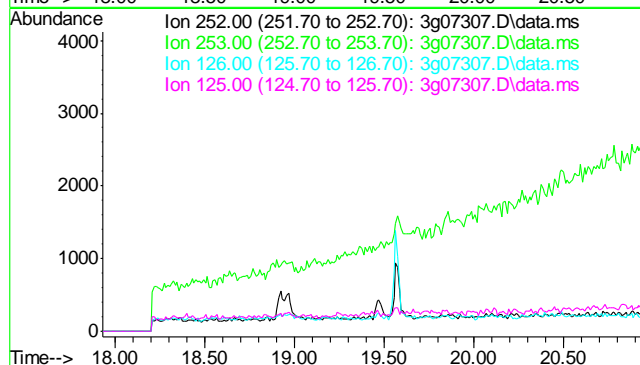
Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.4
125	10.4
126	16.7

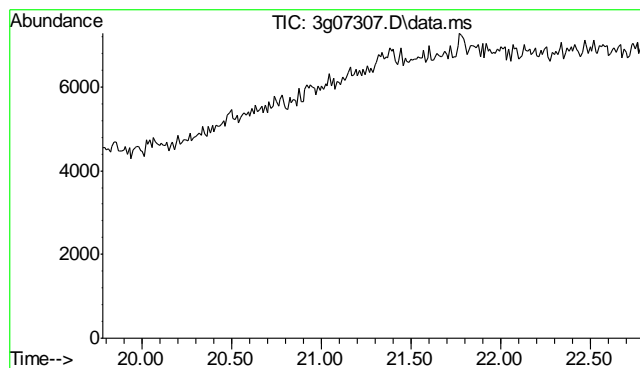


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 19.43 min

Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.4
126	17.1
125	13.0

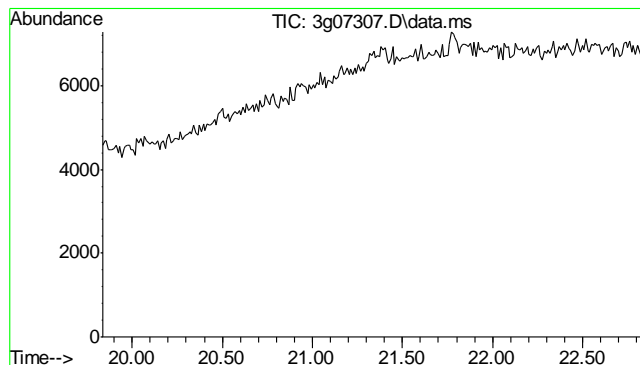
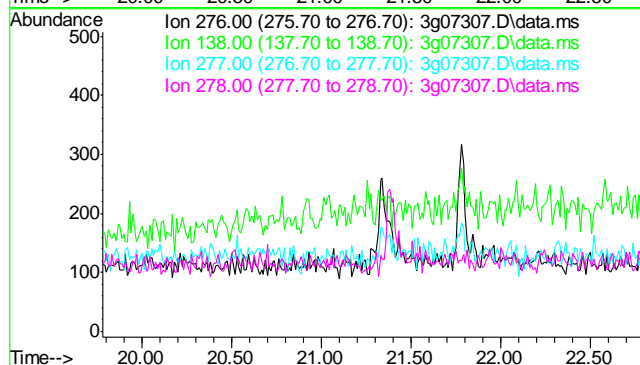




#27
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 21.28 min

Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

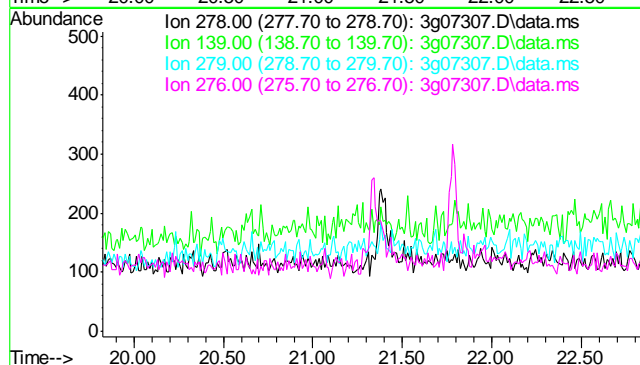
Tgt Ion:	276
Sig	Exp Ratio
276	100
138	21.6
277	32.6
278	105.1

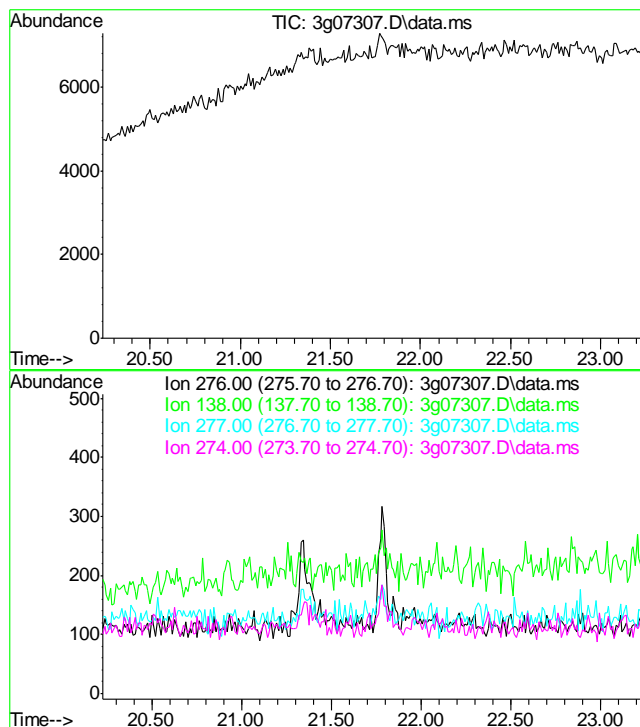


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 21.33 min

Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

Tgt Ion:	278
Sig	Exp Ratio
278	100
139	18.8
279	22.8
276	125.5





#29
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 21.73 min

Lab File: 3g07307.D
Acq: 17 Dec 11 12:47 am

Tgt Ion: 276
Sig Exp Ratio
276 100
138 23.5
277 23.2
274 21.7

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: D30326
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB808-MB	GB14312.D	1	12/15/11	SK	n/a	n/a	GGB808

The QC reported here applies to the following samples:

Method: SW846 8015B

D30326-1

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

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

9.1.1

9

Blank Spike Summary

Job Number: D30326
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB808-BS	GB14313.D	1	12/15/11	SK	n/a	n/a	GGB808

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

D30326-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	109	99	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	109%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D30326
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D30323-1MS	GB14315.D	1	12/15/11	SK	n/a	n/a	GGB808
D30323-1MSD	GB14316.D	1	12/15/11	SK	n/a	n/a	GGB808
D30323-1	GB14314.D	1	12/15/11	SK	n/a	n/a	GGB808

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

D30326-1

CAS No.	Compound	D30323-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		143	145	101	144	100	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D30323-1	Limits
120-82-1	1,2,4-Trichlorobenzene	103%	106%	98%	60-140%

GC Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\121511\GB14319.D\FID1A.CH Vial: 9
 Signal #2 : Y:\1\DATA\121511\GB14319.D\FID2B.CH
 Acq On : 15 Dec 2011 8:41 pm Operator: StephK
 Sample : D30326-1, 50X Inst : GC/MS Ins
 Misc : GC2480,GGB808,5.040,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Dec 16 07:06:16 2011 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Fri Dec 16 07:05:51 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

