

State of Colorado  
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 Phone: (303)894-2100 Fax: (303)894-2109



## SUNDRY NOTICE

Submit original plus one copy. This form is to be used for general, technical and environmental sundry information. For proposed or completed operations, describe in full on Technical Information Page (Page 2 of this form). Identify well or other facility by API Number or by OGCC Facility ID. Operator shall send an informational copy of all sundry notices for wells located in High Density Areas to the Local Government Designee (Rule 603b).

RECEIVED  
12/17/2012

1. OGCC Operator Number: 100264	4. Contact Name: Jessica Dooling
2. Name of Operator: XTO Energy Inc.	Phone: 970-675-4122
3. Address: PO Box 6501	Fax: 970-675-4150
City: Englewood State: CO Zip: 80155	
5. API Number: 05-103-08340	OGCC Facility ID Number: T23-18G
6. Well/Facility Name: Piceance Creek Unit	7. Well/Facility Number: T23-18G
8. Location (Qtr/Sec, Twp, Rng, Meridian): NESW, Sec 18, T2S, R96W, 6th PM	
9. County: Rio Blanco	10. Field Name: Piceance Creek
11. Federal, Indian or State Lease Number: COD052141	

Survey Plat	
Directional Survey	
Surface Eject Diagram	
Technical Info Page	X
Other Final Report	X

Complete the Attachment  
Checklist

OP OGCC

Location ID

# 315347

F23-18G

It's "F",  
not "T"

cal

<input type="checkbox"/> CHANGE OF LOCATION: Attach New Survey Plat (a change of surface qtr/qr is substantive and requires a new permit)	
Change of Surface Footage from Exterior Section Lines:	<input type="checkbox"/> FM/FSL <input type="checkbox"/> FEL/FWL
Change of Surface Footage to Exterior Section Lines:	<input type="checkbox"/>
Change of Bottomhole Footage from Exterior Section Lines:	<input type="checkbox"/>
Change of Bottomhole Footage to Exterior Section Lines:	<input type="checkbox"/> attach directional survey
Bottomhole location Qtr/Sec, Twp, Rng, Mer	
Latitude	Distance to nearest property line
Longitude	Distance to nearest bldg, public rd, utility or RR
Ground Elevation	Distance to nearest lease line
	Is location in a High Density Area (rule 603b)? Yes/No
	Distance to nearest well same formation
	Surface owner consultation date:
GPS DATA:	
Date of Measurement	PDOP Reading
	Instrument Operator's Name
<input type="checkbox"/> CHANGE SPACING UNIT	
Formation	Formation Code
Spacing order number	Unit Acreage
Unit configuration	
<input type="checkbox"/> Remove from surface bond	
Signed surface use agreement attached	
<input type="checkbox"/> CHANGE OF OPERATOR (prior to drilling):	
Effective Date:	
Plugging Bond: <input type="checkbox"/> Blanket <input type="checkbox"/> Individual	
<input type="checkbox"/> CHANGE WELL NAME	
From	NUMBER
To	
Effective Date	
<input type="checkbox"/> ABANDONED LOCATION:	
Was location ever built? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Is site ready for inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Date Ready for Inspection:	
<input type="checkbox"/> NOTICE OF CONTINUED SHUT IN STATUS	
Date well shut in or temporarily abandoned:	
Has Production Equipment been removed from site? <input type="checkbox"/> Yes <input type="checkbox"/> No	
MIT required if shut in longer than two years Date of last MIT	
<input type="checkbox"/> SPUD DATE:	
<input type="checkbox"/> REQUEST FOR CONFIDENTIAL STATUS (8 mos from date casing set)	
<input type="checkbox"/> SUBSEQUENT REPORT OF STAGE, SQUEEZE OR REMEDIAL CEMENT WORK	
*submit cbl and cement job summaries	
Method used	Cementing tool setting/perf depth
Cement volume	Cement top
Cement bottom	Date
<input type="checkbox"/> RECLAMATION: Attach technical page describing final reclamation procedures per Rule 1004.	
Final reclamation will commence on approximately	
<input type="checkbox"/> Final reclamation is completed and site is ready for inspection.	

## Technical Engineering/Environmental Notice

<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Report of Work Done
Approximate Start Date	Date Work Completed:
Details of work must be described in full on Technical Information Page (Page 2 must be submitted)	
<input type="checkbox"/> Intent to Recomplete (submit form 2)	<input type="checkbox"/> Request to Vent or Flare
<input type="checkbox"/> Change Drilling Plans	<input type="checkbox"/> Repair Well
<input type="checkbox"/> Gross Interval Changed?	<input type="checkbox"/> Rule 502 variance requested
<input type="checkbox"/> Casing/Cementing Program Change	<input checked="" type="checkbox"/> Other See Page 2
<input type="checkbox"/> E&P Waste Disposal	
<input type="checkbox"/> Beneficial Reuse of E&P Waste	
<input type="checkbox"/> Status Update/Change of Remediation Plans for Spills and Releases	

I hereby certify that the statements made on this form are, to the best of my knowledge, true, correct and complete.

Signed: Jessica Dooling Date: 12/17/2012 Email: Jessica\_dooling@xtoenergy.com  
Print Name: Jessica Dooling Title: Environmental Coordinator

OGCC Approved:

Title: FORDate: 12/18/2012

CONDITIONS OF APPROVAL, IF ANY:

Chris Caulfield  
EPS NW Region

Form 19 # 2524411  
spill report closure  
OK cal

TECHNICAL INFORMATION PAGE



FOR OGCC USE ONLY

1. OGCC Operator Number: 100264 API Number: 05-103-08340
2. Name of Operator: XTO Energy Inc. OGCC Facility ID #
3. Well/Facility Name: Piceance Creek Unit Well/Facility Number: T23-18G
4. Location (QtrQtr, Sec, Twp, Rng, Meridian): NESW, Sec 18, T2S, R96W, 6th PM

This form is to be completed whenever a Sundry Notice is submitted requiring detailed report of work to be performed or completed. This form shall be transmitted within 30 days of work completed as a "subsequent" report and must accompany Form 4, page 1.

5. DESCRIBE PROPOSED OR COMPLETED OPERATIONS

XTO Energy Inc. (XTO) herein requests No Further Action for the February 19, 2011 release of 45 bbls. produced water and 0.17 bbls. oil (Form 19 Tracking Number 2524411).

Completed remediation activities for impacted soil included offsite disposal and mix/blending with clean imported material (soils from Connell Pit in Meeker, CO). Confirmation samples were collected following remediation activities indicating the impacted area is in compliance with Table 910-1.

Attached is the Final Pump House Spill Remediation Report, including associated analytical, prepared by KRW Consulting.

October 31, 2011

ExxonMobil Production Company  
Corp-MI-3011  
P.O. Box 4358  
Houston, TX 77210-4358

Attn: J.D. McElhaney

Subject: Pump House Spill Remediation Report  
PCU F23-18G  
Section 18, Township 2 South, Range 96 West  
Piceance Creek Development Project; Rio Blanco County, Colorado  
COGCC Spill/Release No: 2524411  
KRW Project No. 1102-01A

Dear Mr. McElhaney:

As requested we have completed the environmental sampling and remediation activities at the subject site. The following report documents these activities.

## **Background**

A produced water and oil release occurred from within the pump house building at the subject location on February 19, 2011. The release was caused by a faulty produced water pipeline pump. Per ExxonMobil records approximately 45 barrels of produced water and 1 barrel of lubricating oil were released. Initial remediation efforts included the immediate shut down of the pump; the use of a vacuum truck to recover free liquids; and the isolation of the spilled fluids to prevent further soil impacts. Impacted soils and snow were excavated and placed in a temporary, lined containment area. Based on the terrain of the site and observations of stained soils/snow, the release primarily impacted the area directly outside of the building to the southwest. The released fluids then flowed down a road cut toward the northeast and into a natural drainage for about 150 ft where it eventually stopped. Refer to Figures 1 and 2 in for site location and aerial maps of the project area. Refer to Figure 3 for a site map and for the approximate release areas.

## **Environmental Assessment**

An initial "worst case" soil sample was collected from the release area on February 22, 2011 to assess the level of impact relative to COGCC Table 910-1 concentration levels. Based on these findings, additional assessment was conducted at the site on March 3, 2011. The release area was divided into five (5) different sampling zones based on topography and residual soil staining. Composite surface samples (0 to 6 inches) were collected from each of these different zones (see Figure 3). These composite samples were analyzed for TPH – Gas Range Organics (GRO); TPH – Diesel Range Organics (DRO); electrical conductivity (EC); Sodium Adsorption Ration (SAR); arsenic; and pH. In addition, discreet surface samples were collected immediately outside of the known release area to assist in delineating the lateral extent of the release. These samples were analyzed for TPH (GRO + DRO), BTEX,

EC, SAR, pH and arsenic. Background soil samples were collected immediately outside of the project disturbance area. The background samples were analyzed for EC, SAR, pH and arsenic.

### Findings and Remediation

The initial (worst case) sample collected from within the release area indicated elevated levels of TPH (3,873 mg/kg), pH (9.29) and arsenic (3.30 mg/kg) above Table 910-1 concentration levels. Laboratory analyses of samples collected from within the five (5) impacted zones indicated elevated levels above Table 910-1 concentration levels as described by the following:

Sample Zones (impacted Areas)	TPH (mg/kg)	pH	Arsenic (mg/kg)	SAR
Composite Area #1	4,008.3	9.12	4.90	-
Composite Area #2	-	9.10	4.60	-
Composite Area #3	-	9.04	3.80	-
Composite Area #4	519.2	-	5.20	-
Composite Area #5	582.6	9.20	4.20	13.9
Table 910-1 Concentration Levels	500	6 to 9	0.39	<12

(-) indicates results were below the Table 910-1 concentration levels.

Discreet samples indicated the following results which exceed Table 910-1 concentration levels:

Sample Location (lateral delineation samples)	TPH (mg/kg)	pH	Arsenic (mg/kg)
Discreet #1	-	-	3.10
Discreet #2	-	9.15	2.70
Discreet #3	-	9.06	5.00
Discreet #4	-	-	5.70
Discreet #5	-	9.09	5.10
Discreet #6	-	-	7.40
Discreet #7	-	-	5.60
Discreet #8	-	9.20	5.10
Discreet #9	-	-	4.60
Discreet #10	728.3	9.30	5.80
Discreet #11	-	-	4.20
Table 910-1 Concentration Levels	500	6 to 9 Max. Background (9.98)	0.39 Max. Background (6.27)

(-) indicates results were below the Table 910-1 concentration levels.

Laboratory analyses of the background samples indicated arsenic levels all above Table 910-1 concentration levels. Background arsenic levels ranged from 3.00 mg/kg to 5.70 mg/kg. Background laboratory analyses indicated a range of pH levels from 7.99 to 9.07. Note that COGCC allows the determination of allowable background concentrations based on a 10% variability factor, where the

maximum allowable level for a site is computed by multiplying the highest detected background value by 1.1. Using this computation allows for a maximum allowable level of arsenic of 6.27 mg/kg (5.70 x 1.1) and pH of 9.98 (9.07 x 1.1) for the subject site.

Based on these initial assessment findings and the allowable background levels calculated for the site, the primary constituent of concern within the release area was identified as TPH.

Due to the elevated TPH concentrations in Composite Area #1 (4,008.3 mg/kg), the decision was made to excavate and remove these impacted soils to an approved landfill facility. The soils were removed using a backhoe and initially stockpiled on plastic on-site. The excavated area was approximately 30 feet x 30 feet x 1 foot deep, located between the southwest end of the pump house building and the adjacent electrical building. Refer to Figure 1 for the area referenced. A composite confirmation soil sample was collected from the bottom of the excavation and analyzed for Table 910-1 constituents. Laboratory results indicated results all below Table 910-1 and/or allowable background levels. On June 16 2011, the stockpiled impacted material was transported off-site to Wray Gulch Landfill near Meeker, Colorado following proper waste approval and manifesting protocol. Approximately 35 cubic yards of clean backfill material was hauled from the Connell Pit (also near Meeker) on the trip back.

Since TPH levels in Composite Areas #4 (519.2 mg/kg) and #5 (582.6 mg/kg) were only slightly above Table 910-1 concentration levels (TPH: 500 mg/kg), the decision was made to mix/blend the surficial soils with underlying clean soils in both these areas. This area also included the area surrounding discrete sample D10 (TPH: 728.3 mg/kg). A small tractor with a roto-tiller type attachment, along with hand shoveling, was utilized to mix/blend both areas. Confirmation soil samples were collected on May 3, 2011 following these mix/blend activities. Laboratory results indicated TPH levels below Table 910-1 concentration levels with results of 143 mg/kg for Composite Area #4 and 41.30 mg/kg for Composite Area #5. After the mix/blending was completed straw wattles were placed for stormwater controls. Both areas were subsequently seeded and hydro-mulched.

A confirmation sample was also collected for SAR from Composite Area #5 on July 19, 2011 following the mix/blending and the mulching/seeding efforts. SAR for this post remediation sample was 2.31, down from the initial elevated level of 13.9.

TPH levels in Composite Areas #2 and #3 were below Table 910-1 concentration levels; no additional remediation action was necessary for these two areas.

It should be noted that discrete sample D6, located south of Composite Area #4, indicated an elevated arsenic level of 7.40 mg/kg (allowable background: 6.27 mg/kg). Based on the "worst case" sample result for arsenic (3.30 mg/kg) collected from the area of highest impact, it is unlikely that the elevated arsenic concentration in D6 is a remnant from the release. More than likely the elevated arsenic level is a factor of the naturally occurring variability in arsenic levels across the site area.

Refer to Table 1 for a complete summary of laboratory findings and to Appendix A for a full copy of laboratory reports. Refer to Appendix B for site photographs before and after remediation activities.

## Conclusions

Based on the results from the confirmation sampling, no additional remediation regarding the release at the subject site is recommended at this time.

Respectfully Submitted,

Dwayne Knudson  
Assistant Project Manager

Joe Hess, P.E.  
PCU Project Manager

## Attachments:

Figure 1 – Site Location Map

Figure 2 – 2009 Aerial Map

Figure 3 – Sample Locations Map with Select Soil Sample Results

Table 1 – Summary of Laboratory Findings

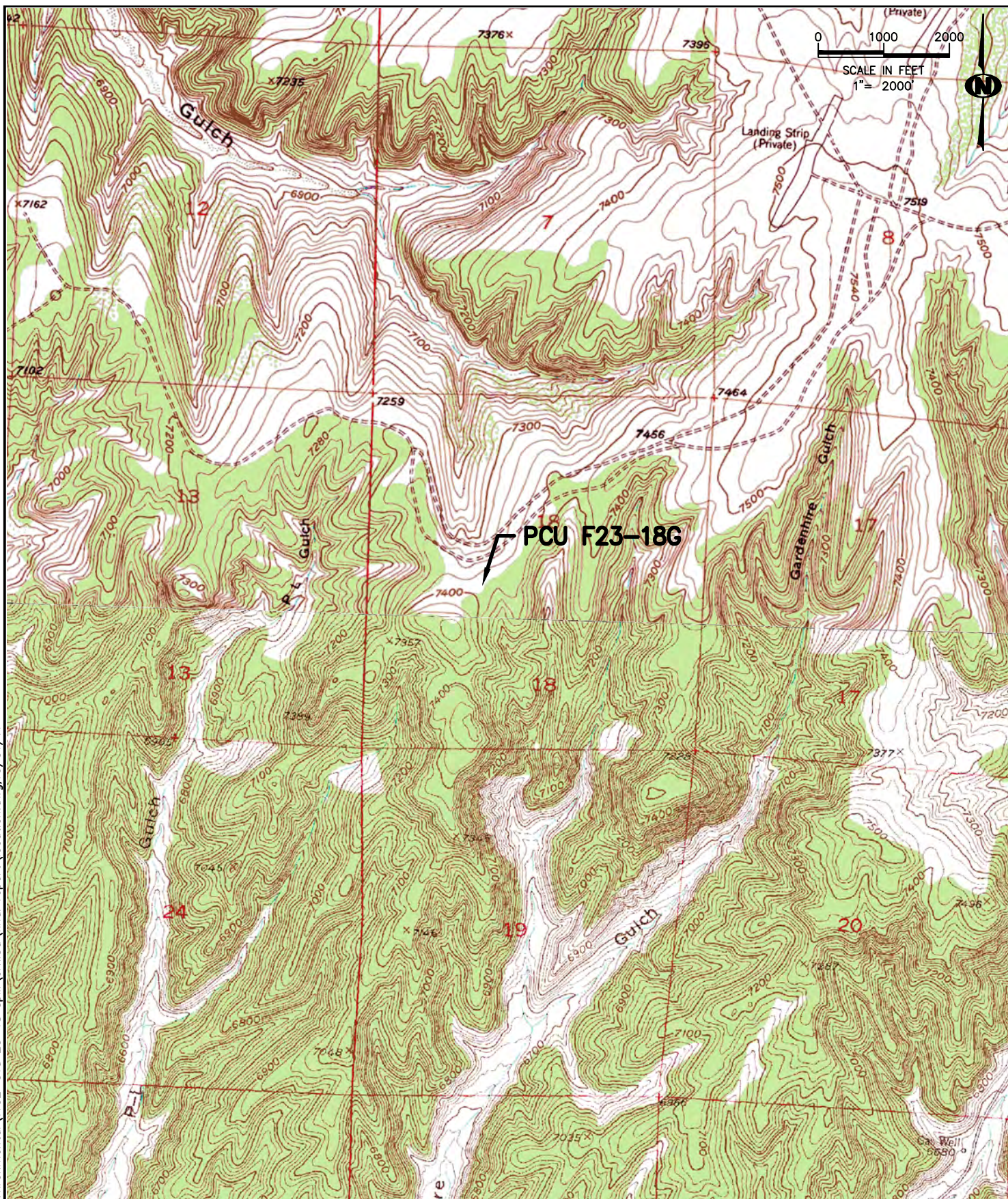
Appendix A – Laboratory Reports

Appendix B - Photographs

Cc: Nedra Kelly – ExxonMobil  
Tomme Lambert – Exxon Mobil



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DESIGNED: JH	CHECKED: JH	FIGURE 1
DATE: 10/31/11	DRAWN: DRF	
FILE NAME: location	SHEET NO. 1 of 3	
PROJECT NO. 1102-01A	SCALE: 1"=2000'	

NOTES: Subject site located in Section 18, T2S, R96W, of the 6th PM. Approximately N39°52'35", W108°12'44".	
DATE	REVISIONS

**KRW CONSULTING, INC.**  
8000 W. 14TH AVENUE, SUITE 200  
LAKEWOOD, COLORADO  
(303) 239-9011

FIGURE 1  
PICEANCE CREEK  
PCU F23-18G  
SITE LOCATION MAP  
  
PREPARED FOR EXXONMOBIL



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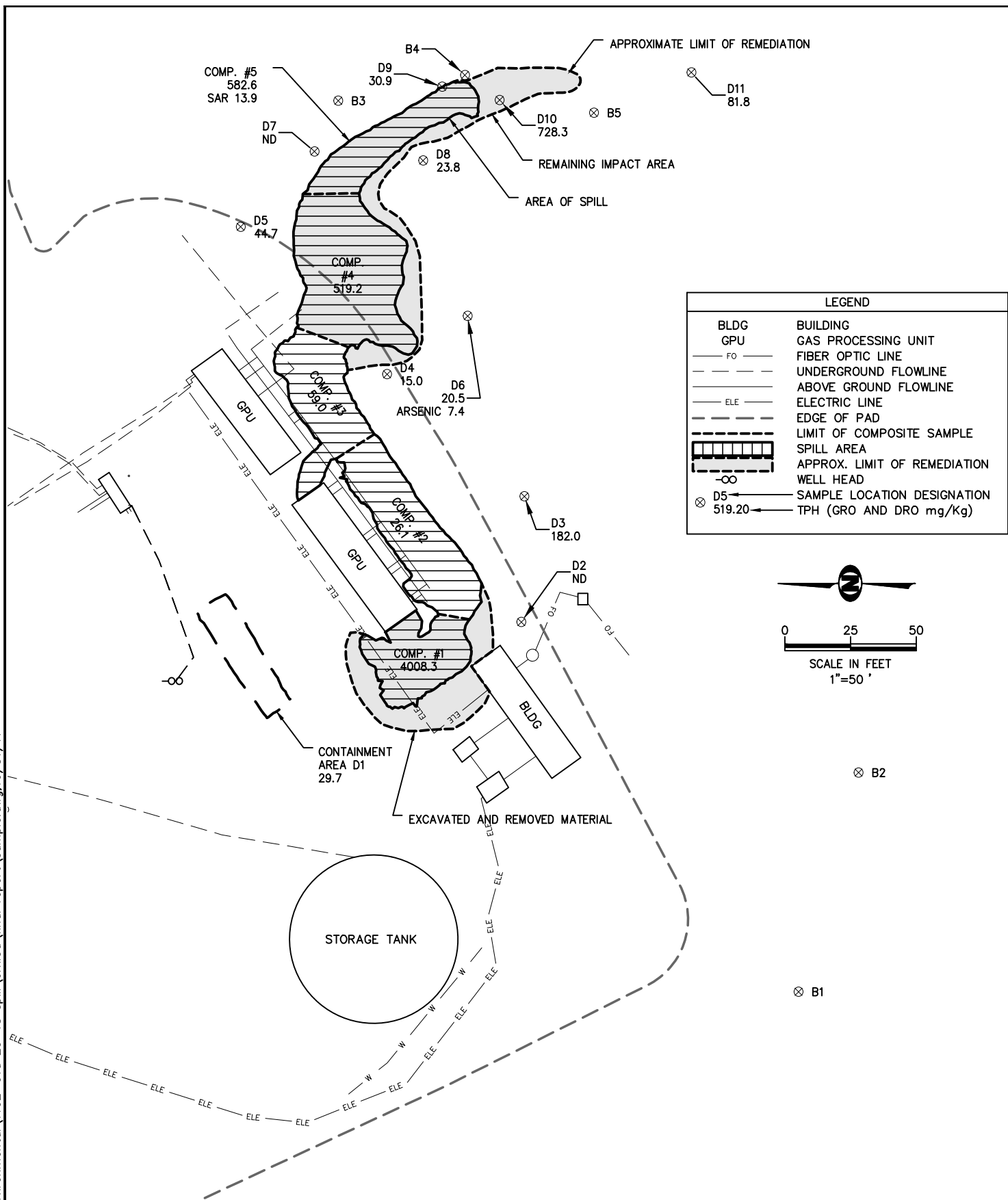


The underground utilities identified were field located and subsequently mapped (see as-built date) only to the accuracy of the underground locating equipment used. Other underground utilities may exist. The drawings provided should serve only as a reference. Prior to any excavation activity on or near this location, a "One-Call" and an area "Line Sweep" must be properly conducted.

DESIGNED: JH	CHECKED: JH	FIGURE 2	NOTES: Aerial photo from USDA field office. Flown September 14, 2009.		<b>KRW CONSULTING, INC.</b> 8000 W. 14TH AVENUE, SUITE 200 LAKEWOOD, COLORADO (303) 239-9011	FIGURE 2 PICEANCE CREEK PCU F23-18G AS-BUILT 12/4/09  PREPARED FOR EXXONMOBIL
DATE: 10/31/11	DRAWN: DRF					
FILE NAME: asbuilt		SHEET NO. 2 of 3	DATE	REVISIONS		
PROJECT NO. 1102-01A		SCALE: 1"=200'				



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DESIGNED: —	CHECKED: DK	FIGURE 3	NOTES:	<b>KRW CONSULTING, INC.</b> 8000 W. 14TH AVENUE, SUITE 200 LAKEWOOD, COLORADO (303) 239-9011	FIGURE 3 PICEANCE CREEK PCU F23-18G SITE MAP WITH SELECT SOIL SAMPLE RESULTS PREPARED FOR EXXON MOBIL
DATE: 10/31/11	DRAWN: DRF				
FILE NAME: sample					
PROJECT NO. 1102-01A	SHEET NO. 3 of 3	SCALE: 1"=50'	DATE		
			REVISIONS		

Table 1 - PCU F23-18G Spill Assessment Summary

Analytical Parameter  (with units)	Worst Case Sample Immediate Release Area (2-22-11)	Spill Area Composites (3-3-11)					Discreet Samples (3-3-11) (outside release area)											Background Samples (3-3-11)					Confirmation (4-28-11)	Confirmation (5-3-11)	Confirmation (5-3-11 and 7-19-11)	COGCC	Maximum Allowable Level (based on background)
		Composite 1	Composite 2	Composite 3	Composite 4	Composite 5	Discreet 1 (containment area)	Discreet 2	Discreet 3	Discreet 4	Discreet 5	Discreet 6	Discreet 7	Discreet 8	Discreet 9	Discreet 10	Discreet 11	BG #1	BG #2	BG #3	BG #4	BG #5	Table 910-1 Composite Area 1	Composite Area 4	Composite Area 5	Table 910-1 Allowable Levels	
TPH (GRO and DRO) (mg/Kg)	3,872.60	4,008.30	26.10	59.00	519.20	582.60	29.70	ND	182.00	15.00	44.70	20.50	ND	23.80	30.90	728.30	81.80	-	-	-	-	-	41.70	143.00	41.30	500	-
Benzene (mg/Kg)	0.11	0.11	ND	ND	ND	ND	ND	0.06	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	0.17	-
Toluene (mg/Kg)	0.89	0.70	ND	ND	0.15	ND	ND	0.14	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	0.170	-	-	85	-
Ethylbenzene (mg/Kg)	0.20	ND	ND	ND	0.04	0.14	ND	0.06	ND	ND	ND	ND	ND	ND	ND	0.04	ND	-	-	-	-	-	0.0378	-	-	100	-
Xylenes (total) (mg/Kg)	4.02	3.88	ND	ND	0.80	0.18	ND	0.06	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	0.117	-	-	175	-
Acenaphthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	1,000	-
Anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	1,000	-
Benzo(A)anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	0.22	-
Benzo(B)fluoranthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	0.22	-
Benzo(K)fluoranthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	2.2	-
Benzo(A)pyrene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	0.022	-
Chrysene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	22	-
Dibenzo(A,H)anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	0.022	-
Fluoranthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	1,000	-
Fluorene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	1,000	-
Indeno(1,2,3-C,D)pyrene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	0.22	-
Naphthalene (mg/Kg)	0.85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	23	-
Pyrene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	1,000	-
Electrical Conductivity (mmhos/cm)	1.48	0.45	0.32	1.45	1.61	1.78	0.79	1.73	0.45	0.63	0.41	0.16	1.14	2.09	0.41	0.94	0.61	0.36	0.31	0.42	0.36	0.30	1.89	-	-	<4or 2X bg	<4
Sodium Adsorption Ratio (SAR)	8.05	3.11	1.46	5.06	7.04	13.90	5.93	6.59	3.20	0.47	4.23	2.69	7.75	10.50	0.53	9.68	5.61	1.81	0.61	0.41	0.33	0.27	1.98	-	2.31	<12	<12
pH	9.29	9.12	9.10	9.04	8.99	9.20	8.46	9.15	9.06	8.54	9.09	8.49	8.99	9.20	8.98	9.30	8.92	9.07	8.16	8.12	8.19	7.99	8.96	-	-	6-9	9.98
Arsenic (mg/Kg)	3.30	4.90	4.60	3.80	5.20	4.20	3.10	2.70	5.00	5.70	5.10	7.40	5.60	5.10	4.60	5.80	4.20	4.80	5.70	5.60	4.80	3.00	5.20	-	-	0.39	6.27
Barium (mg/Kg)	133.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	289.00	-	-	15,000	-
Cadmium (mg/Kg)	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.2	-	-	70	-
Chromium (III) (mg/Kg)	16.40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46.10	-	-	120,000	-
Chromium (VI) (mg/Kg)	<0.44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.60	-	-	23	-
Copper (mg/Kg)	11.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.70	-	-	3,100	-
Lead (inorganic) (mg/Kg)	<5.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.50	-	-	400	-
Mercury (mg/Kg)	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.12	-	-	23	-
Nickel (mg/Kg)	27.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.40	-	-	1,600	-
Selenium (mg/Kg)	<5.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<6.2	-	-	390	-
Silver (mg/Kg)	<3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<3.7	-	-	390	-
Zinc (mg/Kg)	87.30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60.00	-	-	23,000	-

- Notes:  
 1) ND = not detectable to the laboratory detection limit.  
 2) Results highlighted in yellow exceed Table 910-1 parameters. Results highlighted in gray exceed Table 910-1, but are below maximum allowable levels based on background.  
 3) "-" indicates no tests were performed.



**APPENDIX A**  
**Laboratory Reports**



03/09/11

## Technical Report for

**KRW Consulting, Inc.**

**PCU 23-18 Spill**

**1102-01A**

**Accutest Job Number: D21334**

**Sampling Date: 02/22/11**

### Report to:

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

**Total number of pages in report: 132**



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.

A handwritten signature in black ink, appearing to read 'John Hamilton'.

**John Hamilton**  
**Laboratory Director**

**Client Service contact: Amanda Kissell 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: D21334

PCU 23-18 Spill  
Project No: 1102-01A

Sample Number	Collected		Matrix Code	Type	Client Sample ID
	Date	Time By			
D21334-1	02/22/11	13:00 DK	02/25/11	SO Soil	23-18 SPILL
D21334-1A	02/22/11	13:00 DK	02/25/11	SO Soil	23-18 SPILL

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

## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** KRW Consulting, Inc.

**Job No** D21334

**Site:** PCU 23-18 Spill

**Report Date** 3/9/2011 10:47:35 AM

On 02/25/2011, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2.7 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D21334 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:** V5V800

- All samples were analyzed within the recommended method holding time.
- Sample(s) D21350-3MS, D21350-3MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

### Extractables by GCMS By Method SW846 8270C BY SIM

**Matrix** SO

**Batch ID:** OP3212

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D21323-2MS, D21323-2MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

### Volatiles by GC By Method SW846 8015B

**Matrix** SO

**Batch ID:** GGB521

- All samples were analyzed within the recommended method holding time.
- Sample(s) D21322-3MS, D21322-3MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

### Extractables by GC By Method SW846-8015B

**Matrix** SO

**Batch ID:** OP3213

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D21323-1MS, D21323-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

## Metals By Method SW846 6010B

**Matrix** AQ

**Batch ID:** MP4128

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D21323-4AMS, D21323-4AMSD were used as the QC samples for the metals analysis.

**Matrix** SO

**Batch ID:** MP4113

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D21323-1MS, D21323-1MSD, D21323-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) and matrix spike duplicate (MSD) recovery(s) of Barium are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- The serial dilution RPD(s) for Cadmium, Selenium, Silver, Nickel, Zinc are outside control limits for sample MP4113-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP4113-SD1 for Zinc and Nickel: Serial dilution indicates possible matrix interference.

## Metals By Method SW846 6020

**Matrix** SO

**Batch ID:** MP4114

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D21323-1MS, D21323-1SDL, D21323-1MSD were used as the QC samples for the metals analysis.

## Metals By Method SW846 7471A

**Matrix** SO

**Batch ID:** MP4112

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D21190-1MSD, D21190-1MS were used as the QC samples for the metals analysis.
- The matrix spike (MS) and matrix spike duplicate (MSD) recovery(s) of Mercury are outside control limits. Spike recovery indicates possible matrix interference.
- The RPD(s) for the MS and MSD recoveries of Mercury are outside control limits for sample MP4112-S2. High RPD due to possible sample matrix or nonhomogeneity.

## Wet Chemistry By Method ASTM D1498-76M

**Matrix** SO

**Batch ID:** M:GN34244

- The data for ASTM D1498-76M meets quality control requirements.
- D21334-1 for Redox Potential Vs H2: Analysis performed at Accutest Laboratories, Marlborough, MA.

## Wet Chemistry By Method LADNR29B

**Matrix** SO

**Batch ID:** MP4128

- D21334-1A for Sodium Adsorption Ratio: Calculated as:  $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

## Wet Chemistry By Method SM19 2540B M

**Matrix** SO

**Batch ID:** GN8472

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

**Wet Chemistry By Method SW846 3060/7196A M****Matrix** SO**Batch ID:** R6507

- The data for SW846 3060/7196A M meets quality control requirements.
- D21334-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

**Wet Chemistry By Method SW846 3060A/7196A****Matrix** SO**Batch ID:** M:GP12685

- The data for SW846 3060A/7196A meets quality control requirements.
- D21334-1 for Chromium, Hexavalent: Analysis performed at Accutest Laboratories, Marlborough, MA.

**Wet Chemistry By Method SW846 9045C****Matrix** SO**Batch ID:** GN8437

- The following samples were run outside of holding time for method SW846 9045C: D21334-1

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** D21334

**Site:** KRWCCOL: PCU 23-18 Spill

**Report Date** 3/8/2011 9:16:02 AM

1 Sample was collected on 02/22/2011 and were received at Accutest on 02/25/2011 properly preserved, at 1.3 Deg. C and intact. These Samples received an Accutest job number of D21334. 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 ASTM D1498-76M

**Matrix** SO

**Batch ID:** GN34244

- Sample(s) D21334-1DUP were used as the QC samples for Redox Potential Vs H2.

### Wet Chemistry By Method SW846 3060A/7196A

**Matrix** SO

**Batch ID:** GP12685

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D21334-1MS, D21334-1DUP were used as the QC samples for Chromium, Hexavalent.
- RPD(s) for Duplicate for Chromium, Hexavalent are outside control limits for sample GP12685-D1. RPD acceptable due to low duplicate and sample concentrations.

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(D21334).

### Sample Results

### Report of Analysis

Accutest Laboratories

## Report of Analysis

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<b>Client Sample ID:</b>	23-18 SPILL	<b>Date Sampled:</b>	02/22/11
<b>Lab Sample ID:</b>	D21334-1	<b>Date Received:</b>	02/25/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	89.7
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	PCU 23-18 Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V13519.D	1	03/01/11	DC	n/a	n/a	V5V800
Run #2							

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

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	106	61	18	ug/kg	
108-88-3	Toluene	889	120	61	ug/kg	
100-41-4	Ethylbenzene	203	120	25	ug/kg	
	m,p-Xylene	3420	250	43	ug/kg	
95-47-6	o-Xylene	595	120	43	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	90%		70-130%
460-00-4	4-Bromofluorobenzene	103%		70-130%
17060-07-0	1,2-Dichloroethane-D4	107%		70-130%

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

<b>Client Sample ID:</b>	23-18 SPILL		
<b>Lab Sample ID:</b>	D21334-1	<b>Date Sampled:</b>	02/22/11
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b>	02/25/11
<b>Method:</b>	SW846 8270C BY SIM SW846 3540C	<b>Percent Solids:</b>	89.7
<b>Project:</b>	PCU 23-18 Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G03008.D	10	02/28/11	TMB	02/26/11	OP3212	E3G108
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	10.0 ml
Run #2		

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	740	690	ug/kg	
208-96-8	Acenaphthylene	ND	3700	770	ug/kg	
120-12-7	Anthracene	ND	740	480	ug/kg	
56-55-3	Benzo(a)anthracene	ND	740	730	ug/kg	
50-32-8	Benzo(a)pyrene	ND	740	470	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	740	540	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	740	460	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	740	470	ug/kg	
218-01-9	Chrysene	ND	740	370	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	740	550	ug/kg	
206-44-0	Fluoranthene	ND	740	460	ug/kg	
86-73-7	Fluorene	ND	740	730	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	740	490	ug/kg	
90-12-0	1-Methylnaphthalene	1020	740	660	ug/kg	
91-57-6	2-Methylnaphthalene	2610	3700	1100	ug/kg	J
91-20-3	Naphthalene	846	3700	820	ug/kg	J
85-01-8	Phenanthrene	ND	740	590	ug/kg	
129-00-0	Pyrene	ND	740	500	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	15%		10-193%
321-60-8	2-Fluorobiphenyl	93%		20-138%
1718-51-0	Terphenyl-d14	115%		17-174%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



Accutest Laboratories

## Report of Analysis

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<b>Client Sample ID:</b>	23-18 SPILL	<b>Date Sampled:</b>	02/22/11
<b>Lab Sample ID:</b>	D21334-1	<b>Date Received:</b>	02/25/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	89.7
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	PCU 23-18 Spill		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB9647.D	1	02/25/11	BR	n/a	n/a	GGB521
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)	52.6	12	12	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	90%		60-140%		

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

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

Accutest Laboratories

## Report of Analysis

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<b>Client Sample ID:</b>	23-18 SPILL			
<b>Lab Sample ID:</b>	D21334-1		<b>Date Sampled:</b>	02/22/11
<b>Matrix:</b>	SO - Soil		<b>Date Received:</b>	02/25/11
<b>Method:</b>	SW846-8015B SW846 3550B		<b>Percent Solids:</b>	89.7
<b>Project:</b>	PCU 23-18 Spill			

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FE6107.D	10	03/02/11	JB	02/26/11	OP3213	GFE301
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	3820	150	96	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	88%		63-130%		

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: 23-18 SPILL

Lab Sample ID: D21334-1

Matrix: SO - Soil

Project: PCU 23-18 Spill

Date Sampled: 02/22/11

Date Received: 02/25/11

Percent Solids: 89.7

## Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	3.3	0.42	mg/kg	5	03/01/11	03/01/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>6</sup>
Barium	133	1.0	mg/kg	1	03/01/11	03/01/11 JM	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>
Cadmium	< 1.0	1.0	mg/kg	1	03/01/11	03/01/11 JM	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>
Chromium	16.8	1.0	mg/kg	1	03/01/11	03/01/11 JM	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>
Copper	11.6	1.0	mg/kg	1	03/01/11	03/01/11 JM	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>
Lead	< 5.2	5.2	mg/kg	1	03/01/11	03/01/11 JM	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>
Mercury	< 0.10	0.10	mg/kg	1	02/28/11	03/01/11 JY	SW846 7471A <sup>2</sup>	SW846 7471A <sup>4</sup>
Nickel	27.5	3.1	mg/kg	1	03/01/11	03/01/11 JM	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>
Selenium	< 5.2	5.2	mg/kg	1	03/01/11	03/01/11 JM	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>
Silver	< 3.1	3.1	mg/kg	1	03/01/11	03/01/11 JM	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>
Zinc	87.3	3.1	mg/kg	1	03/01/11	03/01/11 JM	SW846 6010B <sup>3</sup>	SW846 3050B <sup>5</sup>

(1) Instrument QC Batch: MA1350

(2) Instrument QC Batch: MA1351

(3) Instrument QC Batch: MA1352

(4) Prep QC Batch: MP4112

(5) Prep QC Batch: MP4113

(6) Prep QC Batch: MP4114

RL = Reporting Limit

## Report of Analysis

**Client Sample ID:** 23-18 SPILL**Lab Sample ID:** D21334-1**Matrix:** SO - Soil**Project:** PCU 23-18 Spill**Date Sampled:** 02/22/11**Date Received:** 02/25/11**Percent Solids:** 89.7**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent <sup>a</sup>	< 0.44	0.44	mg/kg	1	03/07/11 15:01	AMA	SW846 3060A/7196A
Chromium, Trivalent <sup>b</sup>	16.4	1.4	mg/kg	1	03/07/11 15:01	AMA	SW846 3060/7196A M
Redox Potential Vs H2 <sup>a</sup>	284		mv	1	03/01/11	AMA	ASTM D1498-76M
Solids, Percent	89.7		%	1	03/01/11	JK	SM19 2540B M
Specific Conductivity	1480	1.0	umhos/cm	1	03/02/11	JD	DEPT.OF AG, BOOK N9
pH	9.29		su	1	02/25/11 14:20	JK	SW846 9045C

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

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

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	23-18 SPILL	<b>Date Sampled:</b>	02/22/11
<b>Lab Sample ID:</b>	D21334-1A	<b>Date Received:</b>	02/25/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	89.7
<b>Project:</b>	PCU 23-18 Spill		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	44.7	2.0	mg/l	1	03/02/11	03/02/11 JY	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Magnesium	13.4	1.0	mg/l	1	03/02/11	03/02/11 JY	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Sodium	239	2.0	mg/l	1	03/02/11	03/02/11 JY	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>

(1) Instrument QC Batch: MA1358  
(2) Prep QC Batch: MP4128

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	23-18 SPILL	<b>Date Sampled:</b>	02/22/11
<b>Lab Sample ID:</b>	D21334-1A	<b>Date Received:</b>	02/25/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	89.7
<b>Project:</b>	PCU 23-18 Spill		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	8.05		ratio	1	03/02/11 14:25	JY	LADNR29B

(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 #	Sortie Order Control #
Accutest Quote #	Accutest Job # <b>D21334</b>
Requested Analysis (see TEST CODE sheet)	
Matrix Codes	
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	
LAB USE ONLY	

Client / Reporting Information		Project Information	
Company Name <b>KRW Consulting</b>	Project Name <b>PCU 23-18 Spill</b>	Billing Information (If different from Report to)	
Street Address <b>8000 W. 14th Ave Ste 200</b>	Street	Company Name	
City State Zip <b>Lakewood CO 80244</b>	City	Street Address	
Project Contact <b>Dwayne Knudson</b>	E-mail	City State Zip	
Phone # <b>970-675-4066</b>	Fax # <b>3-239-0795</b>	Client PO#	
Sample(s) Name(s) <b>Dwayne Knudson</b>	Phone # <b>970-675-4066</b>	Project Manager <b>Joe Hess</b>	
Field ID / Point of Collection <b>23-18 Spill</b>	MEQ/IDI Vial #	Date <b>2/24/11</b>	Time <b>1300</b>
		Sampled by <b>DK</b>	Matrix <b>SO</b>
		# of bottles <b>5</b>	
		HC	NOH
		HN03	HN04
		HN05	HN06
		DI Water	MEQ
		ENCORE	Biocide

Turnaround Time (Business days)	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)	<input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format <input type="checkbox"/> PDF
<input checked="" type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> Std. 5 Business Days (By Contract only) <input type="checkbox"/> 5 Day R/SH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY		Commercial "A" = Results Only Commercial "B" = Results + QC Summary	

Comments / Special Instructions
Email Reports to: <b>gknell@krcconsulting.com</b> <b>dknudson@</b> <b>jhess@</b>

Sample Custody must be documented below each time samples change possession, including courier delivery.			
Relinquished by Sampler <b>1 Dwayne Knudson</b>	Date Time <b>2/23/11 1200</b>	Received By <b>1 Ted EX</b>	Date Time <b>2/23/11 1200</b>
Relinquished by Sampler	Date Time	Received By	Date Time
Relinquished by Sampler	Date Time	Received By	Date Time
Relinquished by Sampler	Date Time	Received By	Date Time
Custody Seal #	Intact	Preserved where applicable	On Ice
	Not Intact		Cooler Temp. <b>2.7</b>

**D21334: Chain of Custody**

**Page 1 of 2**



## Accutest Laboratories Sample Receipt Summary

**Accutest Job Number:** D21334

**Client:** KRW CONSULTING

**Immediate Client Services Action Required:** No

**Date / Time Received:** 2/25/2011 10:20:00 AM

**No. Coolers:** 1

**Client Service Action Required at Login:** No

**Project:** PCU 23-18SPILL

**Airbill #'s:** UPS

<b>Cooler Security</b>	<b>Y</b>	<b>or</b>	<b>N</b>		<b>Y</b>	<b>or</b>	<b>N</b>
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"/>

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

<b>Quality Control Preservation</b>	<b>Y</b>	<b>or</b>	<b>N</b>	<b>N/A</b>
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"/>

<b>Sample Integrity - Documentation</b>	<b>Y</b>	<b>or</b>	<b>N</b>
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"/>

<b>Sample Integrity - Condition</b>	<b>Y</b>	<b>or</b>	<b>N</b>
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

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

Comments

 Accutest Laboratories  
 V:(303) 425-6021

 4036 Youngfield Street  
 F: (303) 425-6854

 Wheat Ridge, CO  
 www.accutest.com

## GC/MS Volatiles

5

### QC Data Summaries

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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:** D21334**Account:** KRWCCOL KRW Consulting, Inc.**Project:** PCU 23-18 Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V800-MB1	5V13501.D	1	03/01/11	DC	n/a	n/a	V5V800

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

D21334-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	15	ug/kg	
100-41-4	Ethylbenzene	ND	100	20	ug/kg	
108-88-3	Toluene	ND	100	50	ug/kg	
	m,p-Xylene	ND	200	35	ug/kg	
95-47-6	o-Xylene	ND	100	35	ug/kg	

CAS No.	Surrogate Recoveries	Limits
2037-26-5	Toluene-D8	96% 70-130%
460-00-4	4-Bromofluorobenzene	89% 70-130%
17060-07-0	1,2-Dichloroethane-D4	116% 70-130%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D21334

**Account:** KRWCCOL KRW Consulting, Inc.

**Project:** PCU 23-18 Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V800-BS1	5V13502.D	1	03/01/11	DC	n/a	n/a	V5V800

The QC reported here applies to the following samples:

Method: SW846 8260B

D21334-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	54.6	109	68-130
100-41-4	Ethylbenzene	50	51.7	103	70-130
108-88-3	Toluene	50	47.4	95	70-130
	m,p-Xylene	50	47.6	95	53-130
95-47-6	o-Xylene	50	45.9	92	61-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	95%	70-130%
460-00-4	4-Bromofluorobenzene	102%	70-130%
17060-07-0	1,2-Dichloroethane-D4	108%	70-130%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D21334  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** PCU 23-18 Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D21350-3MS	5V13504.D	1	03/01/11	DC	n/a	n/a	V5V800
D21350-3MSD	5V13505.D	1	03/01/11	DC	n/a	n/a	V5V800
D21350-3	5V13503.D	1	03/01/11	DC	n/a	n/a	V5V800

The QC reported here applies to the following samples:

Method: SW846 8260B

D21334-1

CAS No.	Compound	D21350-3 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3210	3730	116	3820	119	2	55-140/30
100-41-4	Ethylbenzene	ND		3210	3440	107	3540	110	3	56-139/30
108-88-3	Toluene	ND		3210	3140	98	3230	101	3	57-144/30
	m,p-Xylene	ND		3210	3180	99	3310	103	4	47-130/30
95-47-6	o-Xylene	ND		3210	3070	96	3170	99	3	51-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D21350-3	Limits
2037-26-5	Toluene-D8	92%	91%	90%	70-130%
460-00-4	4-Bromofluorobenzene	109%	109%	96%	70-130%
17060-07-0	1,2-Dichloroethane-D4	111%	106%	115%	70-130%



GC/MS Volatiles

Raw Data



## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5030111.S\  
 Data File : 5V13519.D  
 Acq On : 1 Mar 2011 7:51 pm  
 Operator : DONC  
 Sample : D21334-1, 50X  
 Misc : MS1876,V5V800,5.018,,100,5,1  
 ALS Vial : 21 Sample Multiplier: 1

Quant Time: Mar 02 08:08:45 2011  
 Quant Method : C:\msdchem\1\METHODS\V5hsl744tvmh744.M  
 Quant Title : 8260  
 QLast Update : Mon Jan 24 12:30:33 2011  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	257142	50.00	ug/l	0.00
31) 1,4-Difluorobenzene	12.446	114	366694	50.00	ug/l	0.00
48) Chlorobenzene-d5	15.095	117	455552	50.00	ug/l	0.00
63) 1,4-Dichlorobenzene-d4	17.070	152	335544	50.00	ug/l	0.00

## System Monitoring Compounds

30) 1,2-Dichloroethane-d4	12.024	102	30913	53.65	ug/l	-0.01
Spiked Amount	50.000	Range	70 - 130	Recovery	= 107.30%	
55) Toluene-d8	13.850	98	595375	45.02	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	= 90.04%	
59) 4-Bromofluorobenzene	16.042	95	287238	51.40	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	= 102.80%	

## Target Compounds

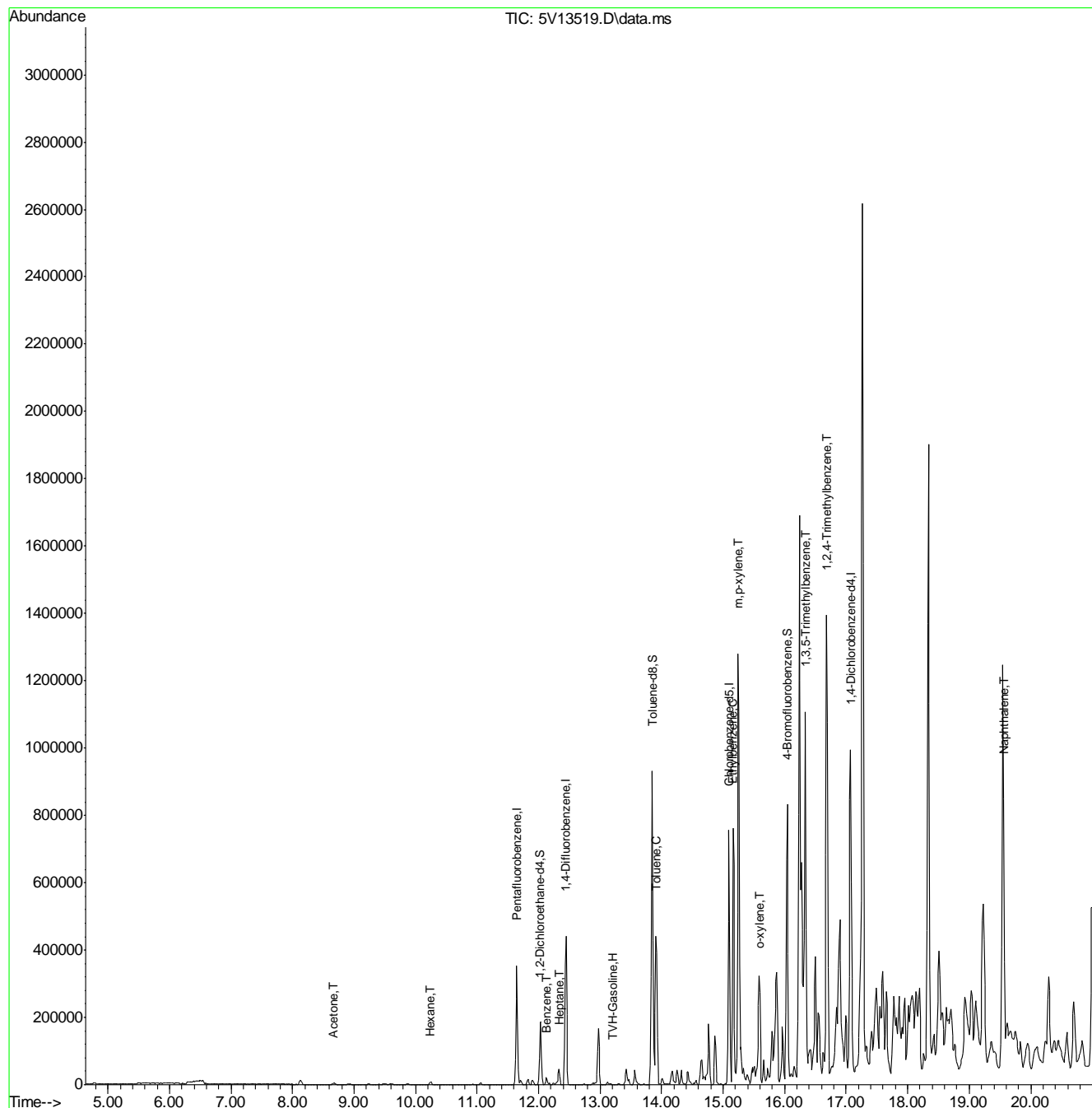
						Qvalue
1) TVH-Gasoline	13.210	TIC	13933579m	649.67	ug/l	
16) Acetone	8.667	58	2188	10.66	ug/l	# 77
37) Hexane	10.243	57	4422	1.93	ug/l	100
39) Heptane	12.332	43	16465	3.21	ug/l	98
45) Benzene	12.126	78	17915	1.73	ug/l	100
56) Toluene	13.907	92	131973	14.51	ug/l	99
58) Ethylbenzene	15.163	91	55901	3.31	ug/l	99
61) m,p-xylene	15.243	106	412753	55.79	ug/l	94
62) o-xylene	15.597	106	72200	9.71	ug/l	98
65) 1,3,5-Trimethylbenzene	16.339	105	649033	37.66	ug/l	97
66) 1,2,4-Trimethylbenzene	16.682	105	849105	45.82	ug/l	97
72) Naphthalene	19.559	128	149031	10.50	ug/l	100

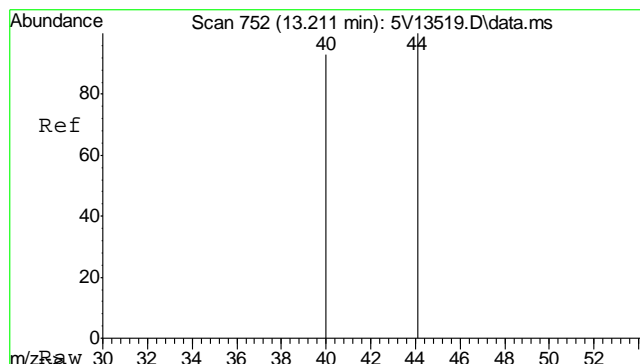
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

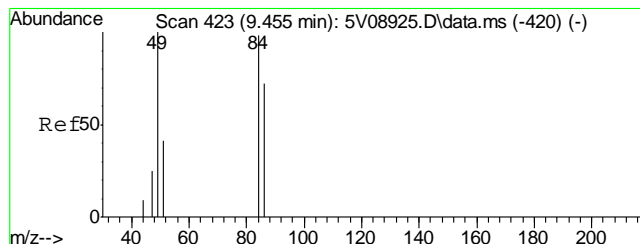
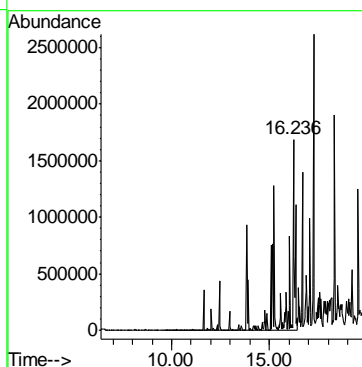
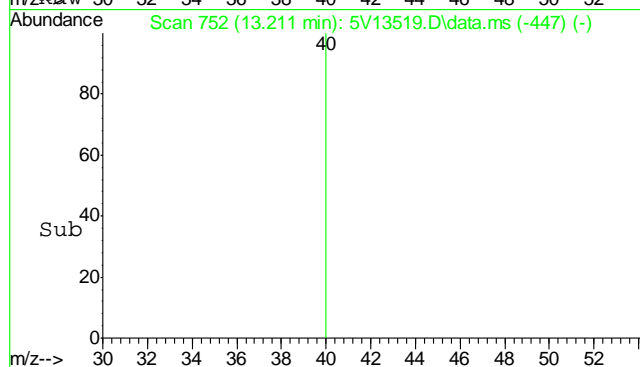
Data Path : C:\msdchem\1\DATA\V5030111.S\  
Data File : 5V13519.D  
Acq On : 1 Mar 2011 7:51 pm  
Operator : DONC  
Sample : D21334-1, 50X  
Misc : MS1876,V5V800,5.018,,100,5,1  
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Mar 02 08:08:45 2011  
Quant Method : C:\msdchem\1\METHODS\V5hs1744tvh744.M  
Quant Title : 8260  
QLast Update : Mon Jan 24 12:30:33 2011  
Response via : Initial Calibration



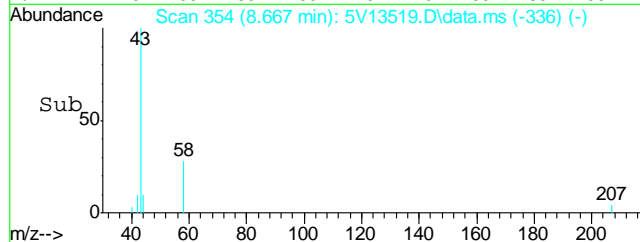
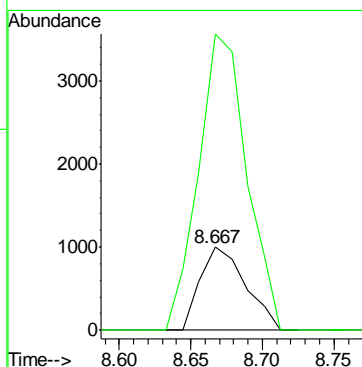
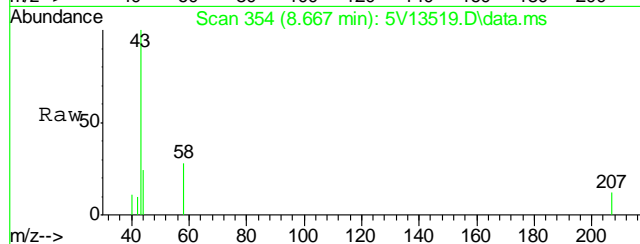


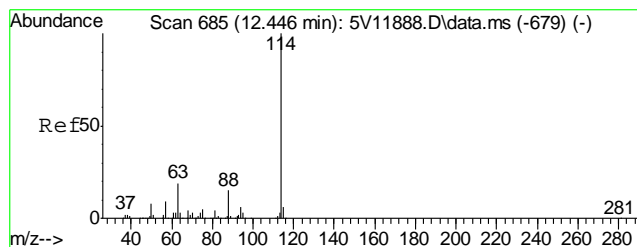
#1  
TVH-Gasoline  
Concen: 649.67 ug/l m  
RT: 13.210 min Scan# 752  
Delta R.T. 0.000 min  
Lab File: 5V13519.D  
Acq: 1 Mar 2011 7:51 pm  
Tgt Ion:TIC Resp:13933579



#16  
Acetone  
Concen: 10.66 ug/l  
RT: 8.667 min Scan# 354  
Delta R.T. 0.000 min  
Lab File: 5V13519.D  
Acq: 1 Mar 2011 7:51 pm

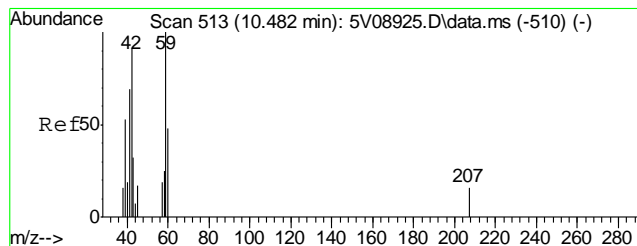
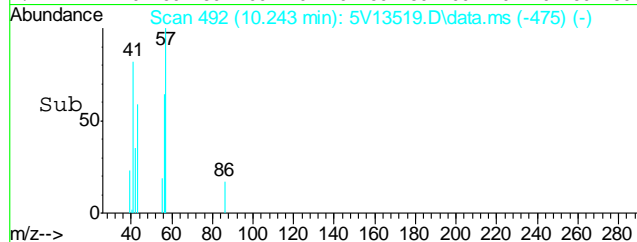
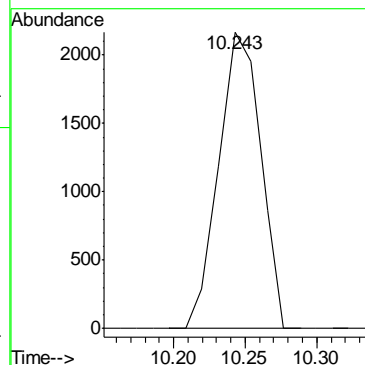
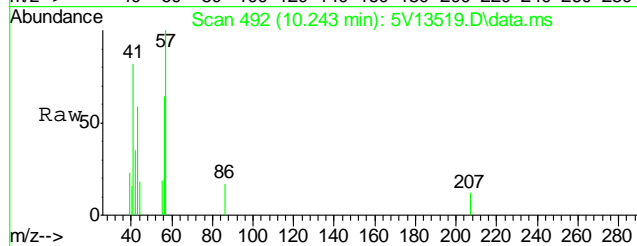
Tgt Ion: 58 Resp: 2188  
Ion Ratio Lower Upper  
58 100  
43 380.8 313.1 353.1#





#37  
Hexane  
Concen: 1.93 ug/l  
RT: 10.243 min Scan# 492  
Delta R.T. -0.011 min  
Lab File: 5V13519.D  
Acq: 1 Mar 2011 7:51 pm

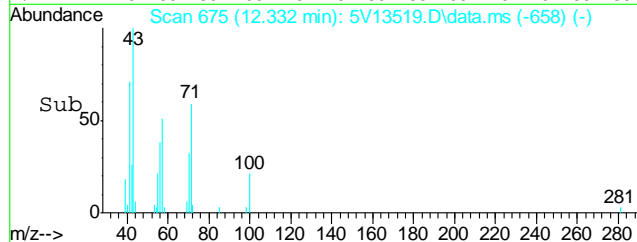
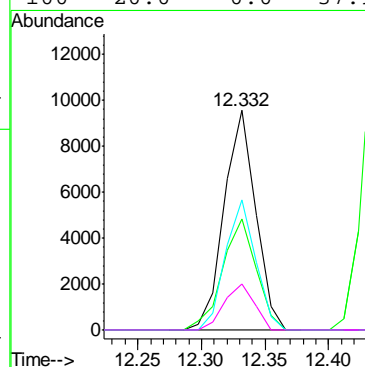
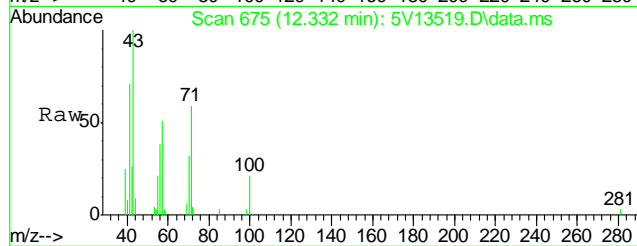
Tgt Ion: 57 Resp: 4422

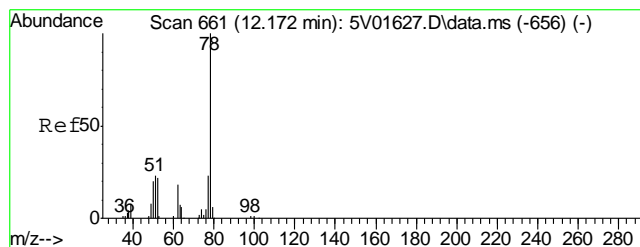


#39  
Heptane  
Concen: 3.21 ug/l  
RT: 12.332 min Scan# 675  
Delta R.T. -0.000 min  
Lab File: 5V13519.D  
Acq: 1 Mar 2011 7:51 pm

Tgt Ion: 43 Resp: 16465

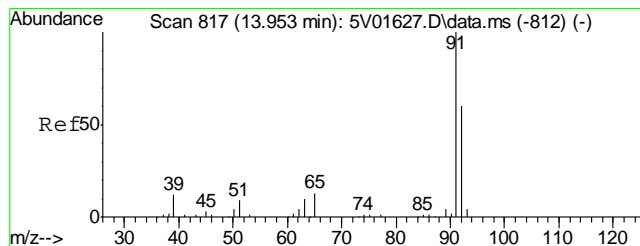
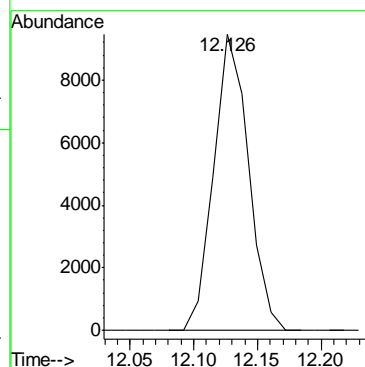
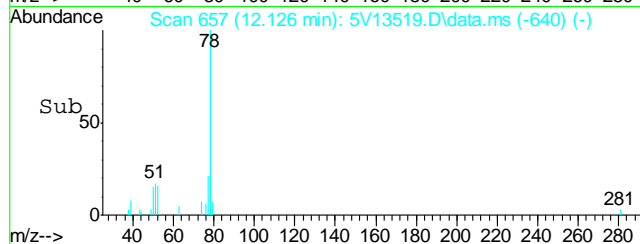
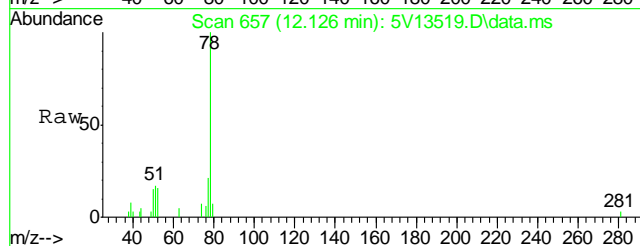
Ion	Ratio	Lower	Upper
43	100		
57	53.9	32.1	72.1
71	56.6	35.9	75.9
100	20.0	0.0	37.9





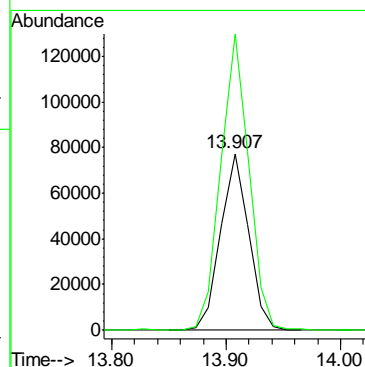
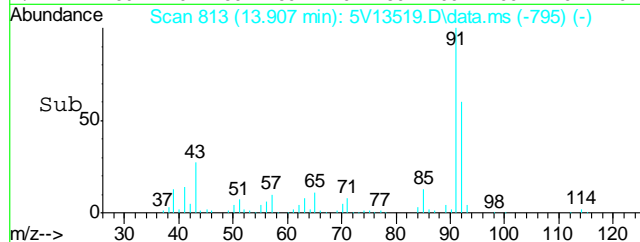
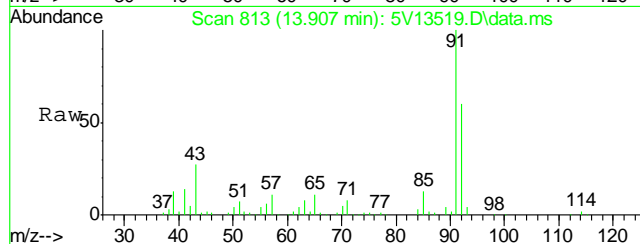
#45  
Benzene  
Concen: 1.73 ug/l  
RT: 12.126 min Scan# 657  
Delta R.T. -0.000 min  
Lab File: 5V13519.D  
Acq: 1 Mar 2011 7:51 pm

Tgt Ion: 78 Resp: 17915

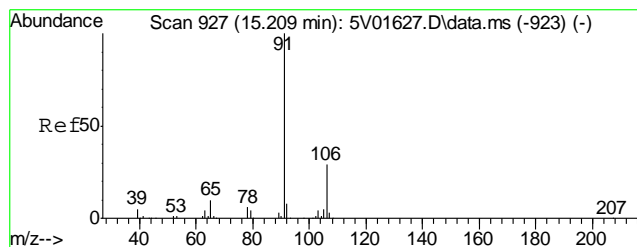


#56  
Toluene  
Concen: 14.51 ug/l  
RT: 13.907 min Scan# 813  
Delta R.T. 0.000 min  
Lab File: 5V13519.D  
Acq: 1 Mar 2011 7:51 pm

Tgt Ion: 92 Resp: 131973  
Ion Ratio Lower Upper  
92 100  
91 168.2 146.5 186.5

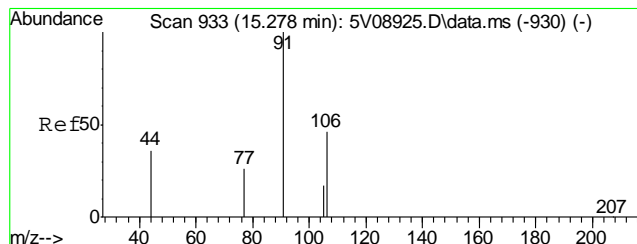
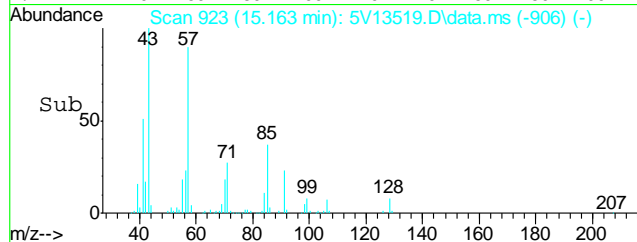
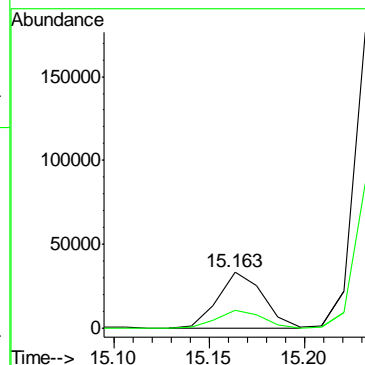
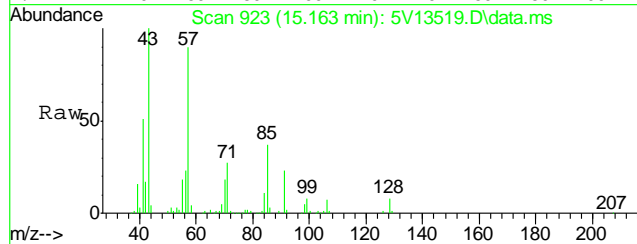






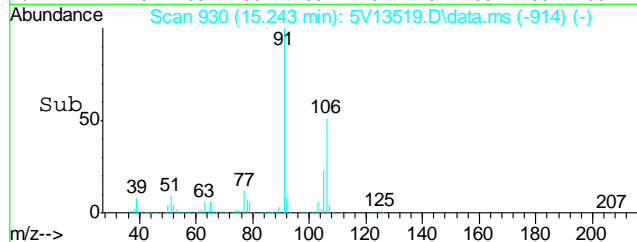
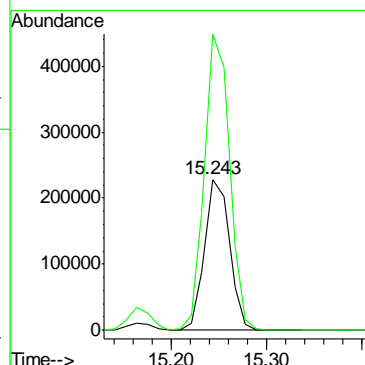
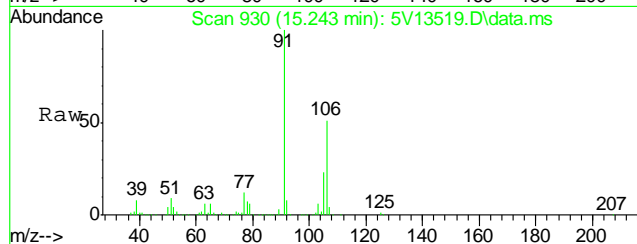
#58  
Ethylbenzene  
Concen: 3.31 ug/l  
RT: 15.163 min Scan# 923  
Delta R.T. -0.000 min  
Lab File: 5V13519.D  
Acq: 1 Mar 2011 7:51 pm

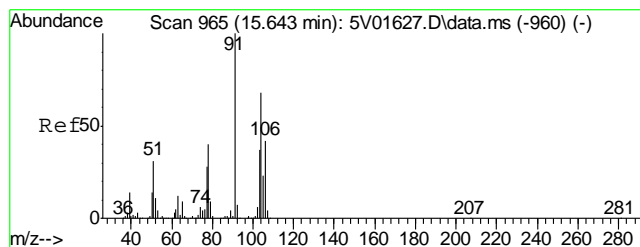
Tgt Ion: 91 Resp: 55901  
Ion Ratio Lower Upper  
91 100  
106 31.7 12.1 52.1



#61  
m,p-xylene  
Concen: 55.79 ug/l  
RT: 15.243 min Scan# 930  
Delta R.T. -0.012 min  
Lab File: 5V13519.D  
Acq: 1 Mar 2011 7:51 pm

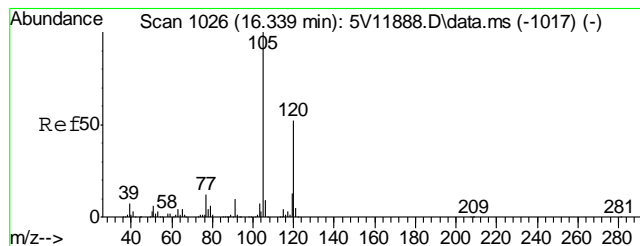
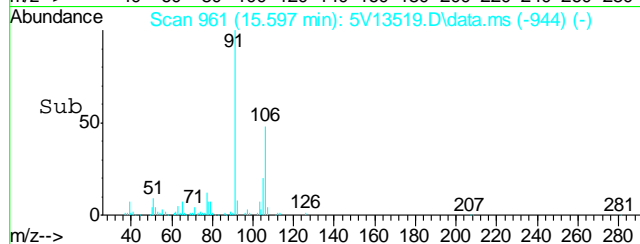
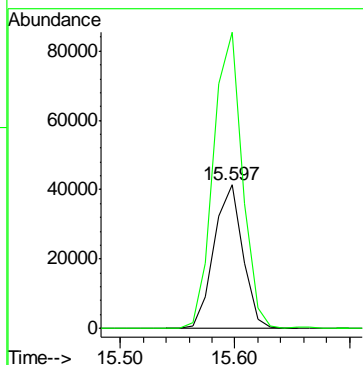
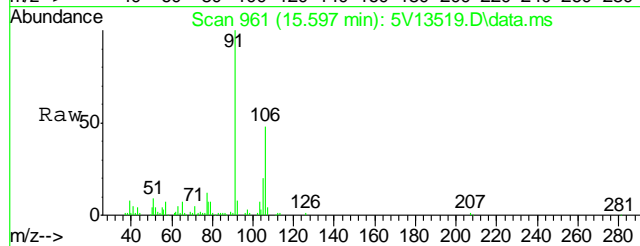
Tgt Ion: 106 Resp: 412753  
Ion Ratio Lower Upper  
106 100  
91 197.8 169.4 209.4





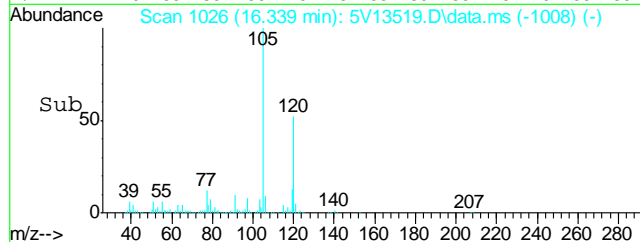
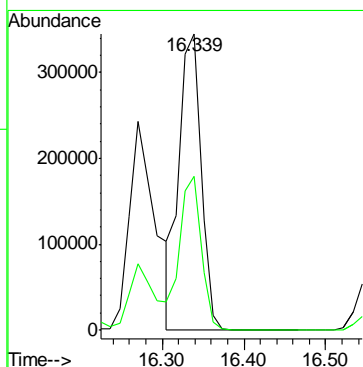
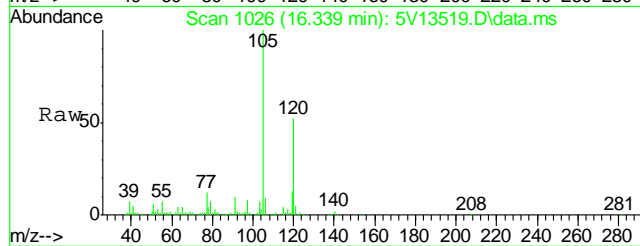
#62  
o-xylene  
Concen: 9.71 ug/l  
RT: 15.597 min Scan# 961  
Delta R.T. -0.000 min  
Lab File: 5V13519.D  
Acq: 1 Mar 2011 7:51 pm

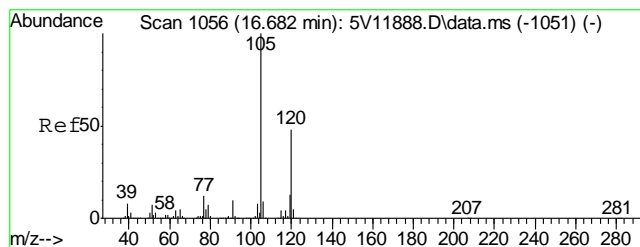
Tgt Ion	Ratio	Lower	Upper
106	100		
91	207.4	162.9	244.3



#65  
1,3,5-Trimethylbenzene  
Concen: 37.66 ug/l  
RT: 16.339 min Scan# 1026  
Delta R.T. 0.000 min  
Lab File: 5V13519.D  
Acq: 1 Mar 2011 7:51 pm

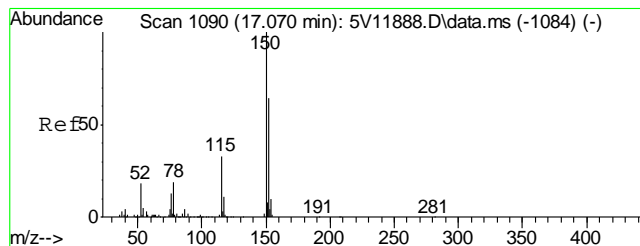
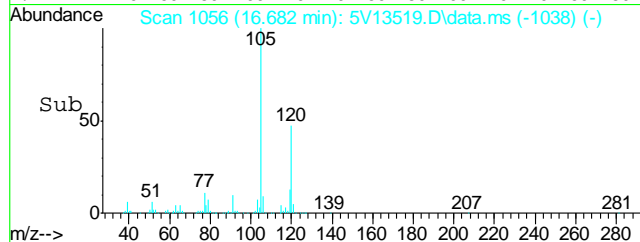
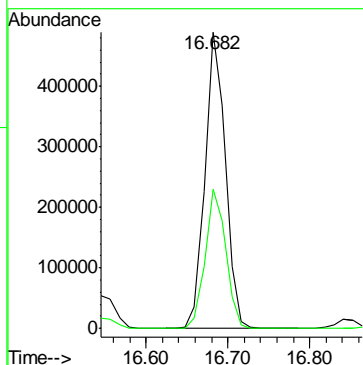
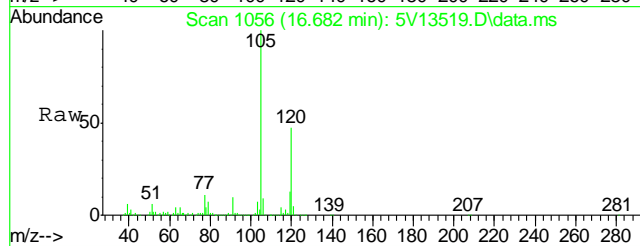
Tgt Ion	Ratio	Lower	Upper
105	100		
120	50.4	41.8	62.8





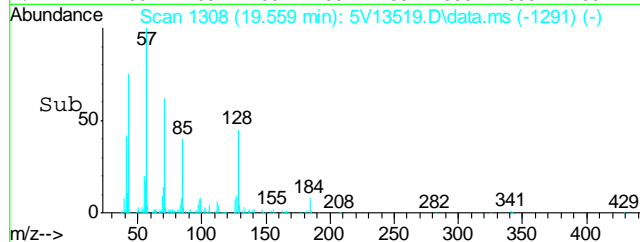
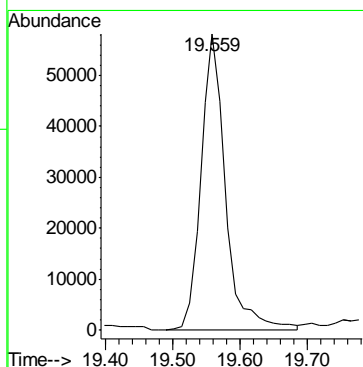
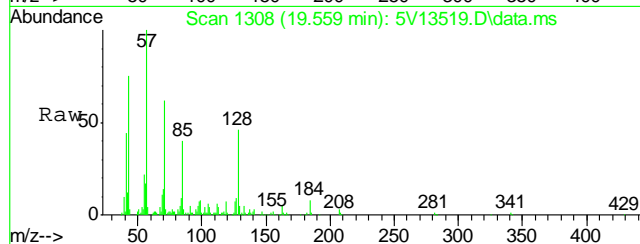
#66  
1,2,4-Trimethylbenzene  
Concen: 45.82 ug/l  
RT: 16.682 min Scan# 1056  
Delta R.T. 0.001 min  
Lab File: 5V13519.D  
Acq: 1 Mar 2011 7:51 pm

Tgt Ion	Ratio	Lower	Upper
105	100		
120	47.4	39.3	58.9



#72  
Naphthalene  
Concen: 10.50 ug/l  
RT: 19.559 min Scan# 1308  
Delta R.T. -0.000 min  
Lab File: 5V13519.D  
Acq: 1 Mar 2011 7:51 pm