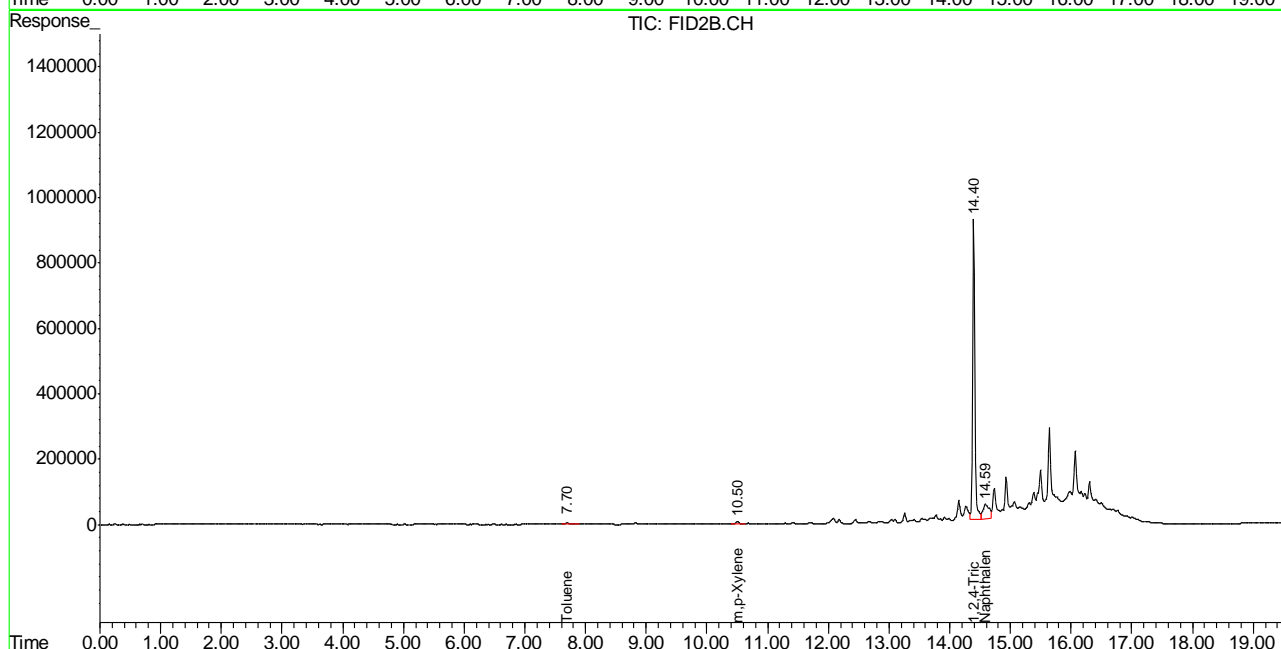
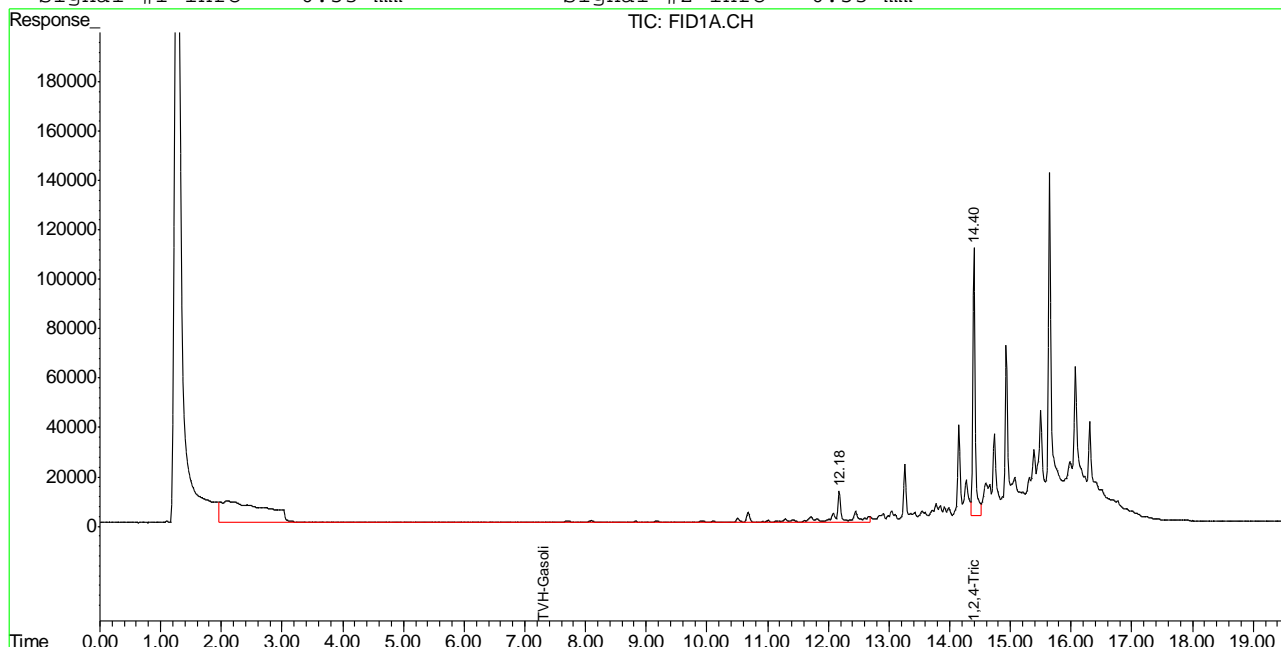
System Monitoring Compounds				
2) S	1,2,4-Trichlorobenzene	14.40	2916475	99.691 %
10) S	1,2,4-Trichlorobenzene (P)	14.40	22514519	97.958 %
Target Compounds				
1) H	TVH-Gasoline	7.32	7157038	0.101 mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D. ug/L d
5) T	Benzene	0.00	0	N.D. ug/L d
6) T	Toluene	7.70	226975	0.401 ug/L
7) T	Ethylbenzene	0.00	0	N.D. ug/L d
8) T	m,p-Xylene	10.50	388306	0.258 ug/L
9) T	o-Xylene	0.00	0	N.D. ug/L d
11) T	Naphthalene	14.59	3290120	12.782 ug/L

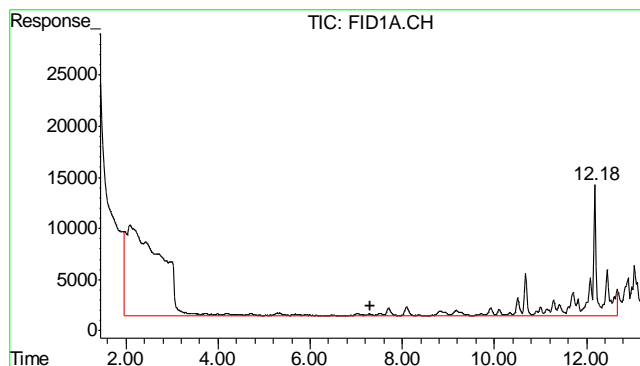
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\121511\GB14319.D\FID1A.CH Vial: 9
 Signal #2 : Y:\1\DATA\121511\GB14319.D\FID2B.CH
 Acq On : 15 Dec 2011 8:41 pm Operator: StephK
 Sample : D30326-1, 50X Inst : GC/MS Ins
 Misc : GC2480,GGB808,5.040,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Dec 16 6:10 2011 Quant Results File: TB791GB791SOIL.RES

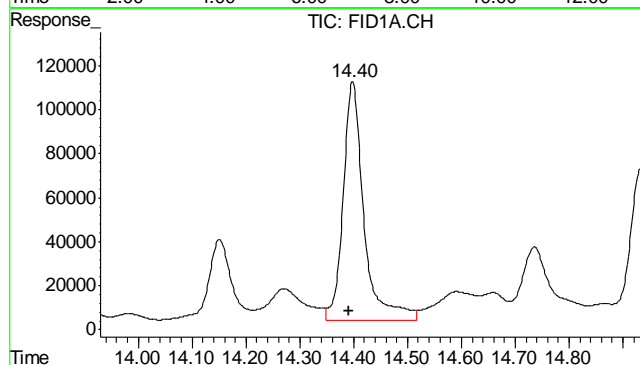
Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Fri Dec 16 07:05:51 2011
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