Tgt Ion	Ratio	Lower	Upper
128	100		
150	100		



## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5030111.S\  
 Data File : 5V13501.D  
 Acq On : 1 Mar 2011 10:26 am  
 Operator : DONC  
 Sample : MB1  
 Misc : MS1876,V5V800,5,,100,5,1  
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 02 07:39:36 2011  
 Quant Method : C:\msdchem\1\METHODS\V5hsl744tvh744.M  
 Quant Title : 8260  
 QLast Update : Mon Jan 24 12:30:33 2011  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	298098	50.00	ug/l	0.00
31) 1,4-Difluorobenzene	12.446	114	438892	50.00	ug/l	0.00
48) Chlorobenzene-d5	15.095	117	515505	50.00	ug/l	0.00
63) 1,4-Dichlorobenzene-d4	17.070	152	350438	50.00	ug/l	0.00

## System Monitoring Compounds

30) 1,2-Dichloroethane-d4	12.035	102	38592	57.96	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	115.92%
55) Toluene-d8	13.850	98	716967	47.91	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	95.82%
59) 4-Bromofluorobenzene	16.043	95	282645	44.70	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	89.40%

## Target Compounds

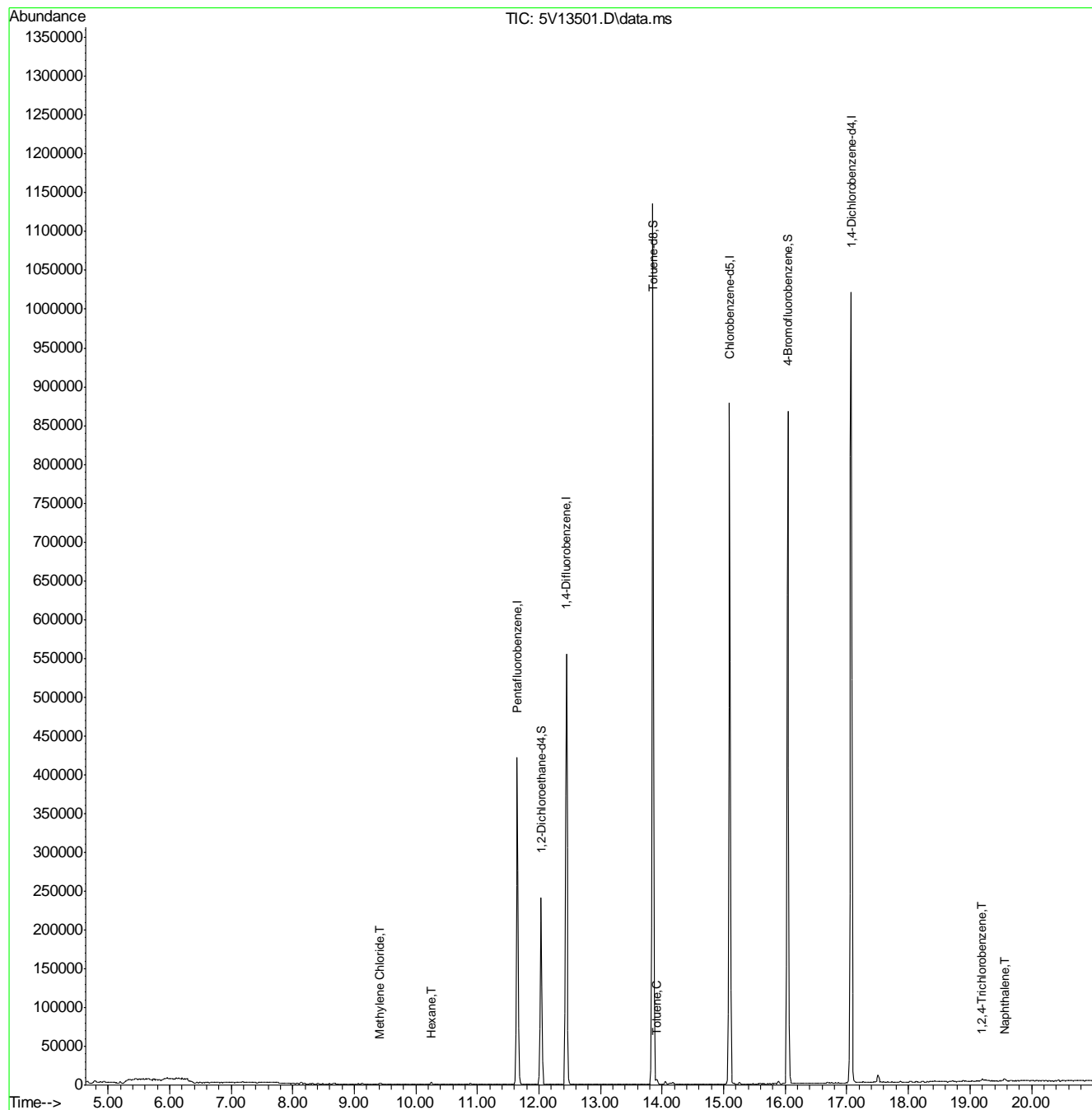
						Qvalue
15) Methylene Chloride	9.409	84	682	0.21	ug/l	# 73
37) Hexane	10.254	57	949	1.17	ug/l	100
56) Toluene	13.908	92	2374	0.23	ug/l	99
71) 1,2,4-Trichlorobenzene	19.194	180	1668	0.21	ug/l	# 82
72) Naphthalene	19.559	128	4661	0.31	ug/l	100

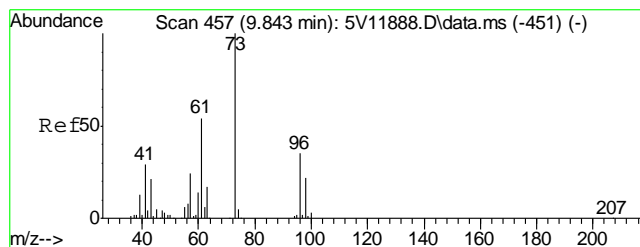
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5030111.S\  
Data File : 5V13501.D  
Acq On : 1 Mar 2011 10:26 am  
Operator : DONC  
Sample : MB1  
Misc : MS1876,V5V800,5,,100,5,1  
ALS Vial : 3 Sample Multiplier: 1

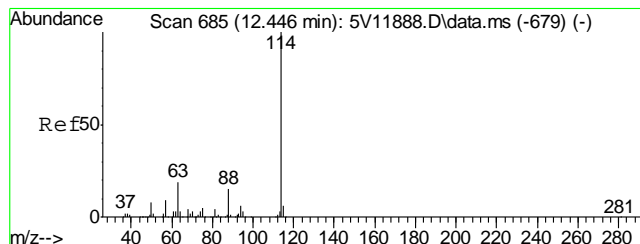
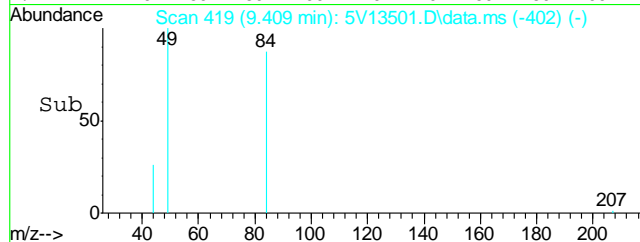
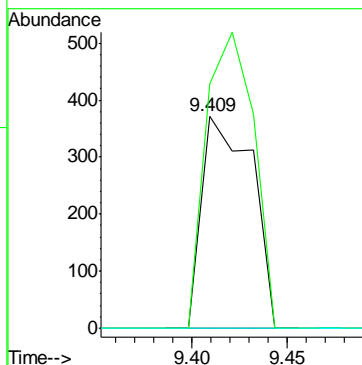
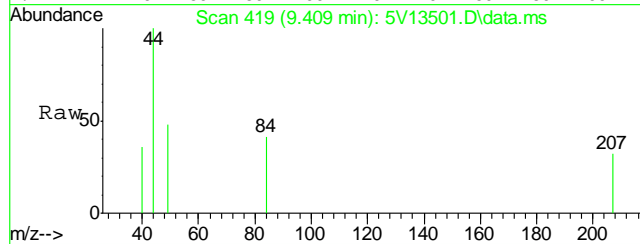
Quant Time: Mar 02 07:39:36 2011  
Quant Method : C:\msdchem\1\METHODS\V5hs1744tvm744.M  
Quant Title : 8260  
QLast Update : Mon Jan 24 12:30:33 2011  
Response via : Initial Calibration





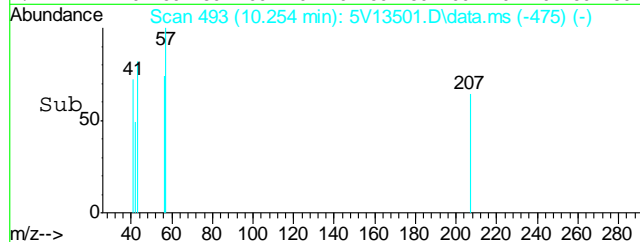
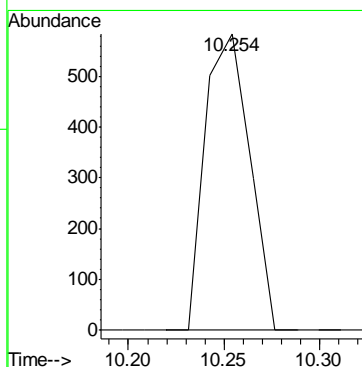
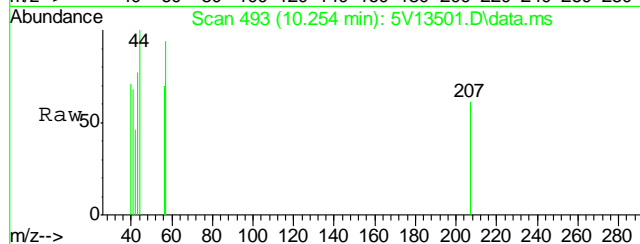
#15  
Methylene Chloride  
Concen: 0.21 ug/l  
RT: 9.409 min Scan# 419  
Delta R.T. -0.012 min  
Lab File: 5V13501.D  
Acq: 1 Mar 2011 10:26 am

Tgt Ion:	84	Resp:	682
Ion Ratio	Lower	Upper	
84	100		
49	132.8	115.0	155.0
86	0.0	43.4	83.4#

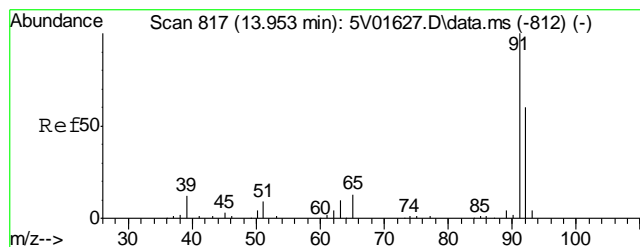


#37  
Hexane  
Concen: 1.17 ug/l  
RT: 10.254 min Scan# 493  
Delta R.T. 0.000 min  
Lab File: 5V13501.D  
Acq: 1 Mar 2011 10:26 am

Tgt Ion:	57	Resp:	949
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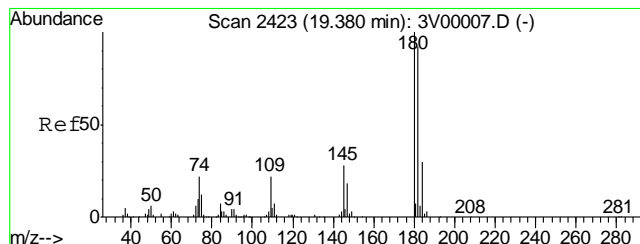
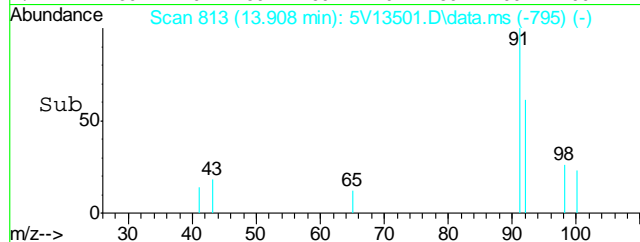
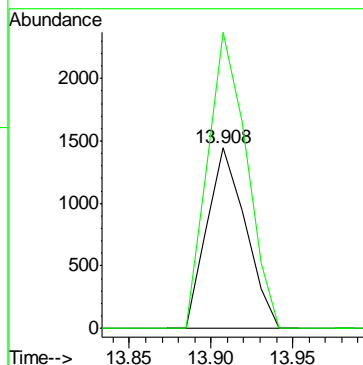
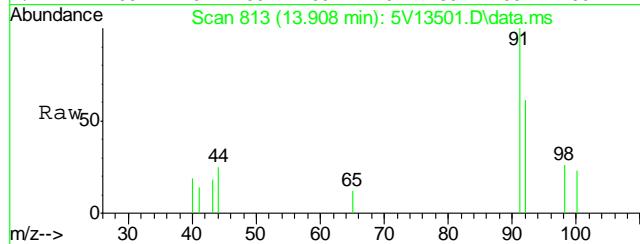






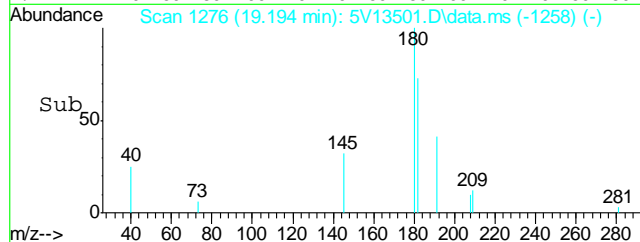
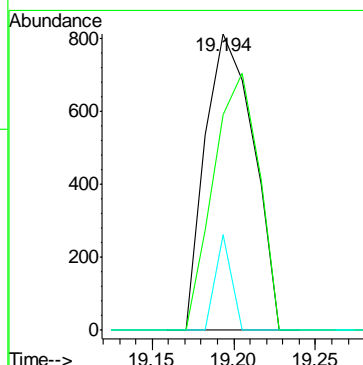
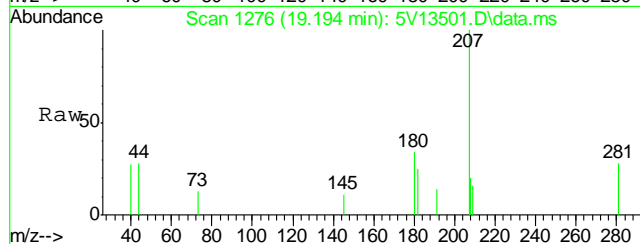
#56  
Toluene  
Concen: 0.23 ug/l  
RT: 13.908 min Scan# 813  
Delta R.T. 0.001 min  
Lab File: 5V13501.D  
Acq: 1 Mar 2011 10:26 am

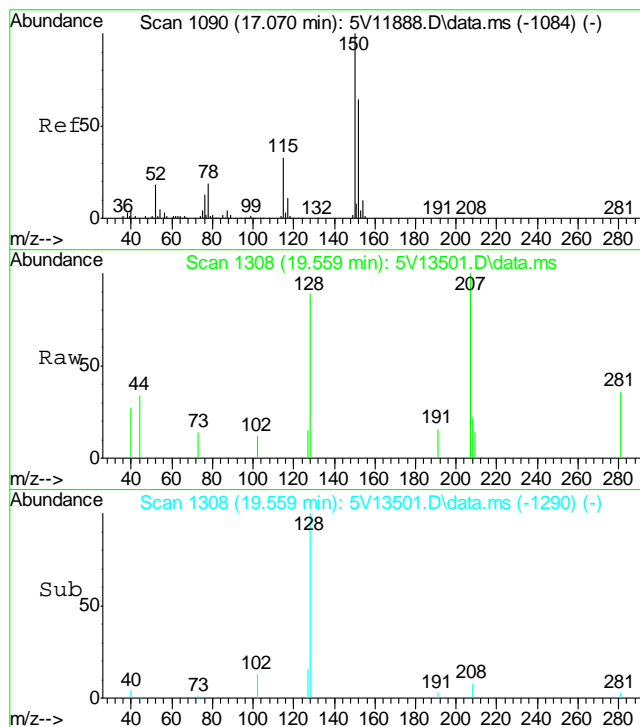
Tgt Ion: 92 Resp: 2374  
Ion Ratio Lower Upper  
92 100  
91 165.7 146.5 186.5



#71  
1,2,4-Trichlorobenzene  
Concen: 0.21 ug/l  
RT: 19.194 min Scan# 1276  
Delta R.T. -0.000 min  
Lab File: 5V13501.D  
Acq: 1 Mar 2011 10:26 am

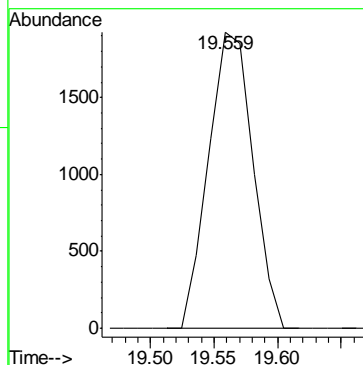
Tgt Ion: 180 Resp: 1668  
Ion Ratio Lower Upper  
180 100  
182 81.4 76.5 114.7  
145 10.7 20.6 31.0#





#72  
Naphthalene  
Concen: 0.31 ug/l  
RT: 19.559 min Scan# 1308  
Delta R.T. -0.000 min  
Lab File: 5V13501.D  
Acq: 1 Mar 2011 10:26 am

Tgt Ion:128 Resp: 4661



## GC/MS Semi-volatiles

### QC Data Summaries

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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:** D21334  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** PCU 23-18 Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3212-MB	3G03000.D	1	02/28/11	TMB	02/26/11	OP3212	E3G108

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D21334-1

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	6.7	6.2	ug/kg	
208-96-8	Acenaphthylene	ND	33	6.9	ug/kg	
120-12-7	Anthracene	ND	6.7	4.3	ug/kg	
56-55-3	Benzo(a)anthracene	ND	6.7	6.5	ug/kg	
50-32-8	Benzo(a)pyrene	ND	6.7	4.2	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	6.7	4.8	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	6.7	4.2	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	6.7	4.2	ug/kg	
218-01-9	Chrysene	ND	6.7	3.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	6.7	4.9	ug/kg	
206-44-0	Fluoranthene	ND	6.7	4.1	ug/kg	
86-73-7	Fluorene	ND	6.7	6.5	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	6.7	4.4	ug/kg	
90-12-0	1-Methylnaphthalene	ND	6.7	5.9	ug/kg	
91-57-6	2-Methylnaphthalene	ND	33	10	ug/kg	
91-20-3	Naphthalene	ND	33	7.4	ug/kg	
85-01-8	Phenanthrene	ND	6.7	5.3	ug/kg	
129-00-0	Pyrene	ND	6.7	4.5	ug/kg	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	83% 10-193%
321-60-8	2-Fluorobiphenyl	69% 20-138%
1718-51-0	Terphenyl-d14	90% 17-174%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D21334

**Account:** KRWCCOL KRW Consulting, Inc.

**Project:** PCU 23-18 Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3212-BS	3G03001.D	1	02/28/11	TMB	02/26/11	OP3212	E3G108

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D21334-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	66.8	80	40-136
208-96-8	Acenaphthylene	83.3	65.8	79	42-139
120-12-7	Anthracene	83.3	67.3	81	40-141
56-55-3	Benzo(a)anthracene	83.3	57.3	69	38-143
50-32-8	Benzo(a)pyrene	83.3	59.2	71	39-145
205-99-2	Benzo(b)fluoranthene	83.3	57.2	69	38-151
191-24-2	Benzo(g,h,i)perylene	83.3	56.2	67	35-136
207-08-9	Benzo(k)fluoranthene	83.3	66.2	79	38-147
218-01-9	Chrysene	83.3	65.6	79	39-137
53-70-3	Dibenzo(a,h)anthracene	83.3	56.8	68	35-139
206-44-0	Fluoranthene	83.3	63.6	76	34-132
86-73-7	Fluorene	83.3	68.1	82	41-136
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	51.1	61	31-144
90-12-0	1-Methylnaphthalene	83.3	65.6	79	36-130
91-57-6	2-Methylnaphthalene	83.3	63.2	76	40-131
91-20-3	Naphthalene	83.3	68.3	82	36-130
85-01-8	Phenanthrene	83.3	65.0	78	40-135
129-00-0	Pyrene	83.3	63.2	76	29-157

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	86%	10-193%
321-60-8	2-Fluorobiphenyl	70%	20-138%
1718-51-0	Terphenyl-d14	82%	17-174%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D21334  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** PCU 23-18 Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3212-MS	3G03018.D	5	03/01/11	TMB	02/26/11	OP3212	E3G108
OP3212-MSD	3G03019.D	5	03/01/11	TMB	02/26/11	OP3212	E3G108
D21323-2 <sup>a</sup>	3G03017.D	5	03/01/11	TMB	02/26/11	OP3212	E3G108

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D21334-1

CAS No.	Compound	D21323-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		89.8	64.1	71	63.5	71	1	20-151/30
208-96-8	Acenaphthylene	ND		89.8	62.2	69	61.8	69	1	23-156/30
120-12-7	Anthracene	ND		89.8	64.4	72	68.5	76	6	25-149/30
56-55-3	Benzo(a)anthracene	ND		89.8	66.6	74	72.5	81	8	22-157/30
50-32-8	Benzo(a)pyrene	ND		89.8	72.9	81	82.2	91	12	23-153/30
205-99-2	Benzo(b)fluoranthene	ND		89.8	68.2	76	77.3	86	13	22-161/30
191-24-2	Benzo(g,h,i)perylene	ND		89.8	54.7	61	56.9	63	4	20-158/30
207-08-9	Benzo(k)fluoranthene	ND		89.8	62.4	69	67.9	76	8	17-161/30
218-01-9	Chrysene	ND		89.8	68.2	76	71.8	80	5	16-159/30
53-70-3	Dibenzo(a,h)anthracene	ND		89.8	66.6	74	71.1	79	7	21-154/30
206-44-0	Fluoranthene	ND		89.8	64.8	72	78.3	87	19	16-140/30
86-73-7	Fluorene	ND		89.8	62.3	69	72.8	81	16	15-153/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		89.8	71.4	80	77.3	86	8	21-159/30
90-12-0	1-Methylnaphthalene	ND		89.8	71.8	80	76.6	85	6	10-148/30
91-57-6	2-Methylnaphthalene	ND		89.8	77.3	86	83.7	93	8	10-181/30
91-20-3	Naphthalene	ND		89.8	66.8	74	67.3	75	1	10-176/30
85-01-8	Phenanthrene	ND		89.8	66.4	74	71.4	79	7	22-152/30
129-00-0	Pyrene	ND		89.8	69.3	77	76.2	85	9	10-200/30

CAS No.	Surrogate Recoveries	MS	MSD	D21323-2	Limits
4165-60-0	Nitrobenzene-d5	60%	64%	60%	10-193%
321-60-8	2-Fluorobiphenyl	59%	61%	56%	20-138%
1718-51-0	Terphenyl-d14	65%	74%	69%	17-174%

(a) Dilution required due to matrix interference.



GC/MS Semi-volatiles

Raw Data

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## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022811\  
 Data File : 3g03008.D  
 Acq On : 28 Feb 2011 7:47 pm  
 Operator : TamiB  
 Sample : D21334-1,10x  
 Misc : OP3212,E3G108,30.02,,,10,10  
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 01 08:53:34 2011  
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G106.M  
 Quant Title : PAHSIM BASE  
 QLast Update : Fri Feb 25 10:50:33 2011  
 Response via : Initial Calibration

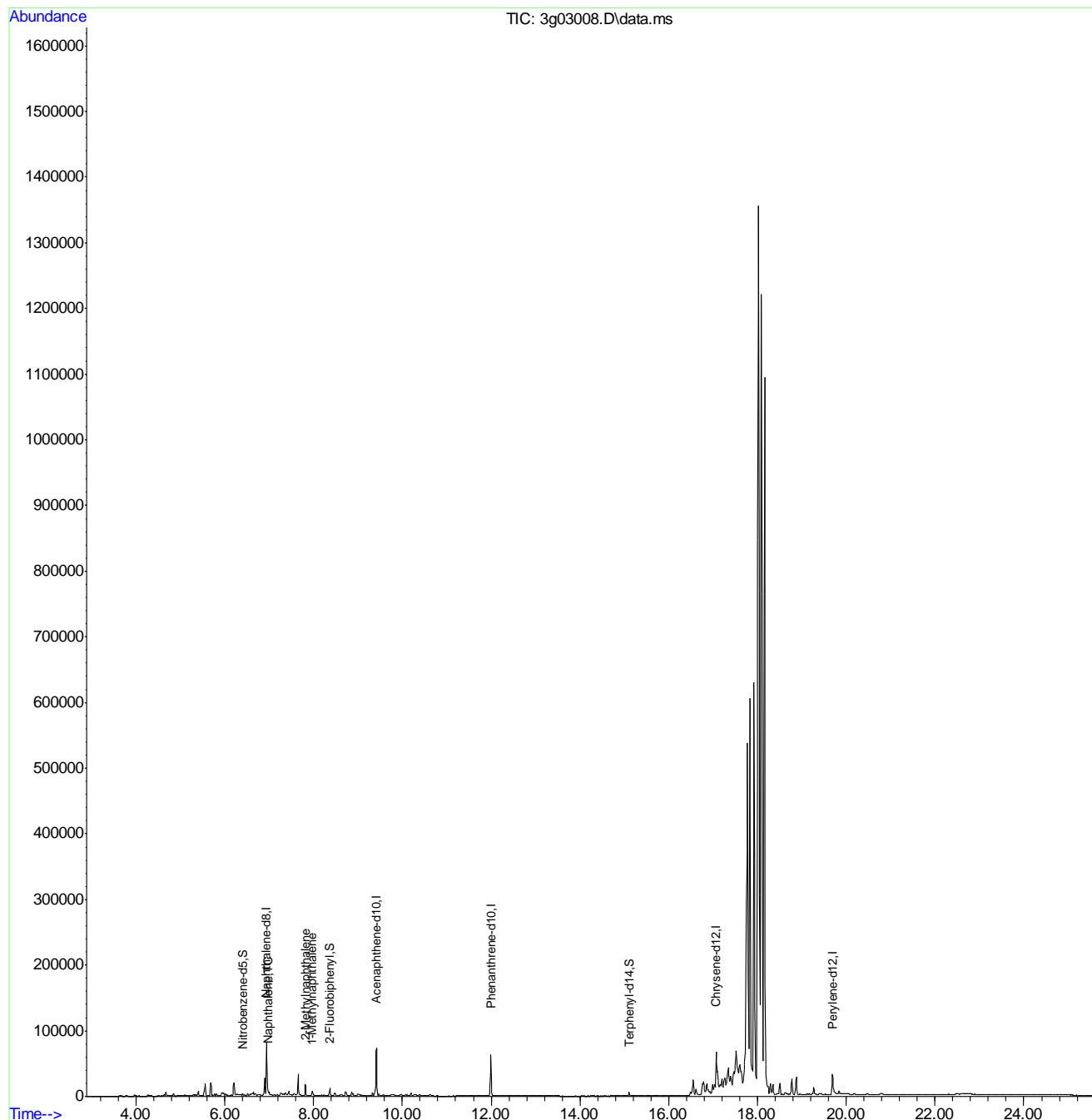
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.942	136	86214	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.416	164	46035	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.989	188	76493	4.00	ug/mL	0.00
18) Chrysene-d12	17.073	240	63771	4.00	ug/mL	0.00
23) Perylene-d12	19.687	264	45650	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	6.406	82	687	0.08	ug/mL	0.20
7) 2-Fluorobiphenyl	8.365	172	9562	0.47	ug/mL	0.00
20) Terphenyl-d14	15.107	244	6999	0.57	ug/mL	0.00
Target Compounds						
					Qvalue	
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	6.967	128	5831	0.23	ug/mL	88
8) 2-Methylnaphthalene	7.821	142	10442	0.70	ug/mL#	86
9) 1-Methylnaphthalene	7.963	142	3938	0.28	ug/mL#	81
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	0.000		0	N.D.	d	
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	0.000		0	N.D.	d	
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	0.000		0	N.D.	d	
21) Benzo(a)anthracene	0.000		0	N.D.	d	
22) Chrysene	0.000		0	N.D.	d	
24) Benzo(b)fluoranthene	0.000		0	N.D.	d	
25) Benzo(k)fluoranthene	0.000		0	N.D.	d	
26) Benzo(a)pyrene	0.000		0	N.D.	d	
27) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
28) Dibenz(a,h)anthracene	0.000		0	N.D.	d	
29) Benzo(g,h,i)perylene	0.000		0	N.D.	d	

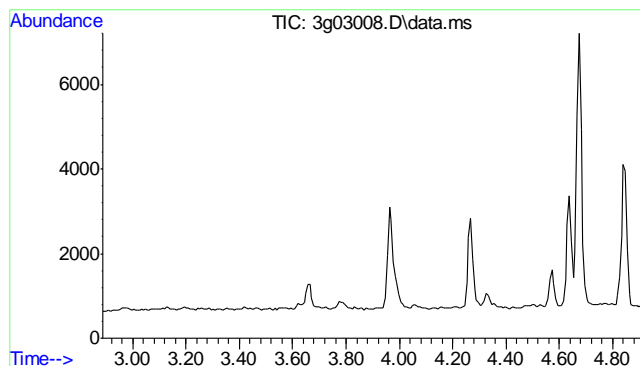
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022811\  
Data File : 3g03008.D  
Acq On : 28 Feb 2011 7:47 pm  
Operator : TamiB  
Sample : D21334-1,10x  
Misc : OP3212,E3G108,30.02,,,10,10  
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 01 08:53:34 2011  
Quant Method : C:\msdchem\1\METHODS\SIMPE3G106.M  
Quant Title : PAHSIM BASE  
QLast Update : Fri Feb 25 10:50:33 2011  
Response via : Initial Calibration

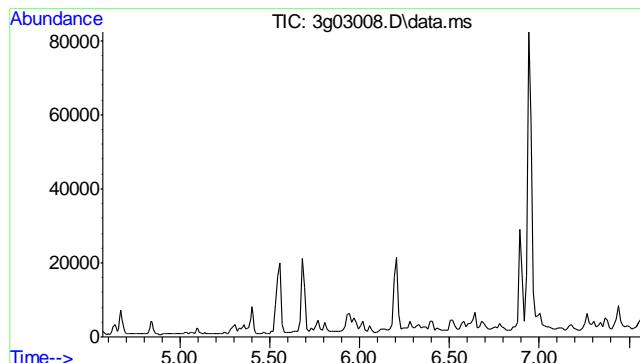
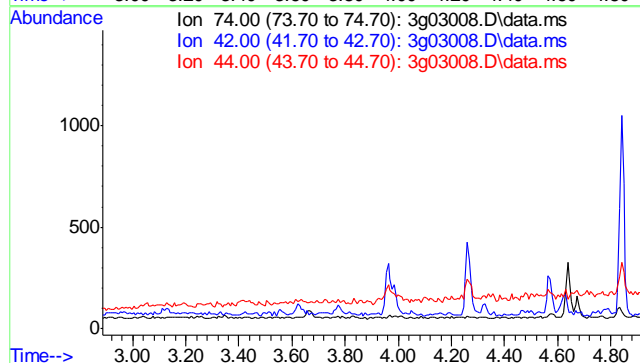




#3  
N-Nitrosodimethylamine  
Concen: N.D. ug/mL  
Expected RT: 3.41 min

Lab File: 3g03008.D  
Acq: 28 Feb 11 7:47 pm

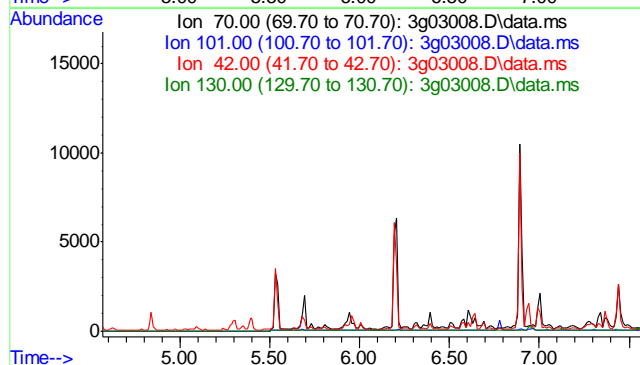
Tgt Ion	Exp Ratio
74	100
42	73.1
44	3.6

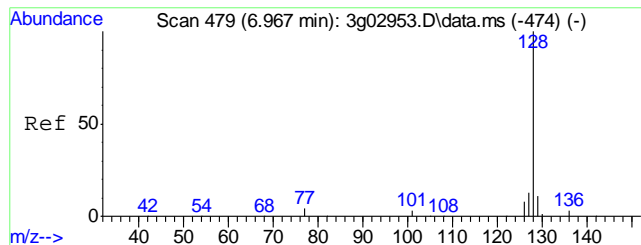


#4  
N-Nitrosodi-propylamine  
Concen: N.D. ug/mL  
Expected RT: 6.07 min

Lab File: 3g03008.D  
Acq: 28 Feb 11 7:47 pm

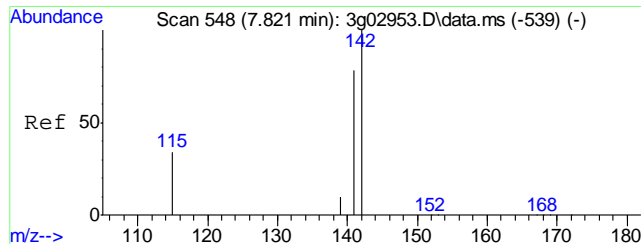
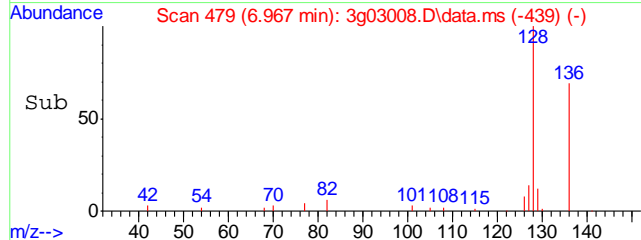
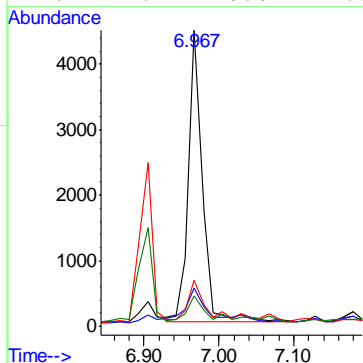
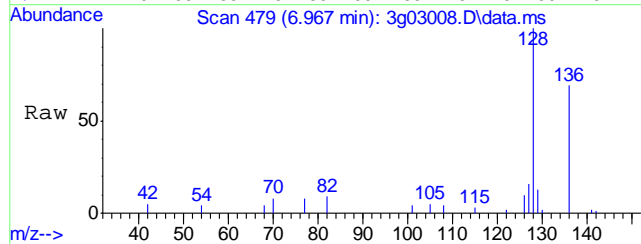
Tgt Ion	Exp Ratio
70	100
101	11.9
42	43.8
130	27.4





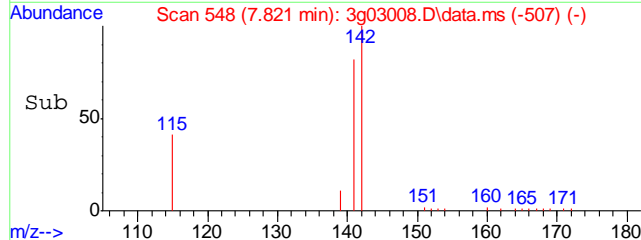
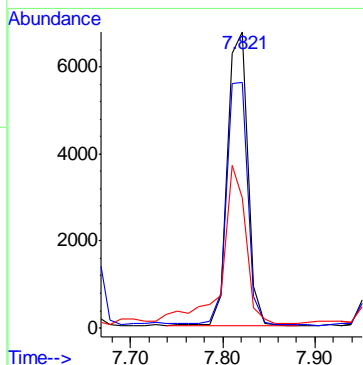
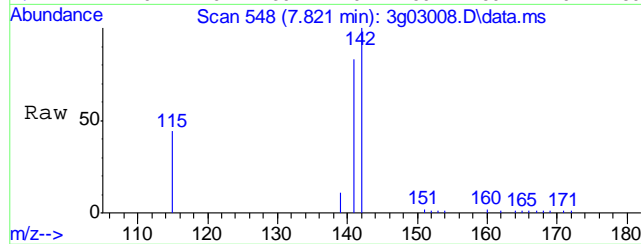
#5  
Naphthalene  
Concen: 0.23 ug/mL  
RT: 6.967 min Scan# 479  
Delta R.T. 0.000 min  
Lab File: 3g03008.D  
Acq: 28 Feb 11 7:47 pm

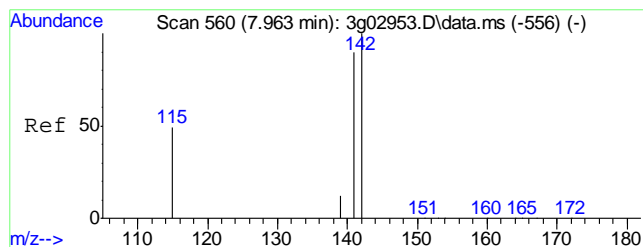
Tgt Ion:	128	Resp:	5831
Ion Ratio	Lower	Upper	
128	100		
129	11.9	0.0	31.0
127	20.7	0.0	33.0
126	12.7	0.0	27.5



#8  
2-Methylnaphthalene  
Concen: 0.70 ug/mL  
RT: 7.821 min Scan# 548  
Delta R.T. 0.000 min  
Lab File: 3g03008.D  
Acq: 28 Feb 11 7:47 pm

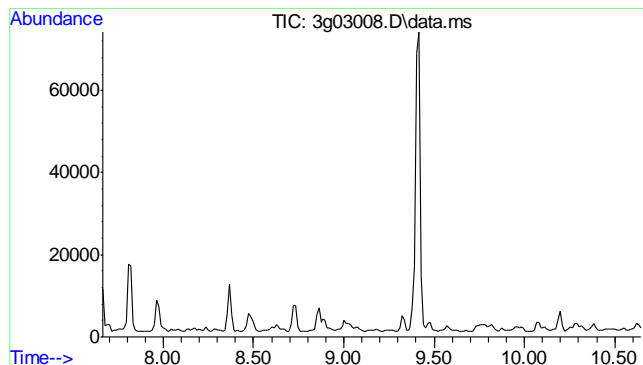
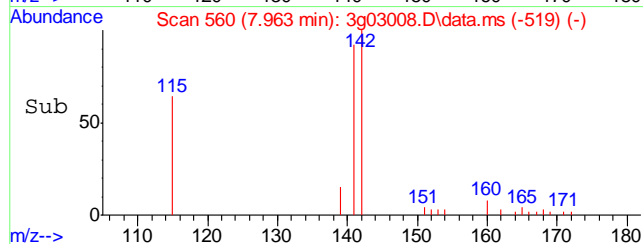
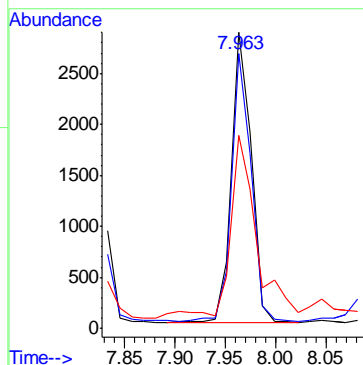
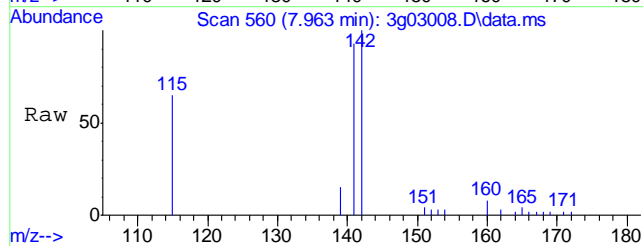
Tgt Ion:	142	Resp:	10442
Ion Ratio	Lower	Upper	
142	100		
141	86.6	62.3	102.3
115	62.7	21.5	61.5#





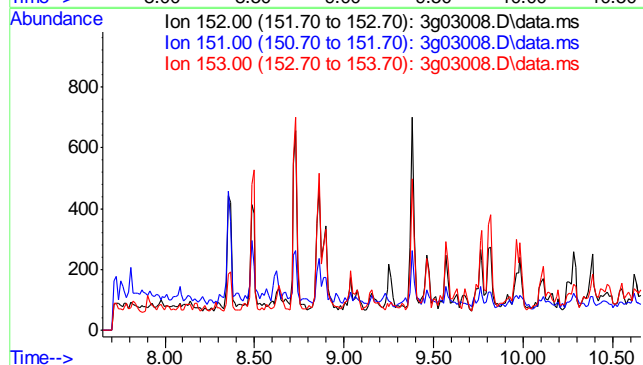
#9  
1-Methylnaphthalene  
Concen: 0.28 ug/mL  
RT: 7.963 min Scan# 560  
Delta R.T. 0.000 min  
Lab File: 3g03008.D  
Acq: 28 Feb 11 7:47 pm

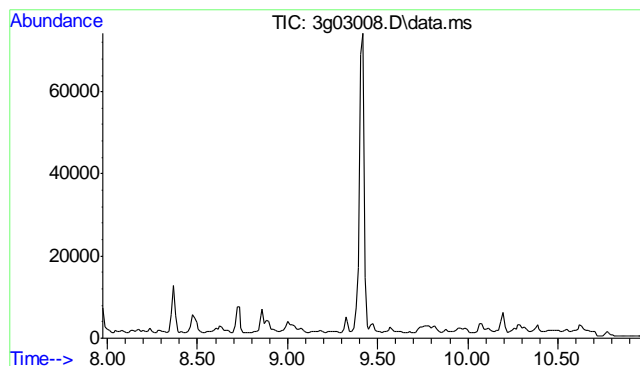
Tgt Ion:	142	Resp:	3938
Ion Ratio	Lower	Upper	
142	100		
141	91.4	70.0	105.0
115	75.9	35.9	53.9#



#10  
Acenaphthylene  
Concen: N.D. ug/mL  
Expected RT: 9.16 min  
Lab File: 3g03008.D  
Acq: 28 Feb 11 7:47 pm

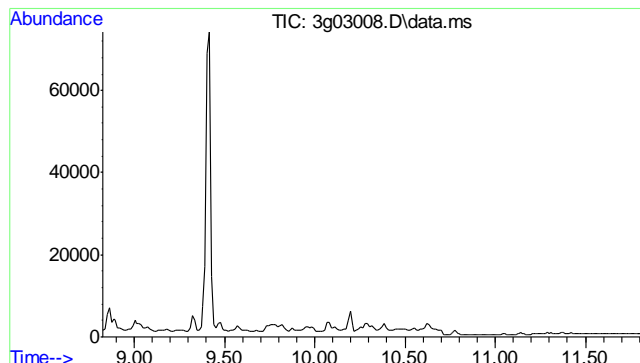
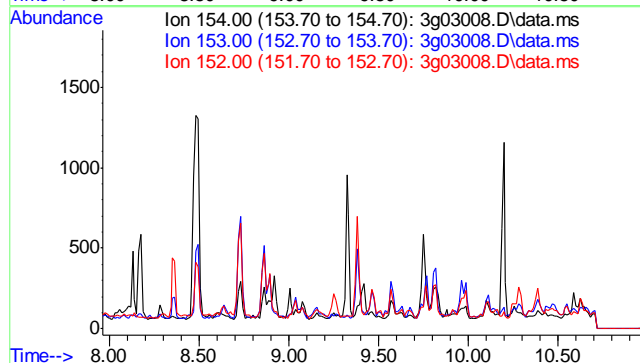
Tgt Ion:	152
Sig	Exp Ratio
152	100
151	19.2
153	12.8





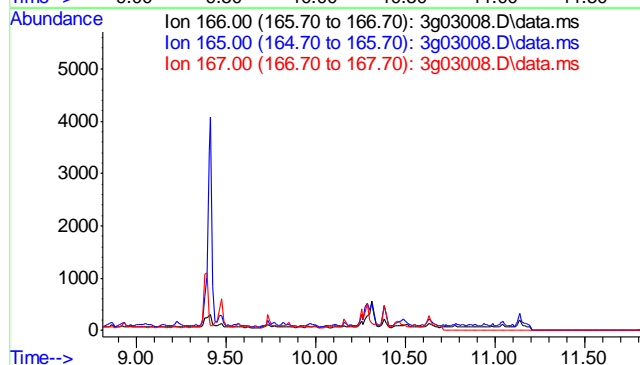
#11  
Acenaphthene  
Concen: N.D. ug/mL  
Expected RT: 9.46 min  
  
Lab File: 3g03008.D  
Acq: 28 Feb 11 7:47 pm

Tgt Ion:	154
Sig	Exp Ratio
154	100
153	104.8
152	50.1

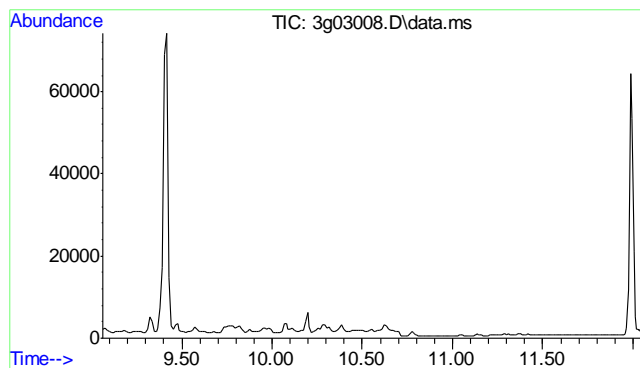


#12  
Fluorene  
Concen: N.D. ug/mL  
Expected RT: 10.31 min  
  
Lab File: 3g03008.D  
Acq: 28 Feb 11 7:47 pm

Tgt Ion:	166
Sig	Exp Ratio
166	100
165	92.3
167	13.2

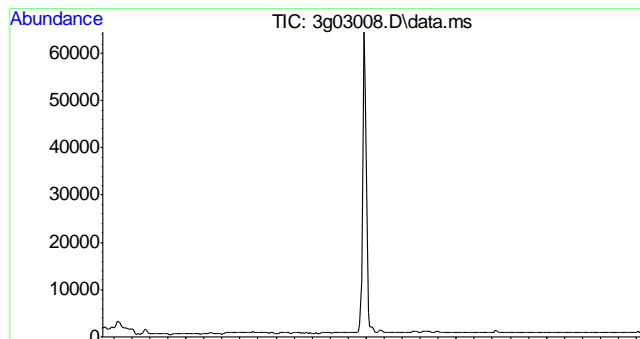
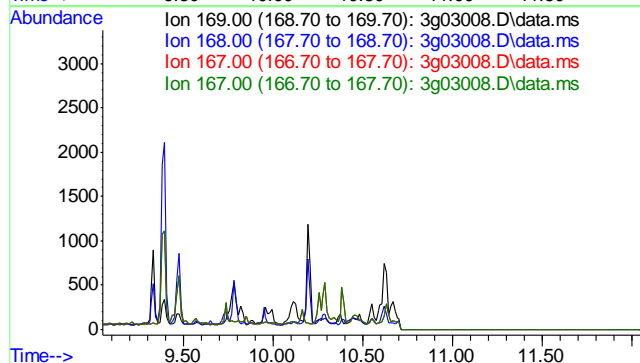






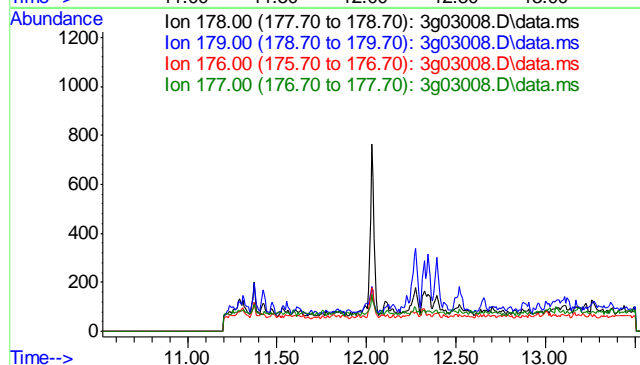
#13  
 Diphenylamine  
 Concen: N.D. ug/mL  
 Expected RT: 10.55 min  
  
 Lab File: 3g03008.D  
 Acq: 28 Feb 11 7:47 pm

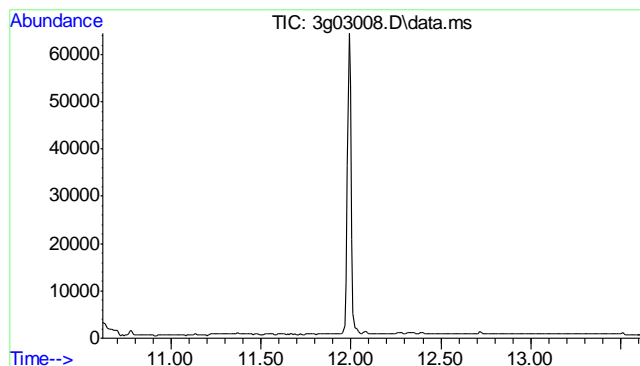
Tgt Ion	Sig	Exp Ratio
169	100	
168	62.7	
167	33.1	
167	33.1	



#15  
 Phenanthrene  
 Concen: N.D. ug/mL  
 Expected RT: 12.03 min  
  
 Lab File: 3g03008.D  
 Acq: 28 Feb 11 7:47 pm

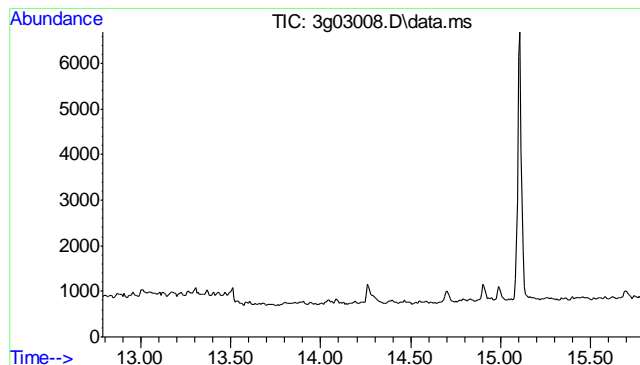
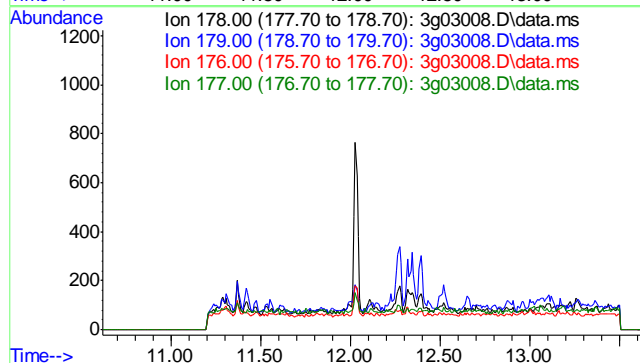
Tgt Ion	Sig	Exp Ratio
178	100	
179	15.1	
176	18.6	
177	10.4	





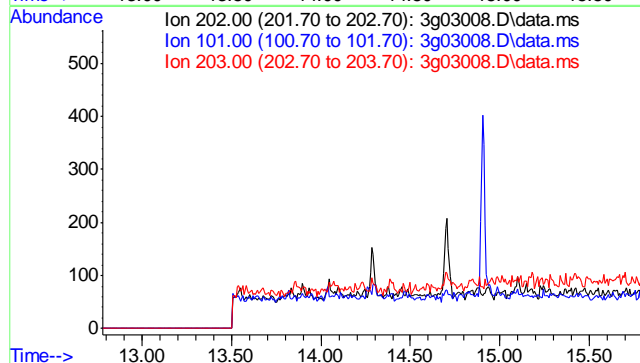
#16  
 Anthracene  
 Concen: N.D. ug/mL  
 Expected RT: 12.12 min  
  
 Lab File: 3g03008.D  
 Acq: 28 Feb 11 7:47 pm

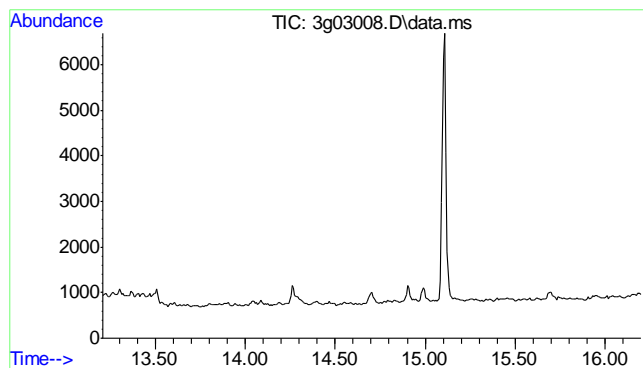
Tgt Ion	Sig	Exp Ratio
178	100	
179	15.1	
176	17.7	
177	8.9	



#17  
 Fluoranthene  
 Concen: N.D. ug/mL  
 Expected RT: 14.28 min  
  
 Lab File: 3g03008.D  
 Acq: 28 Feb 11 7:47 pm

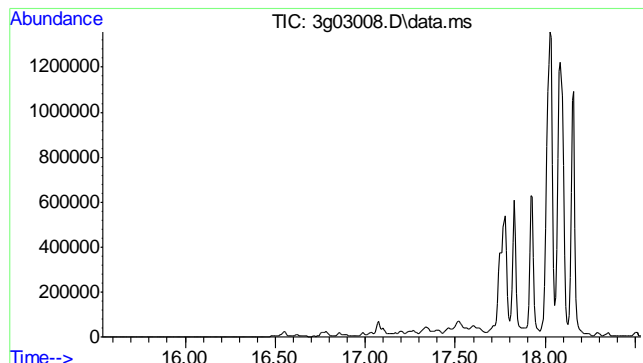
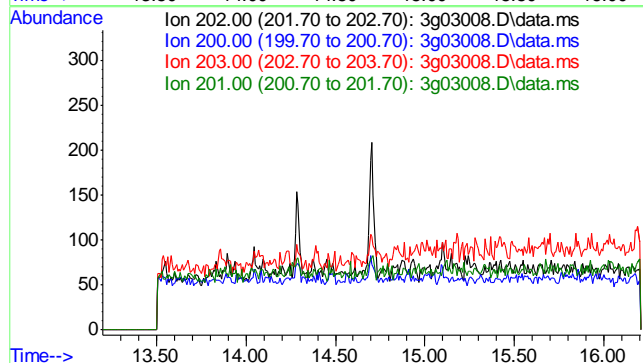
Tgt Ion	Sig	Exp Ratio
202	100	
101	9.4	
203	17.2	





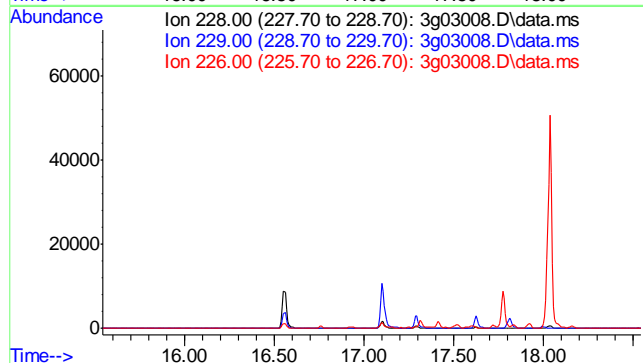
#19  
 Pyrene  
 Concen: N.D. ug/mL  
 Expected RT: 14.70 min  
  
 Lab File: 3g03008.D  
 Acq: 28 Feb 11 7:47 pm

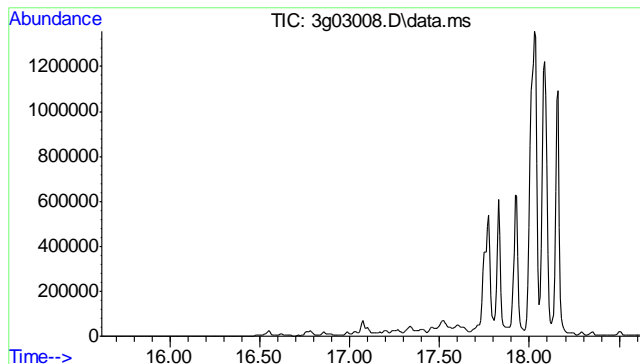
Tgt Ion	Exp Ratio
202	100
200	20.3
203	17.7
201	16.9



#21  
 Benzo(a)anthracene  
 Concen: N.D. ug/mL  
 Expected RT: 17.04 min  
  
 Lab File: 3g03008.D  
 Acq: 28 Feb 11 7:47 pm

Tgt Ion	Exp Ratio
228	100
229	19.4
226	26.1

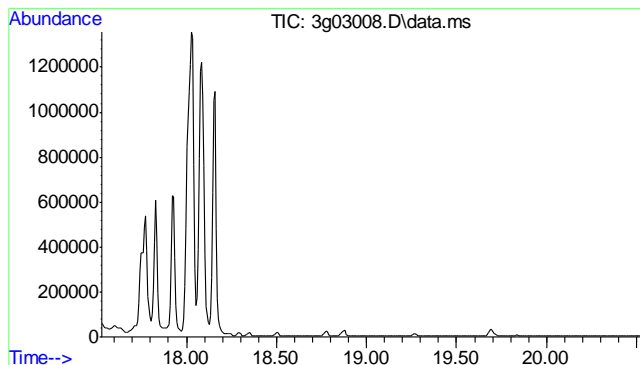
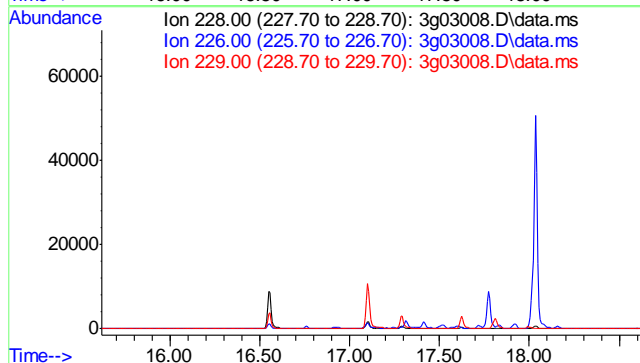




#22  
Chrysene  
Concen: N.D. ug/mL  
Expected RT: 17.12 min

Lab File: 3g03008.D  
Acq: 28 Feb 11 7:47 pm

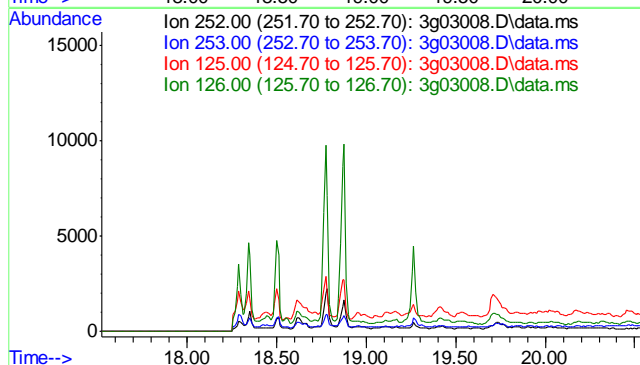
Tgt Ion	Exp Ratio
228	100
226	28.3
229	19.2

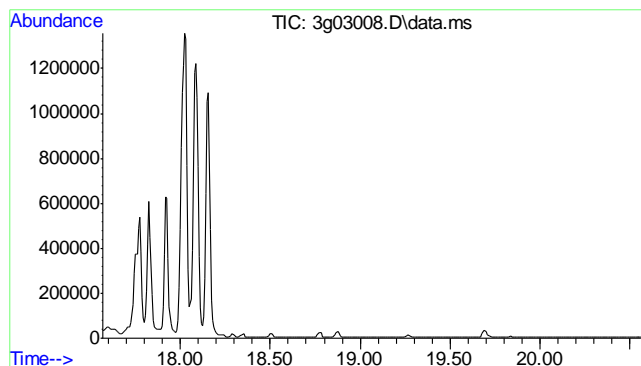


#24  
Benzo(b)fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 19.02 min

Lab File: 3g03008.D  
Acq: 28 Feb 11 7:47 pm

Tgt Ion	Exp Ratio
252	100
253	21.5
125	10.1
126	13.4

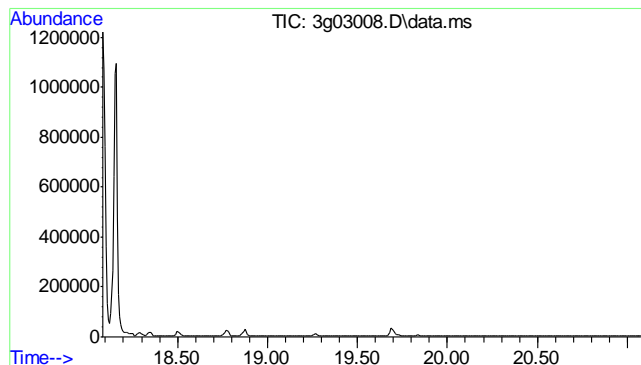
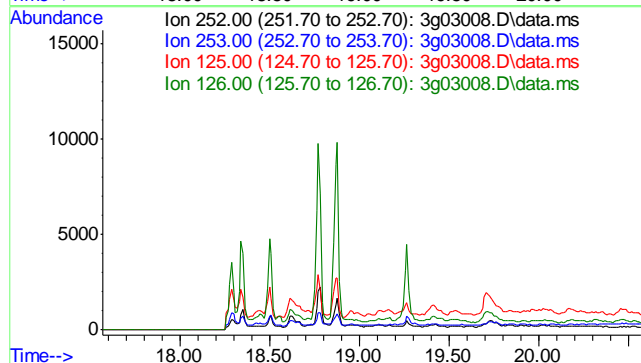




#25  
Benzo(k)fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 19.07 min

Lab File: 3g03008.D  
Acq: 28 Feb 11 7:47 pm

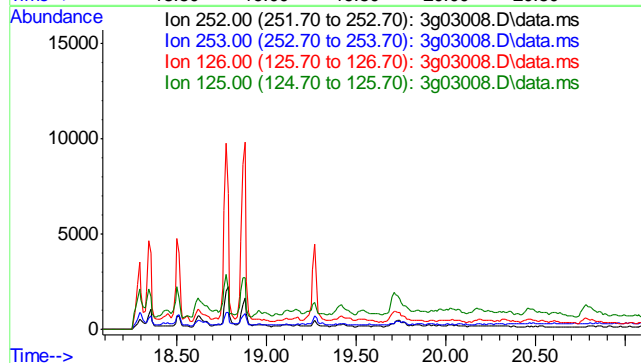
Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.4
125	8.7
126	12.4

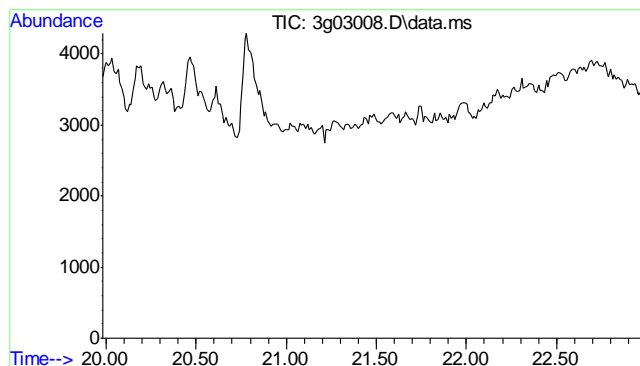


#26  
Benzo(a)pyrene  
Concen: N.D. ug/mL  
Expected RT: 19.58 min

Lab File: 3g03008.D  
Acq: 28 Feb 11 7:47 pm

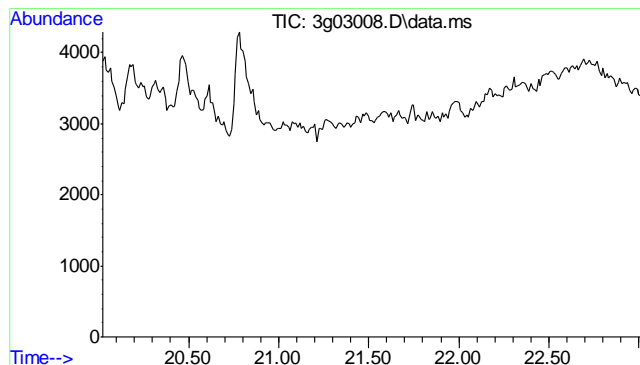
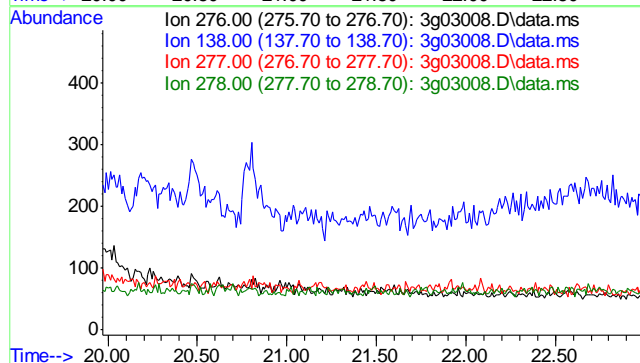
Tgt Ion:	252
Sig	Exp Ratio
252	100
253	23.4
126	13.5
125	11.5





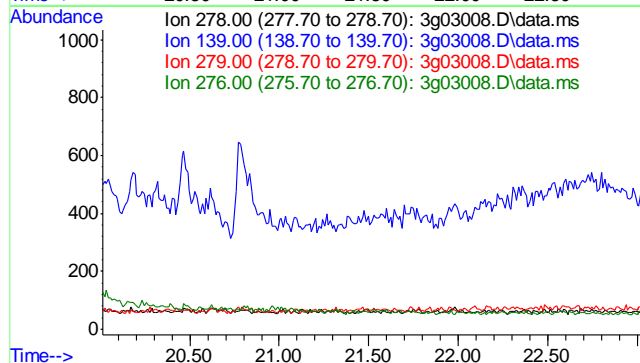
#27  
 Indeno(1,2,3-cd)pyrene  
 Concen: N.D. ug/mL  
 Expected RT: 21.48 min  
  
 Lab File: 3g03008.D  
 Acq: 28 Feb 11 7:47 pm

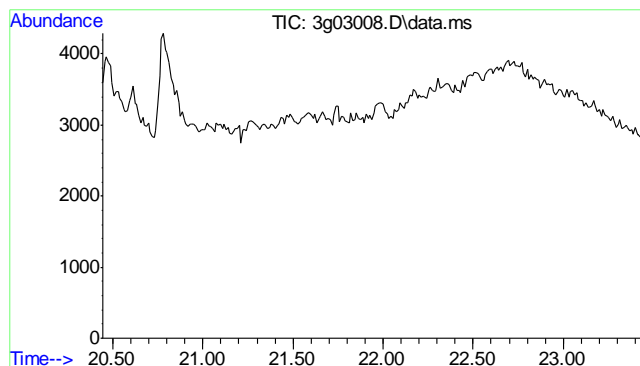
Tgt Ion	Exp Ratio
276	100
138	15.8
277	39.3
278	125.8



#28  
 Dibenzo(a,h)anthracene  
 Concen: N.D. ug/mL  
 Expected RT: 21.52 min  
  
 Lab File: 3g03008.D  
 Acq: 28 Feb 11 7:47 pm

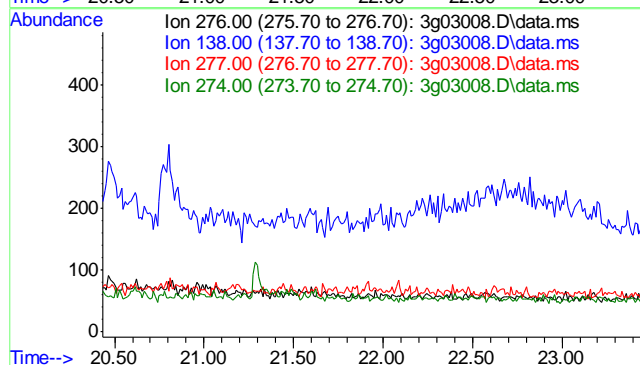
Tgt Ion	Exp Ratio
278	100
139	13.5
279	23.4
276	126.9





#29  
 Benzo(g,h,i)perylene  
 Concen: N.D. ug/mL  
 Expected RT: 21.94 min  
 Lab File: 3g03008.D  
 Acq: 28 Feb 11 7:47 pm

Tgt Ion	Exp Ratio
276	100
138	16.7
277	23.0
274	21.5



## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022811\  
 Data File : 3g03000.D  
 Acq On : 28 Feb 2011 1:46 pm  
 Operator : TamiB  
 Sample : OP3212-MB  
 Misc : OP3212,E3G108,30,,,1,1  
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Feb 28 15:04:45 2011  
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G106.M  
 Quant Title : PAHSIM BASE  
 QLast Update : Fri Feb 25 10:50:33 2011  
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.955	136	111163	4.00	ug/mL	0.01
6) Acenaphthene-d10	9.416	164	61002	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.997	188	97693	4.00	ug/mL	0.00
18) Chrysene-d12	17.074	240	89766	4.00	ug/mL	0.00
23) Perylene-d12	19.687	264	74003	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	6.207	82	484131	41.70	ug/mL	0.00
7) 2-Fluorobiphenyl	8.365	172	934748	34.45	ug/mL	0.00
20) Terphenyl-d14	15.115	244	776471	45.24	ug/mL	0.00
Target Compounds						
						Qvalue
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	0.000		0	N.D.	d	
8) 2-Methylnaphthalene	0.000		0	N.D.	d	
9) 1-Methylnaphthalene	0.000		0	N.D.	d	
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	0.000		0	N.D.	d	
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	0.000		0	N.D.	d	
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	0.000		0	N.D.	d	
21) Benzo(a)anthracene	0.000		0	N.D.	d	
22) Chrysene	0.000		0	N.D.	d	
24) Benzo(b)fluoranthene	0.000		0	N.D.	d	
25) Benzo(k)fluoranthene	0.000		0	N.D.	d	
26) Benzo(a)pyrene	0.000		0	N.D.	d	
27) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
28) Dibenz(a,h)anthracene	0.000		0	N.D.	d	
29) Benzo(g,h,i)perylene	0.000		0	N.D.	d	

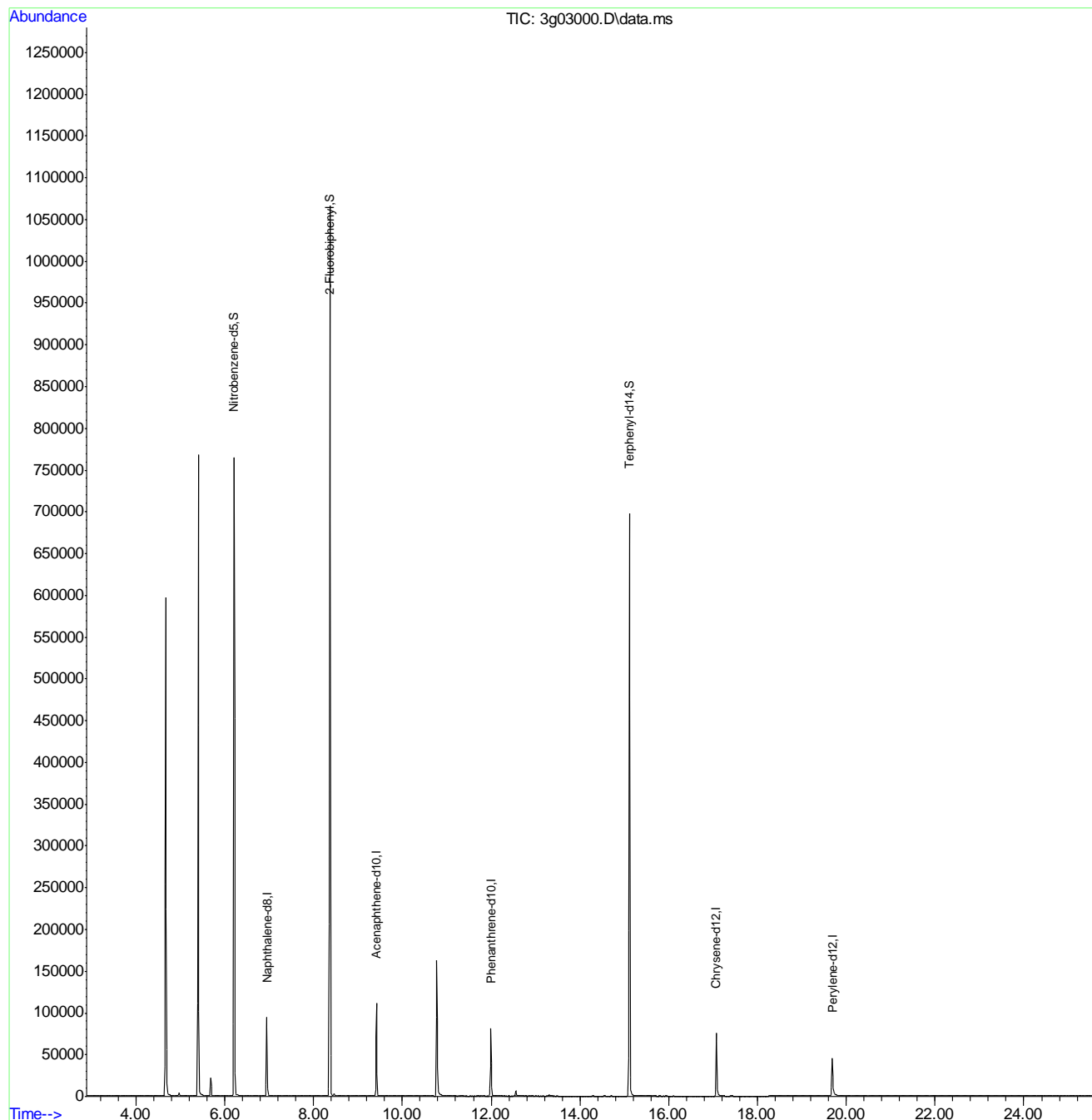
(#) = qualifier out of range (m) = manual integration (+) = signals summed

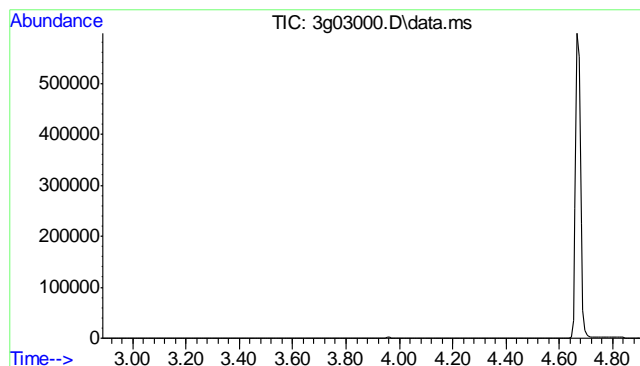


## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\022811\  
Data File : 3g03000.D  
Acq On : 28 Feb 2011 1:46 pm  
Operator : TamiB  
Sample : OP3212-MB  
Misc : OP3212,E3G108,30,,,1,1  
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Feb 28 15:04:45 2011  
Quant Method : C:\msdchem\1\METHODS\SIMPE3G106.M  
Quant Title : PAHSIM BASE  
QLast Update : Fri Feb 25 10:50:33 2011  
Response via : Initial Calibration

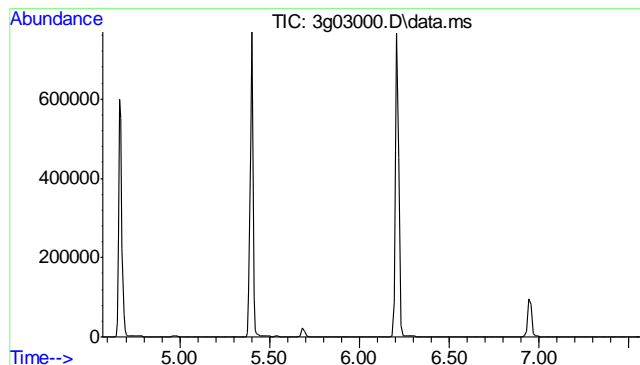
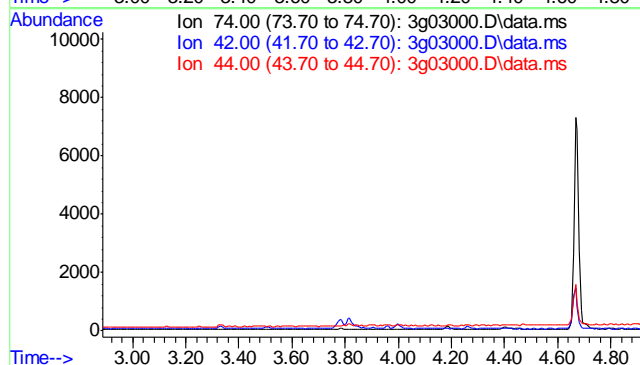




#3  
N-Nitrosodimethylamine  
Concen: N.D. ug/mL  
Expected RT: 3.41 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

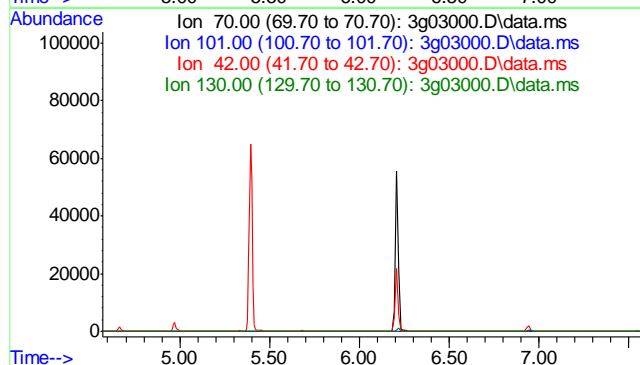
Tgt Ion:	74
Sig	Exp Ratio
74	100
42	73.1
44	3.6

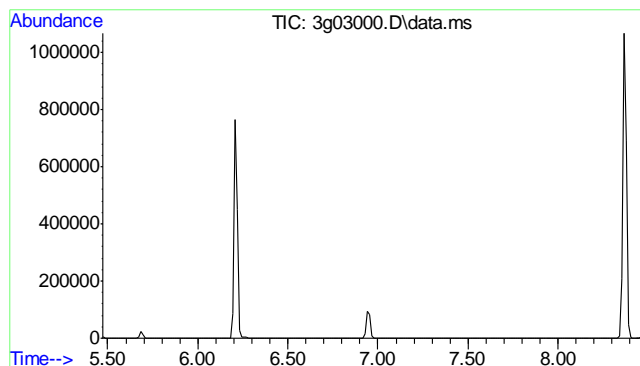


#4  
N-Nitrosodi-propylamine  
Concen: N.D. ug/mL  
Expected RT: 6.07 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

Tgt Ion:	70
Sig	Exp Ratio
70	100
101	11.9
42	43.8
130	27.4

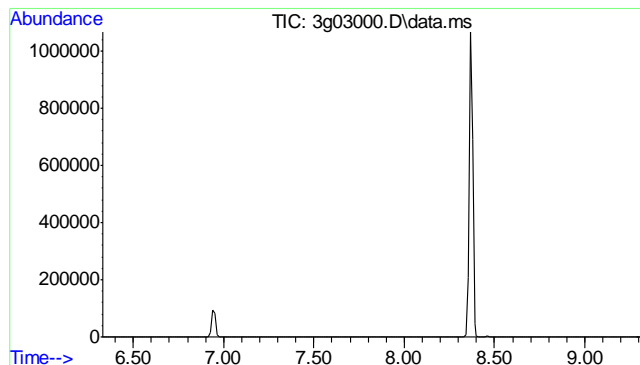
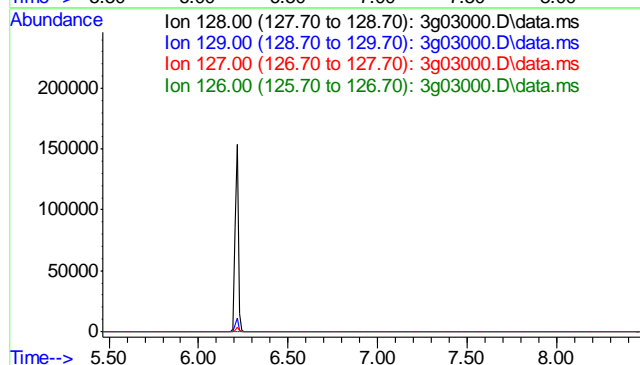




#5  
Naphthalene  
Concen: N.D. ug/mL  
Expected RT: 6.97 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

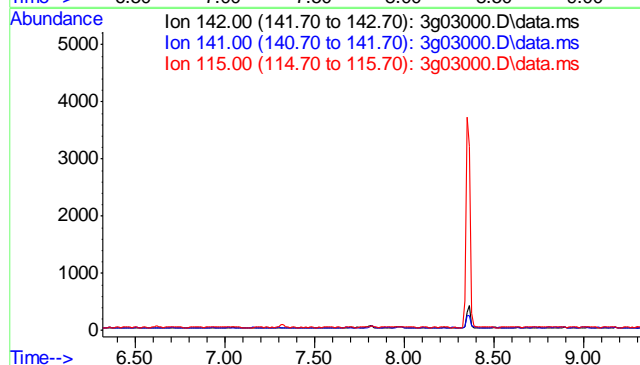
Tgt Ion:	128
Sig	Exp Ratio
128	100
129	11.0
127	13.0
126	7.5

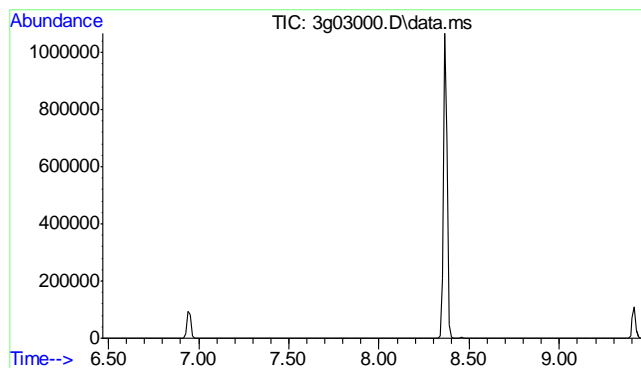


#8  
2-Methylnaphthalene  
Concen: N.D. ug/mL  
Expected RT: 7.82 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

Tgt Ion:	142
Sig	Exp Ratio
142	100
141	82.3
115	41.5

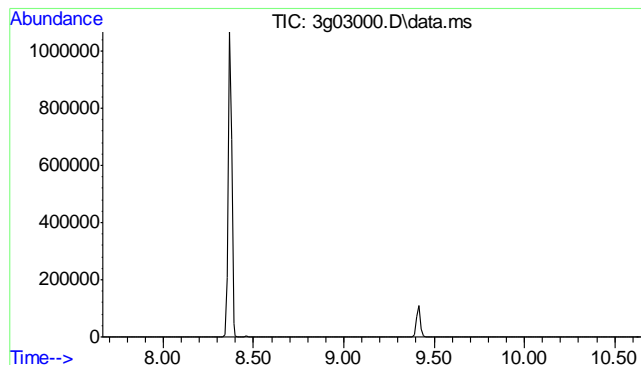
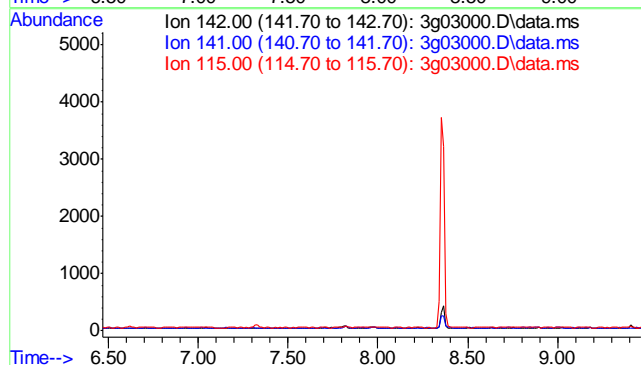




#9  
1-Methylnaphthalene  
Concen: N.D. ug/mL  
Expected RT: 7.96 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

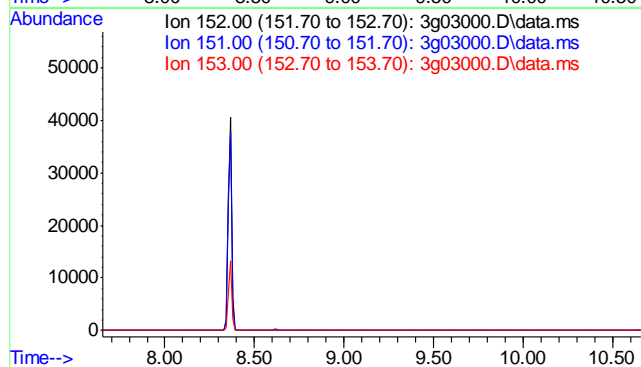
Tgt Ion:	142
Sig	Exp Ratio
142	100
141	87.5
115	44.9

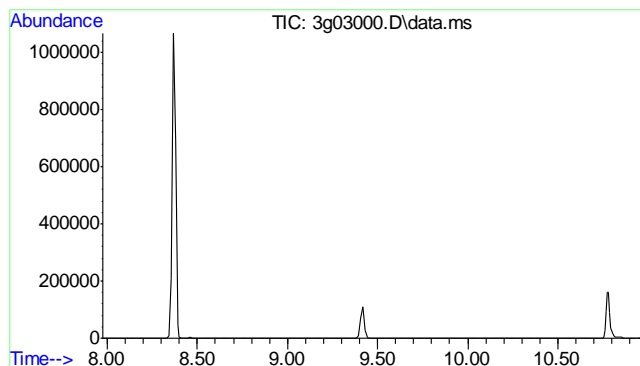


#10  
Acenaphthylene  
Concen: N.D. ug/mL  
Expected RT: 9.16 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

Tgt Ion:	152
Sig	Exp Ratio
152	100
151	19.2
153	12.8

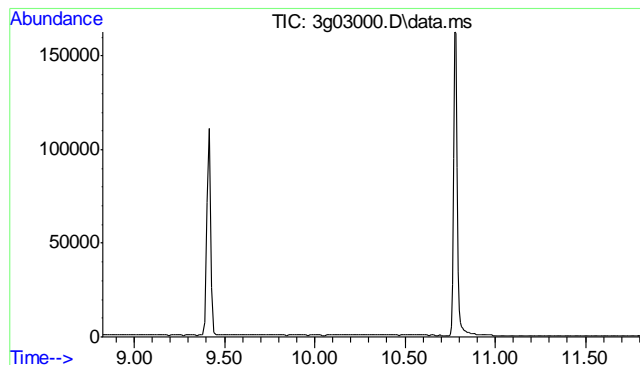
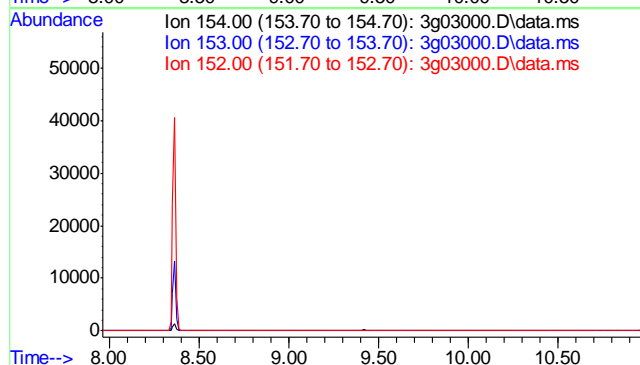




#11  
Acenaphthene  
Concen: N.D. ug/mL  
Expected RT: 9.46 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

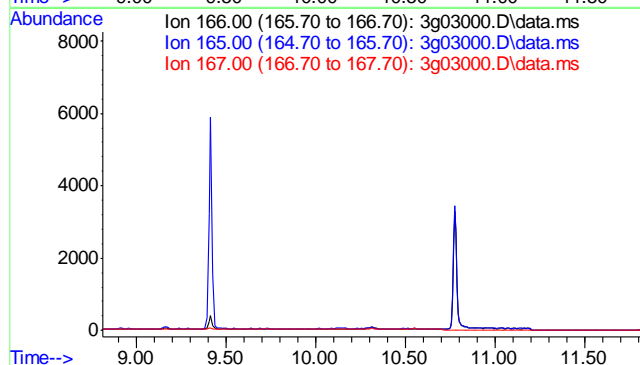
Tgt Ion: 154  
Sig Exp Ratio  
154 100  
153 104.8  
152 50.1

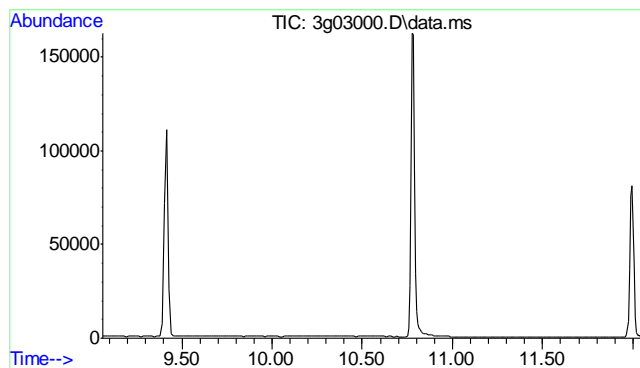


#12  
Fluorene  
Concen: N.D. ug/mL  
Expected RT: 10.31 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

Tgt Ion: 166  
Sig Exp Ratio  
166 100  
165 92.3  
167 13.2

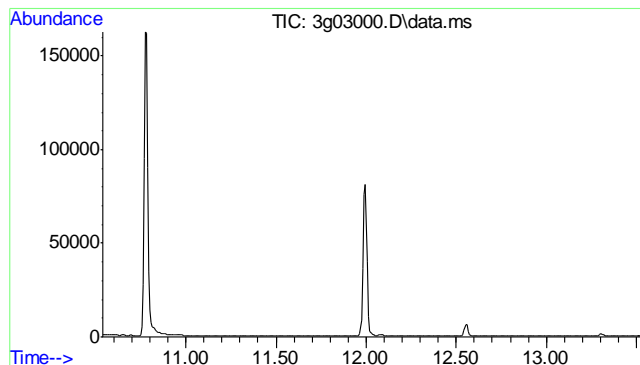
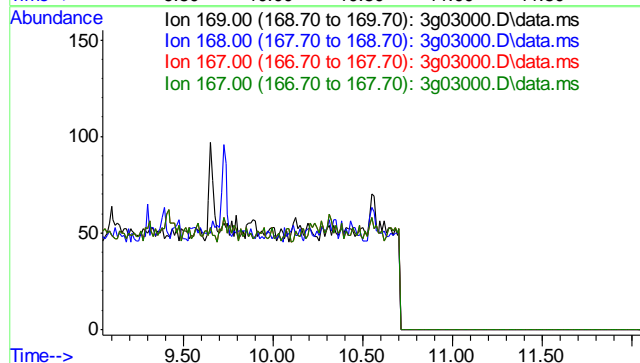




#13  
Diphenylamine  
Concen: N.D. ug/mL  
Expected RT: 10.55 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

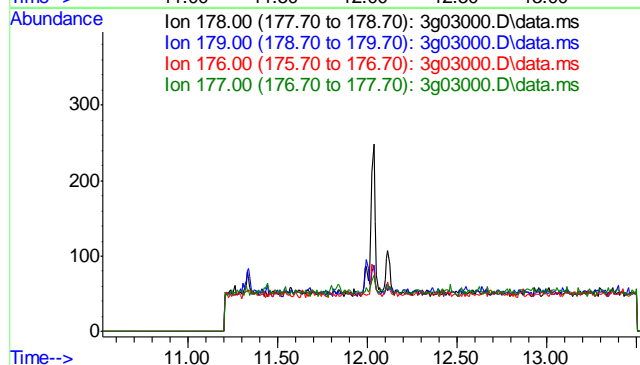
Tgt Ion: 169	
Sig	Exp Ratio
169	100
168	62.7
167	33.1
167	33.1

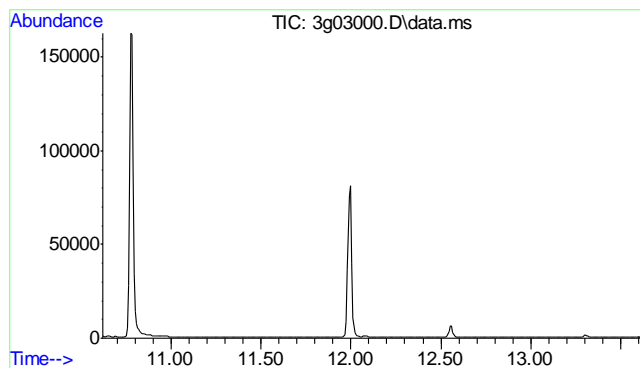


#15  
Phenanthrene  
Concen: N.D. ug/mL  
Expected RT: 12.03 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

Tgt Ion: 178	
Sig	Exp Ratio
178	100
179	15.1
176	18.6
177	10.4

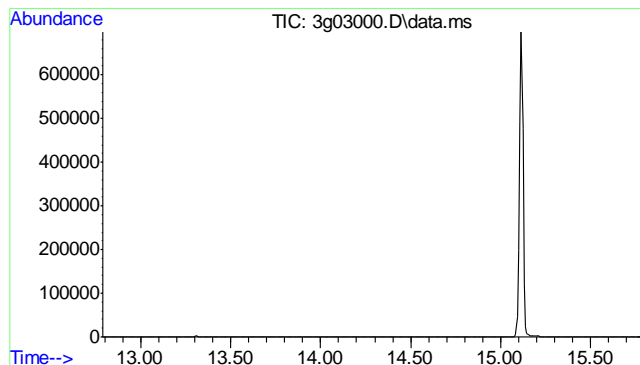
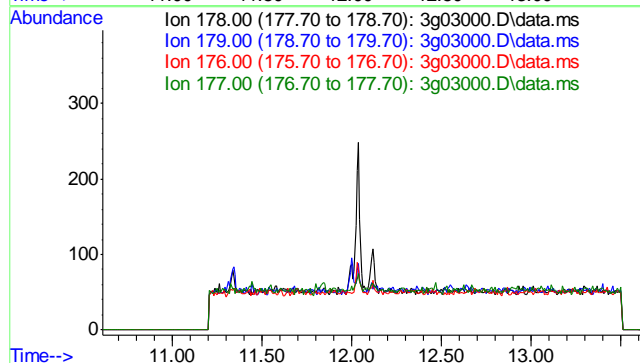




#16  
Anthracene  
Concen: N.D. ug/mL  
Expected RT: 12.12 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

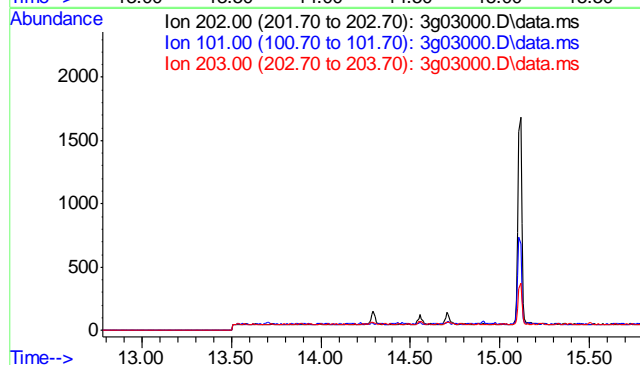
Tgt Ion:	178
Sig	Exp Ratio
178	100
179	15.1
176	17.7
177	8.9

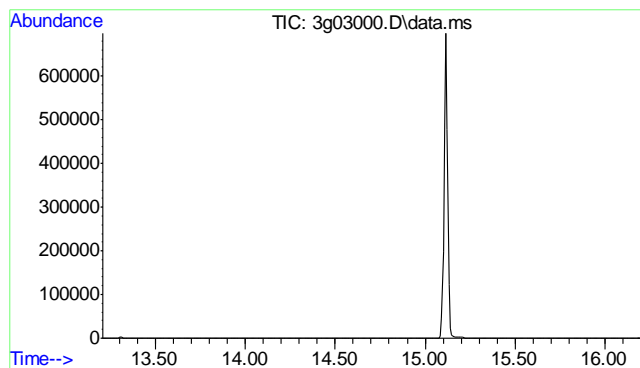


#17  
Fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 14.28 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

Tgt Ion:	202
Sig	Exp Ratio
202	100
101	9.4
203	17.2

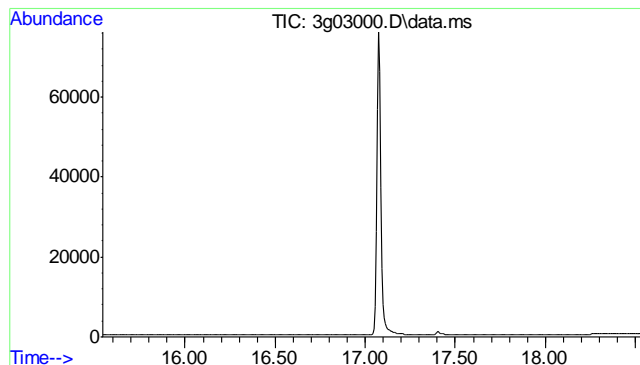
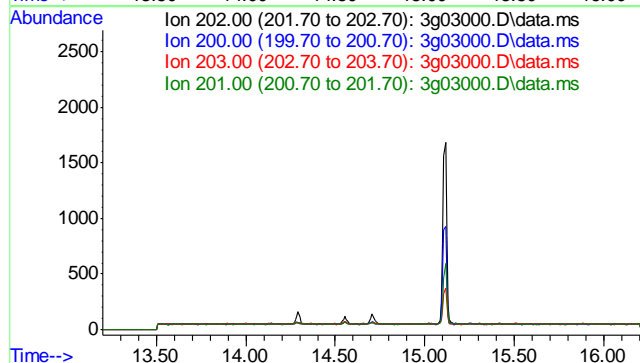




#19  
Pyrene  
Concen: N.D. ug/mL  
Expected RT: 14.70 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

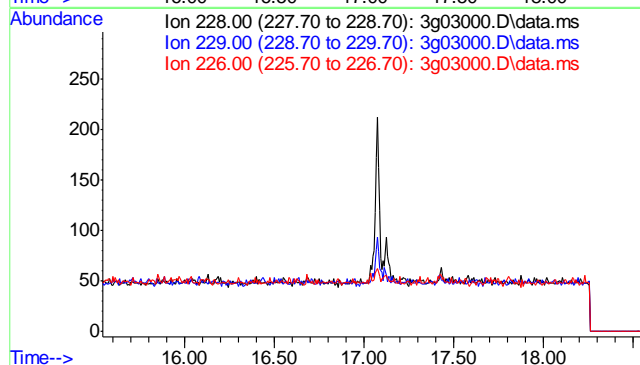
Tgt Ion:	202
Sig	Exp Ratio
202	100
200	20.3
203	17.7
201	16.9



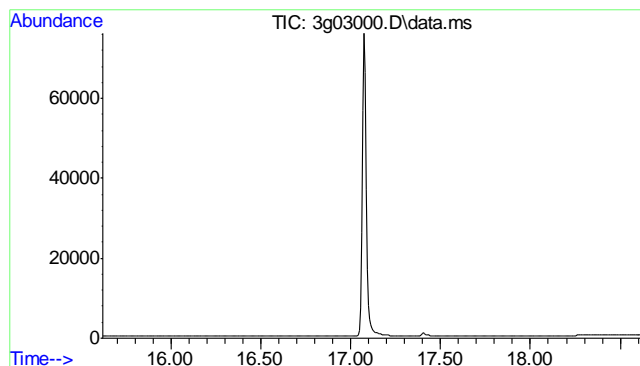
#21  
Benzo(a)anthracene  
Concen: N.D. ug/mL  
Expected RT: 17.04 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

Tgt Ion:	228
Sig	Exp Ratio
228	100
229	19.4
226	26.1



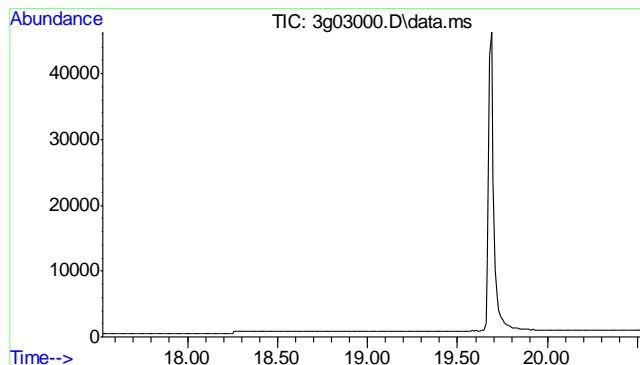




#22  
Chrysene  
Concen: N.D. ug/mL  
Expected RT: 17.12 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

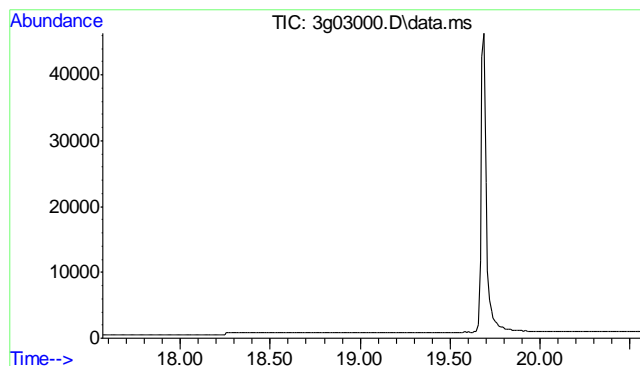
Tgt Ion: 228  
Sig Exp Ratio  
228 100  
226 28.3  
229 19.2



#24  
Benzo(b)fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 19.02 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

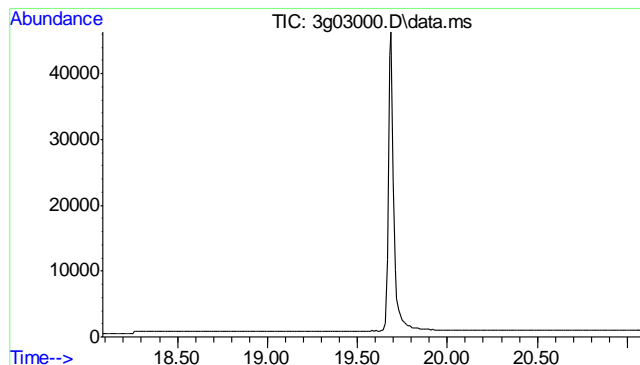
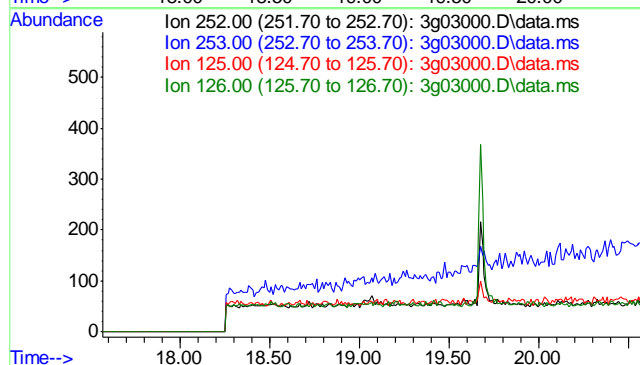
Tgt Ion: 252  
Sig Exp Ratio  
252 100  
253 21.5  
125 10.1  
126 13.4



#25  
Benzo(k)fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 19.07 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

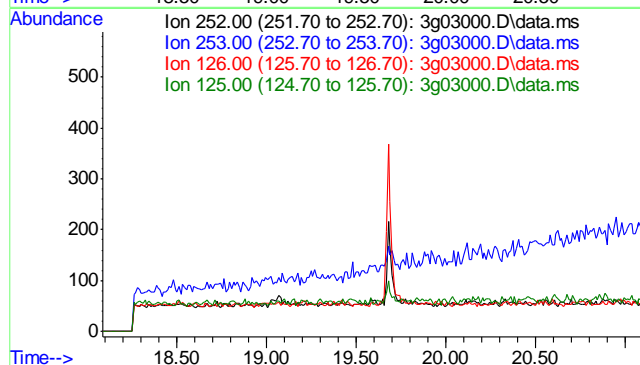
Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.4
125	8.7
126	12.4

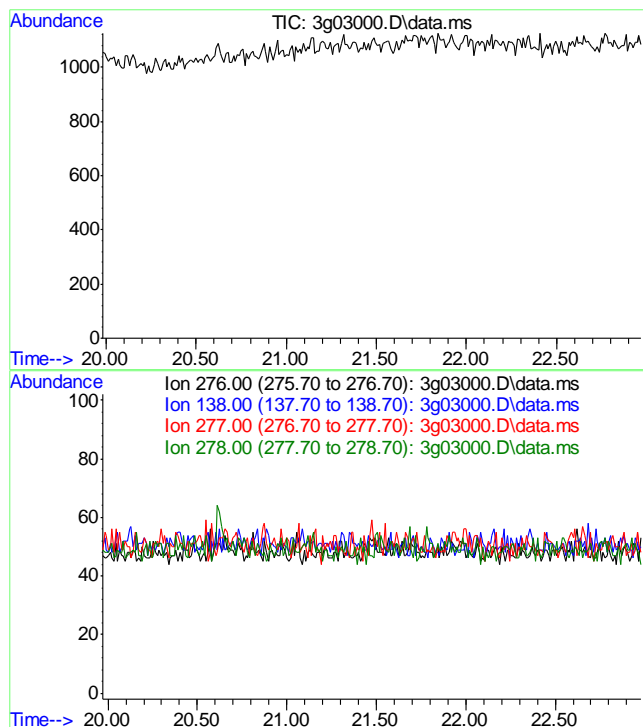


#26  
Benzo(a)pyrene  
Concen: N.D. ug/mL  
Expected RT: 19.58 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	23.4
126	13.5
125	11.5

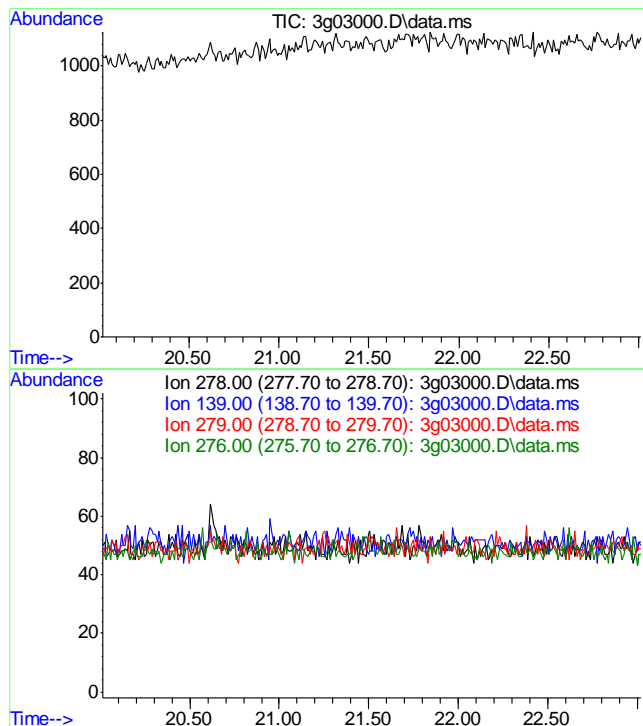




#27  
Indeno(1,2,3-cd)pyrene  
Concen: N.D. ug/mL  
Expected RT: 21.48 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

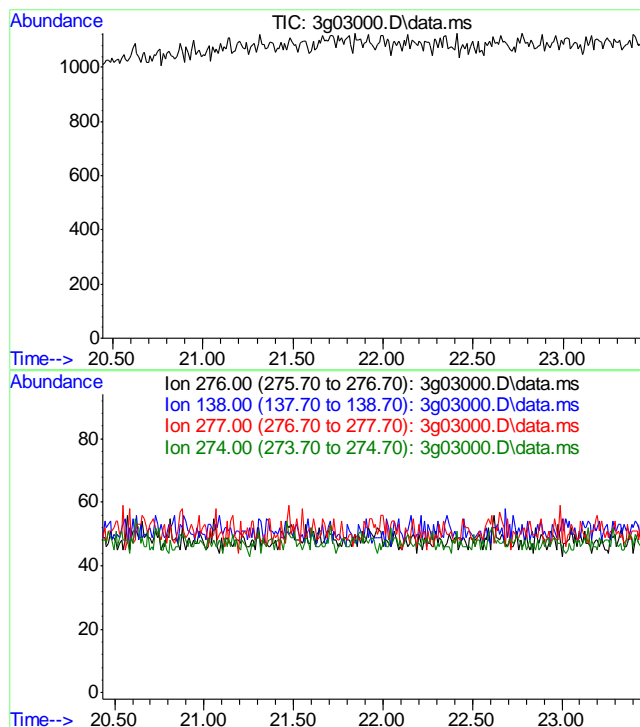
Tgt Ion: 276  
Sig Exp Ratio  
276 100  
138 15.8  
277 39.3  
278 125.8



#28  
Dibenz(a,h)anthracene  
Concen: N.D. ug/mL  
Expected RT: 21.52 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

Tgt Ion: 278  
Sig Exp Ratio  
278 100  
139 13.5  
279 23.4  
276 126.9



#29  
Benzo(g,h,i)perylene  
Concen: N.D. ug/mL  
Expected RT: 21.94 min

Lab File: 3g03000.D  
Acq: 28 Feb 11 1:46 pm

Tgt Ion: 276  
Sig Exp Ratio  
276 100  
138 16.7  
277 23.0  
274 21.5

8.2.1

8

## GC Volatiles

### QC Data Summaries

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Includes the following where applicable:

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

Method Blank Summary

Job Number: D21334  
Account: KRWCCOL KRW Consulting, Inc.  
Project: PCU 23-18 Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB521-MB	GB9634.D	1	02/25/11	BR	n/a	n/a	GGB521

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

D21334-1

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

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	98% 60-140%

9.1.1  
9

Blank Spike Summary

Job Number: D21334  
Account: KRWCCOL KRW Consulting, Inc.  
Project: PCU 23-18 Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB521-BS	GB9635.D	1	02/25/11	BR	n/a	n/a	GGB521

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

D21334-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	104	95	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	101%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D21334  
Account: KRWCCOL KRW Consulting, Inc.  
Project: PCU 23-18 Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D21322-3MS	GB9637.D	1	02/25/11	BR	n/a	n/a	GGB521
D21322-3MSD	GB9638.D	1	02/25/11	BR	n/a	n/a	GGB521
D21322-3	GB9636.D	1	02/25/11	BR	n/a	n/a	GGB521

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

D21334-1

CAS No.	Compound	D21322-3 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	23.1		159	171	93	160	86	7	62-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D21322-3	Limits
120-82-1	1,2,4-Trichlorobenzene	91%	93%	92%	60-140%



GC Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\022511\GB9647.D\FID1A.CH Vial: 16  
Signal #2 : Y:\1\DATA\022511\GB9647.D\FID2B.CH  
Acq On : 25 Feb 2011 7:54 pm Operator: BrianR  
Sample : D21334-1 50X Inst : GC/MS Ins  
Misc : GC1691,GGB521,5.018,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: Feb 26 10:06:18 2011 Quant Results File: TB510GB510.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB510GB510.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Fri Feb 11 14:46:52 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	14.28	3084282	89.513 %	m
10) S	1,2,4-Trichlorobenzene (P)	0.00	0	N.D. %	d
Target Compounds					
1) H	TVH-Gasoline	7.21	53722791	0.859 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	0.00	0	N.D. ug/L	d
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	0.00	0	N.D. ug/L	d

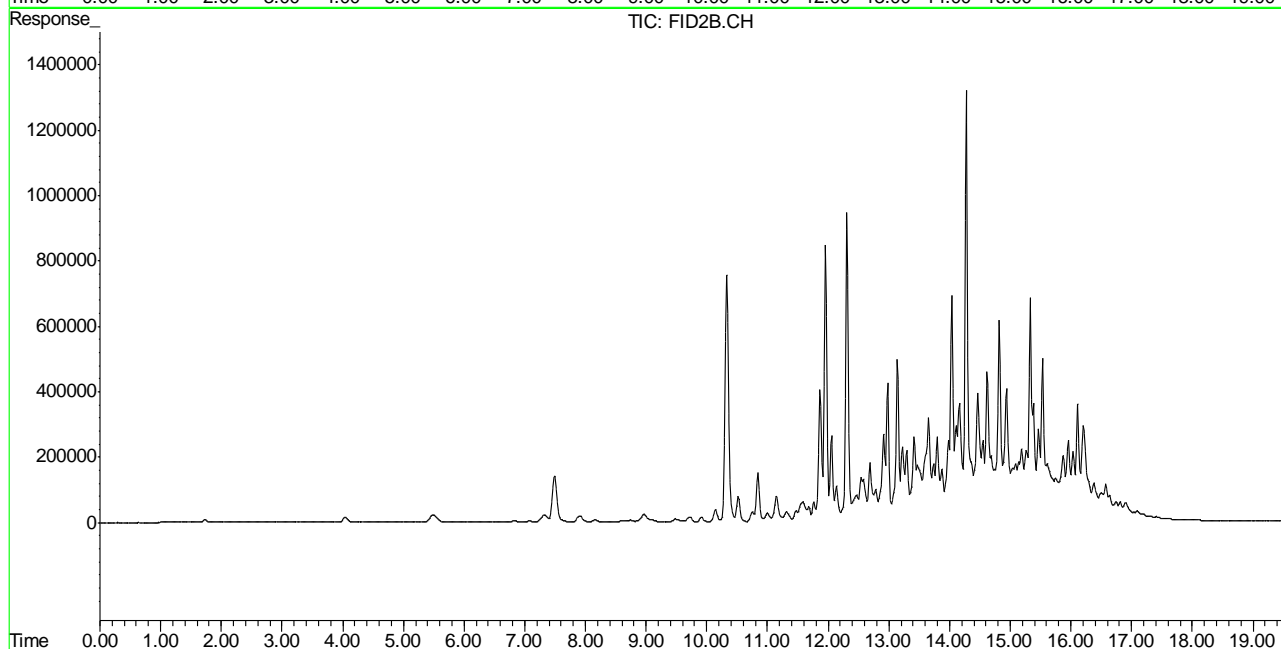
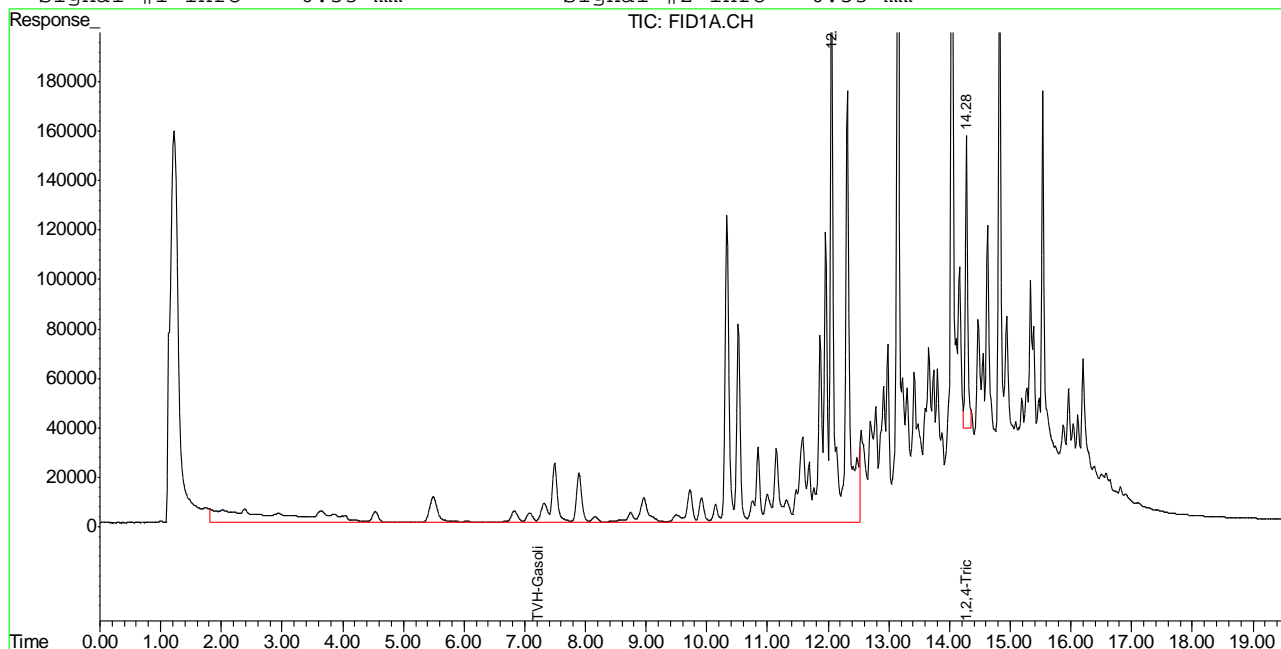
10.1.1  
10

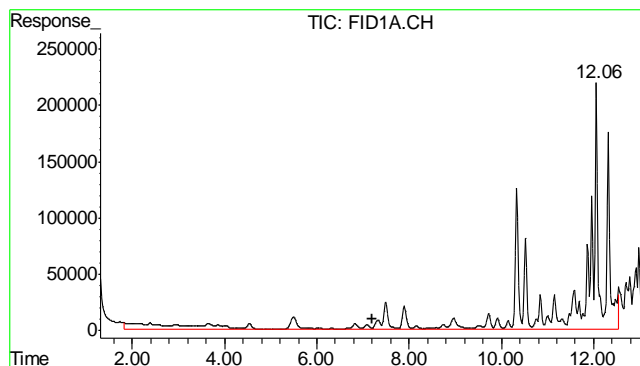
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\022511\GB9647.D\FID1A.CH Vial: 16  
 Signal #2 : Y:\1\DATA\022511\GB9647.D\FID2B.CH  
 Acq On : 25 Feb 2011 7:54 pm Operator: BrianR  
 Sample : D21334-1 50X Inst : GC/MS Ins  
 Misc : GC1691, GGB521, 5.018, ,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
 Quant Time: Feb 26 9:31 2011 Quant Results File: TB510GB510.RES

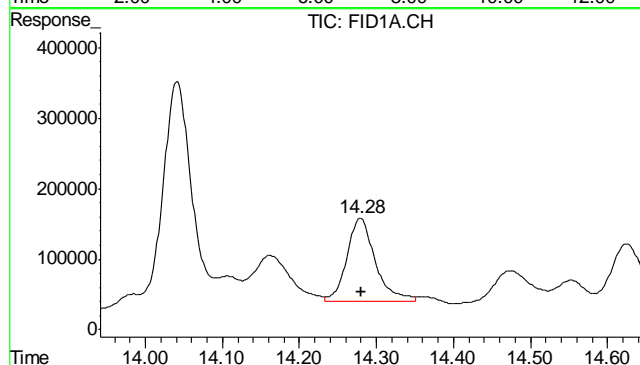
Quant Method : C:\MSDCHEM\1\METHODS\TB510GB510.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Fri Feb 11 14:46:52 2011  
 Response via : Single Level Calibration  
 DataAcq Meth : TVB4.M

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

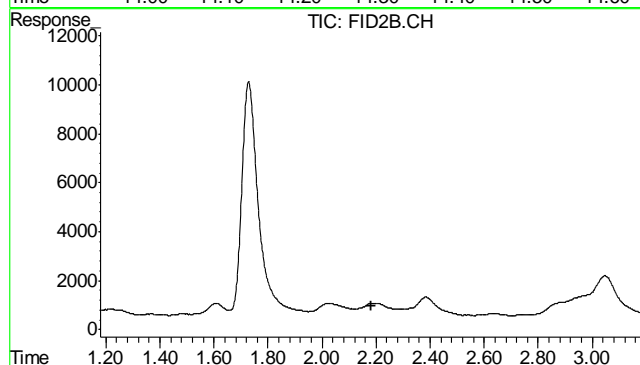




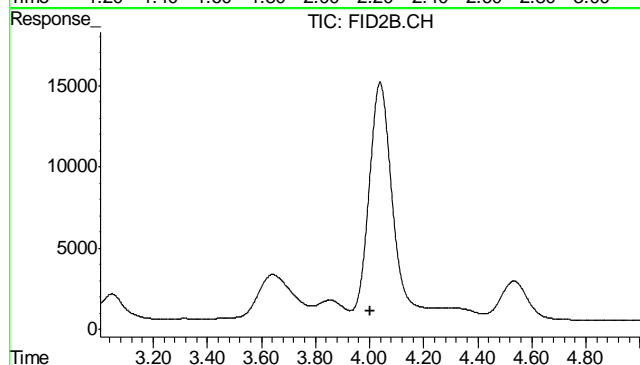
#1 TVH-Gasoline  
 R.T.: 7.205 min  
 Delta R.T.: 0.000 min  
 Response: 53722791  
 Conc: 0.86 mg/L m



#2 1,2,4-Trichlorobenzene  
 R.T.: 14.279 min  
 Delta R.T.: -0.001 min  
 Response: 3084282  
 Conc: 89.51 % m

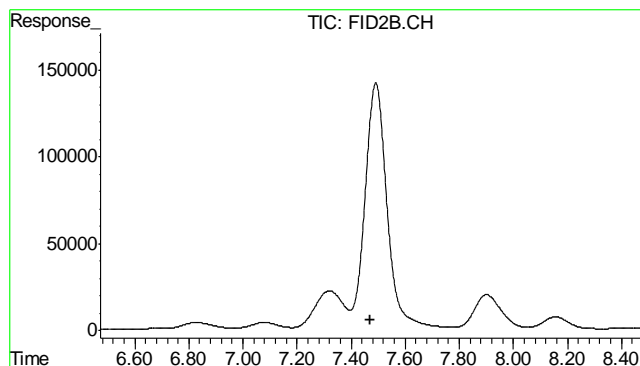


#4 Methyl-t-butyl-ether  
 R.T.: 0.000 min  
 Exp R.T.: 2.180 min  
 Response: 0  
 Conc: N.D.

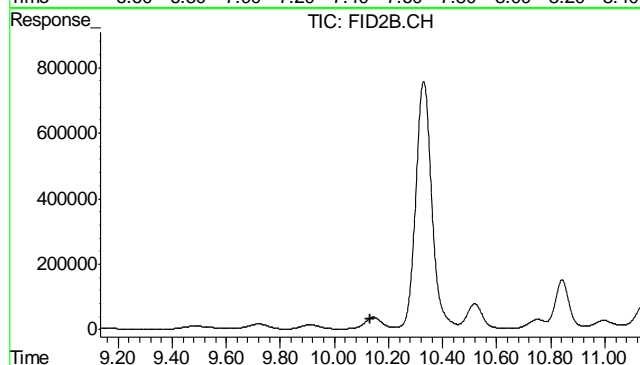


#5 Benzene  
 R.T.: 0.000 min  
 Exp R.T.: 4.004 min  
 Response: 0  
 Conc: N.D.

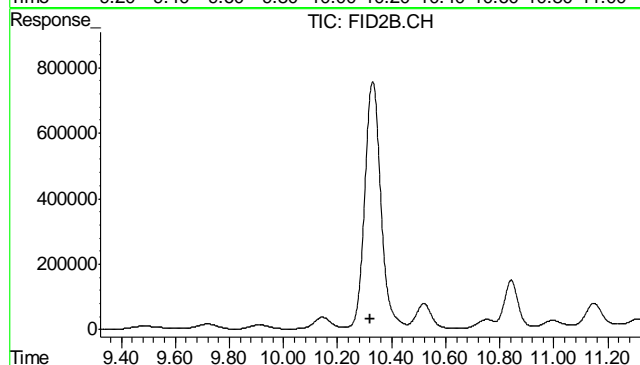
10.1.1  
 10



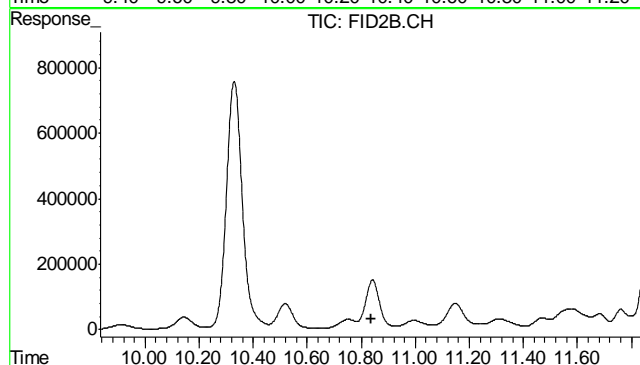
#6 Toluene  
 R.T.: 0.000 min  
 Exp R.T. : 7.472 min  
 Response: 0  
 Conc: N.D.



#7 Ethylbenzene  
 R.T.: 0.000 min  
 Exp R.T. : 10.134 min  
 Response: 0  
 Conc: N.D.

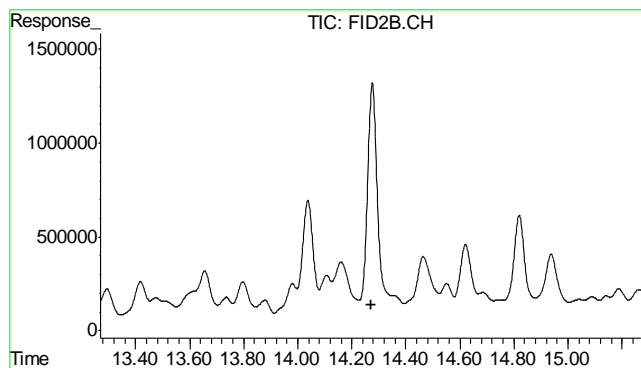


#8 m,p-Xylene  
 R.T.: 0.000 min  
 Exp R.T. : 10.322 min  
 Response: 0  
 Conc: N.D.



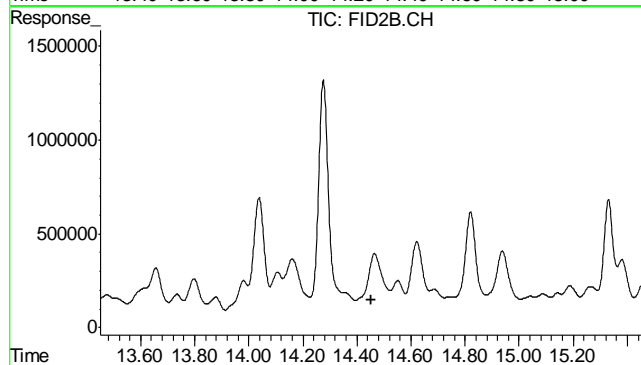
#9 o-Xylene  
 R.T.: 0.000 min  
 Exp R.T. : 10.835 min  
 Response: 0  
 Conc: N.D.

10.1.1  
 10



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

R.T.: 0.000 min  
 Exp R.T. : 14.270 min  
 Response: 0  
 Conc: N.D.



#11 Naphthalene

R.T.: 0.000 min  
 Exp R.T. : 14.451 min  
 Response: 0  
 Conc: N.D.

10.1.1  
 10

## Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\022511\GB9634.D\FID1A.CH Vial: 3  
 Signal #2 : Y:\1\DATA\022511\GB9634.D\FID2B.CH  
 Acq On : 25 Feb 2011 12:04 pm Operator: BrianR  
 Sample : MB, S Inst : GC/MS Ins  
 Misc : GC1691,GGB521,5.000,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
 Quant Time: Feb 26 10:05:57 2011 Quant Results File: TB510GB510.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB510GB510.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Fri Feb 11 14:46:52 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	14.28	3391766	98.436	%	
10) S	1,2,4-Trichlorobenzene (P)	0.00	0	N.D.	%	d
Target Compounds						
1) H	TVH-Gasoline	7.21	4720861	0.075	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	0.00	0	N.D.	ug/L	d
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	0.00	0	N.D.	ug/L	d

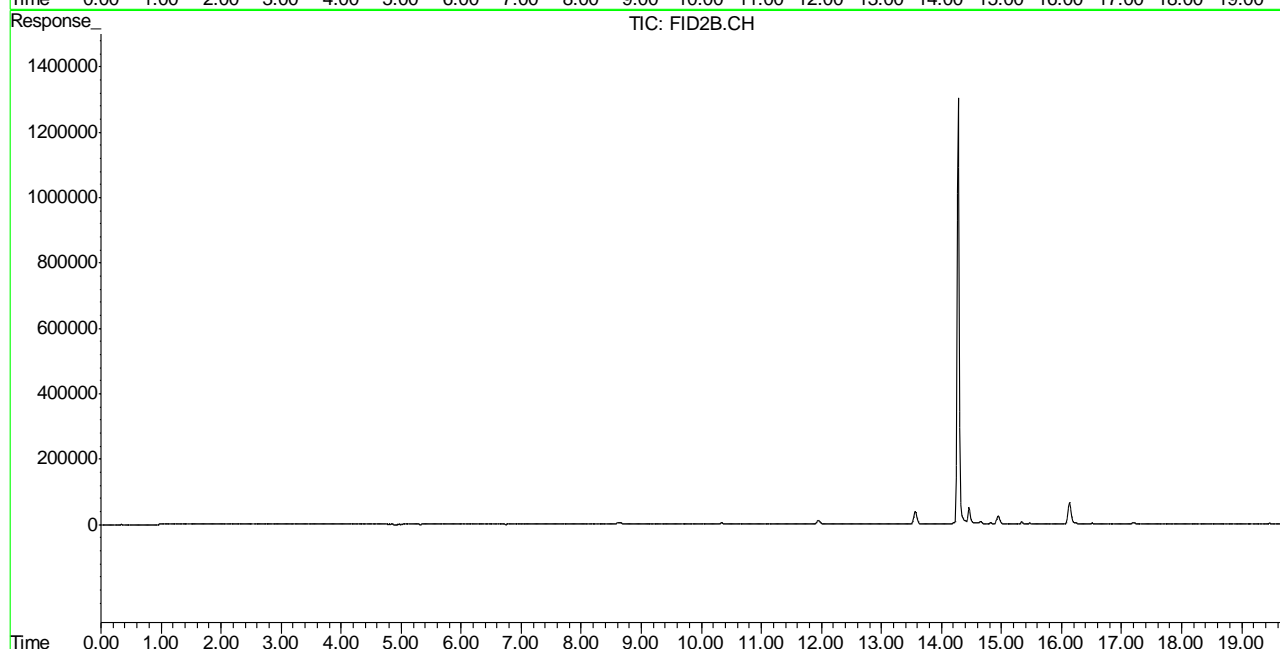
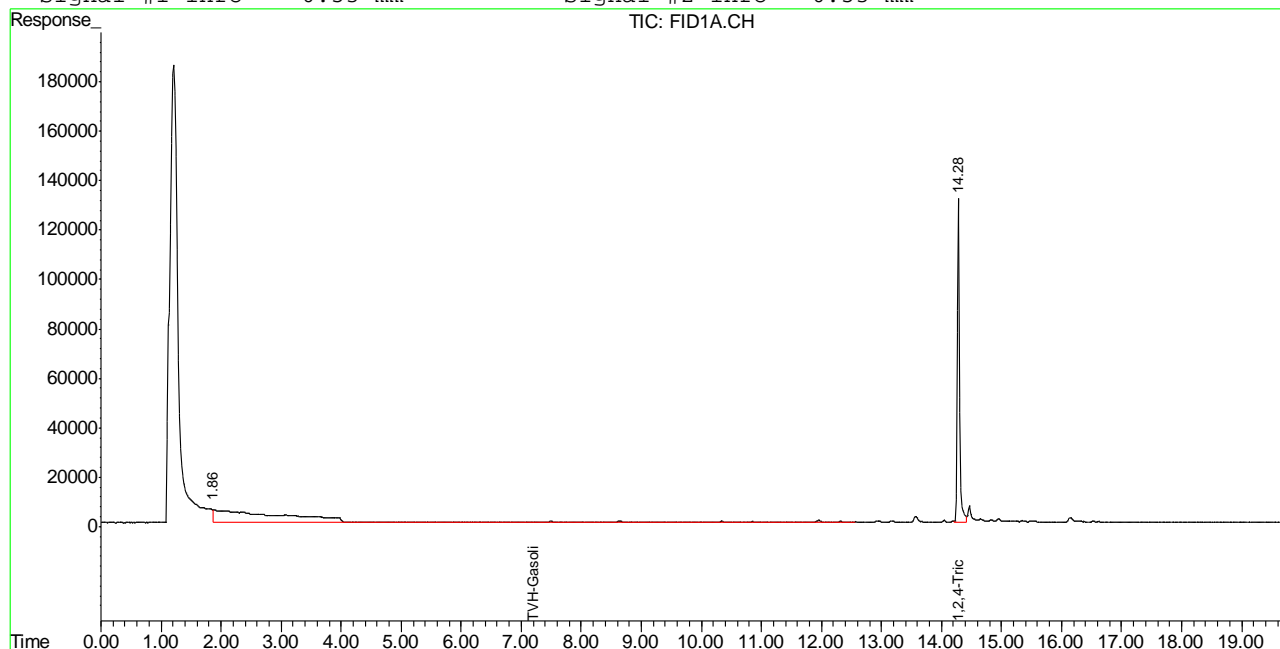
(f)=RT Delta > 1/2 Window (m)=manual int.  
 GB9634.D TB510GB510.M Sat Feb 26 10:45:36 2011 GC

## Quantitation Report (QT Reviewed)

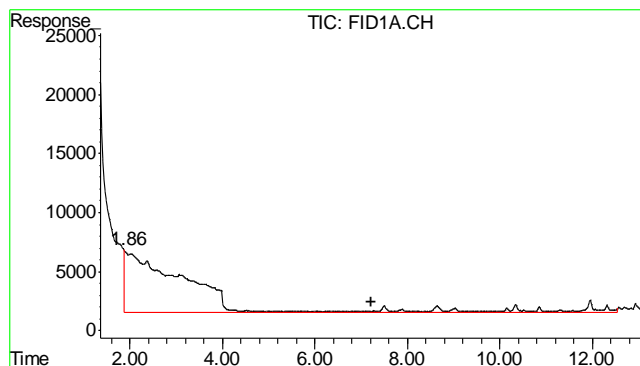
Signal #1 : Y:\1\DATA\022511\GB9634.D\FID1A.CH Vial: 3  
Signal #2 : Y:\1\DATA\022511\GB9634.D\FID2B.CH  
Acq On : 25 Feb 2011 12:04 pm Operator: BrianR  
Sample : MB, S Inst : GC/MS Ins  
Misc : GC1691,GGB521,5.000,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: Feb 26 9:20 2011 Quant Results File: TB510GB510.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB510GB510.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Fri Feb 11 14:46:52 2011  
Response via : Single 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

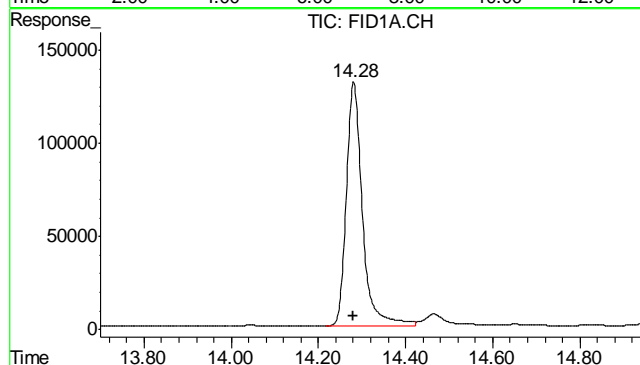






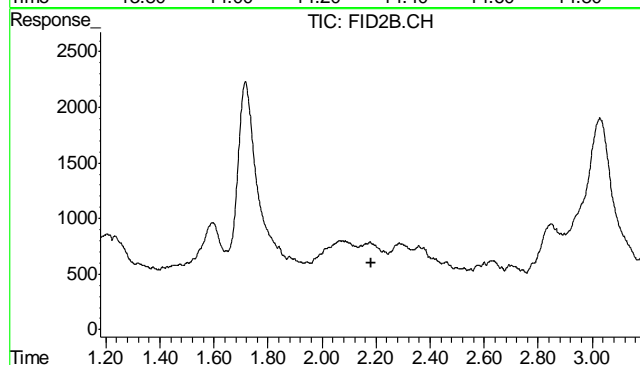
#1 TVH-Gasoline

R.T.: 7.205 min  
Delta R.T.: 0.000 min  
Response: 4720861  
Conc: 0.08 mg/L m



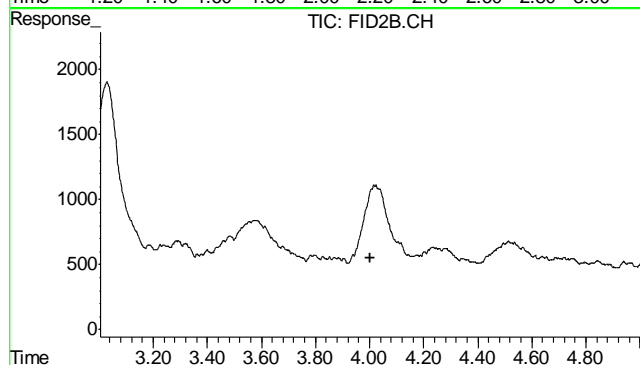
#2 1,2,4-Trichlorobenzene

R.T.: 14.281 min  
Delta R.T.: 0.001 min  
Response: 3391766  
Conc: 98.44 %



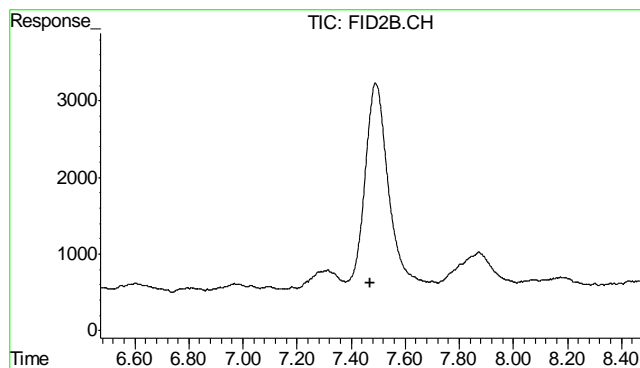
#4 Methyl-t-butyl-ether

R.T.: 0.000 min  
Exp R.T.: 2.180 min  
Response: 0  
Conc: N.D.



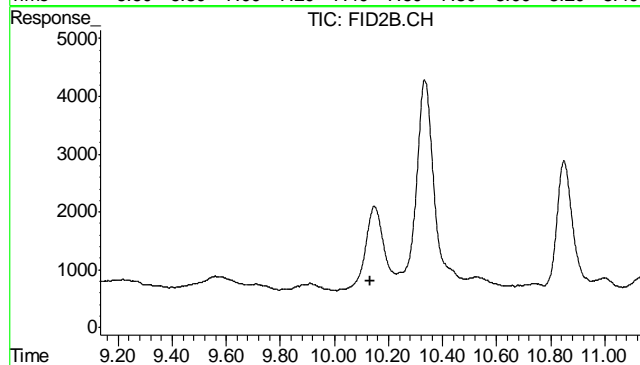
#5 Benzene

R.T.: 0.000 min  
Exp R.T.: 4.004 min  
Response: 0  
Conc: N.D.



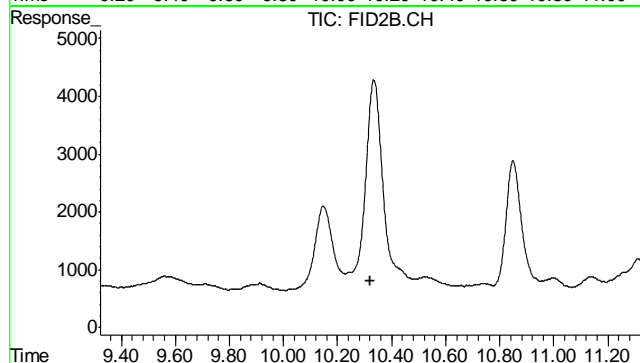
#6 Toluene

R.T.: 0.000 min  
Exp R.T. : 7.472 min  
Response: 0  
Conc: N.D.



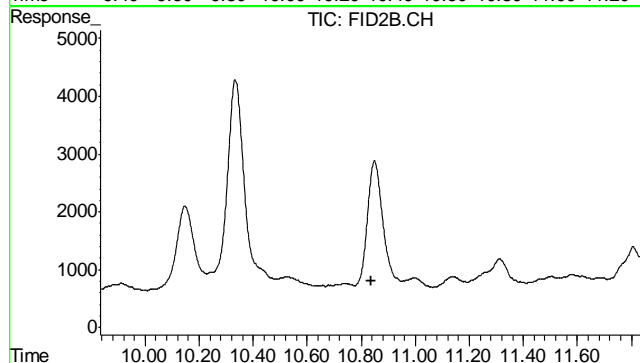
#7 Ethylbenzene

R.T.: 0.000 min  
Exp R.T. : 10.134 min  
Response: 0  
Conc: N.D.



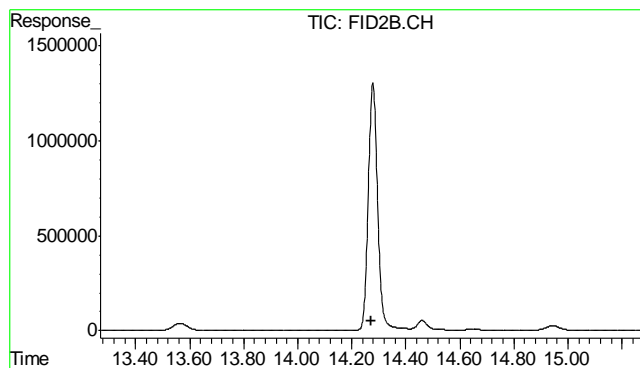
#8 m,p-Xylene

R.T.: 0.000 min  
Exp R.T. : 10.322 min  
Response: 0  
Conc: N.D.



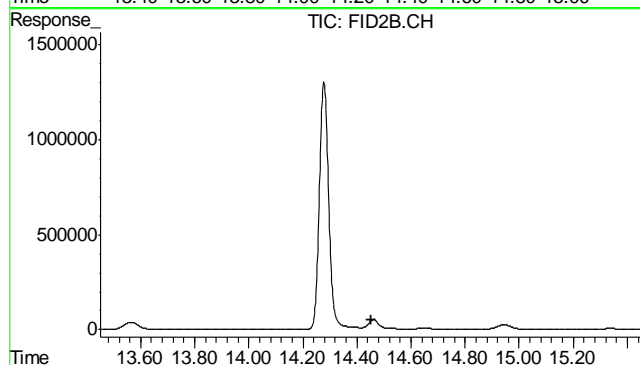
#9 o-Xylene

R.T.: 0.000 min  
Exp R.T. : 10.835 min  
Response: 0  
Conc: N.D.



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

R.T.: 0.000 min  
Exp R.T. : 14.270 min  
Response: 0  
Conc: N.D.



#11 Naphthalene

R.T.: 0.000 min  
Exp R.T. : 14.451 min  
Response: 0  
Conc: N.D.

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:** D21334  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** PCU 23-18 Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3213-MB	FE6084.D	1	03/01/11	JB	02/26/11	OP3213	GFE301

The QC reported here applies to the following samples:

Method: SW846-8015B

D21334-1

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	96% 63-130%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D21334

**Account:** KRWCCOL KRW Consulting, Inc.

**Project:** PCU 23-18 Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3213-BS	FE6085.D	1	03/01/11	JB	02/26/11	OP3213	GFE301

The QC reported here applies to the following samples:

Method: SW846-8015B

D21334-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	660	99	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	112%	63-130%

11.2.1  
11

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D21334  
Account: KRWCCOL KRW Consulting, Inc.  
Project: PCU 23-18 Spill

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3213-MS	FE6086.D	1	03/01/11	JB	02/26/11	OP3213	GFE301
OP3213-MSD	FE6087.D	1	03/01/11	JB	02/26/11	OP3213	GFE301
D21323-1	FE6088.D	1	03/01/11	JB	02/26/11	OP3213	GFE301

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

D21334-1

CAS No.	Compound	D21323-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	21.0		764	636	81	647	82	2	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D21323-1	Limits
84-15-1	o-Terphenyl	91%	93%	92%	63-130%

11.3.1  
11

GC Semi-volatiles

Raw Data



Quantitation Report (QT Reviewed)

Data File : E:\DATA\GFE301\FE6107.D Vial: 65  
Acq On : 2 Mar 2011 12:48 pm Operator: JacobB  
Sample : D21334-1, 10x Inst : FID6  
Misc : OP3213,GFE301,30.05,,,2,10 Multiplr: 1.00  
IntFile : DF-GFE136.E  
Quant Time: Mar 02 13:53:14 2011 Quant Results File: DF-GFE301.RES

Quant Method : C:\MSDCHEM\1\METHODS\DF-GFE301.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Wed Mar 02 09:27:11 2011  
Response via : Initial Calibration  
DataAcq Meth : FR\_BASE2.M

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

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	13.29	7037317	87.924 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	11.48	383182325	5145.961 mg/L

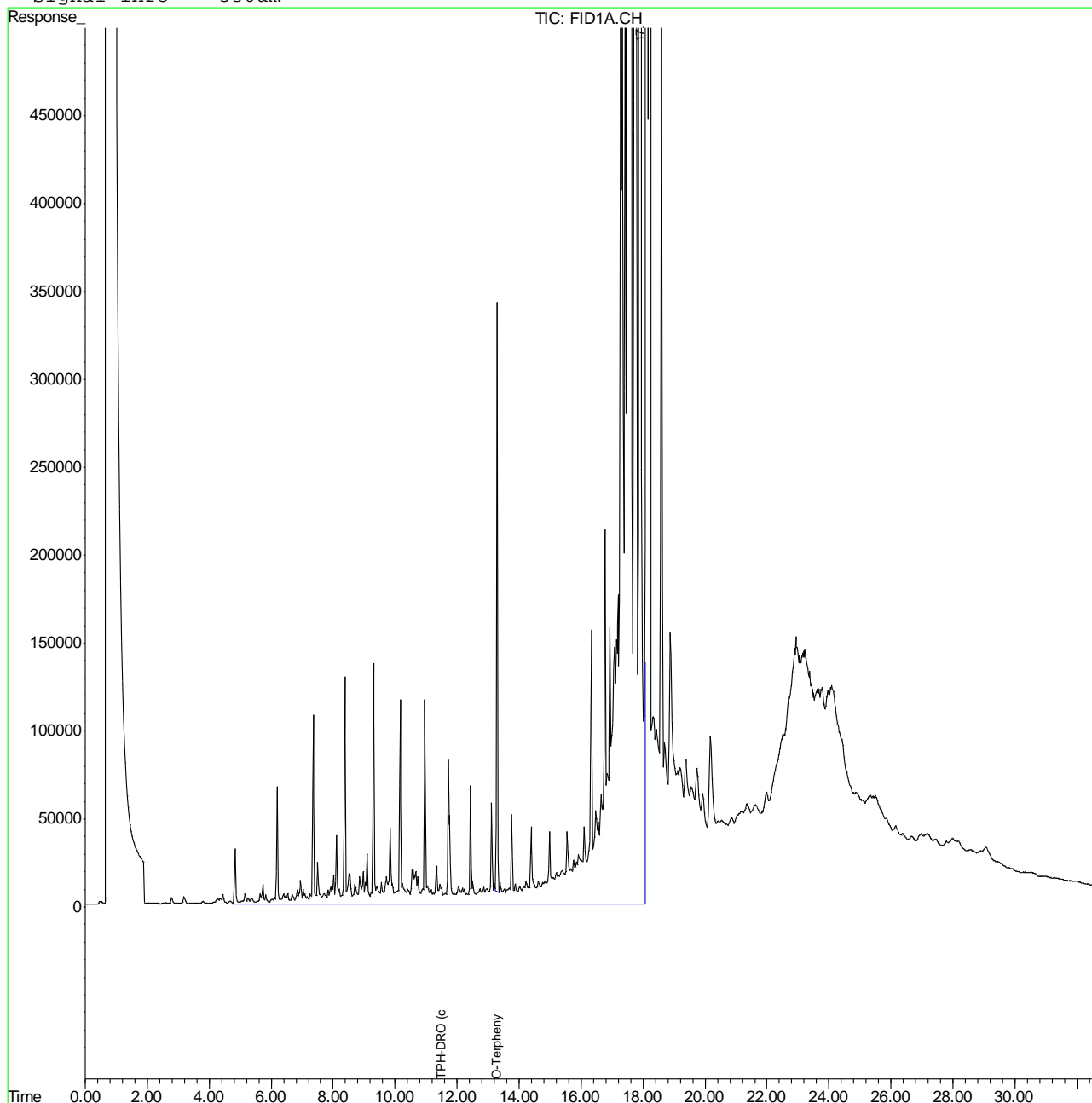
12.1.1  
12

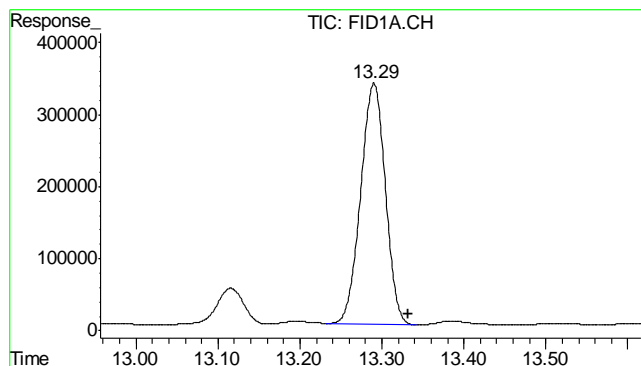
Quantitation Report (QT Reviewed)

Data File : E:\DATA\GFE301\FE6107.D Vial: 65  
 Acq On : 2 Mar 2011 12:48 pm Operator: JacobB  
 Sample : D21334-1, 10x Inst : FID6  
 Misc : OP3213,GFE301,30.05,,,2,10 Multiplr: 1.00  
 IntFile : DF-GFE136.E  
 Quant Time: Mar 2 12:58 2011 Quant Results File: DF-GFE301.RES

Quant Method : C:\MSDCHEM\1\METHODS\DF-GFE301.M (Chemstation Integrator)  
 Title : 8015B TEH  
 Last Update : Wed Mar 02 09:27:11 2011  
 Response via : Multiple Level Calibration  
 DataAcq Meth : FR\_BASE2.M

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





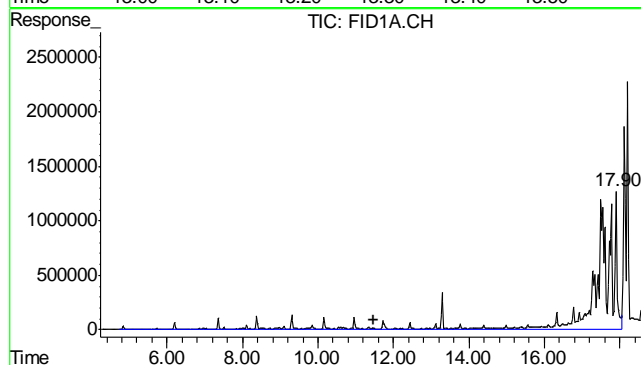
#1 O-Terphenyl

R.T.: 13.290 min

Delta R.T.: -0.042 min

Response: 7037317

Conc: 87.92 mg/L m



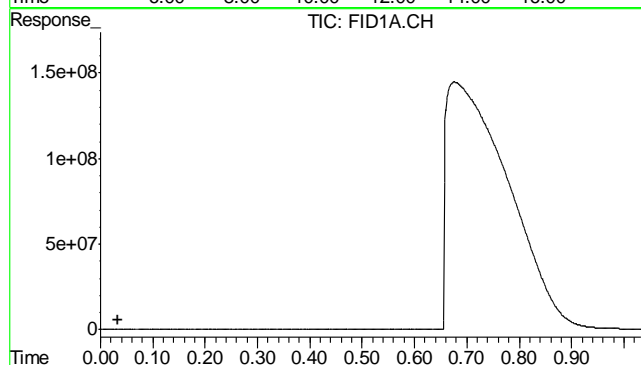
#2 TPH-DRO (c10-c28)

R.T.: 11.485 min

Delta R.T.: 0.000 min

Response: 383182325

Conc: 5145.96 mg/L m



#3 5a-Androstane

R.T.: 0.077 min

Delta R.T.: 0.045 min

Response: 56

Conc: N.D.

## Quantitation Report (QT Reviewed)

Data File : E:\DATA\GFE301\FE6084.D Vial: 42  
Acq On : 1 Mar 2011 9:06 pm Operator: JacobB  
Sample : OP3213-MB Inst : FID6  
Misc : OP3213,GFE301,30.00,,,2,1 Multiplr: 1.00  
IntFile : DF-GFE136.E  
Quant Time: Mar 02 09:29:07 2011 Quant Results File: DF-GFE301.RES

Quant Method : C:\MSDCHEM\1\METHODS\DF-GFE301.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Wed Mar 02 09:27:11 2011  
Response via : Initial Calibration  
DataAcq Meth : FR\_BASE2.M

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

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	13.32	74199181	956.053 mg/L

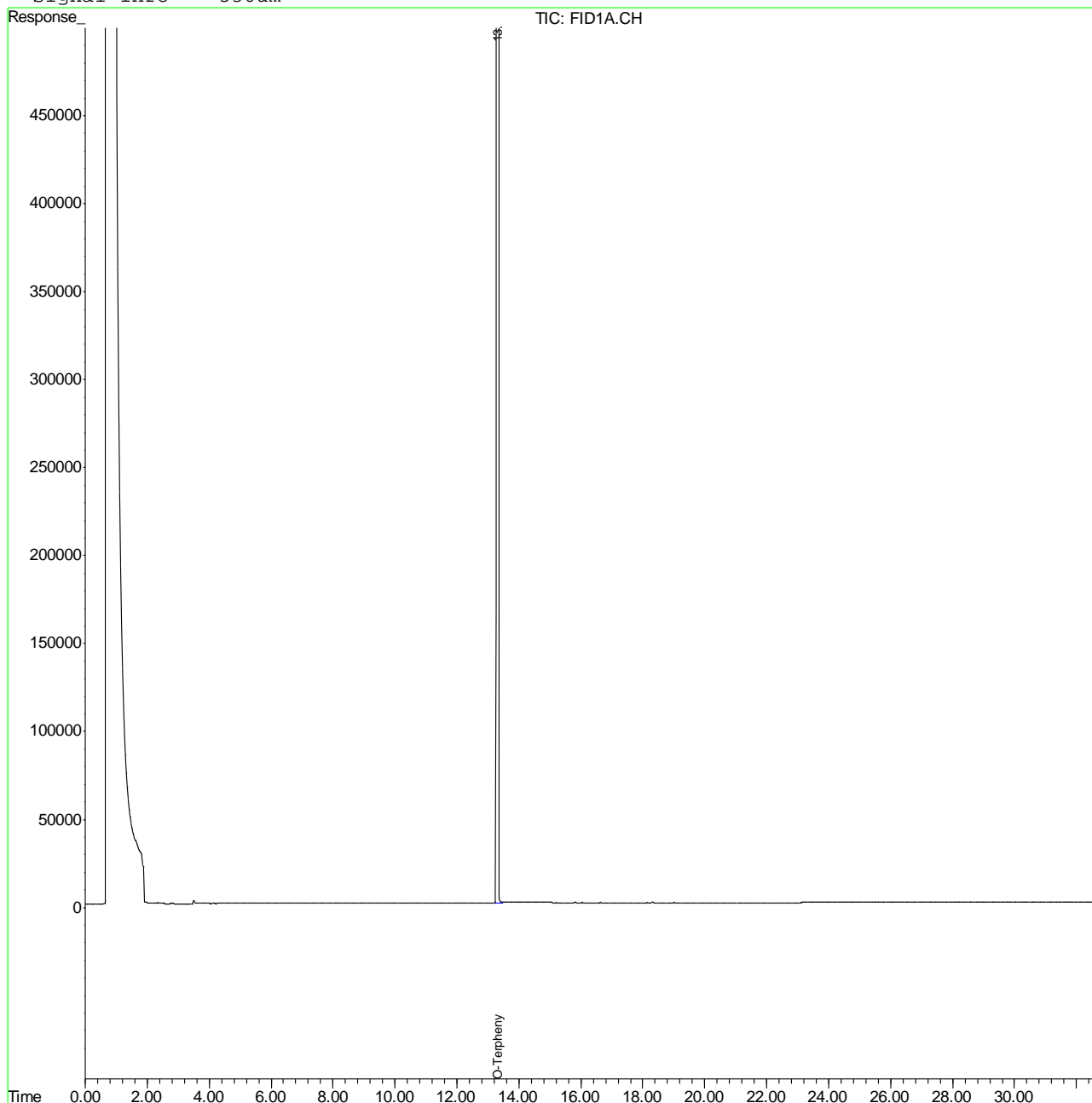
Target Compounds

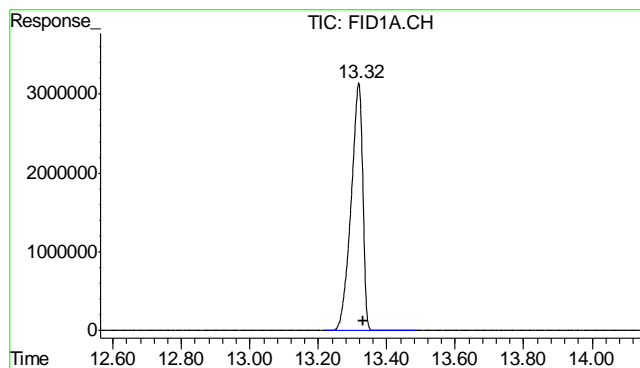
## Quantitation Report (QT Reviewed)

Data File : E:\DATA\GFE301\FE6084.D Vial: 42  
Acq On : 1 Mar 2011 9:06 pm Operator: JacobB  
Sample : OP3213-MB Inst : FID6  
Misc : OP3213,GFE301,30.00,,,2,1 Multiplr: 1.00  
IntFile : DF-GFE136.E  
Quant Time: Mar 2 8:53 2011 Quant Results File: DF-GFE301.RES

Quant Method : C:\MSDCHEM\1\METHODS\DF-GFE301.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Wed Mar 02 09:27:11 2011  
Response via : Multiple Level Calibration  
DataAcq Meth : FR\_BASE2.M

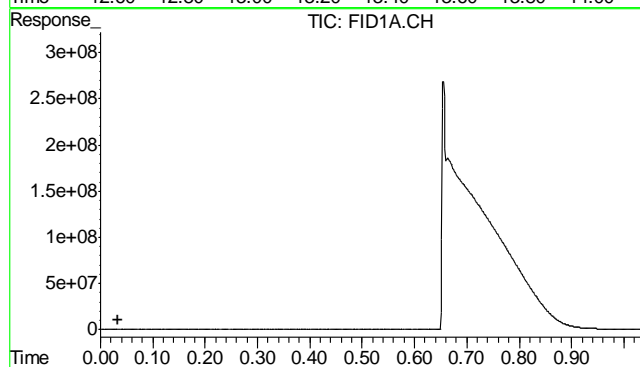
Volume Inj. : 1ul  
Signal Phase : RTX-5  
Signal Info : 530um





#1 O-Terphenyl

R.T.: 13.318 min  
Delta R.T.: -0.014 min  
Response: 74199181  
Conc: 956.05 mg/L



#3 5a-Androstane

R.T.: 0.000 min  
Exp R.T.: 0.033 min  
Response: 0  
Conc: N.D.

## 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: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4112  
Matrix Type: SOLID

Methods: SW846 7471A  
Units: mg/kg

Prep Date: 02/28/11

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

Associated samples MP4112: D21334-1

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: D21334  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: PCU 23-18 Spill

QC Batch ID: MP4112  
 Matrix Type: SOLID

Methods: SW846 7471A  
 Units: mg/kg

Prep Date: 02/28/11

Metal	D21190-1 Original MS	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.018	0.22	0.34	59.4N(a) 85-115

Associated samples MP4112: D21334-1

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.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21334  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: PCU 23-18 Spill

QC Batch ID: MP4112  
 Matrix Type: SOLID

Methods: SW846 7471A  
 Units: mg/kg

Prep Date: 02/28/11

Metal	D21190-1 Original MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
-------	--------------------------	--------------------	-------	------------	-------------

Mercury 0.018 0.29 0.401 67.8N(a) 27.5 (b) 20

Associated samples MP4112: D21334-1

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.  
 (b) High RPD due to possible sample matrix or nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D21334  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: PCU 23-18 Spill

QC Batch ID: MP4112  
 Matrix Type: SOLID

Methods: SW846 7471A  
 Units: mg/kg

Prep Date: 02/28/11

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.36	0.4	90.0	80-120

Associated samples MP4112: D21334-1

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: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4113  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 03/01/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.7	2		
Antimony	3.0	.17	.5		
Arsenic	2.5	.28	.72		
Barium	1.0	.014	.05	0.030	<1.0
Beryllium	1.0	.14	.21		
Boron	5.0	.35	.91		
Cadmium	1.0	.022	.12	-0.010	<1.0
Calcium	40	1.7	2.7		
Chromium	1.0	.027	.18	0.010	<1.0
Cobalt	0.50	.048	.058		
Copper	1.0	.16	.38	0.040	<1.0
Iron	7.0	.77	.91		
Lead	5.0	.13	.24	-0.14	<5.0
Lithium	0.20	.076	.09		
Magnesium	20	.58	.93		
Manganese	0.50	.021	.028		
Molybdenum	1.0	.041	.16		
Nickel	3.0	.038	.075	-0.010	<3.0
Phosphorus	10	1.5	3.5		
Potassium	200	38	130		
Selenium	5.0	.28	.54	0.020	<5.0
Silicon	5.0	1.2	.68		
Silver	3.0	.098	.068	0.010	<3.0
Sodium	40	23	6.3		
Strontium	5.0	.0091	.02		
Thallium	1.0	.31	.21		
Tin	5.0	1.4	.56		
Titanium	1.0	.0098	.041		
Uranium	5.0	.22	.53		
Vanadium	1.0	.027	.034		
Zinc	3.0	.076	.49	0.16	<3.0

Associated samples MP4113: D21334-1

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4113  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

13.2.1

13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4113  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 03/01/11

Metal	D21323-1 Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	392	460	229	29.6N(a)	75-125
Beryllium					
Boron					
Cadmium	0.32	48.4	57.3	83.9	75-125
Calcium					
Chromium	2.6	51.4	57.3	85.1	75-125
Cobalt					
Copper	6.9	58.2	57.3	89.5	75-125
Iron					
Lead	9.5	104	115	82.4	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	7.8	52.4	57.3	77.8	75-125
Phosphorus					
Potassium					
Selenium	1.6	98.9	115	84.8	75-125
Silicon					
Silver	0.12	20.3	22.9	88.0	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	19.4	64.0	57.3	77.8	75-125

Associated samples MP4113: D21334-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4113  
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.