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

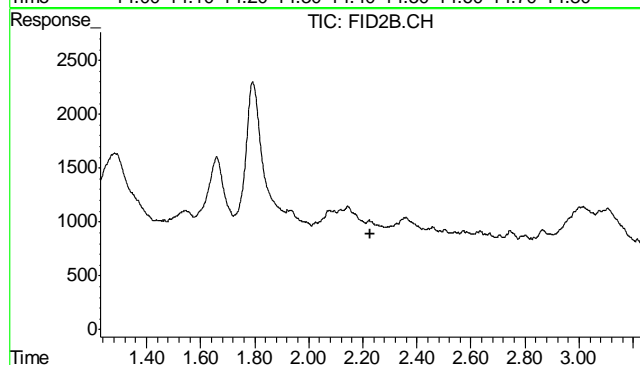




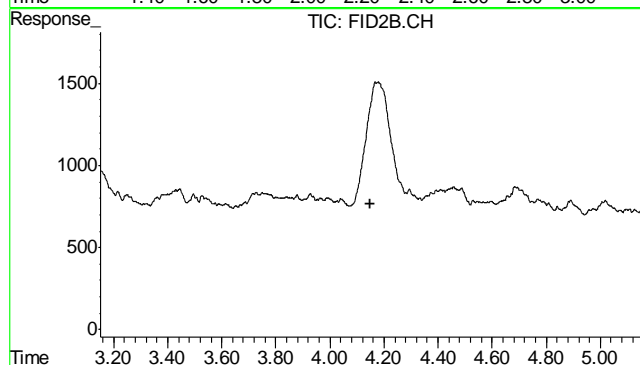
#1 TVH-Gasoline
 R.T.: 7.315 min
 Delta R.T.: 0.000 min
 Response: 7157038
 Conc: 0.10 mg/L m



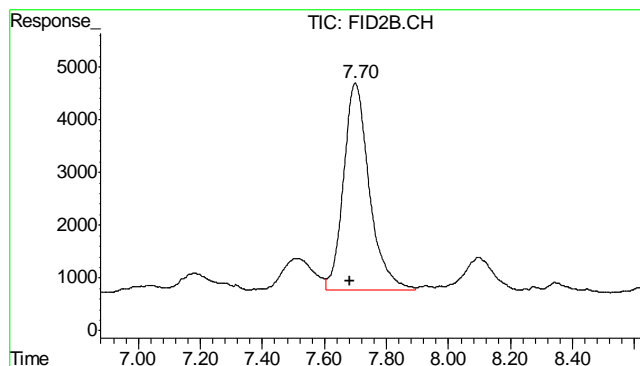
#2 1,2,4-Trichlorobenzene
 R.T.: 14.398 min
 Delta R.T.: 0.007 min
 Response: 2916475
 Conc: 99.69 %



#4 Methyl-t-butyl-ether
 R.T.: 0.000 min
 Exp R.T.: 2.229 min
 Response: 0
 Conc: N.D.

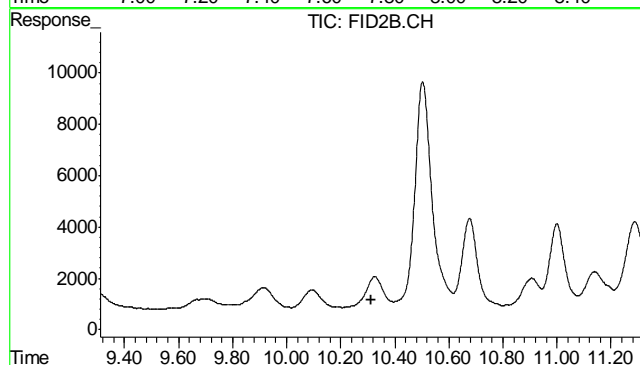


#5 Benzene
 R.T.: 0.000 min
 Exp R.T.: 4.150 min
 Response: 0
 Conc: N.D.



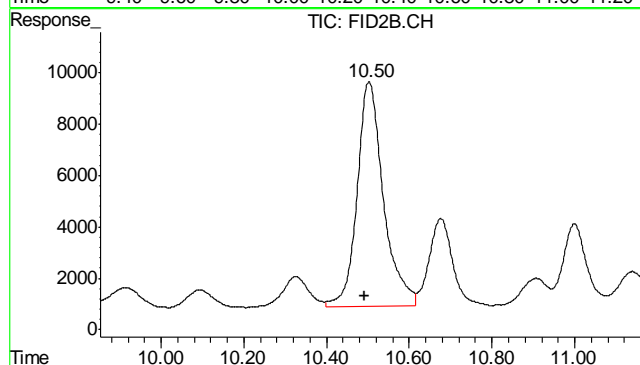
#6 Toluene

R.T.: 7.699 min
Delta R.T.: 0.018 min
Response: 226975
Conc: 0.40 ug/L



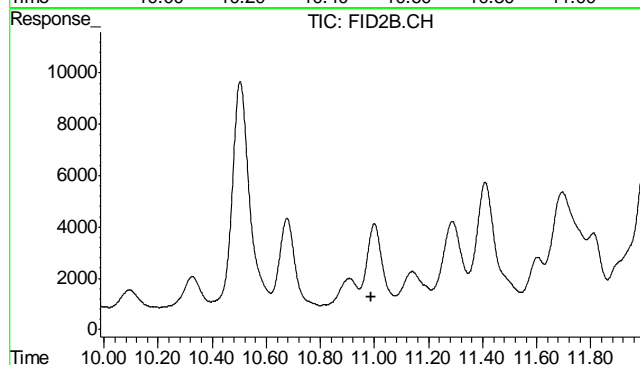
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T.: 10.311 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

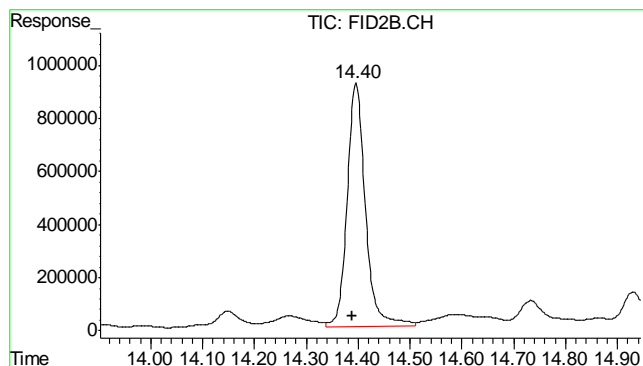
R.T.: 10.503 min
Delta R.T.: 0.011 min
Response: 388306
Conc: 0.26 ug/L



#9 o-Xylene

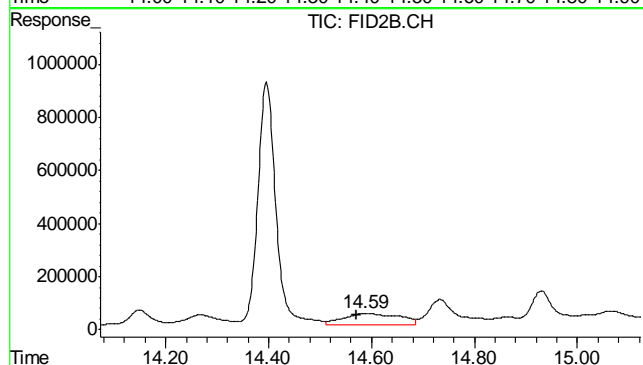
R.T.: 0.000 min
Exp R.T.: 10.986 min
Response: 0
Conc: N.D.