13.2.2  
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4113  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 03/01/11

Metal	D21323-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	392	455	223	28.3N(a)	1.1	20
Beryllium						
Boron						
Cadmium	0.32	48.1	55.7	85.8	0.6	20
Calcium						
Chromium	2.6	52.8	55.7	90.2	2.7	20
Cobalt						
Copper	6.9	59.2	55.7	93.9	1.7	20
Iron						
Lead	9.5	105	111	85.8	1.0	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	7.8	53.4	55.7	81.9	1.9	20
Phosphorus						
Potassium						
Selenium	1.6	97.2	111	85.9	1.7	20
Silicon						
Silver	0.12	20.0	22.3	89.3	1.5	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	19.4	67.9	55.7	87.1	5.9	20

Associated samples MP4113: D21334-1

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



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4113  
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: D21334  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: PCU 23-18 Spill

QC Batch ID: MP4113  
 Matrix Type: SOLID

Methods: SW846 6010B  
 Units: mg/kg

Prep Date: 03/01/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	178	200	89.0	80-120
Beryllium				
Boron				
Cadmium	45.1	50	90.2	80-120
Calcium				
Chromium	47.1	50	94.2	80-120
Cobalt				
Copper	46.6	50	93.2	80-120
Iron				
Lead	91.5	100	91.5	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	45.5	50	91.0	80-120
Phosphorus				
Potassium				
Selenium	91.6	100	91.6	80-120
Silicon				
Silver	18.6	20	93.0	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	43.9	50	87.8	80-120

Associated samples MP4113: D21334-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4113  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

13.2.3

13

SERIAL DILUTION RESULTS SUMMARY

Login Number: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4113  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: ug/l

Prep Date: 03/01/11

Metal	D21323-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	3660	3990	8.8	0-10
Beryllium				
Boron				
Cadmium	3.00	0.00	100.0(a)	0-10
Calcium				
Chromium	24.6	24.5	0.4	0-10
Cobalt				
Copper	64.5	59.0	8.5	0-10
Iron				
Lead	88.7	85.0	4.2	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	73.1	82.0	12.2*(b)	0-10
Phosphorus				
Potassium				
Selenium	14.5	44.0	203.4(a)	0-10
Silicon				
Silver	1.10	0.00	100.0(a)	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	181	221	22.1*(b)	0-10

Associated samples MP4113: D21334-1

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

13.24  
13

SERIAL DILUTION RESULTS SUMMARY

Login Number: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4113  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: ug/l

Prep Date:

Metal

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4114  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 03/01/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	0.086	<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 MP4114: D21334-1

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: D21334  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: PCU 23-18 Spill

QC Batch ID: MP4114  
 Matrix Type: SOLID

Methods: SW846 6020  
 Units: mg/kg

Prep Date: 03/01/11

Metal	D21323-1 Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	16.6	115	115	85.8	60-119
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 MP4114: D21334-1

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: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4114  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 03/01/11

Metal	D21323-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	16.6	117	111	90.2	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 MP4114: D21334-1

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: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4114  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 03/01/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	96.1	100	96.1	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP4114: D21334-1

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

# SERIAL DILUTION RESULTS SUMMARY

Login Number: D21334  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: PCU 23-18 Spill

QC Batch ID: MP4114  
 Matrix Type: SOLID

Methods: SW846 6020  
 Units: ug/l

Prep Date: 03/01/11

Metal	D21323-1 Original SDL 5:25 %DIF			QC Limits
Aluminum				
Antimony				
Arsenic	155	164	5.8	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 MP4114: D21334-1

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

13.3.4  
13

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4128  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 03/02/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	35	250		
Antimony	150	8.5	65		
Arsenic	130	14	33		
Barium	50	.7	12		
Beryllium	50	7	22		
Boron	250	18	93		
Cadmium	50	1.1	6		
Calcium	2000	85	46	14.5	<2000
Chromium	50	1.4	8		
Cobalt	25	2.4	1.5		
Copper	25	8	14		
Iron	350	39	50		
Lead	250	6.5	16		
Lithium	10	3.8	8		
Magnesium	1000	29	62	29.0	<1000
Manganese	25	1.1	3.5		
Molybdenum	50	2.1	6		
Nickel	150	1.9	3		
Phosphorus	500	75	270		
Potassium	5000	1900	2700		
Selenium	250	14	36		
Silicon	250	60	100		
Silver	150	4.9	1.5		
Sodium	2000	1200	110	-600	<2000
Strontium	25	.46	17		
Thallium	50	16	11		
Tin	250	70	22		
Titanium	50	.49	3.5		
Uranium	250	11	20		
Vanadium	50	1.4	1.5		
Zinc	150	3.8	8.5		

Associated samples MP4128: D21334-1A

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4128  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4128  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 03/02/11

Metal	D21323-4A Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	6160	143000	125000	109.5	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	10700	147000	125000	109.0	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	165000	298000	125000	106.4	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP4128: D21334-1A

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: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4128  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21334  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: PCU 23-18 Spill

QC Batch ID: MP4128  
 Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
 Units: ug/l

Prep Date: 03/02/11

Metal	D21323-4A Original MSD		Spikelot MPICPALL % Rec		MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	6160	143000	125000	109.5	0.0	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	10700	148000	125000	109.8	0.7	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	165000	303000	125000	110.4	1.7	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP4128: D21334-1A

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: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4128  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date:

Metal

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

13.4.2  
13



## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4128  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 03/02/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	135000	125000	108.0	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	135000	125000	108.0	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	130000	125000	104.0	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP4128: D21334-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

QC Batch ID: MP4128  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

13.4.3

13

## 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: D21334  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Spill

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP3887/GN8502			umhos/cm	9985	10100	101.1	90-110%
pH	GN8437			su	8.00	7.95	99.4	99.3-100.7%

Associated Samples:  
Batch GN8437: D21334-1  
Batch GP3887: D21334-1  
(\*) 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: D21334

Client: AMS

Immediate Client Services Action Required: No

Date / Time Received: 3/1/2011

Delivery Method:

Client Service Action Required at Login: No

Project: N/A

No. Coolers: 1

Airbill #'s: N/A

### 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: D21334  
Account: ALMS - Accutest Mountain States  
Project: KRWCCOL: PCU 23-18 Spill

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP12685/GN34280	0.40	0.0	mg/kg	12	10.2	85.0	80-120%
Chromium, Hexavalent	GP12685/GN34280			mg/kg	1080	974	90.2	80-120%

Associated Samples:  
Batch GP12685: D21334-1  
(\*) Outside of QC limits

DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D21334  
Account: ALMS - Accutest Mountain States  
Project: KRWCCOL: PCU 23-18 Spill

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP12685/GN34280	D21334-1	mg/kg	0.43	0.60	33.0(a)	0-20%
Redox Potential Vs H2	GN34244	D21334-1	mv	284	284	0.0	0-20%

Associated Samples:

Batch GN34244: D21334-1

Batch GP12685: D21334-1

(\*) Outside of QC limits

(a) RPD acceptable due to low duplicate and sample concentrations.

MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D21334  
Account: ALMS - Accutest Mountain States  
Project: KRWCCOL: PCU 23-18 Spill

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP12685/GN34280	D21334-1	mg/kg	0.43	13	12.6	93.3	75-125%
Chromium, Hexavalent	GP12685/GN34280	D21334-1	mg/kg	0.43	1280	1280	99.8	75-125%

Associated Samples:  
Batch GP12685: D21334-1  
(\*) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits



03/18/11

Technical Report for

KRW Consulting, Inc.

23-18

Pump House

Accutest Job Number: D21569

Sampling Date: 03/03/11

Report to:

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

Total number of pages in report: **199**



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.

A handwritten signature in black ink, appearing to read 'J. Hamilton'.

John Hamilton  
Laboratory Director

Client Service contact: Amanda Kissell 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: D21569

23-18

Project No: Pump House

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D21569-1	03/03/11	14:20 JHDK	03/07/11	SO	Soil	COMP 5
D21569-1A	03/03/11	14:20 JHDK	03/07/11	SO	Soil	COMP 5
D21569-2	03/03/11	14:00 JHDK	03/07/11	SO	Soil	COMP 1
D21569-2A	03/03/11	14:00 JHDK	03/07/11	SO	Soil	COMP 1
D21569-3	03/03/11	14:05 JHDK	03/07/11	SO	Soil	COMP 2
D21569-3A	03/03/11	14:05 JHDK	03/07/11	SO	Soil	COMP 2
D21569-4	03/03/11	12:40 JHDK	03/07/11	SO	Soil	D5
D21569-4A	03/03/11	12:40 JHDK	03/07/11	SO	Soil	D5
D21569-5	03/03/11	13:10 JHDK	03/07/11	SO	Soil	D8
D21569-5A	03/03/11	13:10 JHDK	03/07/11	SO	Soil	D8
D21569-6	03/03/11	14:15 JHDK	03/07/11	SO	Soil	COMP 4
D21569-6A	03/03/11	14:15 JHDK	03/07/11	SO	Soil	COMP 4
D21569-7	03/03/11	14:10 JHDK	03/07/11	SO	Soil	COMP 3

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

**Sample Summary**

(continued)

KRW Consulting, Inc.

**Job No:** D21569

23-18

Project No: Pump House

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D21569-7A	03/03/11	14:10 JHDK	03/07/11	SO	Soil	COMP 3
D21569-8	03/03/11	13:50 JHDK	03/07/11	SO	Soil	D-1/CONT. AREA-1
D21569-8A	03/03/11	13:50 JHDK	03/07/11	SO	Soil	D-1/CONT. AREA-1
D21569-9	03/03/11	13:30 JHDK	03/07/11	SO	Soil	D-2
D21569-9A	03/03/11	13:30 JHDK	03/07/11	SO	Soil	D-2
D21569-10	03/03/11	13:25 JHDK	03/07/11	SO	Soil	D-3
D21569-10A	03/03/11	13:25 JHDK	03/07/11	SO	Soil	D-3
D21569-11	03/03/11	13:20 JHDK	03/07/11	SO	Soil	D-4
D21569-11A	03/03/11	13:20 JHDK	03/07/11	SO	Soil	D-4
D21569-12	03/03/11	13:15 JHDK	03/07/11	SO	Soil	D-6
D21569-12A	03/03/11	13:15 JHDK	03/07/11	SO	Soil	D-6
D21569-13	03/03/11	12:45 JHDK	03/07/11	SO	Soil	D-7
D21569-13A	03/03/11	12:45 JHDK	03/07/11	SO	Soil	D-7

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



**Sample Summary**

(continued)

KRW Consulting, Inc.

Job No: D21569

23-18

Project No: Pump House

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D21569-14	03/03/11	12:50	JHDK	03/07/11	SO Soil	D-9
D21569-14A	03/03/11	12:50	JHDK	03/07/11	SO Soil	D-9
D21569-15	03/03/11	12:55	JHDK	03/07/11	SO Soil	D-10
D21569-15A	03/03/11	12:55	JHDK	03/07/11	SO Soil	D-10
D21569-16	03/03/11	13:00	JHDK	03/07/11	SO Soil	D-11
D21569-16A	03/03/11	13:00	JHDK	03/07/11	SO Soil	D-11
D21569-17	03/03/11	13:40	JHDK	03/07/11	SO Soil	B-1
D21569-17A	03/03/11	13:40	JHDK	03/07/11	SO Soil	B-1
D21569-18	03/03/11	13:30	JHDK	03/07/11	SO Soil	B-2
D21569-18A	03/03/11	13:30	JHDK	03/07/11	SO Soil	B-2
D21569-19	03/03/11	12:50	JHDK	03/07/11	SO Soil	B-3
D21569-19A	03/03/11	12:50	JHDK	03/07/11	SO Soil	B-3
D21569-20	03/03/11	12:51	JHDK	03/07/11	SO Soil	B-4

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



Sample Summary  
(continued)

KRW Consulting, Inc.

Job No: D21569

23-18  
Project No: Pump House

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D21569-20A	03/03/11	12:51	JHDK	03/07/11	SO Soil	B-4
D21569-21	03/03/11	13:05	JHDK	03/07/11	SO Soil	B-5
D21569-21A	03/03/11	13:05	JHDK	03/07/11	SO Soil	B-5

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

## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** KRW Consulting, Inc.

**Job No** D21569

**Site:** 23-18

**Report Dat** 3/18/2011 2:42:54 PM

On 03/07/2011, 21 samples, 0 Trip Blanks, and 0 Field Blanks were received at Accutest Mountain States (AMS) at a temperature of 3.7°C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D21569 was assigned to the project. The lab sample IDs, client sample IDs, and dates 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:** V5V816

- All samples were analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D21569-1MS and D21569-1MSD were used as the QC samples indicated.

### Volatiles by GC By Method SW846 8015B

**Matrix** SO

**Batch ID:** GGA578

- All samples were analyzed within the recommended method holding time.
- Samples D21531-1MS and D21531-1MSD were used as the QC samples indicated.
- The method blank for this batch meets method specific criteria.

### Extractables by GC By Method SW846-8015B

**Matrix** SO

**Batch ID:** OP3276

- All samples were extracted and analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D21531-2MS and D21531-2MSD were used as the QC samples indicated.
- Sample D21569-9 has the surrogate outside control limits. The surrogate recovery is above control limit. Since the bias is high and the sample is non-detect for the target analyte, no further action is required.

**Matrix** SO

**Batch ID:** OP3297

- All samples were extracted and analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D21583-2MS and D21583-2MSD were used as the QC samples indicated.
- Sample D21569-9 has the surrogate outside control limits. The surrogate recovery is above control limit. Since the bias is high and the sample is non-detect for the target analyte, no further action is required.

## Metals By Method SW846 6010B

**Matrix** AQ

**Batch ID:** MP4169

- All samples were digested and analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D21569-8AMS and D21569-8AMSD were used as the QC samples for the metals analysis.

**Matrix** AQ

**Batch ID:** MP4191

- All samples were digested and analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D21569-10AMS and D21569-10AMSD were used as the QC samples for the metals analysis.

**Matrix** AQ

**Batch ID:** MP4199

- All samples were digested and analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D21569-11AMS and D21569-11AMSD were used as the QC samples for the metals analysis.

## Metals By Method SW846 6020

**Matrix** SO

**Batch ID:** MP4172

- All samples were digested and analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D21482-1MS, D21482-1MSD, and D21482-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD for Arsenic is outside control limits for sample MP4172-SD1. The percent difference is acceptable due to low initial sample concentration (< 50 times IDL).

**Matrix** SO

**Batch ID:** MP4190

- All samples were digested and analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D21583-1MS, D21583-1MSD, and D21583-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD for Arsenic is outside control limits for sample MP4190-SD1. The percent difference is acceptable due to low initial sample concentration (< 50 times IDL).

## Wet Chemistry By Method DEPT.OF AG, BOOK N9

**Matrix** SO

**Batch ID:** GP3984

- All samples were prepared and analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.

## Wet Chemistry By Method LADNR29B

**Matrix** SO

**Batch ID:** MP4169

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

## Wet Chemistry By Method SM19 2540B M

**Matrix** SO

**Batch ID:** GN8580

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

**Matrix** SO

**Batch ID:** GN8599

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

## Wet Chemistry By Method SW846 9045C

**Matrix** SO

**Batch ID:** GN8578

- The following samples were run outside of holding time for method SW846 9045C: D21569-1, D21569-10, D21569-11, D21569-12, D21569-13, D21569-14, D21569-15, D21569-16, D21569-17, D21569-18, D21569-19, D21569-2, D21569-20, D21569-21, D21569-3, D21569-4, D21569-5, D21569-6, D21569-7, D21569-8, and D21569-9.

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 Results

## Report of Analysis

## Report of Analysis

<b>Client Sample ID:</b>	COMP 5	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-1	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	80.8
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	23-18		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V13819.D	1	03/11/11	DC	n/a	n/a	V5V816
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.00 g	5.0 ml	100 ul
Run #2			

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	74	22	ug/kg	
108-88-3	Toluene	ND	150	74	ug/kg	
100-41-4	Ethylbenzene	135	150	29	ug/kg	J
1330-20-7	Xylene (total)	184	150	52	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	93%		70-130%
460-00-4	4-Bromofluorobenzene	106%		70-130%
17060-07-0	1,2-Dichloroethane-D4	129%		70-130%

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

<b>Client Sample ID:</b>	COMP 5	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-1	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	80.8
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	23-18		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA0592.D	1	03/08/11	BR	n/a	n/a	GGA578
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)	24.6	15	15	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	94%		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



## Report of Analysis

<b>Client Sample ID:</b>	COMP 5						
<b>Lab Sample ID:</b>	D21569-1				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846-8015B	SW846 3550B			<b>Percent Solids:</b>	80.8	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FE6297.D	1	03/12/11	JB	03/10/11	OP3276	GFE310
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	558	16	11	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	120%		63-130%		

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

<b>Client Sample ID:</b>	COMP 5		
<b>Lab Sample ID:</b>	D21569-1	<b>Date Sampled:</b>	03/03/11
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b>	03/07/11
		<b>Percent Solids:</b>	80.8
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	4.2	0.48	mg/kg	5	03/08/11	03/09/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1370  
(2) Prep QC Batch: MP4172

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	COMP 5	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-1	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	80.8
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	80.8		%	1	03/07/11	CJ	SM19 2540B M
Specific Conductivity	1780	1.0	umhos/cm	1	03/09/11	CJ	DEPT.OF AG, BOOK N9
pH	9.20		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	COMP 5	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-1A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	80.8
<b>Project:</b>	23-18		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	37.5	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Magnesium	5.33	1.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Sodium	344	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>

(1) Instrument QC Batch: MA1372  
(2) Prep QC Batch: MP4191

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	COMP 5	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-1A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	80.8
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	13.9		ratio	1	03/09/11 20:57	JM	LADNR29B

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

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	COMP 1	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-2	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	80.8
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	23-18		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V13809.D	1	03/11/11	DC	n/a	n/a	V5V816
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.01 g	5.0 ml	100 ul
Run #2			

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	106	74	22	ug/kg	
108-88-3	Toluene	699	150	74	ug/kg	
100-41-4	Ethylbenzene	ND	150	29	ug/kg	
1330-20-7	Xylene (total)	3880	150	52	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	93%		70-130%
460-00-4	4-Bromofluorobenzene	102%		70-130%
17060-07-0	1,2-Dichloroethane-D4	115%		70-130%

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

<b>Client Sample ID:</b>	COMP 1						
<b>Lab Sample ID:</b>	D21569-2				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846 8015B				<b>Percent Solids:</b>	80.8	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA0593.D	1	03/08/11	BR	n/a	n/a	GGA578
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)	38.3	15	15	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	97%		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

## Report of Analysis

<b>Client Sample ID:</b>	COMP 1						
<b>Lab Sample ID:</b>	D21569-2				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846-8015B	SW846 3550B			<b>Percent Solids:</b>	80.8	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FE6318.D	10	03/15/11	JB	03/10/11	OP3276	GFE311
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	3970	160	110	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	99%		63-130%		

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

<b>Client Sample ID:</b>	COMP 1	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-2	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	80.8
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	4.9	0.47	mg/kg	5	03/08/11	03/09/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1370  
(2) Prep QC Batch: MP4172

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	COMP 1	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-2	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	80.8
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	80.8		%	1	03/07/11	CJ	SM19 2540B M
Specific Conductivity	448	1.0	umhos/cm	1	03/09/11	CJ	DEPT.OF AG, BOOK N9
pH	9.12		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	COMP 1	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-2A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	80.8
<b>Project:</b>	23-18		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	22.1	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Magnesium	6.32	1.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Sodium	64.4	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>

(1) Instrument QC Batch: MA1372  
(2) Prep QC Batch: MP4191

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	COMP 1		
<b>Lab Sample ID:</b>	D21569-2A	<b>Date Sampled:</b>	03/03/11
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b>	03/07/11
		<b>Percent Solids:</b>	80.8
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	3.11		ratio	1	03/09/11 21:04	JM	LADNR29B

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

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	COMP 2	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-3	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.6
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	23-18		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V13810.D	1	03/11/11	DC	n/a	n/a	V5V816
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.01 g	5.0 ml	100 ul
Run #2			

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	71	21	ug/kg	
108-88-3	Toluene	ND	140	71	ug/kg	
100-41-4	Ethylbenzene	ND	140	28	ug/kg	
1330-20-7	Xylene (total)	ND	140	50	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	92%		70-130%
460-00-4	4-Bromofluorobenzene	95%		70-130%
17060-07-0	1,2-Dichloroethane-D4	113%		70-130%

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

<b>Client Sample ID:</b>	COMP 2						
<b>Lab Sample ID:</b>	D21569-3				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846 8015B				<b>Percent Solids:</b>	82.6	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA0594.D	1	03/08/11	BR	n/a	n/a	GGA578
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	14	14	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	93%		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

## Report of Analysis

<b>Client Sample ID:</b>	COMP 2						
<b>Lab Sample ID:</b>	D21569-3				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846-8015B	SW846 3550B			<b>Percent Solids:</b>	82.6	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FE6299.D	1	03/12/11	JB	03/10/11	OP3276	GFE310
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)	26.1	16	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	116%		63-130%		

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

<b>Client Sample ID:</b>	COMP 2	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-3	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.6
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	4.6	0.47	mg/kg	5	03/08/11	03/09/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1370  
(2) Prep QC Batch: MP4172

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	COMP 2	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-3	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.6
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	82.6		%	1	03/07/11	CJ	SM19 2540B M
Specific Conductivity	319	1.0	umhos/cm	1	03/09/11	CJ	DEPT.OF AG, BOOK N9
pH	9.10		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	COMP 2	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-3A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.6
<b>Project:</b>	23-18		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	29.0	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Magnesium	5.99	1.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Sodium	33.0	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>

(1) Instrument QC Batch: MA1372  
(2) Prep QC Batch: MP4191

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	COMP 2	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-3A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.6
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	1.46		ratio	1	03/09/11 21:10	JM	LADNR29B

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

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	D5						
<b>Lab Sample ID:</b>	D21569-4				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846 8260B				<b>Percent Solids:</b>	76.9	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V13811.D	1	03/11/11	DC	n/a	n/a	V5V816
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.01 g	5.0 ml	100 ul
Run #2			

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	80	24	ug/kg	
108-88-3	Toluene	ND	160	80	ug/kg	
100-41-4	Ethylbenzene	ND	160	32	ug/kg	
1330-20-7	Xylene (total)	ND	160	56	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	93%		70-130%
460-00-4	4-Bromofluorobenzene	93%		70-130%
17060-07-0	1,2-Dichloroethane-D4	112%		70-130%

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

<b>Client Sample ID:</b>	D5						
<b>Lab Sample ID:</b>	D21569-4				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846 8015B				<b>Percent Solids:</b>	76.9	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA0595.D	1	03/08/11	BR	n/a	n/a	GGA578
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	16	16	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	90%		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

## Report of Analysis

<b>Client Sample ID:</b>	D5						
<b>Lab Sample ID:</b>	D21569-4				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846-8015B	SW846 3550B			<b>Percent Solids:</b>	76.9	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FE6300.D	1	03/12/11	JB	03/10/11	OP3276	GFE310
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	44.7	17	11	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	108%		63-130%		

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

<b>Client Sample ID:</b>	D5		
<b>Lab Sample ID:</b>	D21569-4	<b>Date Sampled:</b>	03/03/11
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b>	03/07/11
		<b>Percent Solids:</b>	76.9
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.1	0.50	mg/kg	5	03/08/11	03/09/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1370  
(2) Prep QC Batch: MP4172

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D5	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-4	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	76.9
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	76.9		%	1	03/07/11	CJ	SM19 2540B M
Specific Conductivity	405	1.0	umhos/cm	1	03/09/11	CJ	DEPT.OF AG, BOOK N9
pH	9.09		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	D5	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-4A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	76.9
<b>Project:</b>	23-18		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	19.3	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Magnesium	2.56	1.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Sodium	74.6	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>

(1) Instrument QC Batch: MA1372  
(2) Prep QC Batch: MP4191

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D5	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-4A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	76.9
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	4.23		ratio	1	03/09/11 21:16	JM	LADNR29B

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

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	D8	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-5	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	78.0
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	23-18		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V13812.D	1	03/11/11	DC	n/a	n/a	V5V816
Run #2							

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

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	78	23	ug/kg	
108-88-3	Toluene	ND	160	78	ug/kg	
100-41-4	Ethylbenzene	ND	160	31	ug/kg	
1330-20-7	Xylene (total)	ND	160	55	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	95%		70-130%
460-00-4	4-Bromofluorobenzene	99%		70-130%
17060-07-0	1,2-Dichloroethane-D4	117%		70-130%

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

<b>Client Sample ID:</b>	D8						
<b>Lab Sample ID:</b>	D21569-5				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846 8015B				<b>Percent Solids:</b>	78.0	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA0596.D	1	03/08/11	BR	n/a	n/a	GGA578
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	16	16	mg/kg	

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

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

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

## Report of Analysis

<b>Client Sample ID:</b>	D8						
<b>Lab Sample ID:</b>	D21569-5				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846-8015B	SW846 3550B			<b>Percent Solids:</b>	78.0	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FE6301.D	1	03/12/11	JB	03/10/11	OP3276	GFE310
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	23.8	17	11	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	109%		63-130%		

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

<b>Client Sample ID:</b>	D8	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-5	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	78.0
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.1	0.50	mg/kg	5	03/08/11	03/09/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1370  
(2) Prep QC Batch: MP4172

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D8	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-5	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	78.0
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	78		%	1	03/07/11	CJ	SM19 2540B M
Specific Conductivity	2090	1.0	umhos/cm	1	03/09/11	CJ	DEPT.OF AG, BOOK N9
pH	9.20		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D8	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-5A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	78.0
<b>Project:</b>	23-18		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	73.3	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Magnesium	8.00	1.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Sodium	354	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>

(1) Instrument QC Batch: MA1372  
(2) Prep QC Batch: MP4191

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	D8	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-5A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	78.0
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	10.5		ratio	1	03/09/11 21:23	JM	LADNR29B

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

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	COMP 4	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-6	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	79.0
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	23-18		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V13813.D	1	03/11/11	DC	n/a	n/a	V5V816
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	76	23	ug/kg	
108-88-3	Toluene	145	150	76	ug/kg	J
100-41-4	Ethylbenzene	42.1	150	30	ug/kg	J
1330-20-7	Xylene (total)	799	150	53	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	94%		70-130%
460-00-4	4-Bromofluorobenzene	99%		70-130%
17060-07-0	1,2-Dichloroethane-D4	115%		70-130%

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

<b>Client Sample ID:</b>	COMP 4						
<b>Lab Sample ID:</b>	D21569-6				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846 8015B				<b>Percent Solids:</b>	79.0	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA0597.D	1	03/08/11	BR	n/a	n/a	GGA578
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)	27.2	15	15	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	88%		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

## Report of Analysis

<b>Client Sample ID:</b>	COMP 4						
<b>Lab Sample ID:</b>	D21569-6				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846-8015B	SW846 3550B			<b>Percent Solids:</b>	79.0	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FE6302.D	1	03/12/11	JB	03/10/11	OP3276	GFE310
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	492	17	11	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	109%		63-130%		

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

<b>Client Sample ID:</b>	COMP 4		
<b>Lab Sample ID:</b>	D21569-6	<b>Date Sampled:</b>	03/03/11
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b>	03/07/11
		<b>Percent Solids:</b>	79.0
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.2	0.48	mg/kg	5	03/08/11	03/09/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1370  
(2) Prep QC Batch: MP4172

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	COMP 4	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-6	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	79.0
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	79		%	1	03/07/11	CJ	SM19 2540B M
Specific Conductivity	1610	1.0	umhos/cm	1	03/09/11	CJ	DEPT.OF AG, BOOK N9
pH	8.99		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	COMP 4	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-6A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	79.0
<b>Project:</b>	23-18		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	79.5	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Magnesium	11.6	1.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Sodium	254	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>

(1) Instrument QC Batch: MA1372  
(2) Prep QC Batch: MP4191

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	COMP 4	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-6A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	79.0
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	7.04		ratio	1	03/09/11 21:43	JM	LADNR29B

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

RL = Reporting Limit



## Report of Analysis

<b>Client Sample ID:</b>	COMP 3	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-7	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.4
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	23-18		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V13814.D	1	03/11/11	DC	n/a	n/a	V5V816
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.01 g	5.0 ml	100 ul
Run #2			

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	71	21	ug/kg	
108-88-3	Toluene	ND	140	71	ug/kg	
100-41-4	Ethylbenzene	ND	140	29	ug/kg	
1330-20-7	Xylene (total)	ND	140	50	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	92%		70-130%
460-00-4	4-Bromofluorobenzene	95%		70-130%
17060-07-0	1,2-Dichloroethane-D4	112%		70-130%

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

<b>Client Sample ID:</b>	COMP 3	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-7	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.4
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	23-18		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA0598.D	1	03/08/11	BR	n/a	n/a	GGA578
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	14	14	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	84%		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

## Report of Analysis

<b>Client Sample ID:</b>	COMP 3						
<b>Lab Sample ID:</b>	D21569-7				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846-8015B	SW846 3550B			<b>Percent Solids:</b>	82.4	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FE6303.D	1	03/12/11	JB	03/10/11	OP3276	GFE310
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	59.0	16	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	119%		63-130%		

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

<b>Client Sample ID:</b>	COMP 3	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-7	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.4
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	3.8	0.47	mg/kg	5	03/08/11	03/09/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1370  
(2) Prep QC Batch: MP4172

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	COMP 3	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-7	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.4
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	82.4		%	1	03/07/11	CJ	SM19 2540B M
Specific Conductivity	1450	1.0	umhos/cm	1	03/09/11	CJ	DEPT.OF AG, BOOK N9
pH	9.04		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	COMP 3	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-7A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.4
<b>Project:</b>	23-18		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	79.6	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Magnesium	16.6	1.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Sodium	190	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>

(1) Instrument QC Batch: MA1372  
(2) Prep QC Batch: MP4191

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	COMP 3	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-7A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.4
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	5.06		ratio	1	03/09/11 21:49	JM	LADNR29B

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

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	D-1/CONT. AREA-1	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-8	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	81.0
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	23-18		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V13815.D	1	03/11/11	DC	n/a	n/a	V5V816
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.03 g	5.0 ml	100 ul
Run #2			

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	73	22	ug/kg	
108-88-3	Toluene	ND	150	73	ug/kg	
100-41-4	Ethylbenzene	ND	150	29	ug/kg	
1330-20-7	Xylene (total)	ND	150	51	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	93%		70-130%
460-00-4	4-Bromofluorobenzene	94%		70-130%
17060-07-0	1,2-Dichloroethane-D4	116%		70-130%

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

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<b>Client Sample ID:</b>	D-1/CONT. AREA-1	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-8	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	81.0
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	23-18		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA0600.D	1	03/09/11	BR	n/a	n/a	GGA578
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	15	15	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	90%		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

## Report of Analysis

Page 1 of 1

**Client Sample ID:** D-1/CONT. AREA-1  
**Lab Sample ID:** D21569-8  
**Matrix:** SO - Soil  
**Method:** SW846-8015B SW846 3550B  
**Project:** 23-18

**Date Sampled:** 03/03/11  
**Date Received:** 03/07/11  
**Percent Solids:** 81.0

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FE6304.D	1	03/12/11	JB	03/10/11	OP3276	GFE310
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	29.7	16	11	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	115%		63-130%		

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

<b>Client Sample ID:</b>	D-1/CONT. AREA-1	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-8	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	81.0
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	3.1	0.47	mg/kg	5	03/09/11	03/11/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1378  
(2) Prep QC Batch: MP4190

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D-1/CONT. AREA-1	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-8	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	81.0
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	81		%	1	03/07/11	CJ	SM19 2540B M
Specific Conductivity	789	1.0	umhos/cm	1	03/09/11	CJ	DEPT.OF AG, BOOK N9
pH	8.46		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D-1/CONT. AREA-1	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-8A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	81.0
<b>Project:</b>	23-18		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	28.3	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Magnesium	6.97	1.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Sodium	136	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>

(1) Instrument QC Batch: MA1372  
(2) Prep QC Batch: MP4169

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D-1/CONT. AREA-1	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-8A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	81.0
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	5.93		ratio	1	03/09/11 15:41	JM	LADNR29B

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

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	D-2						
<b>Lab Sample ID:</b>	D21569-9				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846 8260B				<b>Percent Solids:</b>	93.5	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V13816.D	1	03/11/11	DC	n/a	n/a	V5V816
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.00 g	5.0 ml	100 ul
Run #2			

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	55.4	57	17	ug/kg	J
108-88-3	Toluene	138	110	57	ug/kg	
100-41-4	Ethylbenzene	55.2	110	23	ug/kg	J
1330-20-7	Xylene (total)	62.1	110	40	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	93%		70-130%
460-00-4	4-Bromofluorobenzene	97%		70-130%
17060-07-0	1,2-Dichloroethane-D4	117%		70-130%

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

<b>Client Sample ID:</b>	D-2						
<b>Lab Sample ID:</b>	D21569-9				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846 8015B				<b>Percent Solids:</b>	93.5	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA0601.D	1	03/09/11	BR	n/a	n/a	GGA578
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	11	11	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	93%		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



## Report of Analysis

<b>Client Sample ID:</b>	D-2						
<b>Lab Sample ID:</b>	D21569-9				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846-8015B	SW846 3550B			<b>Percent Solids:</b>	93.5	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FE6305.D	1	03/12/11	JB	03/10/11	OP3276	GFE310
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	14	9.3	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	131% <sup>a</sup>		63-130%		

(a) Surrogate recovery above control limit. Since the bias is high and the sample is non-detect no further action is required.

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

<b>Client Sample ID:</b>	D-2								
<b>Lab Sample ID:</b>	D21569-9					<b>Date Sampled:</b>	03/03/11		
<b>Matrix:</b>	SO - Soil					<b>Date Received:</b>	03/07/11		
						<b>Percent Solids:</b>	93.5		
<b>Project:</b>	23-18								

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	2.7	0.45	mg/kg	5	03/09/11	03/11/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1378  
(2) Prep QC Batch: MP4190

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D-2	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-9	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	93.5
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	93.5		%	1	03/07/11	CJ	SM19 2540B M
Specific Conductivity	1730	1.0	umhos/cm	1	03/09/11	CJ	DEPT.OF AG, BOOK N9
pH	9.15		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D-2	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-9A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	93.5
<b>Project:</b>	23-18		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	67.1	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Magnesium	28.2	1.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Sodium	255	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>

(1) Instrument QC Batch: MA1372  
(2) Prep QC Batch: MP4191

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D-2	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-9A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	93.5
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	6.59		ratio	1	03/09/11 22:03	JM	LADNR29B

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

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	D-3						
<b>Lab Sample ID:</b>	D21569-10				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846 8260B				<b>Percent Solids:</b>	80.5	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V13817.D	1	03/11/11	DC	n/a	n/a	V5V816
Run #2							

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

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	73	22	ug/kg	
108-88-3	Toluene	ND	150	73	ug/kg	
100-41-4	Ethylbenzene	ND	150	29	ug/kg	
1330-20-7	Xylene (total)	ND	150	51	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	91%		70-130%
460-00-4	4-Bromofluorobenzene	95%		70-130%
17060-07-0	1,2-Dichloroethane-D4	120%		70-130%

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

<b>Client Sample ID:</b>	D-3						
<b>Lab Sample ID:</b>	D21569-10				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846 8015B				<b>Percent Solids:</b>	80.5	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA0602.D	1	03/09/11	BR	n/a	n/a	GGA578
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	15	15	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	86%		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

## Report of Analysis

<b>Client Sample ID:</b>	D-3						
<b>Lab Sample ID:</b>	D21569-10				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846-8015B	SW846 3550B			<b>Percent Solids:</b>	80.5	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD5557.D	1	03/15/11	JB	03/13/11	OP3297	GFD244
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	182	17	11	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	98%		63-130%		

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

<b>Client Sample ID:</b>	D-3		
<b>Lab Sample ID:</b>	D21569-10	<b>Date Sampled:</b>	03/03/11
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b>	03/07/11
		<b>Percent Solids:</b>	80.5
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.0	0.50	mg/kg	5	03/09/11	03/11/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1378  
(2) Prep QC Batch: MP4190

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D-3	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-10	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	80.5
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	80.5		%	1	03/07/11	CJ	SM19 2540B M
Specific Conductivity	448	1.0	umhos/cm	1	03/09/11	CJ	DEPT.OF AG, BOOK N9
pH	9.06		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit

## Report of Analysis

**Client Sample ID:** D-3  
**Lab Sample ID:** D21569-10A  
**Matrix:** SO - Soil  
**Project:** 23-18

**Date Sampled:** 03/03/11  
**Date Received:** 03/07/11  
**Percent Solids:** 80.5

## SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	27.1	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Magnesium	4.26	1.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Sodium	67.9	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>

(1) Instrument QC Batch: MA1372

(2) Prep QC Batch: MP4191

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RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D-3	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-10A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	80.5
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	3.20		ratio	1	03/09/11 20:38	JM	LADNR29B

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

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	D-4	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-11	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	81.3
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	23-18		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V13818.D	1	03/11/11	DC	n/a	n/a	V5V816
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.08 g	5.0 ml	100 ul
Run #2			

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	72	22	ug/kg	
108-88-3	Toluene	ND	140	72	ug/kg	
100-41-4	Ethylbenzene	ND	140	29	ug/kg	
1330-20-7	Xylene (total)	ND	140	50	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	94%		70-130%
460-00-4	4-Bromofluorobenzene	96%		70-130%
17060-07-0	1,2-Dichloroethane-D4	125%		70-130%

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

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<b>Client Sample ID:</b>	D-4						
<b>Lab Sample ID:</b>	D21569-11				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846 8015B				<b>Percent Solids:</b>	81.3	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA0603.D	1	03/09/11	BR	n/a	n/a	GGA578
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	14	14	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	89%		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

## Report of Analysis

<b>Client Sample ID:</b>	D-4	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-11	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	81.3
<b>Method:</b>	SW846-8015B SW846 3550B		
<b>Project:</b>	23-18		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD5558.D	1	03/15/11	JB	03/13/11	OP3297	GFD244
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	15.0	16	11	mg/kg	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	102%		63-130%		

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

<b>Client Sample ID:</b>	D-4	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-11	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	81.3
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.7	0.49	mg/kg	5	03/09/11	03/11/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1378  
(2) Prep QC Batch: MP4190

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	D-4	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-11	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	81.3
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	81.3		%	1	03/07/11	CJ	SM19 2540B M
Specific Conductivity	628	1.0	umhos/cm	1	03/09/11	CJ	DEPT.OF AG, BOOK N9
pH	8.54		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit

## Report of Analysis

**Client Sample ID:** D-4  
**Lab Sample ID:** D21569-11A  
**Matrix:** SO - Soil  
**Project:** 23-18

**Date Sampled:** 03/03/11  
**Date Received:** 03/07/11  
**Percent Solids:** 81.3

## SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	88.3	2.0	mg/l	1	03/10/11	03/10/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>3</sup>
Magnesium	11.1	1.0	mg/l	1	03/10/11	03/10/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>3</sup>
Sodium	17.7	2.0	mg/l	1	03/10/11	03/11/11 JM	SW846 6010B <sup>2</sup>	EPA 200.7 <sup>3</sup>

(1) Instrument QC Batch: MA1373

(2) Instrument QC Batch: MA1380

(3) Prep QC Batch: MP4199

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RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D-4	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-11A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	81.3
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	0.472		ratio	1	03/11/11 12:39	JM	LADNR29B

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

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	D-6	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-12	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	52.1
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	23-18		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V13820.D	1	03/11/11	DC	n/a	n/a	V5V816
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.03 g	5.0 ml	100 ul
Run #2			

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	140	42	ug/kg	
108-88-3	Toluene	ND	280	140	ug/kg	
100-41-4	Ethylbenzene	ND	280	57	ug/kg	
1330-20-7	Xylene (total)	ND	280	99	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	92%		70-130%
460-00-4	4-Bromofluorobenzene	95%		70-130%
17060-07-0	1,2-Dichloroethane-D4	121%		70-130%

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

<b>Client Sample ID:</b>	D-6	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-12	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	52.1
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	23-18		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA0604.D	1	03/09/11	BR	n/a	n/a	GGA578
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	28	28	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	91%		60-140%		

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

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

## Report of Analysis

<b>Client Sample ID:</b>	D-6						
<b>Lab Sample ID:</b>	D21569-12				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846-8015B	SW846 3550B			<b>Percent Solids:</b>	52.1	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD5559.D	1	03/16/11	JB	03/13/11	OP3297	GFD244
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	20.5	26	17	mg/kg	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	87%		63-130%		

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

<b>Client Sample ID:</b>	D-6		
<b>Lab Sample ID:</b>	D21569-12	<b>Date Sampled:</b>	03/03/11
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b>	03/07/11
		<b>Percent Solids:</b>	52.1
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	7.4	0.79	mg/kg	5	03/09/11	03/11/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1378  
(2) Prep QC Batch: MP4190

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D-6	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-12	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	52.1
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	52.1		%	1	03/07/11	CJ	SM19 2540B M
Specific Conductivity	157	1.0	umhos/cm	1	03/09/11	CJ	DEPT.OF AG, BOOK N9
pH	8.49		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	D-6	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-12A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	52.1
<b>Project:</b>	23-18		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	7.42	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Magnesium	< 1.0	1.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Sodium	28.9	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>

(1) Instrument QC Batch: MA1372  
(2) Prep QC Batch: MP4169

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D-6	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-12A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	52.1
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	2.69		ratio	1	03/09/11 16:01	JM	LADNR29B

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

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	D-7	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-13	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	81.3
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	23-18		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V13821.D	1	03/11/11	DC	n/a	n/a	V5V816
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.06 g	5.0 ml	100 ul
Run #2			

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	72	22	ug/kg	
108-88-3	Toluene	ND	140	72	ug/kg	
100-41-4	Ethylbenzene	ND	140	29	ug/kg	
1330-20-7	Xylene (total)	ND	140	51	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	92%		70-130%
460-00-4	4-Bromofluorobenzene	95%		70-130%
17060-07-0	1,2-Dichloroethane-D4	119%		70-130%

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

<b>Client Sample ID:</b>	D-7						
<b>Lab Sample ID:</b>	D21569-13				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846 8015B				<b>Percent Solids:</b>	81.3	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA0605.D	1	03/09/11	BR	n/a	n/a	GGA578
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	14	14	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	96%		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

## Report of Analysis

<b>Client Sample ID:</b>	D-7						
<b>Lab Sample ID:</b>	D21569-13				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846-8015B	SW846 3550B			<b>Percent Solids:</b>	81.3	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD5560.D	1	03/16/11	JB	03/13/11	OP3297	GFD244
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	16	11	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	99%		63-130%		

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

<b>Client Sample ID:</b>	D-7	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-13	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	81.3
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.6	0.47	mg/kg	5	03/09/11	03/11/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1378  
(2) Prep QC Batch: MP4190

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D-7	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-13	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	81.3
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	81.3		%	1	03/07/11	CJ	SM19 2540B M
Specific Conductivity	1140	1.0	umhos/cm	1	03/15/11	JK	DEPT.OF AG, BOOK N9
pH	8.99		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit

## Report of Analysis

**Client Sample ID:** D-7  
**Lab Sample ID:** D21569-13A  
**Matrix:** SO - Soil  
**Project:** 23-18

**Date Sampled:** 03/03/11  
**Date Received:** 03/07/11  
**Percent Solids:** 81.3

## SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	45.5	2.0	mg/l	1	03/10/11	03/10/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>3</sup>
Magnesium	5.47	1.0	mg/l	1	03/10/11	03/10/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>3</sup>
Sodium	208	2.0	mg/l	1	03/10/11	03/11/11 JM	SW846 6010B <sup>2</sup>	EPA 200.7 <sup>3</sup>

(1) Instrument QC Batch: MA1373

(2) Instrument QC Batch: MA1380

(3) Prep QC Batch: MP4199

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RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	D-7	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-13A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	81.3
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	7.75		ratio	1	03/11/11 13:12	JM	LADNR29B

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

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	D-9	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-14	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.6
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	23-18		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V13822.D	1	03/11/11	DC	n/a	n/a	V5V816
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	71	21	ug/kg	
108-88-3	Toluene	ND	140	71	ug/kg	
100-41-4	Ethylbenzene	ND	140	28	ug/kg	
1330-20-7	Xylene (total)	ND	140	49	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	92%		70-130%
460-00-4	4-Bromofluorobenzene	86%		70-130%
17060-07-0	1,2-Dichloroethane-D4	113%		70-130%

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

<b>Client Sample ID:</b>	D-9						
<b>Lab Sample ID:</b>	D21569-14				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846 8015B				<b>Percent Solids:</b>	82.6	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA0606.D	1	03/09/11	BR	n/a	n/a	GGA578
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	14	14	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	88%		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

## Report of Analysis

<b>Client Sample ID:</b>	D-9						
<b>Lab Sample ID:</b>	D21569-14				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846-8015B	SW846 3550B			<b>Percent Solids:</b>	82.6	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD5561.D	1	03/16/11	JB	03/13/11	OP3297	GFD244
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	30.9	16	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	90%		63-130%		

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

<b>Client Sample ID:</b>	D-9	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-14	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.6
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	4.6	0.51	mg/kg	5	03/09/11	03/11/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1378  
(2) Prep QC Batch: MP4190

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D-9	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-14	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.6
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	82.6		%	1	03/07/11	CJ	SM19 2540B M
Specific Conductivity	411	1.0	umhos/cm	1	03/15/11	JK	DEPT.OF AG, BOOK N9
pH	8.98		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit

## Report of Analysis

**Client Sample ID:** D-9  
**Lab Sample ID:** D21569-14A  
**Matrix:** SO - Soil  
**Project:** 23-18

**Date Sampled:** 03/03/11  
**Date Received:** 03/07/11  
**Percent Solids:** 82.6

## SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	53.7	2.0	mg/l	1	03/10/11	03/10/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>3</sup>
Magnesium	8.46	1.0	mg/l	1	03/10/11	03/10/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>3</sup>
Sodium	15.7	2.0	mg/l	1	03/10/11	03/11/11 JM	SW846 6010B <sup>2</sup>	EPA 200.7 <sup>3</sup>

(1) Instrument QC Batch: MA1373

(2) Instrument QC Batch: MA1380

(3) Prep QC Batch: MP4199

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RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D-9	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-14A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.6
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	0.525		ratio	1	03/11/11 13:18	JM	LADNR29B

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

RL = Reporting Limit



## Report of Analysis

<b>Client Sample ID:</b>	D-10	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-15	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	72.7
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	23-18		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V13823.D	1	03/11/11	DC	n/a	n/a	V5V816
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.01 g	5.0 ml	100 ul
Run #2			

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	87	26	ug/kg	
108-88-3	Toluene	ND	170	87	ug/kg	
100-41-4	Ethylbenzene	43.5	170	35	ug/kg	J
1330-20-7	Xylene (total)	ND	170	61	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	87%		70-130%
460-00-4	4-Bromofluorobenzene	103%		70-130%
17060-07-0	1,2-Dichloroethane-D4	118%		70-130%

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

<b>Client Sample ID:</b>	D-10						
<b>Lab Sample ID:</b>	D21569-15				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846 8015B				<b>Percent Solids:</b>	72.7	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA0607.D	1	03/09/11	BR	n/a	n/a	GGA578
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)	53.3	17	17	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	92%		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

## Report of Analysis

<b>Client Sample ID:</b>	D-10						
<b>Lab Sample ID:</b>	D21569-15				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846-8015B	SW846 3550B			<b>Percent Solids:</b>	72.7	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD5562.D	1	03/16/11	JB	03/13/11	OP3297	GFD244
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	675	18	12	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	88%		63-130%		

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

<b>Client Sample ID:</b>	D-10		
<b>Lab Sample ID:</b>	D21569-15	<b>Date Sampled:</b>	03/03/11
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b>	03/07/11
		<b>Percent Solids:</b>	72.7
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.8	0.58	mg/kg	5	03/09/11	03/11/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1378  
(2) Prep QC Batch: MP4190

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D-10	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-15	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	72.7
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	72.7		%	1	03/08/11	SWT	SM19 2540B M
Specific Conductivity	935	1.0	umhos/cm	1	03/15/11	JK	DEPT.OF AG, BOOK N9
pH	9.30		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit

## Report of Analysis

**Client Sample ID:** D-10  
**Lab Sample ID:** D21569-15A  
**Matrix:** SO - Soil  
**Project:** 23-18

**Date Sampled:** 03/03/11  
**Date Received:** 03/07/11  
**Percent Solids:** 72.7

## SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	24.6	2.0	mg/l	1	03/10/11	03/10/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>3</sup>
Magnesium	4.88	1.0	mg/l	1	03/10/11	03/10/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>3</sup>
Sodium	201	2.0	mg/l	1	03/10/11	03/11/11 JM	SW846 6010B <sup>2</sup>	EPA 200.7 <sup>3</sup>

- (1) Instrument QC Batch: MA1373  
(2) Instrument QC Batch: MA1380  
(3) Prep QC Batch: MP4199

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RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D-10	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-15A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	72.7
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	9.68		ratio	1	03/11/11 13:24	JM	LADNR29B

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

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	D-11	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-16	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	75.9
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	23-18		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V13824.D	1	03/11/11	DC	n/a	n/a	V5V816
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.05 g	5.0 ml	100 ul
Run #2			

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	81	24	ug/kg	
108-88-3	Toluene	ND	160	81	ug/kg	
100-41-4	Ethylbenzene	ND	160	32	ug/kg	
1330-20-7	Xylene (total)	ND	160	57	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	85%		70-130%
460-00-4	4-Bromofluorobenzene	94%		70-130%
17060-07-0	1,2-Dichloroethane-D4	108%		70-130%

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

<b>Client Sample ID:</b>	D-11						
<b>Lab Sample ID:</b>	D21569-16				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846 8015B				<b>Percent Solids:</b>	75.9	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA0608.D	1	03/09/11	BR	n/a	n/a	GGA578
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	16	16	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	89%		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

## Report of Analysis

<b>Client Sample ID:</b>	D-11						
<b>Lab Sample ID:</b>	D21569-16				<b>Date Sampled:</b>	03/03/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	03/07/11	
<b>Method:</b>	SW846-8015B	SW846 3550B			<b>Percent Solids:</b>	75.9	
<b>Project:</b>	23-18						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD5563.D	1	03/16/11	JB	03/13/11	OP3297	GFD244
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	81.8	18	11	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	93%		63-130%		

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

<b>Client Sample ID:</b>	D-11		
<b>Lab Sample ID:</b>	D21569-16	<b>Date Sampled:</b>	03/03/11
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b>	03/07/11
		<b>Percent Solids:</b>	75.9
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	4.2	0.50	mg/kg	5	03/09/11	03/11/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1378  
(2) Prep QC Batch: MP4190

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D-11	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-16	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	75.9
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	75.9		%	1	03/08/11	SWT	SM19 2540B M
Specific Conductivity	608	1.0	umhos/cm	1	03/15/11	JK	DEPT.OF AG, BOOK N9
pH	8.92		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit

## Report of Analysis

**Client Sample ID:** D-11  
**Lab Sample ID:** D21569-16A  
**Matrix:** SO - Soil  
**Project:** 23-18

**Date Sampled:** 03/03/11  
**Date Received:** 03/07/11  
**Percent Solids:** 75.9

## SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	23.5	2.0	mg/l	1	03/10/11	03/10/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>3</sup>
Magnesium	2.14	1.0	mg/l	1	03/10/11	03/10/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>3</sup>
Sodium	106	2.0	mg/l	1	03/10/11	03/11/11 JM	SW846 6010B <sup>2</sup>	EPA 200.7 <sup>3</sup>

(1) Instrument QC Batch: MA1373

(2) Instrument QC Batch: MA1380

(3) Prep QC Batch: MP4199

---

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	D-11	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-16A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	75.9
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	5.61		ratio	1	03/11/11 13:31	JM	LADNR29B

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

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	B-1	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-17	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	84.4
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	4.9	0.46	mg/kg	5	03/09/11	03/11/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1378  
(2) Prep QC Batch: MP4190

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	B-1	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-17	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	84.4
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	84.4		%	1	03/08/11	SWT	SM19 2540B M
Specific Conductivity	359	1.0	umhos/cm	1	03/15/11	JK	DEPT.OF AG, BOOK N9
pH	9.07		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit



## Report of Analysis

<b>Client Sample ID:</b>	B-1	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-17A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	84.4
<b>Project:</b>	23-18		

## SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	37.2	2.0	mg/l	1	03/10/11	03/10/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>3</sup>
Magnesium	6.18	1.0	mg/l	1	03/10/11	03/10/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>3</sup>
Sodium	45.2	2.0	mg/l	1	03/10/11	03/11/11 JM	SW846 6010B <sup>2</sup>	EPA 200.7 <sup>3</sup>

(1) Instrument QC Batch: MA1373

(2) Instrument QC Batch: MA1380

(3) Prep QC Batch: MP4199

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	B-1		
<b>Lab Sample ID:</b>	D21569-17A	<b>Date Sampled:</b>	03/03/11
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b>	03/07/11
<b>Project:</b>	23-18	<b>Percent Solids:</b>	84.4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	1.81		ratio	1	03/11/11 13:37	JM	LADNR29B

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

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	B-2	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-18	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	78.5
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.7	0.49	mg/kg	5	03/09/11	03/11/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1378  
(2) Prep QC Batch: MP4190

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	B-2	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-18	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	78.5
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	78.5		%	1	03/08/11	SWT	SM19 2540B M
Specific Conductivity	310	1.0	umhos/cm	1	03/15/11	JK	DEPT.OF AG, BOOK N9
pH	8.16		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit

## Report of Analysis

**Client Sample ID:** B-2  
**Lab Sample ID:** D21569-18A  
**Matrix:** SO - Soil  
**Project:** 23-18

**Date Sampled:** 03/03/11  
**Date Received:** 03/07/11  
**Percent Solids:** 78.5

## SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	42.2	2.0	mg/l	1	03/10/11	03/10/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>3</sup>
Magnesium	6.53	1.0	mg/l	1	03/10/11	03/10/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>3</sup>
Sodium	16.0	2.0	mg/l	1	03/10/11	03/11/11 JM	SW846 6010B <sup>2</sup>	EPA 200.7 <sup>3</sup>

(1) Instrument QC Batch: MA1373

(2) Instrument QC Batch: MA1380

(3) Prep QC Batch: MP4199

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	B-2	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-18A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	78.5
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	0.605		ratio	1	03/11/11 13:43	JM	LADNR29B

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

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	B-3	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-19	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	74.2
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.6	0.54	mg/kg	5	03/09/11	03/11/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1378  
(2) Prep QC Batch: MP4190

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	B-3	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-19	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	74.2
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	74.2		%	1	03/08/11	SWT	SM19 2540B M
Specific Conductivity	415	1.0	umhos/cm	1	03/09/11	CJ	DEPT.OF AG, BOOK N9
pH	8.12		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	B-3	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-19A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	74.2
<b>Project:</b>	23-18		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	76.8	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Magnesium	9.18	1.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Sodium	14.2	2.0	mg/l	1	03/09/11	03/09/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>

(1) Instrument QC Batch: MA1372  
(2) Prep QC Batch: MP4169

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	B-3	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-19A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	74.2
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	0.407		ratio	1	03/09/11 16:20	JM	LADNR29B

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

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	B-4	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-20	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	71.6
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	4.8	0.57	mg/kg	5	03/09/11	03/11/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1378  
(2) Prep QC Batch: MP4190

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	B-4	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-20	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	71.6
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	71.6		%	1	03/08/11	SWT	SM19 2540B M
Specific Conductivity	364	1.0	umhos/cm	1	03/15/11	JK	DEPT.OF AG, BOOK N9
pH	8.19		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit

## Report of Analysis

**Client Sample ID:** B-4  
**Lab Sample ID:** D21569-20A  
**Matrix:** SO - Soil  
**Project:** 23-18

**Date Sampled:** 03/03/11  
**Date Received:** 03/07/11  
**Percent Solids:** 71.6

## SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	64.9	2.0	mg/l	1	03/10/11	03/10/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>3</sup>
Magnesium	6.40	1.0	mg/l	1	03/10/11	03/10/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>3</sup>
Sodium	10.5	2.0	mg/l	1	03/10/11	03/11/11 JM	SW846 6010B <sup>2</sup>	EPA 200.7 <sup>3</sup>

(1) Instrument QC Batch: MA1373

(2) Instrument QC Batch: MA1380

(3) Prep QC Batch: MP4199

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RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	B-4	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-20A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	71.6
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	0.333		ratio	1	03/11/11 13:50	JM	LADNR29B

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

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	B-5	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-21	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	70.7
<b>Project:</b>	23-18		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	3.0	0.58	mg/kg	5	03/09/11	03/14/11 GJ	SW846 6020 <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA1381  
(2) Prep QC Batch: MP4190

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	B-5	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-21	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	70.7
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	70.7		%	1	03/08/11	SWT	SM19 2540B M
Specific Conductivity	300	1.0	umhos/cm	1	03/15/11	JK	DEPT.OF AG, BOOK N9
pH	7.99		su	1	03/07/11 13:15	JK	SW846 9045C

RL = Reporting Limit



## Report of Analysis

**Client Sample ID:** B-5  
**Lab Sample ID:** D21569-21A  
**Matrix:** SO - Soil  
**Project:** 23-18

**Date Sampled:** 03/03/11  
**Date Received:** 03/07/11  
**Percent Solids:** 70.7

## SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	46.1	2.0	mg/l	1	03/10/11	03/10/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>3</sup>
Magnesium	7.45	1.0	mg/l	1	03/10/11	03/10/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>3</sup>
Sodium	7.37	2.0	mg/l	1	03/10/11	03/11/11 JM	SW846 6010B <sup>2</sup>	EPA 200.7 <sup>3</sup>

(1) Instrument QC Batch: MA1373

(2) Instrument QC Batch: MA1380

(3) Prep QC Batch: MP4199

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RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	B-5	<b>Date Sampled:</b>	03/03/11
<b>Lab Sample ID:</b>	D21569-21A	<b>Date Received:</b>	03/07/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	70.7
<b>Project:</b>	23-18		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	0.265		ratio	1	03/11/11 13:56	JM	LADNR29B

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

RL = Reporting Limit

## Misc. Forms

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### Custody Documents and Other Forms

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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 #

Client / Reporting Information			Project Information										Requested Analysis ( see TEST CODE sheet)										Matrix Codes																				
Company Name <b>KRW</b>			Project Name <b>23-18 PUMP HOUSE RELEASE</b>										<div style="writing-mode: vertical-rl; transform: rotate(180deg);"> <b>pH, EC, SAR, ARSENIC, BTEX, TPH (Carbap)</b> </div>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL- Sludge SED-Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB-Field Blank EB- Equipment Blank RB- Rinse Blank TB-Trip Blank																				
Street Address <b>8000 W. 14<sup>TH</sup> AVE - #200</b>			Street:																																								
City State Zip <b>LAKEWOOD CO 80214</b>			Billing Information ( If different from Report to ) Company Name																																								
Project Contact <b>D. KNUDSON</b>			Street Address																																								
Phone # <b>(970) 675-4066</b>			City State Zip																																								
Samples (S) Name(s) <b>H655 / KNUDSON</b>			Client PO#			Project Manager <b>JOE HESS</b>							Attention:			PO#																											
Accutest Sample #			Field ID / Point of Collection		MEOHDI Vial #		Collection			Matrix		# of bottles		Number of preserved Bottles						LAB USE ONLY																							
1			COMP 5		3/3/11		1420			50		5								01																							
2			COMP 1		"		1400			"		"								02																							
3			COMP 2		"		1405			"		"								03																							
4			D5		"		1240			"		"								04																							
5			D8		"		1310			"		"								05																							
6			COMP 4		"		1415			"		"								06																							
7			COMP 3		"		1410			"		"								07																							
8			D-1 / CONT. AREA-1		"		1350			"		"								08																							
9			D-2		"		1332			"		"								09																							
10			D-3		"		1325			"		"								10																							
11			D-4		"		1320			"		"								11																							
12			D-6		"		1315			"		"								12																							
Turnaround Time ( Business days )														Approved By (Accutest PM): / Date:										<input type="checkbox"/> Commercial "A" ( Level 1 ) <input type="checkbox"/> State Forms <input type="checkbox"/> Commercial "B" ( Level 2 ) <input type="checkbox"/> EDD Format <input type="checkbox"/> Commercial "B" + Narrative <input type="checkbox"/> PDF <input type="checkbox"/> FULLT1 ( Level 3+4 )										<b>E-MAIL RESULTS TO :</b> <b>d.knudson@krmconsulting.com</b> <b>jheess@krmconsulting.com</b> <b>gknell@krmconsulting.com</b>									
<input checked="" type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> Std. 5 Business Days (By Contract only) <input type="checkbox"/> 5 Day FR SH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY																								Commercial "A" = Results Only Commercial "B" = Results + QC Summary																			
Emergency & Rush TJA data available VIA Lablink																																											
Sample Custody must be documented below each time samples change possession, including courier delivery.																																											
Relinquished by Sampler:			Date Time:		3/7/11 800		Received By:			1			Date Time:			3/7/11 812 am			Received By:			2			3/7/11 0827																		
Relinquished by Sampler:			Date Time:				Received By:			3			Date Time:						Received By:			4																					
Relinquished by:			Date Time:				Received By:			5			Custody Seal #			<input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact			Preserved where applicable			<input checked="" type="checkbox"/> On Ice <input type="checkbox"/> Cooler Temp.																					

## D21569: Chain of Custody

Page 1 of 3

## 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

D21569

PAGE 2 OF 2

<b>ACCUTEST LABORATORIES</b> 4036 Youngfield Street Wheat Ridge, Co 80033 TEL 303-425-6021 877-737-4521 FAX 303-425-6021		FED-EX Tracking # _____ Accutest Quote # _____ Bottle Order Control # <b>B215960</b>	
<b>Client / Reporting Information</b> Company Name <b>KRW</b> Street Address <b>8000 W. 14TH AVE - #200</b> City <b>LAKEWOOD, CO</b> State <b>80214</b> Zip Project Contact <b>D KNUDSON</b> Phone # <b>(970) 675-4066</b> Fax # _____ Sampler(s) Name(s) <b>HESS/KNUDSON</b> Phone # _____		<b>Project Information</b> Project Name <b>23-18 RWAP HOUSE RELEASE</b> Street _____ City _____ Project# _____ Client PO# _____ Project Manager <b>JOE HESS</b> Billing Information (if different from Report to) Company Name _____ Street Address _____ City _____ State _____ Zip _____ Attention: _____ PO# _____	
<b>Requested Analysis (see TEST CODE sheet)</b> <b>PH, EC, SAR, ANIONIC, BIC, TPH (GRO + DRG)</b> <b>PH, EC, SAR, ANIONIC</b>		<b>Matrix Codes</b> DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank	
<b>Field ID / Point of Collection</b> MECH/DI Viol # _____ Date _____ Time _____ Sampled by _____ Matrix _____ # of bottles _____ HCl _____ NaOH _____ HNO3 _____ H2SO4 _____ NONE _____ MEQ/ENCODE _____ Blank/In _____		<b>LAB USE ONLY</b> 13 14 15 16 17 18 19 20 21	
<b>Turnaround Time (Business days)</b> <input checked="" type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> Std. 5 Business Days (By Contract only) <input type="checkbox"/> 5 Day <b>SH</b> <input type="checkbox"/> 3 Day <b>EMERGENCY</b> <input type="checkbox"/> 2 Day <b>EMERGENCY</b> <input type="checkbox"/> 1 Day <b>EMERGENCY</b>		<b>Approved By (Accutest PM): / Date:</b> _____ <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 EDD Format PDF Commercial "A" = Results Only Commercial "B" = Results + QC Summary	
<b>Sample Custody must be documented below each time samples change possession, including courier delivery.</b> Relinquished By: <b>[Signature]</b> Date Time: <b>3/7/11 8:00</b> Relinquished By Sampler: _____ Date Time: _____ Relinquished by: _____ Date Time: _____		Received By: <b>[Signature]</b> Date Time: <b>3/7/11 8:27 am</b> Received By: <b>[Signature]</b> Date Time: _____ Received By: _____ Date Time: _____	
Intact <input checked="" type="checkbox"/> Not intact <input type="checkbox"/> Preserved where applicable <input type="checkbox"/> On Ice <input type="checkbox"/> Cooler Temp. <b>3.7</b>		Email Results To: <b>D KNUDSON @ KRW CONSULTING.COM</b> <b>J HESS @ KRW CONSULTING.COM</b> <b>G KNUD @ KRW CONSULTING.COM</b>	

## D21569: Chain of Custody

Page 2 of 3

## Accutest Laboratories Sample Receipt Summary

**Accutest Job Number:** D21569

**Client:**
**Immediate Client Services Action Required:** No

**Date / Time Received:** 3/7/2011

**No. Coolers:**
**Client Service Action Required at Login:** No

**Project:**
**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"/> | Infrared gun |
| 2. Cooler temp verification:  | Ice (bag)    |
| 3. Cooler media:  |              |

**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

### D21569: Chain of Custody

### Page 3 of 3

## 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:** D21569  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** 23-18

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V816-MB2	5V13804.D	1	03/10/11	DC	n/a	n/a	V5V816

The QC reported here applies to the following samples:

Method: SW846 8260B

D21569-1, D21569-2, D21569-3, D21569-4, D21569-5, D21569-6, D21569-7, D21569-8, D21569-9, D21569-10, D21569-11, D21569-12, D21569-13, D21569-14, D21569-15, D21569-16

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	15	ug/kg	
100-41-4	Ethylbenzene	ND	100	20	ug/kg	
108-88-3	Toluene	ND	100	50	ug/kg	
1330-20-7	Xylene (total)	ND	100	35	ug/kg	

CAS No.	Surrogate Recoveries	Limits
2037-26-5	Toluene-D8	90% 70-130%
460-00-4	4-Bromofluorobenzene	86% 70-130%
17060-07-0	1,2-Dichloroethane-D4	112% 70-130%



## Blank Spike Summary

Page 1 of 1

**Job Number:** D21569  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** 23-18

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V816-BS2	5V13805.D	1	03/11/11	DC	n/a	n/a	V5V816

The QC reported here applies to the following samples:

Method: SW846 8260B

D21569-1, D21569-2, D21569-3, D21569-4, D21569-5, D21569-6, D21569-7, D21569-8, D21569-9, D21569-10, D21569-11, D21569-12, D21569-13, D21569-14, D21569-15, D21569-16

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2840	114	68-130
100-41-4	Ethylbenzene	2500	2960	118	70-130
108-88-3	Toluene	2500	2790	112	70-130
1330-20-7	Xylene (total)	5000	5540	111	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	99%	70-130%
460-00-4	4-Bromofluorobenzene	107%	70-130%
17060-07-0	1,2-Dichloroethane-D4	107%	70-130%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D21569  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** 23-18

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D21569-1MS	5V13807.D	1	03/11/11	DC	n/a	n/a	V5V816
D21569-1MSD	5V13808.D	1	03/11/11	DC	n/a	n/a	V5V816
D21569-1	5V13819.D	1	03/11/11	DC	n/a	n/a	V5V816

The QC reported here applies to the following samples:

Method: SW846 8260B

D21569-1, D21569-2, D21569-3, D21569-4, D21569-5, D21569-6, D21569-7, D21569-8, D21569-9, D21569-10, D21569-11, D21569-12, D21569-13, D21569-14, D21569-15, D21569-16

CAS No.	Compound	D21569-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3690	4690	127	4190	114	11	55-140/30
100-41-4	Ethylbenzene	135	J	3690	4290	116	4180	113	3	56-139/30
108-88-3	Toluene	ND		3690	3460	94	3890	106	12	57-144/30
1330-20-7	Xylene (total)	184		7370	7830	104	8040	106	3	51-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D21569-1	Limits
2037-26-5	Toluene-D8	81%	95%	93%	70-130%
460-00-4	4-Bromofluorobenzene	112%	111%	106%	70-130%
17060-07-0	1,2-Dichloroethane-D4	120%	100%	129%	70-130%

## 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:** D21569

**Account:** KRWCCOL KRW Consulting, Inc.

**Project:** 23-18

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA578-MB	GA0585.D	1	03/08/11	BR	n/a	n/a	GGA578

The QC reported here applies to the following samples:

Method: SW846 8015B

D21569-1, D21569-2, D21569-3, D21569-4, D21569-5, D21569-6, D21569-7, D21569-8, D21569-9, D21569-10, D21569-11, D21569-12, D21569-13, D21569-14, D21569-15, D21569-16

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

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	98% 60-140%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D21569  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** 23-18

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA578-BS	GA0586.D	1	03/08/11	BR	n/a	n/a	GGA578

The QC reported here applies to the following samples:

Method: SW846 8015B

D21569-1, D21569-2, D21569-3, D21569-4, D21569-5, D21569-6, D21569-7, D21569-8, D21569-9, D21569-10, D21569-11, D21569-12, D21569-13, D21569-14, D21569-15, D21569-16

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	105	95	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	107%	60-140%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D21569  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** 23-18

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D21531-1MS	GA0588.D	1	03/08/11	BR	n/a	n/a	GGA578
D21531-1MSD	GA0589.D	1	03/08/11	BR	n/a	n/a	GGA578
D21531-1	GA0587.D	1	03/08/11	BR	n/a	n/a	GGA578

The QC reported here applies to the following samples:

Method: SW846 8015B

D21569-1, D21569-2, D21569-3, D21569-4, D21569-5, D21569-6, D21569-7, D21569-8, D21569-9, D21569-10, D21569-11, D21569-12, D21569-13, D21569-14, D21569-15, D21569-16

CAS No.	Compound	D21531-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		132	123	93	122	92	1	62-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D21531-1	Limits
120-82-1	1,2,4-Trichlorobenzene	99%	98%	95%	60-140%

## 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:** D21569  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** 23-18

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3276-MB	FE6268.D	1	03/11/11	JB	03/10/11	OP3276	GFE309

The QC reported here applies to the following samples:

Method: SW846-8015B

D21569-1, D21569-2, D21569-3, D21569-4, D21569-5, D21569-6, D21569-7, D21569-8, D21569-9

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	122% 63-130%



## Method Blank Summary

Page 1 of 1

**Job Number:** D21569  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** 23-18

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3297-MB	FD5552.D	1	03/15/11	JB	03/13/11	OP3297	GFD244

The QC reported here applies to the following samples:

Method: SW846-8015B

D21569-10, D21569-11, D21569-12, D21569-13, D21569-14, D21569-15, D21569-16

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	93% 63-130%

7.1.2

7

## Blank Spike Summary

Page 1 of 1

**Job Number:** D21569  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** 23-18

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3276-BS	FE6292.D	1	03/11/11	JB	03/10/11	OP3276	GFE310

The QC reported here applies to the following samples:

Method: SW846-8015B

D21569-1, D21569-2, D21569-3, D21569-4, D21569-5, D21569-6, D21569-7, D21569-8, D21569-9

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	760	114	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	127%	63-130%

7.2.1

7

## Blank Spike Summary

Page 1 of 1

**Job Number:** D21569  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** 23-18

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3297-BS	FD5553.D	1	03/15/11	JB	03/13/11	OP3297	GFD244

The QC reported here applies to the following samples:

Method: SW846-8015B

D21569-10, D21569-11, D21569-12, D21569-13, D21569-14, D21569-15, D21569-16

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	567	85	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	96%	63-130%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D21569  
Account: KRWCCOL KRW Consulting, Inc.  
Project: 23-18

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3276-MS	FE6270.D	1	03/11/11	JB	03/10/11	OP3276	GFE309
OP3276-MSD	FE6271.D	1	03/11/11	JB	03/10/11	OP3276	GFE309
D21531-2	FE6272.D	1	03/11/11	JB	03/10/11	OP3276	GFE309

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

D21569-1, D21569-2, D21569-3, D21569-4, D21569-5, D21569-6, D21569-7, D21569-8, D21569-9

CAS No.	Compound	D21531-2 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND		733	748	102	845	115	12	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D21531-2	Limits
84-15-1	o-Terphenyl	118%	129%	115%	63-130%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D21569  
Account: KRWCCOL KRW Consulting, Inc.  
Project: 23-18

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3297-MS	FD5554.D	1	03/15/11	JB	03/13/11	OP3297	GFD244
OP3297-MSD	FD5555.D	1	03/15/11	JB	03/13/11	OP3297	GFD244
D21583-2	FD5556.D	1	03/15/11	JB	03/13/11	OP3297	GFD244

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

D21569-10, D21569-11, D21569-12, D21569-13, D21569-14, D21569-15, D21569-16

CAS No.	Compound	D21583-2 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND		691	588	85	582	84	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D21583-2	Limits
84-15-1	o-Terphenyl	95%	95%	98%	63-130%

## Metals Analysis

### QC Data Summaries

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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: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4169  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 03/09/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	35	250		
Antimony	150	8.5	65		
Arsenic	130	14	33		
Barium	50	.7	12		
Beryllium	50	7	22		
Boron	250	18	93		
Cadmium	50	1.1	6		
Calcium	2000	85	46	-1.5	<2000
Chromium	50	1.4	8		
Cobalt	25	2.4	1.5		
Copper	25	8	14		
Iron	350	39	50		
Lead	250	6.5	16		
Lithium	10	3.8	8		
Magnesium	1000	29	62	-44	<1000
Manganese	25	1.1	3.5		
Molybdenum	50	2.1	6		
Nickel	150	1.9	3		
Phosphorus	500	75	270		
Potassium	5000	1900	2700		
Selenium	250	14	36		
Silicon	250	60	100		
Silver	150	4.9	1.5		
Sodium	2000	1200	110	-440	<2000
Strontium	25	.46	17		
Thallium	50	16	11		
Tin	250	70	22		
Titanium	50	.49	3.5		
Uranium	250	11	20		
Vanadium	50	1.4	1.5		
Zinc	150	3.8	8.5		

Associated samples MP4169: D21569-8A, D21569-12A, D21569-19A

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4169  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4169  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 03/09/11

Metal	D21569-8A Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	28300	161000	125000	106.2	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	6970	136000	125000	103.2	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	136000	256000	125000	96.0	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP4169: D21569-8A, D21569-12A, D21569-19A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4169  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date:

Metal

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

8.1.2

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4169  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 03/09/11

Metal	D21569-8A Original MSD	Spikelot MPICPAL % Rec	MSD RPD	QC Limit
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	28300	160000	125000	105.4
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	6970	136000	125000	103.2
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	136000	252000	125000	92.8
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP4169: D21569-8A, D21569-12A, D21569-19A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4169  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date:

Metal

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

8.1.2

8

## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4169  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 03/09/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	138000	125000	110.4	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	132000	125000	105.6	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	131000	125000	104.8	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP4169: D21569-8A, D21569-12A, D21569-19A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4169  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4172  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 03/08/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	0.040	<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 MP4172: D21569-1, D21569-2, D21569-3, D21569-4, D21569-5, D21569-6, D21569-7

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: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4172  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 03/08/11

Metal	D21482-1 Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	3.2	162	175	91.5	60-119
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 MP4172: D21569-1, D21569-2, D21569-3, D21569-4, D21569-5, D21569-6, D21569-7

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: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4172  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 03/08/11

Metal	D21482-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	3.2	159	168	93.2	1.9	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 MP4172: D21569-1, D21569-2, D21569-3, D21569-4, D21569-5, D21569-6, D21569-7

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: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4172  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 03/08/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	93.8	100	93.8	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 MP4172: D21569-1, D21569-2, D21569-3, D21569-4, D21569-5, D21569-6, D21569-7

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

# SERIAL DILUTION RESULTS SUMMARY

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4172  
Matrix Type: SOLID

Methods: SW846 6020  
Units: ug/l

Prep Date: 03/08/11

Metal	D21482-1 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	13.4	0.00	100.0(a)	0-10
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP4172: D21569-1, D21569-2, D21569-3, D21569-4, D21569-5, D21569-6, D21569-7

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(anr) Analyte not requested

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4190  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 03/09/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	-0.12	<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 MP4190: D21569-8, D21569-9, D21569-10, D21569-11, D21569-12, D21569-13, D21569-14, D21569-15, D21569-16, D21569-17, D21569-18, D21569-19, D21569-20, D21569-21

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: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4190  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 03/09/11

Metal	D21583-1 Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	0.39	97.3	103	94.4	60-119
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 MP4190: D21569-8, D21569-9, D21569-10, D21569-11, D21569-12, D21569-13, D21569-14, D21569-15, D21569-16, D21569-17, D21569-18, D21569-19, D21569-20, D21569-21

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: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4190  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 03/09/11

Metal	D21583-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	0.39	104	107	96.9	6.7	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 MP4190: D21569-8, D21569-9, D21569-10, D21569-11, D21569-12, D21569-13, D21569-14, D21569-15, D21569-16, D21569-17, D21569-18, D21569-19, D21569-20, D21569-21

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: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4190  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 03/09/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	97.1	100	97.1	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP4190: D21569-8, D21569-9, D21569-10, D21569-11, D21569-12, D21569-13, D21569-14, D21569-15, D21569-16, D21569-17, D21569-18, D21569-19, D21569-20, D21569-21

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

# SERIAL DILUTION RESULTS SUMMARY

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4190  
Matrix Type: SOLID

Methods: SW846 6020  
Units: ug/l

Prep Date: 03/09/11

Metal	D21583-1 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	3.73	4.29	14.9 (a)	0-10
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP4190: D21569-8, D21569-9, D21569-10, D21569-11, D21569-12, D21569-13, D21569-14, D21569-15, D21569-16, D21569-17, D21569-18, D21569-19, D21569-20, D21569-21

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(anr) Analyte not requested

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



BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4191  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 03/09/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	35	250		
Antimony	150	8.5	65		
Arsenic	130	14	33		
Barium	50	.7	12		
Beryllium	50	7	22		
Boron	250	18	93		
Cadmium	50	1.1	6		
Calcium	2000	85	46	20.0	<2000
Chromium	50	1.4	8		
Cobalt	25	2.4	1.5		
Copper	25	8	14		
Iron	350	39	50		
Lead	250	6.5	16		
Lithium	10	3.8	8		
Magnesium	1000	29	62	-62	<1000
Manganese	25	1.1	3.5		
Molybdenum	50	2.1	6		
Nickel	150	1.9	3		
Phosphorus	500	75	270		
Potassium	5000	1900	2700		
Selenium	250	14	36		
Silicon	250	60	100		
Silver	150	4.9	1.5		
Sodium	2000	1200	110	-520	<2000
Strontium	25	.46	17		
Thallium	50	16	11		
Tin	250	70	22		
Titanium	50	.49	3.5		
Uranium	250	11	20		
Vanadium	50	1.4	1.5		
Zinc	150	3.8	8.5		

Associated samples MP4191: D21569-1A, D21569-2A, D21569-3A, D21569-4A, D21569-5A, D21569-6A, D21569-7A, D21569-9A, D21569-10A

Results < IDL are shown as zero for calculation purposes

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4191  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date:

Metal

(\*) Outside of QC limits  
(anr) Analyte not requested

8.4.1

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21569  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: 23-18

QC Batch ID: MP4191  
 Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
 Units: ug/l

Prep Date: 03/09/11

Metal	D21569-10A Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	27100	161000	125000	107.1	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	4260	135000	125000	104.6	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	67900	192000	125000	99.3	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP4191: D21569-1A, D21569-2A, D21569-3A, D21569-4A, D21569-5A, D21569-6A, D21569-7A, D21569-9A, D21569-10A