10.1.1
10



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

R.T.: 14.396 min
Delta R.T.: 0.007 min
Response: 22514519
Conc: 97.96 %



#11 Naphthalene

R.T.: 14.587 min
Delta R.T.: 0.016 min
Response: 3290120
Conc: 12.78 ug/L

10.1.1
10

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\121511\GB14312.D\FID1A.CH Vial: 2
Signal #2 : Y:\1\DATA\121511\GB14312.D\FID2B.CH
Acq On : 15 Dec 2011 4:31 pm Operator: StephK
Sample : MB, S Inst : GC/MS Ins
Misc : GC2480,GGB808,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Dec 16 07:04:47 2011 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Fri Dec 16 07:04:29 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	14.40	2770757	94.710	%
10) S	1,2,4-Trichlorobenzene (P)	14.40	23369070	101.676	%
Target Compounds					
1) H	TVH-Gasoline	7.32	4987822	<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	7.70	168640	0.298	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	0.00	0	N.D.	ug/L d
9) T	o-Xylene	0.00	0	N.D.	ug/L d
11) T	Naphthalene	14.58	485863	1.888	ug/L

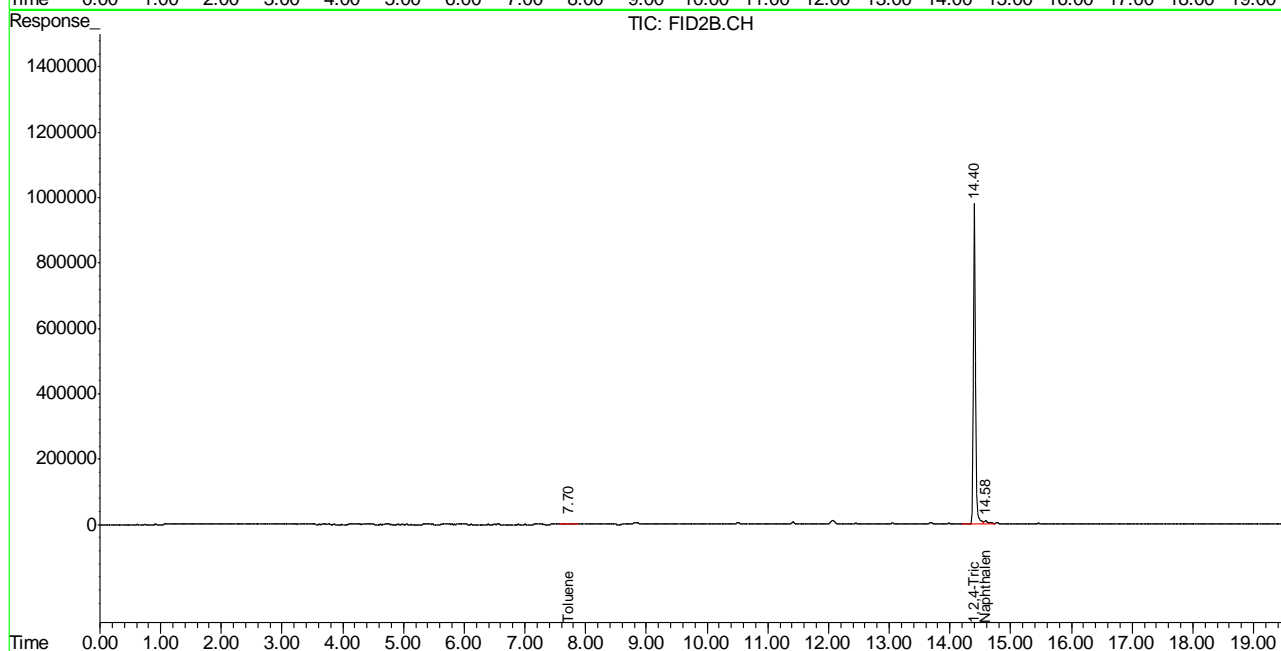
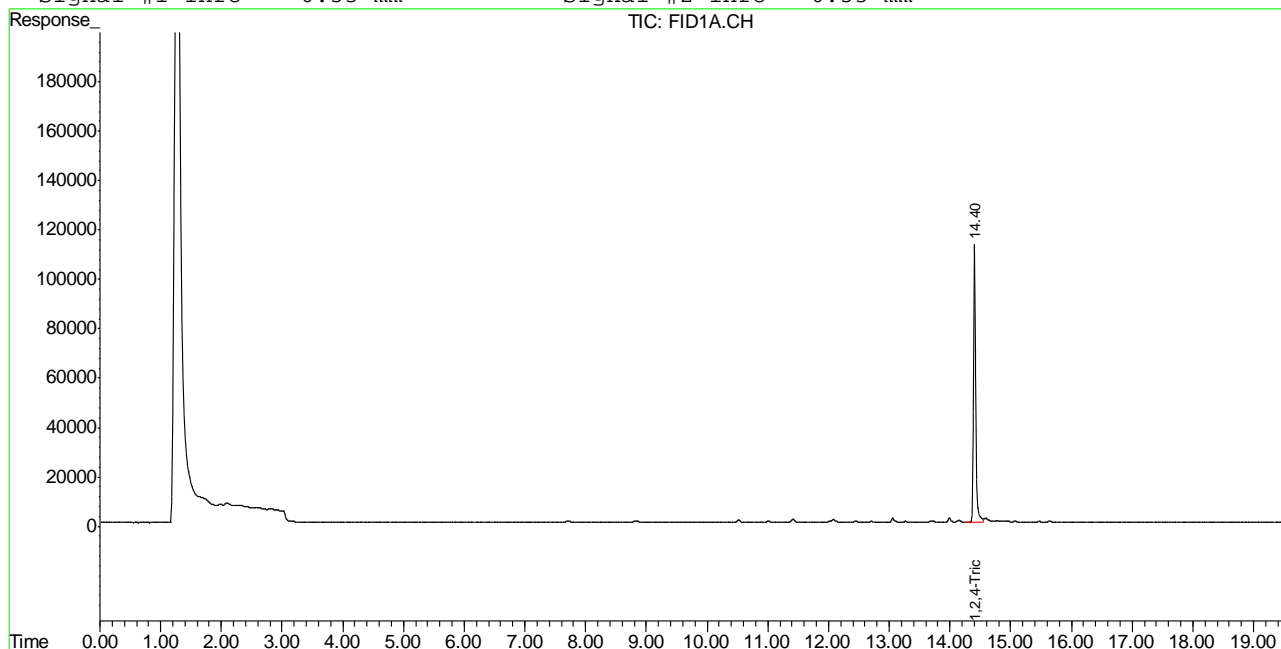
(f)=RT Delta > 1/2 Window (m)=manual int.
GB14312.D TB791GB791SOIL.M Fri Dec 16 07:16:24 2011 GC

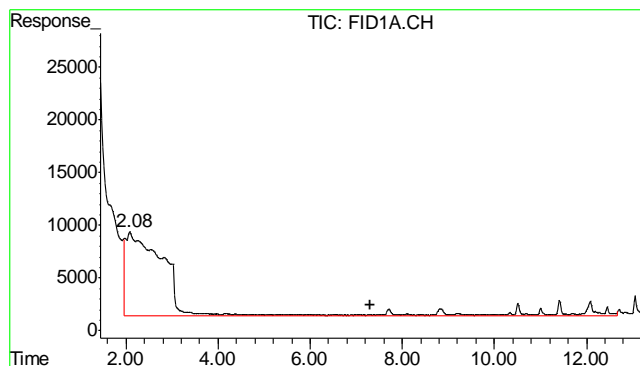
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\121511\GB14312.D\FID1A.CH Vial: 2
Signal #2 : Y:\1\DATA\121511\GB14312.D\FID2B.CH
Acq On : 15 Dec 2011 4:31 pm Operator: StephK
Sample : MB, S Inst : GC/MS Ins
Misc : GC2480,GGB808,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Dec 16 6:07 2011 Quant Results File: TB791GB791SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB791GB791SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Fri Dec 16 07:04:29 2011
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

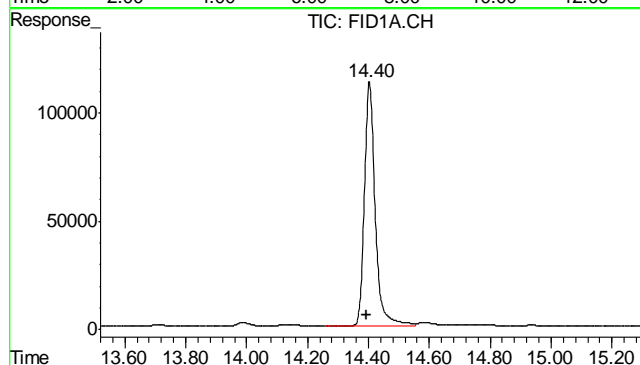
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





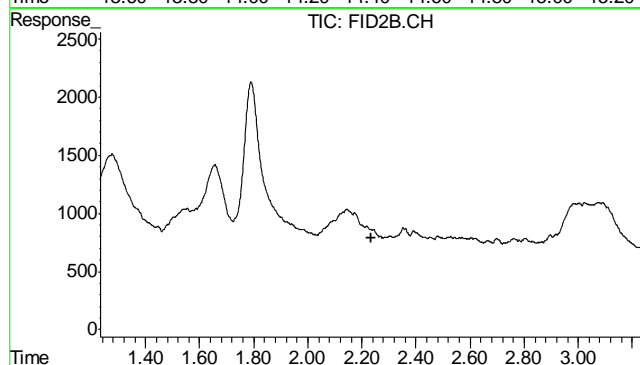
#1 TVH-Gasoline

R.T.: 7.315 min
Delta R.T.: 0.000 min
Response: 4987822
Conc: N.D.



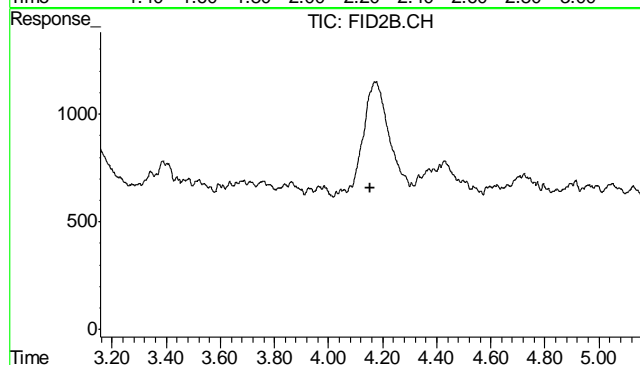
#2 1,2,4-Trichlorobenzene

R.T.: 14.404 min
Delta R.T.: 0.010 min
Response: 2770757
Conc: 94.71 %



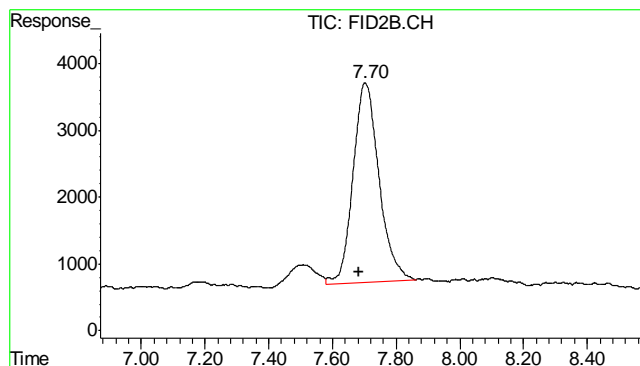
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T.: 2.233 min
Response: 0
Conc: N.D.



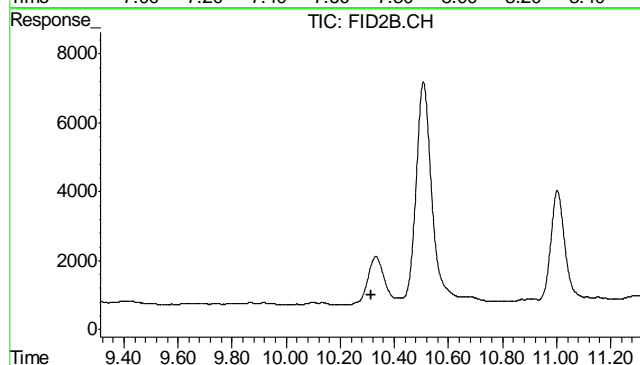
#5 Benzene

R.T.: 0.000 min
Exp R.T.: 4.155 min
Response: 0
Conc: N.D.



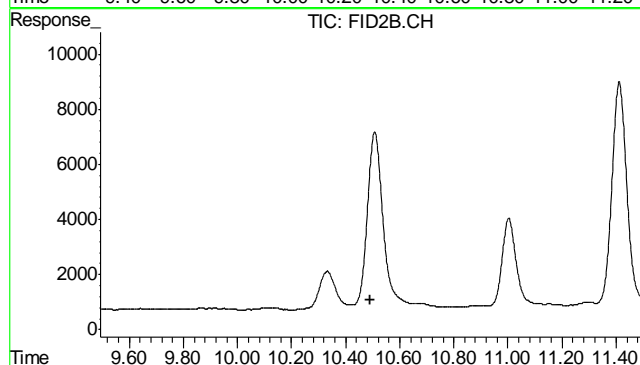
#6 Toluene

R.T.: 7.703 min
Delta R.T.: 0.020 min
Response: 168640
Conc: 0.30 ug/L



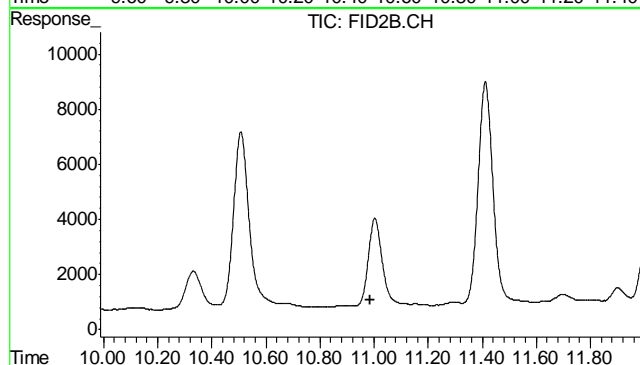
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T.: 10.313 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

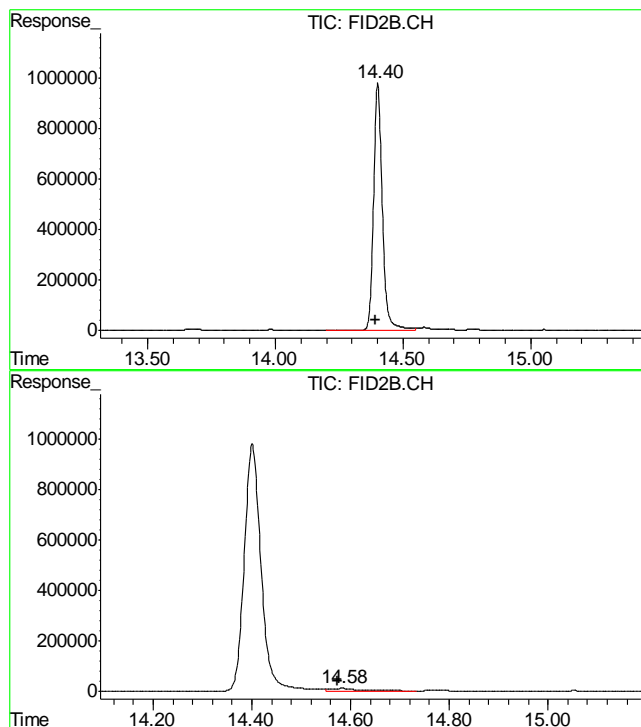
R.T.: 0.000 min
Exp R.T.: 10.492 min
Response: 0
Conc: N.D.



#9 o-Xylene

R.T.: 0.000 min
Exp R.T.: 10.987 min
Response: 0
Conc: N.D.