Results < IDL are shown as zero for calculation purposes

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4191  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date:

Metal

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

8.4.2

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4191  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 03/09/11

Metal	D21569-10A Original MSD		Spikelot MPICPAL % Rec		MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	27100	165000	125000	110.3	2.5	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	4260	136000	125000	105.4	0.7	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	67900	198000	125000	104.1	3.1	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP4191: D21569-1A, D21569-2A, D21569-3A, D21569-4A, D21569-5A, D21569-6A, D21569-7A, D21569-9A, D21569-10A

Results < IDL are shown as zero for calculation purposes

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4191  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date:

Metal

(\*) 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: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4191  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 03/09/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	139000	125000	111.2	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	132000	125000	105.6	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	130000	125000	104.0	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP4191: D21569-1A, D21569-2A, D21569-3A, D21569-4A, D21569-5A, D21569-6A, D21569-7A, D21569-9A, D21569-10A

Results < IDL are shown as zero for calculation purposes

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4191  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date:

Metal

(\*) Outside of QC limits  
(anr) Analyte not requested

8.4.3

8



BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4199  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 03/10/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	35	250		
Antimony	150	8.5	65		
Arsenic	130	14	33		
Barium	50	.7	12		
Beryllium	50	7	22		
Boron	250	18	93		
Cadmium	50	1.1	6		
Calcium	2000	85	46	12.0	<2000
Chromium	50	1.4	8		
Cobalt	25	2.4	1.5		
Copper	25	8	14		
Iron	350	39	50		
Lead	250	6.5	16		
Lithium	10	3.8	8		
Magnesium	1000	29	62	5.0	<1000
Manganese	25	1.1	3.5		
Molybdenum	50	2.1	6		
Nickel	150	1.9	3		
Phosphorus	500	75	270		
Potassium	5000	1900	2700		
Selenium	250	14	36		
Silicon	250	60	100		
Silver	150	4.9	1.5		
Sodium	2000	1200	110	218	<2000
Strontium	25	.46	17		
Thallium	50	16	11		
Tin	250	70	22		
Titanium	50	.49	3.5		
Uranium	250	11	20		
Vanadium	50	1.4	1.5		
Zinc	150	3.8	8.5		

Associated samples MP4199: D21569-11A, D21569-13A, D21569-14A, D21569-15A, D21569-16A, D21569-17A, D21569-18A, D21569-20A, D21569-21A

Results < IDL are shown as zero for calculation purposes

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4199  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date:

Metal

(\*) Outside of QC limits  
(anr) Analyte not requested

85.1

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4199  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 03/10/11

Metal	D21569-11A Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	88300	220000	125000	105.4	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	11100	140000	125000	103.1	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	17700	149000	125000	105.0	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP4199: D21569-11A, D21569-13A, D21569-14A, D21569-15A, D21569-16A, D21569-17A, D21569-18A, D21569-20A, D21569-21A

Results < IDL are shown as zero for calculation purposes

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4199  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date:

Metal

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

8.5.2

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4199  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 03/10/11

Metal	D21569-11A Original MSD	Spikelot MPICPAL % Rec	MSD RPD	QC Limit
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	88300	219000	125000	104.6
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	11100	139000	125000	102.3
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	17700	147000	125000	103.4
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP4199: D21569-11A, D21569-13A, D21569-14A, D21569-15A, D21569-16A, D21569-17A, D21569-18A, D21569-20A, D21569-21A

Results < IDL are shown as zero for calculation purposes

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4199  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date:

Metal

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

8.5.2

8

## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4199  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 03/10/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	131000	125000	104.8	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	128000	125000	102.4	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	130000	125000	104.0	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP4199: D21569-11A, D21569-13A, D21569-14A, D21569-15A, D21569-16A, D21569-17A, D21569-18A, D21569-20A, D21569-21A

Results < IDL are shown as zero for calculation purposes

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

QC Batch ID: MP4199  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date:

Metal

(\*) Outside of QC limits  
(anr) Analyte not requested

8.5.3

8



## 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: D21569  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: 23-18

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP3949/GN8609			umhos/cm	9985	10100	101.0	90-110%
Specific Conductivity	GP3984/GN8685	1.0	<1.0	umhos/cm	9985	10000	100.5	90-110%
pH	GN8578			su	8.00	7.95	99.4	99.3-100.7%

Associated Samples:

Batch GN8578: D21569-1, D21569-10, D21569-11, D21569-12, D21569-13, D21569-14, D21569-15, D21569-16, D21569-17, D21569-18, D21569-19, D21569-2, D21569-20, D21569-21, D21569-3, D21569-4, D21569-5, D21569-6, D21569-7, D21569-8, D21569-9

Batch GP3949: D21569-1, D21569-10, D21569-11, D21569-12, D21569-19, D21569-2, D21569-3, D21569-4, D21569-5, D21569-6, D21569-7, D21569-8, D21569-9

Batch GP3984: D21569-13, D21569-14, D21569-15, D21569-16, D21569-17, D21569-18, D21569-20, D21569-21

(\*) Outside of QC limits

Accutest Mountain States										Mar 18, 2011 15:19 pm	
Job Number:	D21569										
Account:	KRW Consulting, Inc.										
Project:	23-18										
Project Number:	Pump House										
										Legend:	Hit
Client Sample ID:		B-1	B-1	B-2	B-2	B-3	B-3	B-4	B-4	B-5	B-5
Lab Sample ID:		D21569-17	D21569-17A	D21569-18	D21569-18A	D21569-19	D21569-19A	D21569-20	D21569-20A	D21569-21	D21569-21A
Date Sampled:		03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011
Matrix:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Metals Analysis											
Arsenic	mg/kg	4.9	-	5.7	-	5.6	-	4.8	-	3.0	-
Calcium	mg/l	-	37.2	-	42.2	-	76.8	-	64.9	-	46.1
Magnesium	mg/l	-	6.18	-	6.53	-	9.18	-	6.40	-	7.45
Sodium	mg/l	-	45.2	-	16.0	-	14.2	-	10.5	-	7.37
General Chemistry											
Sodium Adsorption Ratio	ratio	-	1.81 <sup>a</sup>	-	0.605 <sup>a</sup>	-	0.407 <sup>a</sup>	-	0.333 <sup>a</sup>	-	0.265 <sup>a</sup>
Solids, Percent	%	84.4	-	78.5	-	74.2	-	71.6	-	70.7	-
Specific Conductivity	umhos/cm	359	-	310	-	415	-	364	-	300	-
pH	su	9.07	-	8.16	-	8.12	-	8.19	-	7.99	-
Client Sample ID:		COMP 1	COMP 1	COMP 2	COMP 2	COMP 3	COMP 3	COMP 4	COMP 4	COMP 5	COMP 5
Lab Sample ID:		D21569-2	D21569-2A	D21569-3	D21569-3A	D21569-7	D21569-7A	D21569-6	D21569-6A	D21569-1	D21569-1A
Date Sampled:		03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011
Matrix:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
GC/MS Volatiles (SW846 8260B)											
Benzene	ug/kg	106	-	ND (21)	-	ND (21)	-	ND (23)	-	ND (22)	-
Toluene	ug/kg	699	-	ND (71)	-	ND (71)	-	145 J	-	ND (74)	-
Ethylbenzene	ug/kg	ND (29)	-	ND (28)	-	ND (29)	-	42.1 J	-	135 J	-
Xylene (total)	ug/kg	3880	-	ND (50)	-	ND (50)	-	799	-	184	-
GC Volatiles (SW846 8015B)											
TPH-GRO (C6-C10)	mg/kg	38.3	-	ND (14)	-	ND (14)	-	27.2	-	24.6	-
GC Semi-volatiles (SW846-8015B)											
TPH-DRO											

(C10-C28)	mg/kg	3970	-	26.1	-	59.0	-	492	-	558	-
Metals Analysis											
Arsenic	mg/kg	4.9	-	4.6	-	3.8	-	5.2	-	4.2	-
Calcium	mg/l	-	22.1	-	29.0	-	79.6	-	79.5	-	37.5
Magnesium	mg/l	-	6.32	-	5.99	-	16.6	-	11.6	-	5.33
Sodium	mg/l	-	64.4	-	33.0	-	190	-	254	-	344
General Chemistry											
Sodium Adsorption Ratio	ratio	-	3.11 <sup>a</sup>	-	1.46 <sup>a</sup>	-	5.06 <sup>a</sup>	-	7.04 <sup>a</sup>	-	13.9 <sup>a</sup>
Solids, Percent	%	80.8	-	82.6	-	82.4	-	79	-	80.8	-
Specific Conductivity	umhos/cm	448	-	319	-	1450	-	1610	-	1780	-
pH	su	9.12	-	9.10	-	9.04	-	8.99	-	9.20	-
Client Sample ID:		D-1/CONT. AREA-1	D-1/CONT. AREA-1	D-10	D-10	D-11	D-11	D-2	D-2	D-3	D-3
Lab Sample ID:		D21569-8	D21569-8A	D21569-15	D21569-15A	D21569-16	D21569-16A	D21569-9	D21569-9A	D21569-10	D21569-10A
Date Sampled:		03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011
Matrix:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
GC/MS Volatiles (SW846 8260B)											
Benzene	ug/kg	ND (22)	-	ND (26)	-	ND (24)	-	55.4 J	-	ND (22)	-
Toluene	ug/kg	ND (73)	-	ND (87)	-	ND (81)	-	138	-	ND (73)	-
Ethylbenzene	ug/kg	ND (29)	-	43.5 J	-	ND (32)	-	55.2 J	-	ND (29)	-
Xylene (total)	ug/kg	ND (51)	-	ND (61)	-	ND (57)	-	62.1 J	-	ND (51)	-
GC Volatiles (SW846 8015B)											
TPH-GRO (C6-C10)	mg/kg	ND (15)	-	53.3	-	ND (16)	-	ND (11)	-	ND (15)	-
GC Semi-volatiles (SW846-8015B)											
TPH-DRO (C10-C28)	mg/kg	29.7	-	675	-	81.8	-	ND (9.3)	-	182	-
Metals Analysis											
Arsenic	mg/kg	3.1	-	5.8	-	4.2	-	2.7	-	5.0	-
Calcium	mg/l	-	28.3	-	24.6	-	23.5	-	67.1	-	27.1
Magnesium	mg/l	-	6.97	-	4.88	-	2.14	-	28.2	-	4.26
Sodium	mg/l	-	136	-	201	-	106	-	255	-	67.9
General Chemistry											
Sodium Adsorption Ratio	ratio	-	5.93 <sup>a</sup>	-	9.68 <sup>a</sup>	-	5.61 <sup>a</sup>	-	6.59 <sup>a</sup>	-	3.20 <sup>a</sup>
Solids,											

Percent	%	81	-	72.7	-	75.9	-	93.5	-	80.5	-
Specific Conductivity	umhos/cm	789	-	935	-	608	-	1730	-	448	-
pH	su	8.46	-	9.30	-	8.92	-	9.15	-	9.06	-
Client Sample ID:		D-4	D-4	D-6	D-6	D-7	D-7	D-9	D-9	D5	D5
Lab Sample ID:		D21569-11	D21569-11A	D21569-12	D21569-12A	D21569-13	D21569-13A	D21569-14	D21569-14A	D21569-4	D21569-4A
Date Sampled:		03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011	03/03/2011
Matrix:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
GC/MS Volatiles (SW846 8260B)											
Benzene	ug/kg	ND (22)	-	ND (42)	-	ND (22)	-	ND (21)	-	ND (24)	-
Toluene	ug/kg	ND (72)	-	ND (140)	-	ND (72)	-	ND (71)	-	ND (80)	-
Ethylbenzene	ug/kg	ND (29)	-	ND (57)	-	ND (29)	-	ND (28)	-	ND (32)	-
Xylene (total)	ug/kg	ND (50)	-	ND (99)	-	ND (51)	-	ND (49)	-	ND (56)	-
GC Volatiles (SW846 8015B)											
TPH-GRO (C6-C10)	mg/kg	ND (14)	-	ND (28)	-	ND (14)	-	ND (14)	-	ND (16)	-
GC Semi-volatiles (SW846-8015B)											
TPH-DRO (C10-C28)	mg/kg	15.0 J	-	20.5 J	-	ND (11)	-	30.9	-	44.7	-
Metals Analysis											
Arsenic	mg/kg	5.7	-	7.4	-	5.6	-	4.6	-	5.1	-
Calcium	mg/l	-	88.3	-	7.42	-	45.5	-	53.7	-	19.3
Magnesium	mg/l	-	11.1	-	<1.0	-	5.47	-	8.46	-	2.56
Sodium	mg/l	-	17.7	-	28.9	-	208	-	15.7	-	74.6
General Chemistry											
Sodium Adsorption Ratio	ratio	-	0.472 <sup>a</sup>	-	2.69 <sup>a</sup>	-	7.75 <sup>a</sup>	-	0.525 <sup>a</sup>	-	4.23 <sup>a</sup>
Solids, Percent	%	81.3	-	52.1	-	81.3	-	82.6	-	76.9	-
Specific Conductivity	umhos/cm	628	-	157	-	1140	-	411	-	405	-
pH	su	8.54	-	8.49	-	8.99	-	8.98	-	9.09	-
Client Sample ID:		D8	D8								
Lab Sample ID:		D21569-5	D21569-5A								
Date Sampled:		03/03/2011	03/03/2011								
Matrix:		Soil	Soil								
GC/MS Volatiles (SW846 8260B)											
Benzene	ug/kg	ND (23)	-								

Toluene	ug/kg	ND (78)	-								
Ethylbenzene	ug/kg	ND (31)	-								
Xylene (total)	ug/kg	ND (55)	-								
GC Volatiles (SW846 8015B)											
TPH-GRO (C6-C10)	mg/kg	ND (16)	-								
GC Semi-volatiles (SW846-8015B)											
TPH-DRO (C10-C28)	mg/kg	23.8	-								
Metals Analysis											
Arsenic	mg/kg	5.1	-								
Calcium	mg/l	-	73.3								
Magnesium	mg/l	-	8.00								
Sodium	mg/l	-	354								
General Chemistry											
Sodium Adsorption Ratio	ratio	-	10.5 <sup>a</sup>								
Solids, Percent	%	78	-								
Specific Conductivity	umhos/cm	2090	-								
pH	su	9.20	-								
Footnotes:											
<sup>a</sup> Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+(Mg meq/L)/2]											



05/11/11

## Technical Report for

KRW Consulting, Inc.

PCU 23-18 Confirmation

Accutest Job Number: D23076

Sampling Date: 04/28/11

### Report to:

KRW Consulting, Inc.  
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Total number of pages in report: **134**



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.

A handwritten signature in black ink, appearing to read 'John Hamilton'.

John Hamilton  
Laboratory Director

Client Service contact: Amanda Kissell 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: D23076

PCU 23-18 Confirmation

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D23076-1	04/28/11	12:00 RR	05/02/11	SO	Soil	COMP #1
D23076-1A	04/28/11	12:00 RR	05/02/11	SO	Soil	COMP #1

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

## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** KRW Consulting, Inc.

**Job No** D23076

**Site:** PCU 23-18 Confirmation

**Report Dat** 5/10/2011 10:38:14 AM

On 05/02/2011, one (1) sample, 0 Trip Blanks, and 0 Field Blanks were received at Accutest Mountain States (AMS) at a temperature of 3.2°C. The sample was intact and properly preserved, unless noted below. An AMS Job Number of D23076 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:** V5V888

- The sample was analyzed within the recommended method holding time.
- Samples D23076-1MS and D23076-1MSD were used as the QC samples indicated.
- The method blank for this batch meets method specific criteria.

### Extractables by GCMS By Method SW846 8270C BY SIM

**Matrix** SO

**Batch ID:** OP3614

- The sample was extracted and analyzed within the recommended method holding time.
- Samples D23076-1MS and D23076-1MSD were used as the QC samples indicated.
- The method blank for this batch meets method specific criteria.

### Volatiles by GC By Method SW846 8015B

**Matrix** SO

**Batch ID:** GGB615

- The sample was analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D23080-1MS and D23080-1MSD were used as the QC samples indicated.

### Extractables by GC By Method SW846-8015B

**Matrix** SO

**Batch ID:** OP3595

- The sample was extracted and analyzed within the recommended method holding time.
- Samples D23080-1MS and D23080-1MSD were used as the QC samples indicated.
- Sample D23076-1 has the analyte reported with a "B" qualifier, indicating analyte is found in the associated method blank.

## Metals By Method SW846 6010B

**Matrix** AQ

**Batch ID:** MP4641

- The sample was digested and analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D23022-2AMS and D23022-2AMSD were used as the QC samples for the metals analysis.

**Matrix** SO

**Batch ID:** MP4617

- The sample was digested and analyzed within the recommended method holding time.
- The method blank for this batch meet method specific criteria.
- Samples D22908-8MS, D22908-8MSD, and D22908-8SDL were used as the QC samples for the metals analysis.
- The matrix spike duplicate (MSD) recoveries of Nickel and Zinc are outside control limits. Probable cause due to matrix interference. Refer to the lab control or spike blank for recovery information.
- The serial dilution RPDs for Barium, Cadmium, Chromium, Nickel, Silver, and Zinc are outside control limits for sample MP4617-SD1. The percent differences are acceptable for Cadmium and Silver due to low initial sample concentration (< 50 times IDL).
- MP4617-SD1 for Barium, Chromium, Nickel, and Zinc: Serial dilution indicates possible matrix interference.

## Metals By Method SW846 6020

**Matrix** SO

**Batch ID:** MP4618

- The sample was digested and analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D22908-8MS, D22908-8MSD, and D22908-8SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD for Arsenic is outside control limits for sample MP4618-SD1. The percent difference is acceptable due to low initial sample concentration (< 50 times IDL).

## Metals By Method SW846 7471A

**Matrix** SO

**Batch ID:** MP4626

- The sample was digested and analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D22908-8MS and D22908-8MSD were used as the QC samples for the Mercury analysis.

## Wet Chemistry By Method ASTM D1498-76M

**Matrix** SO

**Batch ID:** GN9349

- Sample D23071-1DUP was used as the QC sample for the Redox Potential Vs H2 analysis.

## Wet Chemistry By Method SM19 2540B M

**Matrix** SO

**Batch ID:** GN9350

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

## Wet Chemistry By Method SW846 3060/7196A M

**Matrix** SO

**Batch ID:** R7362

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

**Wet Chemistry By Method SW846 3060A/7196A****Matrix** SO**Batch ID:** M:GP12920

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

**Wet Chemistry By Method SW846 9045C****Matrix** SO**Batch ID:** GN9347

- The following sample was run outside of holding time for method SW846 9045C: D23076-1.

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** D23076**Site:** KRWCCOL: PCU 23-18 Confirmation**Report Date** 5/9/2011 11:34:48 AM

1 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 04/28/2011 and were received at Accutest on 05/02/2011 properly preserved, at XXXXNO TEMPERATURE FOUNDXXXX Deg. C and intact. These Samples received an Accutest job number of D23076. 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:** GP12920

- 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) D23021-3MS, D23021-3DUP were used as the QC samples for Chromium, Hexavalent.
- RPD(s) for Duplicate for Chromium, Hexavalent are outside control limits for sample GP12920-D1. RPD acceptable due to low duplicate and sample concentrations.

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(D23076).

## Sample Results

## Report of Analysis

Accutest Laboratories

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	COMP #1	<b>Date Sampled:</b>	04/28/11
<b>Lab Sample ID:</b>	D23076-1	<b>Date Received:</b>	05/02/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	84.7
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	PCU 23-18 Confirmation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V15177.D	1	05/06/11	DC	n/a	n/a	V5V888
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.01 g	5.0 ml	100 ul
Run #2			

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	68	30	ug/kg	
108-88-3	Toluene	170	140	68	ug/kg	
100-41-4	Ethylbenzene	37.8	140	34	ug/kg	J
1330-20-7	Xylene (total)	117	270	68	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	82%		70-130%
460-00-4	4-Bromofluorobenzene	89%		70-130%
17060-07-0	1,2-Dichloroethane-D4	103%		70-130%

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

<b>Client Sample ID:</b>	COMP #1	
<b>Lab Sample ID:</b>	D23076-1	<b>Date Sampled:</b> 04/28/11
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b> 05/02/11
<b>Method:</b>	SW846 8270C BY SIM SW846 3546	<b>Percent Solids:</b> 84.7
<b>Project:</b>	PCU 23-18 Confirmation	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G03963.D	2	05/09/11	TMB	05/05/11	OP3614	E3G147
Run #2							

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

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	16	13	ug/kg	
208-96-8	Acenaphthylene	ND	16	14	ug/kg	
120-12-7	Anthracene	ND	16	14	ug/kg	
56-55-3	Benzo(a)anthracene	ND	39	20	ug/kg	
50-32-8	Benzo(a)pyrene	ND	39	28	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	39	29	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	39	24	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	39	17	ug/kg	
218-01-9	Chrysene	ND	39	17	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	39	29	ug/kg	
206-44-0	Fluoranthene	ND	16	16	ug/kg	
86-73-7	Fluorene	ND	16	13	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	47	43	ug/kg	
90-12-0	1-Methylnaphthalene	ND	16	12	ug/kg	
91-57-6	2-Methylnaphthalene	15.7	16	13	ug/kg	J
91-20-3	Naphthalene	ND	16	15	ug/kg	
85-01-8	Phenanthrene	ND	16	11	ug/kg	
129-00-0	Pyrene	ND	16	15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	53%		10-193%
321-60-8	2-Fluorobiphenyl	57%		20-138%
1718-51-0	Terphenyl-d14	68%		17-174%

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

<b>Client Sample ID:</b>	COMP #1		
<b>Lab Sample ID:</b>	D23076-1	<b>Date Sampled:</b>	04/28/11
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b>	05/02/11
<b>Method:</b>	SW846 8015B	<b>Percent Solids:</b>	84.7
<b>Project:</b>	PCU 23-18 Confirmation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB10585.D	1	05/03/11	BR	n/a	n/a	GGB615
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	14	6.8	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	89%		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

<b>Client Sample ID:</b>	COMP #1						
<b>Lab Sample ID:</b>	D23076-1				<b>Date Sampled:</b>	04/28/11	
<b>Matrix:</b>	SO - Soil				<b>Date Received:</b>	05/02/11	
<b>Method:</b>	SW846-8015B SW846 3546				<b>Percent Solids:</b>	84.7	
<b>Project:</b>	PCU 23-18 Confirmation						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI01861.D	1	05/04/11	JB	05/03/11	OP3595	GFI124
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	41.7	16	10	mg/kg	B
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	96%		63-130%		

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: COMP #1

Lab Sample ID: D23076-1

Matrix: SO - Soil

Date Sampled: 04/28/11

Date Received: 05/02/11

Percent Solids: 84.7

Project: PCU 23-18 Confirmation

## Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.2	0.50	mg/kg	5	05/03/11	05/04/11 JM	SW846 6020 <sup>2</sup>	SW846 3050B <sup>5</sup>
Barium	289	1.2	mg/kg	1	05/03/11	05/03/11 GJ	SW846 6010B <sup>1</sup>	SW846 3050B <sup>4</sup>
Cadmium	< 1.2	1.2	mg/kg	1	05/03/11	05/03/11 GJ	SW846 6010B <sup>1</sup>	SW846 3050B <sup>4</sup>
Chromium	47.7	1.2	mg/kg	1	05/03/11	05/03/11 GJ	SW846 6010B <sup>1</sup>	SW846 3050B <sup>4</sup>
Copper	11.7	1.2	mg/kg	1	05/03/11	05/03/11 GJ	SW846 6010B <sup>1</sup>	SW846 3050B <sup>4</sup>
Lead	13.5	6.2	mg/kg	1	05/03/11	05/03/11 GJ	SW846 6010B <sup>1</sup>	SW846 3050B <sup>4</sup>
Mercury	< 0.12	0.12	mg/kg	1	05/05/11	05/05/11 JM	SW846 7471A <sup>3</sup>	SW846 7471A <sup>6</sup>
Nickel	16.4	3.7	mg/kg	1	05/03/11	05/03/11 GJ	SW846 6010B <sup>1</sup>	SW846 3050B <sup>4</sup>
Selenium	< 6.2	6.2	mg/kg	1	05/03/11	05/03/11 GJ	SW846 6010B <sup>1</sup>	SW846 3050B <sup>4</sup>
Silver	< 3.7	3.7	mg/kg	1	05/03/11	05/03/11 GJ	SW846 6010B <sup>1</sup>	SW846 3050B <sup>4</sup>
Zinc	60.0	3.7	mg/kg	1	05/03/11	05/03/11 GJ	SW846 6010B <sup>1</sup>	SW846 3050B <sup>4</sup>

(1) Instrument QC Batch: MA1499

(2) Instrument QC Batch: MA1500

(3) Instrument QC Batch: MA1504

(4) Prep QC Batch: MP4617

(5) Prep QC Batch: MP4618

(6) Prep QC Batch: MP4626

RL = Reporting Limit

## Report of Analysis

**Client Sample ID:** COMP #1**Lab Sample ID:** D23076-1**Matrix:** SO - Soil**Project:** PCU 23-18 Confirmation**Date Sampled:** 04/28/11**Date Received:** 05/02/11**Percent Solids:** 84.7**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent <sup>a</sup>	1.6	0.47	mg/kg	1	05/04/11 15:45	AMA	SW846 3060A/7196A
Chromium, Trivalent <sup>b</sup>	46.1	1.7	mg/kg	1	05/04/11 15:45	AMA	SW846 3060/7196A M
Redox Potential Vs H2	443		mv	1	05/02/11 14:00	CB	ASTM D1498-76M
Solids, Percent	84.7		%	1	05/02/11	CB	SM19 2540B M
Specific Conductivity	189	1.0	umhos/cm	1	05/09/11	JD	DEPT.OF AG, BOOK N9
pH	8.96		su	1	05/02/11 12:35	JD	SW846 9045C

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

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

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	COMP #1	<b>Date Sampled:</b>	04/28/11
<b>Lab Sample ID:</b>	D23076-1A	<b>Date Received:</b>	05/02/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	84.7
<b>Project:</b>	PCU 23-18 Confirmation		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method	Prep Method
Calcium	9.70	2.0	mg/l	1	05/04/11	05/05/11	GJ	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Magnesium	2.06	1.0	mg/l	1	05/04/11	05/05/11	GJ	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Sodium	26.0	2.0	mg/l	1	05/04/11	05/05/11	GJ	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>

(1) Instrument QC Batch: MA1505  
(2) Prep QC Batch: MP4641

RL = Reporting Limit

Report of Analysis

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<b>Client Sample ID:</b>	COMP #1	<b>Date Sampled:</b>	04/28/11
<b>Lab Sample ID:</b>	D23076-1A	<b>Date Received:</b>	05/02/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	84.7
<b>Project:</b>	PCU 23-18 Confirmation		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	1.98		ratio	1	05/05/11 23:59	GJ	USDA HANDBOOK 60

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

RL = Reporting Limit

## Misc. Forms

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### Custody Documents and Other Forms

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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 # <b>D23076</b>

Client / Reporting Information	Project Information	Requested Analysis (see TEST CODE sheet)	Matrix Codes																														
Company Name <b>KRW Consulting</b> Street Address <b>8000 W. 14th Ave Ste. 200</b> City State Zip <b>Lakewood CO 80214</b> Project Contact <b>Dwayne Hudson</b> Phone # <b>970-675-4066</b> Fax # <b>970-675-4066</b> Sampler(s) Name(s) Phone # <b>Ron Rasnic Same</b>	Project Name <b>PCU 23-18 <del>PCU</del> Confirmation</b> Street:  Billing Information (If different from Report to) Company Name  Street Address  City State Zip  Project #  Client PO#  Project Manager <b>Joe Hess</b> Attention:  PO#  Collection <table border="1"> <tr> <th>MEQ/DOI Vol #</th> <th>Date</th> <th>Time</th> <th>Sampled by</th> <th>Matrix</th> <th># of bottles</th> <th>HCL</th> <th>NaOH</th> <th>HNO3</th> <th>H2SO4</th> <th>H2O2</th> <th>DI Water</th> <th>MEQ/DOI</th> <th>ENCORE</th> <th>Disinfectant</th> </tr> <tr> <td></td> <td>4-28-11</td> <td>12:00</td> <td>RR</td> <td>SO</td> <td>5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	MEQ/DOI Vol #	Date	Time	Sampled by	Matrix	# of bottles	HCL	NaOH	HNO3	H2SO4	H2O2	DI Water	MEQ/DOI	ENCORE	Disinfectant		4-28-11	12:00	RR	SO	5										Table 9104 X	Matrix Codes 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 - Waste FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank  LAB USE ONLY 01 70
MEQ/DOI Vol #	Date	Time	Sampled by	Matrix	# of bottles	HCL	NaOH	HNO3	H2SO4	H2O2	DI Water	MEQ/DOI	ENCORE	Disinfectant																			
	4-28-11	12:00	RR	SO	5																												

Turnaround Time (Business days)	Approved By (Accutest PM): / Date:	Data Deliverable Information	Comments / Special Instructions
<input type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> Std. 5 Business Days (By Contract only) <input checked="" type="checkbox"/> 5 Day <del>W/ SH</del> <input checked="" type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY Emergency & Rush T/A data available VIA Lablink	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)  Commercial "A" - Results Only Commercial "B" - Results + QC Summary	Please email report to 12RW's Exxon/Mobil Please contacts

Sample Custody must be documented below each time samples change possession, including courier delivery.			
Relinquished by Sampler: 1 <b>Dwayne Hudson</b> Relinquished by Sampler: 3 Relinquished by: 5	Date Time: 5-2-11 8:50 Date Time: Date Time: Date Time:	Received By: 1 <b>RR</b> Received By: 3 Received By: 5	Relinquished By: 2 Relinquished By: 4 Relinquished By: Custody Seal # <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact Preserved where applicable <input type="checkbox"/> On Ice <input checked="" type="checkbox"/> Cooler Temp. 3.2°C

**D23076: Chain of Custody**

**Page 1 of 2**

## Accutest Laboratories Sample Receipt Summary

**Accutest Job Number:** D23076

**Client:** KRW CONSULTING

**Immediate Client Services Action Required:** No

**Date / Time Received:** 5/2/2011 8:50:00 AM

**No. Coolers:** 1

**Client Service Action Required at Login:** No

**Project:** PCU 23-18

**Airbill #'s:** HD

**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"/> | Infrared gun |
| 2. Cooler temp verification:  | Ice (bag)    |
| 3. Cooler media:  |              |

**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

### D23076: Chain of Custody

### Page 2 of 2

## GC/MS Volatiles

5

### QC Data Summaries

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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:** D23076  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** PCU 23-18 Confirmation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V888-MB1	5V15175.D	1	05/06/11	DC	n/a	n/a	V5V888

The QC reported here applies to the following samples:

Method: SW846 8260B

D23076-1

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	50	ug/kg	

CAS No.	Surrogate Recoveries	Limits
2037-26-5	Toluene-D8	90% 70-130%
460-00-4	4-Bromofluorobenzene	94% 70-130%
17060-07-0	1,2-Dichloroethane-D4	111% 70-130%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D23076

**Account:** KRWCCOL KRW Consulting, Inc.

**Project:** PCU 23-18 Confirmation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V888-BS1	5V15176.D	1	05/06/11	DC	n/a	n/a	V5V888

The QC reported here applies to the following samples:

Method: SW846 8260B

D23076-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	54.0	108	68-130
100-41-4	Ethylbenzene	50	53.0	106	70-130
108-88-3	Toluene	50	50.4	101	70-130
1330-20-7	Xylene (total)	100	100	100	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	87%	70-130%
460-00-4	4-Bromofluorobenzene	103%	70-130%
17060-07-0	1,2-Dichloroethane-D4	114%	70-130%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D23076

**Account:** KRWCCOL KRW Consulting, Inc.

**Project:** PCU 23-18 Confirmation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D23076-1MS	5V15178.D	1	05/06/11	DC	n/a	n/a	V5V888
D23076-1MSD	5V15179.D	1	05/06/11	DC	n/a	n/a	V5V888
D23076-1	5V15177.D	1	05/06/11	DC	n/a	n/a	V5V888

The QC reported here applies to the following samples:

Method: SW846 8260B

D23076-1

CAS No.	Compound	D23076-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3400	3720	109	3940	116	6	55-140/30
100-41-4	Ethylbenzene	37.8	J	3400	3660	107	3740	109	2	56-139/30
108-88-3	Toluene	170		3400	3580	100	3690	104	3	57-144/30
1330-20-7	Xylene (total)	117	J	6800	7220	104	7360	107	2	51-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D23076-1	Limits
2037-26-5	Toluene-D8	81%	83%	82%	70-130%
460-00-4	4-Bromofluorobenzene	103%	101%	89%	70-130%
17060-07-0	1,2-Dichloroethane-D4	112%	107%	103%	70-130%

GC/MS Volatiles

Raw Data



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5050611.S\  
Data File : 5V15177.D  
Acq On : 6 May 2011 11:35 am  
Operator : DONC  
Sample : D23076-1, 50x  
Misc : MS2129,V5V888,5.007,,100,5,1  
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 09 07:30:29 2011  
Quant Method : C:\msdchem\1\METHODS\V5hsl877tvh877Soil.M  
Quant Title : 8260  
QLast Update : Fri Apr 22 12:55:36 2011  
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	150121	50.00	ug/l	0.00
31) 1,4-Difluorobenzene	12.446	114	186763	50.00	ug/l	0.00
48) Chlorobenzene-d5	15.095	117	166508	50.00	ug/l	0.00
63) 1,4-Dichlorobenzene-d4	17.070	152	91793	50.00	ug/l	0.00

System Monitoring Compounds

30) 1,2-Dichloroethane-d4	12.035	102	12385	51.61	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	103.22%
55) Toluene-d8	13.850	98	296419	41.24	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	82.48%
59) 4-Bromofluorobenzene	16.043	95	96503	44.56	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	89.12%

Target Compounds

						Qvalue
1) TVH-Gasoline	13.210	TIC	116785m	52.61	ug/l	
56) Toluene	13.908	92	12604	2.50	ug/l	95
58) Ethylbenzene	15.175	91	5061	0.56	ug/l	96
61) m,p-xylene	15.255	106	6984	1.25	ug/l	97
62) o-xylene	15.597	106	1502	0.48	ug/l	77
66) 1,2,4-Trimethylbenzene	16.693	105	3060	0.42	ug/l	95
72) Naphthalene	19.570	128	2783	1.05	ug/l	100

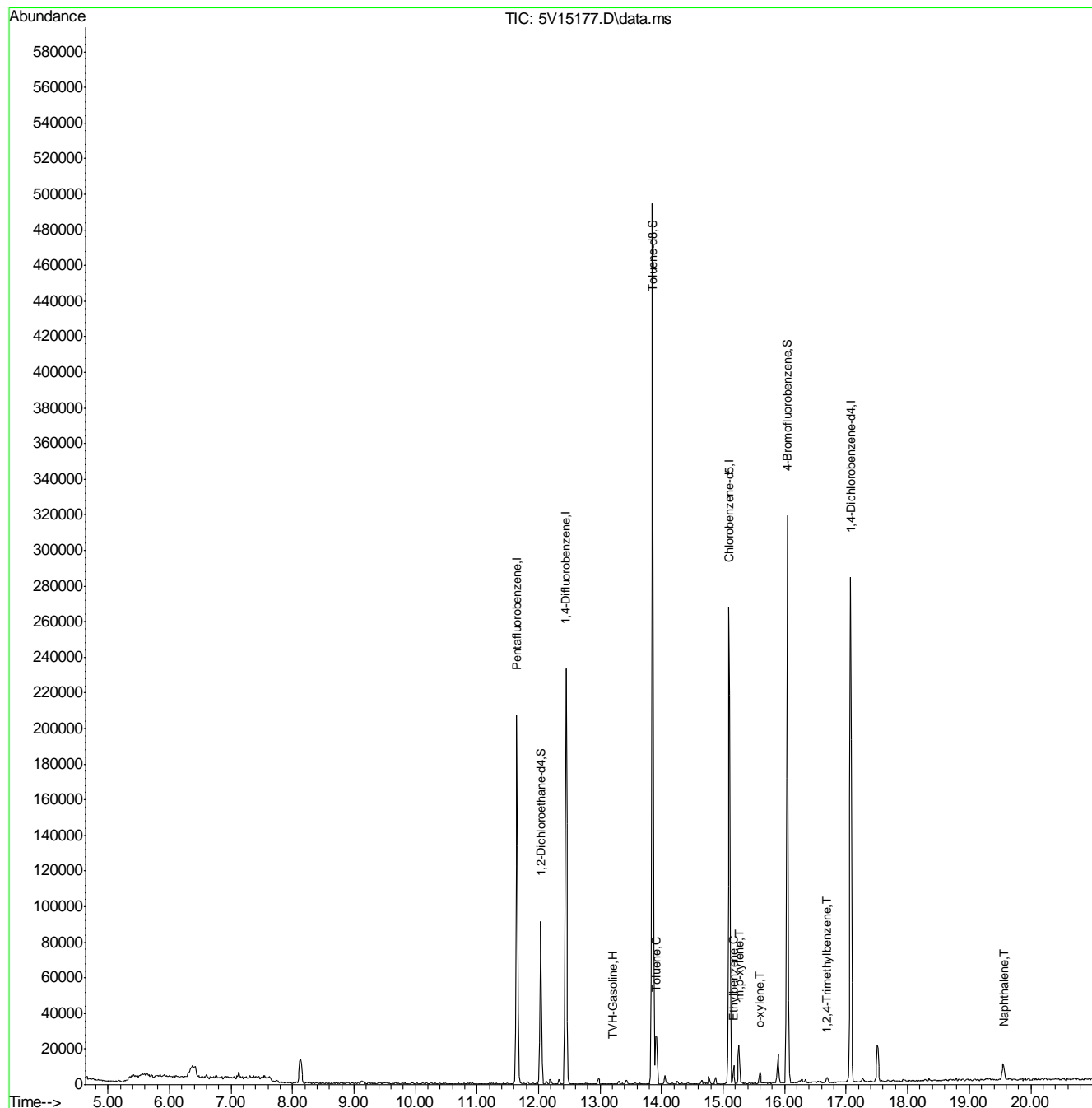
(#) = qualifier out of range (m) = manual integration (+) = signals summed

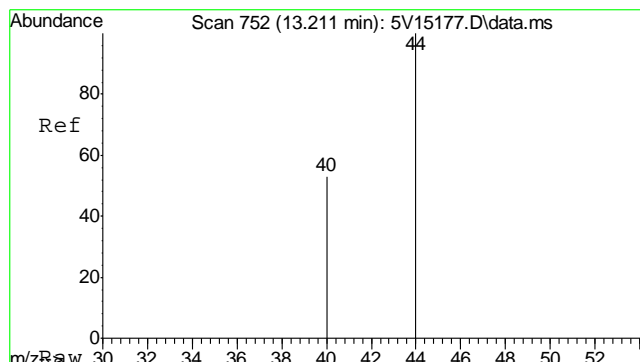


## Quantitation Report (QT Reviewed)

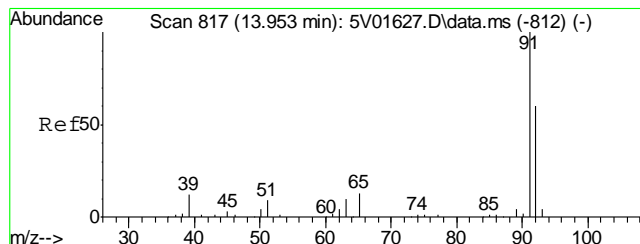
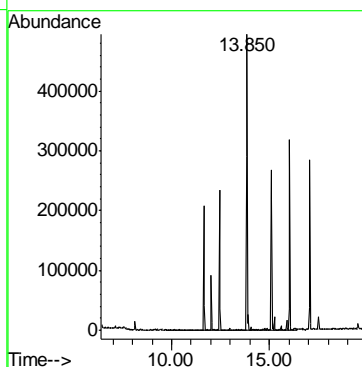
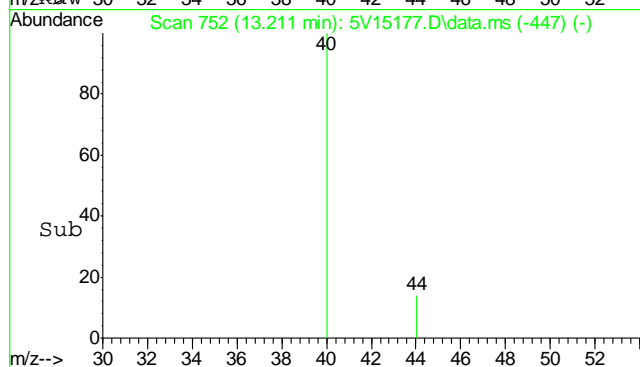
Data Path : C:\msdchem\1\DATA\V5050611.S\  
Data File : 5V15177.D  
Acq On : 6 May 2011 11:35 am  
Operator : DONC  
Sample : D23076-1, 50x  
Misc : MS2129,V5V888,5.007,,100,5,1  
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 09 07:30:29 2011  
Quant Method : C:\msdchem\1\METHODS\V5hs1877tvh877Soil.M  
Quant Title : 8260  
QLast Update : Fri Apr 22 12:55:36 2011  
Response via : Initial Calibration



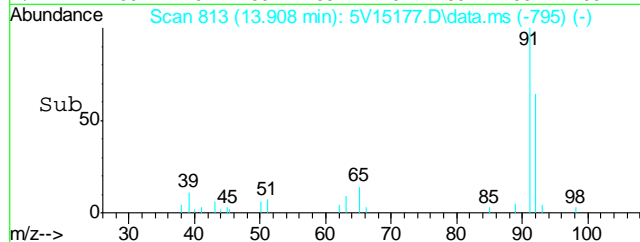
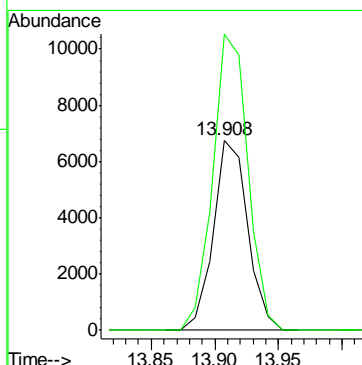
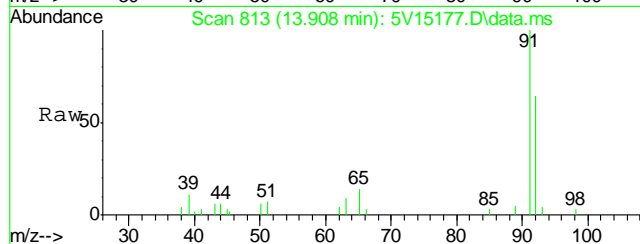


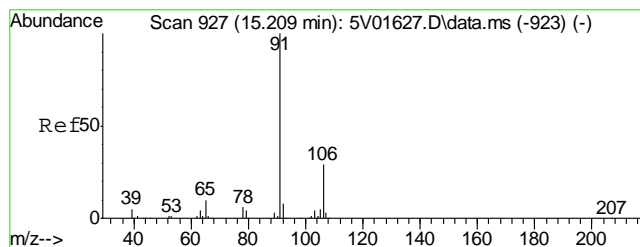
#1  
TVH-Gasoline  
Concen: 52.61 ug/l m  
RT: 13.210 min Scan# 752  
Delta R.T. 0.000 min  
Lab File: 5V15177.D  
Acq: 6 May 2011 11:35 am  
Tgt Ion:TIC Resp: 116785



#56  
Toluene  
Concen: 2.50 ug/l  
RT: 13.908 min Scan# 813  
Delta R.T. 0.001 min  
Lab File: 5V15177.D  
Acq: 6 May 2011 11:35 am

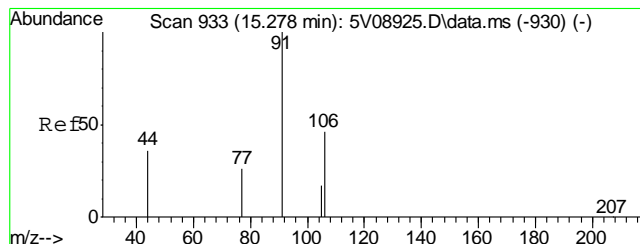
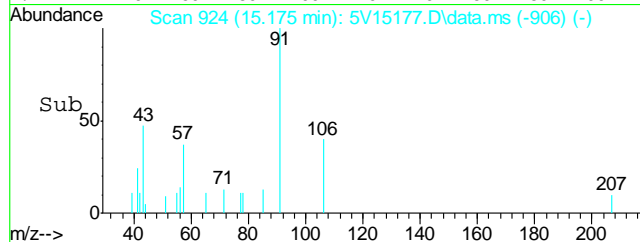
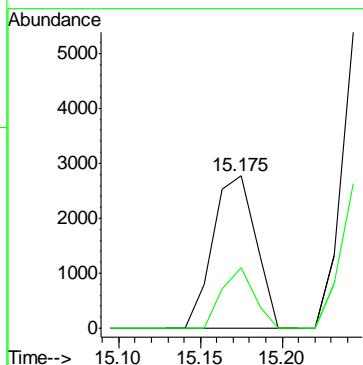
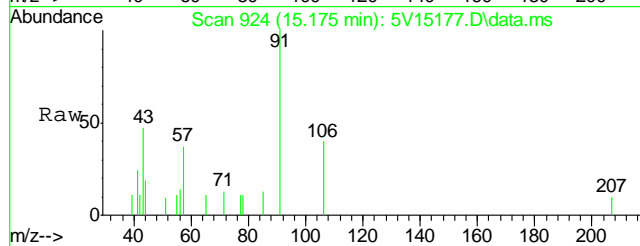
Tgt Ion: 92 Resp: 12604  
Ion Ratio Lower Upper  
92 100  
91 159.6 146.2 186.2





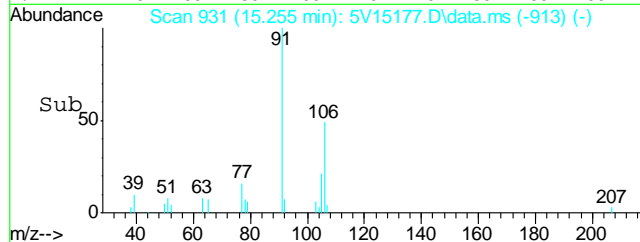
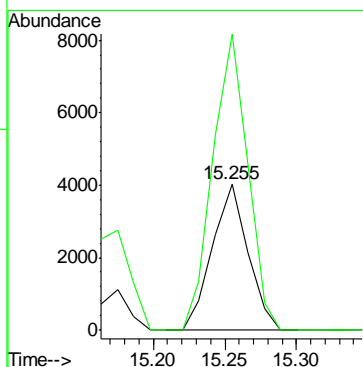
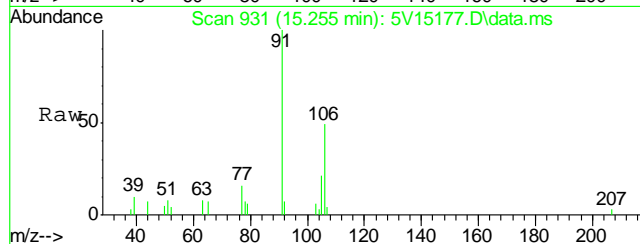
#58  
Ethylbenzene  
Concen: 0.56 ug/l  
RT: 15.175 min Scan# 924  
Delta R.T. 0.000 min  
Lab File: 5V15177.D  
Acq: 6 May 2011 11:35 am

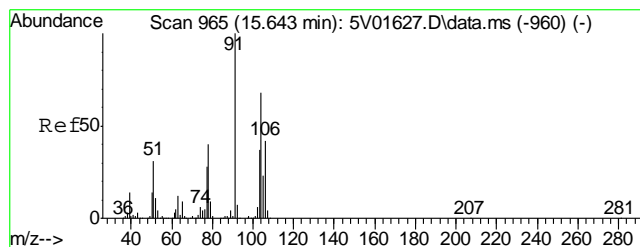
Tgt Ion: 91 Resp: 5061  
Ion Ratio Lower Upper  
91 100  
106 29.9 11.9 51.9



#61  
m,p-xylene  
Concen: 1.25 ug/l  
RT: 15.255 min Scan# 931  
Delta R.T. 0.001 min  
Lab File: 5V15177.D  
Acq: 6 May 2011 11:35 am

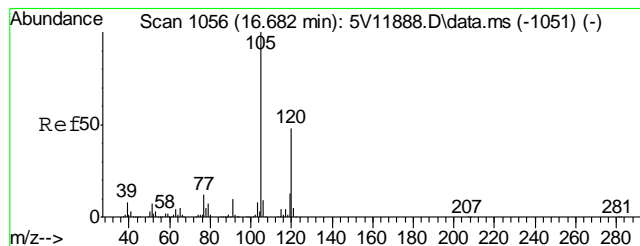
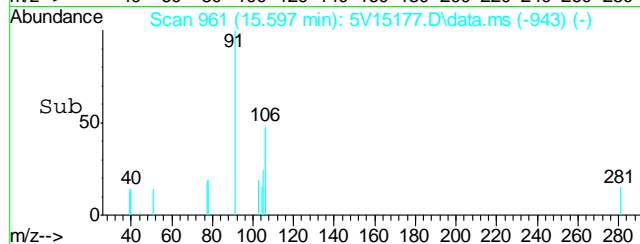
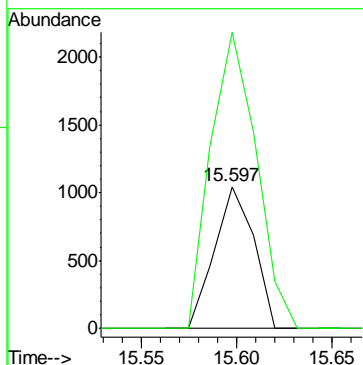
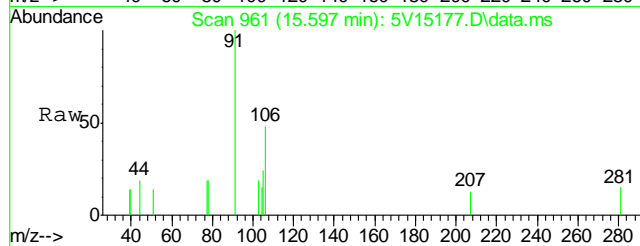
Tgt Ion: 106 Resp: 6984  
Ion Ratio Lower Upper  
106 100  
91 198.3 174.3 214.3





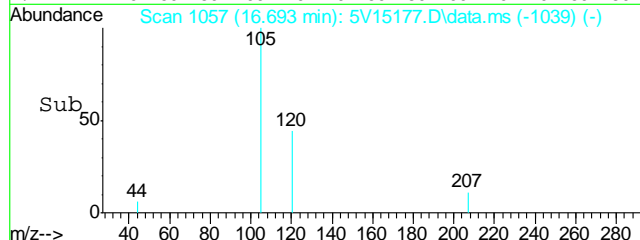
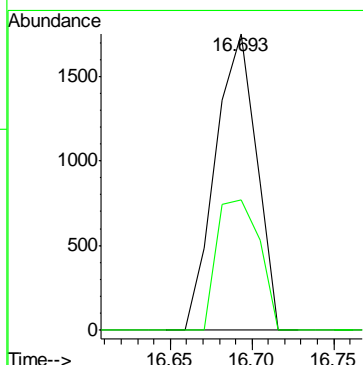
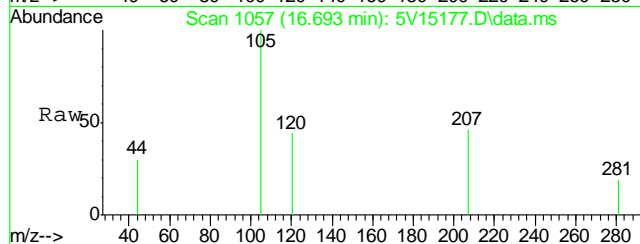
#62  
o-xylene  
Concen: 0.48 ug/l  
RT: 15.597 min Scan# 961  
Delta R.T. 0.000 min  
Lab File: 5V15177.D  
Acq: 6 May 2011 11:35 am

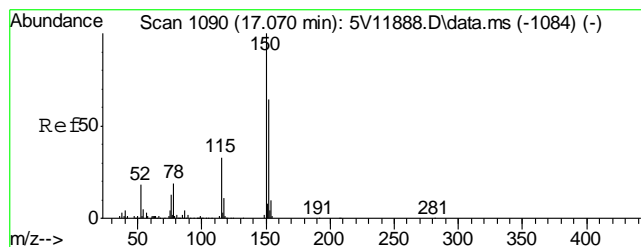
Tgt Ion:106 Resp: 1502  
Ion Ratio Lower Upper  
106 100  
91 242.6 165.9 248.9



#66  
1,2,4-Trimethylbenzene  
Concen: 0.42 ug/l  
RT: 16.693 min Scan# 1057  
Delta R.T. 0.000 min  
Lab File: 5V15177.D  
Acq: 6 May 2011 11:35 am

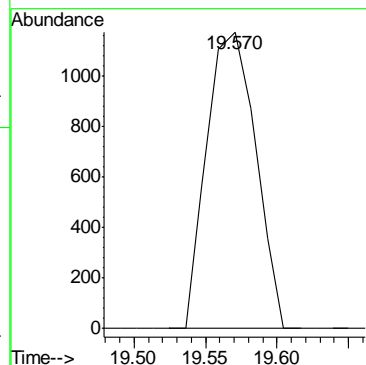
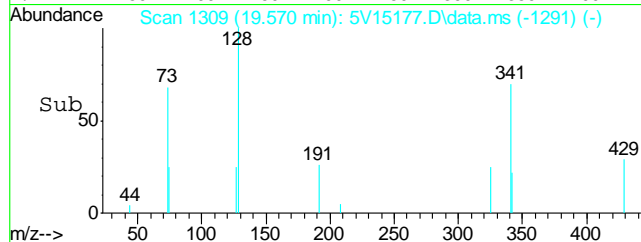
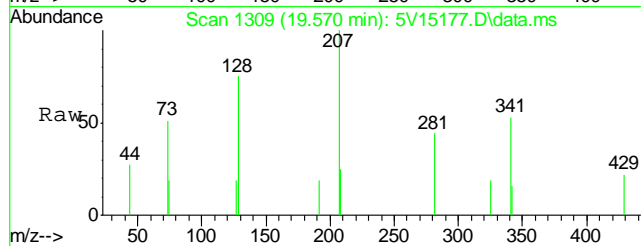
Tgt Ion:105 Resp: 3060  
Ion Ratio Lower Upper  
105 100  
120 45.8 39.6 59.4





#72  
Naphthalene  
Concen: 1.05 ug/l  
RT: 19.570 min Scan# 1309  
Delta R.T. 0.000 min  
Lab File: 5V15177.D  
Acq: 6 May 2011 11:35 am

Tgt Ion:128 Resp: 2783



## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5050611.S\  
Data File : 5V15175.D  
Acq On : 6 May 2011 10:28 am  
Operator : DONC  
Sample : MB1  
Misc : MS2129,V5V888,5,,100,5,1  
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 09 07:20:40 2011  
Quant Method : C:\msdchem\1\METHODS\V5hsl877tvh877Soil.M  
Quant Title : 8260  
QLast Update : Fri Apr 22 12:55:36 2011  
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	153482	50.00	ug/l	0.00
31) 1,4-Difluorobenzene	12.446	114	185251	50.00	ug/l	0.00
48) Chlorobenzene-d5	15.095	117	165416	50.00	ug/l	0.00
63) 1,4-Dichlorobenzene-d4	17.070	152	92532	50.00	ug/l	0.00

## System Monitoring Compounds

30) 1,2-Dichloroethane-d4	12.035	102	13578	55.34	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	110.68%
55) Toluene-d8	13.851	98	321307	44.99	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	89.98%
59) 4-Bromofluorobenzene	16.043	95	101407	47.13	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	94.26%

## Target Compounds

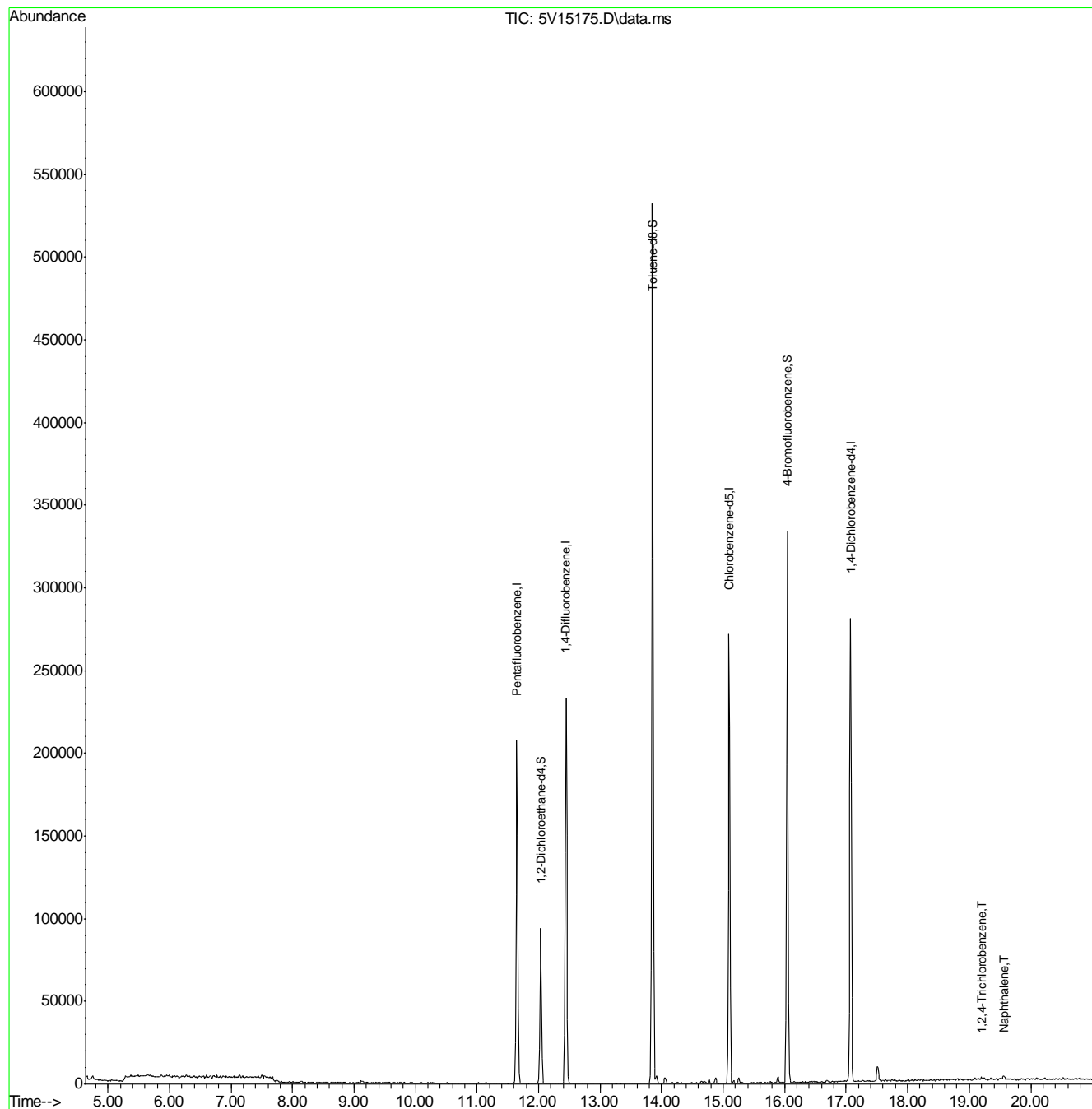
					Qvalue
1) TVH-Gasoline	13.210	TIC	-5148m	43.85	ug/l
71) 1,2,4-Trichlorobenzene	19.205	180	966	0.89	ug/l # 95
72) Naphthalene	19.570	128	2492	0.93	ug/l 100

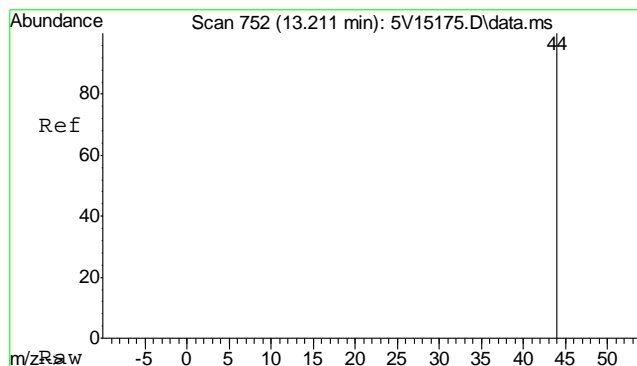
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5050611.S\  
Data File : 5V15175.D  
Acq On : 6 May 2011 10:28 am  
Operator : DONC  
Sample : MB1  
Misc : MS2129,V5V888,5,,100,5,1  
ALS Vial : 3 Sample Multiplier: 1

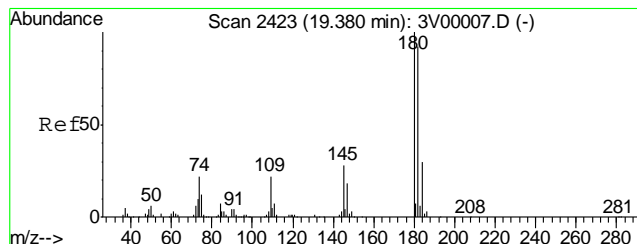
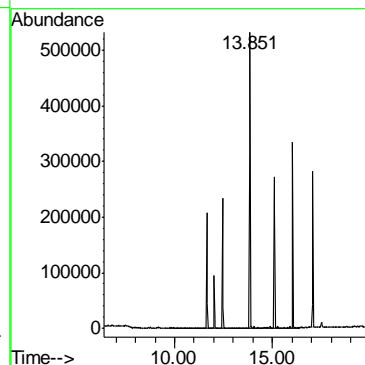
Quant Time: May 09 07:20:40 2011  
Quant Method : C:\msdchem\1\METHODS\V5hs1877tvh877Soil.M  
Quant Title : 8260  
QLast Update : Fri Apr 22 12:55:36 2011  
Response via : Initial Calibration





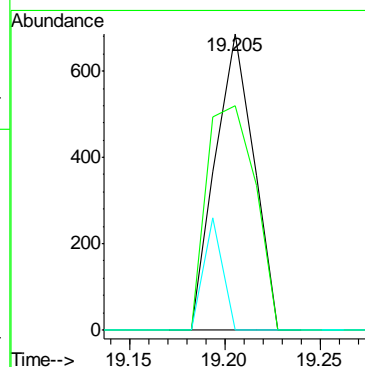
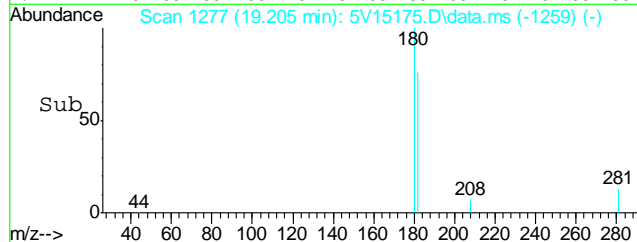
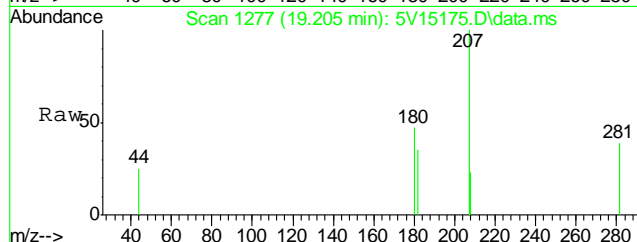
#1  
TVH-Gasoline  
Concen: 43.85 ug/l m  
RT: 13.210 min Scan# 752  
Delta R.T. 0.000 min  
Lab File: 5V15175.D  
Acq: 6 May 2011 10:28 am

Tgt Ion:TIC Resp: -5148

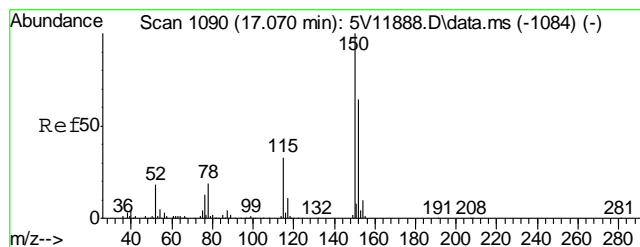


#71  
1,2,4-Trichlorobenzene  
Concen: 0.89 ug/l  
RT: 19.205 min Scan# 1277  
Delta R.T. 0.000 min  
Lab File: 5V15175.D  
Acq: 6 May 2011 10:28 am

Tgt Ion:180 Resp: 966  
Ion Ratio Lower Upper  
180 100  
182 95.8 77.4 116.2  
145 18.4 22.1 33.1#

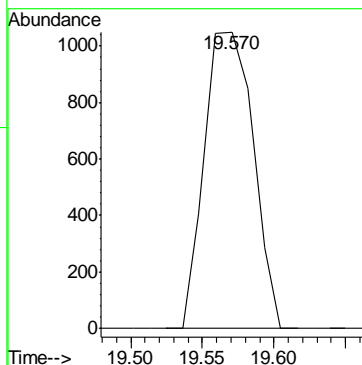
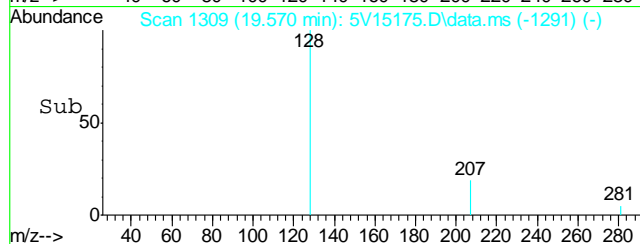
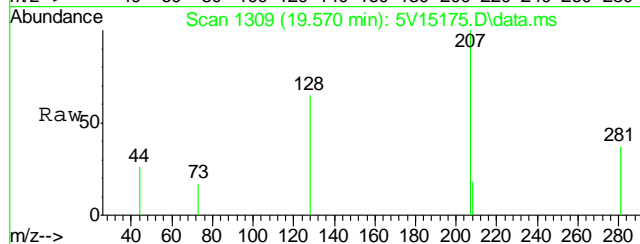






#72  
Naphthalene  
Concen: 0.93 ug/l  
RT: 19.570 min Scan# 1309  
Delta R.T. 0.000 min  
Lab File: 5V15175.D  
Acq: 6 May 2011 10:28 am

Tgt Ion:128 Resp: 2492



## GC/MS Semi-volatiles

### QC Data Summaries

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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:** D23076  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** PCU 23-18 Confirmation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3614-MB	3G03929.D	1	05/06/11	TMB	05/05/11	OP3614	E3G145

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

D23076-1

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	6.7	5.3	ug/kg	
208-96-8	Acenaphthylene	ND	6.7	6.0	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	
191-24-2	Benzo(g,h,i)perylene	ND	17	10	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	
90-12-0	1-Methylnaphthalene	ND	6.7	5.0	ug/kg	
91-57-6	2-Methylnaphthalene	ND	6.7	5.7	ug/kg	
91-20-3	Naphthalene	ND	6.7	6.3	ug/kg	
85-01-8	Phenanthrene	ND	6.7	4.7	ug/kg	
129-00-0	Pyrene	ND	6.7	6.3	ug/kg	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	46% 10-193%
321-60-8	2-Fluorobiphenyl	43% 20-138%
1718-51-0	Terphenyl-d14	71% 17-174%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D23076  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** PCU 23-18 Confirmation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3614-BS	3G03930.D	1	05/06/11	TMB	05/05/11	OP3614	E3G145

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D23076-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	40.3	48	40-136
208-96-8	Acenaphthylene	83.3	39.3	47	42-139
120-12-7	Anthracene	83.3	50.9	61	40-141
56-55-3	Benzo(a)anthracene	83.3	62.3	75	38-143
50-32-8	Benzo(a)pyrene	83.3	63.0	76	39-145
205-99-2	Benzo(b)fluoranthene	83.3	65.1	78	38-151
191-24-2	Benzo(g,h,i)perylene	83.3	64.6	78	35-136
207-08-9	Benzo(k)fluoranthene	83.3	69.4	83	38-147
218-01-9	Chrysene	83.3	67.4	81	39-137
53-70-3	Dibenzo(a,h)anthracene	83.3	63.6	76	35-139
206-44-0	Fluoranthene	83.3	55.5	67	34-132
86-73-7	Fluorene	83.3	43.5	52	41-136
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	68.3	82	31-144
90-12-0	1-Methylnaphthalene	83.3	41.4	50	36-130
91-57-6	2-Methylnaphthalene	83.3	38.7	46	40-131
91-20-3	Naphthalene	83.3	42.4	51	36-130
85-01-8	Phenanthrene	83.3	47.5	57	40-135
129-00-0	Pyrene	83.3	59.0	71	29-157

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	52%	10-193%
321-60-8	2-Fluorobiphenyl	49%	20-138%
1718-51-0	Terphenyl-d14	84%	17-174%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D23076  
**Account:** KRWCCOL KRW Consulting, Inc.  
**Project:** PCU 23-18 Confirmation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3614-MS	3G03964.D	2	05/09/11	TMB	05/05/11	OP3614	E3G147
OP3614-MSD	3G03965.D	2	05/09/11	TMB	05/05/11	OP3614	E3G147
D23076-1	3G03963.D	2	05/09/11	TMB	05/05/11	OP3614	E3G147

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D23076-1

CAS No.	Compound	D23076-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		98.1	49.1	50	42.5	43	14	20-151/30
208-96-8	Acenaphthylene	ND		98.1	50.3	51	46.3	47	8	23-156/30
120-12-7	Anthracene	ND		98.1	61.3	62	55.4	56	10	25-149/30
56-55-3	Benzo(a)anthracene	ND		98.1	67.8	69	60.2	61	12	22-157/30
50-32-8	Benzo(a)pyrene	ND		98.1	61.8	63	55.6	57	11	23-153/30
205-99-2	Benzo(b)fluoranthene	ND		98.1	55.9	57	49.0	50	13	22-161/30
191-24-2	Benzo(g,h,i)perylene	ND		98.1	64.2	65	60.6	62	6	20-158/30
207-08-9	Benzo(k)fluoranthene	ND		98.1	61.2	62	49.1	50	22	17-161/30
218-01-9	Chrysene	ND		98.1	59.1	60	52.6	54	12	16-159/30
53-70-3	Dibenzo(a,h)anthracene	ND		98.1	68.5	70	63.6	65	7	21-154/30
206-44-0	Fluoranthene	ND		98.1	64.2	65	56.5	58	13	16-140/30
86-73-7	Fluorene	ND		98.1	54.0	55	48.1	49	12	15-153/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		98.1	65.4	67	63.1	64	4	21-159/30
90-12-0	1-Methylnaphthalene	ND		98.1	54.8	56	49.3	50	11	10-148/30
91-57-6	2-Methylnaphthalene	15.7	J	98.1	55.1	40	50.9	36	8	10-181/30
91-20-3	Naphthalene	ND		98.1	54.5	56	45.1	46	19	10-176/30
85-01-8	Phenanthrene	ND		98.1	59.9	61	54.1	55	10	22-152/30
129-00-0	Pyrene	ND		98.1	63.0	64	56.7	58	11	10-200/30

CAS No.	Surrogate Recoveries	MS	MSD	D23076-1	Limits
4165-60-0	Nitrobenzene-d5	47%	39%	53%	10-193%
321-60-8	2-Fluorobiphenyl	48%	41%	57%	20-138%
1718-51-0	Terphenyl-d14	61%	55%	68%	17-174%

GC/MS Semi-volatiles

Raw Data

∞

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\050911\  
 Data File : 3g03963.D  
 Acq On : 9 May 2011 3:00 pm  
 Operator : TamiB  
 Sample : D23076-1,2x  
 Misc : OP3614,E3G147,30.10,,,1,2  
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 09 16:52:11 2011  
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G145.M  
 Quant Title : PAHSIM BASE  
 QLast Update : Mon May 09 11:39:14 2011  
 Response via : Initial Calibration

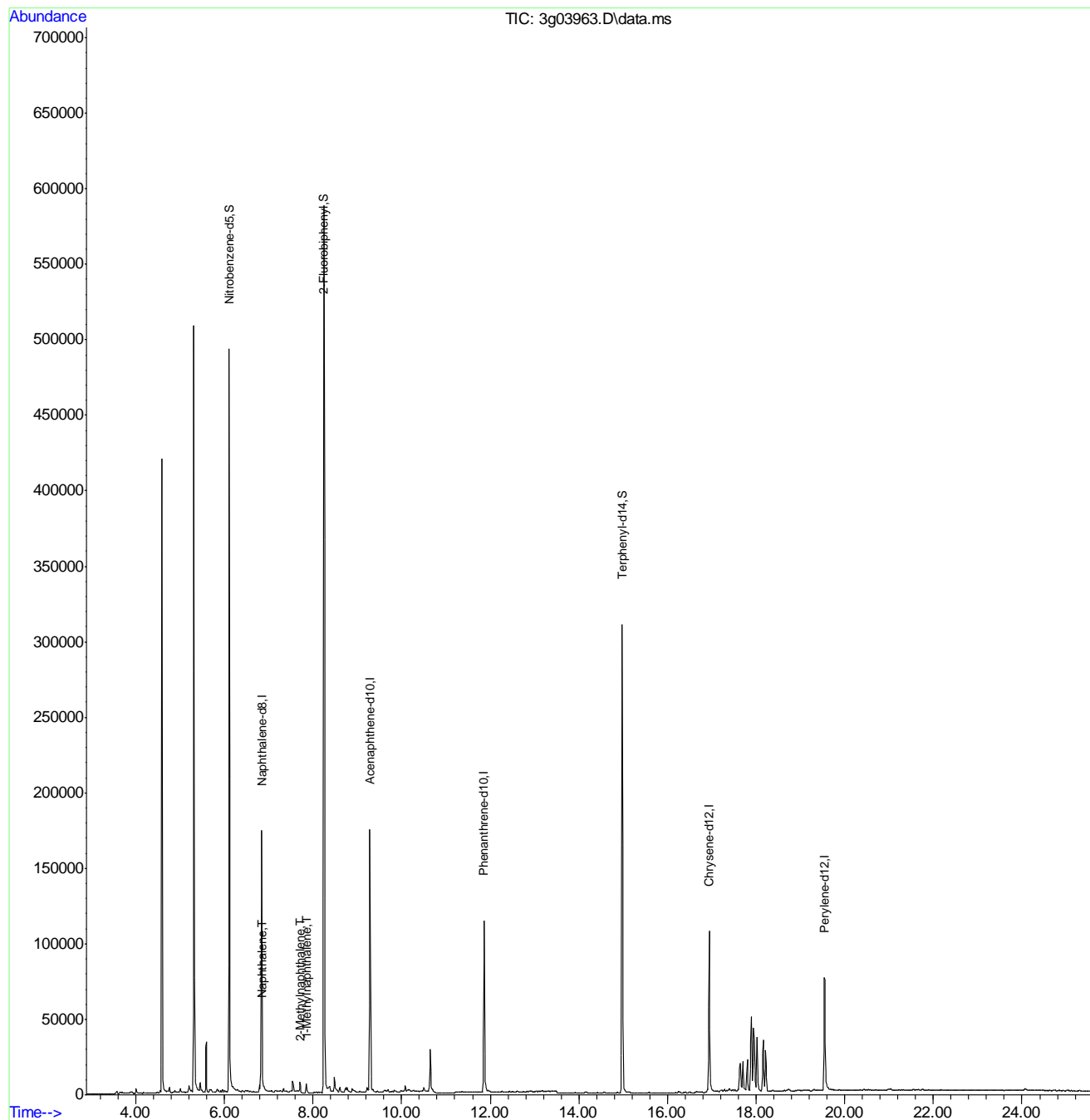
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.842	136	197032	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.286	164	95194	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.862	188	136631	4.00	ug/mL	0.00
18) Chrysene-d12	16.941	240	134320	4.00	ug/mL	0.00
23) Perylene-d12	19.540	264	121768	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	6.107	82	310075	13.34	ug/mL	0.00
7) 2-Fluorobiphenyl	8.247	172	542116	14.22	ug/mL	0.00
20) Terphenyl-d14	14.981	244	362803	16.98	ug/mL	0.00
Target Compounds						
					Qvalue	
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	6.855	128	6453	0.11	ug/mL	98
8) 2-Methylnaphthalene	7.715	142	3667	0.20	ug/mL	96
9) 1-Methylnaphthalene	7.857	142	3774	0.12	ug/mL	98
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	0.000		0	N.D.	d	
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	0.000		0	N.D.	d	
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	0.000		0	N.D.	d	
21) Benzo(a)anthracene	0.000		0	N.D.	d	
22) Chrysene	0.000		0	N.D.	d	
24) Benzo(b)fluoranthene	0.000		0	N.D.	d	
25) Benzo(k)fluoranthene	0.000		0	N.D.	d	
26) Benzo(a)pyrene	0.000		0	N.D.	d	
27) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
28) Dibenz(a,h)anthracene	0.000		0	N.D.	d	
29) Benzo(g,h,i)perylene	0.000		0	N.D.	d	

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

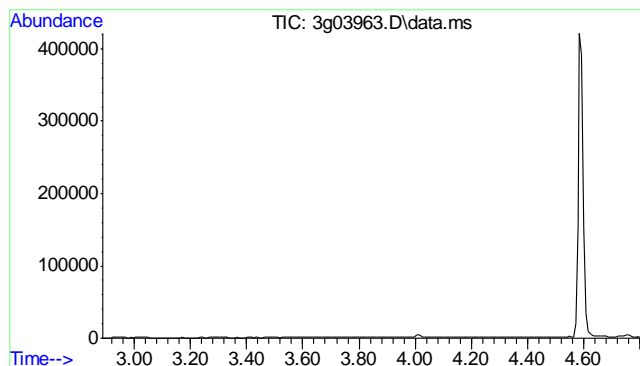
## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\050911\  
Data File : 3g03963.D  
Acq On : 9 May 2011 3:00 pm  
Operator : TamiB  
Sample : D23076-1,2x  
Misc : OP3614,E3G147,30.10,,,1,2  
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 09 16:52:11 2011  
Quant Method : C:\msdchem\1\METHODS\SIMPE3G145.M  
Quant Title : PAHSIM BASE  
QLast Update : Mon May 09 11:39:14 2011  
Response via : Initial Calibration

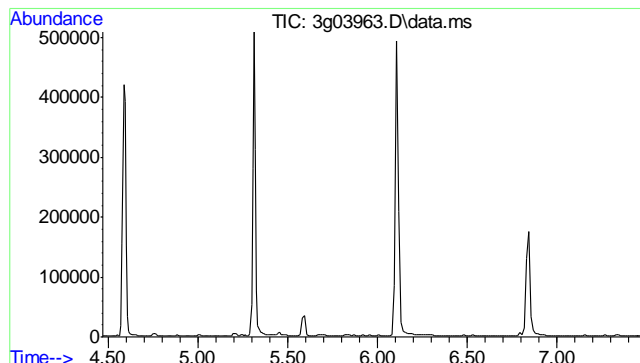
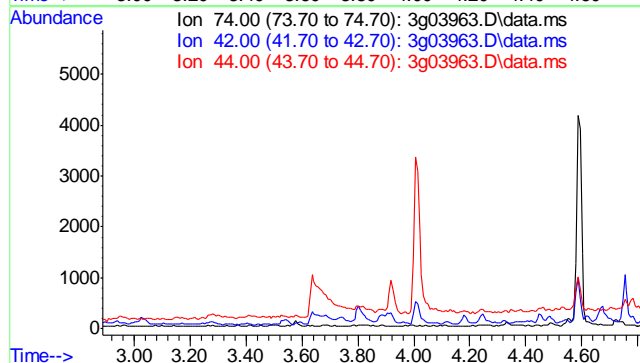






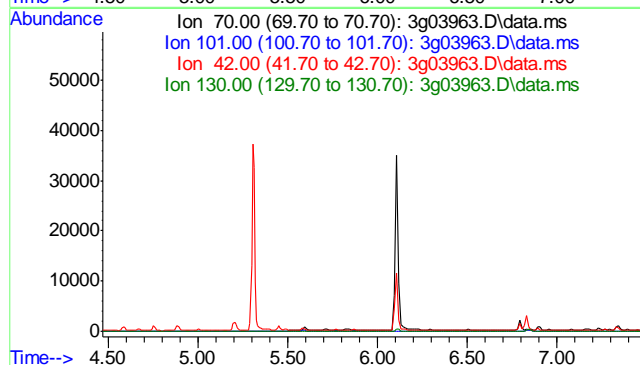
#3  
 N-Nitrosodimethylamine  
 Concen: N.D. ug/mL  
 Expected RT: 3.31 min  
  
 Lab File: 3g03963.D  
 Acq: 9 May 11 3:00 pm

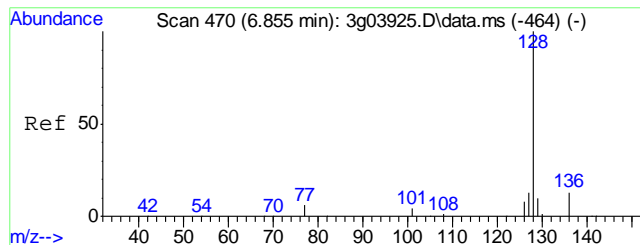
Tgt Ion	Exp Ratio
74	100
42	59.7
44	3.4



#4  
 N-Nitrosodi-propylamine  
 Concen: N.D. ug/mL  
 Expected RT: 5.97 min  
  
 Lab File: 3g03963.D  
 Acq: 9 May 11 3:00 pm

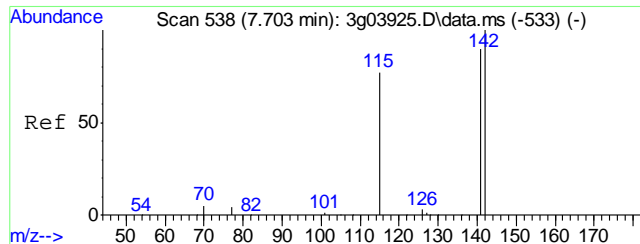
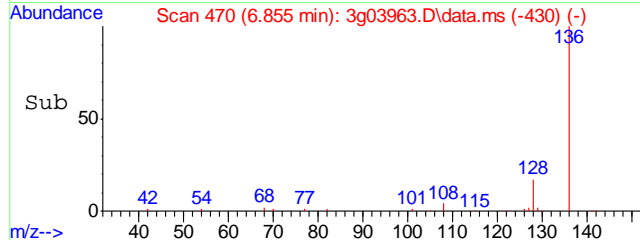
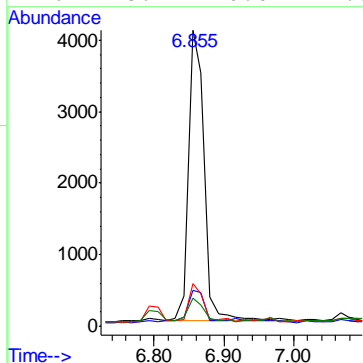
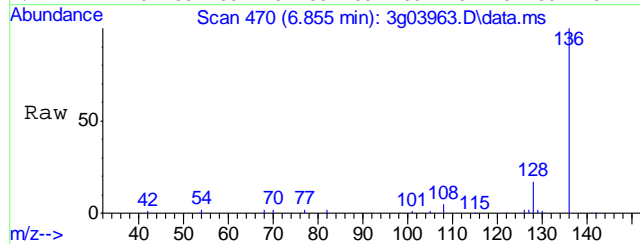
Tgt Ion	Exp Ratio
70	100
101	12.1
42	41.5
130	19.9





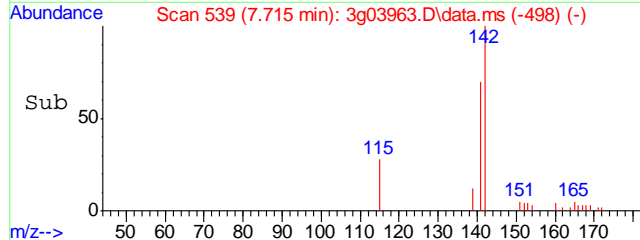
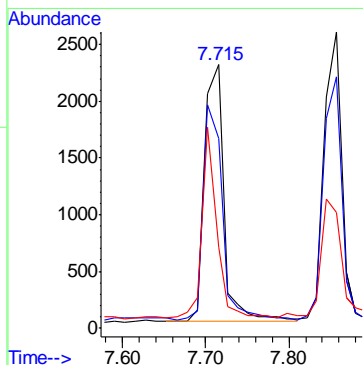
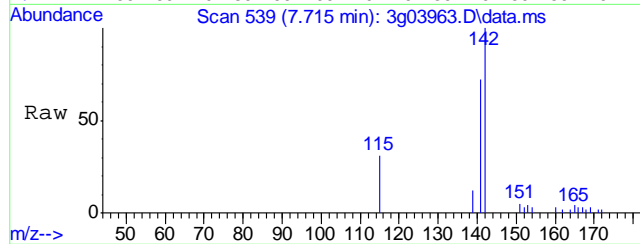
#5  
Naphthalene  
Concen: 0.11 ug/mL  
RT: 6.855 min Scan# 470  
Delta R.T. 0.000 min  
Lab File: 3g03963.D  
Acq: 9 May 11 3:00 pm

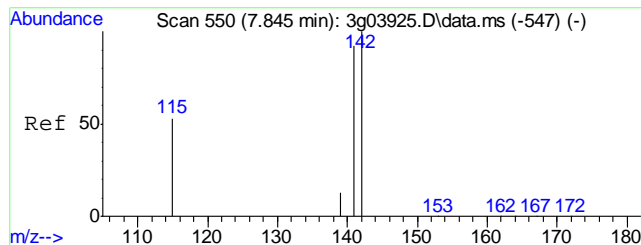
Tgt Ion:	128	Resp:	6453
Ion Ratio	100	Lower	Upper
128	100		
129	11.8	0.0	31.1
127	12.9	0.0	32.6
126	8.2	0.0	27.3



#8  
2-Methylnaphthalene  
Concen: 0.20 ug/mL  
RT: 7.715 min Scan# 539  
Delta R.T. 0.013 min  
Lab File: 3g03963.D  
Acq: 9 May 11 3:00 pm

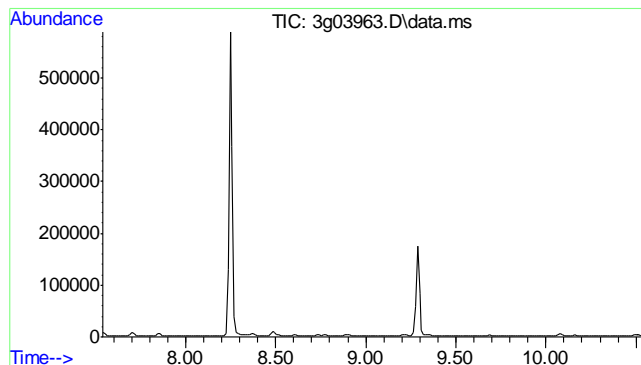
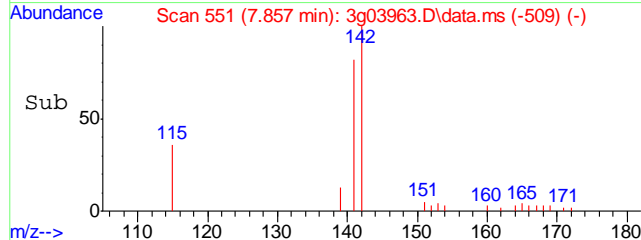
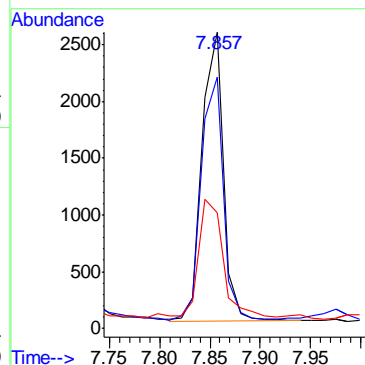
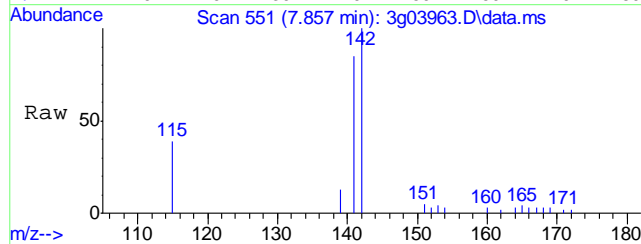
Tgt Ion:	142	Resp:	3667
Ion Ratio	100	Lower	Upper
142	100		
141	80.4	63.5	103.5
115	57.9	40.9	80.9





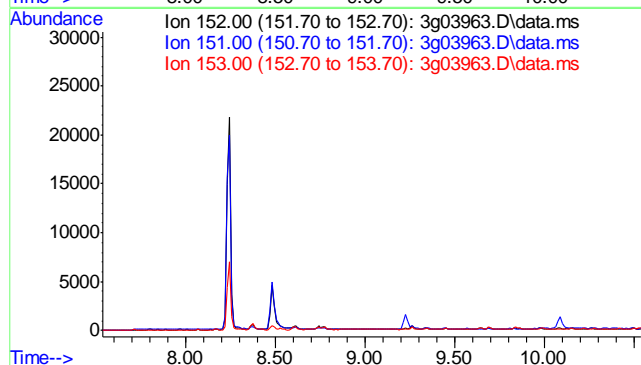
#9  
1-Methylnaphthalene  
Concen: 0.12 ug/mL  
RT: 7.857 min Scan# 551  
Delta R.T. 0.012 min  
Lab File: 3g03963.D  
Acq: 9 May 11 3:00 pm

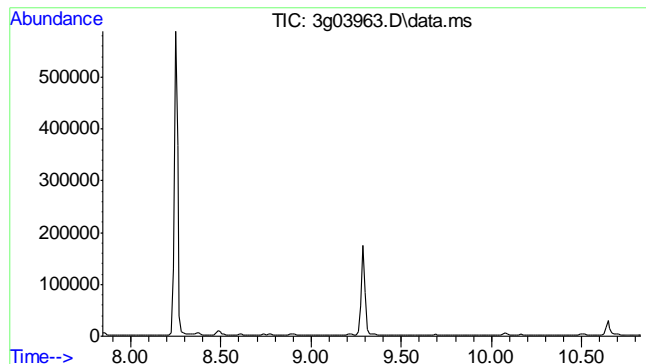
Tgt Ion:	142	Resp:	3774
Ion Ratio	Lower	Upper	
142	100		
141	86.2	69.3	103.9
115	48.3	36.0	54.0



#10  
Acenaphthylene  
Concen: N.D. ug/mL  
Expected RT: 9.04 min  
Lab File: 3g03963.D  
Acq: 9 May 11 3:00 pm

Tgt Ion:	152
Sig	Exp Ratio
152	100
151	19.0
153	12.9

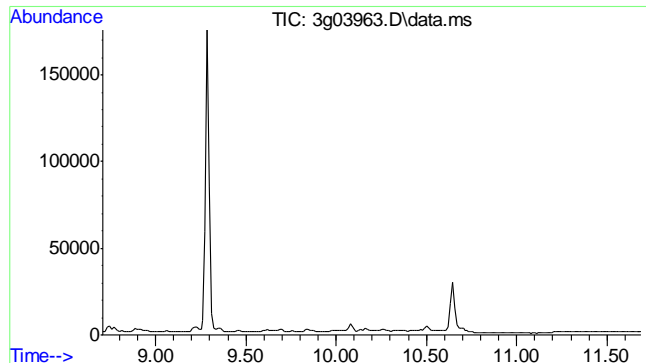
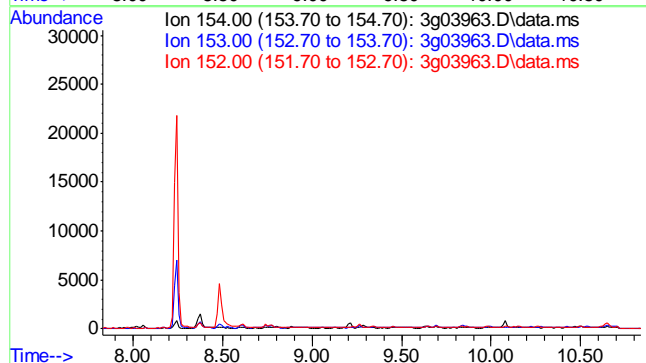




#11  
Acenaphthene  
Concen: N.D. ug/mL  
Expected RT: 9.33 min

Lab File: 3g03963.D  
Acq: 9 May 11 3:00 pm

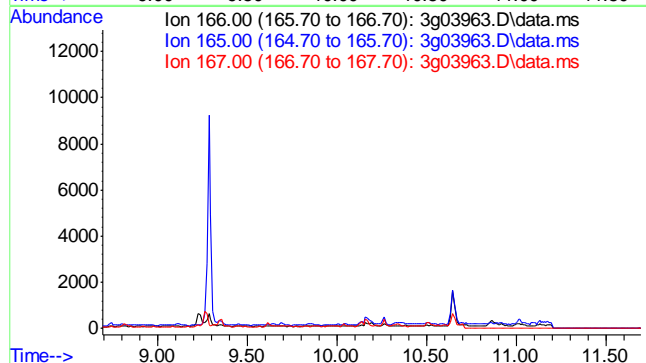
Tgt Ion: 154  
Sig Exp Ratio  
154 100  
153 113.8  
152 53.8

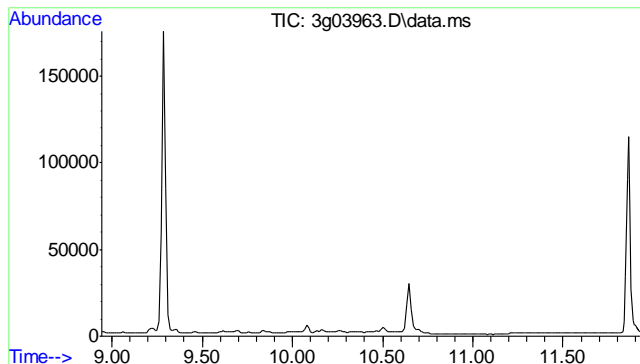


#12  
Fluorene  
Concen: N.D. ug/mL  
Expected RT: 10.20 min

Lab File: 3g03963.D  
Acq: 9 May 11 3:00 pm

Tgt Ion: 166  
Sig Exp Ratio  
166 100  
165 89.6  
167 13.1



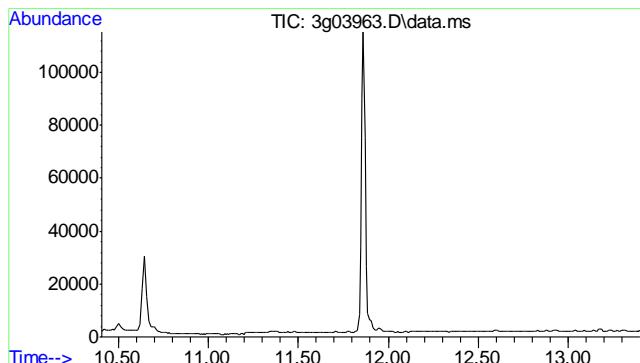
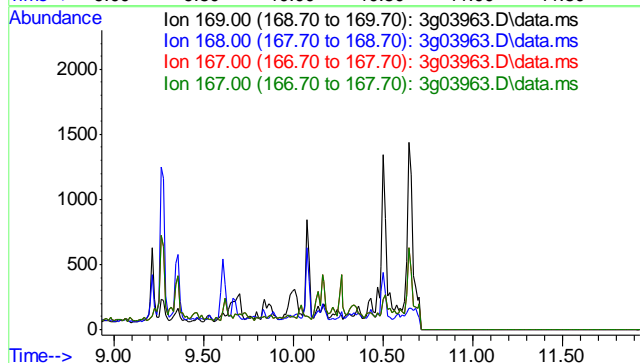


#13  
Diphenylamine  
Concen: N.D. ug/mL  
Expected RT: 10.43 min

Lab File: 3g03963.D  
Acq: 9 May 11 3:00 pm

Tgt Ion: 169

Sig	Exp Ratio
169	100
168	61.9
167	33.1
167	33.1

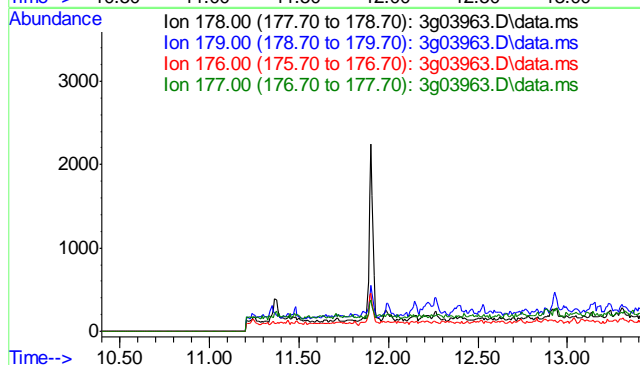


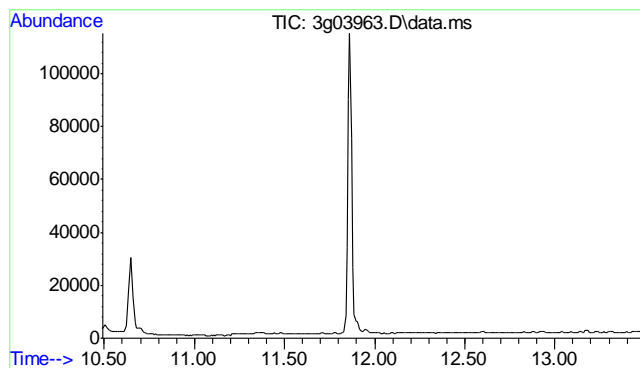
#15  
Phenanthrene  
Concen: N.D. ug/mL  
Expected RT: 11.90 min

Lab File: 3g03963.D  
Acq: 9 May 11 3:00 pm

Tgt Ion: 178

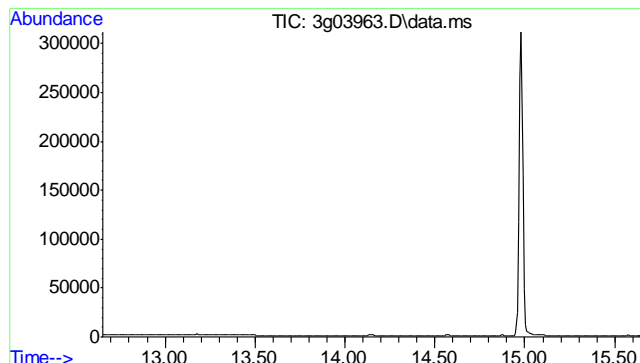
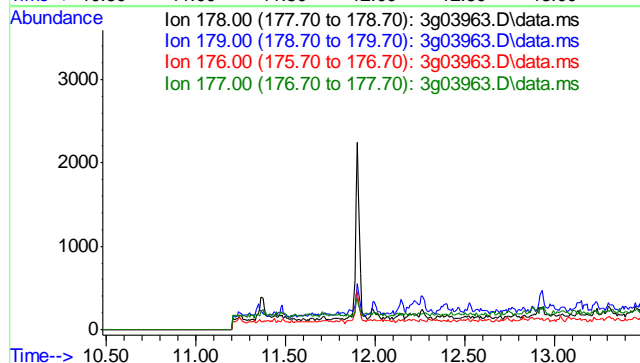
Sig	Exp Ratio
178	100
179	15.1
176	18.5
177	10.2





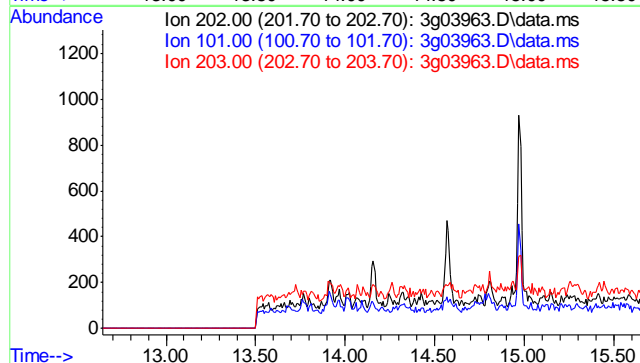
#16  
 Anthracene  
 Concen: N.D. ug/mL  
 Expected RT: 11.98 min  
  
 Lab File: 3g03963.D  
 Acq: 9 May 11 3:00 pm

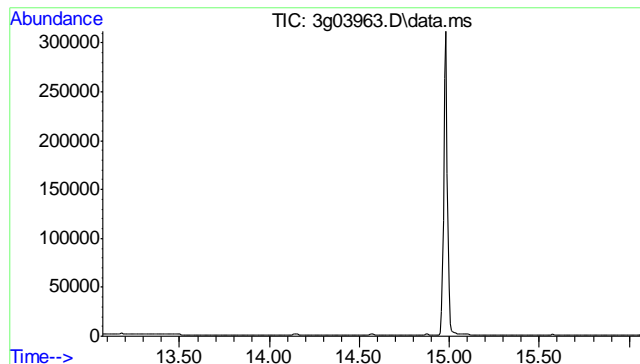
Tgt Ion	Exp Ratio
178	100
179	15.0
176	17.7
177	8.7



#17  
 Fluoranthene  
 Concen: N.D. ug/mL  
 Expected RT: 14.15 min  
  
 Lab File: 3g03963.D  
 Acq: 9 May 11 3:00 pm

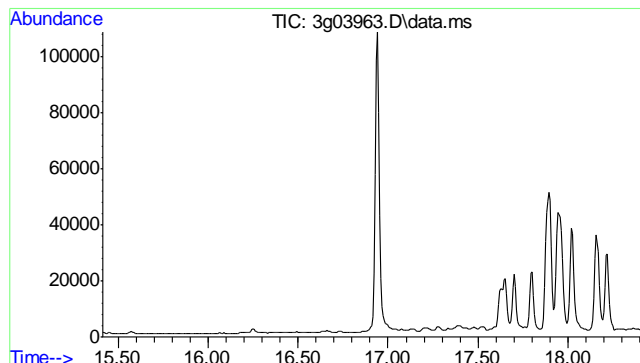
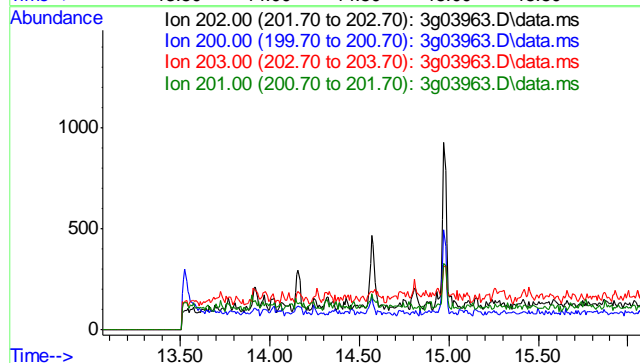
Tgt Ion	Exp Ratio
202	100
101	12.1
203	17.0





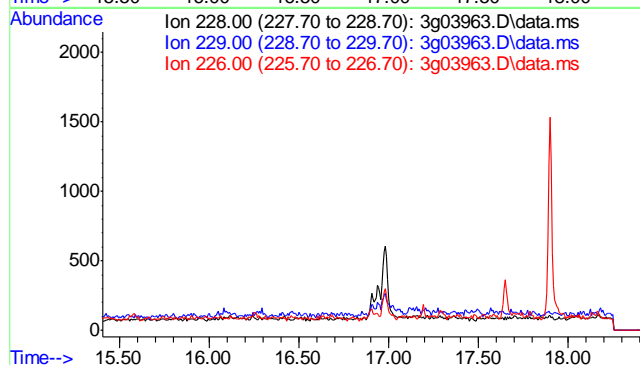
#19  
 Pyrene  
 Concen: N.D. ug/mL  
 Expected RT: 14.57 min  
  
 Lab File: 3g03963.D  
 Acq: 9 May 11 3:00 pm

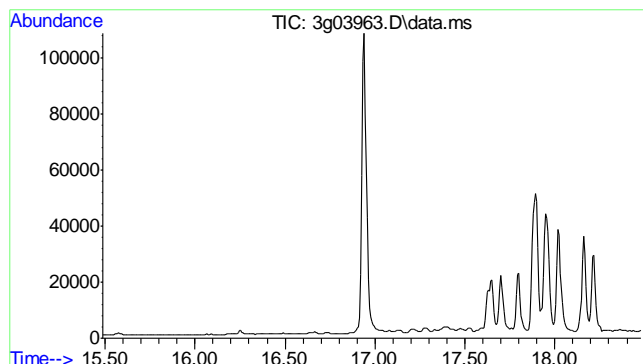
Tgt Ion	Exp Ratio
202	100
200	20.1
203	17.4
201	16.4



#21  
 Benzo(a)anthracene  
 Concen: N.D. ug/mL  
 Expected RT: 16.91 min  
  
 Lab File: 3g03963.D  
 Acq: 9 May 11 3:00 pm

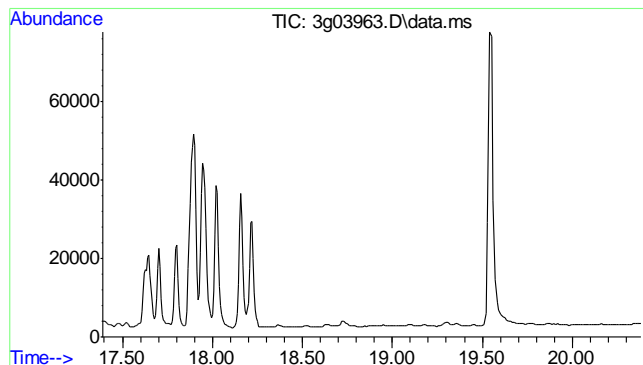
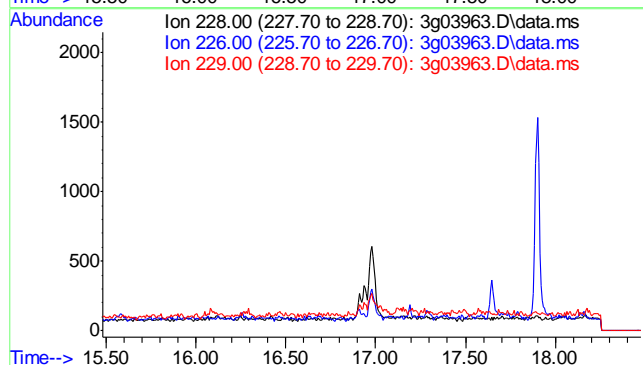
Tgt Ion	Exp Ratio
228	100
229	19.6
226	25.6





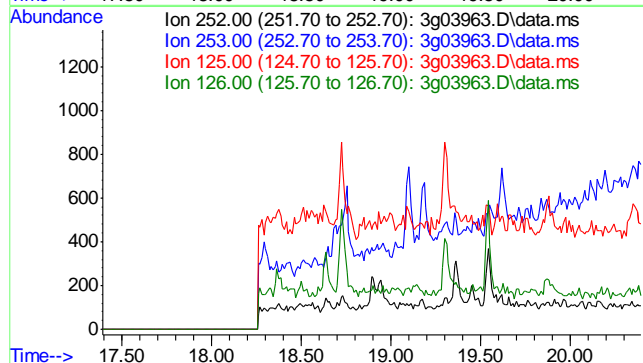
#22  
 Chrysene  
 Concen: N.D. ug/mL  
 Expected RT: 16.98 min  
  
 Lab File: 3g03963.D  
 Acq: 9 May 11 3:00 pm

Tgt Ion	Exp Ratio
228	100
226	28.3
229	19.3

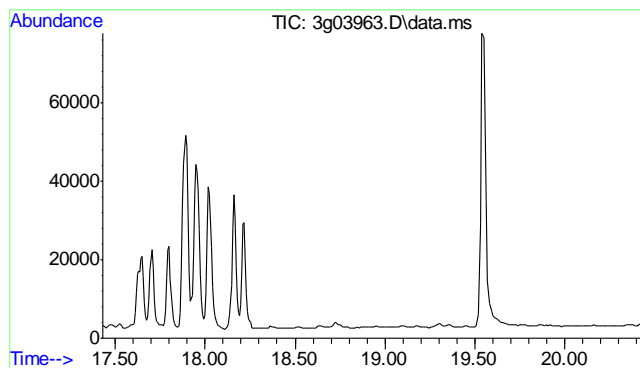


#24  
 Benzo(b)fluoranthene  
 Concen: N.D. ug/mL  
 Expected RT: 18.89 min  
  
 Lab File: 3g03963.D  
 Acq: 9 May 11 3:00 pm

Tgt Ion	Exp Ratio
252	100
253	21.5
125	8.7
126	10.2

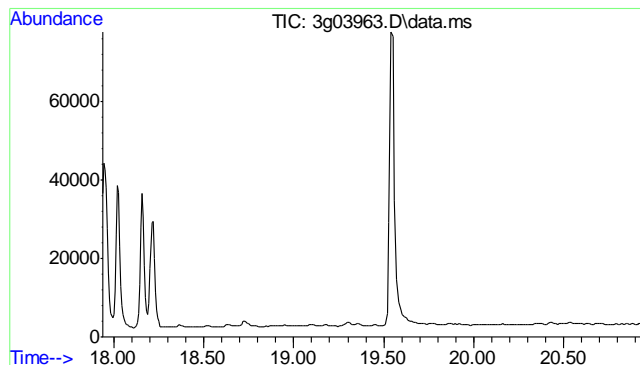
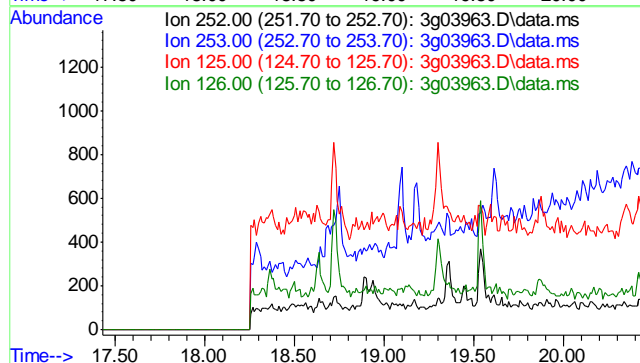






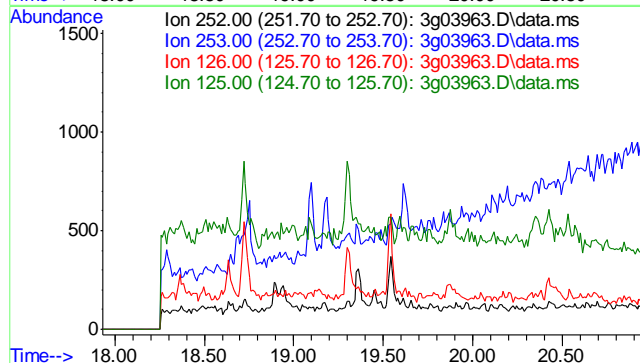
#25  
Benzo(k)fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 18.93 min  
  
Lab File: 3g03963.D  
Acq: 9 May 11 3:00 pm

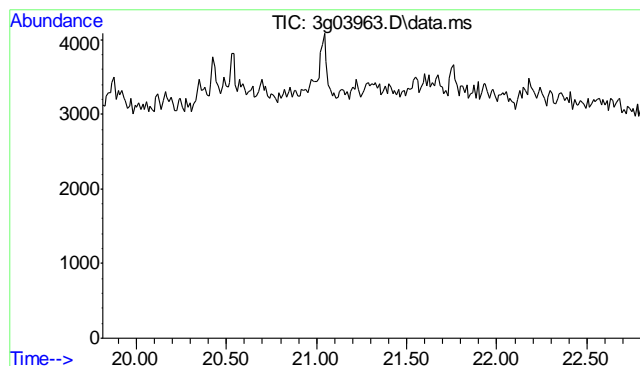
Tgt Ion: 252  
Sig Exp Ratio  
252 100  
253 20.7  
125 7.6  
126 9.7



#26  
Benzo(a)pyrene  
Concen: N.D. ug/mL  
Expected RT: 19.43 min  
  
Lab File: 3g03963.D  
Acq: 9 May 11 3:00 pm

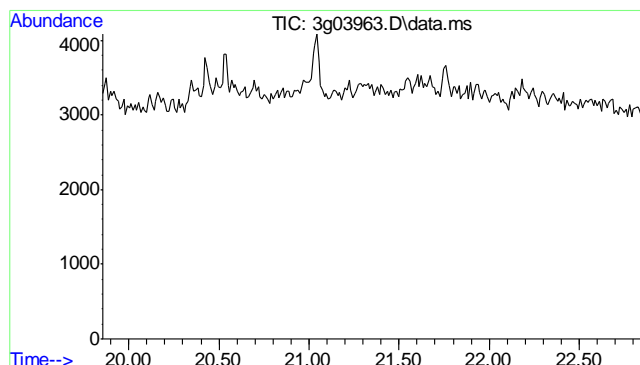
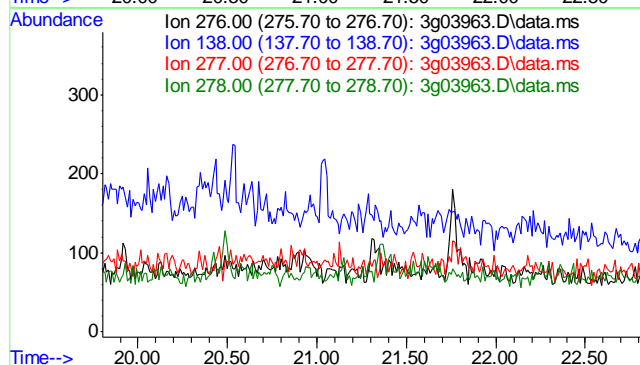
Tgt Ion: 252  
Sig Exp Ratio  
252 100  
253 20.6  
126 9.9  
125 8.5





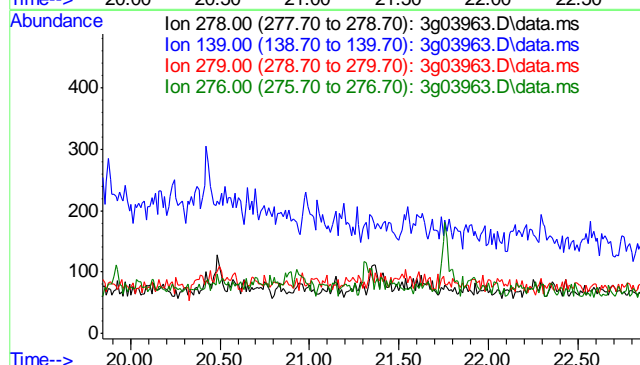
#27  
 Indeno(1,2,3-cd)pyrene  
 Concen: N.D. ug/mL  
 Expected RT: 21.31 min  
  
 Lab File: 3g03963.D  
 Acq: 9 May 11 3:00 pm

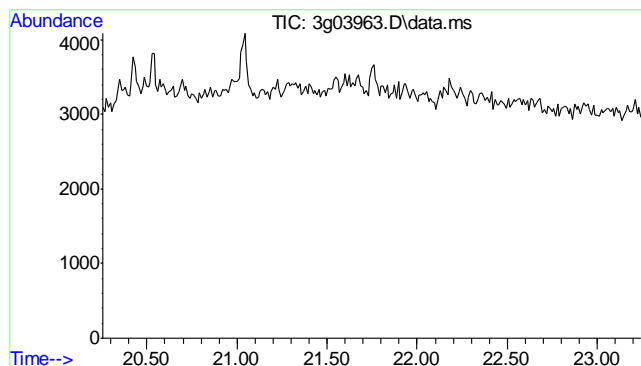
Tgt Ion	Exp Ratio
276	100
138	15.1
277	41.3
278	133.5



#28  
 Dibenzo(a,h)anthracene  
 Concen: N.D. ug/mL  
 Expected RT: 21.35 min  
  
 Lab File: 3g03963.D  
 Acq: 9 May 11 3:00 pm

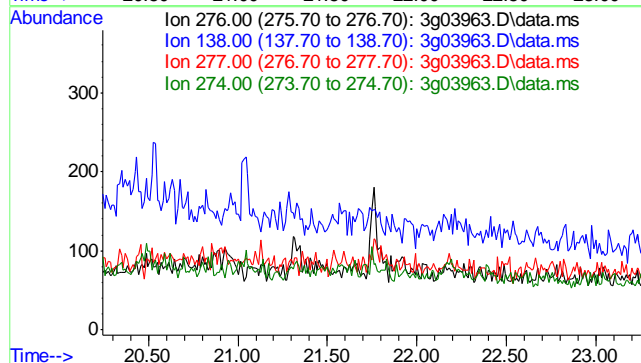
Tgt Ion	Exp Ratio
278	100
139	10.5
279	22.8
276	123.2





#29  
 Benzo(g,h,i)perylene  
 Concen: N.D. ug/mL  
 Expected RT: 21.75 min  
  
 Lab File: 3g03963.D  
 Acq: 9 May 11 3:00 pm  
  
 Tgt Ion: 276  

Sig	Exp Ratio
276	100
138	13.5
277	23.5
274	20.5



## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\050511\  
 Data File : 3g03929.D  
 Acq On : 6 May 2011 2:25 am  
 Operator : TamiB  
 Sample : OP3614-MB  
 Misc : OP3614,E3G145,30,,,1,1  
 ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 09 11:44:23 2011  
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G145.M  
 Quant Title : PAHSIM BASE  
 QLast Update : Mon May 09 11:39:14 2011  
 Response via : Initial Calibration

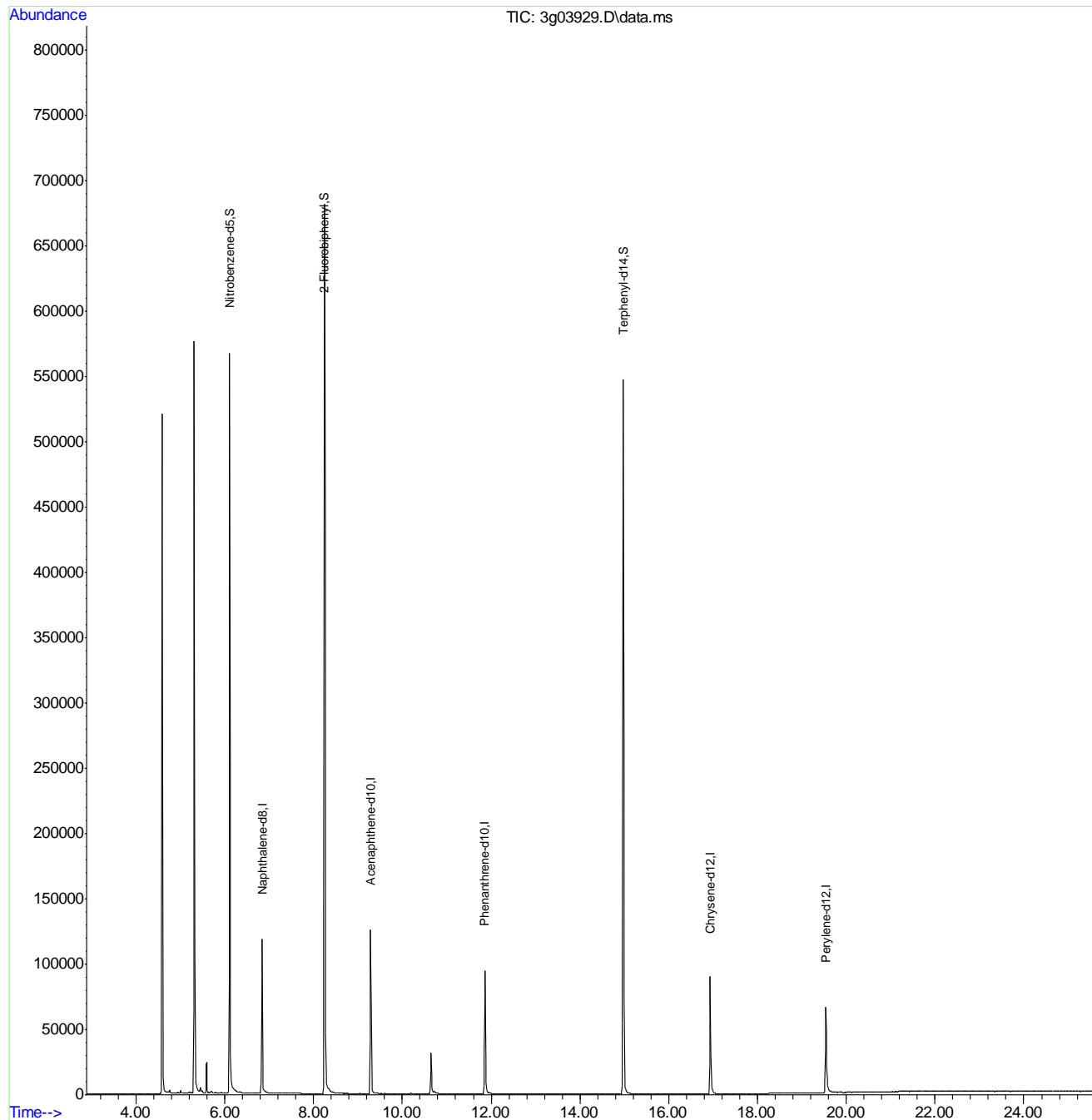
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.843	136	133085	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.287	164	72589	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.863	188	122267	4.00	ug/mL	0.00
18) Chrysene-d12	16.941	240	119455	4.00	ug/mL	0.00
23) Perylene-d12	19.540	264	102414	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	6.107	82	361526	23.02	ug/mL	0.00
7) 2-Fluorobiphenyl	8.247	172	631985	21.74	ug/mL	0.00
20) Terphenyl-d14	14.981	244	670060	35.27	ug/mL	0.00
Target Compounds						
						Qvalue
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
4) N-Nitrosodi-propylamine	0.000		0	N.D.	d	
5) Naphthalene	0.000		0	N.D.	d	
8) 2-Methylnaphthalene	0.000		0	N.D.	d	
9) 1-Methylnaphthalene	0.000		0	N.D.	d	
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	0.000		0	N.D.	d	
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	0.000		0	N.D.	d	
16) Anthracene	0.000		0	N.D.	d	
17) Fluoranthene	0.000		0	N.D.	d	
19) Pyrene	0.000		0	N.D.	d	
21) Benzo(a)anthracene	0.000		0	N.D.	d	
22) Chrysene	0.000		0	N.D.	d	
24) Benzo(b)fluoranthene	0.000		0	N.D.	d	
25) Benzo(k)fluoranthene	0.000		0	N.D.	d	
26) Benzo(a)pyrene	0.000		0	N.D.	d	
27) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
28) Dibenz(a,h)anthracene	0.000		0	N.D.	d	
29) Benzo(g,h,i)perylene	0.000		0	N.D.	d	

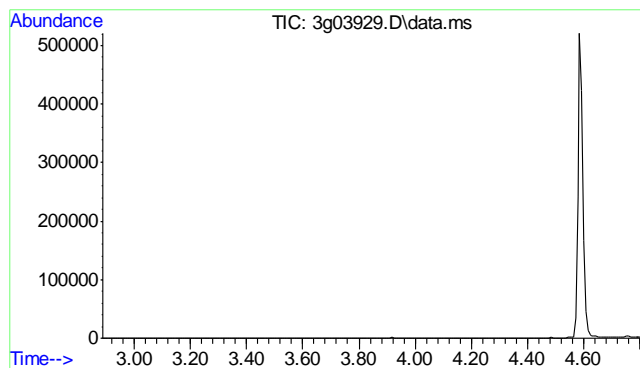
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\050511\  
Data File : 3g03929.D  
Acq On : 6 May 2011 2:25 am  
Operator : TamiB  
Sample : OP3614-MB  
Misc : OP3614,E3G145,30,,,1,1  
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 09 11:44:23 2011  
Quant Method : C:\msdchem\1\METHODS\SIMPE3G145.M  
Quant Title : PAHSIM BASE  
QLast Update : Mon May 09 11:39:14 2011  
Response via : Initial Calibration

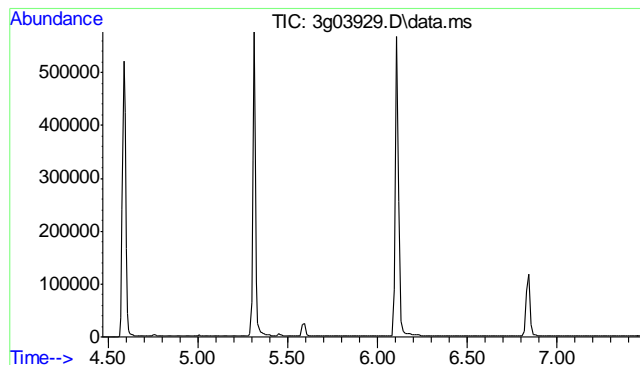
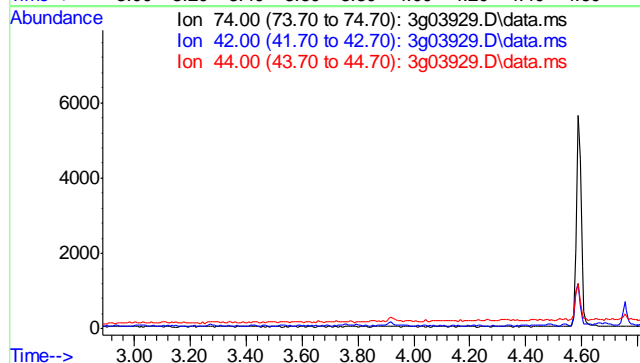




#3  
N-Nitrosodimethylamine  
Concen: N.D. ug/mL  
Expected RT: 3.31 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

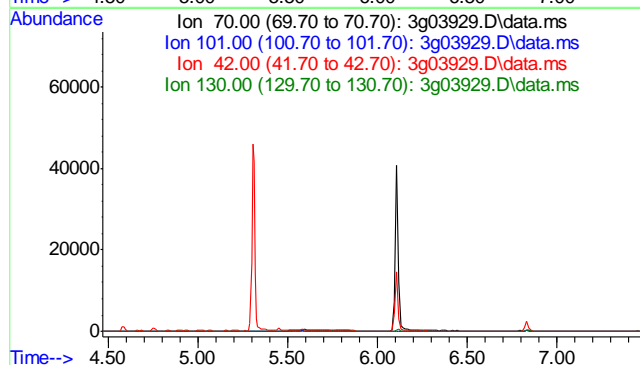
Tgt Ion:	74
Sig	Exp Ratio
74	100
42	59.7
44	3.4

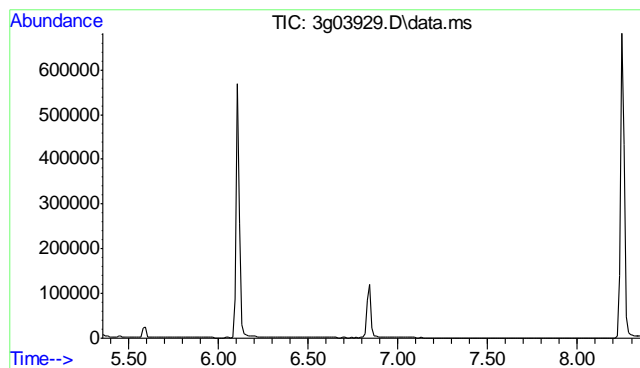


#4  
N-Nitrosodi-propylamine  
Concen: N.D. ug/mL  
Expected RT: 5.97 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

Tgt Ion:	70
Sig	Exp Ratio
70	100
101	12.1
42	41.5
130	19.9

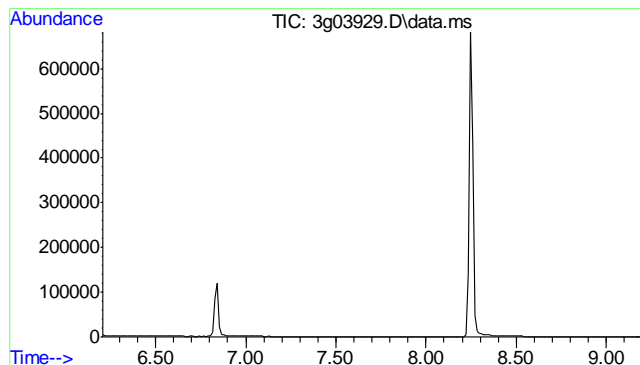
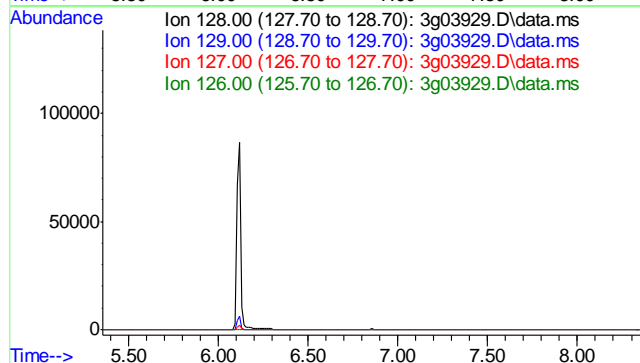




#5  
Naphthalene  
Concen: N.D. ug/mL  
Expected RT: 6.85 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

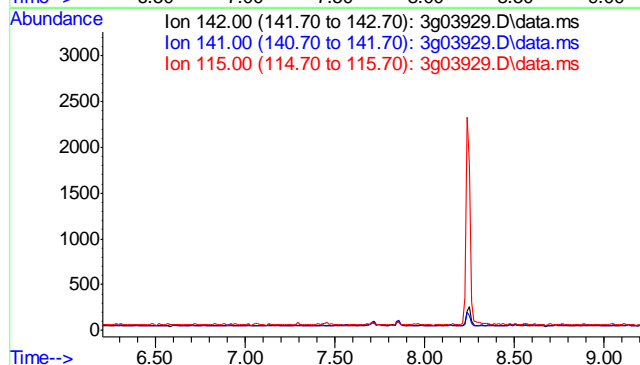
Tgt Ion:	128
Sig	Exp Ratio
128	100
129	11.1
127	12.6
126	7.3

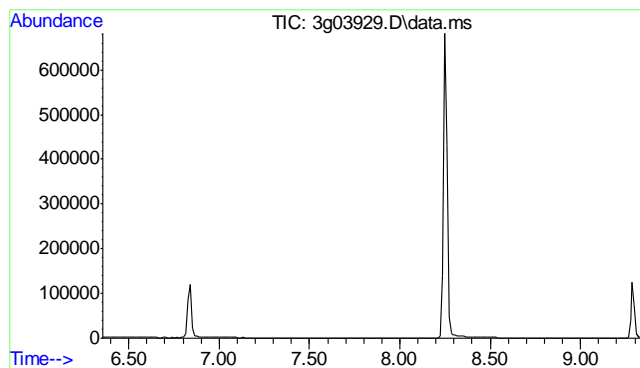


#8  
2-Methylnaphthalene  
Concen: N.D. ug/mL  
Expected RT: 7.70 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

Tgt Ion:	142
Sig	Exp Ratio
142	100
141	83.5
115	60.9

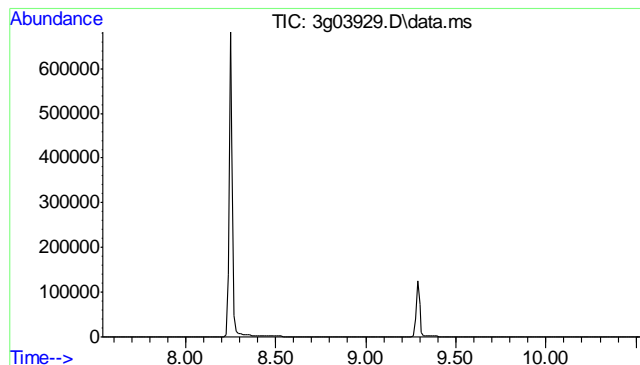
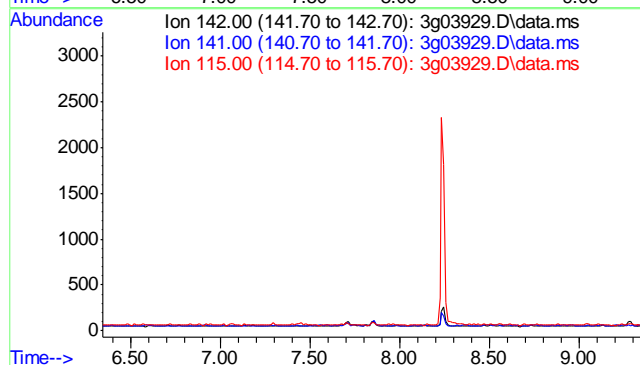




#9  
1-Methylnaphthalene  
Concen: N.D. ug/mL  
Expected RT: 7.84 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

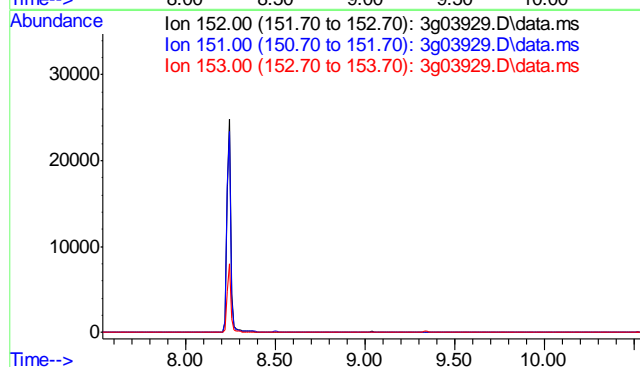
Tgt Ion:	142
Sig	Exp Ratio
142	100
141	86.6
115	45.0



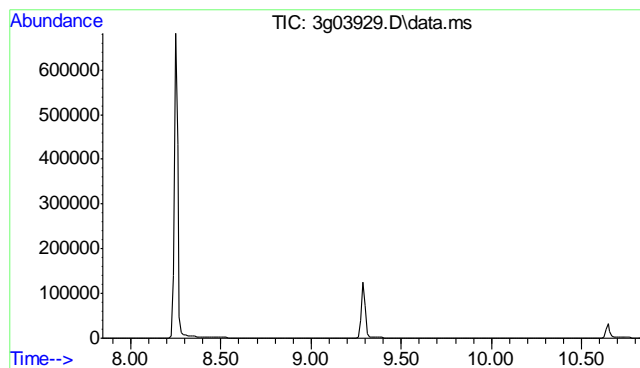
#10  
Acenaphthylene  
Concen: N.D. ug/mL  
Expected RT: 9.04 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

Tgt Ion:	152
Sig	Exp Ratio
152	100
151	19.0
153	12.9



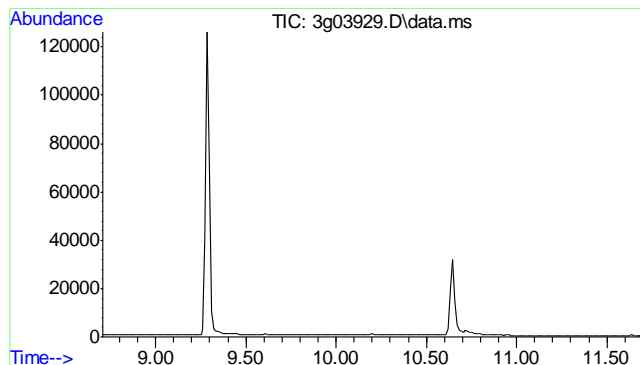
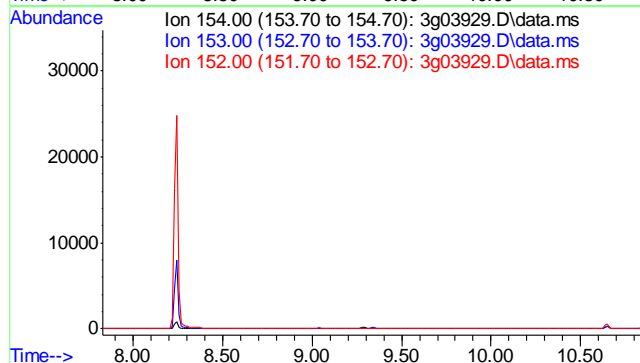




#11  
Acenaphthene  
Concen: N.D. ug/mL  
Expected RT: 9.33 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

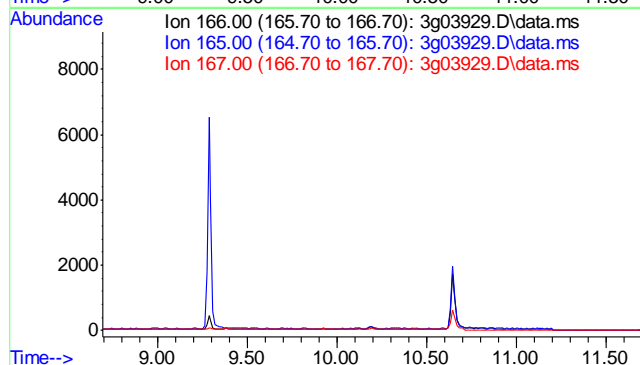
Tgt Ion: 154  
Sig Exp Ratio  
154 100  
153 113.8  
152 53.8

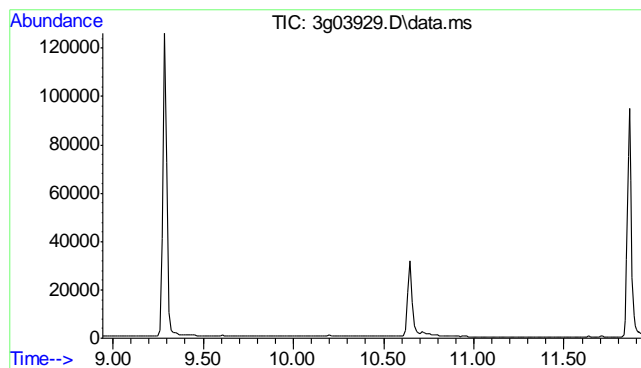


#12  
Fluorene  
Concen: N.D. ug/mL  
Expected RT: 10.20 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

Tgt Ion: 166  
Sig Exp Ratio  
166 100  
165 89.6  
167 13.1

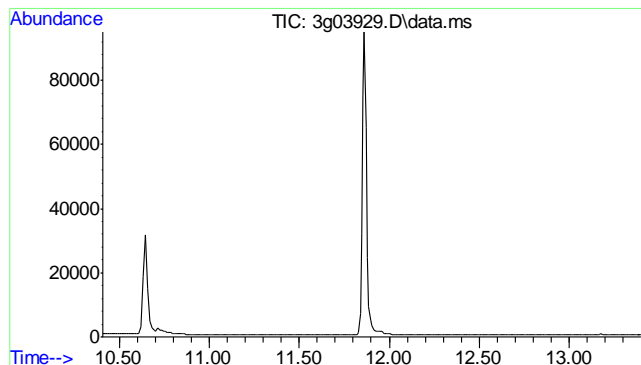
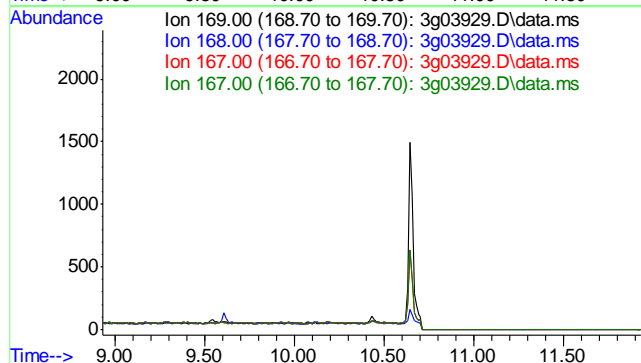




#13  
Diphenylamine  
Concen: N.D. ug/mL  
Expected RT: 10.43 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

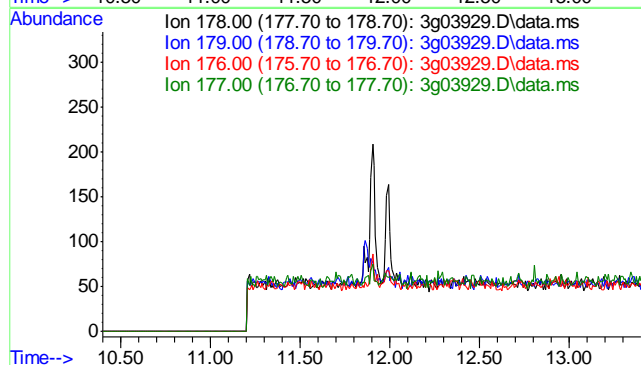
Tgt Ion: 169  
Sig Exp Ratio  
169 100  
168 61.9  
167 33.1  
167 33.1

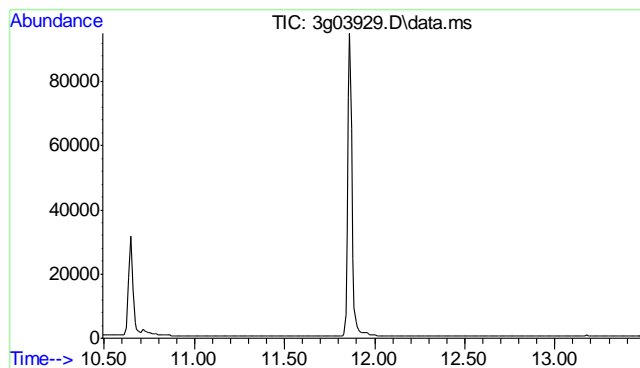


#15  
Phenanthrene  
Concen: N.D. ug/mL  
Expected RT: 11.90 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

Tgt Ion: 178  
Sig Exp Ratio  
178 100  
179 15.1  
176 18.5  
177 10.2

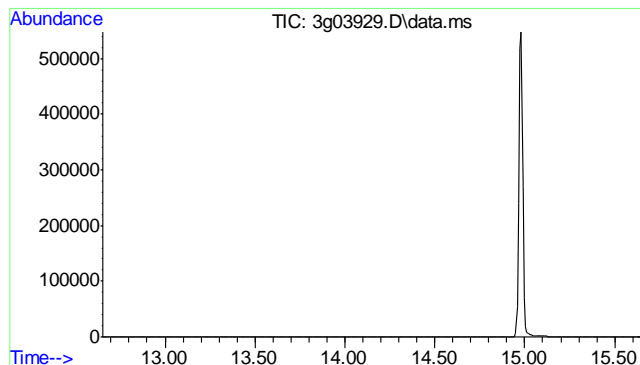
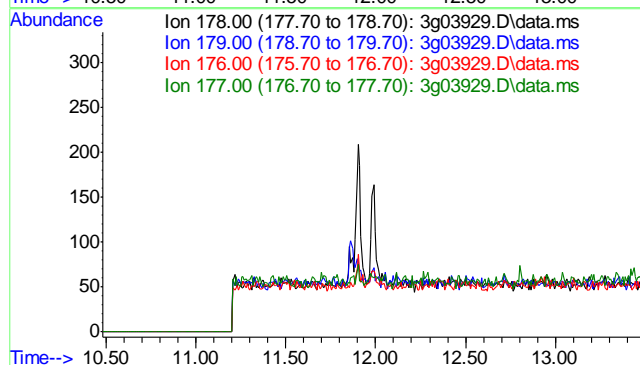




#16  
Anthracene  
Concen: N.D. ug/mL  
Expected RT: 11.98 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

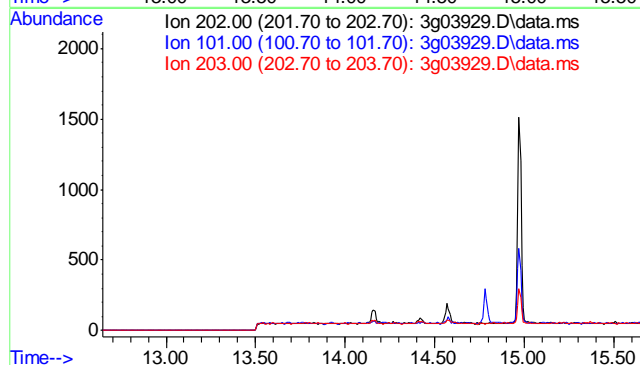
Tgt Ion:	178
Sig	Exp Ratio
178	100
179	15.0
176	17.7
177	8.7

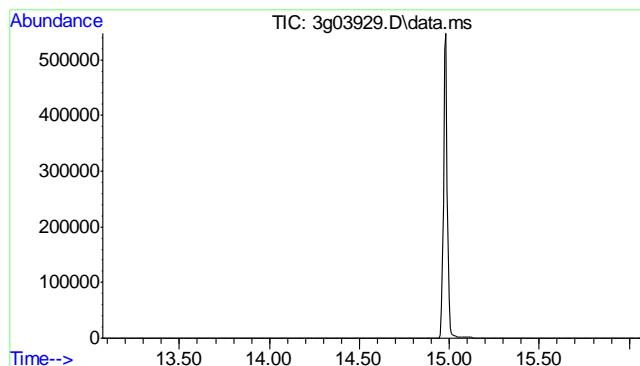


#17  
Fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 14.15 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

Tgt Ion:	202
Sig	Exp Ratio
202	100
101	12.1
203	17.0

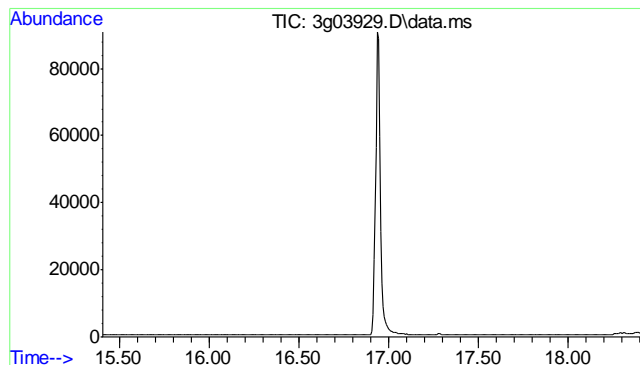
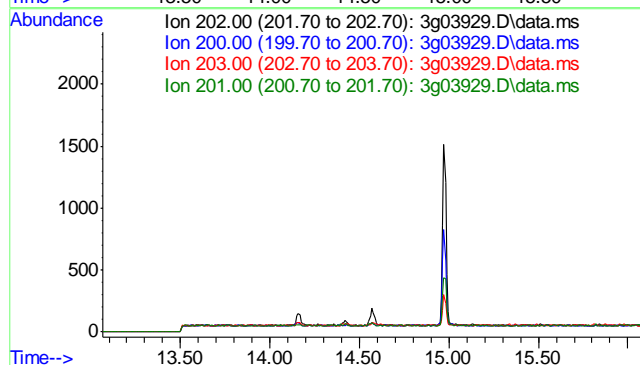




#19  
Pyrene  
Concen: N.D. ug/mL  
Expected RT: 14.57 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

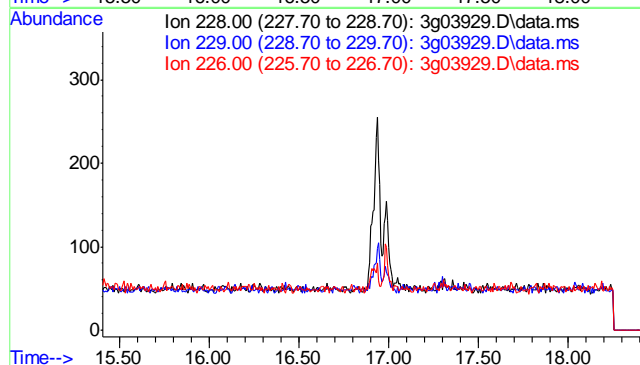
Tgt Ion:	202
Sig	Exp Ratio
202	100
200	20.1
203	17.4
201	16.4

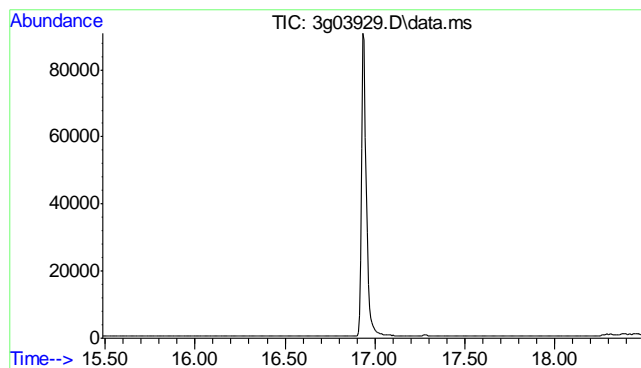


#21  
Benzo(a)anthracene  
Concen: N.D. ug/mL  
Expected RT: 16.91 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

Tgt Ion:	228
Sig	Exp Ratio
228	100
229	19.6
226	25.6

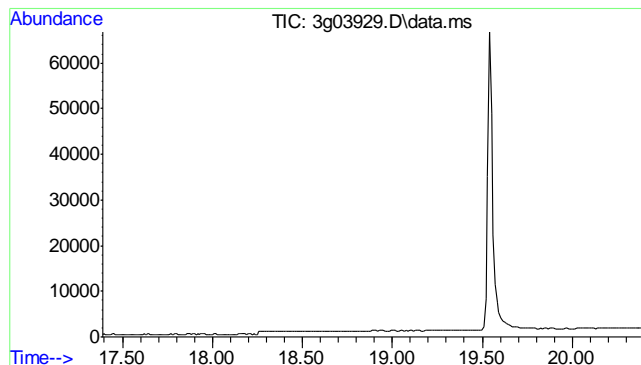
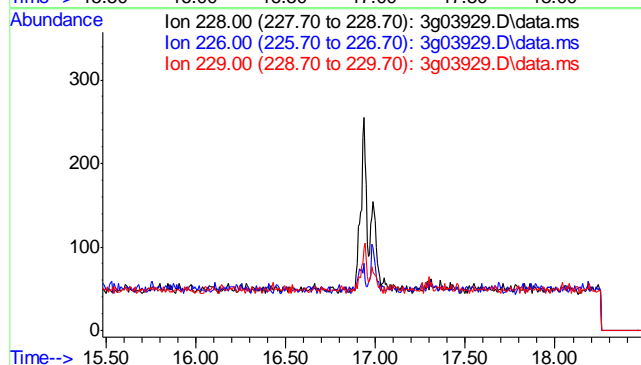




#22  
Chrysene  
Concen: N.D. ug/mL  
Expected RT: 16.98 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

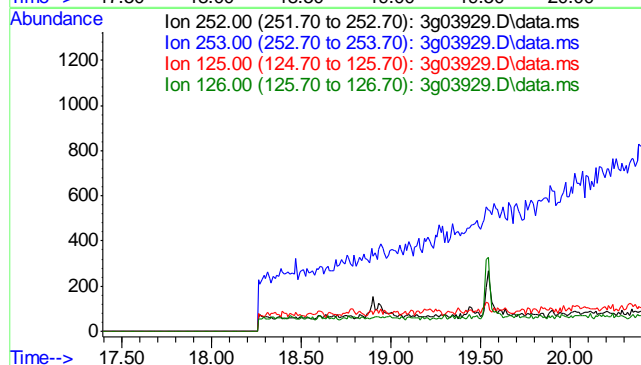
Tgt Ion: 228  
Sig Exp Ratio  
228 100  
226 28.3  
229 19.3

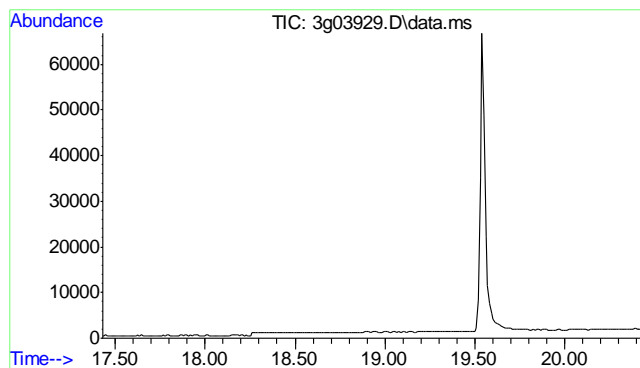


#24  
Benzo(b)fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 18.89 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

Tgt Ion: 252  
Sig Exp Ratio  
252 100  
253 21.5  
125 8.7  
126 10.2

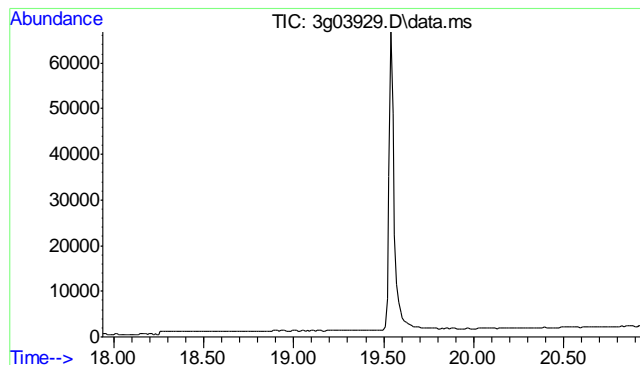
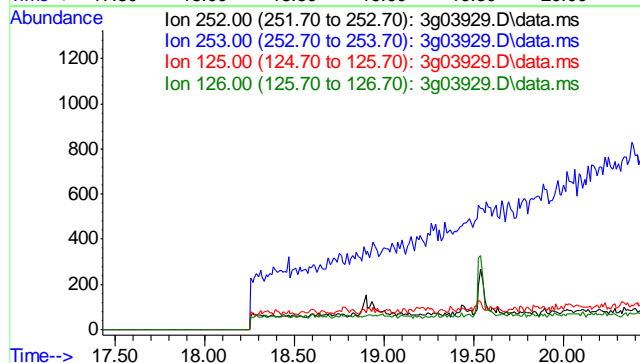




#25  
Benzo(k)fluoranthene  
Concen: N.D. ug/mL  
Expected RT: 18.93 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

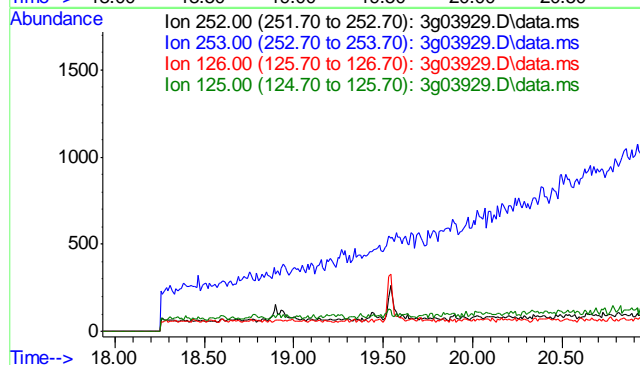
Tgt Ion:	252
Sig	Exp Ratio
252	100
253	20.7
125	7.6
126	9.7

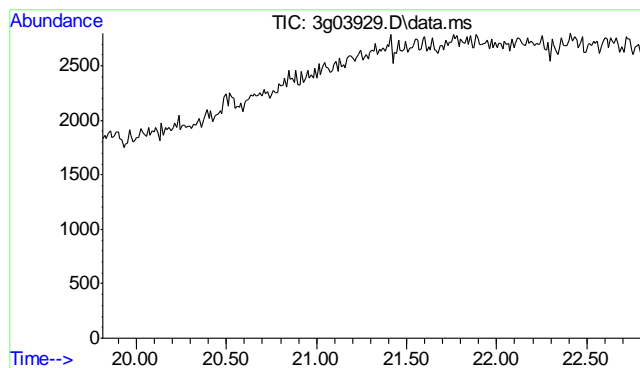


#26  
Benzo(a)pyrene  
Concen: N.D. ug/mL  
Expected RT: 19.43 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	20.6
126	9.9
125	8.5

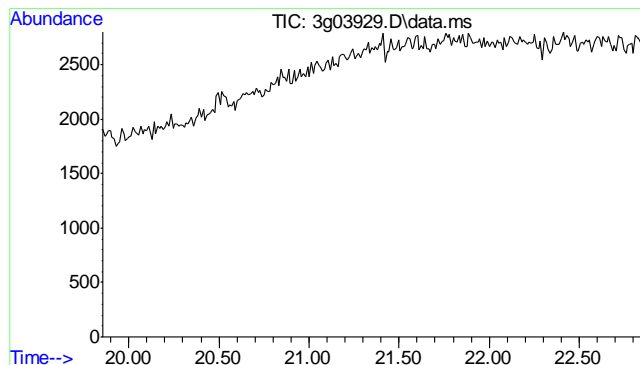
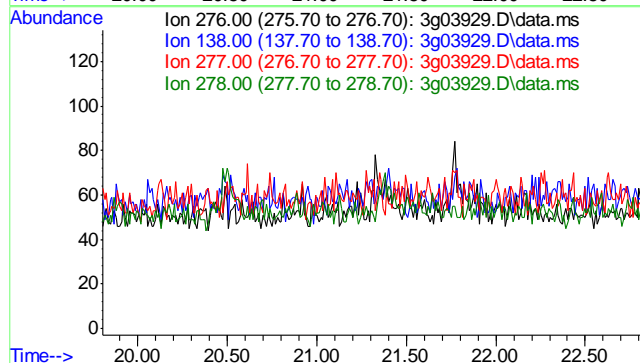




#27  
Indeno(1,2,3-cd)pyrene  
Concen: N.D. ug/mL  
Expected RT: 21.31 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

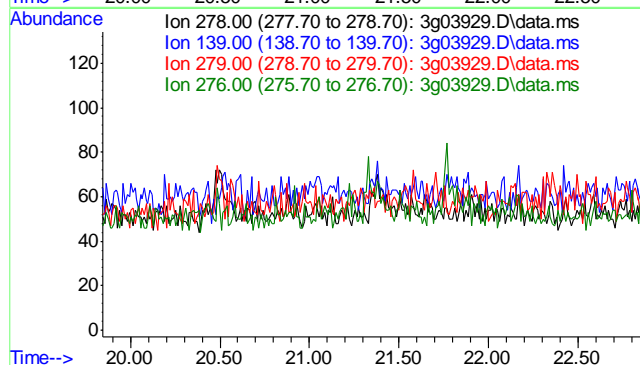
Tgt Ion:	276
Sig	Exp Ratio
276	100
138	15.1
277	41.3
278	133.5

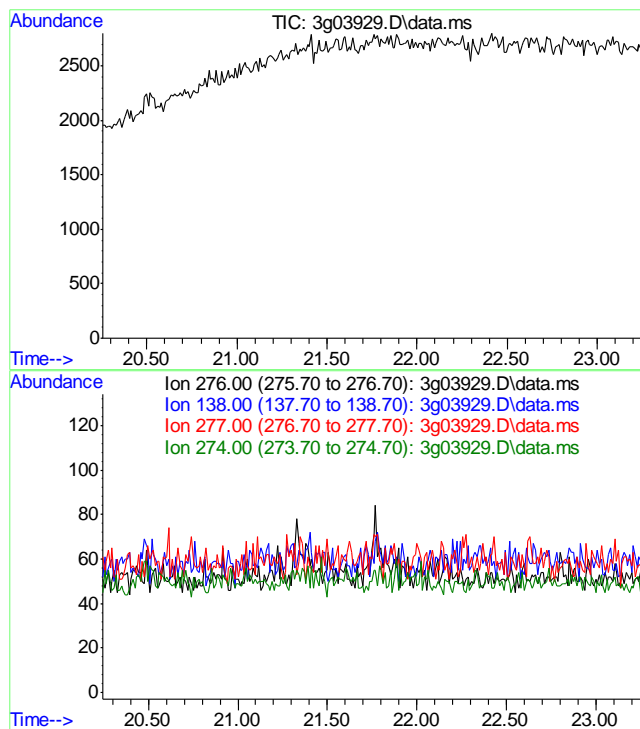


#28  
Dibenz(a,h)anthracene  
Concen: N.D. ug/mL  
Expected RT: 21.35 min

Lab File: 3g03929.D  
Acq: 6 May 11 2:25 am

Tgt Ion:	278
Sig	Exp Ratio
278	100
139	10.5
279	22.8
276	123.2





#29

Benzo(g,h,i)perylene

Concen: N.D. ug/mL

Expected RT: 21.75 min

Lab File: 3g03929.D

Acq: 6 May 11 2:25 am

Tgt Ion: 276

Sig Exp Ratio

276 100

138 13.5

277 23.5

274 20.5

8.2.1

8



## GC Volatiles

### QC Data Summaries

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Includes the following where applicable:

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

Method Blank Summary

Job Number: D23076  
Account: KRWCCOL KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB615-MB	GB10567.D	1	05/02/11	BR	n/a	n/a	GGB615

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

D23076-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.20	0.10	mg/kg	

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

9.1.1  
9

Blank Spike Summary

Job Number: D23076  
Account: KRWCCOL KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB615-BS	GB10568.D	1	05/02/11	BR	n/a	n/a	GGB615

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

D23076-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	2.2	2.49	113	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	111%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D23076  
Account: KRWCCOL KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D23080-1MS	GB10583.D	1	05/03/11	BR	n/a	n/a	GGB615
D23080-1MSD	GB10584.D	1	05/03/11	BR	n/a	n/a	GGB615
D23080-1	GB10582.D	1	05/03/11	BR	n/a	n/a	GGB615

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

D23076-1

CAS No.	Compound	D23080-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		149	165	111	169	113	2	62-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D23080-1	Limits
120-82-1	1,2,4-Trichlorobenzene	92%	90%	88%	60-140%

GC Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\050211\GB10585.D\FID1A.CH Vial: 20  
 Signal #2 : Y:\1\DATA\050211\GB10585.D\FID2B.CH  
 Acq On : 3 May 2011 2:16 am Operator: BrianR  
 Sample : D23076-1, 50X Inst : GC/MS Ins  
 Misc : GC1846,GGB615,5.007,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
 Quant Time: May 03 08:04:49 2011 Quant Results File: TB510GB510.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB510GB510.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Tue May 03 08:03:09 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

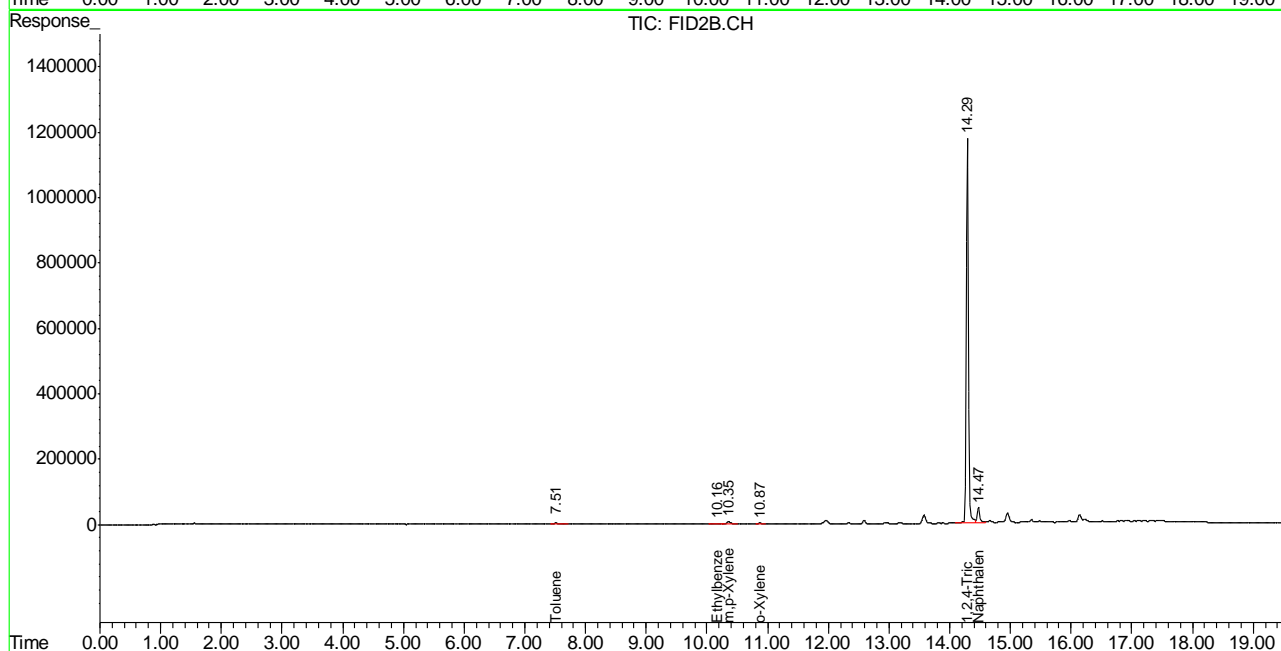
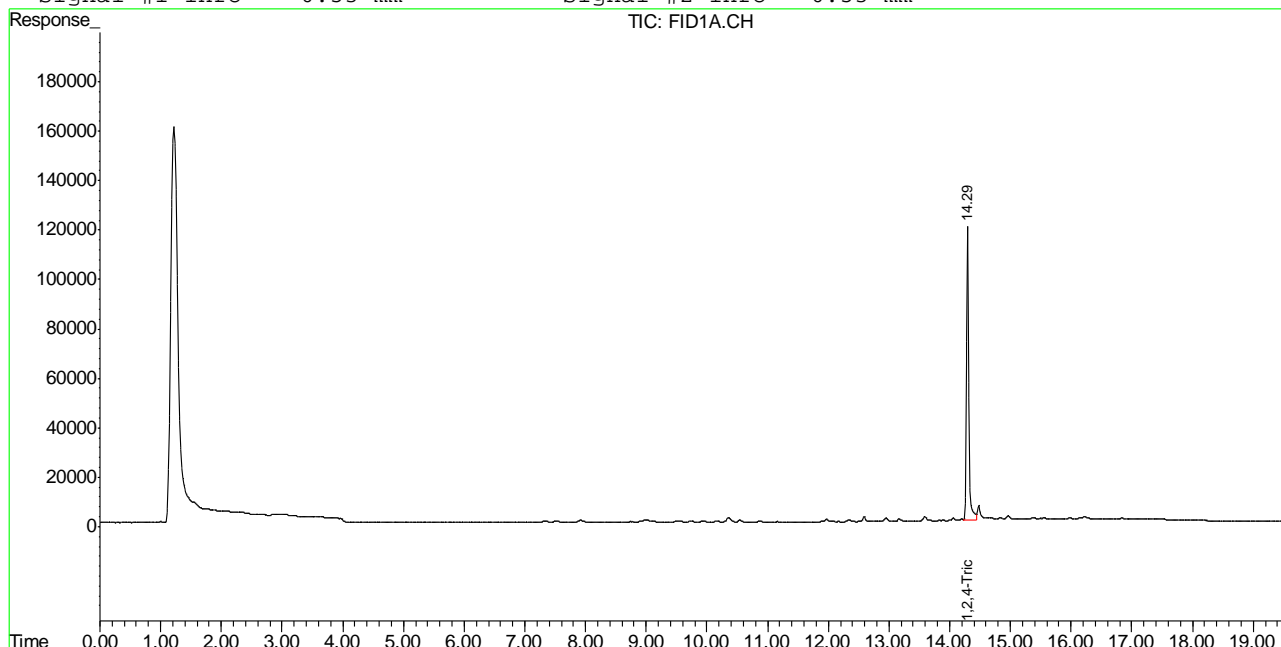
	Compound	R.T.	Response	Conc	Units
-----					
System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.29	3081301	89.426	%
10) S	1,2,4-Trichlorobenzene (P)	14.29	28433476	92.454	%
Target Compounds					
1) H	TVH-Gasoline	7.21	5474874	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	7.51	220845	0.369	ug/L
7) T	Ethylbenzene	10.16	128403	0.247	ug/L
8) T	m,p-Xylene	10.36	461679	0.736	ug/L
9) T	o-Xylene	10.87	138912	0.267	ug/L
11) T	Naphthalene	14.47	1442054	2.065	ug/L

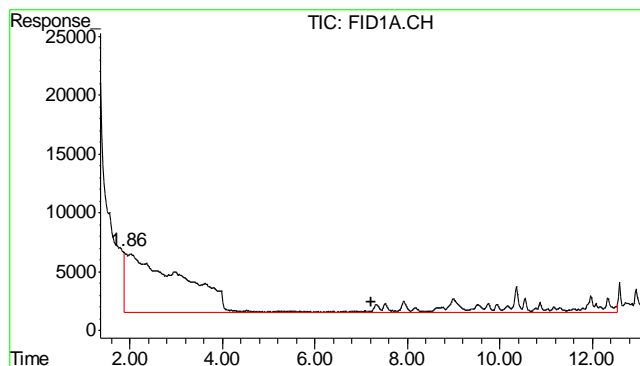
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\050211\GB10585.D\FID1A.CH Vial: 20  
 Signal #2 : Y:\1\DATA\050211\GB10585.D\FID2B.CH  
 Acq On : 3 May 2011 2:16 am Operator: BrianR  
 Sample : D23076-1, 50X Inst : GC/MS Ins  
 Misc : GC1846,GGB615,5.007,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
 Quant Time: May 3 7:16 2011 Quant Results File: TB510GB510.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB510GB510.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Tue May 03 08:03:09 2011  
 Response via : Single Level Calibration  
 DataAcq Meth : TVB4.M

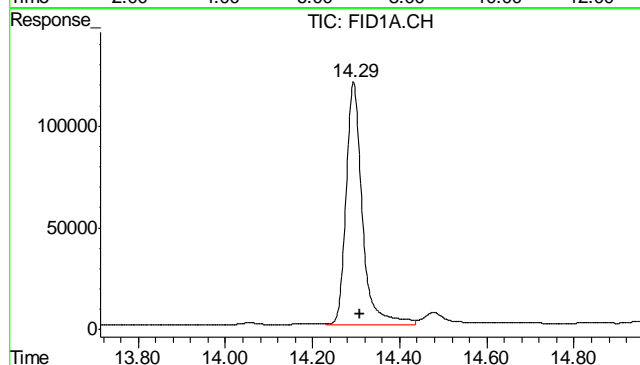
Volume Inj. :  
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





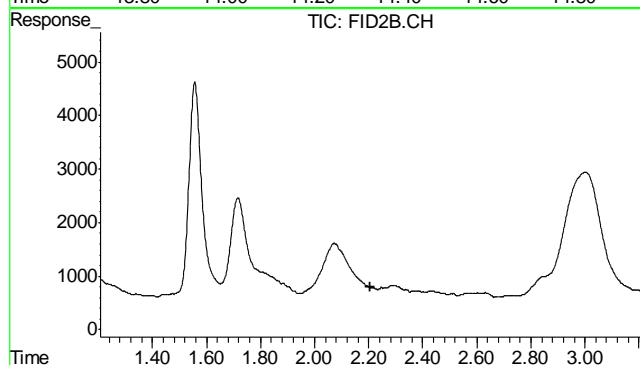
#1 TVH-Gasoline

R.T.: 7.205 min  
Delta R.T.: 0.000 min  
Response: 5474874  
Conc: N.D.