10.2.1 10



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

R.T.: 14.401 min
Delta R.T.: 0.010 min
Response: 23369070
Conc: 101.68 %

#11 Naphthalene

R.T.: 14.583 min
Delta R.T.: 0.010 min
Response: 485863
Conc: 1.89 ug/L

10.2.1
10

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D30326
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5019-MB	FD12322.D	1	12/15/11	TR	12/15/11	OP5019	GFD639

The QC reported here applies to the following samples:

Method: SW846-8015B

D30326-1

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	88% 43-136%

11.1.1
11

Blank Spike Summary

Job Number: D30326
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5019-BS	FD12323.D	1	12/15/11	TR	12/15/11	OP5019	GFD639

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

D30326-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	499	75	58-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	82%	43-136%

11.2.1
11

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D30326
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5019-MS	FD12324.D	1	12/15/11	TR	12/15/11	OP5019	GFD639
OP5019-MSD	FD12325.D	1	12/15/11	TR	12/15/11	OP5019	GFD639
D30205-1	FD12326.D	1	12/15/11	TR	12/15/11	OP5019	GFD639

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

D30326-1

CAS No.	Compound	D30205-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	251		788	803	70	762	65	5	20-183/43

CAS No.	Surrogate Recoveries	MS	MSD	D30205-1	Limits
84-15-1	o-Terphenyl	75%	82%	83%	43-136%

11.3.1
11

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\DEC\FD121511\FD12345.D Vial: 27
Acq On : 12-16-2011 01:08:12 AM Operator: TEDR
Sample : D30326-1 Inst : FID5
Misc : OP5019,GFD639,30.15,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Dec 16 08:27:24 2011 Quant Results File: GFD624.RES

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

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

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
1) S O-Terphenyl	9.62	30860313	691.117 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	7.42	617843133	14777.529 mg/L

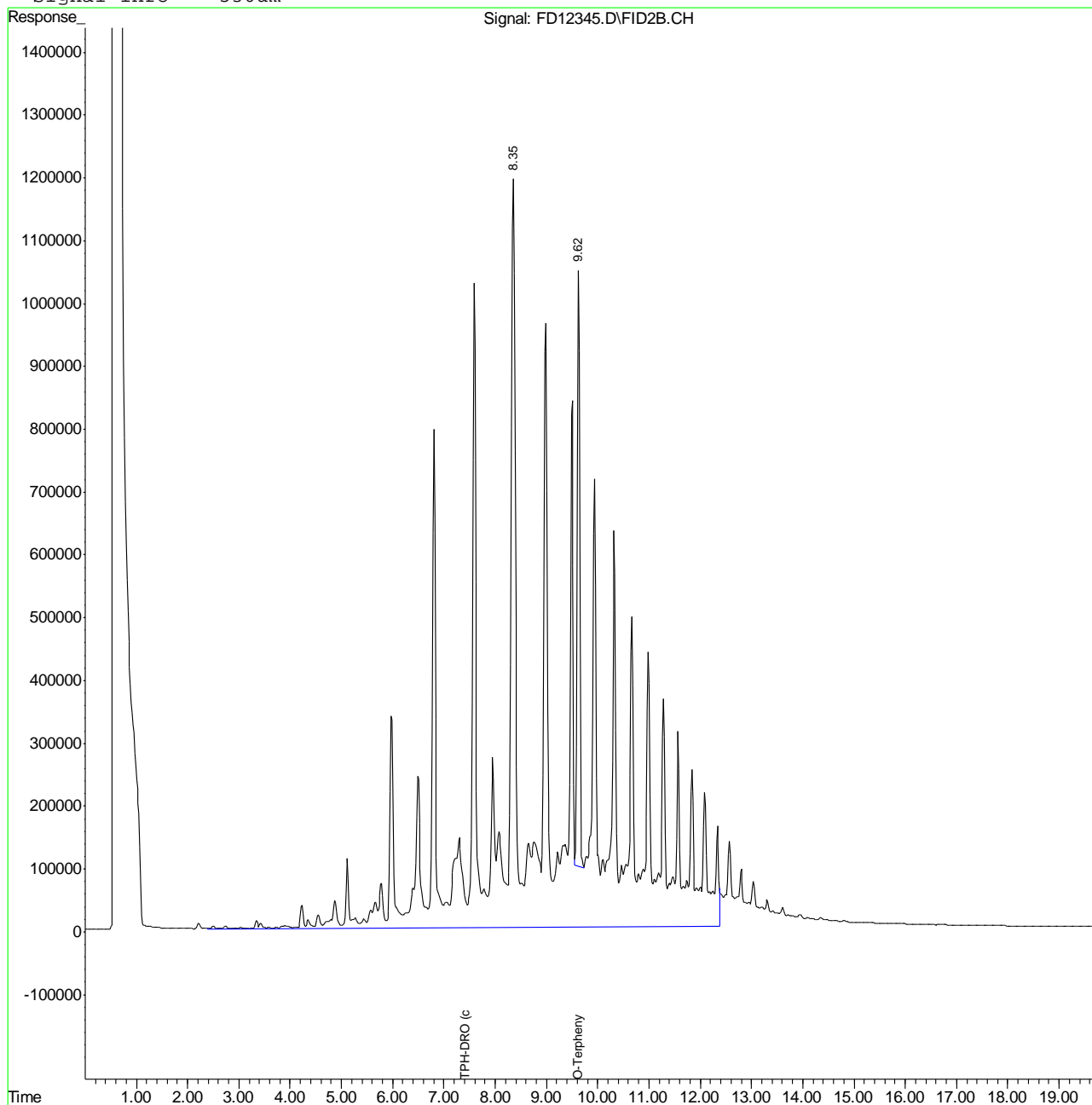
12.1.1
12

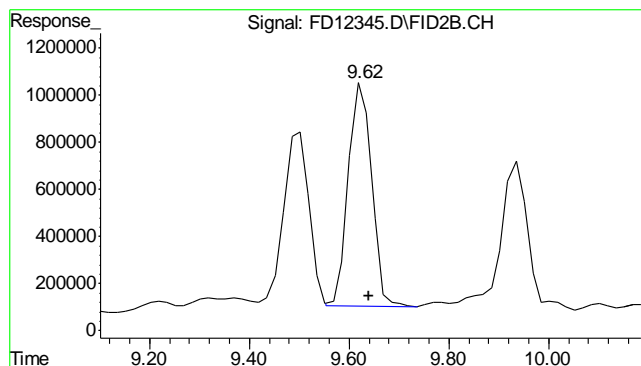
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\DEC\FD121511\FD12345.D Vial: 27
Acq On : 12-16-2011 01:08:12 AM Operator: TEDR
Sample : D30326-1 Inst : FID5
Misc : OP5019,GFD639,30.15,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Dec 16 8:28 2011 Quant Results File: GFD624.RES

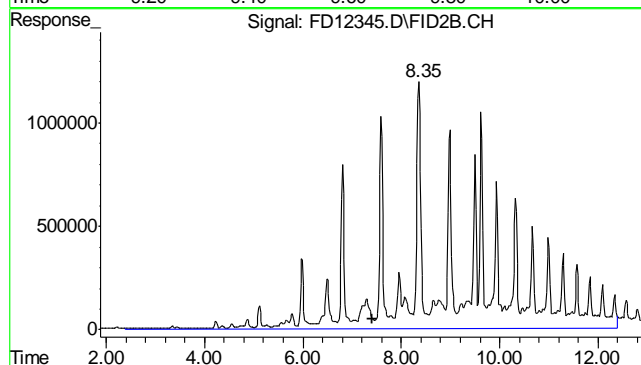
Quant Method : C:\MSDCHEM\2\METHODS\GFD624.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Dec 09 12:22:03 2011
Response via : Multiple Level Calibration
DataAcq Meth : JH080911.M