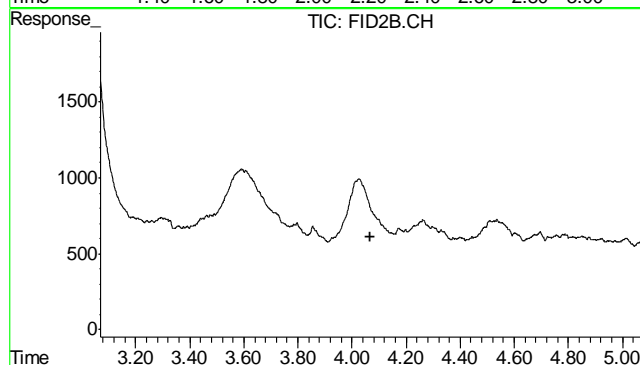
#2 1,2,4-Trichlorobenzene

R.T.: 14.294 min  
Delta R.T.: -0.014 min  
Response: 3081301  
Conc: 89.43 %



#4 Methyl-t-butyl-ether

R.T.: 0.000 min  
Exp R.T.: 2.207 min  
Response: 0  
Conc: N.D.

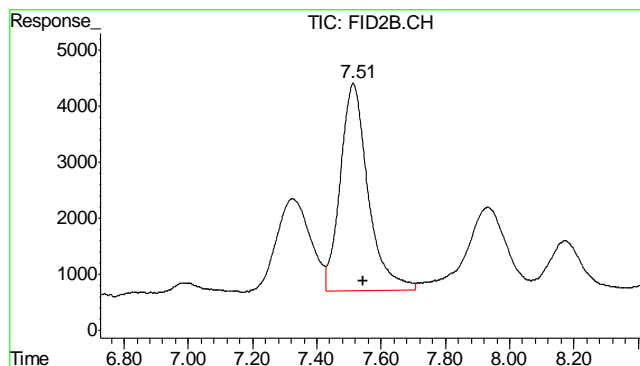


#5 Benzene

R.T.: 0.000 min  
Exp R.T.: 4.069 min  
Response: 0  
Conc: N.D.

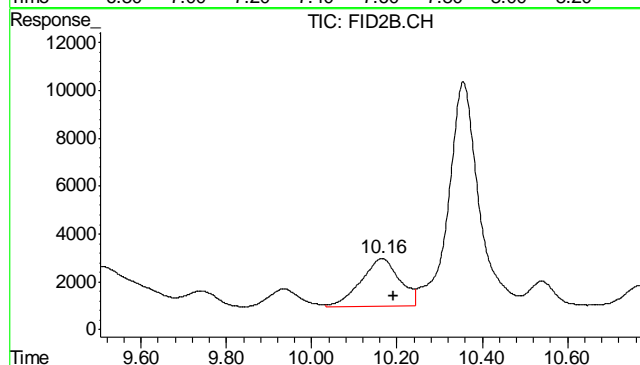
10.1.1  
10





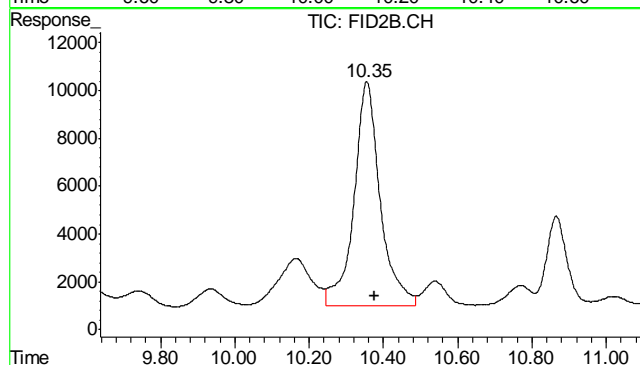
#6 Toluene

R.T.: 7.513 min  
Delta R.T.: -0.032 min  
Response: 220845  
Conc: 0.37 ug/L



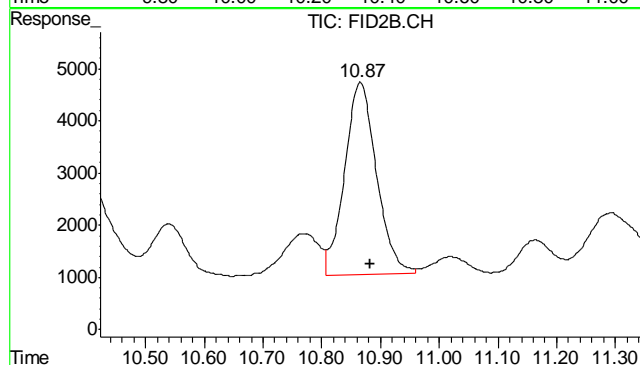
#7 Ethylbenzene

R.T.: 10.165 min  
Delta R.T.: -0.026 min  
Response: 128403  
Conc: 0.25 ug/L



#8 m,p-Xylene

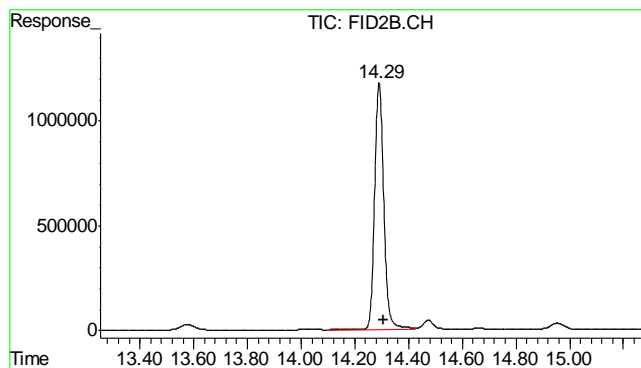
R.T.: 10.356 min  
Delta R.T.: -0.021 min  
Response: 461679  
Conc: 0.74 ug/L



#9 o-Xylene

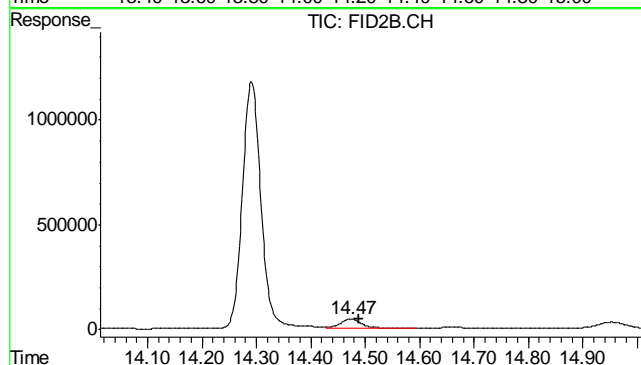
R.T.: 10.866 min  
Delta R.T.: -0.017 min  
Response: 138912  
Conc: 0.27 ug/L

10.1.1  
10



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

R.T.: 14.291 min  
Delta R.T.: -0.015 min  
Response: 28433476  
Conc: 92.45 %



#11 Naphthalene

R.T.: 14.473 min  
Delta R.T.: -0.015 min  
Response: 1442054  
Conc: 2.07 ug/L

10.1.1  
10

## Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\050211\GB10567.D\FID1A.CH Vial: 2  
Signal #2 : Y:\1\DATA\050211\GB10567.D\FID2B.CH  
Acq On : 2 May 2011 3:30 pm Operator: BrianR  
Sample : MB Inst : GC/MS Ins  
Misc : GC1845,GGB614,,,,,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: May 03 08:03:37 2011 Quant Results File: TB510GB510.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB510GB510.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Tue May 03 08:03:09 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	14.31	3812479	110.647	%
10) S	1,2,4-Trichlorobenzene (P)	14.30	35241407	114.591	%
Target Compounds					
1) H	TVH-Gasoline	7.21	1226967	<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	7.54	236563	0.395	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	10.37	285330	0.455	ug/L
9) T	o-Xylene	10.88	82470	0.158	ug/L
11) T	Naphthalene	0.00	0	N.D.	ug/L d

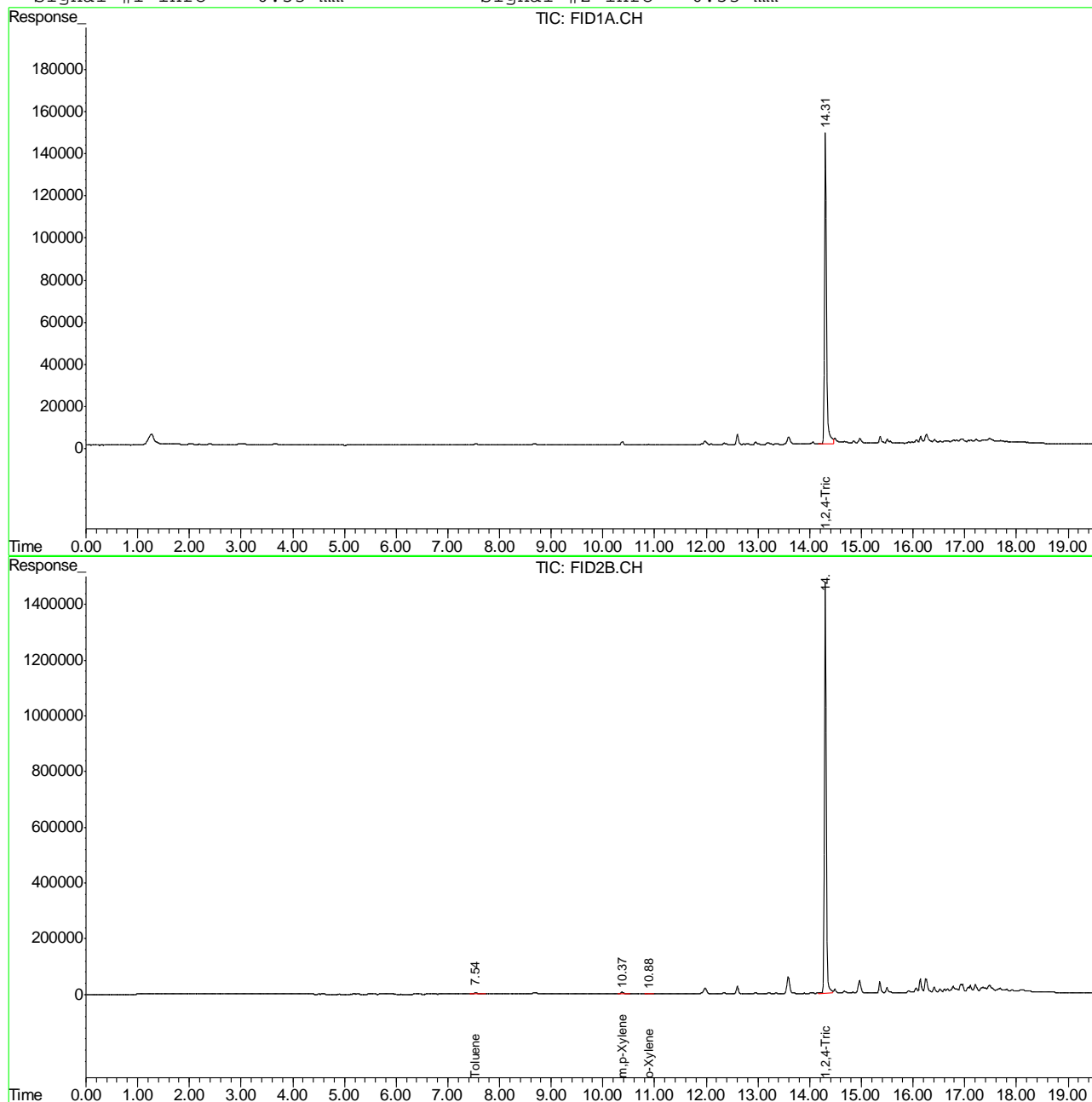
-----  
(f)=RT Delta > 1/2 Window (m)=manual int.  
GB10567.D TB510GB510.M Tue May 03 08:21:59 2011 GC

## Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\050211\GB10567.D\FID1A.CH Vial: 2  
Signal #2 : Y:\1\DATA\050211\GB10567.D\FID2B.CH  
Acq On : 2 May 2011 3:30 pm Operator: BrianR  
Sample : MB Inst : GC/MS Ins  
Misc : GC1845,GGB614,,,,,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: May 3 7:03 2011 Quant Results File: TB510GB510.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB510GB510.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Tue May 03 08:03:09 2011  
Response via : Single 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

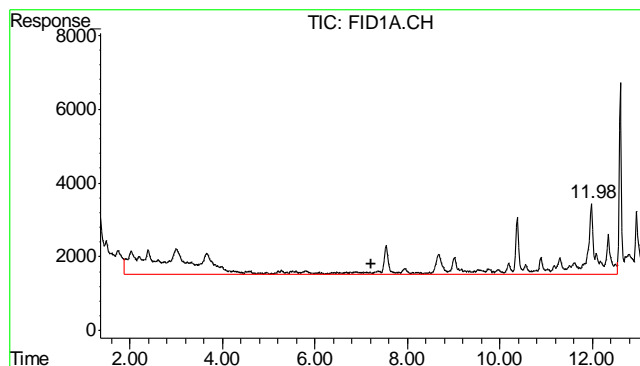


GB10567.D TB510GB510.M

Tue May 03 08:21:59 2011

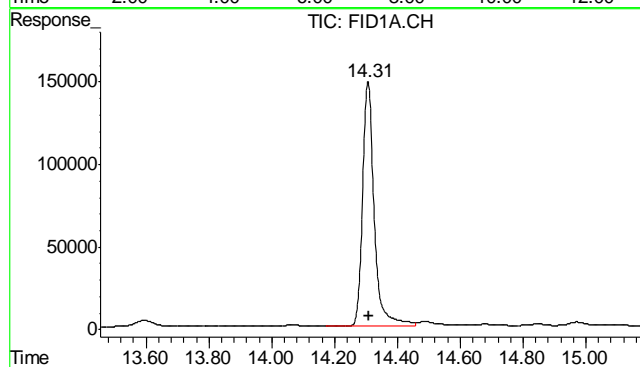
GC

Page 2



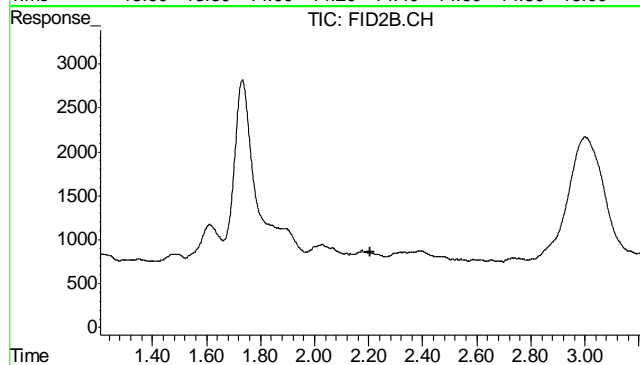
#1 TVH-Gasoline

R.T.: 7.205 min  
Delta R.T.: 0.000 min  
Response: 1226967  
Conc: N.D.



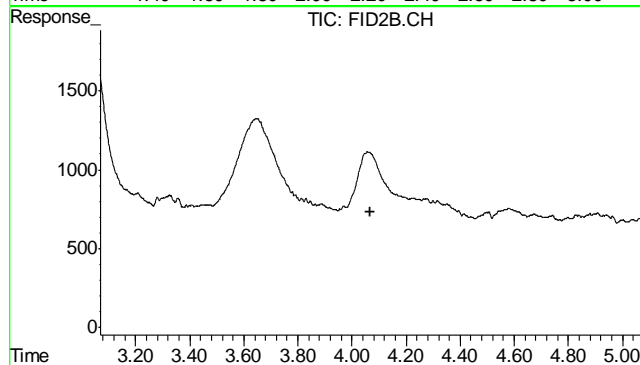
#2 1,2,4-Trichlorobenzene

R.T.: 14.307 min  
Delta R.T.: -0.002 min  
Response: 3812479  
Conc: 110.65 %



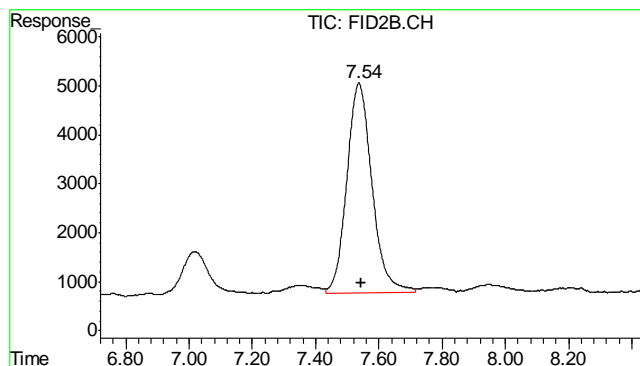
#4 Methyl-t-butyl-ether

R.T.: 0.000 min  
Exp R.T.: 2.207 min  
Response: 0  
Conc: N.D.



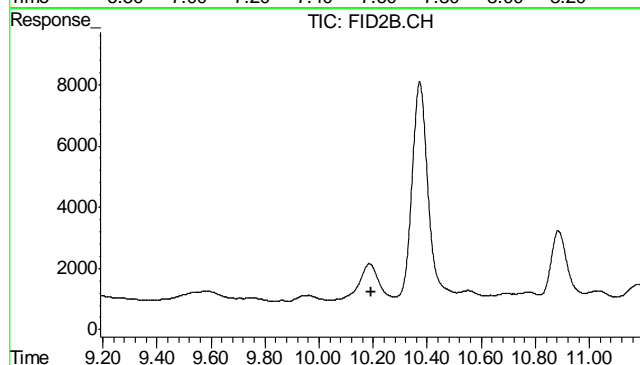
#5 Benzene

R.T.: 0.000 min  
Exp R.T.: 4.069 min  
Response: 0  
Conc: N.D.



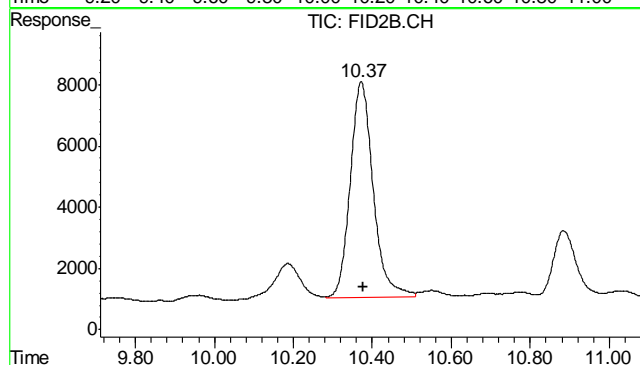
#6 Toluene

R.T.: 7.537 min  
Delta R.T.: -0.008 min  
Response: 236563  
Conc: 0.40 ug/L



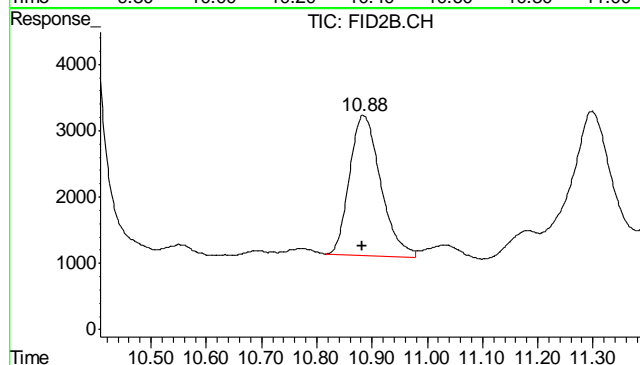
#7 Ethylbenzene

R.T.: 0.000 min  
Exp R.T.: 10.191 min  
Response: 0  
Conc: N.D.



#8 m,p-Xylene

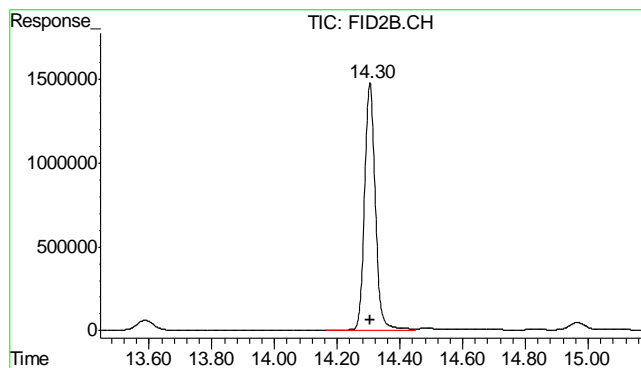
R.T.: 10.372 min  
Delta R.T.: -0.005 min  
Response: 285330  
Conc: 0.46 ug/L



#9 o-Xylene

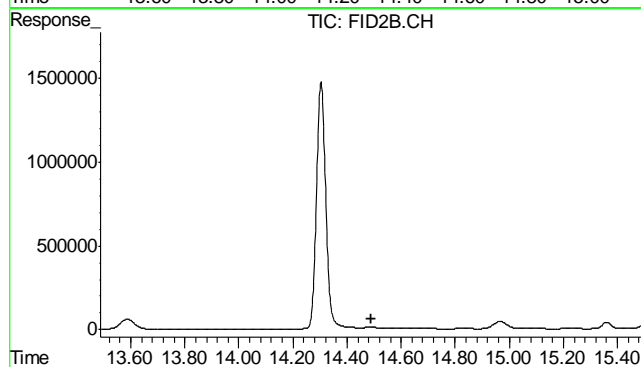
R.T.: 10.885 min  
Delta R.T.: 0.002 min  
Response: 82470  
Conc: 0.16 ug/L

10.2.1 10



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

R.T.: 14.304 min  
Delta R.T.: -0.002 min  
Response: 35241407  
Conc: 114.59 %



#11 Naphthalene

R.T.: 0.000 min  
Exp R.T. : 14.488 min  
Response: 0  
Conc: N.D.

10.2.1  
10

## GC Semi-volatiles

### QC Data Summaries

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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:** D23076**Account:** KRWCCOL KRW Consulting, Inc.**Project:** PCU 23-18 Confirmation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3595-MB	FI01851.D	1	05/04/11	JB	05/03/11	OP3595	GFI124

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

D23076-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	9.35	13	8.7	mg/kg	J

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	99% 63-130%

Blank Spike Summary

Job Number: D23076  
Account: KRWCCOL KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3595-BS	FI01852.D	1	05/04/11	JB	05/03/11	OP3595	GFI124

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

D23076-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	642	96	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	110%	63-130%

11.2.1  
11

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D23076  
Account: KRWCCOL KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3595-MS	FI01853.D	1	05/04/11	JB	05/03/11	OP3595	GFI124
OP3595-MSD	FI01854.D	1	05/04/11	JB	05/03/11	OP3595	GFI124
D23080-1	FI01855.D	1	05/04/11	JB	05/03/11	OP3595	GFI124

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

D23076-1

CAS No.	Compound	D23080-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	260		785	970	90	1020	97	5	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D23080-1	Limits
84-15-1	o-Terphenyl	97%	97%	90%	63-130%

11.3.1  
11

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : E:\DATA\FI050311\FI01861.D Vial: 38  
Acq On : 4 May 2011 5:17 pm Operator: jacobbb  
Sample : D23076-1 Inst : FID6  
Misc : OP3595,GFI124,30.10,,,2,1 Multiplr: 1.00  
IntFile : DF-GFE136.E  
Quant Time: May 05 08:57:37 2011 Quant Results File: DF-GFI101.RES

Quant Method : C:\MSDCHEM\1\METHODS\DF-GFI101.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Wed May 04 08:39:05 2011  
Response via : Initial Calibration  
DataAcq Meth : RR\_BASE2.M

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

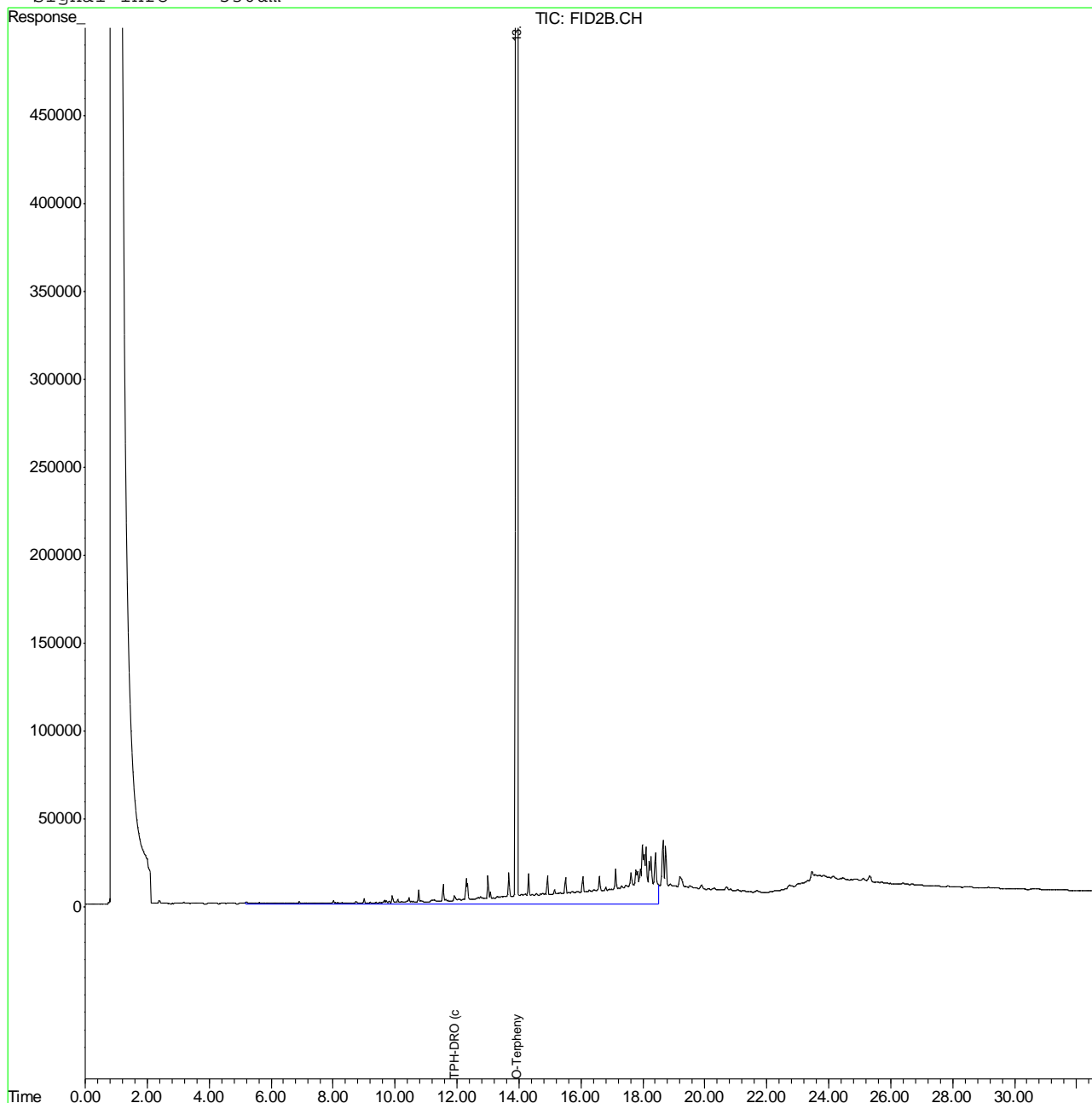
Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	13.93f	67616950	959.399 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	11.94	34862158	531.535 mg/L

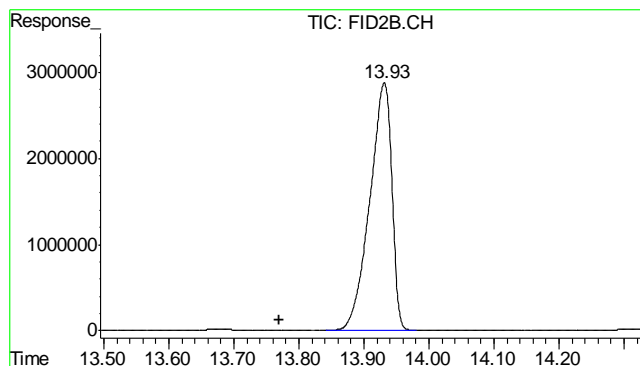
Quantitation Report (QT Reviewed)

Data File : E:\DATA\FI050311\FI01861.D Vial: 38  
 Acq On : 4 May 2011 5:17 pm Operator: jacobbb  
 Sample : D23076-1 Inst : FID6  
 Misc : OP3595,GFI124,30.10,,,2,1 Multiplr: 1.00  
 IntFile : DF-GFE136.E  
 Quant Time: May 5 11:43 2011 Quant Results File: DF-GFI101.RES

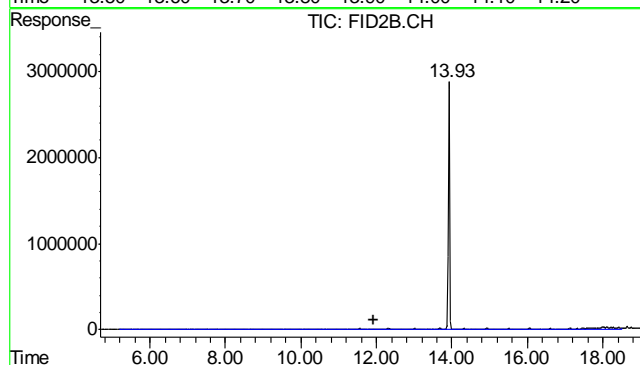
Quant Method : C:\MSDCHEM\1\METHODS\DF-GFI101.M (Chemstation Integrator)  
 Title : 8015B TEH  
 Last Update : Wed May 04 08:39:05 2011  
 Response via : Multiple Level Calibration  
 DataAcq Meth : RR\_BASE2.M

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

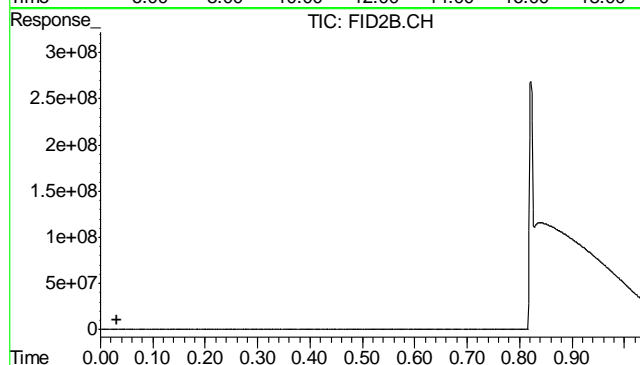




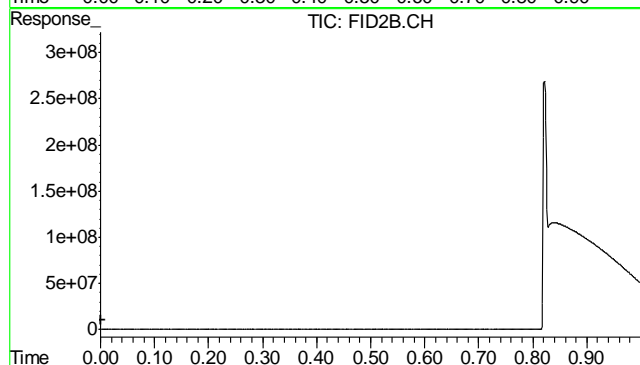
#1 O-Terphenyl  
 R.T.: 13.931 min  
 Delta R.T.: 0.161 min  
 Response: 67616950  
 Conc: 959.40 mg/L m



#2 TPH-DRO (c10-c28)  
 R.T.: 11.935 min  
 Delta R.T.: 0.000 min  
 Response: 34862158  
 Conc: 531.54 mg/L m

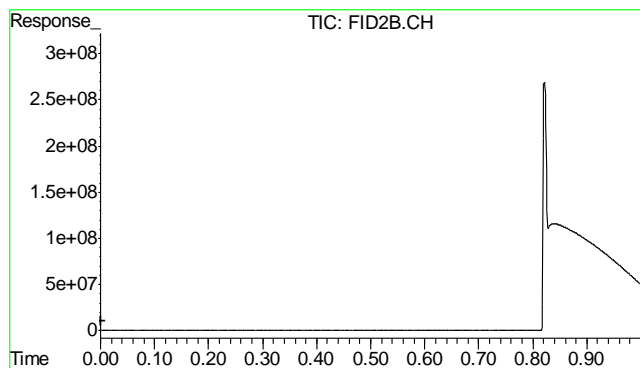


#9 5a-Androstane  
 R.T.: 0.100 min  
 Delta R.T.: 0.068 min  
 Response: 52  
 Conc: N.D.



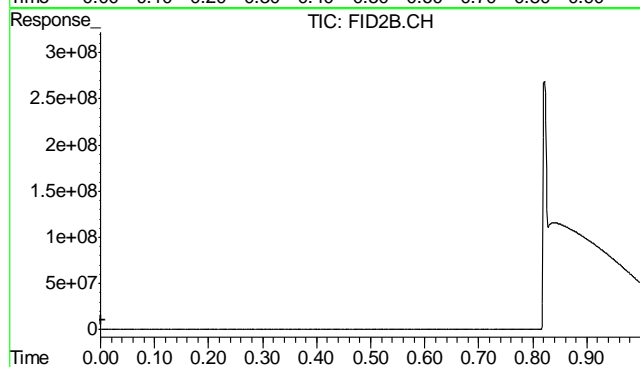
#10 2-Fluorophenol  
 R.T.: 0.100 min  
 Delta R.T.: 0.100 min  
 Response: 52  
 Conc: N.D.

12.1.1  
 12



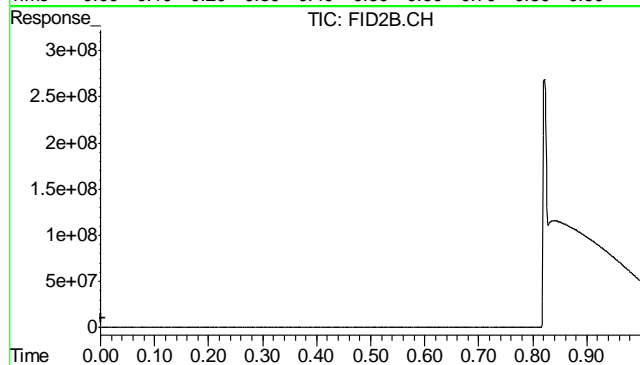
#11 Phenol-d5

R.T.: 0.100 min  
Delta R.T.: 0.100 min  
Response: 52  
Conc: N.D.



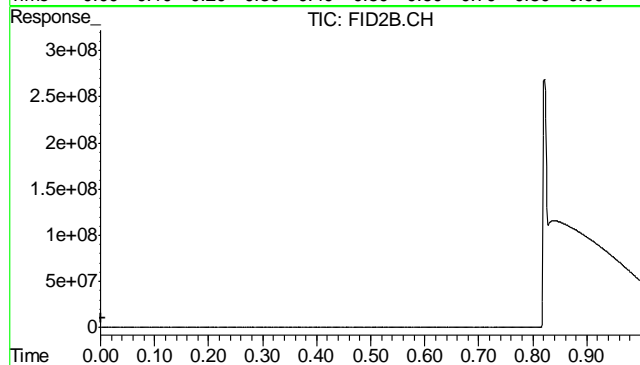
#12 Nitrobenzene-d5

R.T.: 0.100 min  
Delta R.T.: 0.100 min  
Response: 52  
Conc: N.D.



#13 2-Fluorobiphenyl

R.T.: 0.100 min  
Delta R.T.: 0.100 min  
Response: 52  
Conc: N.D.

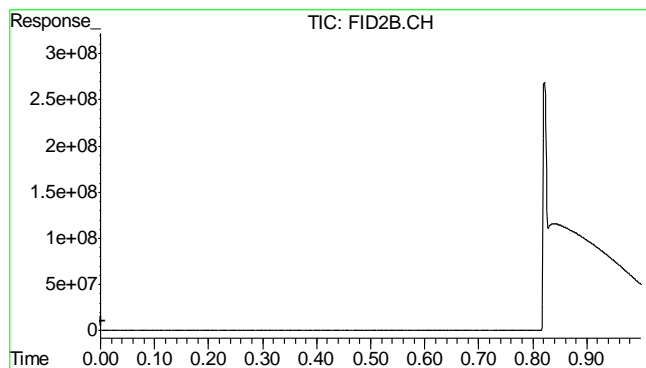


#14 2,4,6-Tribromophenol

R.T.: 0.100 min  
Delta R.T.: 0.100 min  
Response: 52  
Conc: N.D.

12.1.1  
12





#15 Terphenyl-d14

R.T.: 0.100 min  
Delta R.T.: 0.100 min  
Response: 52  
Conc: N.D.

12.1.1  
12

Judy Melson  
05/04/11 15:37

## Quantitation Report (QT Reviewed)

Data File : E:\DATA\FI050311\FI01851.D Vial: 28  
Acq On : 4 May 2011 9:48 am Operator: jacobbb  
Sample : OP3595-MB Inst : FID6  
Misc : OP3595,GFI124,30.00,,,2,1 Multiplr: 1.00  
IntFile : DF-GFE136.E  
Quant Time: May 04 10:10:42 2011 Quant Results File: DF-GFI101.RES

Quant Method : C:\MSDCHEM\1\METHODS\DF-GFI101.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Wed May 04 08:39:05 2011  
Response via : Initial Calibration  
DataAcq Meth : RR\_BASE2.M

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

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	13.81	69803171	990.419 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	11.94	9196049	140.210 mg/L

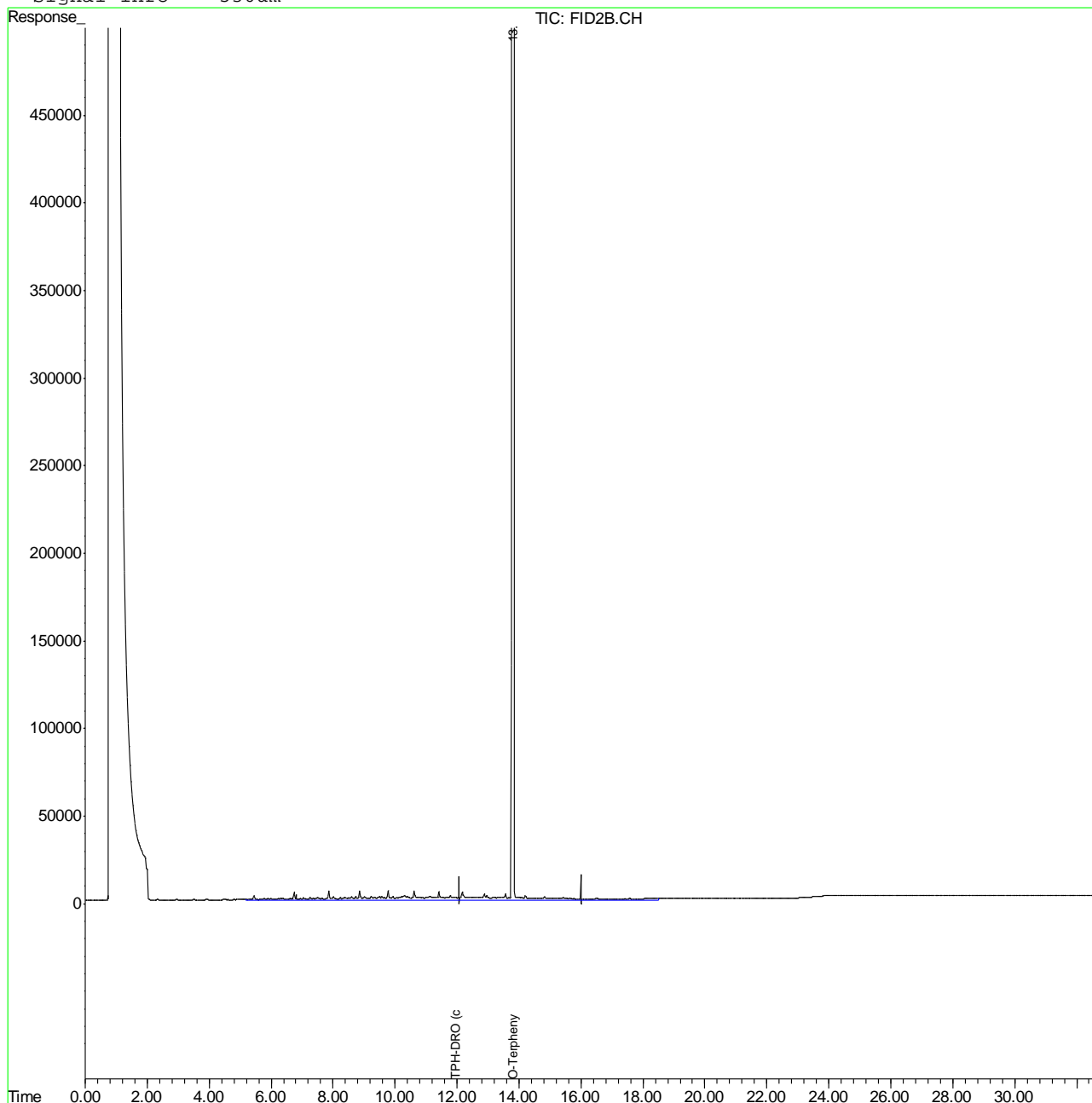
-----  
(f)=RT Delta > 1/2 Window (m)=manual int.  
FI01851.D DF-GFI101.M Wed May 04 12:20:38 2011 TEH

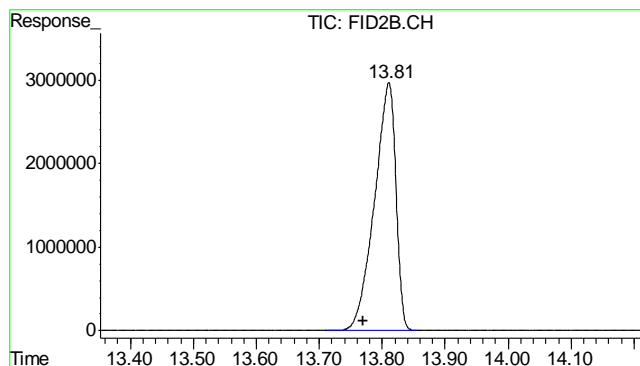
## Quantitation Report (QT Reviewed)

Data File : E:\DATA\FI050311\FI01851.D Vial: 28  
Acq On : 4 May 2011 9:48 am Operator: jacobbb  
Sample : OP3595-MB Inst : FID6  
Misc : OP3595,GFI124,30.00,,,2,1 Multiplr: 1.00  
IntFile : DF-GFE136.E  
Quant Time: May 4 10:27 2011 Quant Results File: DF-GFI101.RES

Quant Method : C:\MSDCHEM\1\METHODS\DF-GFI101.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Wed May 04 08:39:05 2011  
Response via : Multiple Level Calibration  
DataAcq Meth : RR\_BASE2.M

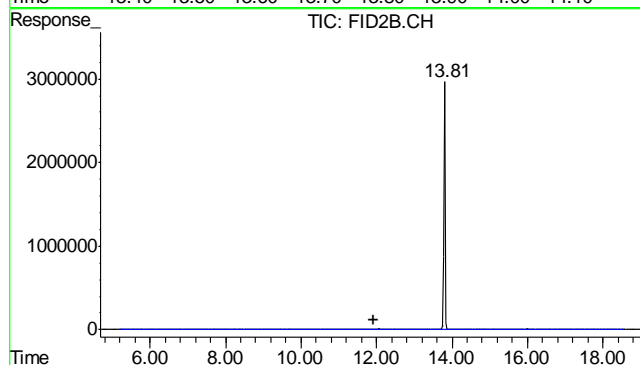
Volume Inj. : 1ul  
Signal Phase : RTX-5  
Signal Info : 530um





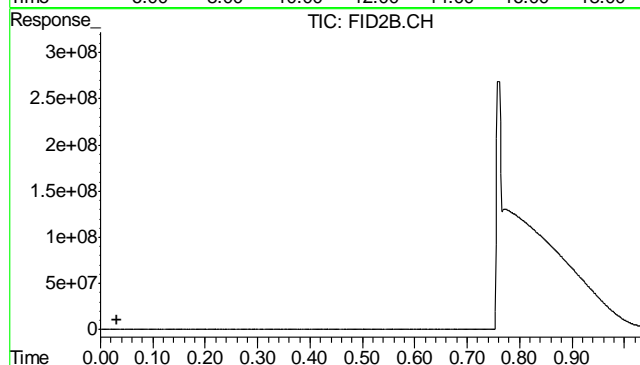
#1 O-Terphenyl

R.T.: 13.810 min  
Delta R.T.: 0.040 min  
Response: 69803171  
Conc: 990.42 mg/L m



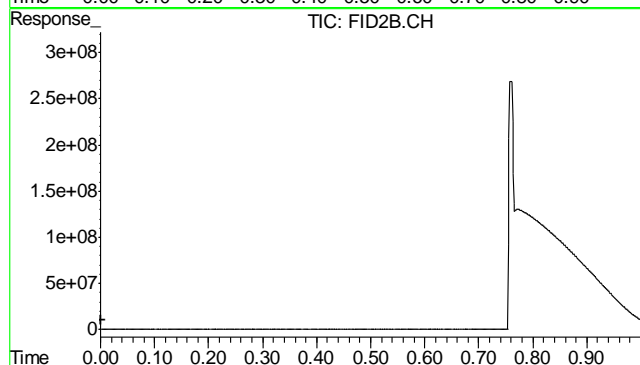
#2 TPH-DRO (c10-c28)

R.T.: 11.935 min  
Delta R.T.: 0.000 min  
Response: 9196049  
Conc: 140.21 mg/L m



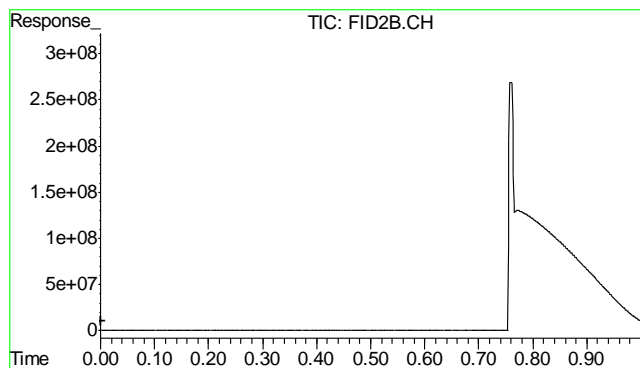
#9 5a-Androstane

R.T.: 0.046 min  
Delta R.T.: 0.014 min  
Response: 61  
Conc: N.D.



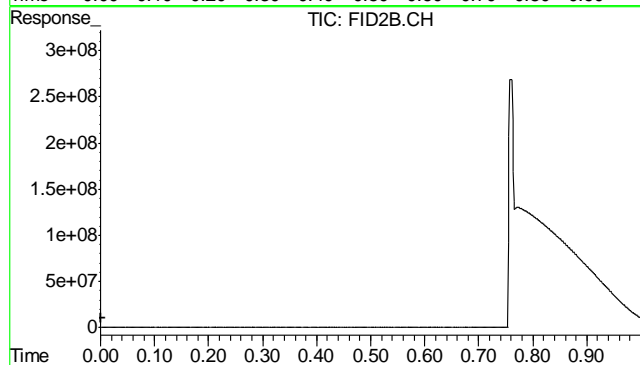
#10 2-Fluorophenol

R.T.: 0.024 min  
Delta R.T.: 0.024 min  
Response: 129  
Conc: N.D.



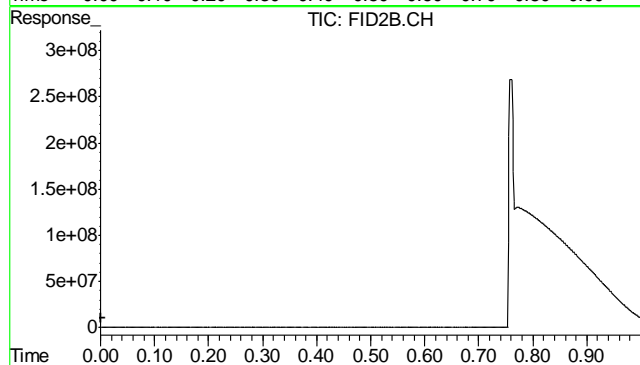
#11 Phenol-d5

R.T.: 0.024 min  
Delta R.T.: 0.024 min  
Response: 129  
Conc: N.D.



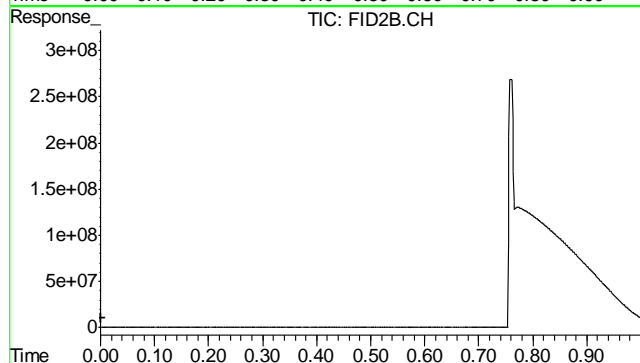
#12 Nitrobenzene-d5

R.T.: 0.024 min  
Delta R.T.: 0.024 min  
Response: 129  
Conc: N.D.



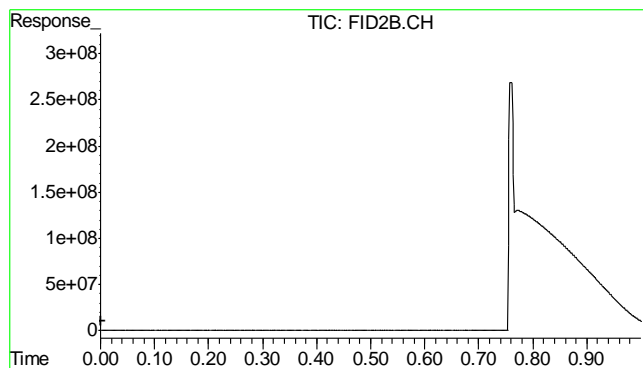
#13 2-Fluorobiphenyl

R.T.: 0.024 min  
Delta R.T.: 0.024 min  
Response: 129  
Conc: N.D.



#14 2,4,6-Tribromophenol

R.T.: 0.024 min  
Delta R.T.: 0.024 min  
Response: 129  
Conc: N.D.



#15 Terphenyl-d14

R.T.: 0.024 min  
Delta R.T.: 0.024 min  
Response: 129  
Conc: N.D.

12.2.1  
12

## Metals Analysis

### QC Data Summaries

Includes the following where applicable:

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

QC Batch ID: MP4617  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 05/03/11

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	0.080	<1.0
Beryllium	1.0	.044	.1		
Boron	5.0	.48	.48		
Cadmium	1.0	.027	.27	0.010	<1.0
Calcium	40	.96	1.1		
Chromium	1.0	.018	.031	0.020	<1.0
Cobalt	0.50	.035	.035		
Copper	1.0	.085	.16	0.33	<1.0
Iron	7.0	.34	2		
Lead	5.0	.16	.21	-0.010	<5.0
Lithium	0.20	.028	.031		
Magnesium	20	.58	1.4		
Manganese	0.50	.0053	.012		
Molybdenum	1.0	.045	.054		
Nickel	3.0	.043	.099	-0.020	<3.0
Phosphorus	10	1.1	1.2		
Potassium	200	5.5	9.2		
Selenium	5.0	.38	.5	0.17	<5.0
Silicon	5.0	.38	.51		
Silver	3.0	.018	.051	-0.010	<3.0
Sodium	40	11	11		
Strontium	5.0		.017		
Thallium	1.0	.29	.34		
Tin	5.0	.55	1.3		
Titanium	1.0	.011	.1		
Uranium	5.0	.15	.2		
Vanadium	1.0	.016	.025		
Zinc	3.0	.028	.06	0.14	<3.0

Associated samples MP4617: D23076-1

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



BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

QC Batch ID: MP4617  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

13.1.1

13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

QC Batch ID: MP4617  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 05/03/11

Metal	D22908-8 Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	137	344	244	85.2	75-125
Beryllium	anr				
Boron	anr				
Cadmium	0.20	50.5	61.1	82.4	75-125
Calcium	anr				
Chromium	26.3	77.1	61.1	82.5	75-125
Cobalt	anr				
Copper	14.6	70.0	61.1	91.1	75-125
Iron	anr				
Lead	13.1	109	122	78.5	75-125
Lithium					
Magnesium	anr				
Manganese	anr				
Molybdenum	anr				
Nickel	14.4	61.6	61.1	77.0	75-125
Phosphorus					
Potassium	anr				
Selenium	0.0	107	122	87.3	75-125
Silicon					
Silver	0.19	21.0	24.4	85.2	75-125
Sodium	anr				
Strontium	anr				
Thallium	anr				
Tin	anr				
Titanium	anr				
Uranium					
Vanadium	anr				
Zinc	40.7	89.2	61.1	75.0	75-125

Associated samples MP4617: D23076-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

QC Batch ID: MP4617  
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: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

QC Batch ID: MP4617  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 05/03/11

Metal	D22908-8 Original MSD		Spikelet MPICPAL % Rec		MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	137	332	239	81.9	3.6	20
Beryllium	anr					
Boron	anr					
Cadmium	0.20	48.4	59.8	80.6	4.2	20
Calcium	anr					
Chromium	26.3	73.4	59.8	78.1	4.9	20
Cobalt	anr					
Copper	14.6	67.0	59.8	88.0	4.4	20
Iron	anr					
Lead	13.1	105	120	76.8	3.7	20
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum	anr					
Nickel	14.4	59.1	59.8	74.4N(a)	4.1	20
Phosphorus						
Potassium	anr					
Selenium	0.0	101	120	84.1	5.8	20
Silicon						
Silver	0.19	20.0	23.9	82.9	4.9	20
Sodium	anr					
Strontium	anr					
Thallium	anr					
Tin	anr					
Titanium	anr					
Uranium						
Vanadium	anr					
Zinc	40.7	85.9	59.8	71.1N(a)	3.8	20

Associated samples MP4617: D23076-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

QC Batch ID: MP4617  
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: D23076  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: PCU 23-18 Confirmation

QC Batch ID: MP4617  
 Matrix Type: SOLID

Methods: SW846 6010B  
 Units: mg/kg

Prep Date: 05/03/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	190	200	95.0	80-120
Beryllium	anr			
Boron	anr			
Cadmium	47.9	50	95.8	80-120
Calcium	anr			
Chromium	48.4	50	96.8	80-120
Cobalt	anr			
Copper	48.7	50	97.4	80-120
Iron	anr			
Lead	96.2	100	96.2	80-120
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	47.8	50	95.6	80-120
Phosphorus				
Potassium	anr			
Selenium	102	100	102.0	80-120
Silicon				
Silver	19.7	20	98.5	80-120
Sodium	anr			
Strontium	anr			
Thallium	anr			
Tin	anr			
Titanium	anr			
Uranium				
Vanadium	anr			
Zinc	46.2	50	92.4	80-120

Associated samples MP4617: D23076-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

QC Batch ID: MP4617  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

13.1.3

13

SERIAL DILUTION RESULTS SUMMARY

Login Number: D23076  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: PCU 23-18 Confirmation

QC Batch ID: MP4617  
 Matrix Type: SOLID

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 05/03/11

	D22908-8			QC
Metal	Original	SDL 1:5	%DIF	Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	1210	1370	12.6*(a)	0-10
Beryllium	anr			
Boron	anr			
Cadmium	1.60	1.50	16.7 (b)	0-10
Calcium	anr			
Chromium	237	265	13.1*(a)	0-10
Cobalt	anr			
Copper	128	127	2.4	0-10
Iron	anr			
Lead	117	122	5.1	0-10
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	130	148	15.9*(a)	0-10
Phosphorus				
Potassium	anr			
Selenium	3.90	0.00		0-10
Silicon				
Silver	1.60	4.00	135.3(b)	0-10
Sodium	anr			
Strontium	anr			
Thallium	anr			
Tin	anr			
Titanium	anr			
Uranium				
Vanadium	anr			
Zinc	386	437	20.8*(a)	0-10

Associated samples MP4617: D23076-1

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

13.1.4  
13



SERIAL DILUTION RESULTS SUMMARY

Login Number: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

QC Batch ID: MP4617  
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: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

QC Batch ID: MP4618  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 05/03/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	-0.041	<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 MP4618: D23076-1

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: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

QC Batch ID: MP4618  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 05/03/11

Metal	D22908-8 Original MS	Spikelot MPICPALL	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	2.5	114	122	91.3 60-119
Barium	anr			
Beryllium	anr			
Boron	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	anr			
Phosphorus				
Potassium	anr			
Selenium	anr			
Silver	anr			
Sodium	anr			
Strontium	anr			
Thallium	anr			
Tin	anr			
Titanium	anr			
Uranium				
Vanadium	anr			
Zinc	anr			

Associated samples MP4618: D23076-1

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: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

QC Batch ID: MP4618  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 05/03/11

Metal	D22908-8 Original MSD	Spikelot MPICPAL % Rec	MSD RPD	QC Limit
Aluminum	anr			
Antimony	anr			
Arsenic	2.5	106	120	86.5
Barium	anr			
Beryllium	anr			
Boron	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	anr			
Phosphorus				
Potassium	anr			
Selenium	anr			
Silver	anr			
Sodium	anr			
Strontium	anr			
Thallium	anr			
Tin	anr			
Titanium	anr			
Uranium				
Vanadium	anr			
Zinc	anr			

Associated samples MP4618: D23076-1

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: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

QC Batch ID: MP4618  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 05/03/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	103	100	103.0	80-120
Barium	anr			
Beryllium	anr			
Boron	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium				
Manganese	anr			
Molybdenum	anr			
Nickel	anr			
Phosphorus				
Potassium	anr			
Selenium	anr			
Silver	anr			
Sodium	anr			
Strontium				
Thallium	anr			
Tin	anr			
Titanium	anr			
Uranium				
Vanadium	anr			
Zinc	anr			

Associated samples MP4618: D23076-1

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

# SERIAL DILUTION RESULTS SUMMARY

Login Number: D23076  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: PCU 23-18 Confirmation

QC Batch ID: MP4618  
 Matrix Type: SOLID

Methods: SW846 6020  
 Units: ug/l

Prep Date: 05/03/11

Metal	D22908-8 Original	SDL 5:25	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	21.8	0.00	100.0(a)	0-10
Barium	anr			
Beryllium	anr			
Boron	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	anr			
Phosphorus				
Potassium	anr			
Selenium	anr			
Silver	anr			
Sodium	anr			
Strontium	anr			
Thallium	anr			
Tin	anr			
Titanium	anr			
Uranium				
Vanadium	anr			
Zinc	anr			

Associated samples MP4618: D23076-1

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(anr) Analyte not requested

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

QC Batch ID: MP4626  
Matrix Type: SOLID

Methods: SW846 7471A  
Units: mg/kg

Prep Date: 05/05/11

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.10	.0011	.013	0.0026	<0.10

Associated samples MP4626: D23076-1

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: D23076  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: PCU 23-18 Confirmation

QC Batch ID: MP4626  
 Matrix Type: SOLID

Methods: SW846 7471A  
 Units: mg/kg

Prep Date: 05/05/11

Metal	D22908-8 Original MS	Spikelot HGWSR1	% Rec	QC Limits
-------	-------------------------	--------------------	-------	--------------

Mercury	0.011	0.41	0.414	96.3	85-115
---------	-------	------	-------	------	--------

Associated samples MP4626: D23076-1

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: D23076  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: PCU 23-18 Confirmation

QC Batch ID: MP4626  
 Matrix Type: SOLID

Methods: SW846 7471A  
 Units: mg/kg

Prep Date: 05/05/11

Metal	D22908-8 Original MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit	
Mercury	0.011	0.47	0.464	98.9	13.6	20

Associated samples MP4626: D23076-1

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: D23076  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: PCU 23-18 Confirmation

QC Batch ID: MP4626  
 Matrix Type: SOLID

Methods: SW846 7471A  
 Units: mg/kg

Prep Date: 05/05/11

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

Associated samples MP4626: D23076-1

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: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

QC Batch ID: MP4641  
Matrix Type: AQUEOUS

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

Prep Date: 05/04/11

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	35.0	<2000
Chromium	50	.9	4		
Cobalt	25	1.8	1.8		
Copper	50	4.3	14		
Iron	350	17	65		
Lead	250	8	11		
Lithium	10	1.4	6		
Magnesium	1000	29	50	18.5	<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	-350	<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 MP4641: D23076-1A

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

QC Batch ID: MP4641  
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: D23076  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: PCU 23-18 Confirmation

QC Batch ID: MP4641  
 Matrix Type: AQUEOUS

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

Prep Date: 05/04/11

Metal	D23022-2A Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	12200	150000	125000	110.2	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	2820	137000	125000	107.3	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	7730	148000	125000	112.2	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP4641: D23076-1A

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: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

QC Batch ID: MP4641  
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: D23076  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: PCU 23-18 Confirmation

QC Batch ID: MP4641  
 Matrix Type: AQUEOUS

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

Prep Date: 05/04/11

Metal	D23022-2A Original MSD		Spikelot MPICPAL % Rec		MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	12200	148000	125000	108.6	1.3	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	2820	134000	125000	104.9	2.2	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	7730	145000	125000	109.8	2.0	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP4641: D23076-1A

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: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

QC Batch ID: MP4641  
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: D23076  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: PCU 23-18 Confirmation

QC Batch ID: MP4641  
 Matrix Type: AQUEOUS

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

Prep Date: 05/04/11

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	131000	125000	104.8	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	137000	125000	109.6	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP4641: D23076-1A

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

13.4.3  
13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

QC Batch ID: MP4641  
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: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP4387/GN9441			umhos/cm	9961	9870	99.1	90-110%
pH	GN9347			su	8.00su	7.97	99.6	99.3-100.7%

Associated Samples:  
Batch GN9347: D23076-1  
Batch GP4387: D23076-1  
(\*) Outside of QC limits

DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D23076  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU 23-18 Confirmation

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Redox Potential Vs H2	GN9349	D23071-1	mv	424	422	0.5	0-20%

Associated Samples:  
Batch GN9349: D23076-1  
(\*) Outside of QC limits

14.2  
14

## Misc. Forms

### Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

---

Includes the following where applicable:

- Chain of Custody



# Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D23076

Client: AMS

Immediate Client Services Action Required: No

Date / Time Received: 5/3/2011

Delivery Method:

Client Service Action Required at Login: No

Project: N/A

No. Coolers: 1

Airbill #'s: N/A

## 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: D23076  
Account: ALMS - Accutest Mountain States  
Project: KRWCCOL: PCU 23-18 Confirmation

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP12920/GN34810	0.40	0.0	mg/kg	12	11.3	94.2	80-120%
Chromium, Hexavalent	GP12920/GN34810			mg/kg	1090	973	89.3	80-120%

Associated Samples:  
Batch GP12920: D23076-1  
(\*) Outside of QC limits

DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D23076  
Account: ALMS - Accutest Mountain States  
Project: KRWCCOL: PCU 23-18 Confirmation

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP12920/GN34810	D23021-3	mg/kg	0.0	0.19	200.0(a)	0-20%

Associated Samples:  
Batch GP12920: D23076-1  
(\*) Outside of QC limits  
(a) RPD acceptable due to low duplicate and sample concentrations.

MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D23076  
Account: ALMS - Accutest Mountain States  
Project: KRWCCOL: PCU 23-18 Confirmation

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP12920/GN34810	D23021-3	mg/kg	0.0	13.2	11.4	86.2	75-125%
Chromium, Hexavalent	GP12920/GN34810	D23021-3	mg/kg	0.0	1110	1120	101.1	75-125%

Associated Samples:  
Batch GP12920: D23076-1  
(\*) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits



05/12/11

## Technical Report for

KRW Consulting, Inc.

PCU T23X-18G, Lakewood

Accutest Job Number: D23190

Sampling Date: 05/03/11

### Report to:

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

Total number of pages in report: **46**



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.

A handwritten signature in black ink, appearing to read 'John Hamilton'.

John Hamilton  
Laboratory Director

Client Service contact: Amanda Kissell 303-425-6021

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

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.

Test results relate only to samples analyzed.

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Sample Summary

KRW Consulting, Inc.

Job No: D23190

PCU T23X-18G, Lakewood

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
D23190-1	05/03/11	12:00 BB	05/05/11	SO	Soil	COMPOSITE 4
D23190-2	05/03/11	12:00 BB	05/05/11	SO	Soil	COMPOSITE 5

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

## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** KRW Consulting, Inc.

**Job No** D23190

**Site:** PCU T23X-18G, Lakewood

**Report Dat** 5/12/2011 9:29:57 AM

On 05/05/2011, 2 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 5.2 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D23190 was assigned to the project. The lab sample IDs, client sample IDs, and dates 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 GC By Method SW846 8015B

**Matrix** SO

**Batch ID:** GGA625

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D23152-1MS, D23152-1MSD were used as the QC samples indicated.

### Extractables by GC By Method SW846-8015B

**Matrix** SO

**Batch ID:** OP3622

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D23190-1MS, D23190-1MSD were used as the QC samples indicated.
- The matrix spike duplicate (MSD) recovery(s) of TPH-DRO (C10-C28) are outside control limits. Probable cause due to matrix interference.

### Wet Chemistry By Method SM19 2540B M

**Matrix** SO

**Batch ID:** GN9409

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

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 Results

Report of Analysis

Accutest Laboratories

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	COMPOSITE 4	<b>Date Sampled:</b>	05/03/11
<b>Lab Sample ID:</b>	D23190-1	<b>Date Received:</b>	05/05/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	90.8
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	PCU T23X-18G, Lakewood		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA11419.D	1	05/05/11	BR	n/a	n/a	GGA625
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	12	6.0	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	95%		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

<b>Client Sample ID:</b>	COMPOSITE 4		<b>Date Sampled:</b>	05/03/11
<b>Lab Sample ID:</b>	D23190-1		<b>Date Received:</b>	05/05/11
<b>Matrix:</b>	SO - Soil		<b>Percent Solids:</b>	90.8
<b>Method:</b>	SW846-8015B SW846 3546			
<b>Project:</b>	PCU T23X-18G, Lakewood			

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD06654.D	1	05/09/11	JB	05/06/11	OP3622	GFD290
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	143	15	9.5	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	77%		63-130%		

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

<b>Client Sample ID:</b>	COMPOSITE 5				
<b>Lab Sample ID:</b>	D23190-2			<b>Date Sampled:</b>	05/03/11
<b>Matrix:</b>	SO - Soil			<b>Date Received:</b>	05/05/11
<b>Method:</b>	SW846 8015B			<b>Percent Solids:</b>	88.1
<b>Project:</b>	PCU T23X-18G, Lakewood				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA11420.D	1	05/05/11	BR	n/a	n/a	GGA625
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	13	6.3	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	92%		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

<b>Client Sample ID:</b>	COMPOSITE 5		<b>Date Sampled:</b>	05/03/11
<b>Lab Sample ID:</b>	D23190-2		<b>Date Received:</b>	05/05/11
<b>Matrix:</b>	SO - Soil		<b>Percent Solids:</b>	88.1
<b>Method:</b>	SW846-8015B SW846 3546			
<b>Project:</b>	PCU T23X-18G, Lakewood			

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD06655.D	1	05/09/11	JB	05/06/11	OP3622	GFD290
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	41.3	15	9.8	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	83%		63-130%		

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

## Misc. Forms

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### Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody

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

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # <b>D23190</b>
Requested Analysis (see TEST CODE sheet)	
Matrix Codes	
DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank	
LAB USE ONLY	

Client / Reporting Information		Project Information	
Company Name <b>KRW Consulting</b>		Project Name <b>PCU T23X-18G</b>	
Street Address <b>8000 W 14th Ave</b>		Street:	
City <b>Lakewood CO</b>		City:	
State <b>80214</b>		State:	
Zip		Zip	
Project Contact <b>Dwayne Knudson</b>		Project # <b>1102-01A</b>	
Phone # <b>303 239 9011</b>		Client PO#	
Fax # <b>303 239 0745</b>		Street Address	
Sampler(s) Name(s) <b>Brett Barger</b>		Attention:	
Phone # <b>970 786 4285</b>		PO#	
Field ID / Point of Collection		Collection	
MEOH/DI Vial #		Date	
		Time	
		Sampled by	
		Matrix	
		# of bottles	
		Number of preserved bottles	
		HCl	
		HNO3	
		H2SO4	
		NONE	
		DI Water	
		MEDI	
		ENCORE	
		Bioscience	

Turnaround Time (Business days)		Approved By (Accutest PM) / Date:		Data Deliverable Information		Comments / Special Instructions	
<input type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> Std. 5 Business Days (By Contract only) <input checked="" type="checkbox"/> 5 Day R/SH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY		<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)		<input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format <input checked="" type="checkbox"/> PDF		Please attach GC spectra Please email to KOM Team	
Emergency & Rush T/A data available VIA Lablink		Commercial "A" = Results Only Commercial "B" = Results + QC Summary					
Sample Custody must be documented below each time samples change possession, including courier delivery.							
Relinquished By: <b>1</b>	Date Time: <b>5/4/2011 1200</b>	Received By: <b>1</b>	Date Time: <b>5/4/2011 1200</b>	Relinquished By: <b>2</b>	Date Time:	Received By: <b>2</b>	Date Time:
Relinquished By: <b>3</b>	Date Time:	Received By: <b>3</b>	Date Time:	Relinquished By: <b>4</b>	Date Time:	Received By: <b>4</b>	Date Time:
Relinquished by: <b>5</b>	Date Time:	Received By: <b>5</b>	Date Time:	Custody Seal # <b>1</b>	Intact <input checked="" type="checkbox"/> Not Intact <input type="checkbox"/>	Preserved where applicable <input checked="" type="checkbox"/> N/A	On Ice <input checked="" type="checkbox"/> Cooler Temp. <b>5.28</b>

**D23190: Chain of Custody**

**Page 1 of 2**

## Accutest Laboratories Sample Receipt Summary

**Accutest Job Number:** D23190

**Client:**
**Immediate Client Services Action Required:** No

**Date / Time Received:** 5/5/2011

**No. Coolers:**
**Client Service Action Required at Login:** No

**Project:**
**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"/> | Infrared gun |
| 2. Cooler temp verification:  | Ice (bag)    |
| 3. Cooler media:  |              |

**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

### D23190: Chain of Custody

### Page 2 of 2



## GC Volatiles

5

## QC Data Summaries

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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:** D23190**Account:** KRWCCOL KRW Consulting, Inc.**Project:** PCU T23X-18G, Lakewood

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA625-MB	GA11413.D	1	05/05/11	BR	n/a	n/a	GGA625

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

D23190-1, D23190-2

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	108% 60-140%

Blank Spike Summary

Job Number: D23190  
Account: KRWCCOL KRW Consulting, Inc.  
Project: PCU T23X-18G, Lakewood

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA625-BS	GA11414.D	1	05/05/11	BR	n/a	n/a	GGA625

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

D23190-1, D23190-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	94.7	86	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	107%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D23190  
Account: KRWCCOL KRW Consulting, Inc.  
Project: PCU T23X-18G, Lakewood

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D23152-1MS	GA11416.D	1	05/05/11	BR	n/a	n/a	GGA625
D23152-1MSD	GA11417.D	1	05/05/11	BR	n/a	n/a	GGA625
D23152-1	GA11415.D	1	05/05/11	BR	n/a	n/a	GGA625

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

D23190-1, D23190-2

CAS No.	Compound	D23152-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	69.0		191	245	92	233	86	5	62-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D23152-1	Limits
120-82-1	1,2,4-Trichlorobenzene	123%	121%	123%	60-140%

GC Volatiles

Raw Data



Judy Melson  
05/09/11 08:24

## Quantitation Report (QT Reviewed)

Signal #1 : Z:\050511\GA11419.D\FID1A.CH Vial: 10  
Signal #2 : Z:\050511\GA11419.D\FID2B.CH  
Acq On : 5 May 2011 5:45 pm Operator: BrianR  
Sample : D23190-1, 50X Inst : BTEX2  
Misc : GC1852,GGA625,5.049,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: May 07 09:13:18 2011 Quant Results File: TA620GA620.RES

Quant Method : C:\MSDCHEM\1\METHODS\TA620GA620.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Sat May 07 09:12:31 2011  
Response via : Initial Calibration  
DataAcq Meth : TVB2.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	14.53	3381805	95.040 %	m
10) S	1,2,4-Trichlorobenzene (P)	14.53	6787707	110.048 %	
Target Compounds					
1) H	TVH-Gasoline	7.39	2839599	<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	8.04	69196	0.329	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	10.74	136332	0.632	ug/L
9) T	o-Xylene	11.21	47194	0.259	ug/L
11) T	Naphthalene	14.71	250377	1.065	ug/L

(f)=RT Delta &gt; 1/2 Window

(m)=manual int.