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





#1 O-Terphenyl
 R.T.: 9.622 min
 Delta R.T.: -0.018 min
 Response: 30860313
 Conc: 691.12 mg/L m



#2 TPH-DRO (c10-c28)
 R.T.: 7.420 min
 Delta R.T.: 0.000 min
 Response: 617843133
 Conc: 14777.53 mg/L m

12.1.1
12

Judy Melson
12/16/11 11:58

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\DEC\FD121511\FD12322.D Vial: 4
Acq On : 12-15-2011 03:18:33 PM Operator: TEDR
Sample : OP5019-MB Inst : FID5
Misc : OP5019,GFD639,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Dec 15 16:14:46 2011 Quant Results File: GFD624.RES

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

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

Compound	R.T.	Response	Conc Units

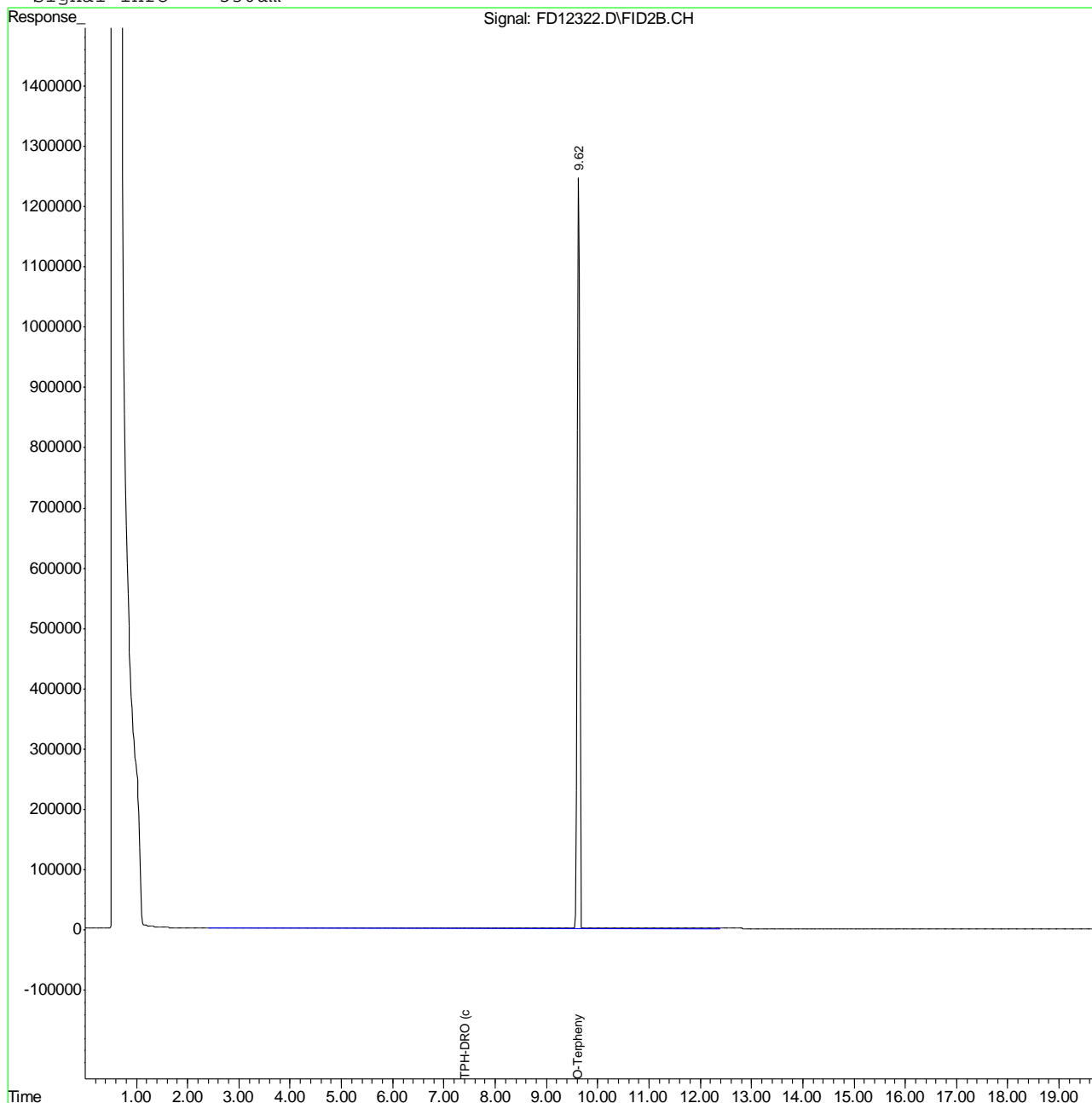
System Monitoring Compounds			
1) S O-Terphenyl	9.62	39403571	882.443 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	7.42	3372980	80.675 mg/L

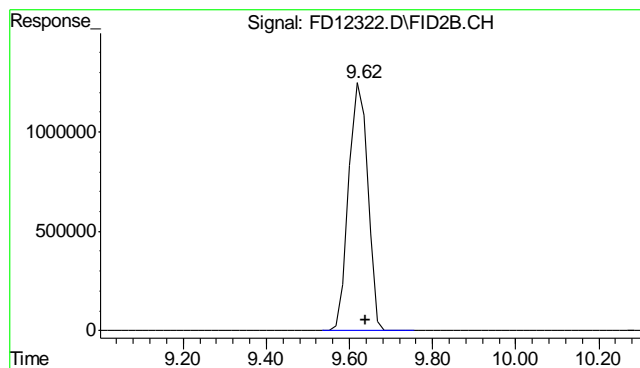
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2011\DEC\FD121511\FD12322.D Vial: 4
Acq On : 12-15-2011 03:18:33 PM Operator: TEDR
Sample : OP5019-MB Inst : FID5
Misc : OP5019,GFD639,30.00,,,2,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Dec 15 16:15 2011 Quant Results File: GFD624.RES

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

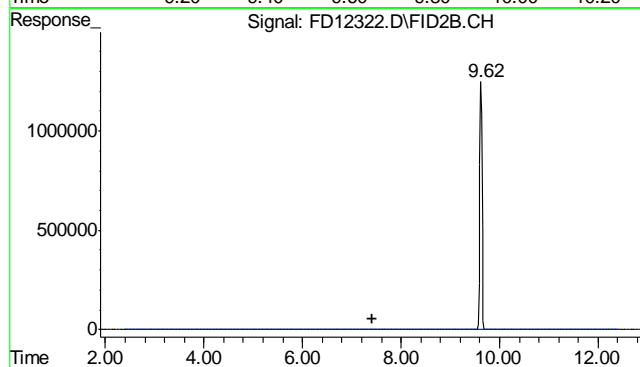
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.622 min
Delta R.T.: -0.018 min
Response: 39403571
Conc: 882.44 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 7.420 min
Delta R.T.: 0.000 min
Response: 3372980
Conc: 80.67 mg/L m

12.2.1
12

Metals Analysis

QC Data Summaries

Includes the following where applicable:

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6490
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 12/15/11

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	0.040	<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	0.020	<1.0
Cobalt	0.50	.035	.035		
Copper	1.0	.085	.16	0.060	<1.0
Iron	7.0	.34	2		
Lead	5.0	.16	.21	0.23	<5.0
Lithium	0.20	.028	.031		
Magnesium	20	.58	1.4		
Manganese	0.50	.0053	.012		
Molybdenum	1.0	.045	.054		
Nickel	3.0	.043	.099	-0.010	<3.0
Phosphorus	10	1.1	1.2		
Potassium	200	5.5	9.2		
Selenium	5.0	.38	.5	-0.34	<5.0
Silicon	5.0	.38	.51		
Silver	3.0	.018	.051	-0.040	<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	0.34	<3.0

Associated samples MP6490: D30326-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6490
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6490
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 12/15/11