GA11419.D TA620GA620.M

Sat May 07 13:53:52 2011

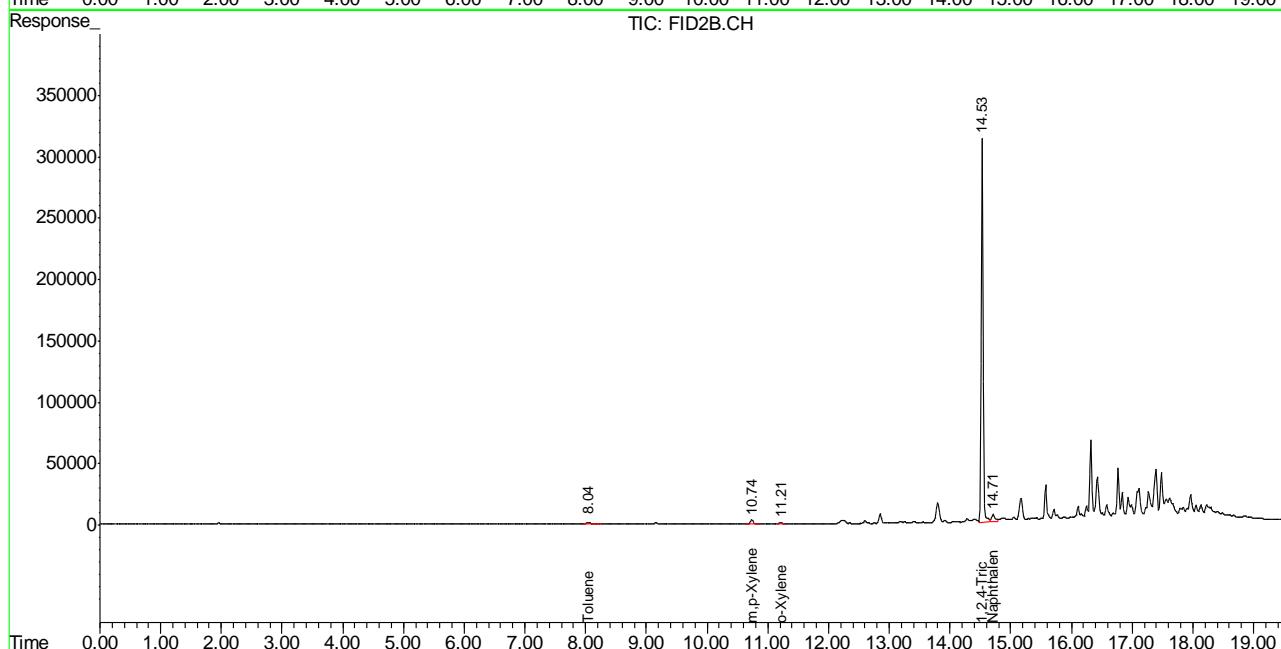
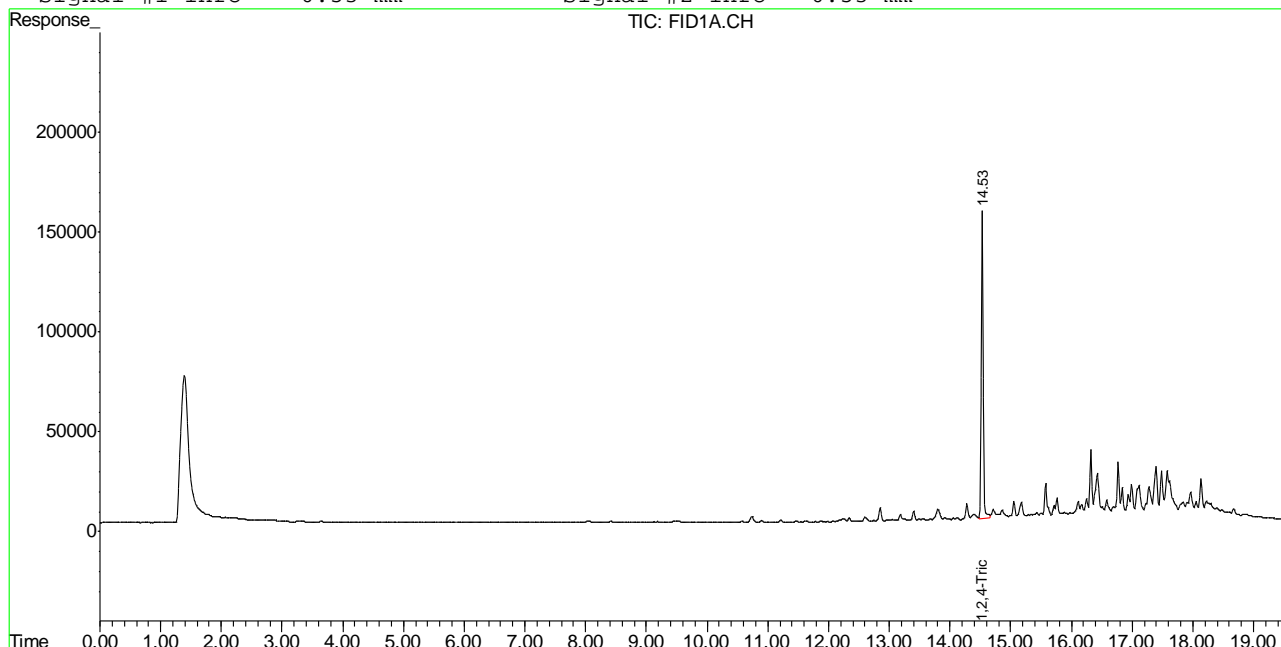
GC

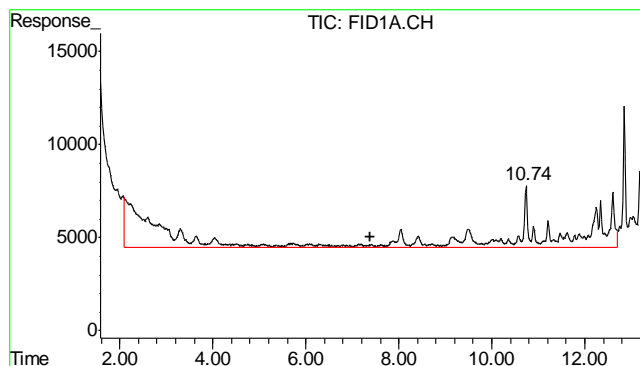
Quantitation Report (QT Reviewed)

Signal #1 : Z:\050511\GA11419.D\FID1A.CH Vial: 10  
 Signal #2 : Z:\050511\GA11419.D\FID2B.CH  
 Acq On : 5 May 2011 5:45 pm Operator: BrianR  
 Sample : D23190-1, 50X Inst : BTEX2  
 Misc : GC1852,GGA625,5.049,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
 Quant Time: May 7 11:42 2011 Quant Results File: TA620GA620.RES

Quant Method : C:\MSDCHEM\1\METHODS\TA620GA620.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Sat May 07 09:12:31 2011  
 Response via : Multiple Level Calibration  
 DataAcq Meth : TVB2.M

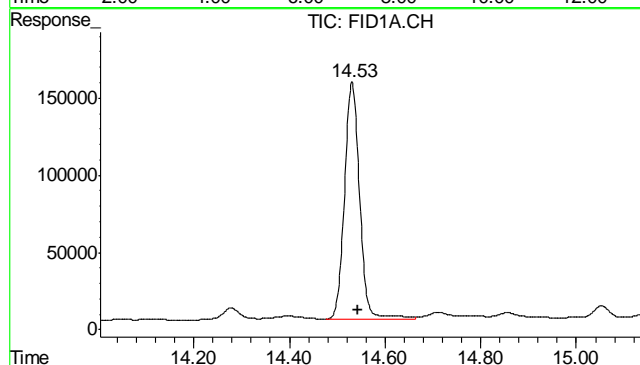
Volume Inj. :  
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





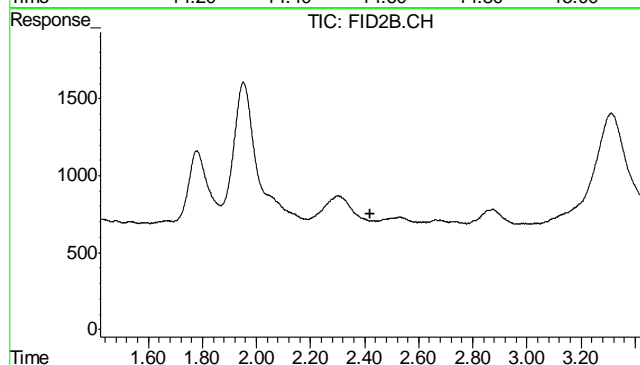
#1 TVH-Gasoline

R.T.: 7.395 min  
Delta R.T.: 0.000 min  
Response: 2839599  
Conc: N.D.



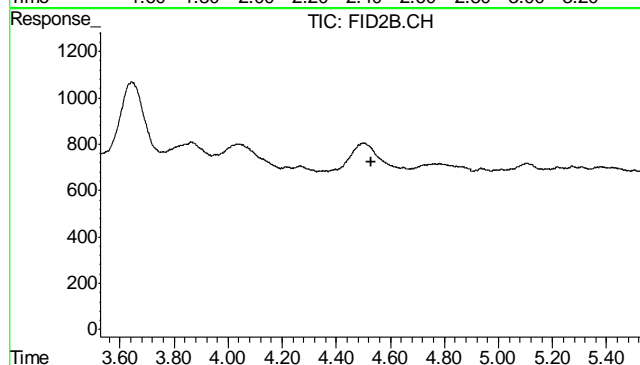
#2 1,2,4-Trichlorobenzene

R.T.: 14.530 min  
Delta R.T.: -0.014 min  
Response: 3381805  
Conc: 95.04 % m



#4 Methyl-t-butyl-ether

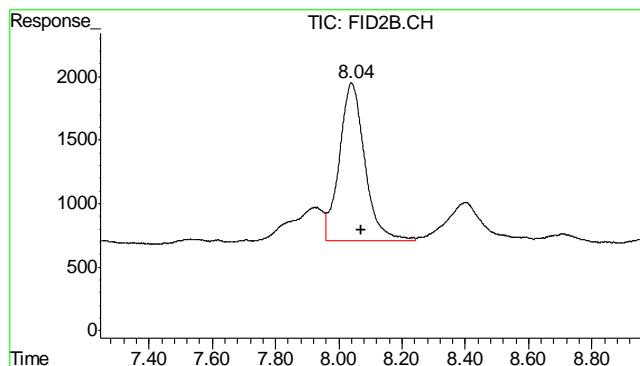
R.T.: 0.000 min  
Exp R.T.: 2.422 min  
Response: 0  
Conc: N.D.



#5 Benzene

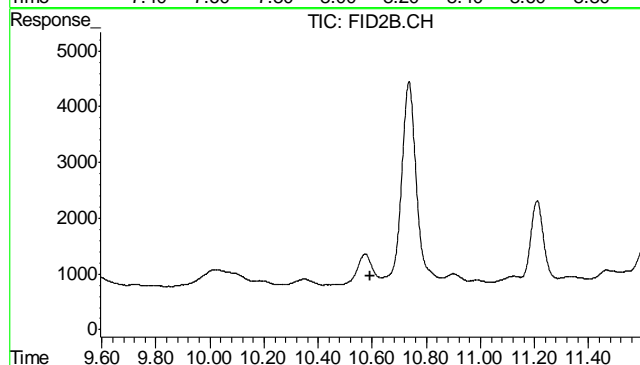
R.T.: 0.000 min  
Exp R.T.: 4.528 min  
Response: 0  
Conc: N.D.





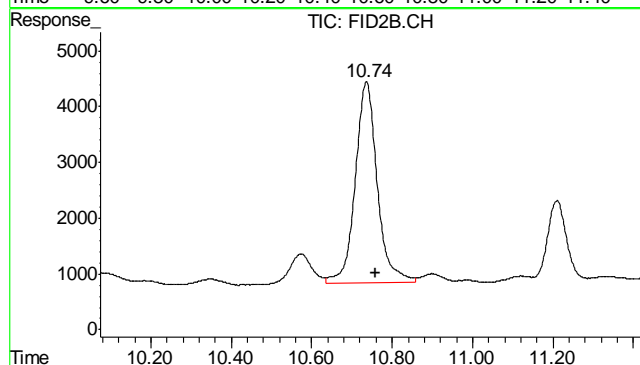
#6 Toluene

R.T.: 8.040 min  
Delta R.T.: -0.029 min  
Response: 69196  
Conc: 0.33 ug/L



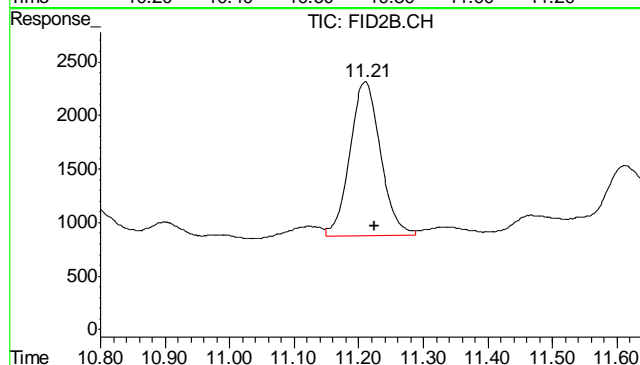
#7 Ethylbenzene

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



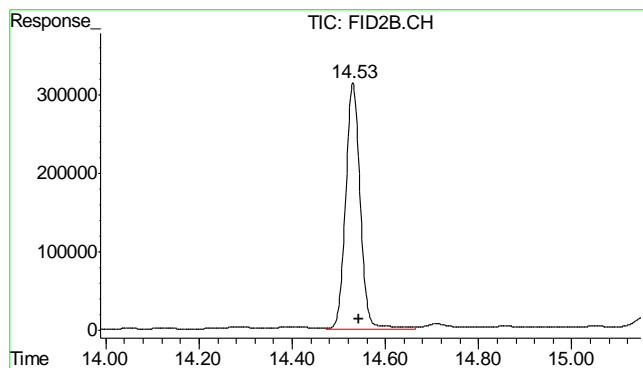
#8 m,p-Xylene

R.T.: 10.736 min  
Delta R.T.: -0.022 min  
Response: 136332  
Conc: 0.63 ug/L



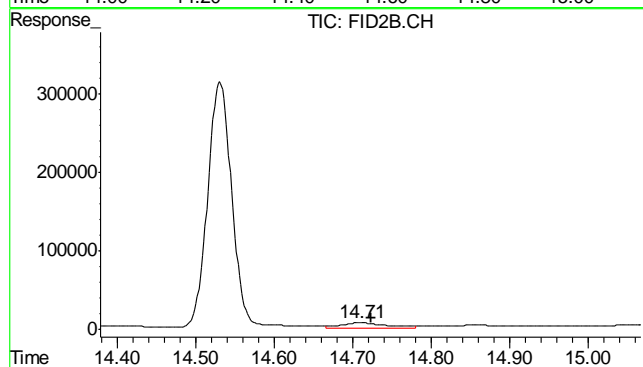
#9 o-Xylene

R.T.: 11.210 min  
Delta R.T.: -0.015 min  
Response: 47194  
Conc: 0.26 ug/L



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

R.T.: 14.530 min  
 Delta R.T.: -0.013 min  
 Response: 6787707  
 Conc: 110.05 %



#11 Naphthalene

R.T.: 14.710 min  
 Delta R.T.: -0.013 min  
 Response: 250377  
 Conc: 1.06 ug/L

6.1.1

6

Quantitation Report (QT Reviewed)

Signal #1 : Z:\050511\GA11420.D\FID1A.CH Vial: 11  
 Signal #2 : Z:\050511\GA11420.D\FID2B.CH  
 Acq On : 5 May 2011 6:22 pm Operator: BrianR  
 Sample : D23190-2, 50X Inst : BTEX2  
 Misc : GC1852,GGA625,5.048,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
 Quant Time: May 07 09:13:21 2011 Quant Results File: TA620GA620.RES

Quant Method : C:\MSDCHEM\1\METHODS\TA620GA620.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Sat May 07 09:12:31 2011  
 Response via : Initial Calibration  
 DataAcq Meth : TVB2.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	14.54	3269666	91.888	%
10) S	1,2,4-Trichlorobenzene (P)	14.53	6623256	106.439	%
Target Compounds					
1) H	TVH-Gasoline	7.39	2506172	<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	8.05	62167	0.296	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	10.74	100408	0.465	ug/L
9) T	o-Xylene	11.22	38711	0.212	ug/L
11) T	Naphthalene	0.00	0	N.D.	ug/L d

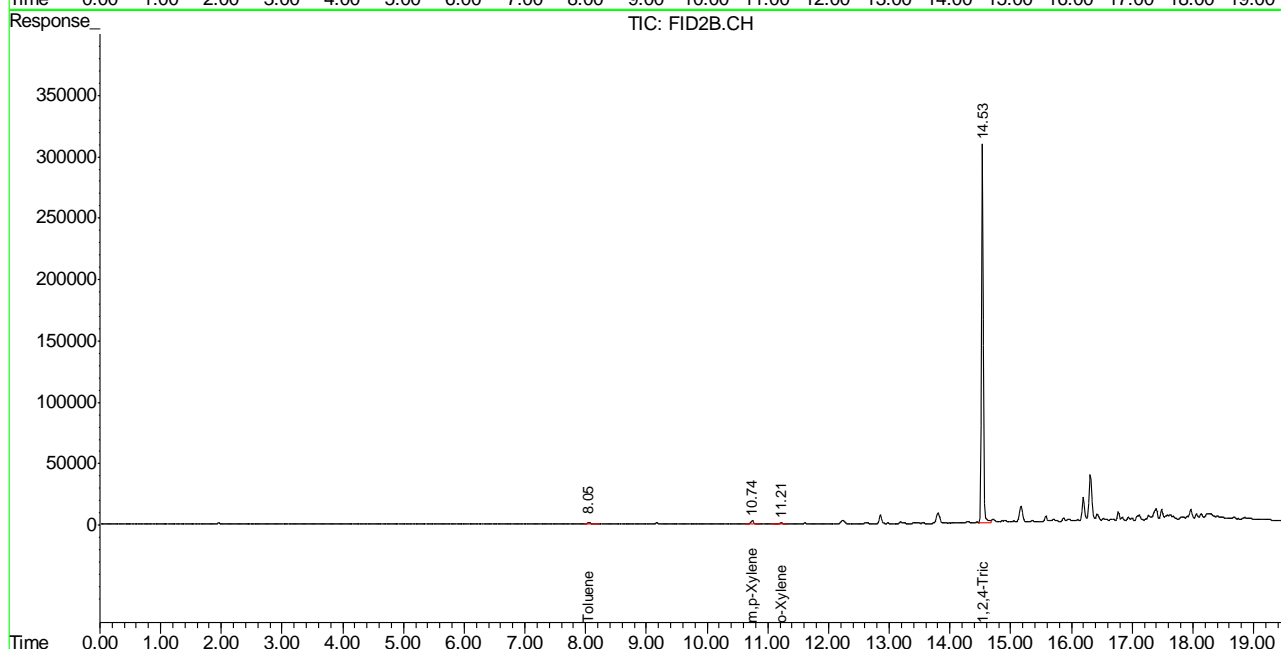
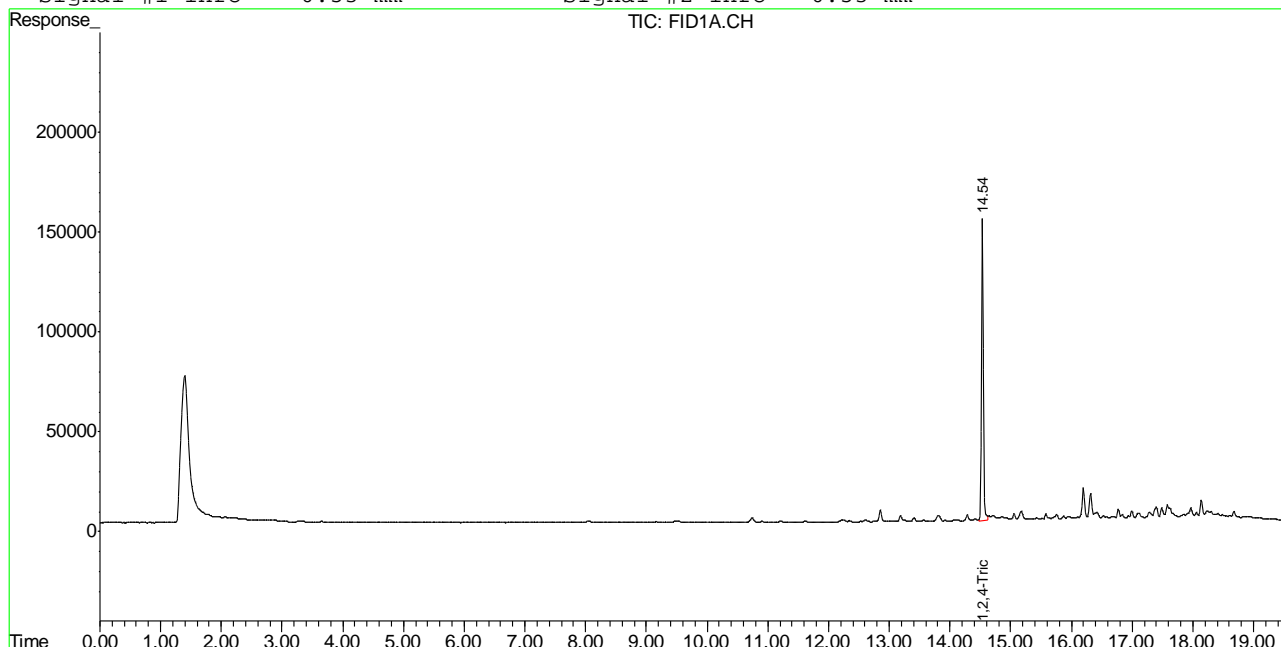
(f)=RT Delta > 1/2 Window (m)=manual int.  
 GA11420.D TA620GA620.M Sat May 07 13:53:54 2011 GC

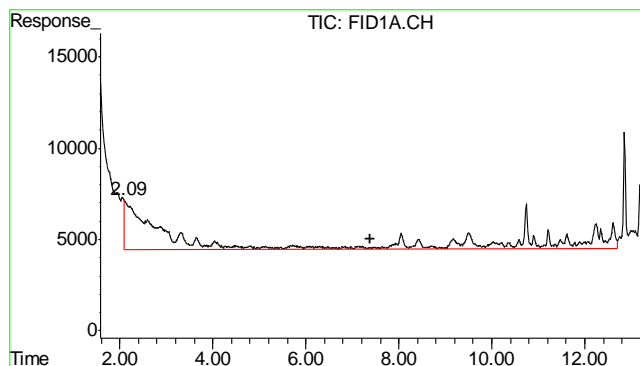
Quantitation Report (QT Reviewed)

Signal #1 : Z:\050511\GA11420.D\FID1A.CH Vial: 11  
 Signal #2 : Z:\050511\GA11420.D\FID2B.CH  
 Acq On : 5 May 2011 6:22 pm Operator: BrianR  
 Sample : D23190-2, 50X Inst : BTEX2  
 Misc : GC1852,GGA625,5.048,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
 Quant Time: May 7 11:42 2011 Quant Results File: TA620GA620.RES

Quant Method : C:\MSDCHEM\1\METHODS\TA620GA620.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Sat May 07 09:12:31 2011  
 Response via : Multiple Level Calibration  
 DataAcq Meth : TVB2.M

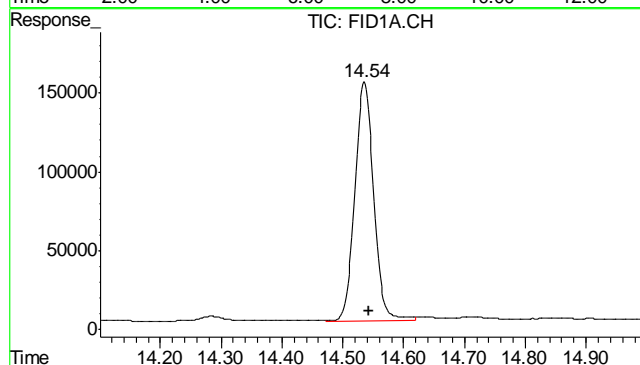
Volume Inj. :  
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





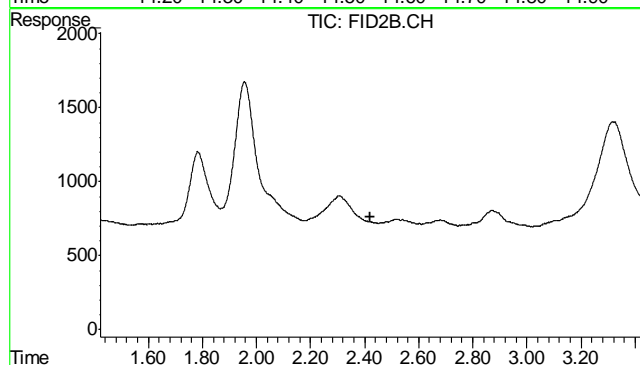
#1 TVH-Gasoline

R.T.: 7.395 min  
Delta R.T.: 0.000 min  
Response: 2506172  
Conc: N.D.



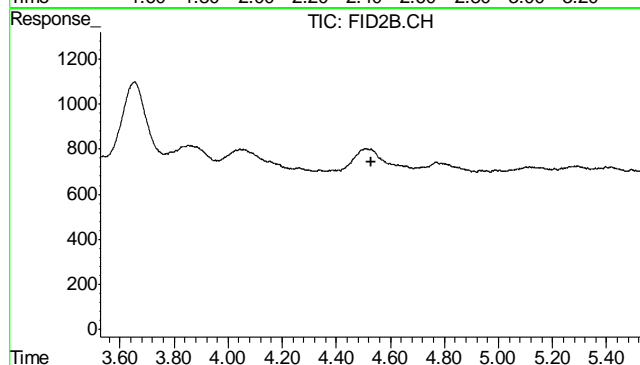
#2 1,2,4-Trichlorobenzene

R.T.: 14.536 min  
Delta R.T.: -0.008 min  
Response: 3269666  
Conc: 91.89 %



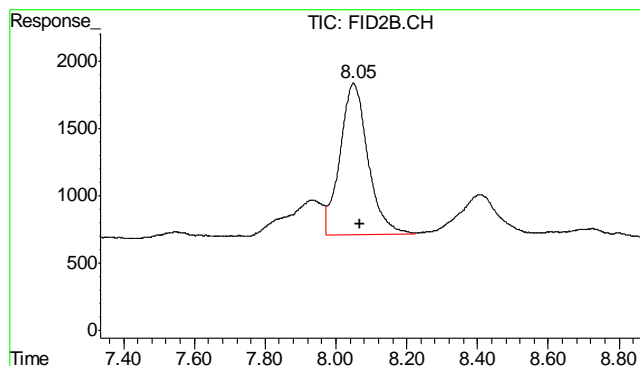
#4 Methyl-t-butyl-ether

R.T.: 0.000 min  
Exp R.T.: 2.422 min  
Response: 0  
Conc: N.D.



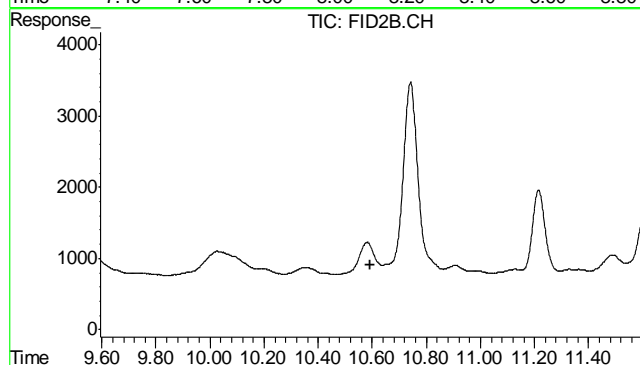
#5 Benzene

R.T.: 0.000 min  
Exp R.T.: 4.528 min  
Response: 0  
Conc: N.D.



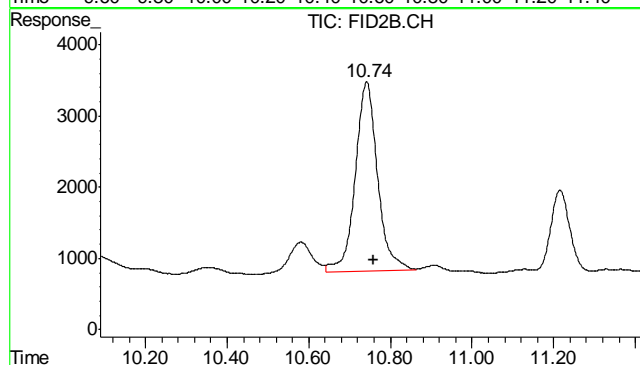
#6 Toluene

R.T.: 8.050 min  
Delta R.T.: -0.020 min  
Response: 62167  
Conc: 0.30 ug/L



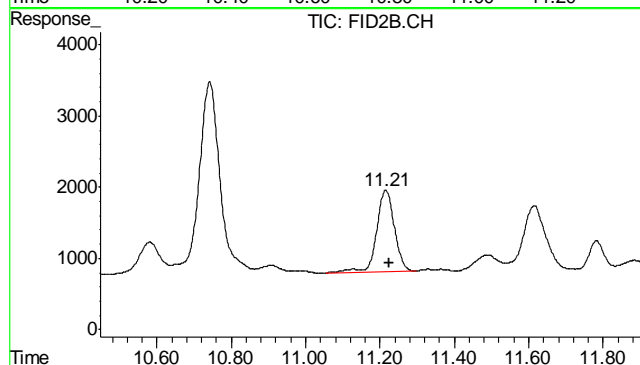
#7 Ethylbenzene

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



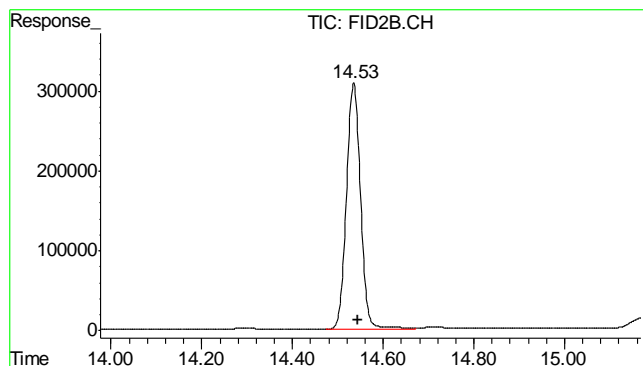
#8 m,p-Xylene

R.T.: 10.742 min  
Delta R.T.: -0.016 min  
Response: 100408  
Conc: 0.47 ug/L



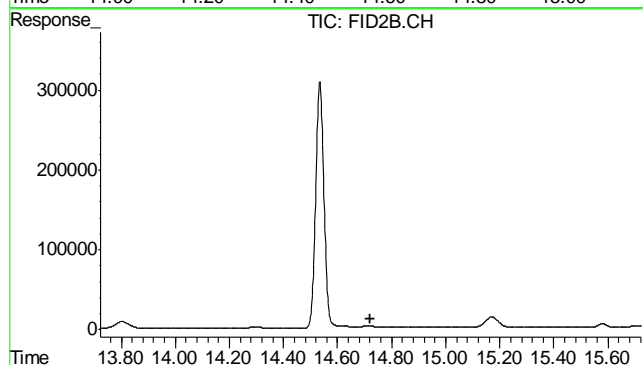
#9 o-Xylene

R.T.: 11.215 min  
Delta R.T.: -0.009 min  
Response: 38711  
Conc: 0.21 ug/L



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

R.T.: 14.535 min  
 Delta R.T.: -0.008 min  
 Response: 6623256  
 Conc: 106.44 %



#11 Naphthalene

R.T.: 0.000 min  
 Exp R.T. : 14.723 min  
 Response: 0  
 Conc: N.D.

6.1.2

6

## Quantitation Report (QT Reviewed)

Signal #1 : Z:\050511\GA11413.D\FID1A.CH Vial: 4  
Signal #2 : Z:\050511\GA11413.D\FID2B.CH  
Acq On : 5 May 2011 2:06 pm Operator: BrianR  
Sample : MB, S Inst : BTEX2  
Misc : GC1852,GGA625,5.000,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: May 07 09:13:00 2011 Quant Results File: TA620GA620.RES

Quant Method : C:\MSDCHEM\1\METHODS\TA620GA620.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Sat May 07 09:12:31 2011  
Response via : Initial Calibration  
DataAcq Meth : TVB2.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	14.55	3838272	107.868	%
10) S	1,2,4-Trichlorobenzene (P)	14.55	7625851	128.439	%
Target Compounds					
1) H	TVH-Gasoline	7.39	2655868	<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	8.08	85487	0.407	ug/L
7) T	Ethylbenzene	10.60	33800	0.180	ug/L
8) T	m,p-Xylene	10.76	139602	0.647	ug/L
9) T	o-Xylene	11.23	48529	0.266	ug/L
11) T	Naphthalene	0.00	0	N.D.	ug/L d

-----  
(f)=RT Delta > 1/2 Window (m)=manual int.  
GA11413.D TA620GA620.M Sat May 07 13:53:34 2011 GC

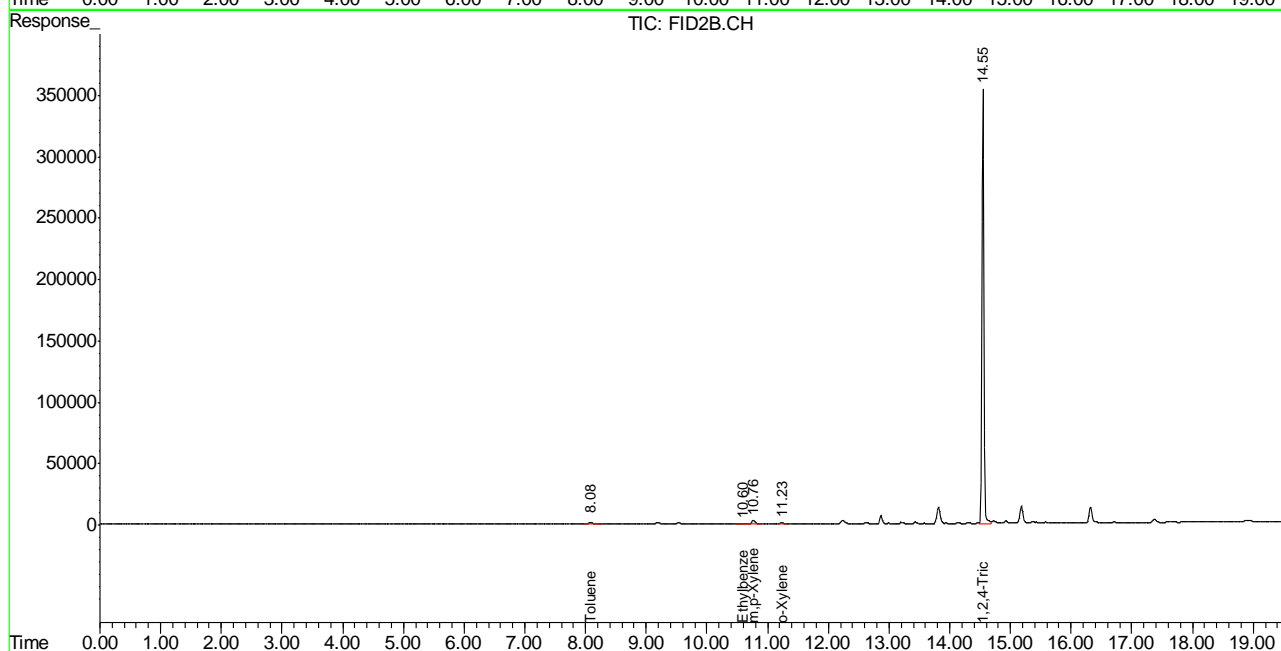
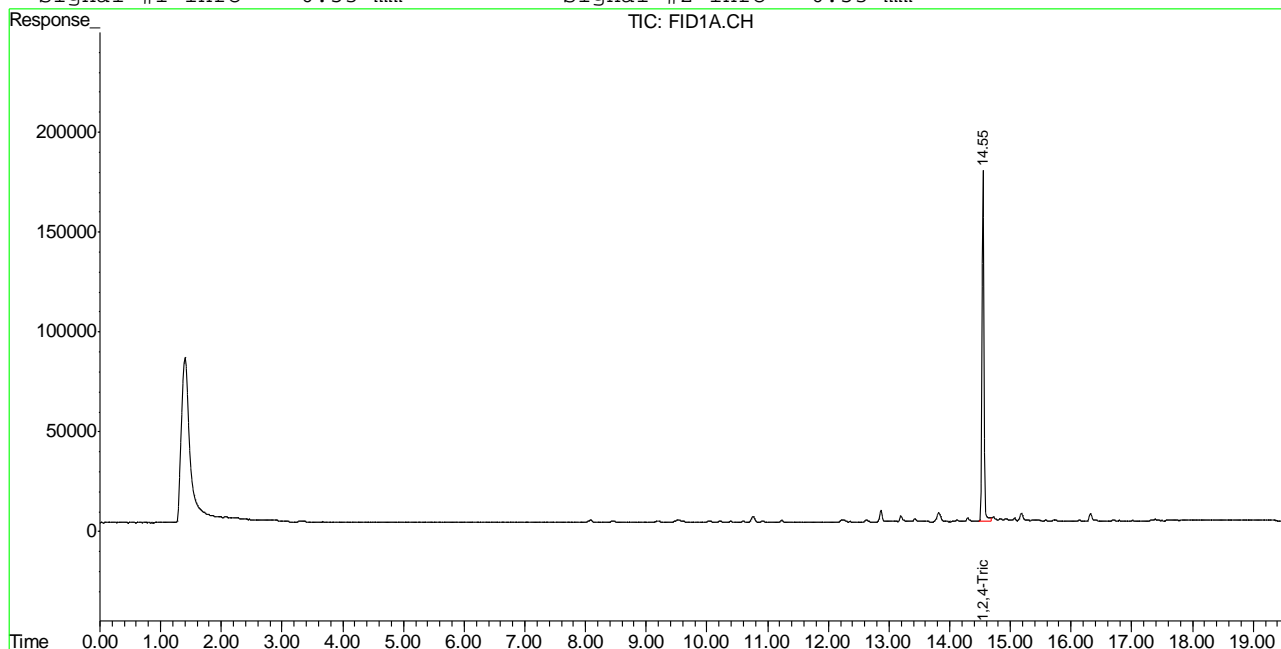


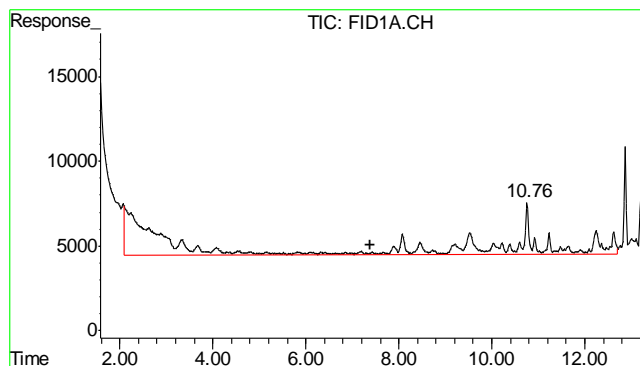
## Quantitation Report (QT Reviewed)

Signal #1 : Z:\050511\GA11413.D\FID1A.CH Vial: 4  
Signal #2 : Z:\050511\GA11413.D\FID2B.CH  
Acq On : 5 May 2011 2:06 pm Operator: BrianR  
Sample : MB, S Inst : BTEX2  
Misc : GC1852,GGA625,5.000,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: May 7 11:37 2011 Quant Results File: TA620GA620.RES

Quant Method : C:\MSDCHEM\1\METHODS\TA620GA620.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Sat May 07 09:12:31 2011  
Response via : Multiple Level Calibration  
DataAcq Meth : TVB2.M

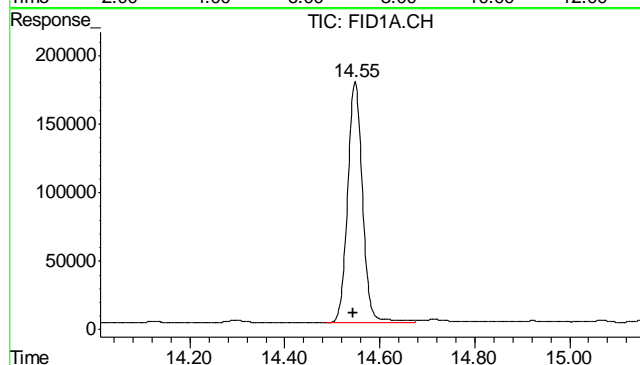
Volume Inj. :  
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





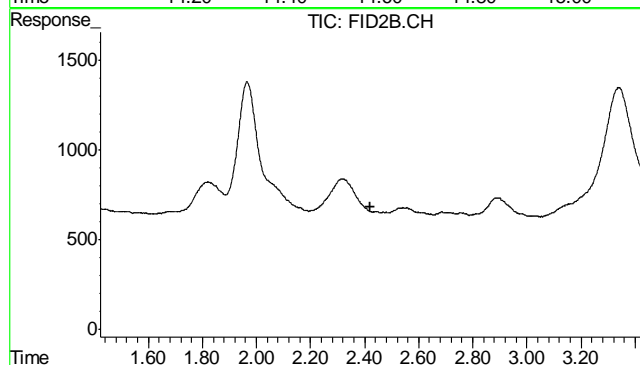
#1 TVH-Gasoline

R.T.: 7.395 min  
Delta R.T.: 0.000 min  
Response: 2655868  
Conc: N.D.



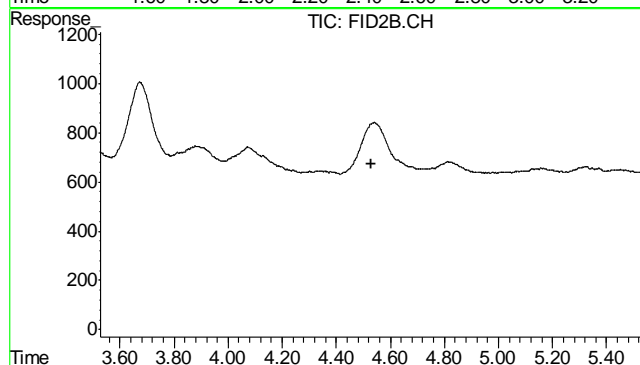
#2 1,2,4-Trichlorobenzene

R.T.: 14.548 min  
Delta R.T.: 0.004 min  
Response: 3838272  
Conc: 107.87 %



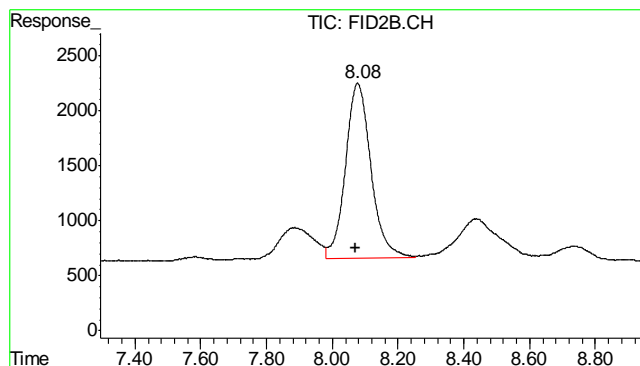
#4 Methyl-t-butyl-ether

R.T.: 0.000 min  
Exp R.T.: 2.422 min  
Response: 0  
Conc: N.D.



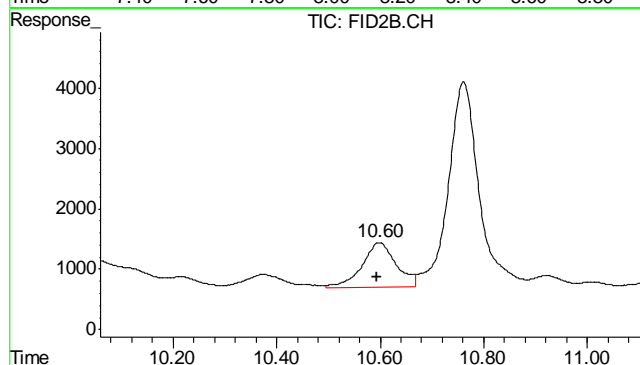
#5 Benzene

R.T.: 0.000 min  
Exp R.T.: 4.528 min  
Response: 0  
Conc: N.D.



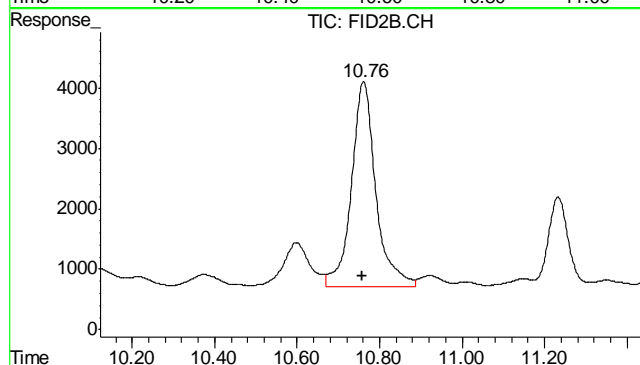
#6 Toluene

R.T.: 8.077 min  
Delta R.T.: 0.008 min  
Response: 85487  
Conc: 0.41 ug/L



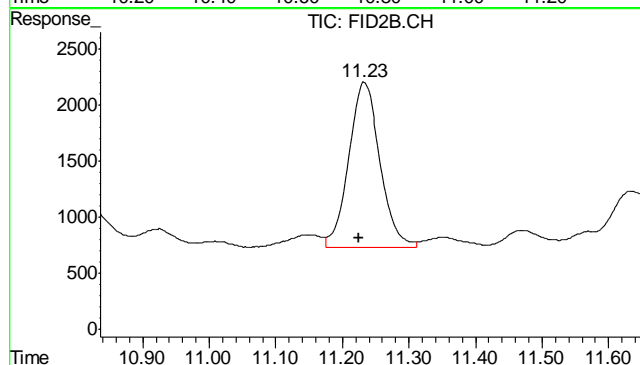
#7 Ethylbenzene

R.T.: 10.599 min  
Delta R.T.: 0.005 min  
Response: 33800  
Conc: 0.18 ug/L



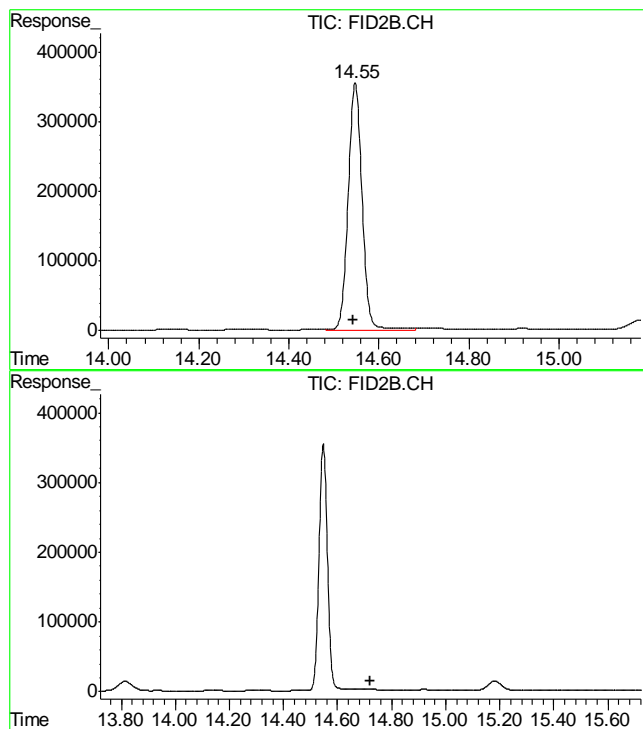
#8 m,p-Xylene

R.T.: 10.761 min  
Delta R.T.: 0.003 min  
Response: 139602  
Conc: 0.65 ug/L



#9 o-Xylene

R.T.: 11.233 min  
Delta R.T.: 0.008 min  
Response: 48529  
Conc: 0.27 ug/L



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

R.T.: 14.547 min  
Delta R.T.: 0.004 min  
Response: 7625851  
Conc: 128.44 %

#11 Naphthalene

R.T.: 0.000 min  
Exp R.T. : 14.723 min  
Response: 0  
Conc: N.D.

6.2.1

6

## GC Semi-volatiles

### QC Data Summaries

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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:** D23190**Account:** KRWCCOL KRW Consulting, Inc.**Project:** PCU T23X-18G, Lakewood

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3622-MB	FD06650.D	1	05/09/11	JB	05/06/11	OP3622	GFD290

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

D23190-1, D23190-2

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	93% 63-130%

Blank Spike Summary

Job Number: D23190  
Account: KRWCCOL KRW Consulting, Inc.  
Project: PCU T23X-18G, Lakewood

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3622-BS	FD06651.D	1	05/09/11	JB	05/06/11	OP3622	GFD290

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

D23190-1, D23190-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	497	75	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	87%	63-130%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D23190  
Account: KRWCCOL KRW Consulting, Inc.  
Project: PCU T23X-18G, Lakewood

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3622-MS	FD06652.D	1	05/09/11	JB	05/06/11	OP3622	GFD290
OP3622-MSD	FD06653.D	1	05/09/11	JB	05/06/11	OP3622	GFD290
D23190-1	FD06654.D	1	05/09/11	JB	05/06/11	OP3622	GFD290

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

D23190-1, D23190-2

CAS No.	Compound	D23190-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	143		734	655	70	614	64* a	6	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D23190-1	Limits
84-15-1	o-Terphenyl	82%	76%	77%	63-130%

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



GC Semi-volatiles

Raw Data

∞

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\FD050911\FD06654.D Vial: 7  
Acq On : 5-9-2011 09:07:03 PM Operator: JACOB  
Sample : D23190-1 Inst : FID5  
Misc : OP3622,GFD290,30.10,,,2,1 Multiplr: 1.00  
IntFile : DF-GFC101.E  
Quant Time: May 10 09:14:25 2011 Quant Results File: DR-GFD288.RES

Quant Method : C:\MSDCHEM\2\METHODS\DR-GFD288.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Thu May 05 08:55:23 2011  
Response via : Initial Calibration  
DataAcq Meth : RR\_BASE4.M

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

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	9.56	40957109	774.696 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	7.37	103183616	1950.027 mg/L

8.1.1

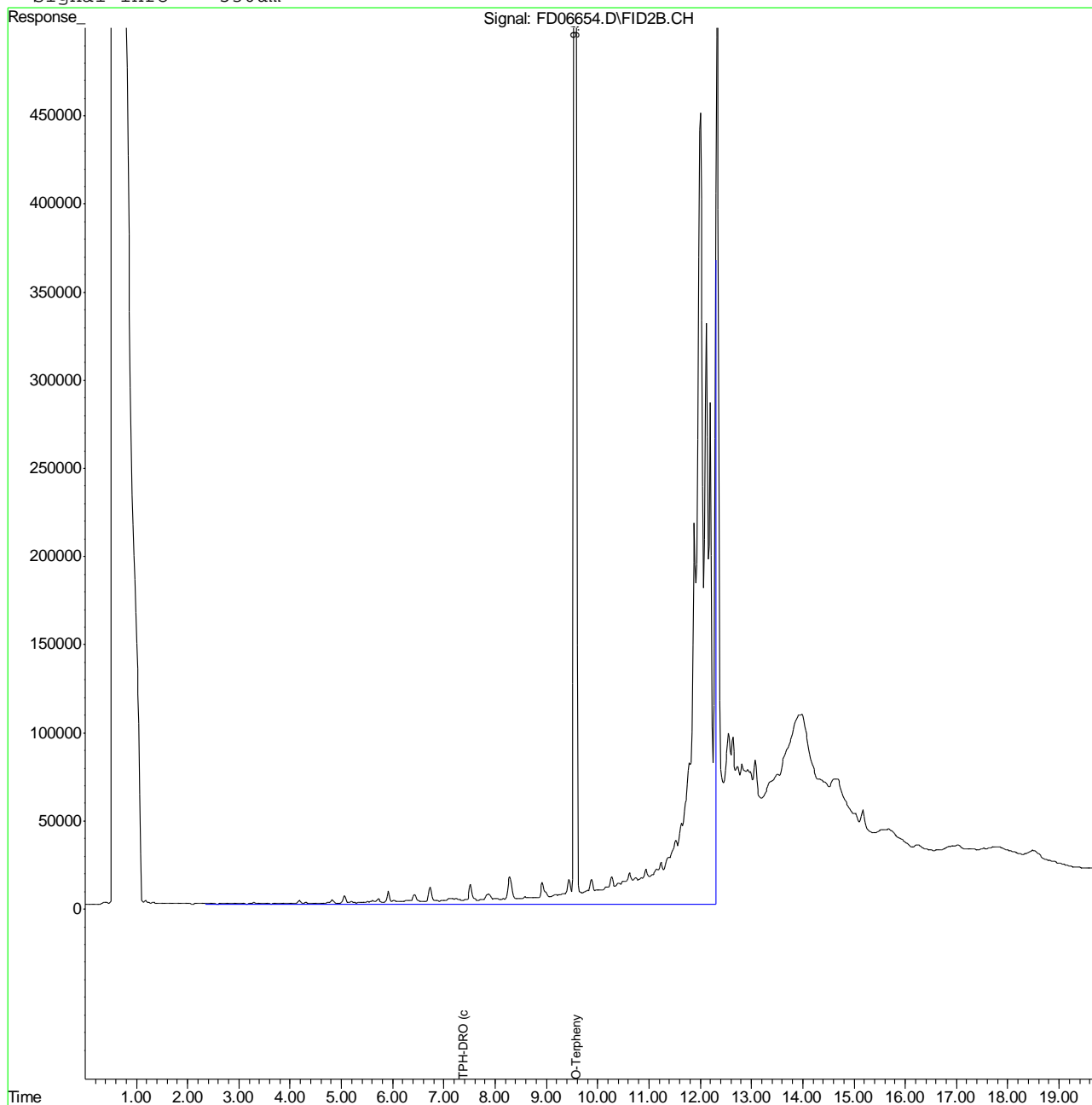
8

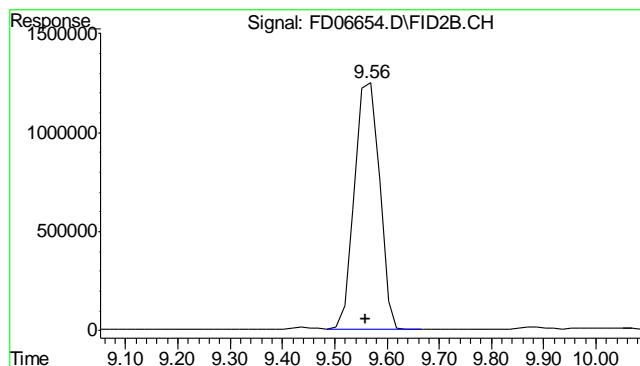
## Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\FD050911\FD06654.D Vial: 7  
Acq On : 5-9-2011 09:07:03 PM Operator: JACOB  
Sample : D23190-1 Inst : FID5  
Misc : OP3622,GFD290,30.10,,,2,1 Multiplr: 1.00  
IntFile : DF-GFC101.E  
Quant Time: May 10 10:02 2011 Quant Results File: DR-GFD288.RES

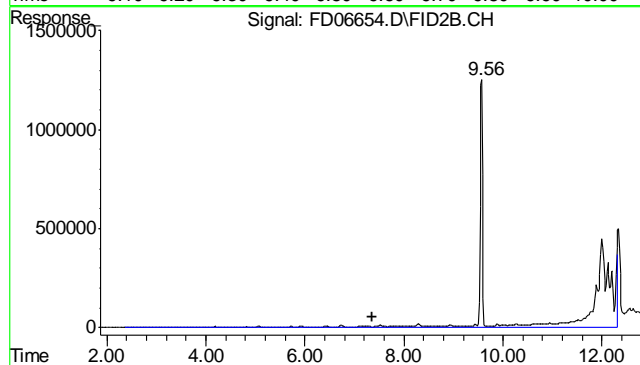
Quant Method : C:\MSDCHEM\2\METHODS\DR-GFD288.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Thu May 05 08:55:23 2011  
Response via : Multiple Level Calibration  
DataAcq Meth : RR\_BASE4.M

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

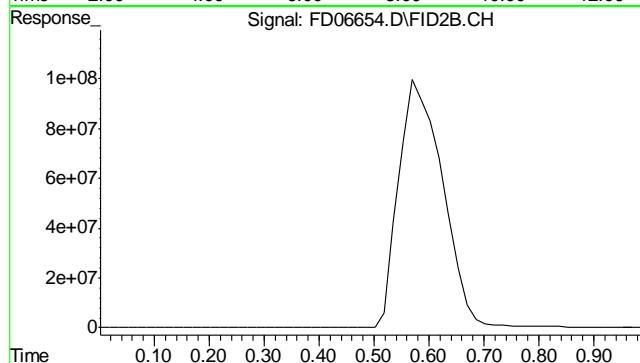




#1 O-Terphenyl  
 R.T.: 9.561 min  
 Delta R.T.: 0.001 min  
 Response: 40957109  
 Conc: 774.70 mg/L m



#2 TPH-DRO (c10-c28)  
 R.T.: 7.370 min  
 Delta R.T.: 0.000 min  
 Response: 103183616  
 Conc: 1950.03 mg/L m



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

8.1.1  
**8**

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\FD050911\FD06655.D Vial: 8  
Acq On : 5-9-2011 09:32:42 PM Operator: JACOB  
Sample : D23190-2 Inst : FID5  
Misc : OP3622,GFD290,30.10,,,2,1 Multiplr: 1.00  
IntFile : DF-GFC101.E  
Quant Time: May 10 09:14:26 2011 Quant Results File: DR-GFD288.RES

Quant Method : C:\MSDCHEM\2\METHODS\DR-GFD288.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Thu May 05 08:55:23 2011  
Response via : Initial Calibration  
DataAcq Meth : RR\_BASE4.M

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

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	9.57	44091800	833.988 mg/L
Target Compounds			
2) H TPH-DRO (c10-c28)	7.37	28962277	547.347 mg/L

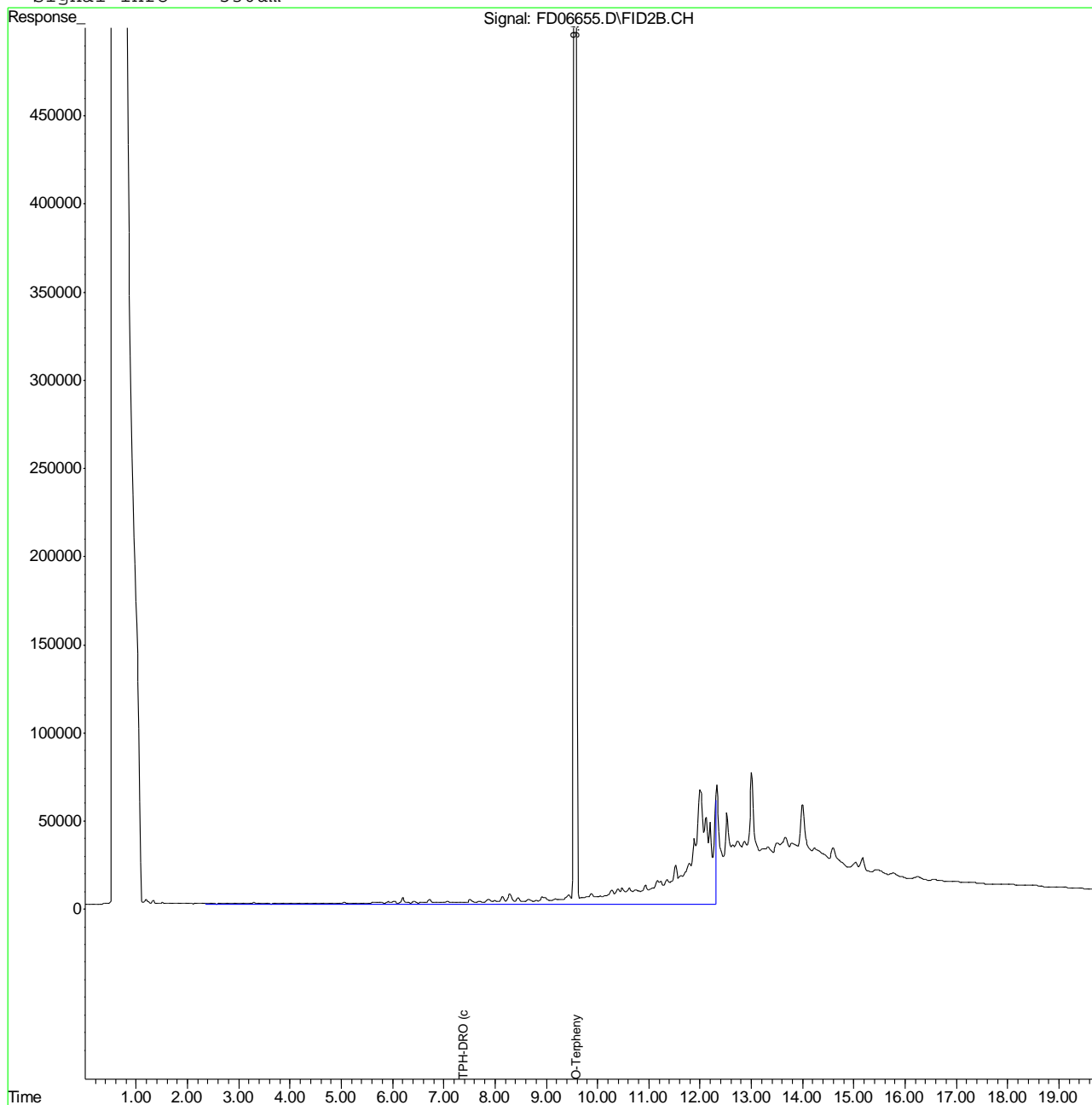
8.12  
8

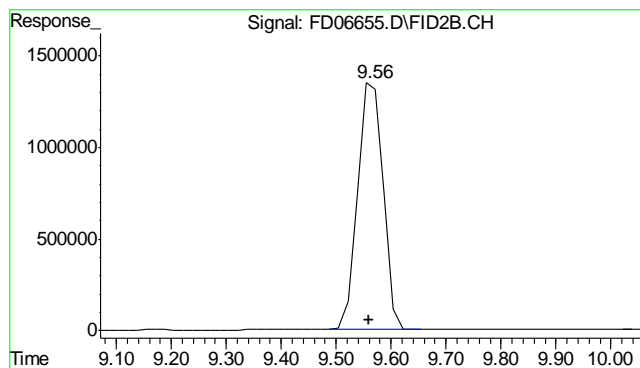
## Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\FD050911\FD06655.D Vial: 8  
Acq On : 5-9-2011 09:32:42 PM Operator: JACOB  
Sample : D23190-2 Inst : FID5  
Misc : OP3622,GFD290,30.10,,,2,1 Multiplr: 1.00  
IntFile : DF-GFC101.E  
Quant Time: May 10 10:02 2011 Quant Results File: DR-GFD288.RES

Quant Method : C:\MSDCHEM\2\METHODS\DR-GFD288.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Thu May 05 08:55:23 2011  
Response via : Multiple Level Calibration  
DataAcq Meth : RR\_BASE4.M

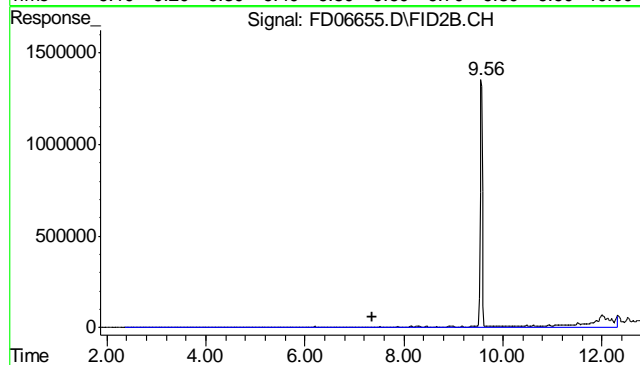
Volume Inj. : 1ul  
Signal Phase : RTX-5  
Signal Info : 530um





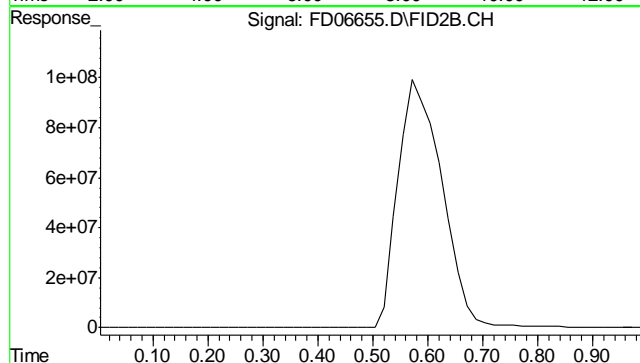
#1 O-Terphenyl

R.T.: 9.569 min  
Delta R.T.: 0.009 min  
Response: 44091800  
Conc: 833.99 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 7.370 min  
Delta R.T.: 0.000 min  
Response: 28962277  
Conc: 547.35 mg/L m



#9 5a-Androstane

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

8.12  
8

Judy Melson  
05/11/11 09:38

## Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\FD050911\FD06650.D Vial: 3  
Acq On : 5-9-2011 07:24:17 PM Operator: JACOB  
Sample : OP3622-MB Inst : FID5  
Misc : OP3622,GFD290,30.00,,,2,1 Multiplr: 1.00  
IntFile : DF-GFC101.E  
Quant Time: May 10 09:14:21 2011 Quant Results File: DR-GFD288.RES

Quant Method : C:\MSDCHEM\2\METHODS\DR-GFD288.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Thu May 05 08:55:23 2011  
Response via : Initial Calibration  
DataAcq Meth : RR\_BASE4.M

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

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	9.56	49211744	930.831 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	7.37	5703237	107.783 mg/L

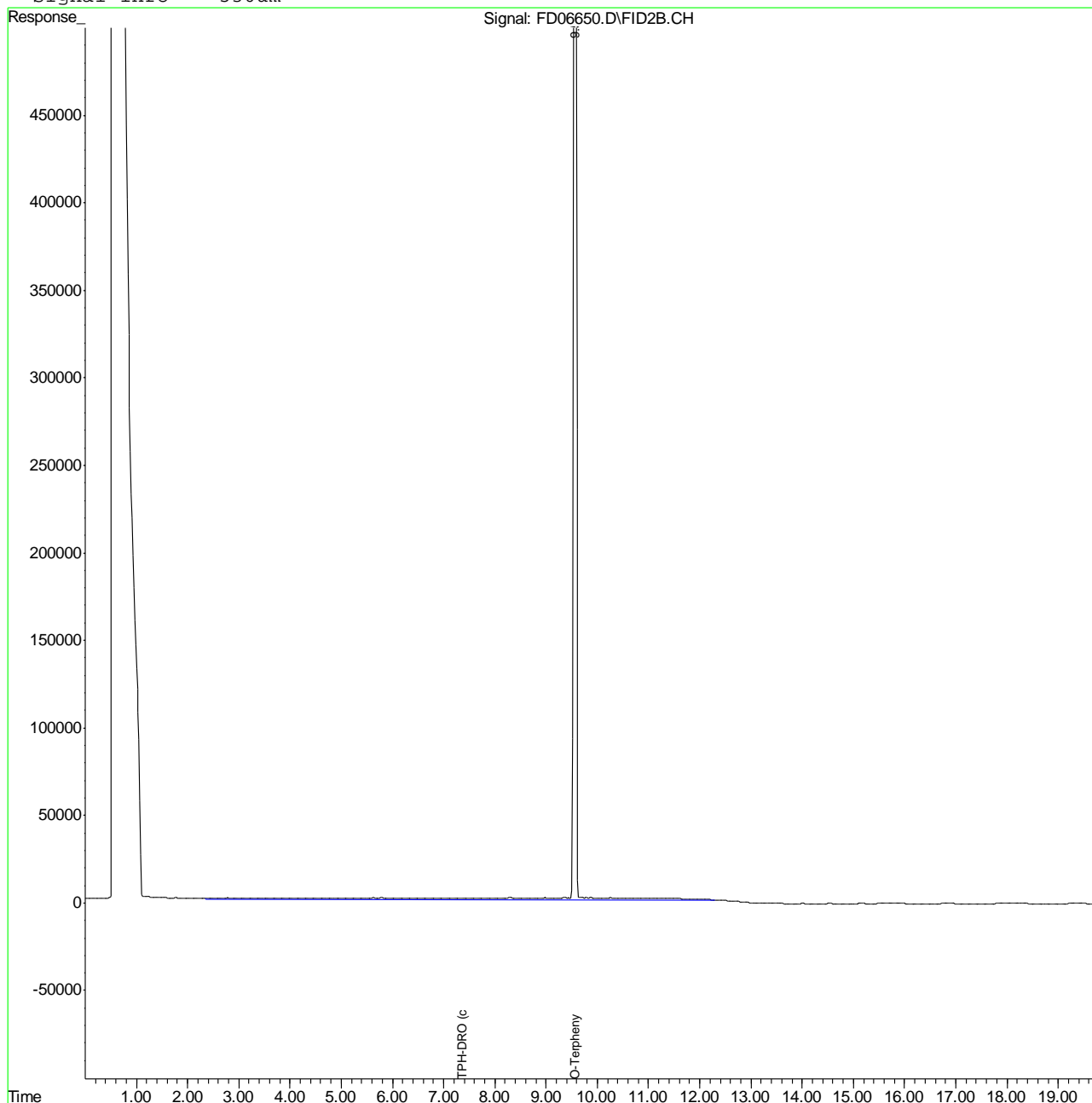


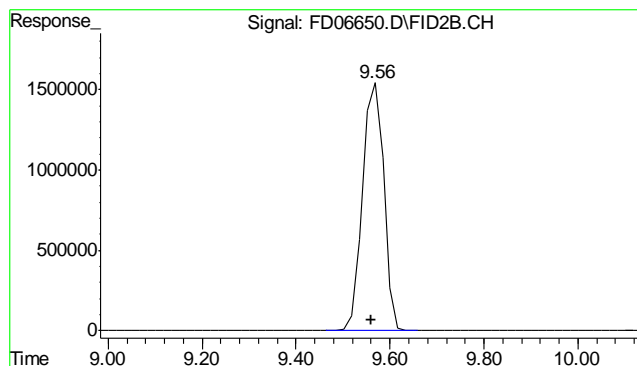
## Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\FD050911\FD06650.D Vial: 3  
Acq On : 5-9-2011 07:24:17 PM Operator: JACOB  
Sample : OP3622-MB Inst : FID5  
Misc : OP3622,GFD290,30.00,,,2,1 Multiplr: 1.00  
IntFile : DF-GFC101.E  
Quant Time: May 10 10:01 2011 Quant Results File: DR-GFD288.RES

Quant Method : C:\MSDCHEM\2\METHODS\DR-GFD288.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Thu May 05 08:55:23 2011  
Response via : Multiple Level Calibration  
DataAcq Meth : RR\_BASE4.M

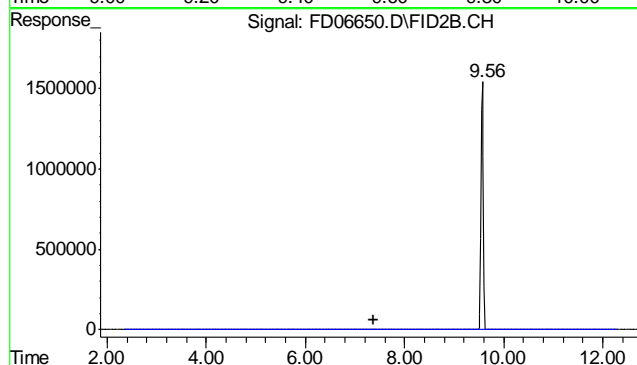
Volume Inj. : 1ul  
Signal Phase : RTX-5  
Signal Info : 530um





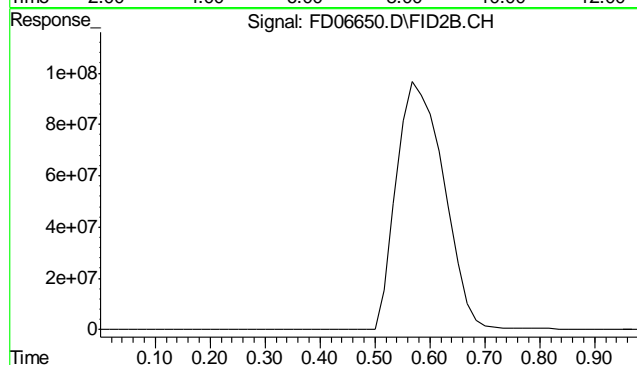
#1 O-Terphenyl

R.T.: 9.563 min  
Delta R.T.: 0.003 min  
Response: 49211744  
Conc: 930.83 mg/L m



#2 TPH-DRO (c10-c28)

R.T.: 7.370 min  
Delta R.T.: 0.000 min  
Response: 5703237  
Conc: 107.78 mg/L m



#9 5a-Androstane

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

8.2.1

8



07/22/11

Technical Report for

KRW Consulting, Inc.

PCU T23X-18G, Lakewood

1102-01A

Accutest Job Number: D25694

Sampling Date: 07/19/11

Report to:

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

Total number of pages in report: **19**



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.

A handwritten signature in black ink, appearing to read 'John Hamilton'.

John Hamilton  
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: D25694

PCU T23X-18G, Lakewood  
Project No: 1102-01A

Sample Number	Collected		Matrix Code	Type	Client Sample ID
	Date	Time By			
D25694-1	07/19/11	14:00 BB	07/20/11	SO Soil	PUMP HOUSE LEAK AREA 5

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

## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** KRW Consulting, Inc.

**Job No** D25694

**Site:** PCU T23X-18G, Lakewood

**Report Dat** 7/22/2011 10:52:31 AM

On 07/20/2011, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2.5 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D25694 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.

### Metals By Method SW846 6010B

**Matrix** AQ

**Batch ID:** MP5294

- All samples were digested 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) D25640-1BMS, D25640-1BMSD were used as the QC samples for the metals analysis.

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 Results

## Report of Analysis

Report of Analysis

<b>Client Sample ID:</b>	PUMP HOUSE LEAK AREA 5	<b>Date Sampled:</b>	07/19/11
<b>Lab Sample ID:</b>	D25694-1	<b>Date Received:</b>	07/20/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	n/a
<b>Project:</b>	PCU T23X-18G, Lakewood		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	17.8	2.0	mg/l	1	07/20/11	07/21/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Magnesium	4.14	1.0	mg/l	1	07/20/11	07/21/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>
Sodium	41.7	2.0	mg/l	1	07/20/11	07/21/11 JM	SW846 6010B <sup>1</sup>	EPA 200.7 <sup>2</sup>

(1) Instrument QC Batch: MA1694  
(2) Prep QC Batch: MP5294

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	PUMP HOUSE LEAK AREA 5	<b>Date Sampled:</b>	07/19/11
<b>Lab Sample ID:</b>	D25694-1	<b>Date Received:</b>	07/20/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	n/a
<b>Project:</b>	PCU T23X-18G, Lakewood		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	2.31		ratio	1	07/21/11 15:41	JM	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

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Includes the following where applicable:

- Chain of Custody



## Accutest Laboratories Sample Receipt Summary

**Accutest Job Number:** D25694

**Client:** KRW

**Immediate Client Services Action Required:** No

**Date / Time Received:** 7/20/2011 1:20:00 PM

**No. Coolers:** 1

**Client Service Action Required at Login:** No

**Project:** PCU T23X-18G

**Airbill #'s:** CO

<b>Cooler Security</b>	<b>Y</b>	<b>or</b>	<b>N</b>		<b>Y</b>	<b>or</b>	<b>N</b>
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"/>

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

<b>Quality Control Preservation</b>	<b>Y</b>	<b>or</b>	<b>N</b>	<b>N/A</b>
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"/>

<b>Sample Integrity - Documentation</b>	<b>Y</b>	<b>or</b>	<b>N</b>
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"/>

<b>Sample Integrity - Condition</b>	<b>Y</b>	<b>or</b>	<b>N</b>
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

<b>Sample Integrity - Instructions</b>	<b>Y</b>	<b>or</b>	<b>N</b>	<b>N/A</b>
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

## Metals Analysis

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### QC Data Summaries

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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: D25694  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU T23X-18G, Lakewood

QC Batch ID: MP5294  
Matrix Type: AQUEOUS

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

Prep Date: 07/20/11

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	191	<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	19.5	<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	-410	<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 MP5294: D25694-1

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D25694  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU T23X-18G, Lakewood

QC Batch ID: MP5294  
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

5.1.1

5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D25694  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: PCU T23X-18G, Lakewood

QC Batch ID: MP5294  
 Matrix Type: AQUEOUS

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

Prep Date: 07/20/11

Metal	D25640-1B Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	233000	373000	125000	112.0	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	29000	159000	125000	104.0	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	579000	707000	125000	102.4	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP5294: D25694-1

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



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D25694  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU T23X-18G, Lakewood

QC Batch ID: MP5294  
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

5.1.2

5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D25694  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: PCU T23X-18G, Lakewood

QC Batch ID: MP5294  
 Matrix Type: AQUEOUS

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

Prep Date: 07/20/11

Metal	D25640-1B Original MSD		SpikeLot MPICPALL % Rec		MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	233000	368000	125000	108.0	1.3	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	29000	158000	125000	103.2	0.6	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	579000	691000	125000	89.6	2.3	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP5294: D25694-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D25694  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU T23X-18G, Lakewood

QC Batch ID: MP5294  
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

5.1.2

5

## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D25694  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU T23X-18G, Lakewood

QC Batch ID: MP5294  
Matrix Type: AQUEOUS

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

Prep Date: 07/20/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	140000	125000	112.0	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	129000	125000	103.2	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	129000	125000	103.2	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP5294: D25694-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D25694  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: PCU T23X-18G, Lakewood

QC Batch ID: MP5294  
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

5.1.3

5

**APPENDIX B**  
**Site Photos**



**PCU F23-18G**  
**Area below the pump house release (Composite Area #4)**  
**Prior to Additional Remediation Efforts**





**PCU F23-18G**  
**Composite Area #4/#5 – Post Remediation Efforts**





**PCU F23-18G**  
**Drainage Area – southeast of release area (Composite Area #5)**  
**Prior to Additional Remediation Efforts**



**PCU F23-18G**  
**Drainage Area (Composite #5) – Post Remediation**





**PCU F23-18G**  
**Area directly below release area**  
**(Worst Case – Composite Area #1)**  
**Prior to Additional Remediation Efforts**





**PCU F23-18G**  
**Area directly below release area**  
**(Composite Area #1)**  
**Following Excavation/Removal Efforts**





**PCU F23-18G**  
**Area directly below release area**  
**(Composite Area #1)**  
**Following Excavation/Removal Efforts**





**PCU F23-18G**  
**Area directly below release area**  
**(Composite Area #1)**  
**Following Excavation and Backfill of Area**