Metal	D30323-3 Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	171	380	236	88.7	75-125
Beryllium	anr				
Boron					
Cadmium	0.17	51.3	58.9	86.8	75-125
Calcium					
Chromium	45.9	95.4	58.9	84.0	75-125
Cobalt					
Copper	12.7	66.7	58.9	91.6	75-125
Iron	anr				
Lead	15.0	114	118	84.0	75-125
Lithium					
Magnesium	anr				
Manganese	anr				
Molybdenum	anr				
Nickel	17.4	64.5	58.9	79.9	75-125
Phosphorus	anr				
Potassium					
Selenium	1.7	103	118	85.9	75-125
Silicon					
Silver	0.0	20.9	23.6	88.7	75-125
Sodium					
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium	anr				
Vanadium					
Zinc	48.1	94.0	58.9	77.9	75-125

Associated samples MP6490: D30326-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6490
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

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

13.1.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6490
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 12/15/11

Metal	D30323-3 Original MSD		Spikelot MPICPALL % Rec		MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	171	370	233	85.3	2.7	20
Beryllium	anr					
Boron						
Cadmium	0.17	49.0	58.3	83.7	4.6	20
Calcium						
Chromium	45.9	91.3	58.3	77.8	4.4	20
Cobalt						
Copper	12.7	63.7	58.3	87.4	4.6	20
Iron	anr					
Lead	15.0	110	117	81.4	3.6	20
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum	anr					
Nickel	17.4	61.8	58.3	76.1	4.3	20
Phosphorus	anr					
Potassium						
Selenium	1.7	97.4	117	82.0	5.6	20
Silicon						
Silver	0.0	20.0	23.3	85.7	4.4	20
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium	anr					
Vanadium						
Zinc	48.1	91.3	58.3	74.0N(a)	2.9	20

Associated samples MP6490: D30326-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6490
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D30326
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-32A

QC Batch ID: MP6490
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: mg/kg

Prep Date: 12/15/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	179	200	89.5	80-120
Beryllium	anr			
Boron				
Cadmium	44.7	50	89.4	80-120
Calcium				
Chromium	46.1	50	92.2	80-120
Cobalt				
Copper	44.8	50	89.6	80-120
Iron	anr			
Lead	91.7	100	91.7	80-120
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	44.1	50	88.2	80-120
Phosphorus	anr			
Potassium				
Selenium	90.8	100	90.8	80-120
Silicon				
Silver	18.5	20	92.5	80-120
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium	anr			
Vanadium				
Zinc	44.5	50	89.0	80-120

Associated samples MP6490: D30326-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6490
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D30326
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-32A

QC Batch ID: MP6490
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: ug/l

Prep Date: 12/15/11

Metal	D30323-3 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	1500	1680	11.8*(a)	0-10
Beryllium	anr			
Boron				
Cadmium	1.50	0.00	100.0(b)	0-10
Calcium				
Chromium	401	450	12.1*(a)	0-10
Cobalt				
Copper	111	106	4.5	0-10
Iron	anr			
Lead	131	145	10.1*(a)	0-10
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	152	181	18.5*(a)	0-10
Phosphorus	anr			
Potassium				
Selenium	14.9	0.00	100.0(b)	0-10
Silicon				
Silver	0.00	2.00		0-10
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium	anr			
Vanadium				
Zinc	420	513	22.1*(a)	0-10

Associated samples MP6490: D30326-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6490
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

(a) Serial dilution indicates possible matrix interference.

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6491
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 12/15/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	0.14	<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 MP6491: D30326-1

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: D30326
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-32A

QC Batch ID: MP6491
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 12/15/11

Metal	D30323-3 Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	4.8	120	118	97.7	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 MP6491: D30326-1

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: D30326
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-32A

QC Batch ID: MP6491
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 12/15/11

Metal	D30323-3 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	4.8	118	117	97.0	1.7	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 MP6491: D30326-1

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: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6491
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 12/15/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	95.4	100	95.4	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP6491: D30326-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D30326
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-32A

QC Batch ID: MP6491
 Matrix Type: SOLID

Methods: SW846 6020
 Units: ug/l

Prep Date: 12/15/11

Metal	D30323-3			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic	41.7	38.5	7.7	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 MP6491: D30326-1

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

13.24
13

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6492
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 12/16/11

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.10	.0011	.013	0.0016	<0.10

Associated samples MP6492: D30326-1

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: D30326
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-32A

QC Batch ID: MP6492
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 12/16/11

Metal	D30323-3		Spikelot		QC	
	Original	MS	HGWSR1	% Rec	Limits	
Mercury	0.0090	0.43	0.476	88.4	85-115	

Associated samples MP6492: D30326-1

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: D30326
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-32A

QC Batch ID: MP6492
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 12/16/11

Metal	D30323-3 Original MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.0090	0.43	0.497	84.8N(a) 0.0	20

Associated samples MP6492: D30326-1

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D30326
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-32A

QC Batch ID: MP6492
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 12/16/11

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.41	0.4	102.5	80-120

Associated samples MP6492: D30326-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6499
Matrix Type: AQUEOUS

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

Prep Date: 12/16/11

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	30.5	<2000
Chromium	50	.9	4		
Cobalt	25	1.8	1.8		
Copper	50	4.3	14		
Iron	350	17	65		
Lead	250	8	11		
Lithium	10	1.4	6		
Magnesium	1000	29	50	-7.5	<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	38.5	<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 MP6499: D30326-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6499
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: D30326
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM FRU 297-32A

QC Batch ID: MP6499
 Matrix Type: AQUEOUS

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

Prep Date: 12/16/11

Metal	D30364-3A Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	62400	196000	125000	106.9	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	21400	147000	125000	100.5	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	288000	405000	125000	93.6	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6499: D30326-1A

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

13.4.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6499
Matrix Type: AQUEOUS

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

Prep Date:

Metal

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

13.4.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6499
Matrix Type: AQUEOUS

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

Prep Date: 12/16/11

	D30364-3A		Spikelot		MSD	QC
Metal	Original MSD		MPICPAL	% Rec	RPD	Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	62400	198000	125000	108.5	1.0	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	21400	146000	125000	99.7	0.7	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	288000	409000	125000	96.8	1.0	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP6499: D30326-1A

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

13.4.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6499
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: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6499
Matrix Type: AQUEOUS

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

Prep Date: 12/16/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	136000	125000	108.8	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	125000	125000	100.0	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	124000	125000	99.2	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP6499: D30326-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

QC Batch ID: MP6499
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP6154/GN12960			umhos/cm	10008	10100	100.4	90-110%
pH	GN12910			su	8.00	7.97	99.6	99.3-100.7%

Associated Samples:
Batch GN12910: D30326-1
Batch GP6154: D30326-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D30326
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM FRU 297-32A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Redox Potential Vs H2	GN12915	D30325-1	mv	220	227	3.1	0-20%

Associated Samples:
Batch GN12915: D30326-1
(*) Outside of QC limits

Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D30326

Client: AMS

Immediate Client Services Action Required: No

Date / Time Received: 12/16/2011

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: D30326
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: XOM FRU 297-32A

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP13932/GN37265	0.40	0.0	mg/kg	40	42.0	105.0	80-120%
Chromium, Hexavalent	GP13932/GN37265			mg/kg	1290	1340	103.9	80-120%

Associated Samples:
Batch GP13932: D30326-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D30326
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: XOM FRU 297-32A

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP13932/GN37265	D30414-3	mg/kg	0.23	0.26	12.2	0-20%

Associated Samples:
Batch GP13932: D30326-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D30326
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: XOM FRU 297-32A

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP13932/GN37265	D30414-3	mg/kg	0.23	46.2	46.9	101.0	75-125%
Chromium, Hexavalent	GP13932/GN37265	D30414-3	mg/kg	0.23	1150	1320	115.0	75-125%

Associated Samples:
Batch GP13932: D30326-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits