

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
11/1/2011

1. OGCC Operator Number: 28700	4. Contact Name: J.D. McElhaney	Complete the Attachment Checklist OP OGCC
2. Name of Operator: Exxon Mobil Corporation	Phone: 281-654-6886	
3. Address: P.O. Box 4358 City: Houston State: TX Zip: 77210	Fax: 281-654-1147	
5. API Number: 05-103-05185	OGCC Facility ID Number: 159173	Survey Plat
6. Well/Facility Name: PCU	7. Well/Facility Number: T68X-11G Injection Line	Directional Survey
8. Location (Qtr/Qtr, Sec, Twp, Rng, Meridian): NESW, 11, 25, 97W, 6 PM		Surface Eqmpt Diagram
9. County: Rio Blanco County	10. Field Name: Piceance Creek	Technical Info Page
11. Federal, Indian or State Lease Number: 052141		Other

General Notice

<input type="checkbox"/> CHANGE OF LOCATION: Attach New Survey Plat (a change of surface qtr/qtr is substantive and requires a new permit)	
Change of Surface Footage from Exterior Section Lines:	<input type="checkbox"/> FNL/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/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 (6 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 checked="" type="checkbox"/> Report of Work Done
Approximate Start Date:	Date Work Completed: August 11, 2011
Details of work must be described in full on Technical Information Page (Page 2 must be submitted.)	
<input type="checkbox"/> Intent to Recombine (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 type="checkbox"/> Other:
<input type="checkbox"/> E&P Waste Disposal	<input type="checkbox"/> Beneficial Reuse of E&P Waste
<input checked="" type="checkbox"/> Status Update/Change of Remediation Plans	for Spills and Releases

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

Signed: (jdmcelh) Mcelhaney, Joseph D
Digitally signed by Mcelhaney, Joseph D (jdmcelh)
DN: c=us, o=ExxonMobil, ou=Engineering and Environment,
email=jdmcelh@exxonmobil.com, cn=Joseph D Mcelhaney
Date: 2011.11.01 09:54:54 -0500

Date: 10/07/11

Email: joseph.d.mcelhaney@exxonmobil.com

Print Name: J.D. McElhaney

Title: Engineer

COGCC Approved:

Title:

Date:

CONDITIONS OF APPROVAL, IF ANY:

Chris Canfield
EPS NW Region

TECHNICAL INFORMATION PAGE



FOR OGCC USE ONLY

1. OGCC Operator Number: _____ API Number: _____

2. Name of Operator: _____ OGCC Facility ID # _____

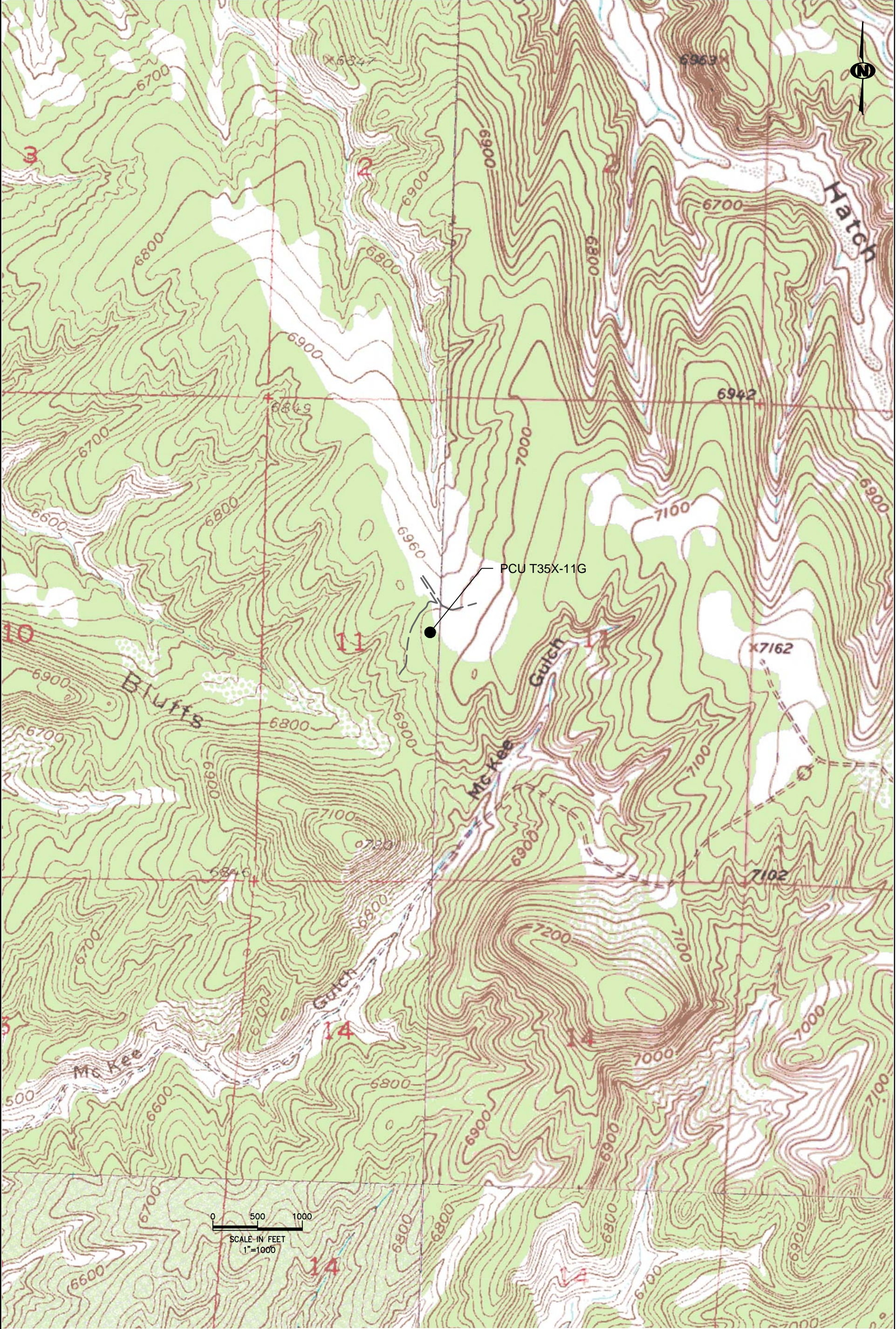
3. Well/Facility Name: _____ Well/Facility Number: _____

4. Location (QtrQtr, Sec, Twp, Rng, Meridian): _____

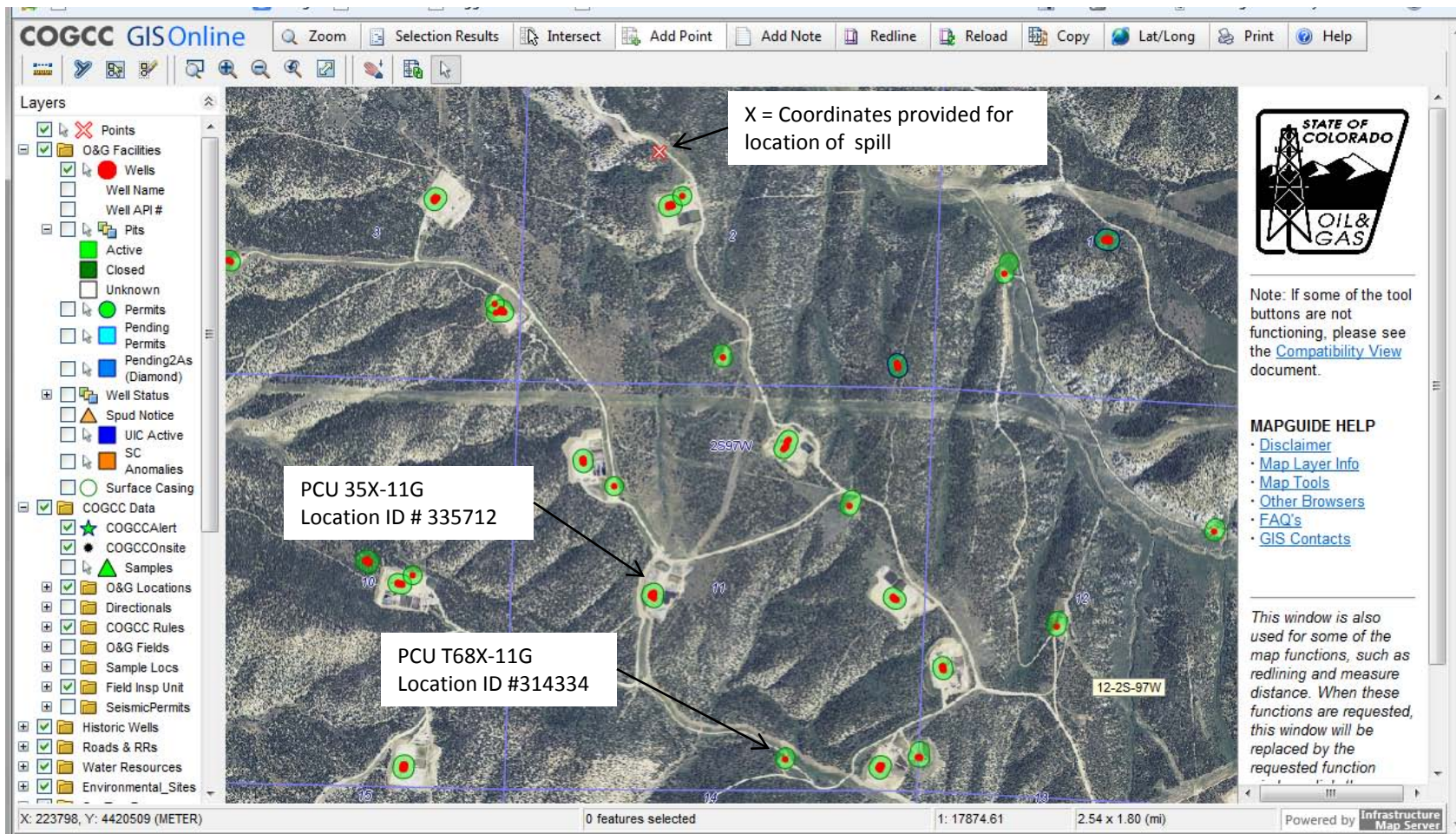
This form is to be completed whenever a Sundry Notice is submitted requiring detailed report of work to be performed or completed. This form shall be transmitted within 30 days of work completed as a "subsequent" report and must accompany Form 4, page 1.

5.

DESCRIBE PROPOSED OR COMPLETED OPERATIONS



DESIGNED: DRF	CHECKED: DK	FIGURE 1	NOTES:		KRW CONSULTING, INC. 8000 W. 14TH AVENUE, SUITE 200 LAKEWOOD, COLORADO (303) 239-9011	FIGURE 1 T35X-11G LOCATION MAP PICEANCE CREEK RIO BLANCO COUNTY, COLORADO PREPARED FOR EXXON MOBIL
DATE: 4/12/11	DRAWN: DRF					
FILE NAME: location	SHEET NO. 1 of 1	DATE	REVISIONS			
PROJECT NO. 1010-01	SCALE: 1"=20'					



October 7, 2011

ExxonMobil Production Company
Corp-MI-3011
PO Box 4358
Houston, TX 77210-4358

Attention: J.D. McElhaney

Subject: **Line Strike Release Assessment Report**
COGCC Tracking Number:
PCU 35-11
Release Date: June 20, 2011
Section 11, Township 2 South, Range 97 West
Piceance Creek Development Project; Rio Blanco County, Colorado
KRW Project No. 1106-03

Dear Mr. McElhaney:

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

Background

On June 20, 2011 a 3-inch diameter fiberglass produced water line was struck and damaged while excavating for a new pipeline installation. KRW was informed that the majority of produced water released from the damaged line was removed by hydrovac and/or flowed back into the pipe under vacuum. Soil that was visually stained was removed from the excavation area with a backhoe and placed in roll-offs for eventual landfill disposal. Additional soils in the excavation were removed down to the top of bedrock using a hydrovac. These hydrovac activities were performed on June 20, 21, and 22, 2011. KRW visited the site on June 21, 2011 to evaluate potential impacts and to collect soil samples for laboratory analyses.

Environmental Assessment and Findings

Initial soil assessment samples were collected from the release and surrounding area on June 22 and 23, 2011. Samples were collected from the pipe bedding in the immediate release area as well at the toe of the fill slope immediately down gradient from the release area. Sidewall samples in the immediate release area were also collected following the completion of the hydrovac activities. Based on generator knowledge, samples were analyzed for TPH - Gas Range Organics (GRO); TPH – Diesel Range Organics (DRO); electrical conductivity (EC); Sodium Adsorption Ratio (SAR); arsenic; and pH. The sample from immediately below the release area was analyzed for the full Table 910-1 analyses as an indicator of

“worst case”. Refer to Figure 1 depicting approximate sample locations in the project area as well as corresponding TPH results.

Samples from the excavation sidewalls (TPH: 175 to 255.4 mg/kg) and the toe of the adjacent fill slope (TPH: 54.4 mg/kg) all indicated TPH levels below COGCC Table 910-1 levels.

The initial soil sample collected from the pipe bedding below the line strike indicated elevated TPH levels of 743.1 mg/kg, above the COGCC Table 910-1 criteria of 500 mg/kg. Additional removal of soil was performed concurrent with repair of the pipe. This removed soil was placed in roll-offs for off-site landfill disposal. A confirmation sample collected on July 7 from this area indicated TPH levels below detection limits.

During the line repair activities, the pipe bedding of the broken line was exposed. Additional soil samples were collected from this bedding to evaluate potential impact down slope of the release area due to preferential pathway migration. Bedding material composite samples were collected on June 27 at approximately 15 - 25 feet and 25 - 35 feet, respectively, from the line strike area. TPH sample results from these bedding samples (26.5 mg/kg and 23.7 mg/kg) were below Table 910-1 clean-up criteria.

The soil sample results compared to the background sample analytical results indicate that the remnant arsenic concentration is also below the allowable level. Note that COGCC allows the determination of background concentrations based on a 10% variability factor, where the maximum allowable level is computed by multiplying the highest detected background value by 1.1 (e.g. $6.5 \times 1.1 = 7.15$).

Elevated pH levels above Table 910-1 criteria were found in each of the samples (9.08 to 9.74) as well as elevated SAR levels (14.1 and 14.9) in select samples. However, COGCC allows elevated pH and SAR levels in soils that are covered by at least three-feet of clean soil. The sample locations were at depths of 3 feet or greater below final grades. Therefore, it will be acceptable to backfill the remnant hole with clean soil, resulting in a cover of over three feet above the remaining soil exhibiting slightly elevated pH and SAR values.

Refer to Appendix A for the complete laboratory reports as well as to Appendix B for site photographs.

Conclusions

Impacted soils were temporarily staged in roll offs pending proper waste characterization and disposal approval at Wray Gulch Landfill. Based on post remediation findings, no additional remediation regarding the produced water spill at the subject site is required at this time.

Respectfully Submitted,

Craig Burger, P.E.
Field Engineer

Joe Hess, P.E.
Project Manager

Attachments

Figure 1 – Site Area Map (with select sample results)

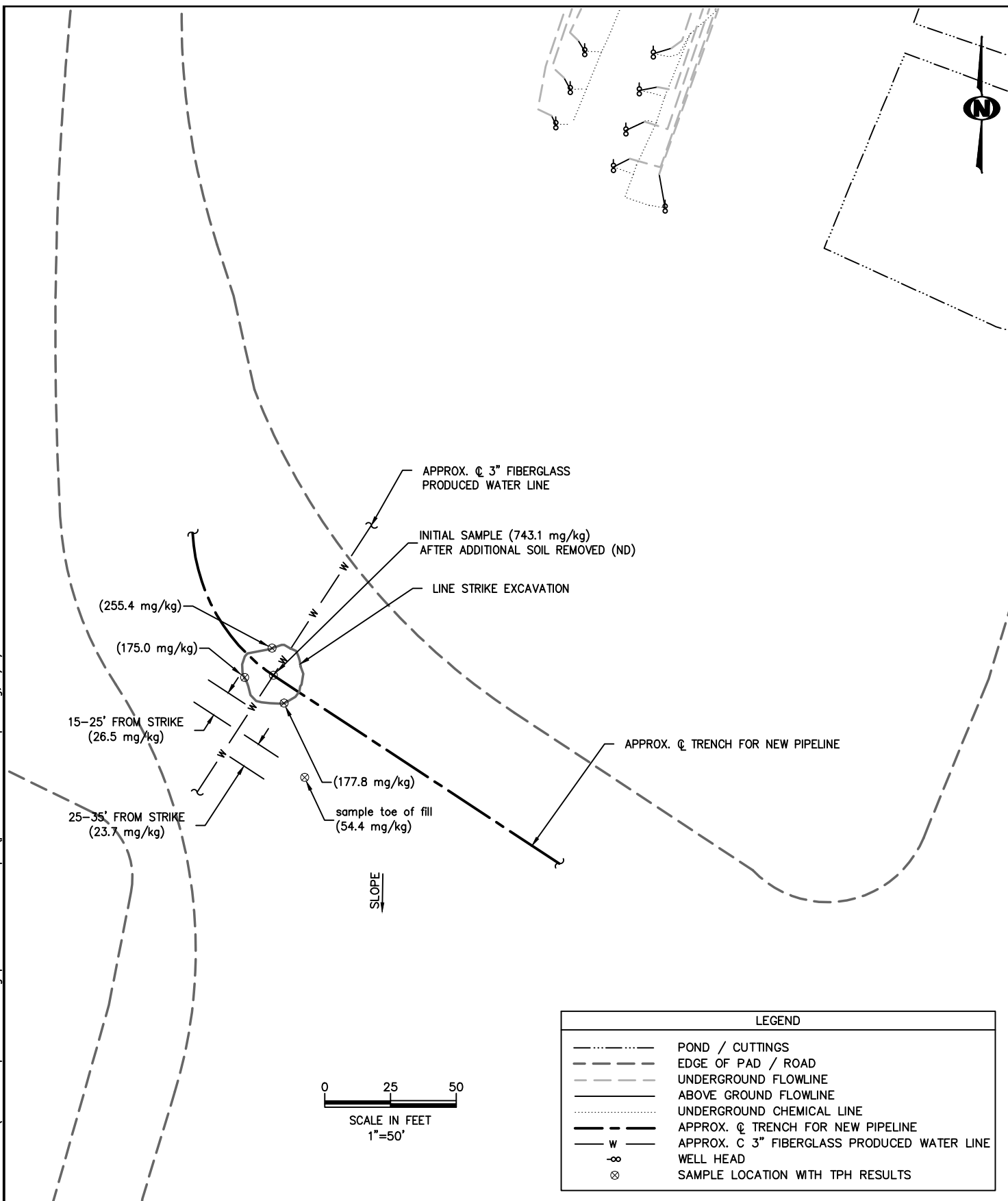
Table 1 – Summary of Laboratory Findings

Appendix A - Laboratory Reports

Appendix B – Site Photographs

CC: Rocky Nash – ExxonMobil
Nedra Kelly – ExxonMobil

s:\pro\exxonmobil environmental\1106-03 pcu t35x-11g produced water spill\produced water spill.dwg,10/7/11



DESIGNED: CB	CHECKED: JH	FIGURE 1	NOTES:		KRW CONSULTING, INC. 8000 W. 14TH AVENUE, SUITE 200 LAKEWOOD, COLORADO (303) 239-9011	FIGURE 1 PICEANCE CREEK PCU T35X-11G PRODUCED WATER SPILL RIO BLANCO COUNTY, COLORADO PREPARED FOR EXXONMOBIL
DATE: 10/7/11	DRAWN: DRF					
FILE NAME: produced water spill	SHEET NO. 1 of 1	DATE	REVISIONS			
PROJECT NO. 1106-03	SCALE: 1"=50'					

TABLE 1
PCU T35X-11G Line Strike Sampling Summary

SAMPLE RESULTS

Analytical Parameter (with units)	SAMPLES								BACKGROUND SAMPLES					COGCC Table 910-1 Allowable Levels (Soils Only)	Maximum Allowable Level (based on background)
	Initial Pipe Bedding Sample (6/22/2011) - Removed	Bedding Confirmation Sample (7/7/11)	Toe of Fill (6/22/2011)	Pipe Bedding 15 - 25' (6/27/11)	Pipe Bedding 25 - 35' (6/27/11)	Wall 1 (6/23/2011)	Wall 2 (6/23/2011)	Wall 3 (6/23/2011)	Background #1 (1/25/2011)	Background #2 (1/25/2011)	Background #3 (1/25/2011)	Background #4 (1/25/2011)	Background #5 (1/25/2011)		
TPH (GRO) (mg/kg)	11.1	ND	ND	ND	ND	31.4	ND	15.8	-	-	-	-	-	-	
TPH (DRO) (mg/kg)	732.0	ND	54.4	26.5	23.7	224.0	175.0	162.0	-	-	-	-	-	-	
TPH (GRO+DRO) (mg/kg)	743.1	ND	54.4	26.5	23.7	255.4	175.0	177.8	-	-	-	-	-	500	
Benzene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	0.17	
Toluene (mg/kg)	0.136	-	-	-	-	-	-	-	-	-	-	-	-	85	
Ethylbenzene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	100	
Xylenes (total) (mg/kg)	0.573	-	-	-	-	-	-	-	-	-	-	-	-	175	
Acenaphthene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	1,000	
Anthracene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	1,000	
Benzo(A)anthracene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	0.22	
Benzo(B)fluoranthene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	0.22	
Benzo(K)fluoranthene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	2.2	
Benzo(A)pyrene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	0.022	
Chrysene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	22	
Dibenzo(A,H)anthracene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	0.022	
Fluoranthene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	1,000	
Fluorene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	1,000	
Indeno(1,2,3,C,D)pyrene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	0.22	
Naphthalene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	23	
Pyrene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	1,000	
Electrical Conductivity (mmhos/cm)	1.38	-	0.392	3.1	1.9	1.98	1.86	2.48	-	-	-	-	-	<4or 2X Bckgrnd	
Sodium Adsorption Ratio (SAR)	8.9	-	3.4	7.1	7.8	11.1	14.9	14.1	-	-	-	-	-	<12	
pH	9.10	-	9.57	9.08	9.32	9.23	9.74	9.41	-	-	-	-	-	6-9	
Arsenic (mg/kg)	3.7	-	3.9	4.3	4.0	3.7	4.4	3.6	4.4	6.1	4.8	6.5	4.0	0.39	7.2
Barium (mg/kg)	212.0	-	-	-	-	-	-	-	-	-	-	-	-	15,000	
Cadmium (mg/kg)	< 1.4	-	-	-	-	-	-	-	-	-	-	-	-	70	
Chromium (III) (mg/kg)	0.81	-	-	-	-	-	-	-	-	-	-	-	-	120,000	
Chromium (VI) (mg/kg)	20.8	-	-	-	-	-	-	-	-	-	-	-	-	23	
Copper (mg/kg)	9.9	-	-	-	-	-	-	-	-	-	-	-	-	3,100	
Lead (inorganic) (mg/kg)	10.4	-	-	-	-	-	-	-	-	-	-	-	-		
Mercury (mg/kg)	< 0.13	-	-	-	-	-	-	-	-	-	-	-	-	23	
Nickel (mg/kg)	< 6.9	-	-	-	-	-	-	-	-	-	-	-	-	1,600	
Selenium (mg/kg)	< 6.9	-	-	-	-	-	-	-	-	-	-	-	-	390	
Silver (mg/kg)	< 4.1	-	-	-	-	-	-	-	-	-	-	-	-	390	
Zinc (mg/kg)	33.2	-	-	-	-	-	-	-	-	-	-	-	-	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.
- 4) Green (header) indicates soils have been removed from location and disposed of properly.

APPENDIX A
LABORATORY REPORTS



06/30/11

Technical Report for

KRW Consulting, Inc.

PCU 35-11

Accutest Job Number: D24773

Sampling Date: 06/22/11

Report to:

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

Total number of pages in report: 158



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)

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

Table of Contents

-1-

Section 1: Sample Summary	4
Section 2: Case Narrative/Conformance Summary	5
Section 3: Sample Results	9
3.1: D24773-1: TOE OF FILL	10
3.2: D24773-1A: TOE OF FILL	14
3.3: D24773-2: TRENCH PIPE BEDDING	16
3.4: D24773-2A: TRENCH PIPE BEDDING	22
Section 4: Misc. Forms	24
4.1: Chain of Custody	25
Section 5: GC/MS Volatiles - QC Data Summaries	27
5.1: Method Blank Summary	28
5.2: Blank Spike Summary	29
5.3: Matrix Spike/Matrix Spike Duplicate Summary	30
Section 6: GC/MS Volatiles - Raw Data	31
6.1: Samples	32
6.2: Method Blanks	41
Section 7: GC/MS Semi-volatiles - QC Data Summaries	46
7.1: Method Blank Summary	47
7.2: Blank Spike Summary	48
7.3: Matrix Spike/Matrix Spike Duplicate Summary	49
Section 8: GC/MS Semi-volatiles - Raw Data	50
8.1: Samples	51
8.2: Method Blanks	64
Section 9: GC Volatiles - QC Data Summaries	77
9.1: Method Blank Summary	78
9.2: Blank Spike Summary	79
9.3: Matrix Spike/Matrix Spike Duplicate Summary	80
Section 10: GC Volatiles - Raw Data	81
10.1: Samples	82
10.2: Method Blanks	92
Section 11: GC Semi-volatiles - QC Data Summaries	97
11.1: Method Blank Summary	98
11.2: Blank Spike Summary	100
11.3: Matrix Spike/Matrix Spike Duplicate Summary	102
Section 12: GC Semi-volatiles - Raw Data	104
12.1: Samples	105
12.2: Method Blanks	113
Section 13: Metals Analysis - QC Data Summaries	121
13.1: Prep QC MP5049: Hg	122
13.2: Prep QC MP5052: Ba,Cd,Cr,Cu,Pb,Ni,Se,Ag,Zn	126
13.3: Prep QC MP5053: As	136
13.4: Prep QC MP5054: Ca,Mg,Na,Sodium Adsorption Ratio	141

Table of Contents

-2-

Section 14: General Chemistry - QC Data Summaries 149

14.1: Method Blank and Spike Results Summary 150

14.2: Duplicate Results Summary 151

Section 15: Misc. Forms (Accutest Labs of New England, Inc.) 152

15.1: Chain of Custody 153

Section 16: General Chemistry - QC Data (Accutest Labs of New England, Inc.) 155

16.1: Method Blank and Spike Results Summary 156

16.2: Duplicate Results Summary 157

16.3: Matrix Spike Results Summary 158

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16



Sample Summary

KRW Consulting, Inc.
PCU 35-11

Job No: D24773

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D24773-1	06/22/11	12:00	CAB	06/23/11	SO Soil	TOE OF FILL
D24773-1A	06/22/11	12:00	CAB	06/23/11	SO Soil	TOE OF FILL
D24773-2	06/22/11	12:20	CAB	06/23/11	SO Soil	TRENCH PIPE BEDDING
D24773-2A	06/22/11	12:20	CAB	06/23/11	SO Soil	TRENCH PIPE BEDDING

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: KRW Consulting, Inc.

Job No D24773

Site: PCU 35-11

Report Dat 6/30/2011 1:33:59 PM

On 06/23/2011, 2 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D24773 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: V6V347

- All samples were analyzed within the recommended method holding time.
- Sample(s) D24802-1MS, D24802-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO

Batch ID: OP3951

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) D24773-2MS, D24773-2MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- The matrix spike (MS) recovery(s) of Fluoranthene are outside control limits. Probable cause due to matrix interference. Compound ND in associated samples.
- The RPD(s) for the MS and MSD recoveries of Benzo(a)anthracene, Benzo(b)fluoranthene, Chrysene, Fluoranthene, Pyrene are outside control limits for sample OP3951-MSD. Variability of recovery may be due to sample matrix/homogeneity.

Volatiles by GC By Method SW846 8015B

Matrix SO

Batch ID: GGB654

- All samples were analyzed within the recommended method holding time.
- Sample(s) D24600-1MS, D24600-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GC By Method SW846-8015B

Matrix SO

Batch ID: OP3938

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) D24702-2MS, D24702-2MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix SO

Batch ID: OP3965

- All samples were extracted 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) D24773-1MS, D24773-1MSD were used as the QC samples indicated.

Metals By Method SW846 6010B

Matrix AQ

Batch ID: MP5054

- 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) D24772-1MS, D24772-1MSD were used as the QC samples for the metals analysis.

Matrix SO

Batch ID: MP5052

- 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) D24773-2MS, D24773-2MSD, D24773-2SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Cadmium, Selenium, Silver are outside control limits for sample MP5052-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- The serial dilution RPD(s) for Nickel, Zinc are outside control limits for sample MP5052-SD1. Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020

Matrix SO

Batch ID: MP5053

- 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) D24773-2MS, D24773-2MSD, D24773-2SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471A

Matrix SO

Batch ID: MP5049

- 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) D24719-1MSD, D24719-1MS were used as the QC samples for the metals analysis.
- The matrix spike and matrix spike duplicate (MS/MSD) recovery(s) of Mercury are outside control limits. Spike recovery indicates possible matrix interference.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO

Batch ID: GN10246

- Sample(s) D24773-2DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method DEPT.OF AG, BOOK N9

Matrix SO

Batch ID: GP4759

- All samples were prepared 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.

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN10218

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO

Batch ID: R8102

- The data for SW846 3060/7196A M meets quality control requirements.
- D24773-2 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO

Batch ID: M:GP13153

- The data for SW846 3060A/7196A meets quality control requirements.
- D24773-2 for Chromium, Hexavalent: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method SW846 9045C

Matrix SO

Batch ID: GN10235

- The following samples were run outside of holding time for method SW846 9045C: D24773-1, D24773-2

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO

Batch ID: MP5054

- D24773-1A for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$
- D24773-2A for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Accutest Mountain States

Job No D24773

Site: KRWCCOL: PCU 35-11

Report Date 6/29/2011 9:24:32 AM

1 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 06/22/2011 and were received at Accutest on 06/23/2011 properly preserved, at 4.5 Deg. C and intact. These Samples received an Accutest job number of D24773. 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: GP13153

- 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) D24388-1DUP, D24388-1MS were used as the QC samples for Chromium, Hexavalent.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety. The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report (D24773).

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	TOE OF FILL		
Lab Sample ID:	D24773-1	Date Sampled:	06/22/11
Matrix:	SO - Soil	Date Received:	06/23/11
Method:	SW846 8015B	Percent Solids:	86.8
Project:	PCU 35-11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB11397.D	1	06/25/11	SK	n/a	n/a	GGB654
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.2 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	80%		60-140%		

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

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

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	TOE OF FILL		Date Sampled:	06/22/11
Lab Sample ID:	D24773-1		Date Received:	06/23/11
Matrix:	SO - Soil		Percent Solids:	86.8
Method:	SW846-8015B SW846 3546			
Project:	PCU 35-11			

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI02979.D	1	06/29/11	JB	06/28/11	OP3965	GFI183
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)	54.4	15	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	88%		61-142%		

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

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

Report of Analysis

Client Sample ID:	TOE OF FILL	Date Sampled:	06/22/11
Lab Sample ID:	D24773-1	Date Received:	06/23/11
Matrix:	SO - Soil	Percent Solids:	86.8
Project:	PCU 35-11		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	3.9	0.48	mg/kg	5	06/24/11	06/28/11 GJ	SW846 6020 ¹	SW846 3050B ²

(1) Instrument QC Batch: MA1633
(2) Prep QC Batch: MP5053

RL = Reporting Limit

Report of Analysis

Client Sample ID:	TOE OF FILL	Date Sampled:	06/22/11
Lab Sample ID:	D24773-1	Date Received:	06/23/11
Matrix:	SO - Soil	Percent Solids:	86.8
Project:	PCU 35-11		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	86.8		%	1	06/24/11	RC	SM19 2540B M
Specific Conductivity	392	1.0	umhos/cm	1	06/24/11	JK	DEPT.OF AG, BOOK N9
pH	9.57		su	1	06/24/11 14:00	CJ	SW846 9045C

RL = Reporting Limit

Report of Analysis

Client Sample ID:	TOE OF FILL	Date Sampled:	06/22/11
Lab Sample ID:	D24773-1A	Date Received:	06/23/11
Matrix:	SO - Soil	Percent Solids:	86.8
Project:	PCU 35-11		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	25.7	2.0	mg/l	1	06/24/11	06/25/11 JM	SW846 6010B ¹	EPA 200.7 ³
Magnesium	4.76	1.0	mg/l	1	06/24/11	06/25/11 JM	SW846 6010B ¹	EPA 200.7 ³
Sodium	72.1	2.0	mg/l	1	06/24/11	06/26/11 JM	SW846 6010B ²	EPA 200.7 ³

- (1) Instrument QC Batch: MA1625
(2) Instrument QC Batch: MA1627
(3) Prep QC Batch: MP5054

RL = Reporting Limit

Report of Analysis

Client Sample ID:	TOE OF FILL	Date Sampled:	06/22/11
Lab Sample ID:	D24773-1A	Date Received:	06/23/11
Matrix:	SO - Soil	Percent Solids:	86.8
Project:	PCU 35-11		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	3.43		ratio	1	06/26/11 14:47	JM	USDA HANDBOOK 60

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

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	TRENCH PIPE BEDDING			Date Sampled:	06/22/11
Lab Sample ID:	D24773-2			Date Received:	06/23/11
Matrix:	SO - Soil			Percent Solids:	74.0
Method:	SW846 8260B				
Project:	PCU 35-11				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6V06712A.D	1	06/26/11	DC	n/a	n/a	V6V347
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.17 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	83	36	ug/kg	J
108-88-3	Toluene	136	170	83	ug/kg	
100-41-4	Ethylbenzene	ND	170	41	ug/kg	
1330-20-7	Xylene (total)	573	330	170	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	84%		70-130%
460-00-4	4-Bromofluorobenzene	96%		70-130%
17060-07-0	1,2-Dichloroethane-D4	92%		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

Client Sample ID:	TRENCH PIPE BEDDING			Date Sampled:	06/22/11
Lab Sample ID:	D24773-2			Date Received:	06/23/11
Matrix:	SO - Soil			Percent Solids:	74.0
Method:	SW846 8270C BY SIM SW846 3546				
Project:	PCU 35-11				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G04724.D	2	06/27/11	TMB	06/25/11	OP3951	E3G174
Run #2							

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

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	18	14	ug/kg	
120-12-7	Anthracene	ND	18	16	ug/kg	
56-55-3	Benzo(a)anthracene	ND	45	23	ug/kg	
50-32-8	Benzo(a)pyrene	ND	45	32	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	45	33	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	45	20	ug/kg	
218-01-9	Chrysene	ND	45	20	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	45	33	ug/kg	
206-44-0	Fluoranthene	ND	18	18	ug/kg	
86-73-7	Fluorene	ND	18	15	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	54	49	ug/kg	
91-20-3	Naphthalene	ND	18	17	ug/kg	
129-00-0	Pyrene	ND	18	17	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	59%		10-193%
321-60-8	2-Fluorobiphenyl	59%		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

Client Sample ID:	TRENCH PIPE BEDDING			Date Sampled:	06/22/11		
Lab Sample ID:	D24773-2			Date Received:	06/23/11		
Matrix:	SO - Soil			Percent Solids:	74.0		
Method:	SW846 8015B						
Project:	PCU 35-11						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB11398.D	1	06/25/11	SK	n/a	n/a	GGB654
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.2 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	11.1	17	8.3	mg/kg	J

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

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	TRENCH PIPE BEDDING					Date Sampled:	06/22/11
Lab Sample ID:	D24773-2					Date Received:	06/23/11
Matrix:	SO - Soil					Percent Solids:	74.0
Method:	SW846-8015B SW846 3546						
Project:	PCU 35-11						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD07418.D	1	06/26/11	JB	06/24/11	OP3938	GFD323
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)	732	18	12	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	74%		61-142%		

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

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

Report of Analysis

Client Sample ID: TRENCH PIPE BEDDING**Lab Sample ID:** D24773-2**Matrix:** SO - Soil**Project:** PCU 35-11**Date Sampled:** 06/22/11**Date Received:** 06/23/11**Percent Solids:** 74.0**Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analized By	Method	Prep Method
Arsenic	3.7	0.55	mg/kg	5	06/24/11	06/28/11 GJ	SW846 6020 ⁴	SW846 3050B ⁷
Barium	212	1.4	mg/kg	1	06/24/11	06/25/11 JM	SW846 6010B ²	SW846 3050B ⁶
Cadmium	< 1.4	1.4	mg/kg	1	06/24/11	06/25/11 JM	SW846 6010B ²	SW846 3050B ⁶
Chromium	21.6	1.4	mg/kg	1	06/24/11	06/25/11 JM	SW846 6010B ²	SW846 3050B ⁶
Copper	9.9	1.4	mg/kg	1	06/24/11	06/26/11 JM	SW846 6010B ³	SW846 3050B ⁶
Lead	10.4	6.9	mg/kg	1	06/24/11	06/25/11 JM	SW846 6010B ²	SW846 3050B ⁶
Mercury	< 0.13	0.13	mg/kg	1	06/24/11	06/24/11 JM	SW846 7471A ¹	SW846 7471A ⁵
Nickel	12.5	4.1	mg/kg	1	06/24/11	06/25/11 JM	SW846 6010B ²	SW846 3050B ⁶
Selenium	< 6.9	6.9	mg/kg	1	06/24/11	06/25/11 JM	SW846 6010B ²	SW846 3050B ⁶
Silver	< 4.1	4.1	mg/kg	1	06/24/11	06/25/11 JM	SW846 6010B ²	SW846 3050B ⁶
Zinc	33.2	4.1	mg/kg	1	06/24/11	06/25/11 JM	SW846 6010B ²	SW846 3050B ⁶

(1) Instrument QC Batch: MA1624

(2) Instrument QC Batch: MA1625

(3) Instrument QC Batch: MA1627

(4) Instrument QC Batch: MA1633

(5) Prep QC Batch: MP5049

(6) Prep QC Batch: MP5052

(7) Prep QC Batch: MP5053

RL = Reporting Limit

Report of Analysis

Client Sample ID: TRENCH PIPE BEDDING**Lab Sample ID:** D24773-2**Matrix:** SO - Soil**Project:** PCU 35-11**Date Sampled:** 06/22/11**Date Received:** 06/23/11**Percent Solids:** 74.0

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent ^a	0.81	0.54	mg/kg	1	06/28/11 15:02	AMA	SW846 3060A/7196A
Chromium, Trivalent ^b	20.8	1.9	mg/kg	1	06/28/11 15:02	AMA	SW846 3060/7196A M
Redox Potential Vs H2	321		mv	1	06/24/11	CJ	ASTM D1498-76M
Solids, Percent	74		%	1	06/24/11	RC	SM19 2540B M
Specific Conductivity	1380	1.0	umhos/cm	1	06/24/11	JK	DEPT.OF AG, BOOK N9
pH	9.10		su	1	06/24/11 14:00	CJ	SW846 9045C

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: TRENCH PIPE BEDDING**Lab Sample ID:** D24773-2A**Matrix:** SO - Soil**Project:** PCU 35-11**Date Sampled:** 06/22/11**Date Received:** 06/23/11**Percent Solids:** 74.0

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	43.5	2.0	mg/l	1	06/24/11	06/25/11 JM	SW846 6010B ¹	EPA 200.7 ³
Magnesium	10.7	1.0	mg/l	1	06/24/11	06/25/11 JM	SW846 6010B ¹	EPA 200.7 ³
Sodium	253	2.0	mg/l	1	06/24/11	06/26/11 JM	SW846 6010B ²	EPA 200.7 ³

(1) Instrument QC Batch: MA1625

(2) Instrument QC Batch: MA1627

(3) Prep QC Batch: MP5054

RL = Reporting Limit

Report of Analysis

Client Sample ID:	TRENCH PIPE BEDDING		
Lab Sample ID:	D24773-2A	Date Sampled:	06/22/11
Matrix:	SO - Soil	Date Received:	06/23/11
Project:	PCU 35-11	Percent Solids:	74.0

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	8.90		ratio	1	06/26/11 14:54	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

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 # D24773	
Client / Reporting Information		Project Information	
Company Name KRW Consulting		Project Name PCU 35-11 Line Strike	
Street Address 8000 W. 14th Ave Ste 200		Street	
City Lakewood CO		City	
State CO		State	
Zip 80214		Zip	
Project Contact Joe Hess		Project#	
E-mail		Street Address	
Phone # 970 756 4040		City	
Fax #		State	
Client PO#		Zip	
Sampler(s) Name(s) Craig Burger 970 756 2993		Attention:	
Phone #		PO#	
Project Manager Joe Hess			
Accutest Sample #		Collection	
Field ID / Point of Collection		MEOH/DI Vial #	
Date		Time	
Sampled by		Matrix	
# of bottles		HCL	
NaOH		HNO3	
H2SO4		NONE	
DI Water		MEOH	
ENCORE		Blank	
Number of preserved bottles			
Requested Analysis (see TEST CODE sheet)		Matrix Codes	
Table 910.1		DW - Drinking Water	
TAH (CO/DO)		GW - Ground Water	
Arsenic		WW - Water	
SAR		SW - Surface Water	
EC		SO - Soil	
PH		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	
		01	
		02	
		2	
Turnaround Time (Business days)		Approved By (Accutest PM): / Date:	
<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			
Emergency & Rush TJA data available VIA Lablink		<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 checked="" type="checkbox"/> PDF <input type="checkbox"/> FULLT1 (Level 3+4) Commercial "A" = Results Only Commercial "B" = Results + QC Summary	
Comments / Special Instructions			
Sample Custody must be documented below each time samples change possession, including courier delivery.			
Relinquished by:	Date Time:	Received By:	Date Time:
1 [Signature]	6/22/11 18:10	1 [Signature]	2 [Signature]
Relinquished by Sampler:	Date Time:	Received By:	Date Time:
3		3	
Relinquished by:	Date Time:	Received By:	Date Time:
5		5	
Custody Seal #	Intact	Preserved where applicable	On Ice
CO	<input checked="" type="checkbox"/> Intact	R/A	Cooler Temp. 4.0
	<input type="checkbox"/> Not Intact		

D24773: Chain of Custody

Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D24773

Client: KRW CONSULTING

Immediate Client Services Action Required: No

Date / Time Received: 6/23/2011 2:35:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: PCU 35-11 LINE STRIKE

Airbill #'s: HD/CO

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

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

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

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

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

<u>Sample Integrity - Instructions</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
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

D24773: Chain of Custody

Page 2 of 2

GC/MS Volatiles

5

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D24773
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6V347-MB	6V06705A.D	1	06/26/11	DC	n/a	n/a	V6V347

The QC reported here applies to the following samples:

Method: SW846 8260B

D24773-2

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.44	ug/kg	
100-41-4	Ethylbenzene	ND	2.0	0.50	ug/kg	
108-88-3	Toluene	ND	2.0	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	4.0	2.0	ug/kg	

CAS No.	Surrogate Recoveries	Limits
2037-26-5	Toluene-D8	84% 70-130%
460-00-4	4-Bromofluorobenzene	89% 70-130%
17060-07-0	1,2-Dichloroethane-D4	81% 70-130%

Blank Spike Summary

Page 1 of 1

Job Number: D24773

Account: KRWCCOL KRW Consulting, Inc.

Project: PCU 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6V347-BS	6V06706A.D 1		06/26/11	DC	n/a	n/a	V6V347

The QC reported here applies to the following samples:

Method: SW846 8260B

D24773-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	41.4	83	68-130
100-41-4	Ethylbenzene	50	43.1	86	70-130
108-88-3	Toluene	50	38.5	77	70-130
1330-20-7	Xylene (total)	100	79.9	80	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	84%	70-130%
460-00-4	4-Bromofluorobenzene	98%	70-130%
17060-07-0	1,2-Dichloroethane-D4	82%	70-130%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D24773
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D24802-1MS	6V06708A.D 1		06/26/11	DC	n/a	n/a	V6V347
D24802-1MSD	6V06709A.D 1		06/26/11	DC	n/a	n/a	V6V347
D24802-1	6V06707A.D 1		06/26/11	DC	n/a	n/a	V6V347

The QC reported here applies to the following samples:

Method: SW846 8260B

D24773-2

CAS No.	Compound	D24802-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3300	2990	91	2950	89	1	55-140/30
100-41-4	Ethylbenzene	ND		3300	3100	94	3060	93	1	56-139/30
108-88-3	Toluene	ND		3300	2730	83	2760	84	1	57-144/30
1330-20-7	Xylene (total)	ND		6590	5800	88	5820	88	0	51-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D24802-1	Limits
2037-26-5	Toluene-D8	87%	85%	87%	70-130%
460-00-4	4-Bromofluorobenzene	103%	98%	96%	70-130%
17060-07-0	1,2-Dichloroethane-D4	94%	84%	94%	70-130%

GC/MS Volatiles

Raw Data



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V6062611\
 Data File : 6V06712a.D
 Acq On : 26 Jun 2011 4:10 pm
 Operator : DONC
 Sample : D24773-2, 50x
 Misc : MS2338,V6V347,5.167,,100,5,1
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 27 08:08:04 2011
 Quant Method : C:\msdchem\1\METHODS\V6HSL337TVH337.M
 Quant Title : 8260
 QLast Update : Fri Jun 17 15:40:23 2011
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.269	168	180253	50.00	ug/l	0.00
32) 1,4-Difluorobenzene	12.064	114	247838	50.00	ug/l	-0.01
48) Chlorobenzene-d5	14.720	117	257895	50.00	ug/l	0.00
63) 1,4-Dichlorobenzene-d4	16.653	152	174162	50.00	ug/l	0.00

System Monitoring Compounds

30) 1,2-Dichloroethane-d4	11.649	102	16238	46.07	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	92.14%
55) Toluene-d8	13.475	98	345043	42.24	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	84.48%
59) 4-Bromofluorobenzene	15.657	95	217017	48.11	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	96.22%

Target Compounds

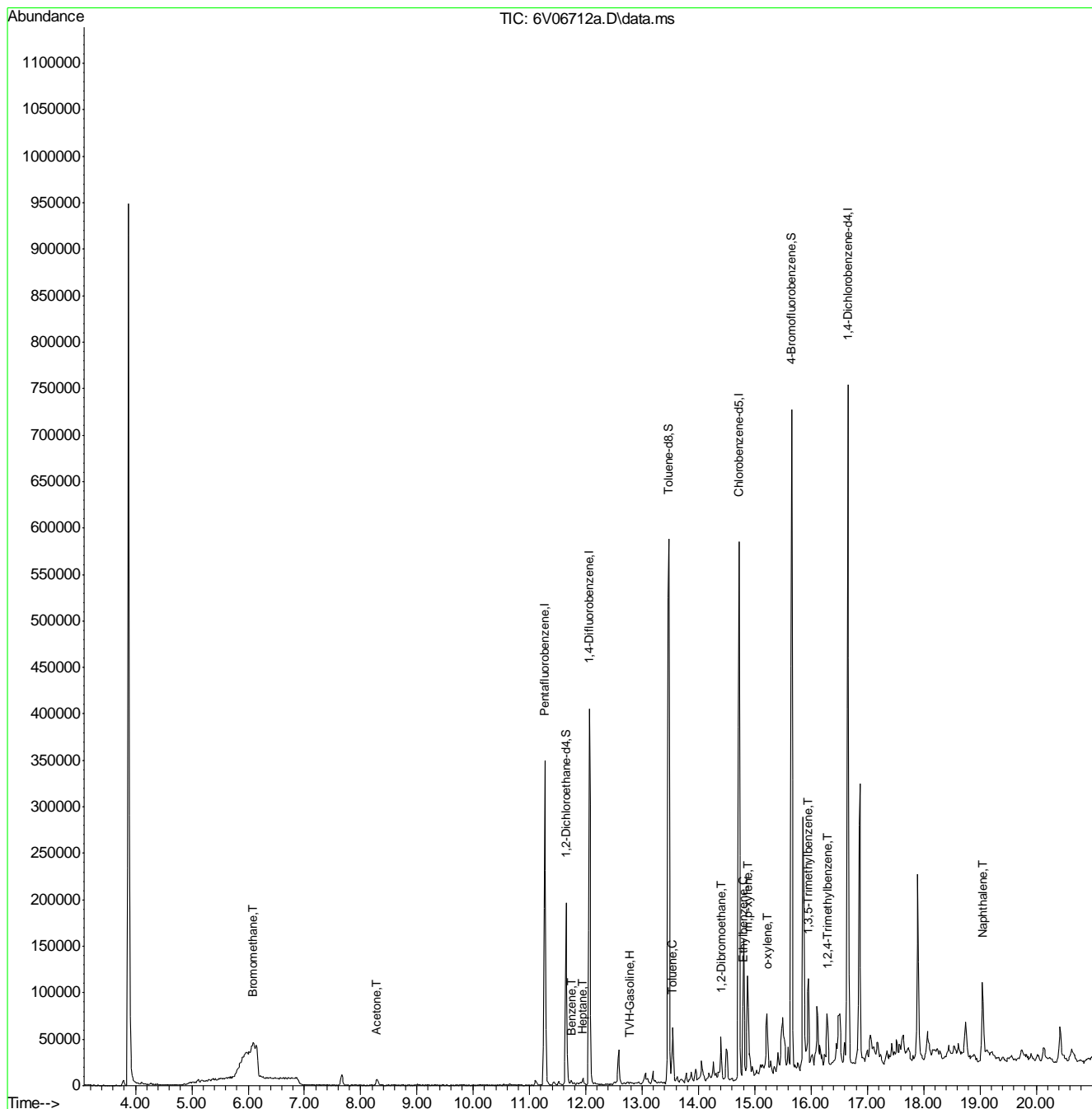
						Qvalue
1) TVH-Gasoline	12.776	TIC	2320714m	261.73	ug/l	
6) Bromomethane	6.087	94	10287	2.60	ug/l #	75
14) Acetone	8.281	58	2486	30.85	ug/l #	80
39) Heptane	11.945	43	1970	0.97	ug/l	85
45) Benzene	11.744	78	3120	0.41	ug/l	100
51) 1,2-Dibromoethane	14.400	107	818	0.46	ug/l	100
56) Toluene	13.534	92	8389	1.64	ug/l #	74
58) Ethylbenzene	14.791	91	4620	0.39	ug/l	96
61) m,p-xylene	14.874	106	22946	5.48	ug/l	94
62) o-xylene	15.218	106	6214	1.43	ug/l	81
66) 1,3,5-Trimethylbenzene	15.953	105	41480	3.75	ug/l	90
67) 1,2,4-Trimethylbenzene	16.285	105	32425	2.73	ug/l	98
72) Naphthalene	19.048	128	7131	0.81	ug/l	100

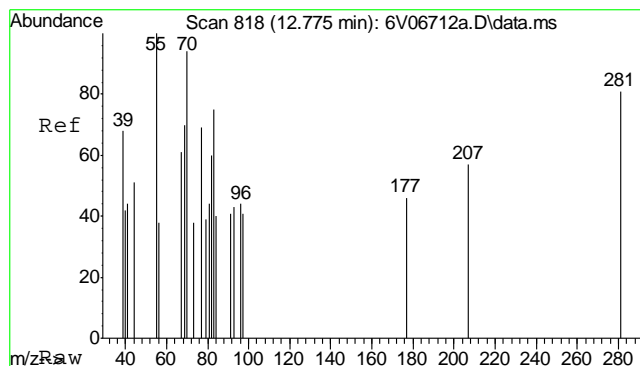
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V6062611\
Data File : 6V06712a.D
Acq On : 26 Jun 2011 4:10 pm
Operator : DONC
Sample : D24773-2, 50x
Misc : MS2338,V6V347,5.167,,100,5,1
ALS Vial : 11 Sample Multiplier: 1

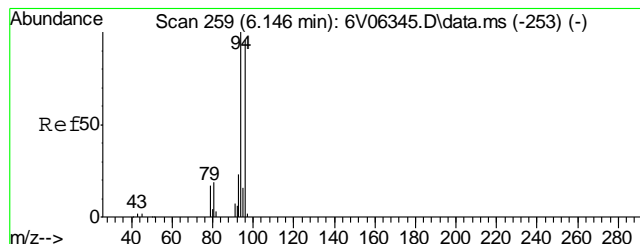
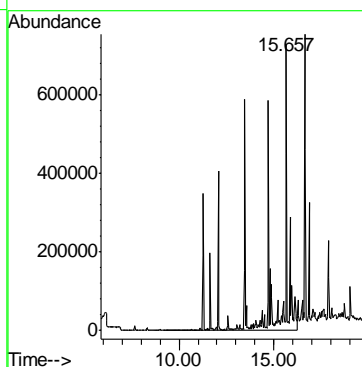
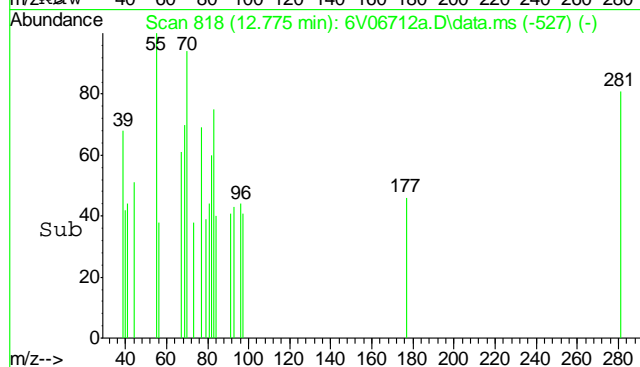
Quant Time: Jun 27 08:08:04 2011
Quant Method : C:\msdchem\1\METHODS\V6HSL337TVH337.M
Quant Title : 8260
QLast Update : Fri Jun 17 15:40:23 2011
Response via : Initial Calibration





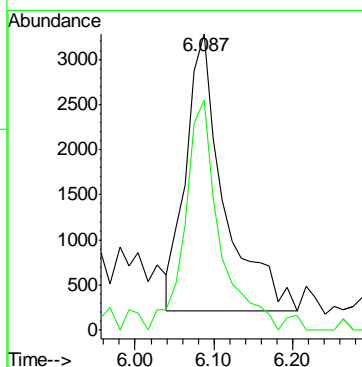
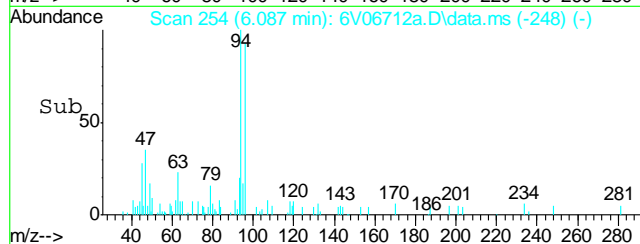
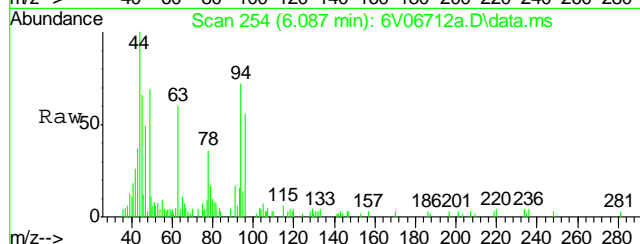
#1
TVH-Gasoline
Concen: 261.73 ug/l m
RT: 12.776 min Scan# 818
Delta R.T. 0.000 min
Lab File: 6V06712a.D
Acq: 26 Jun 2011 4:10 pm

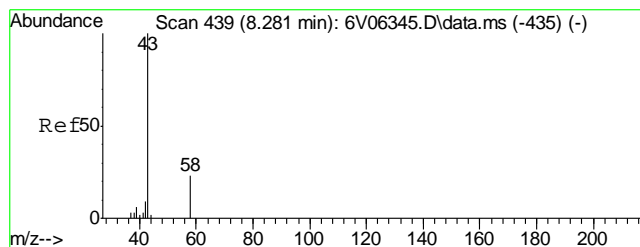
Tgt Ion:TIC Resp: 2320714



#6
Bromomethane
Concen: 2.60 ug/l
RT: 6.087 min Scan# 254
Delta R.T. -0.024 min
Lab File: 6V06712a.D
Acq: 26 Jun 2011 4:10 pm

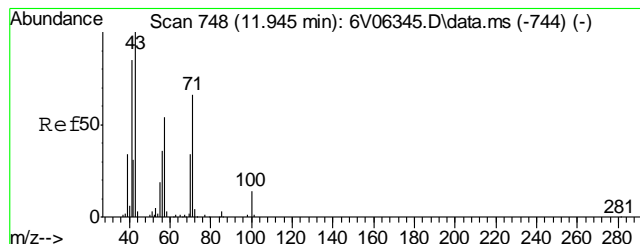
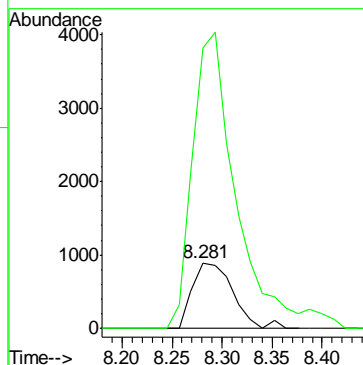
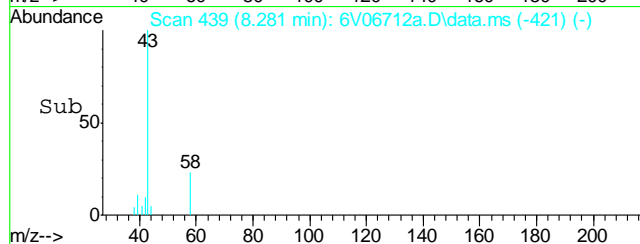
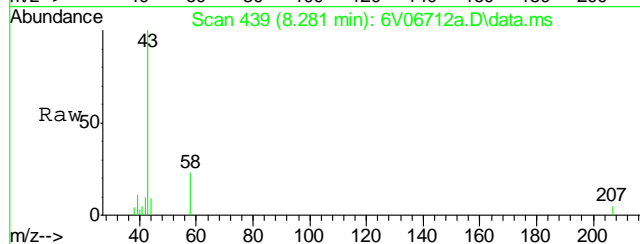
Tgt Ion: 94 Resp: 10287
Ion Ratio Lower Upper
94 100
96 72.3 76.4 116.4#





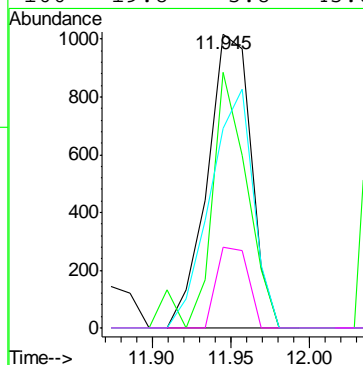
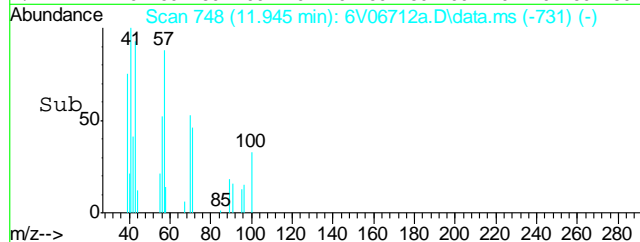
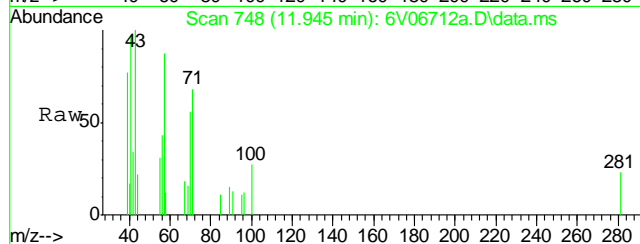
#14
Acetone
Concen: 30.85 ug/l
RT: 8.281 min Scan# 439
Delta R.T. 0.013 min
Lab File: 6V06712a.D
Acq: 26 Jun 2011 4:10 pm

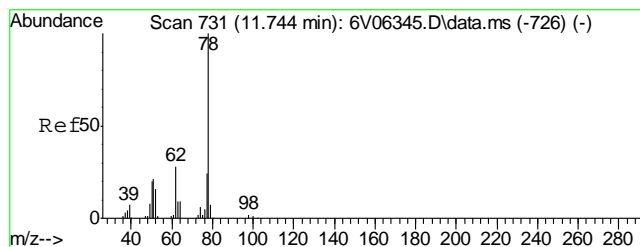
Tgt Ion: 58 Resp: 2486
Ion Ratio Lower Upper
58 100
43 492.6 532.0 572.0#



#39
Heptane
Concen: 0.97 ug/l
RT: 11.945 min Scan# 748
Delta R.T. 0.001 min
Lab File: 6V06712a.D
Acq: 26 Jun 2011 4:10 pm

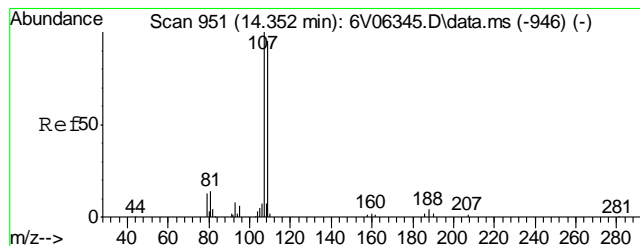
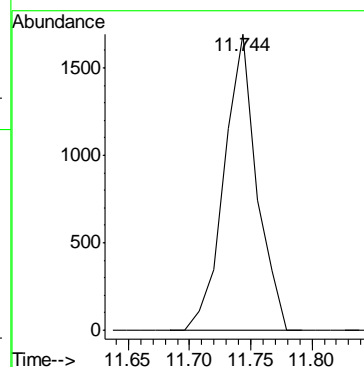
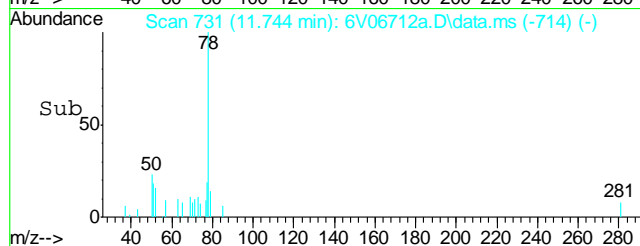
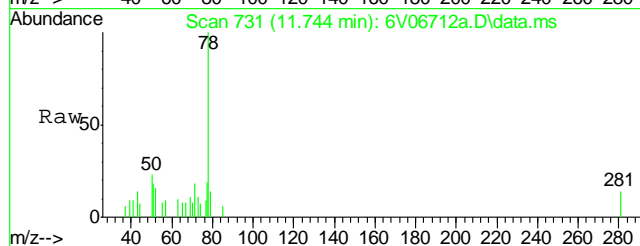
Tgt Ion: 43 Resp: 1970
Ion Ratio Lower Upper
43 100
57 71.7 44.4 84.4
71 79.9 78.5 118.5
100 19.8 5.8 45.8





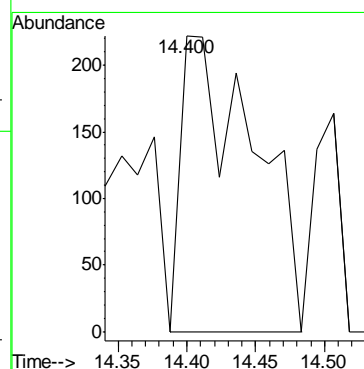
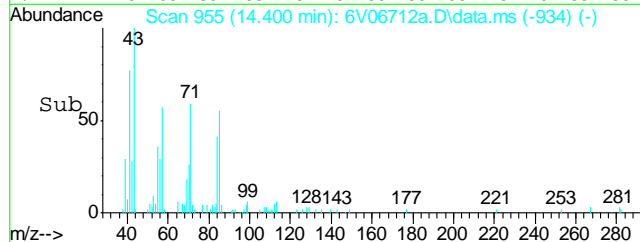
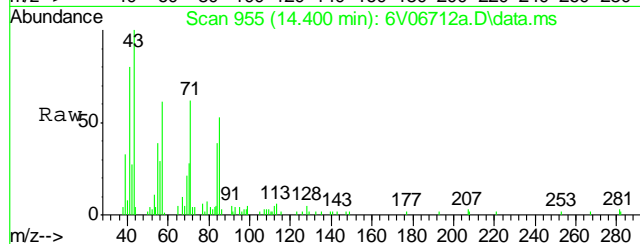
#45
Benzene
Concen: 0.41 ug/l
RT: 11.744 min Scan# 731
Delta R.T. 0.000 min
Lab File: 6V06712a.D
Acq: 26 Jun 2011 4:10 pm

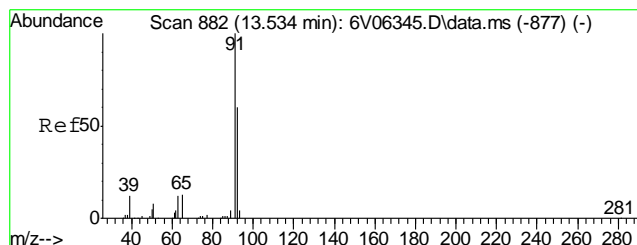
Tgt Ion: 78 Resp: 3120



#51
1,2-Dibromoethane
Concen: 0.46 ug/l
RT: 14.400 min Scan# 955
Delta R.T. 0.048 min
Lab File: 6V06712a.D
Acq: 26 Jun 2011 4:10 pm

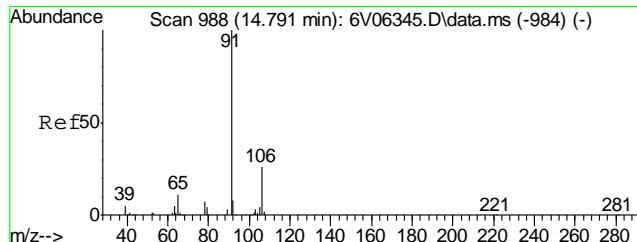
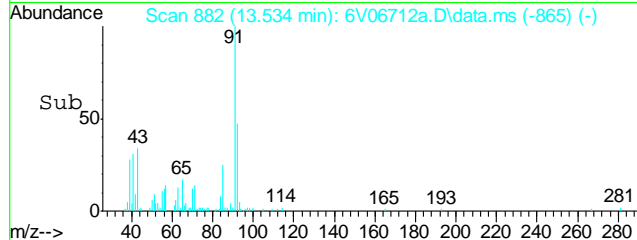
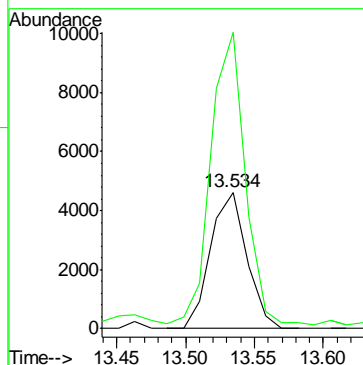
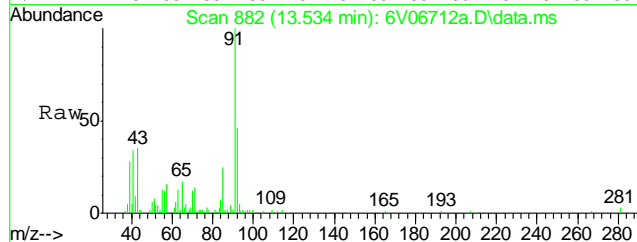
Tgt Ion: 107 Resp: 818





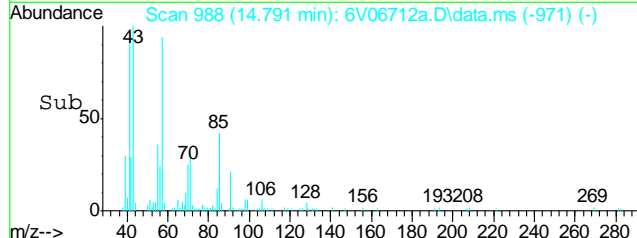
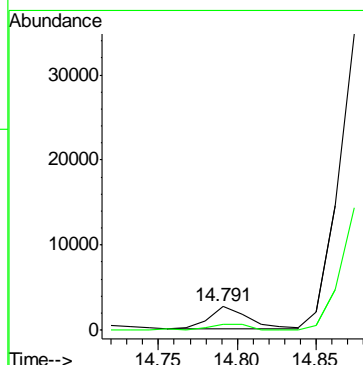
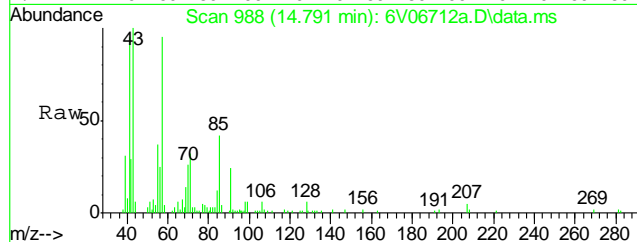
#56
Toluene
Concen: 1.64 ug/l
RT: 13.534 min Scan# 882
Delta R.T. 0.000 min
Lab File: 6V06712a.D
Acq: 26 Jun 2011 4:10 pm

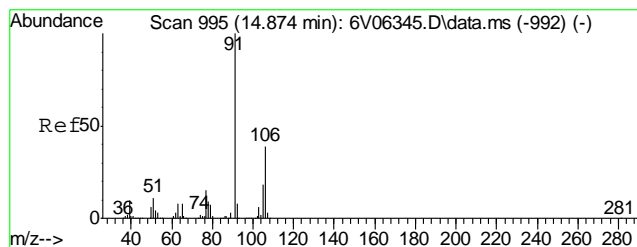
Tgt Ion	Resp	Lower	Upper
92	8389		
91	205.5	150.2	190.2#



#58
Ethylbenzene
Concen: 0.39 ug/l
RT: 14.791 min Scan# 988
Delta R.T. 0.000 min
Lab File: 6V06712a.D
Acq: 26 Jun 2011 4:10 pm

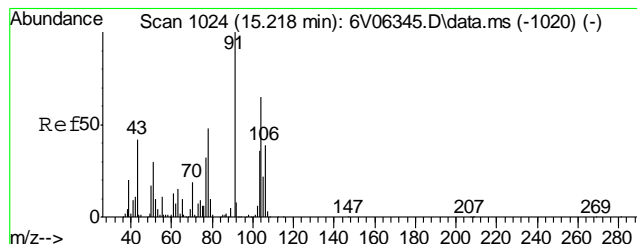
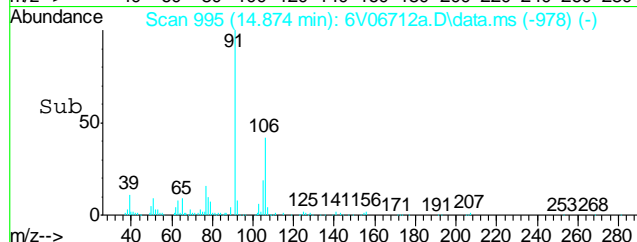
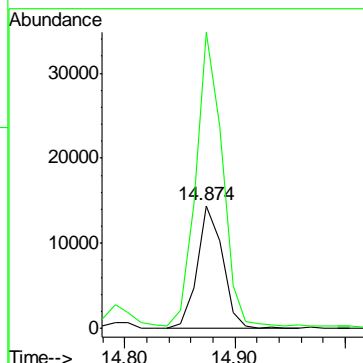
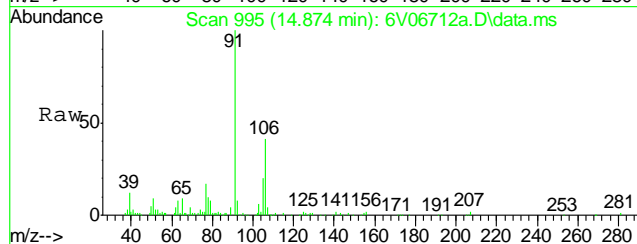
Tgt Ion	Resp	Lower	Upper
91	4620		
106	27.8	5.8	45.8





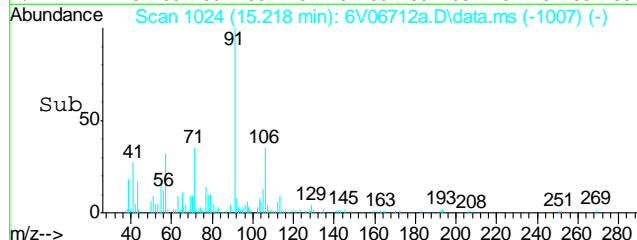
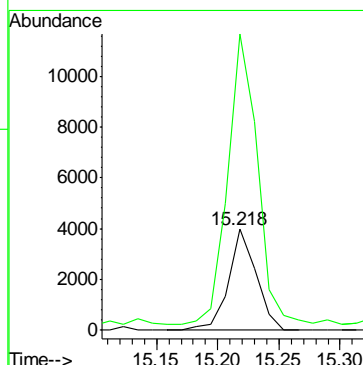
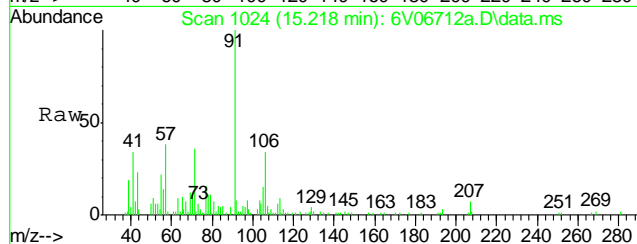
#61
m,p-xylene
Concen: 5.48 ug/l
RT: 14.874 min Scan# 995
Delta R.T. 0.000 min
Lab File: 6V06712a.D
Acq: 26 Jun 2011 4:10 pm

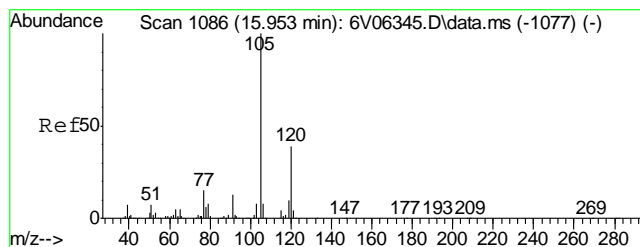
Tgt Ion	Ratio	Lower	Upper
106	100		
91	251.9	243.3	283.3



#62
o-xylene
Concen: 1.43 ug/l
RT: 15.218 min Scan# 1024
Delta R.T. 0.000 min
Lab File: 6V06712a.D
Acq: 26 Jun 2011 4:10 pm

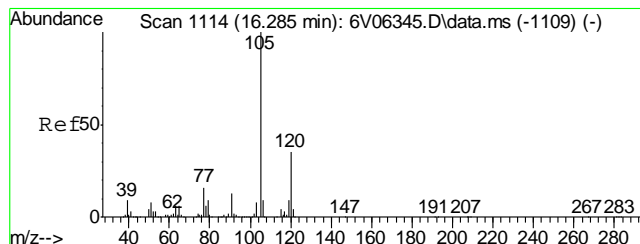
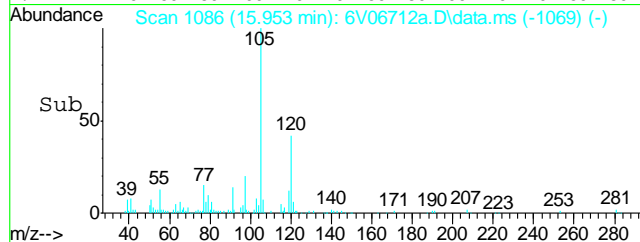
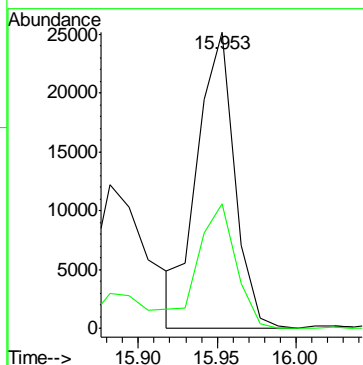
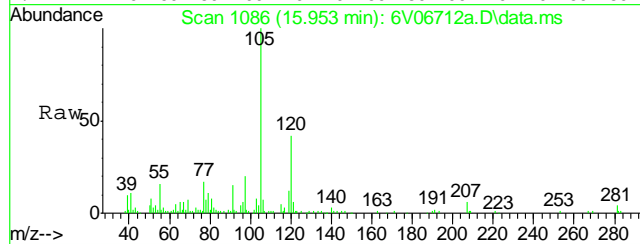
Tgt Ion	Ratio	Lower	Upper
106	100		
91	313.1	222.3	333.5





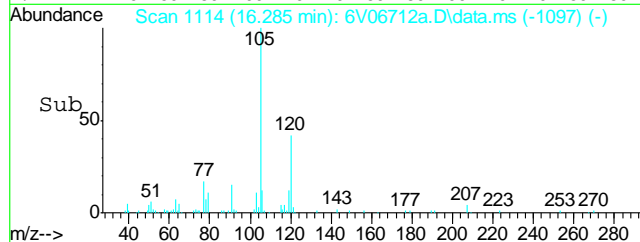
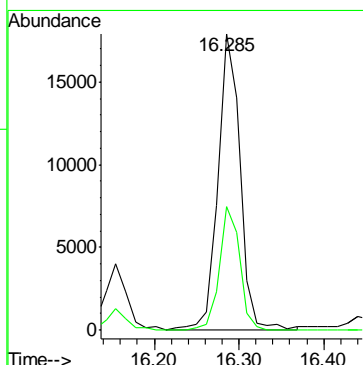
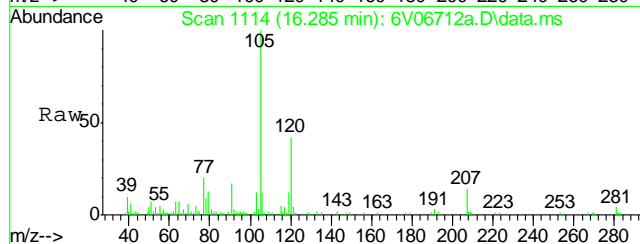
#66
1,3,5-Trimethylbenzene
Concen: 3.75 ug/l
RT: 15.953 min Scan# 1086
Delta R.T. 0.000 min
Lab File: 6V06712a.D
Acq: 26 Jun 2011 4:10 pm

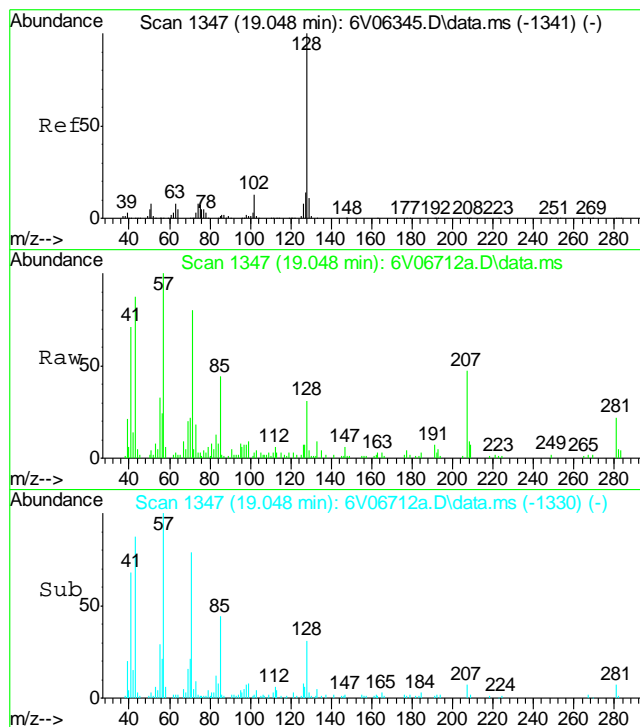
Tgt Ion:105 Resp: 41480
Ion Ratio Lower Upper
105 100
120 45.2 31.1 46.7



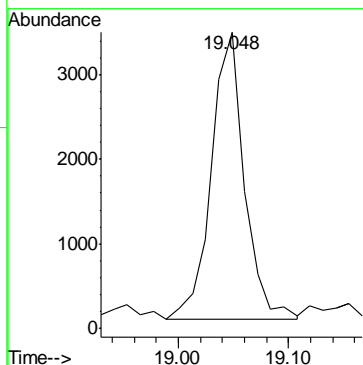
#67
1,2,4-Trimethylbenzene
Concen: 2.73 ug/l
RT: 16.285 min Scan# 1114
Delta R.T. 0.000 min
Lab File: 6V06712a.D
Acq: 26 Jun 2011 4:10 pm

Tgt Ion:105 Resp: 32425
Ion Ratio Lower Upper
105 100
120 38.3 29.8 44.8





#72
 Naphthalene
 Concen: 0.81 ug/l
 RT: 19.048 min Scan# 1347
 Delta R.T. 0.000 min
 Lab File: 6V06712a.D
 Acq: 26 Jun 2011 4:10 pm
 Tgt Ion:128 Resp: 7131



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V6062611\
Data File : 6V06705a.D
Acq On : 26 Jun 2011 12:10 pm
Operator : DONC
Sample : MB
Misc : MS2338,V6V347,,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 27 08:03:05 2011
Quant Method : C:\msdchem\1\METHODS\V6HSL337TVH337.M
Quant Title : 8260
QLast Update : Fri Jun 17 15:40:23 2011
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.269	168	176347	50.00	ug/l	0.00
32) 1,4-Difluorobenzene	12.064	114	237558	50.00	ug/l	-0.01
48) Chlorobenzene-d5	14.720	117	231178	50.00	ug/l	0.00
63) 1,4-Dichlorobenzene-d4	16.653	152	143960	50.00	ug/l	0.00

System Monitoring Compounds

30) 1,2-Dichloroethane-d4	11.649	102	13892	40.29	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	80.58%
55) Toluene-d8	13.475	98	306749	41.89	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	83.78%
59) 4-Bromofluorobenzene	15.657	95	180950	44.75	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	89.50%

Target Compounds

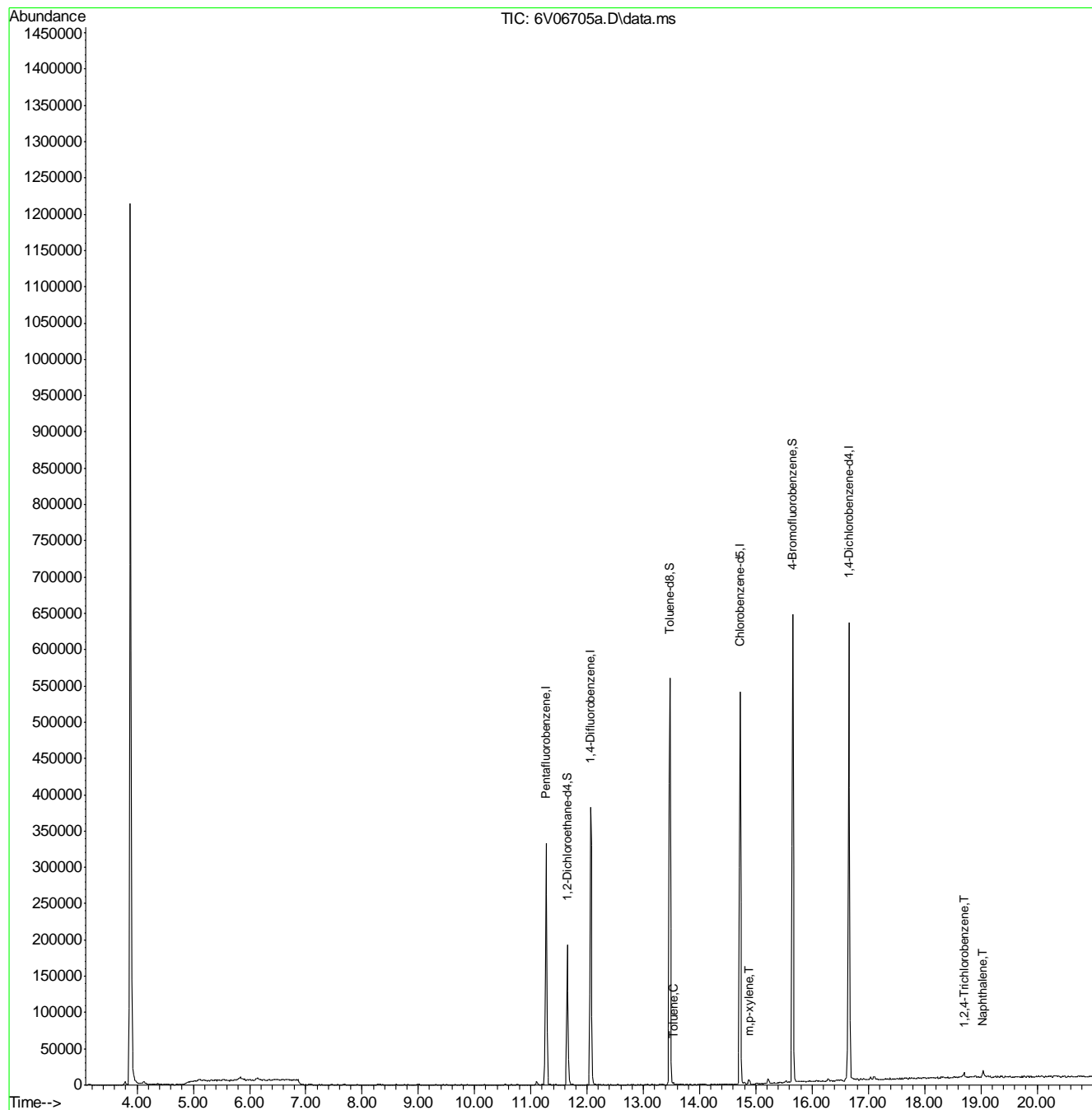
					Qvalue
1) TVH-Gasoline	12.776	TIC	-10461m	28.25	ug/l
56) Toluene	13.534	92	906	0.33	ug/l
61) m,p-xylene	14.886	106	1378	0.37	ug/l
71) 1,2,4-Trichlorobenzene	18.704	180	2472	0.56	ug/l
72) Naphthalene	19.036	128	5985	0.82	ug/l

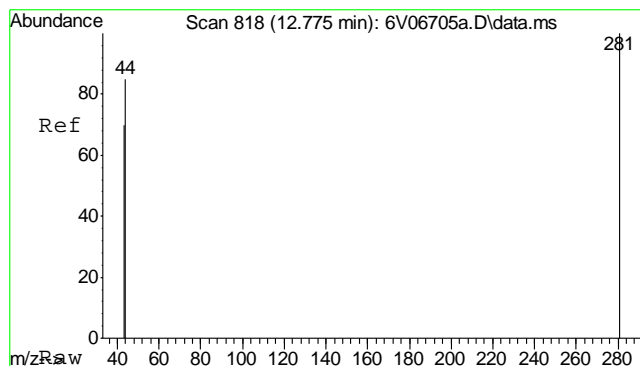
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V6062611\
Data File : 6V06705a.D
Acq On : 26 Jun 2011 12:10 pm
Operator : DONC
Sample : MB
Misc : MS2338,V6V347,,,,,1
ALS Vial : 4 Sample Multiplier: 1

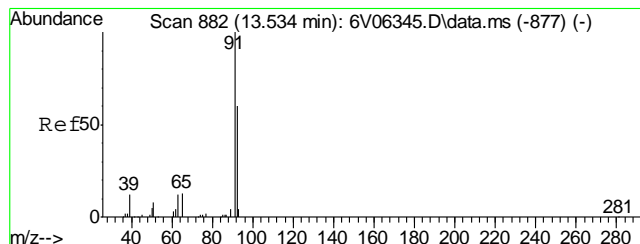
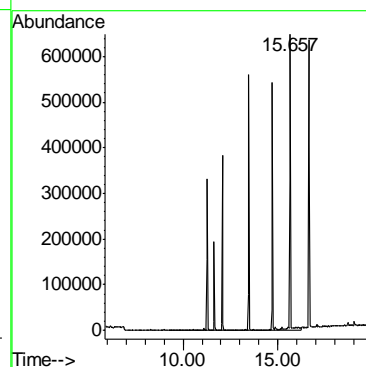
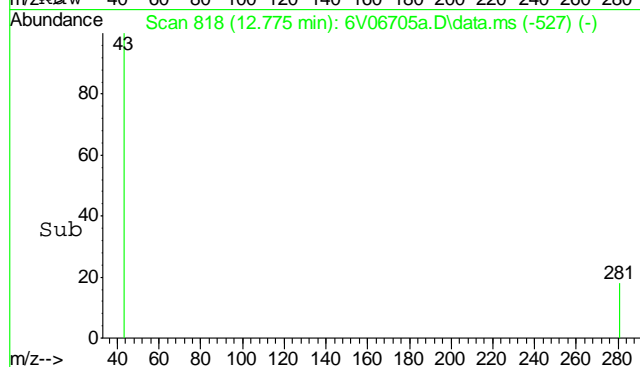
Quant Time: Jun 27 08:03:05 2011
Quant Method : C:\msdchem\1\METHODS\V6HSL337TVH337.M
Quant Title : 8260
QLast Update : Fri Jun 17 15:40:23 2011
Response via : Initial Calibration





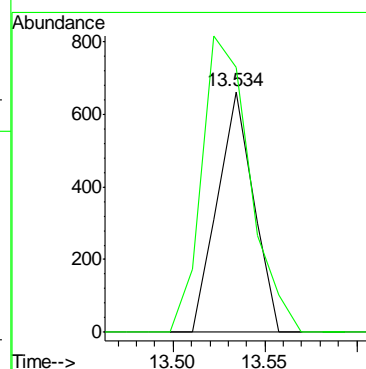
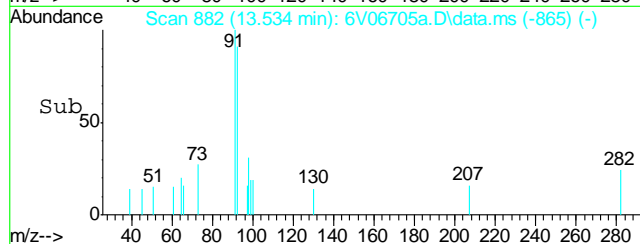
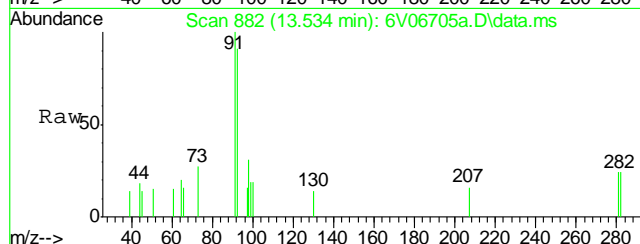
#1
TVH-Gasoline
Concen: 28.25 ug/l m
RT: 12.776 min Scan# 818
Delta R.T. 0.000 min
Lab File: 6V06705a.D
Acq: 26 Jun 2011 12:10 pm

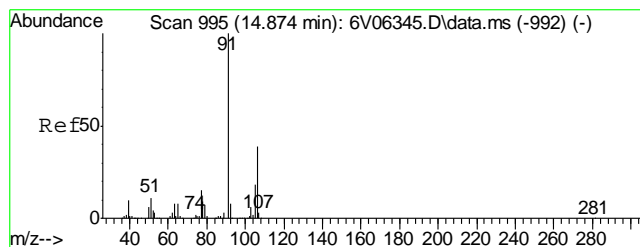
Tgt Ion:TIC Resp: -10461



#56
Toluene
Concen: 0.33 ug/l
RT: 13.534 min Scan# 882
Delta R.T. 0.000 min
Lab File: 6V06705a.D
Acq: 26 Jun 2011 12:10 pm

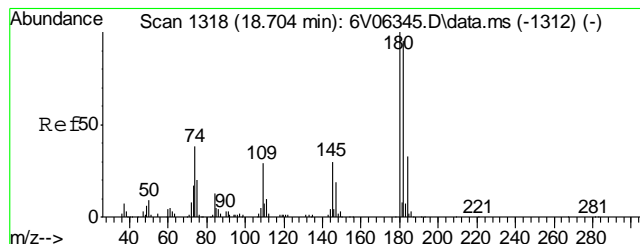
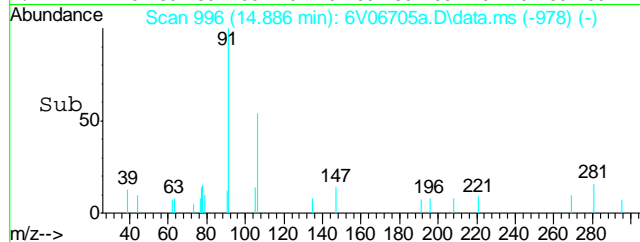
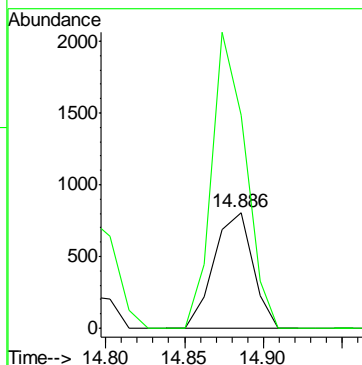
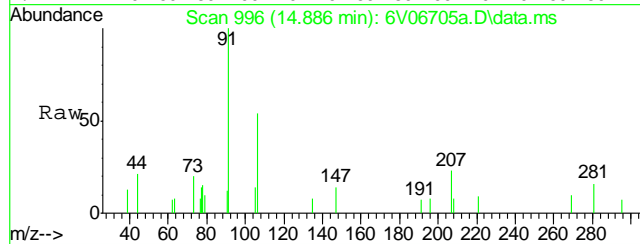
Tgt Ion: 92 Resp: 906
Ion Ratio Lower Upper
92 100
91 164.0 150.2 190.2





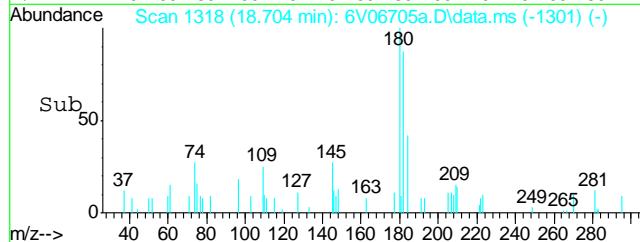
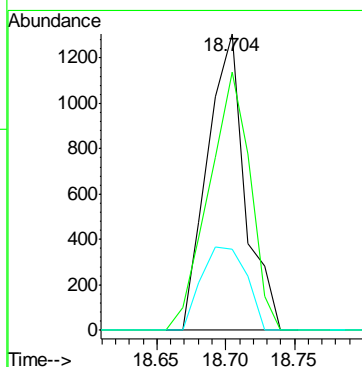
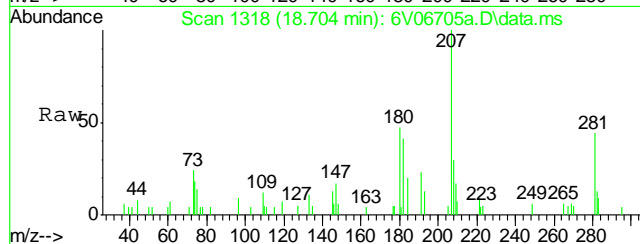
#61
m,p-xylene
Concen: 0.37 ug/l
RT: 14.886 min Scan# 996
Delta R.T. 0.012 min
Lab File: 6V06705a.D
Acq: 26 Jun 2011 12:10 pm

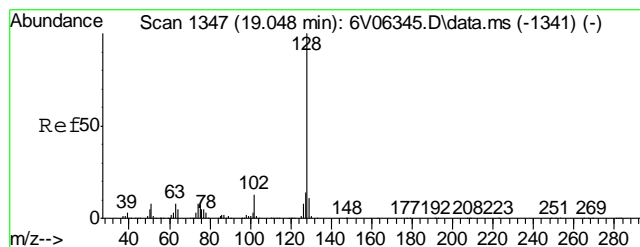
Tgt Ion:106	Resp:	1378
Ion Ratio	Lower	Upper
106	100	
91	223.4	243.3 283.3#



#71
1,2,4-Trichlorobenzene
Concen: 0.56 ug/l
RT: 18.704 min Scan# 1318
Delta R.T. 0.000 min
Lab File: 6V06705a.D
Acq: 26 Jun 2011 12:10 pm

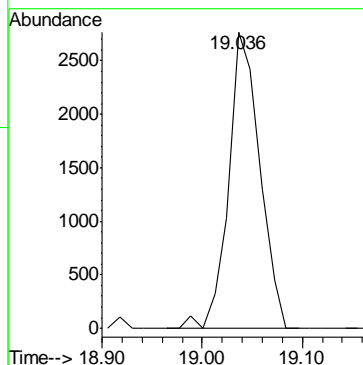
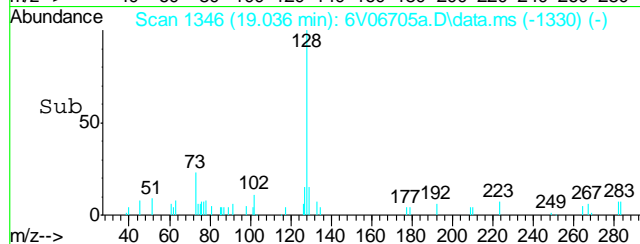
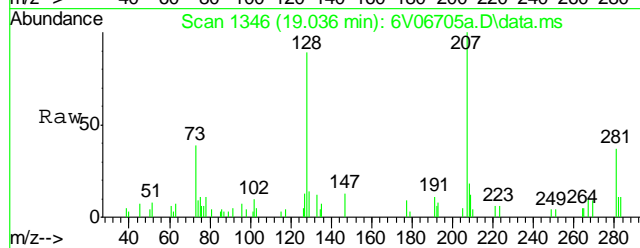
Tgt Ion:180	Resp:	2472
Ion Ratio	Lower	Upper
180	100	
182	96.0	76.2 114.2
145	33.7	24.2 36.2





#72
Naphthalene
Concen: 0.82 ug/l
RT: 19.036 min Scan# 1346
Delta R.T. -0.012 min
Lab File: 6V06705a.D
Acq: 26 Jun 2011 12:10 pm

Tgt Ion:128 Resp: 5985



GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D24773
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3951-MB	3G04722.D	1	06/27/11	TMB	06/25/11	OP3951	E3G174

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

D24773-2

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	6.7	5.3	ug/kg	
120-12-7	Anthracene	ND	6.7	6.0	ug/kg	
56-55-3	Benzo(a)anthracene	ND	17	8.7	ug/kg	
50-32-8	Benzo(a)pyrene	ND	17	12	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	17	12	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	17	7.3	ug/kg	
218-01-9	Chrysene	ND	17	7.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	17	12	ug/kg	
206-44-0	Fluoranthene	ND	6.7	6.7	ug/kg	
86-73-7	Fluorene	ND	6.7	5.7	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	20	18	ug/kg	
91-20-3	Naphthalene	ND	6.7	6.3	ug/kg	
129-00-0	Pyrene	ND	6.7	6.3	ug/kg	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	64% 10-193%
321-60-8	2-Fluorobiphenyl	69% 20-138%
1718-51-0	Terphenyl-d14	80% 17-174%

Blank Spike Summary

Page 1 of 1

Job Number: D24773
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3951-BS	3G04723.D	1	06/27/11	TMB	06/25/11	OP3951	E3G174

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D24773-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	64.6	78	40-136
120-12-7	Anthracene	83.3	72.0	86	40-141
56-55-3	Benzo(a)anthracene	83.3	75.9	91	38-143
50-32-8	Benzo(a)pyrene	83.3	75.3	90	39-145
205-99-2	Benzo(b)fluoranthene	83.3	67.3	81	38-151
207-08-9	Benzo(k)fluoranthene	83.3	79.6	96	38-147
218-01-9	Chrysene	83.3	76.2	91	39-137
53-70-3	Dibenzo(a,h)anthracene	83.3	77.4	93	35-139
206-44-0	Fluoranthene	83.3	70.8	85	34-132
86-73-7	Fluorene	83.3	64.4	77	41-136
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	73.7	88	31-144
91-20-3	Naphthalene	83.3	63.0	76	36-130
129-00-0	Pyrene	83.3	68.3	82	29-157

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	68%	10-193%
321-60-8	2-Fluorobiphenyl	72%	20-138%
1718-51-0	Terphenyl-d14	82%	17-174%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D24773
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3951-MS	3G04725.D	2	06/27/11	TMB	06/25/11	OP3951	E3G174
OP3951-MSD	3G04726.D	2	06/28/11	TMB	06/25/11	OP3951	E3G174
D24773-2	3G04724.D	2	06/27/11	TMB	06/25/11	OP3951	E3G174

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D24773-2

CAS No.	Compound	D24773-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		112	101	90	91.1	81	10	20-151/30
120-12-7	Anthracene	ND		112	119	106	104	93	13	25-149/30
56-55-3	Benzo(a)anthracene	ND		112	151	135	109	97	32* a	22-157/30
50-32-8	Benzo(a)pyrene	ND		112	121	108	103	92	16	23-153/30
205-99-2	Benzo(b)fluoranthene	ND		112	129	115	86.0	77	40* a	22-161/30
207-08-9	Benzo(k)fluoranthene	ND		112	101	90	95.8	85	5	17-161/30
218-01-9	Chrysene	ND		112	145	129	96.1	86	41* a	16-159/30
53-70-3	Dibenzo(a,h)anthracene	ND		112	97.9	87	92.3	82	6	21-154/30
206-44-0	Fluoranthene	ND		112	173	154* b	102	91	52* a	16-140/30
86-73-7	Fluorene	ND		112	121	108	108	96	11	15-153/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		112	121	108	101	90	18	21-159/30
91-20-3	Naphthalene	ND		112	138	123	104	93	28	10-176/30
129-00-0	Pyrene	ND		112	138	123	97.4	87	34* a	10-200/30

CAS No.	Surrogate Recoveries	MS	MSD	D24773-2	Limits
4165-60-0	Nitrobenzene-d5	76%	86%	59%	10-193%
321-60-8	2-Fluorobiphenyl	69%	77%	59%	20-138%
1718-51-0	Terphenyl-d14	78%	76%	68%	17-174%

(a) Variability of recovery may be due to sample matrix/homogeneity.

(b) Compound ND in associated samples.

GC/MS Semi-volatiles

Raw Data

∞

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\062711\
 Data File : 3g04724.D
 Acq On : 27 Jun 2011 10:52 pm
 Operator : TamiB
 Sample : D24773-2,2x
 Misc : OP3951,E3G174,30.10,,,1,2
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 28 13:23:32 2011
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G174.M
 Quant Title : PAHSIM BASE
 QLast Update : Tue Jun 28 13:16:04 2011
 Response via : Initial Calibration

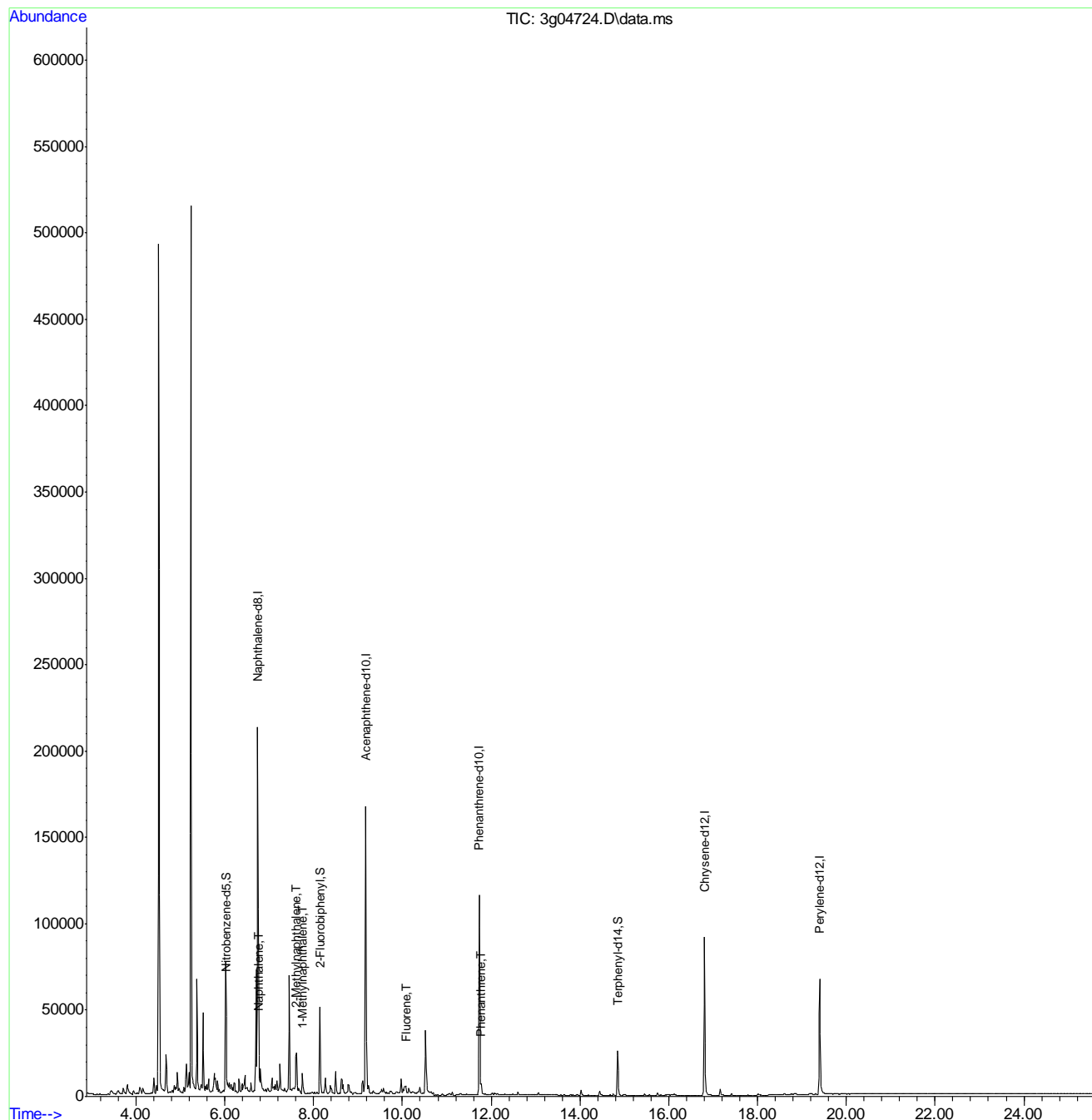
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.743	136	207658	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.180	164	104751	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.736	188	119956	4.00	ug/mL	0.00
18) Chrysene-d12	16.809	240	94922	4.00	ug/mL	0.00
23) Perylene-d12	19.403	264	86543	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	6.032	82	22269	1.48	ug/mL	0.01
7) 2-Fluorobiphenyl	8.152	172	53688	1.47	ug/mL	0.00
20) Terphenyl-d14	14.854	244	26768	1.79	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	6.768	128	9075	0.15	ug/mL	95
8) 2-Methylnaphthalene	7.615	142	16667	0.48	ug/mL	98
9) 1-Methylnaphthalene	7.750	142	7039m	0.21	ug/mL	
10) Acenaphthylene	0.000		0	N.D.	d	
11) Acenaphthene	0.000		0	N.D.	d	
12) Fluorene	10.078	166	3898	0.12	ug/mL#	53
13) Diphenylamine	0.000		0	N.D.	d	
15) Phenanthrene	11.775	178	6707	0.17	ug/mL	97
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	

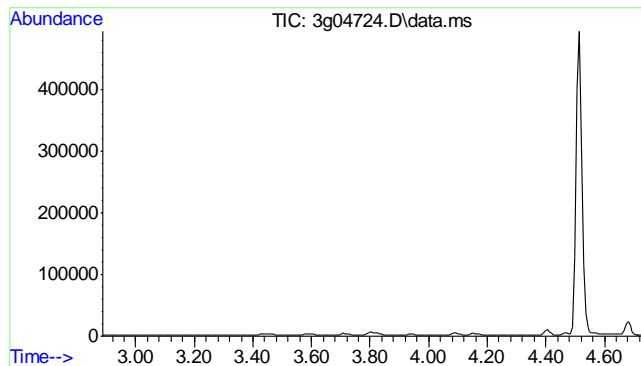
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\062711\
Data File : 3g04724.D
Acq On : 27 Jun 2011 10:52 pm
Operator : TamiB
Sample : D24773-2,2x
Misc : OP3951,E3G174,30.10,,,1,2
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 28 13:23:32 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G174.M
Quant Title : PAHSIM BASE
QLast Update : Tue Jun 28 13:16:04 2011
Response via : Initial Calibration

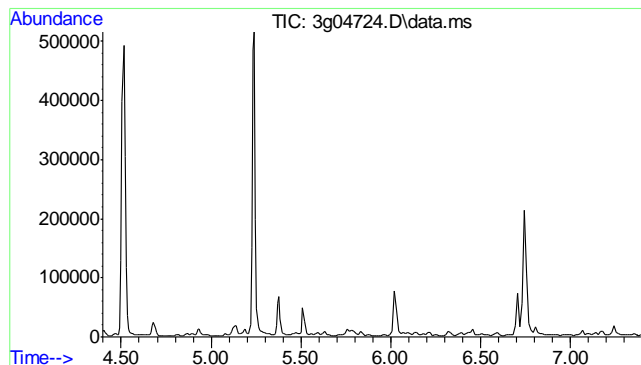
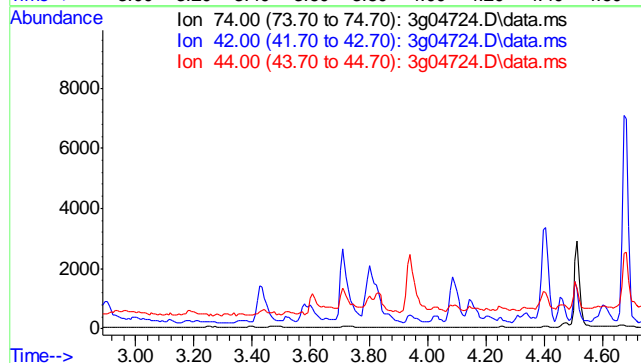




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 3.23 min

Lab File: 3g04724.D
Acq: 27 Jun 11 10:52 pm

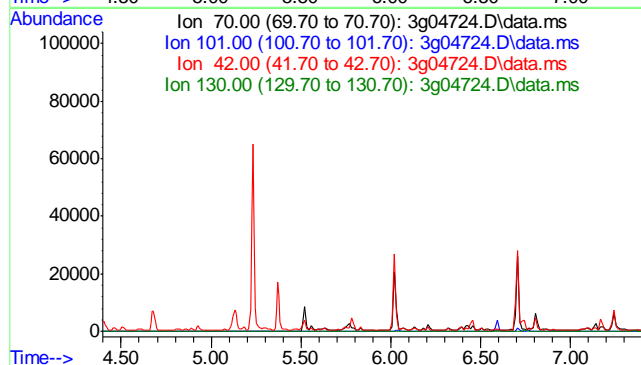
Tgt Ion:	74
Sig	Exp Ratio
74	100
42	63.7
44	5.9

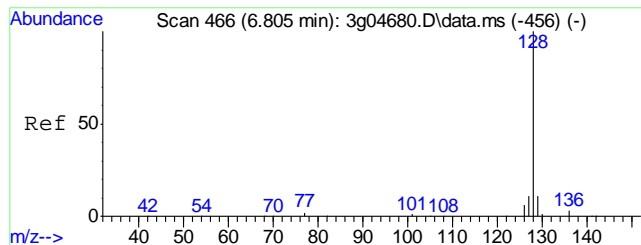


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.89 min

Lab File: 3g04724.D
Acq: 27 Jun 11 10:52 pm

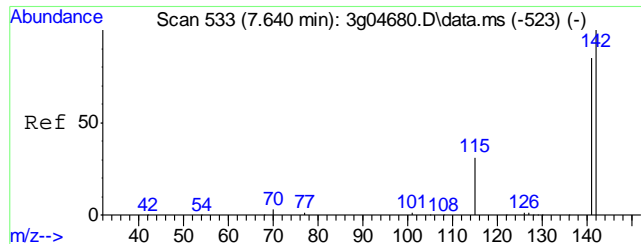
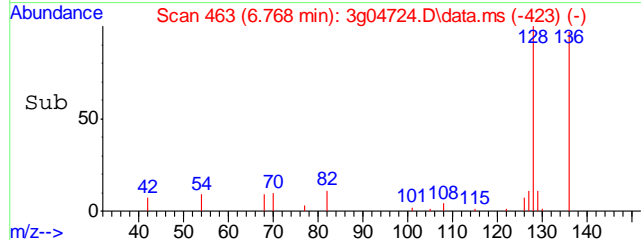
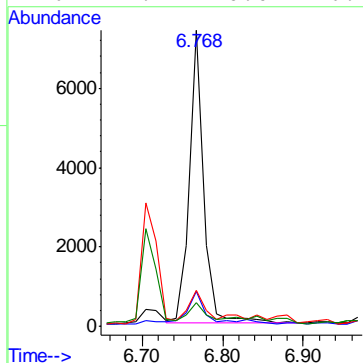
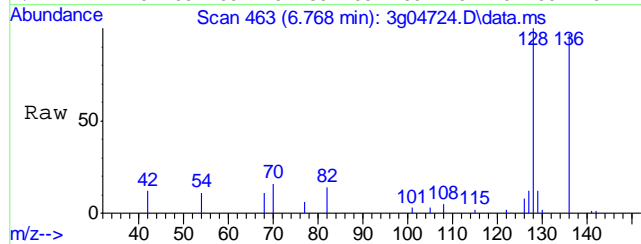
Tgt Ion:	70
Sig	Exp Ratio
70	100
101	12.2
42	66.2
130	28.0





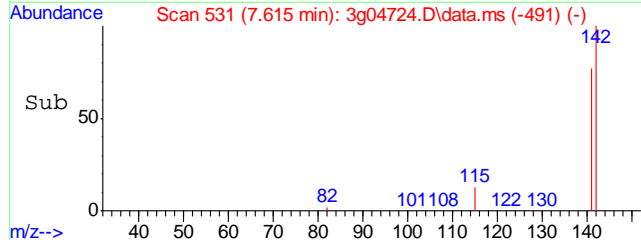
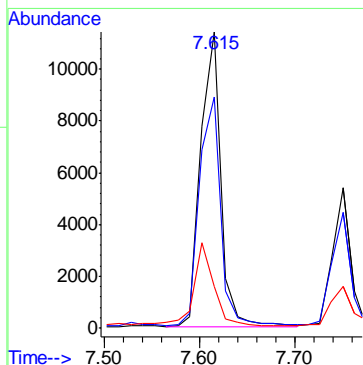
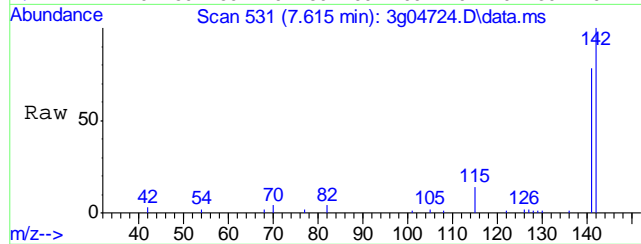
#5
Naphthalene
Concen: 0.15 ug/mL
RT: 6.768 min Scan# 463
Delta R.T. -0.000 min
Lab File: 3g04724.D
Acq: 27 Jun 11 10:52 pm

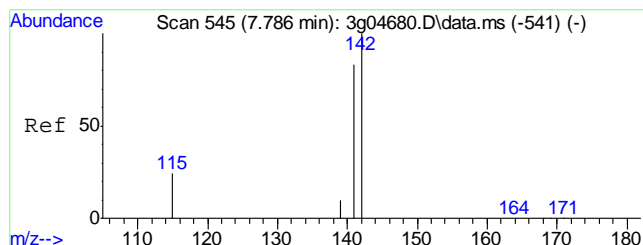
Tgt Ion:	128	Resp:	9075
Ion Ratio	100	Lower	Upper
128	100		
129	15.2	0.0	30.9
127	12.0	0.0	31.9
126	7.1	0.0	26.7



#8
2-Methylnaphthalene
Concen: 0.48 ug/mL
RT: 7.615 min Scan# 531
Delta R.T. -0.000 min
Lab File: 3g04724.D
Acq: 27 Jun 11 10:52 pm

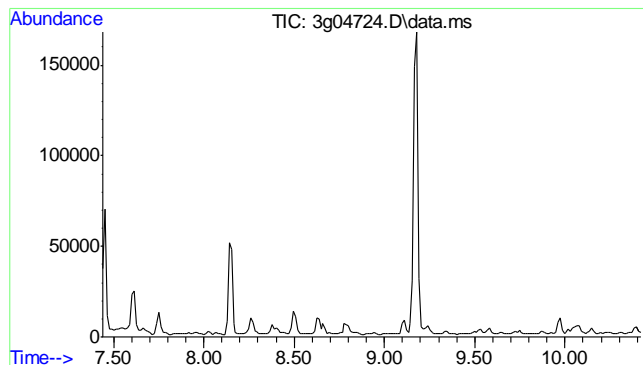
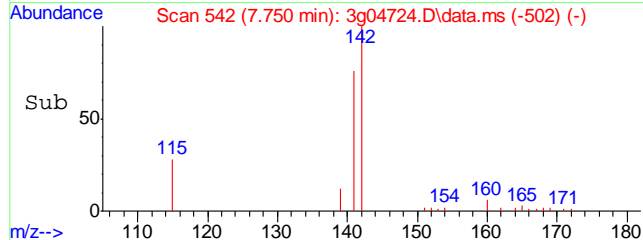
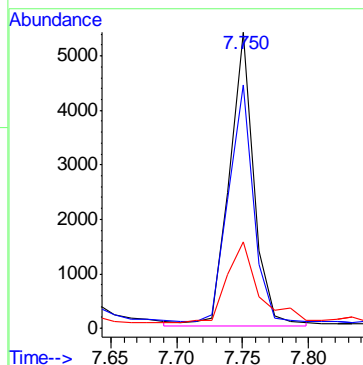
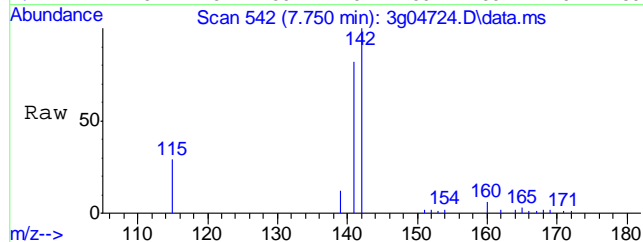
Tgt Ion:	142	Resp:	16667
Ion Ratio	100	Lower	Upper
142	100		
141	83.1	61.9	101.9
115	27.9	4.8	44.8





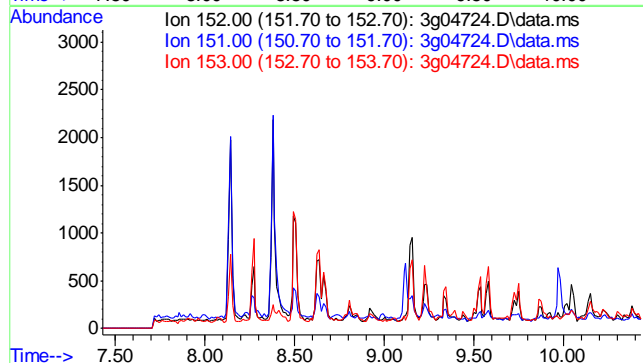
#9
1-Methylnaphthalene
Concen: 0.21 ug/mL m
RT: 7.750 min Scan# 542
Delta R.T. -0.000 min
Lab File: 3g04724.D
Acq: 27 Jun 11 10:52 pm

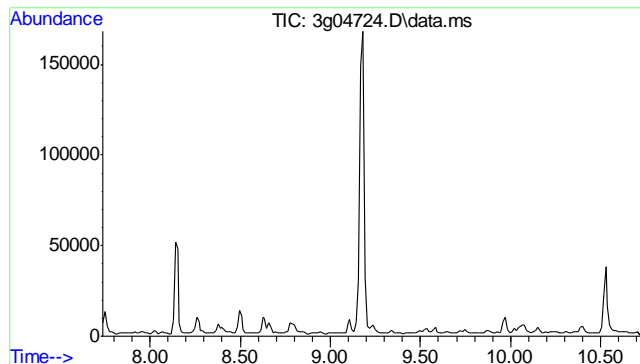
Tgt Ion:	142	Resp:	7039
Ion Ratio	Lower	Upper	
142	100		
141	197.4	68.2	102.2#
115	66.1	20.4	30.6#



#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.93 min
Lab File: 3g04724.D
Acq: 27 Jun 11 10:52 pm

Tgt Ion:	152
Sig	Exp Ratio
152	100
151	18.6
153	12.8

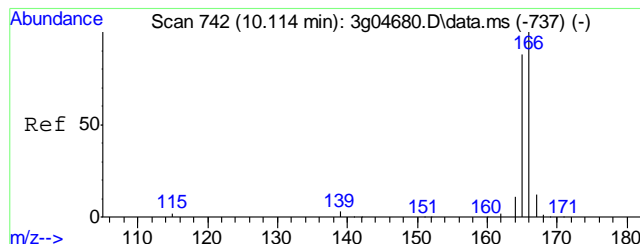
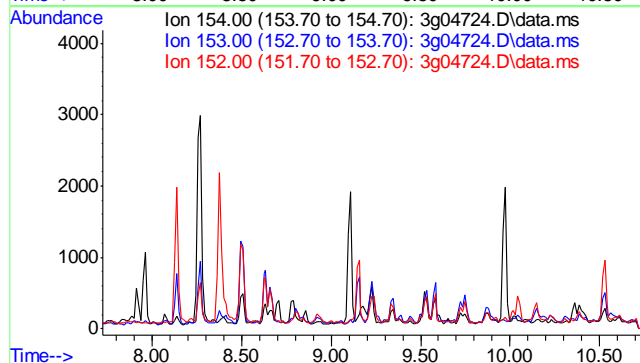




#11
 Acenaphthene
 Concen: N.D. ug/mL
 Expected RT: 9.23 min
 Lab File: 3g04724.D
 Acq: 27 Jun 11 10:52 pm

Tgt Ion: 154

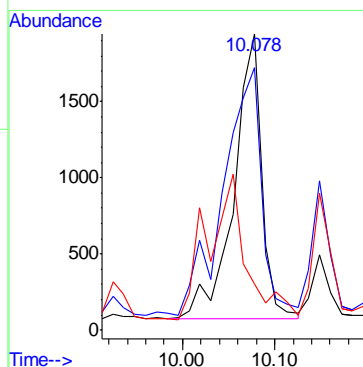
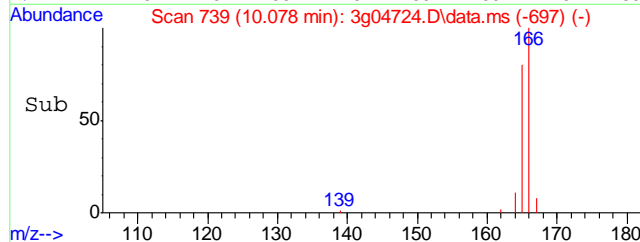
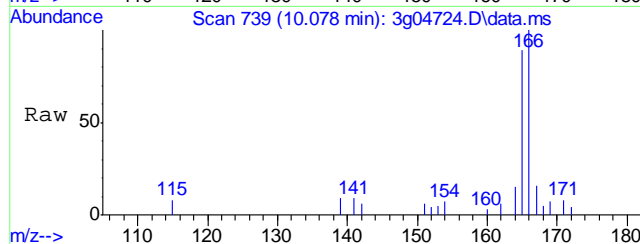
Sig	Exp Ratio
154	100
153	103.0
152	47.6

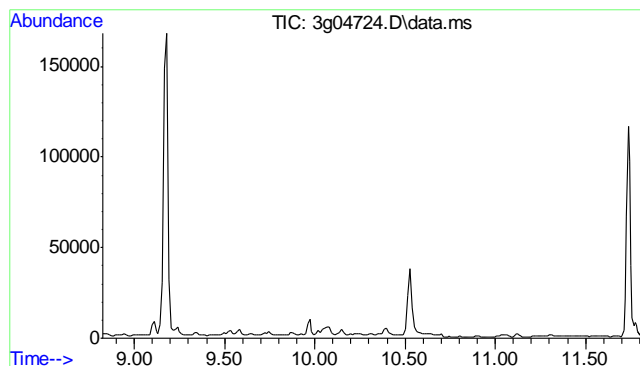


#12
 Fluorene
 Concen: 0.12 ug/mL
 RT: 10.078 min Scan# 739
 Delta R.T. -0.000 min
 Lab File: 3g04724.D
 Acq: 27 Jun 11 10:52 pm

Tgt Ion: 166 Resp: 3898

Ion	Ratio	Lower	Upper
166	100		
165	121.4	70.1	110.1#
167	71.4	0.0	31.9#

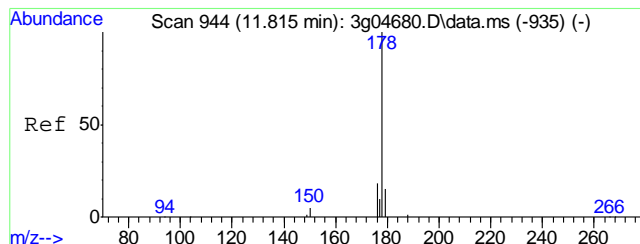
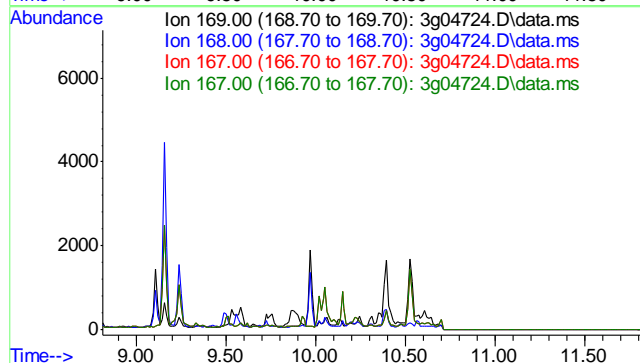




#13
 Diphenylamine
 Concen: N.D. ug/mL
 Expected RT: 10.31 min
 Lab File: 3g04724.D
 Acq: 27 Jun 11 10:52 pm

Tgt Ion: 169

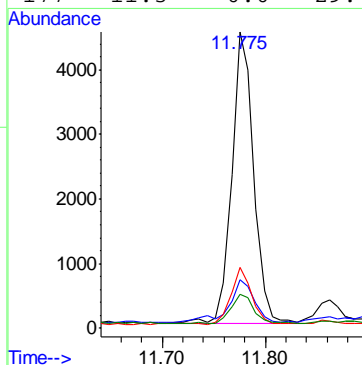
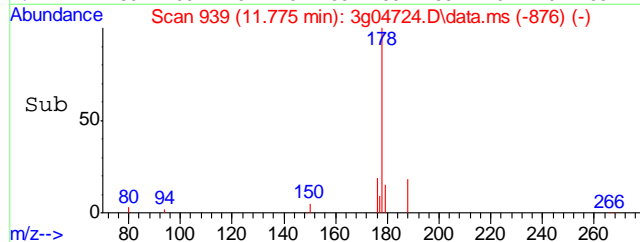
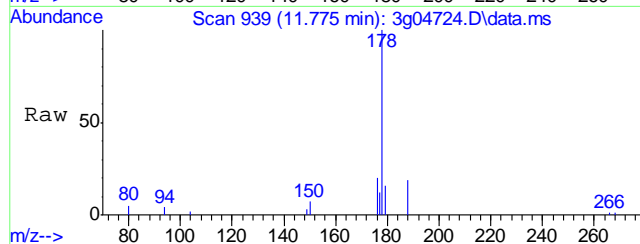
Sig	Exp Ratio
169	100
168	60.7
167	32.2
167	32.2

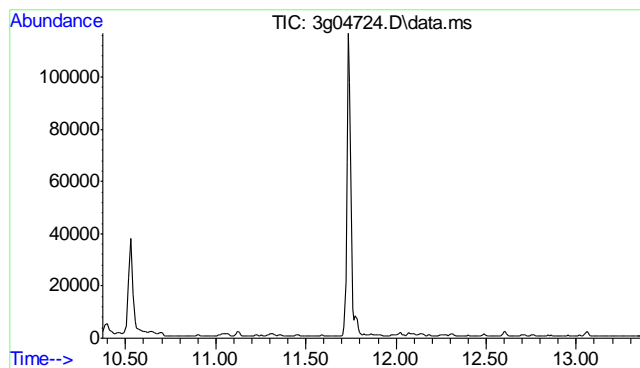


#15
 Phenanthrene
 Concen: 0.17 ug/mL
 RT: 11.775 min Scan# 939
 Delta R.T. -0.000 min
 Lab File: 3g04724.D
 Acq: 27 Jun 11 10:52 pm

Tgt Ion: 178 Resp: 6707

Ion	Ratio	Lower	Upper
178	100		
179	17.2	0.0	35.1
176	17.9	0.0	38.0
177	11.3	0.0	29.7



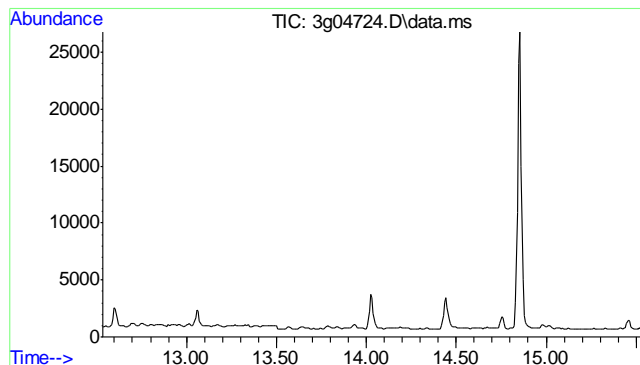
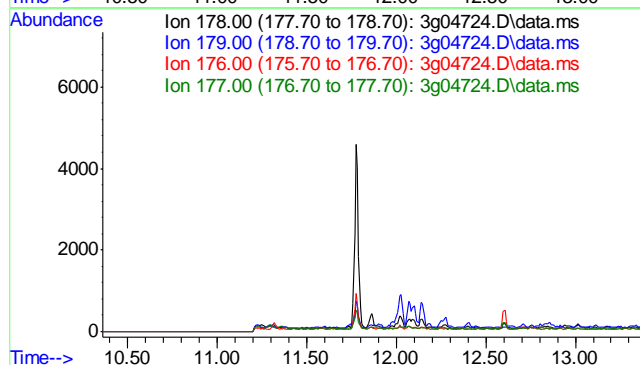


#16
 Anthracene
 Concen: N.D. ug/mL
 Expected RT: 11.86 min

 Lab File: 3g04724.D
 Acq: 27 Jun 11 10:52 pm

Tgt Ion: 178

Sig	Exp Ratio
178	100
179	15.1
176	17.0
177	8.1

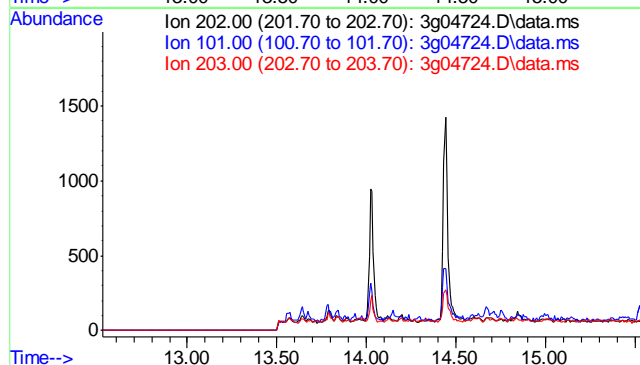


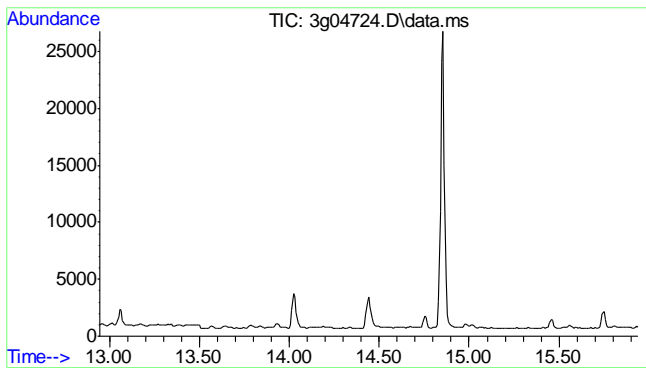
#17
 Fluoranthene
 Concen: N.D. ug/mL
 Expected RT: 14.03 min

 Lab File: 3g04724.D
 Acq: 27 Jun 11 10:52 pm

Tgt Ion: 202

Sig	Exp Ratio
202	100
101	25.1
203	17.0

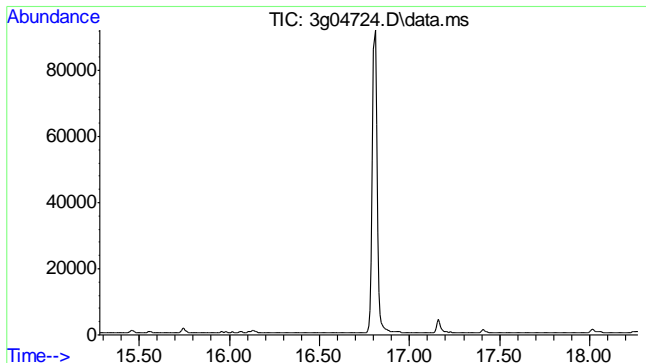
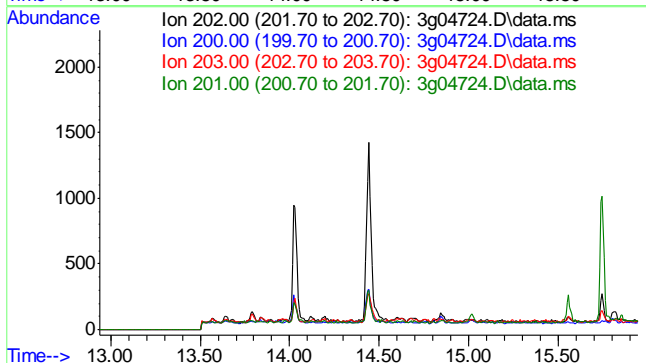




#19
Pyrene
Concen: N.D. ug/mL
Expected RT: 14.44 min

Lab File: 3g04724.D
Acq: 27 Jun 11 10:52 pm

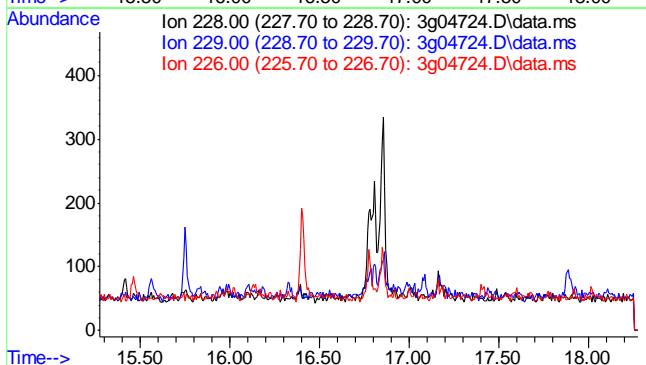
Tgt Ion:	202
Sig	Exp Ratio
202	100
200	22.4
203	17.7
201	18.3

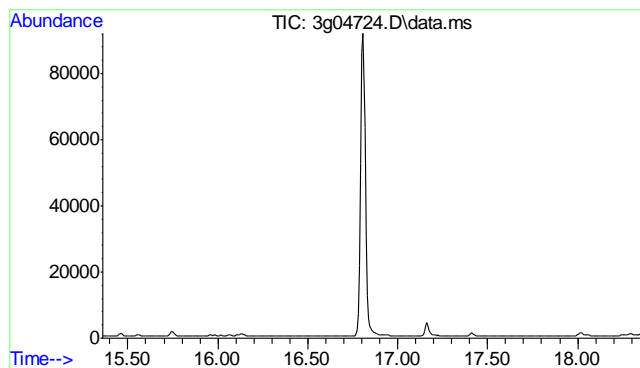


#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.78 min

Lab File: 3g04724.D
Acq: 27 Jun 11 10:52 pm

Tgt Ion:	228
Sig	Exp Ratio
228	100
229	19.6
226	25.6

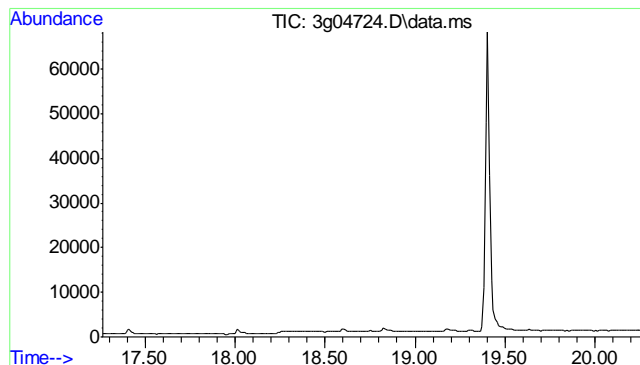
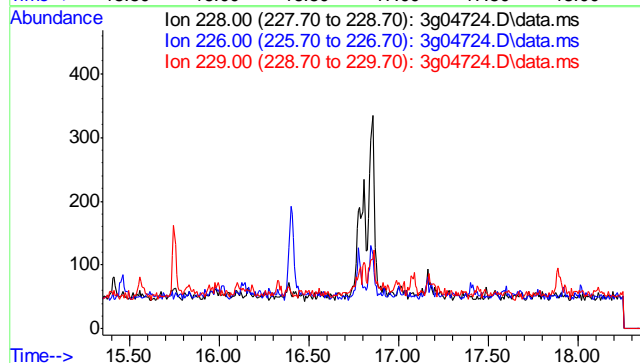




#22
 Chrysene
 Concen: N.D. ug/mL
 Expected RT: 16.86 min

Lab File: 3g04724.D
 Acq: 27 Jun 11 10:52 pm

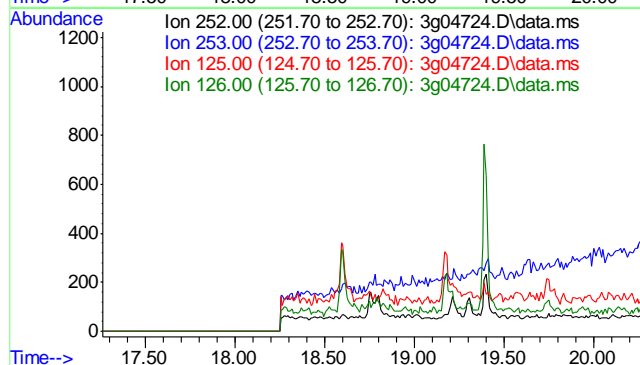
Tgt Ion	Sig	Exp Ratio
228	100	
226	27.7	
229	19.1	

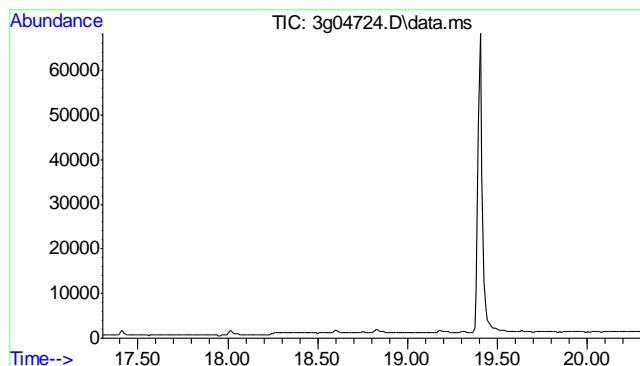


#24
 Benzo(b)fluoranthene
 Concen: N.D. ug/mL
 Expected RT: 18.76 min

Lab File: 3g04724.D
 Acq: 27 Jun 11 10:52 pm

Tgt Ion	Sig	Exp Ratio
252	100	
253	25.0	
125	26.2	
126	36.9	

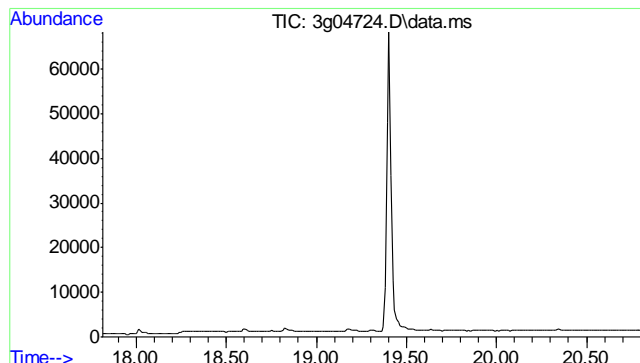
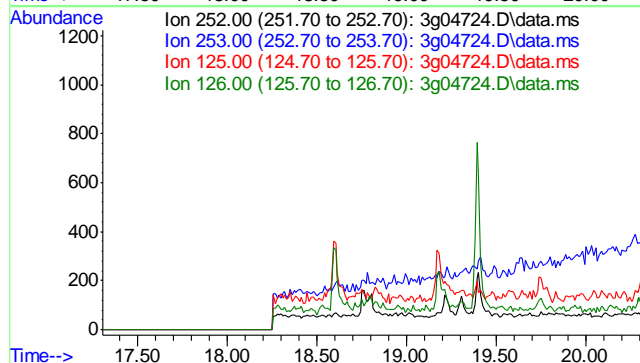




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.80 min

Lab File: 3g04724.D
Acq: 27 Jun 11 10:52 pm

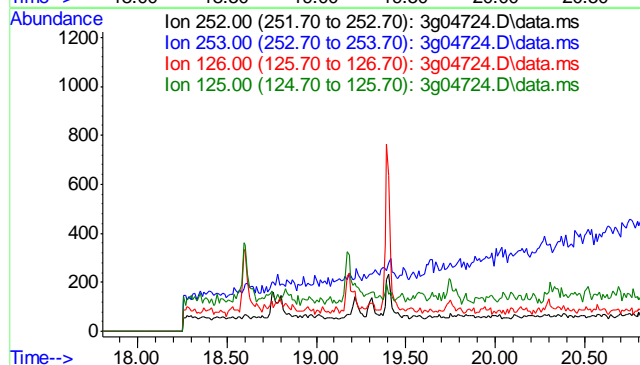
Tgt Ion	Exp Ratio
252	100
253	18.7
125	23.9
126	37.9

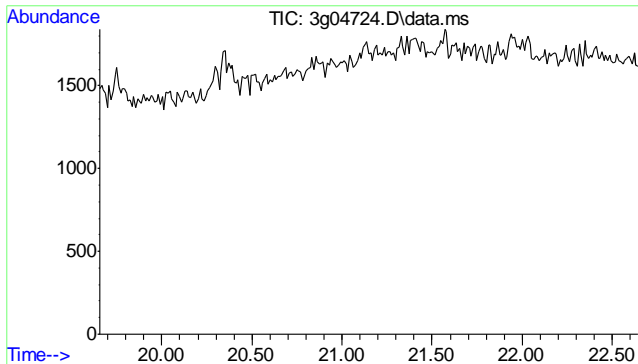


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 19.31 min

Lab File: 3g04724.D
Acq: 27 Jun 11 10:52 pm

Tgt Ion	Exp Ratio
252	100
253	21.6
126	35.5
125	26.8

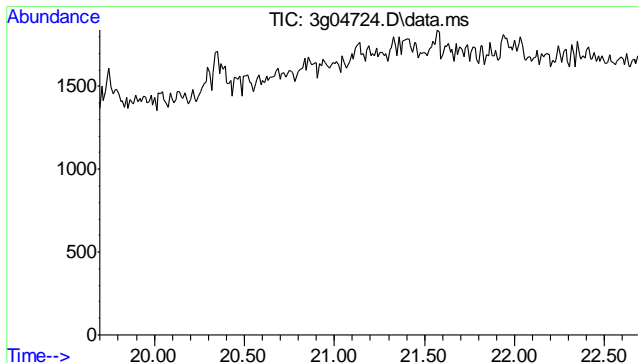
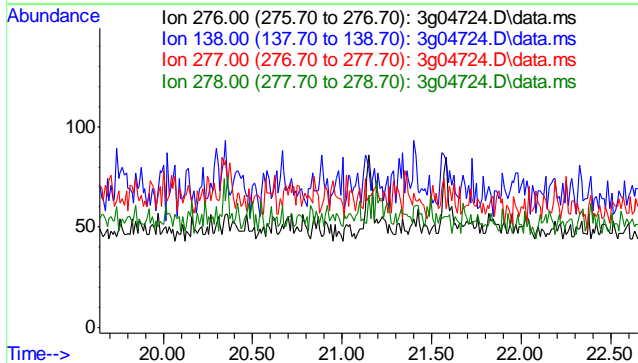




#27
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 21.15 min

Lab File: 3g04724.D
Acq: 27 Jun 11 10:52 pm

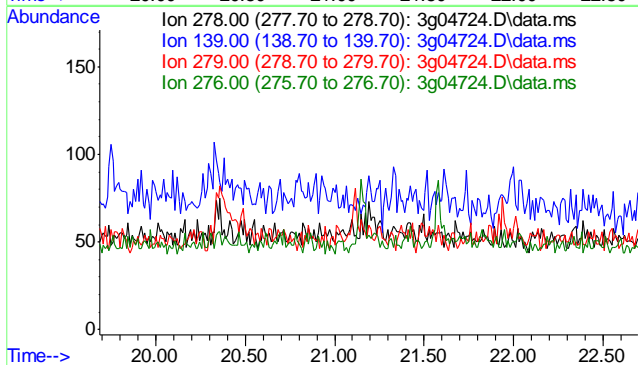
Tgt Ion:	276
Sig	Exp Ratio
276	100
138	53.4
277	34.3
278	108.2

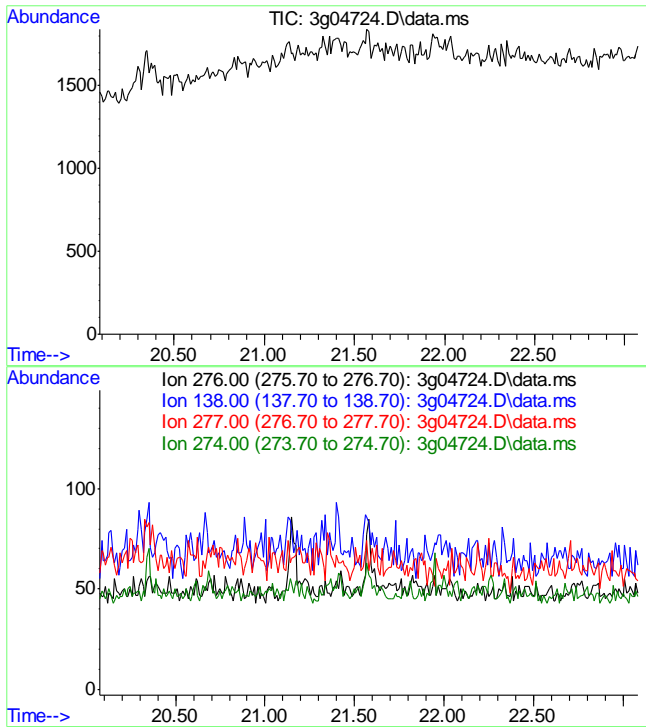


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 21.19 min

Lab File: 3g04724.D
Acq: 27 Jun 11 10:52 pm

Tgt Ion:	278
Sig	Exp Ratio
278	100
139	44.7
279	23.3
276	127.4





#29
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 21.58 min

Lab File: 3g04724.D
Acq: 27 Jun 11 10:52 pm

Tgt Ion:	276
Sig	Exp Ratio
276	100
138	57.3
277	23.4
274	20.7

8.1.1
8

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\062711\
 Data File : 3g04722.D
 Acq On : 27 Jun 2011 9:35 pm
 Operator : TamiB
 Sample : OP3951-MB
 Misc : OP3951,E3G174,30,,,1,1
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 28 13:22:31 2011
 Quant Method : C:\msdchem\1\METHODS\SIMPE3G174.M
 Quant Title : PAHSIM BASE
 QLast Update : Tue Jun 28 13:16:04 2011
 Response via : Initial Calibration

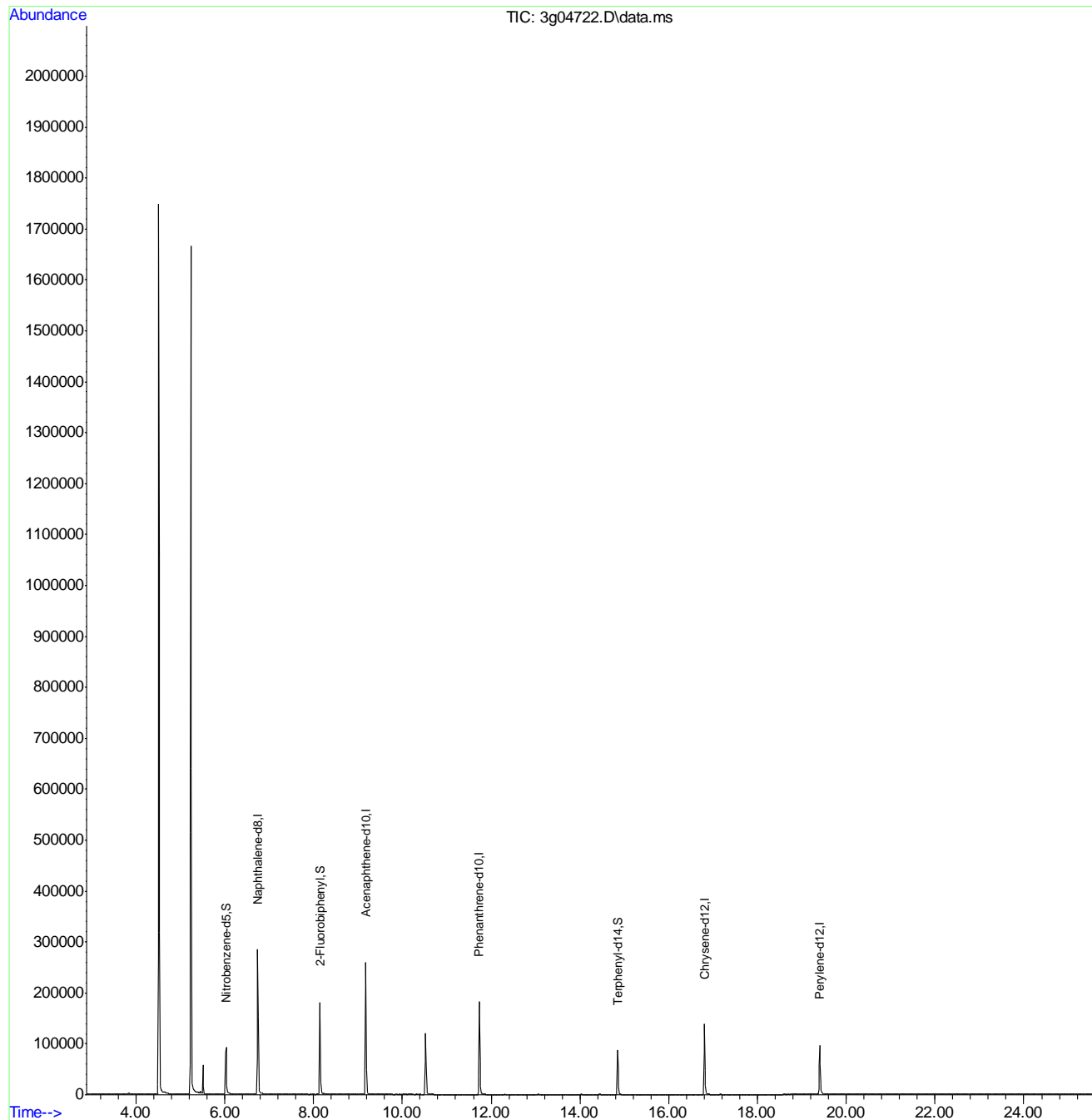
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Naphthalene-d8	6.743	136	294381	4.00	ug/mL	0.00
6) Acenaphthene-d10	9.180	164	161873	4.00	ug/mL	0.00
14) Phenanthrene-d10	11.736	188	200164	4.00	ug/mL	0.00
18) Chrysene-d12	16.809	240	150791	4.00	ug/mL	0.00
23) Perylene-d12	19.403	264	126759	4.00	ug/mL	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	6.032	82	68339	3.20	ug/mL	0.01
7) 2-Fluorobiphenyl	8.152	172	195596	3.46	ug/mL	0.00
20) Terphenyl-d14	14.854	244	95087	3.99	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	

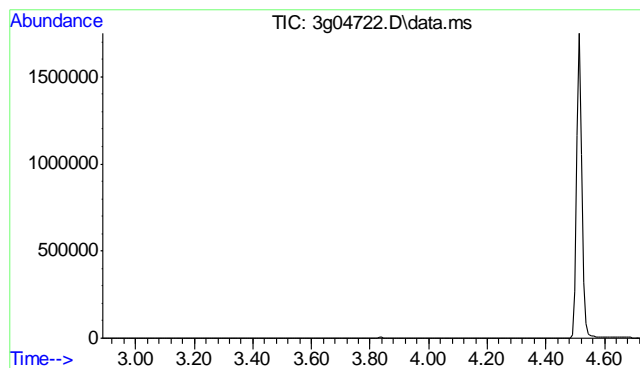
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\062711\
Data File : 3g04722.D
Acq On : 27 Jun 2011 9:35 pm
Operator : TamiB
Sample : OP3951-MB
Misc : OP3951,E3G174,30,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 28 13:22:31 2011
Quant Method : C:\msdchem\1\METHODS\SIMPE3G174.M
Quant Title : PAHSIM BASE
QLast Update : Tue Jun 28 13:16:04 2011
Response via : Initial Calibration

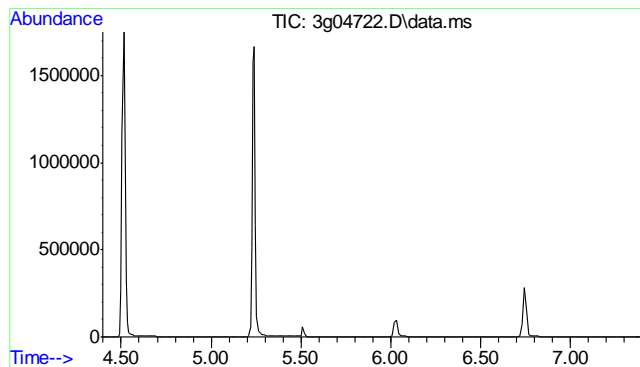
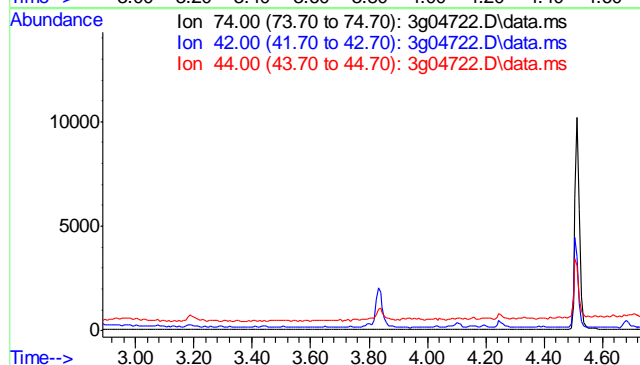




#3
N-Nitrosodimethylamine
Concen: N.D. ug/mL
Expected RT: 3.23 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

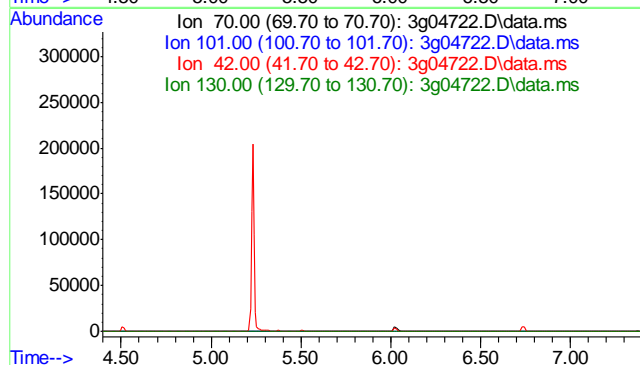
Tgt Ion:	74
Sig	Exp Ratio
74	100
42	63.7
44	5.9

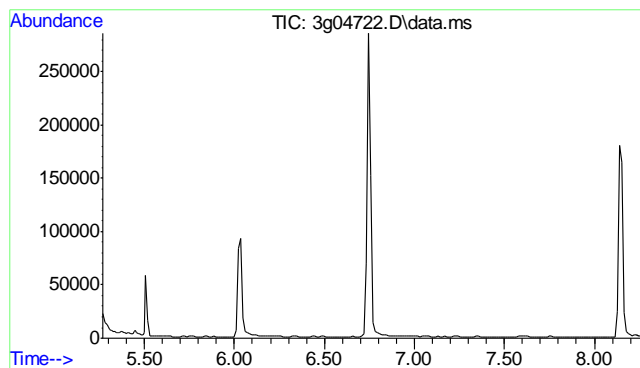


#4
N-Nitrosodi-propylamine
Concen: N.D. ug/mL
Expected RT: 5.89 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

Tgt Ion:	70
Sig	Exp Ratio
70	100
101	12.2
42	66.2
130	28.0

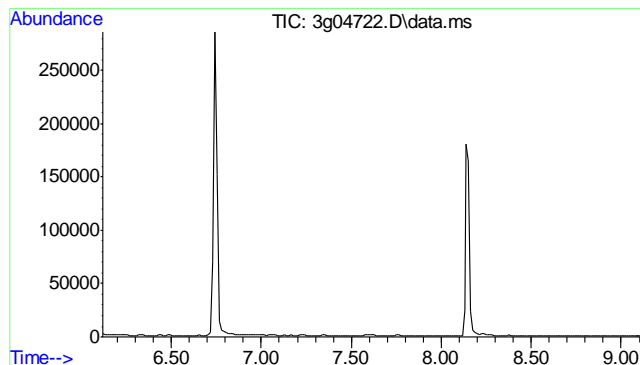
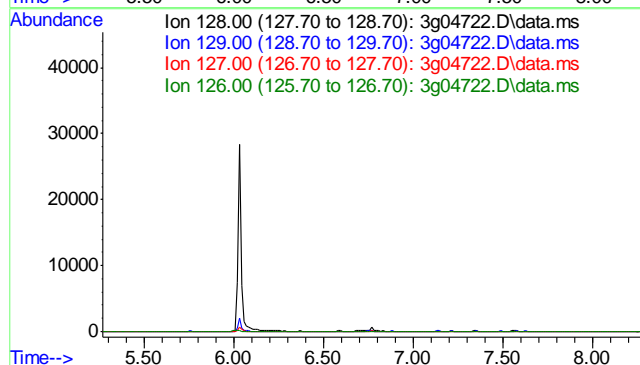




#5
Naphthalene
Concen: N.D. ug/mL
Expected RT: 6.77 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

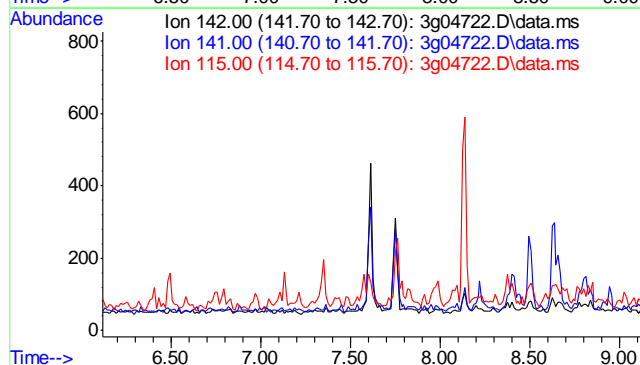
Tgt Ion:	128
Sig	Exp Ratio
128	100
129	10.9
127	11.9
126	6.7

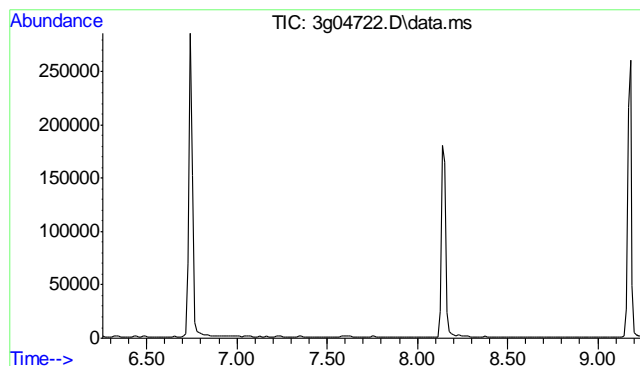


#8
2-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.62 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

Tgt Ion:	142
Sig	Exp Ratio
142	100
141	81.9
115	24.8

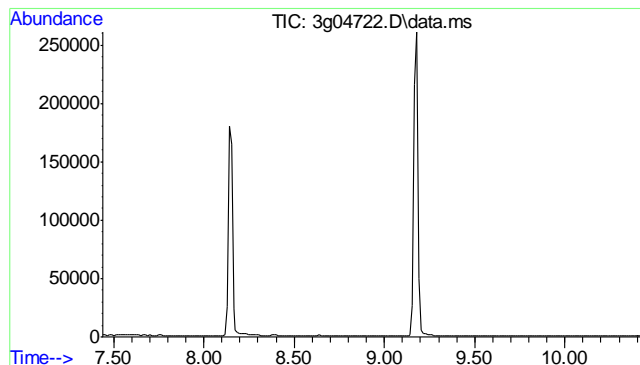
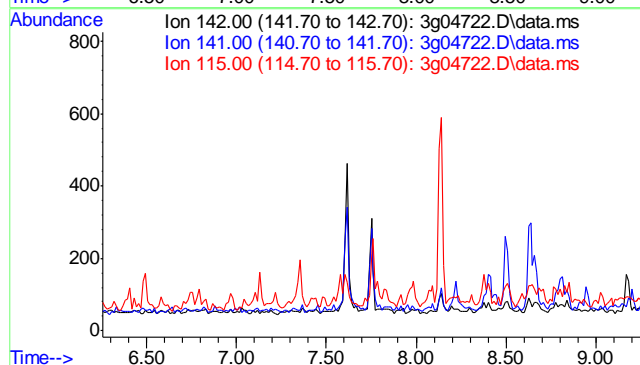




#9
1-Methylnaphthalene
Concen: N.D. ug/mL
Expected RT: 7.75 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

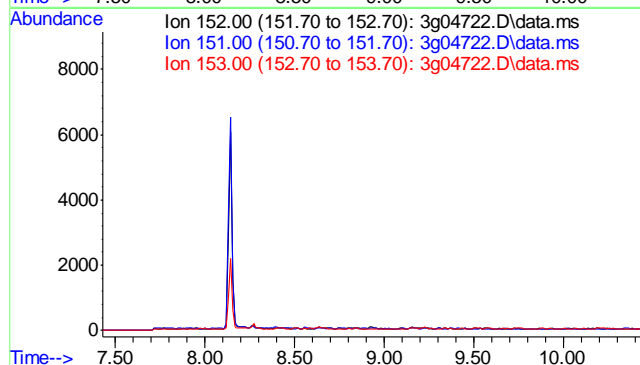
Tgt Ion:	142
Sig	Exp Ratio
142	100
141	85.2
115	25.5

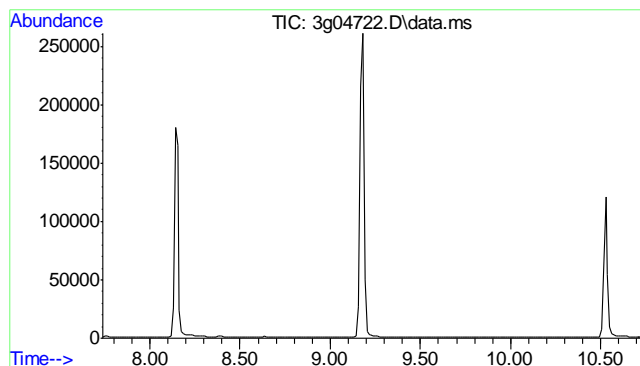


#10
Acenaphthylene
Concen: N.D. ug/mL
Expected RT: 8.93 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

Tgt Ion:	152
Sig	Exp Ratio
152	100
151	18.6
153	12.8

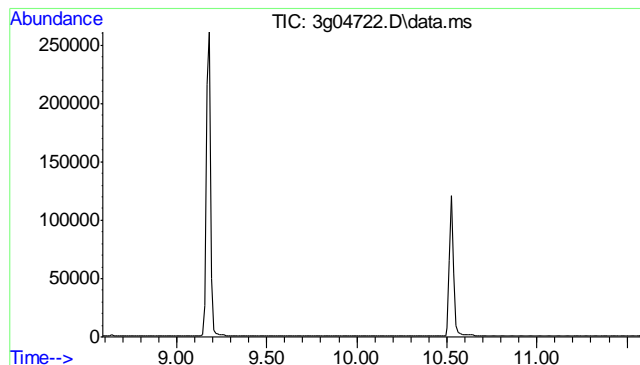
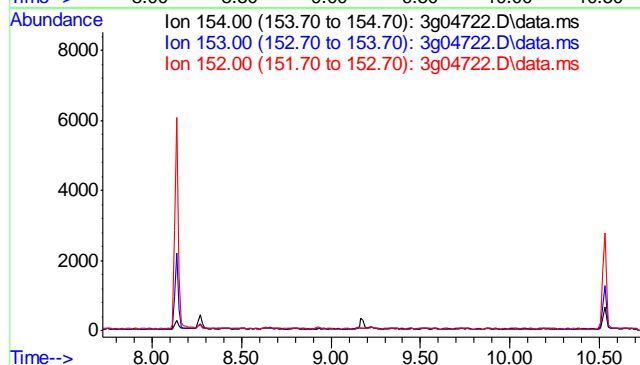




#11
Acenaphthene
Concen: N.D. ug/mL
Expected RT: 9.23 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

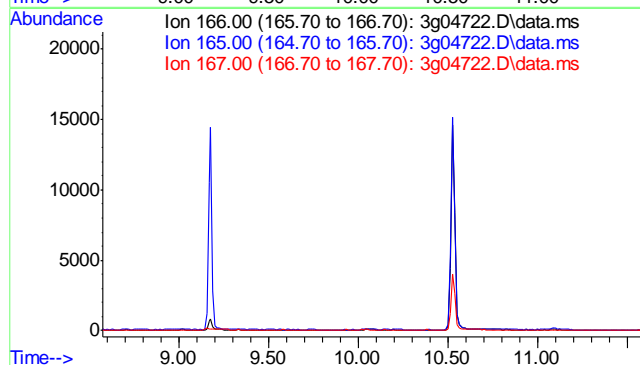
Tgt Ion: 154
Sig Exp Ratio
154 100
153 103.0
152 47.6

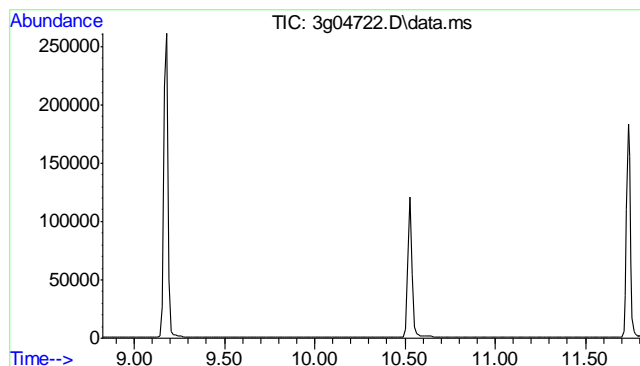


#12
Fluorene
Concen: N.D. ug/mL
Expected RT: 10.08 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

Tgt Ion: 166
Sig Exp Ratio
166 100
165 90.1
167 11.9

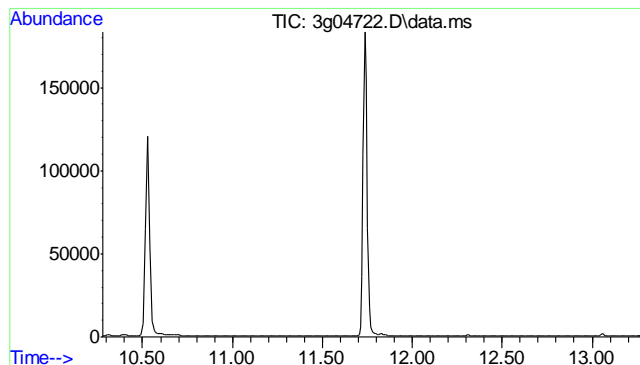
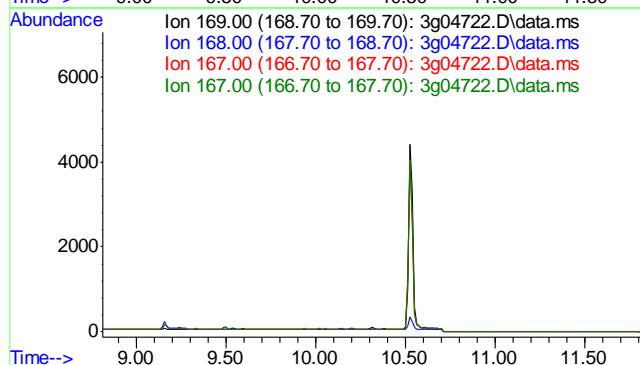




#13
Diphenylamine
Concen: N.D. ug/mL
Expected RT: 10.31 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

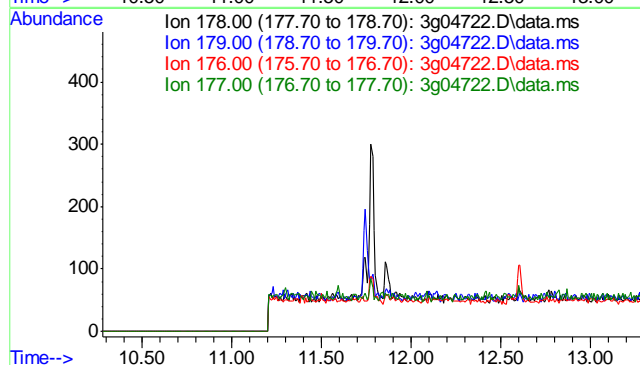
Tgt Ion: 169	
Sig	Exp Ratio
169	100
168	60.7
167	32.2
167	32.2

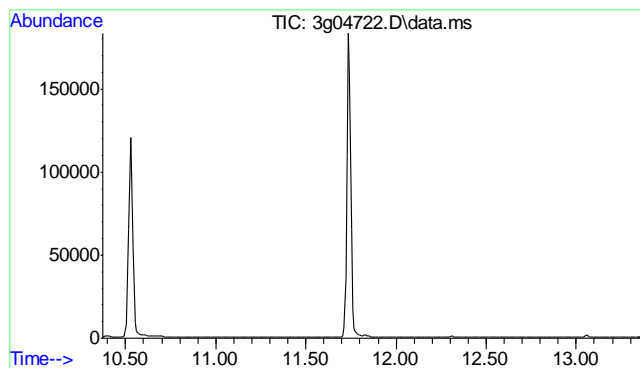


#15
Phenanthrene
Concen: N.D. ug/mL
Expected RT: 11.78 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

Tgt Ion: 178	
Sig	Exp Ratio
178	100
179	15.1
176	18.0
177	9.7

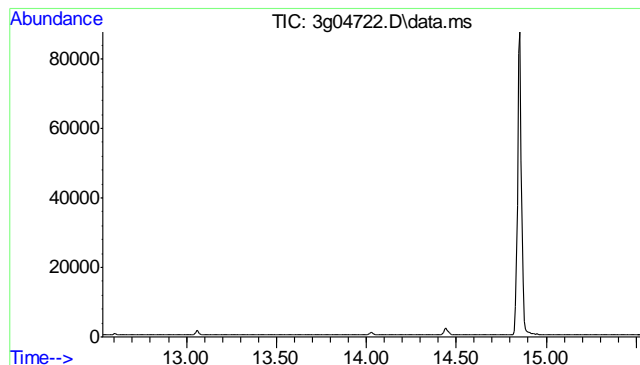
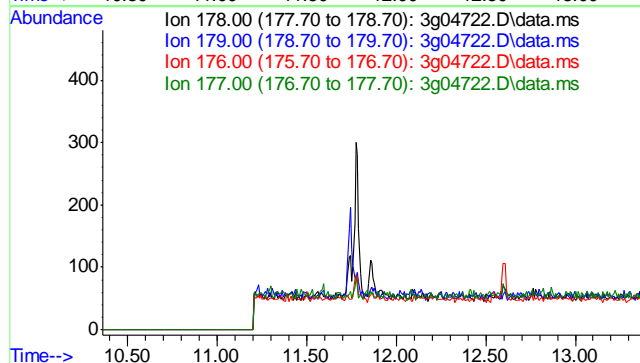




#16
Anthracene
Concen: N.D. ug/mL
Expected RT: 11.86 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

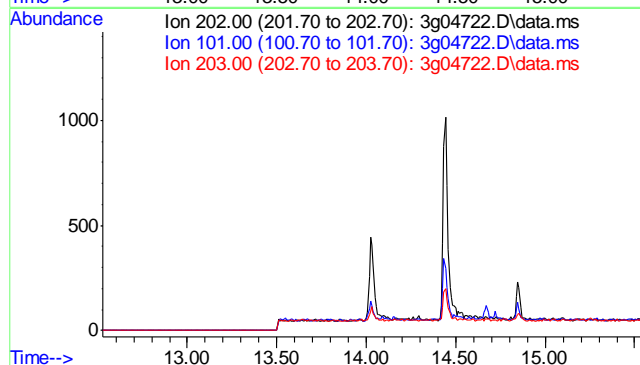
Tgt Ion:	178
Sig	Exp Ratio
178	100
179	15.1
176	17.0
177	8.1

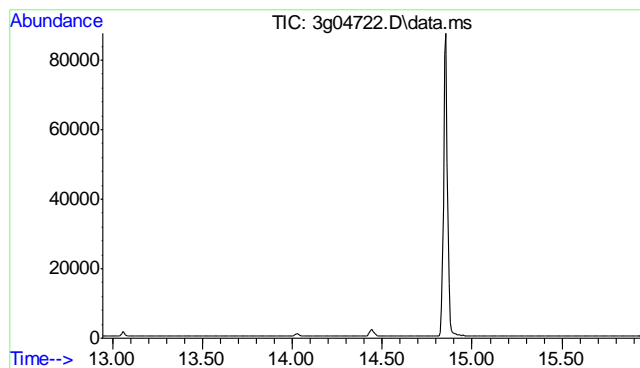


#17
Fluoranthene
Concen: N.D. ug/mL
Expected RT: 14.03 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

Tgt Ion:	202
Sig	Exp Ratio
202	100
101	25.1
203	17.0

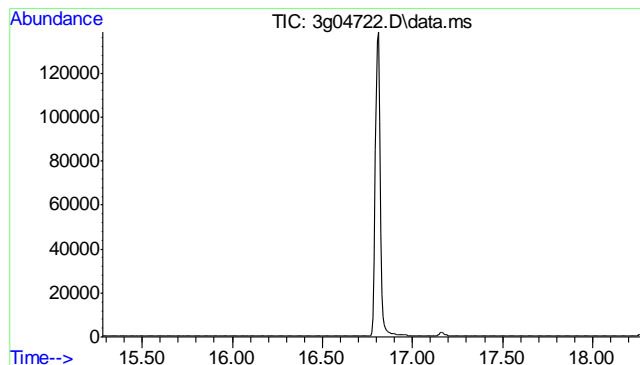
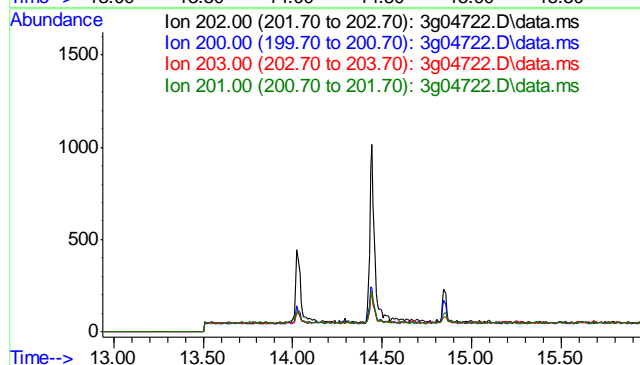




#19
Pyrene
Concen: N.D. ug/mL
Expected RT: 14.44 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

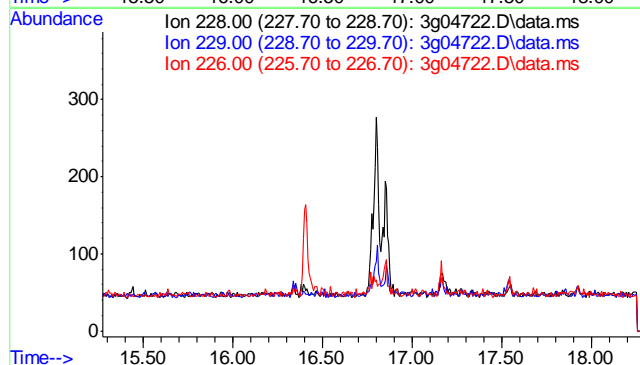
Tgt Ion:	202
Sig	Exp Ratio
202	100
200	22.4
203	17.7
201	18.3

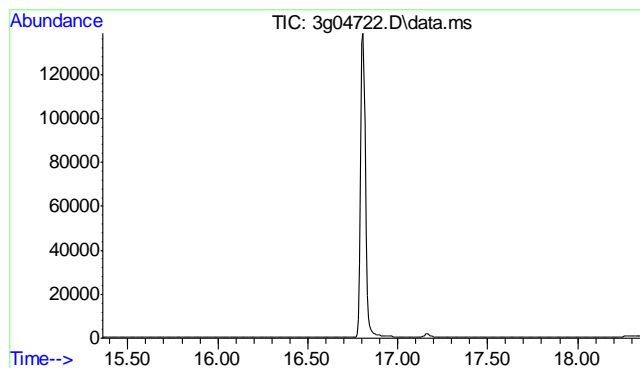


#21
Benzo(a)anthracene
Concen: N.D. ug/mL
Expected RT: 16.78 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

Tgt Ion:	228
Sig	Exp Ratio
228	100
229	19.6
226	25.6

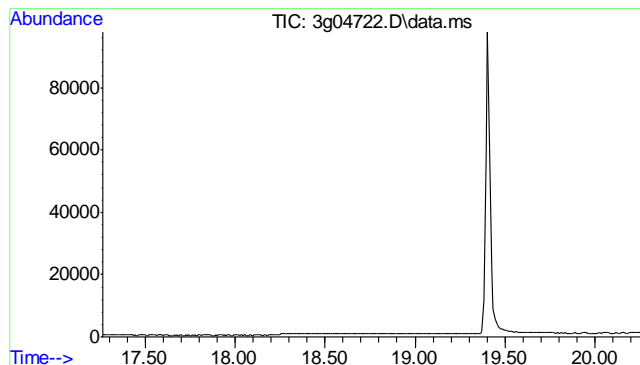
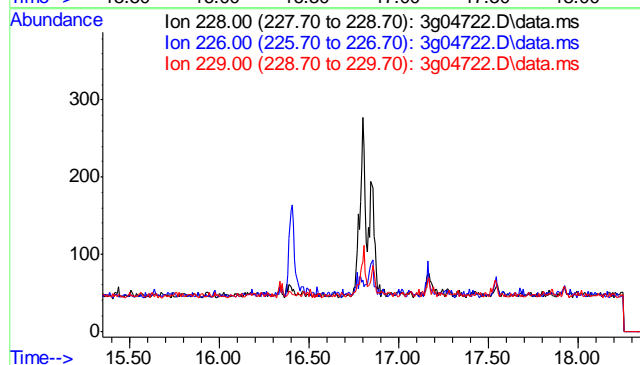




#22
Chrysene
Concen: N.D. ug/mL
Expected RT: 16.86 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

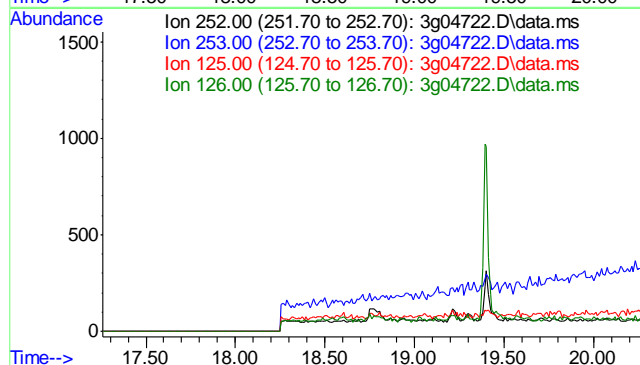
Tgt Ion:	228
Sig	Exp Ratio
228	100
226	27.7
229	19.1

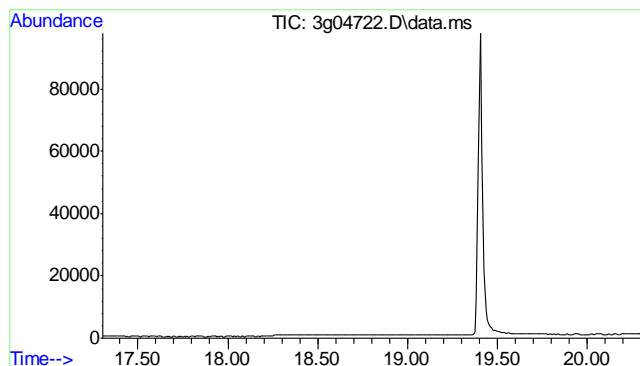


#24
Benzo(b)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.76 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	25.0
125	26.2
126	36.9

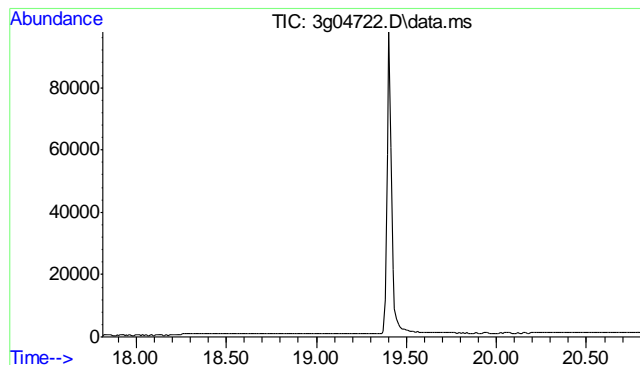
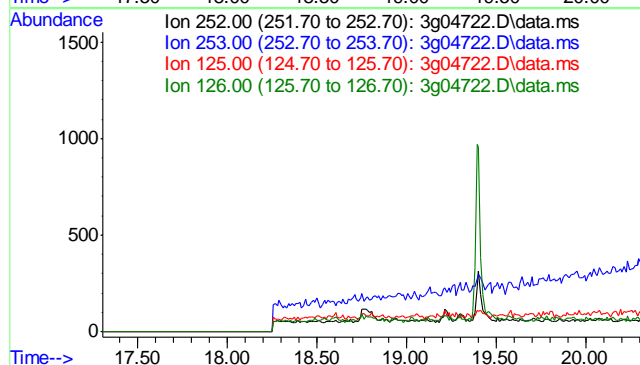




#25
Benzo(k)fluoranthene
Concen: N.D. ug/mL
Expected RT: 18.80 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

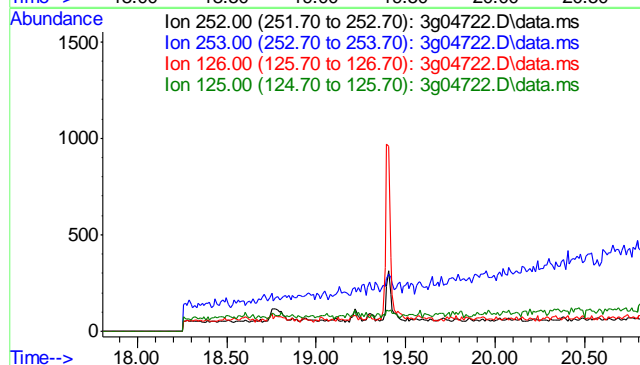
Tgt Ion:	252
Sig	Exp Ratio
252	100
253	18.7
125	23.9
126	37.9

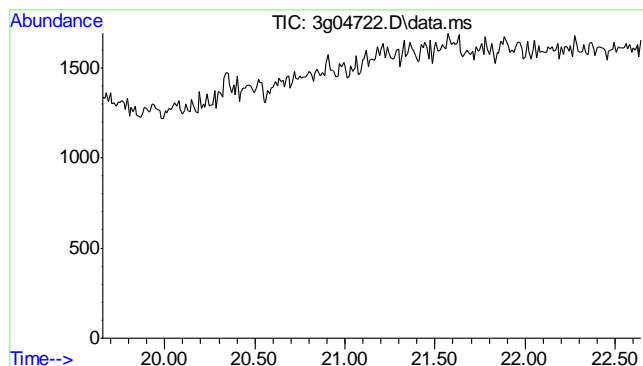


#26
Benzo(a)pyrene
Concen: N.D. ug/mL
Expected RT: 19.31 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
253	21.6
126	35.5
125	26.8

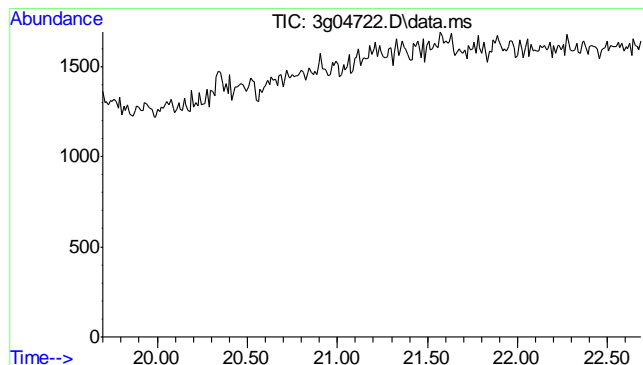
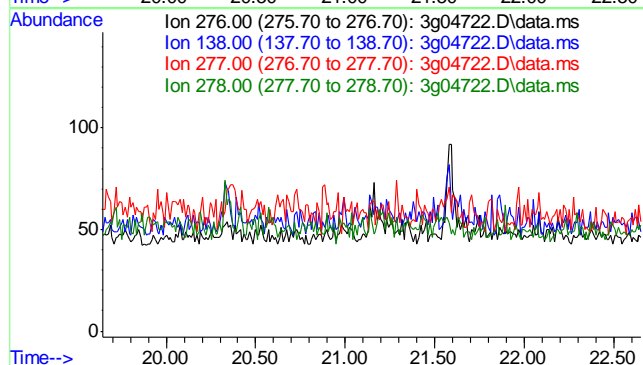




#27
Indeno(1,2,3-cd)pyrene
Concen: N.D. ug/mL
Expected RT: 21.15 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

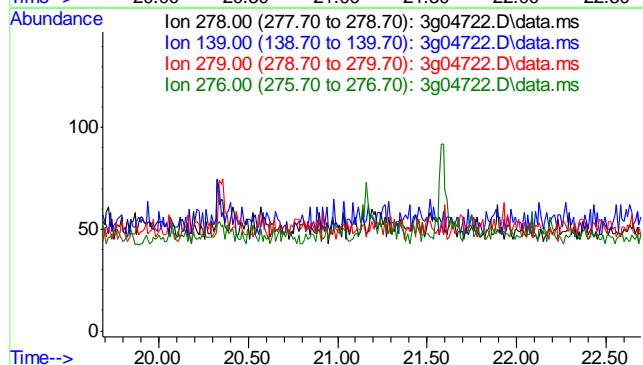
Tgt Ion:	276
Sig	Exp Ratio
276	100
138	53.4
277	34.3
278	108.2

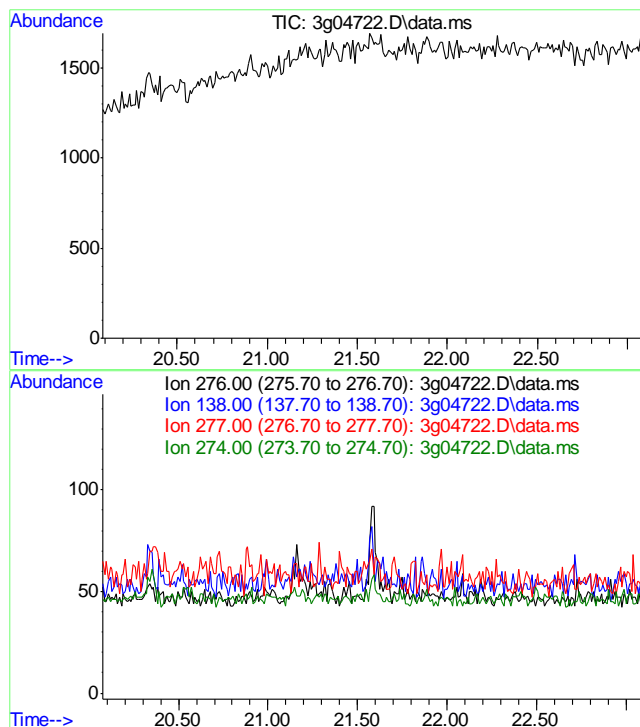


#28
Dibenz(a,h)anthracene
Concen: N.D. ug/mL
Expected RT: 21.19 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

Tgt Ion:	278
Sig	Exp Ratio
278	100
139	44.7
279	23.3
276	127.4





#29
Benzo(g,h,i)perylene
Concen: N.D. ug/mL
Expected RT: 21.58 min

Lab File: 3g04722.D
Acq: 27 Jun 11 9:35 pm

Tgt Ion: 276
Sig Exp Ratio
276 100
138 57.3
277 23.4
274 20.7

GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D24773
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB654-MB	GB11386.D	1	06/24/11	SK	n/a	n/a	GGB654

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

D24773-1, D24773-2

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	81% 60-140%

9.1.1
9

Blank Spike Summary

Job Number: D24773
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB654-BS	GB11387.D	1	06/24/11	SK	n/a	n/a	GGB654

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

D24773-1, D24773-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	114	104	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	88%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D24773
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D24600-1MS	GB11389.D	1	06/24/11	SK	n/a	n/a	GGB654
D24600-1MSD	GB11390.D	1	06/24/11	SK	n/a	n/a	GGB654
D24600-1	GB11388.D	1	06/24/11	SK	n/a	n/a	GGB654

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

D24773-1, D24773-2

CAS No.	Compound	D24600-1 mg/kg	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND	170	174	102	176	103	1	62-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D24600-1	Limits
120-82-1	1,2,4-Trichlorobenzene	84%	89%	77%	60-140%

GC Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\062411\GB11397.D\FID1A.CH Vial: 13
 Signal #2 : Y:\1\DATA\062411\GB11397.D\FID2B.CH
 Acq On : 25 Jun 2011 2:08 am Operator: StephK
 Sample : D24773-1, 50X Inst : GC/MS Ins
 Misc : GC1991,GGB654,5.179,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Jun 25 11:56:36 2011 Quant Results File: TB630GB630.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB630GB630.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Jun 23 08:27:03 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	3089459	79.819	%
10) S	1,2,4-Trichlorobenzene (P)	14.28	27417871	81.236	%
Target Compounds					
1) H	TVH-Gasoline	7.21	3276530	<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	7.50	118782	0.182	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	10.34	397348	0.586	ug/L
9) T	o-Xylene	10.86	134767	0.237	ug/L
11) T	Naphthalene	14.46	349204	1.091	ug/L

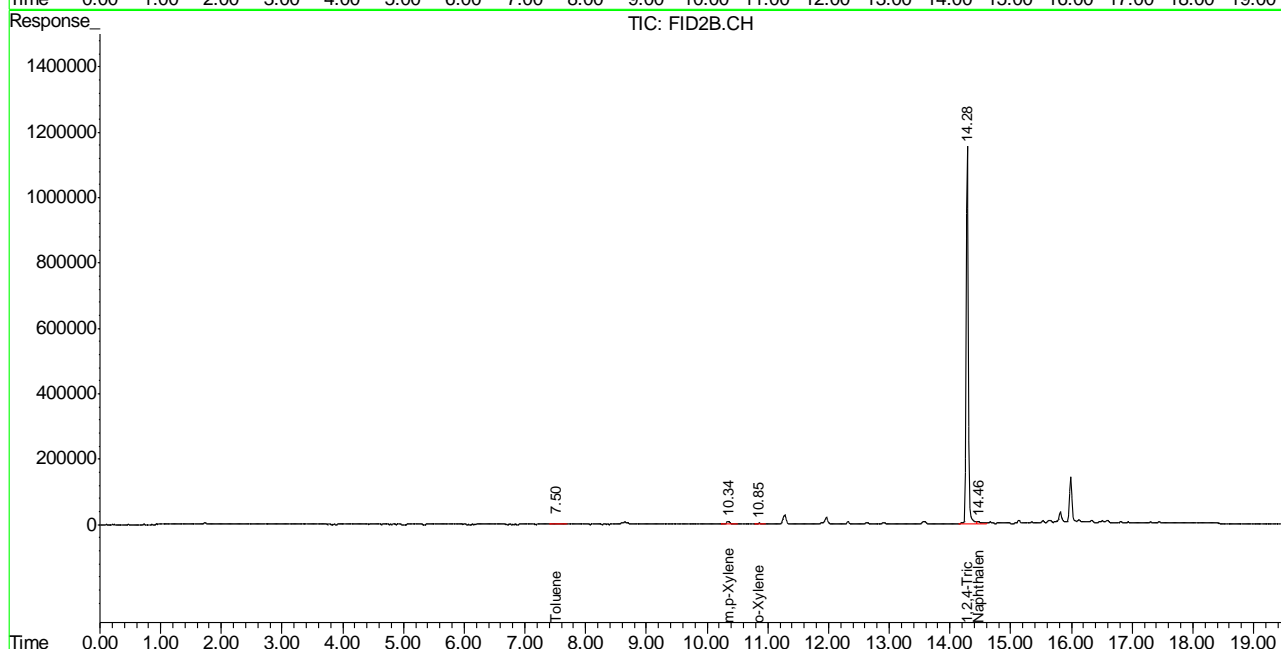
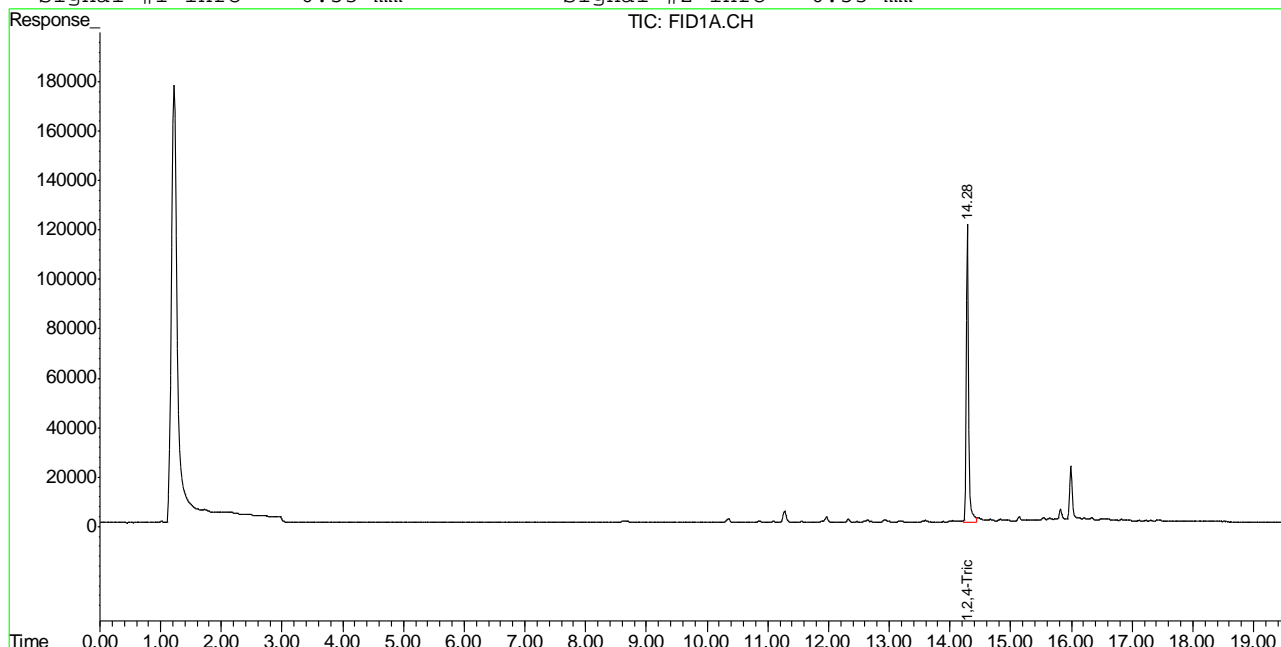
(f)=RT Delta > 1/2 Window (m)=manual int.
 GB11397.D TB630GB630.M Sat Jun 25 12:12:47 2011 GC

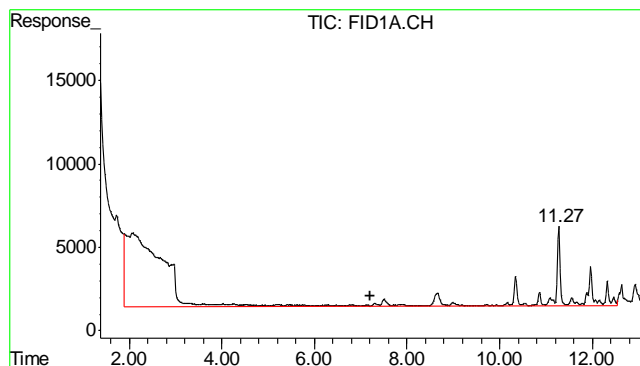
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\062411\GB11397.D\FID1A.CH Vial: 13
 Signal #2 : Y:\1\DATA\062411\GB11397.D\FID2B.CH
 Acq On : 25 Jun 2011 2:08 am Operator: StephK
 Sample : D24773-1, 50X Inst : GC/MS Ins
 Misc : GC1991,GGB654,5.179,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Jun 25 11:02 2011 Quant Results File: TB630GB630.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB630GB630.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Jun 23 08:27:03 2011
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

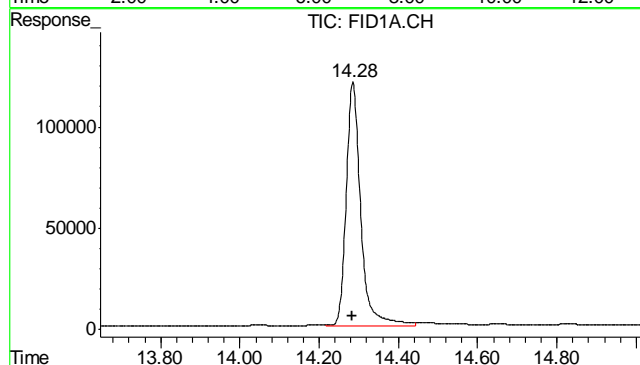
Volume Inj. :
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





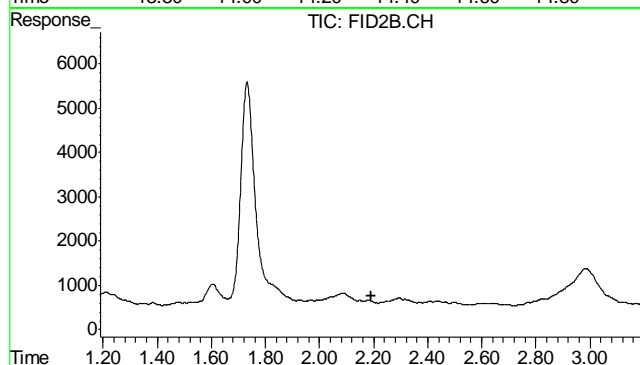
#1 TVH-Gasoline

R.T.: 7.215 min
Delta R.T.: 0.000 min
Response: 3276530
Conc: N.D.



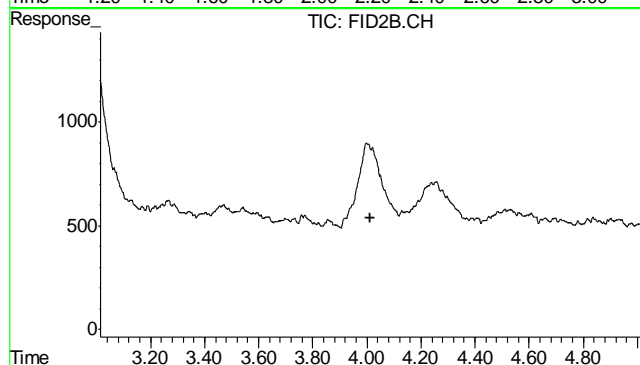
#2 1,2,4-Trichlorobenzene

R.T.: 14.285 min
Delta R.T.: 0.002 min
Response: 3089459
Conc: 79.82 %



#4 Methyl-t-butyl-ether

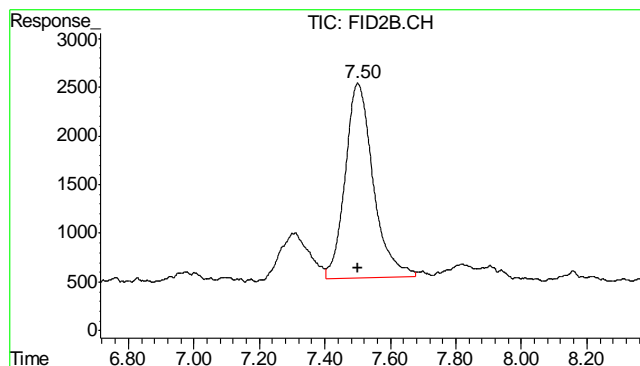
R.T.: 0.000 min
Exp R.T.: 2.190 min
Response: 0
Conc: N.D.



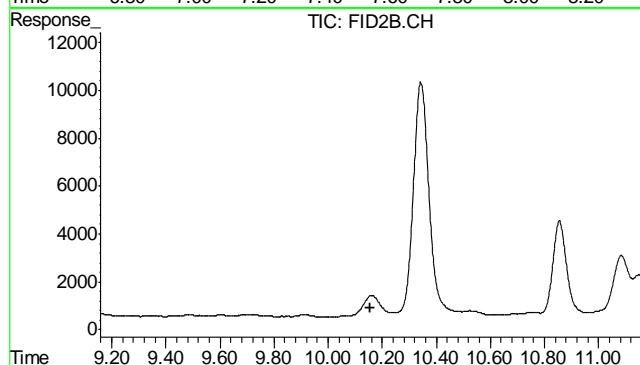
#5 Benzene

R.T.: 0.000 min
Exp R.T.: 4.013 min
Response: 0
Conc: N.D.

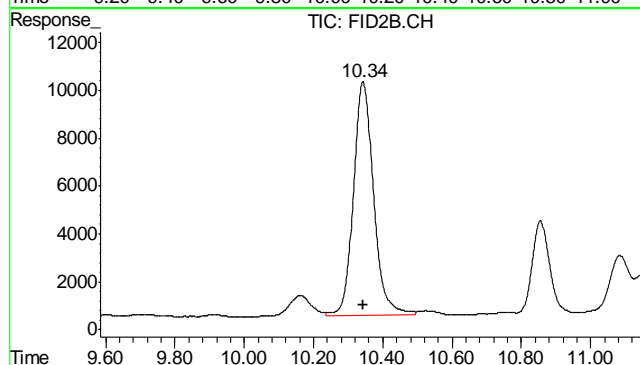
10.1.1
10



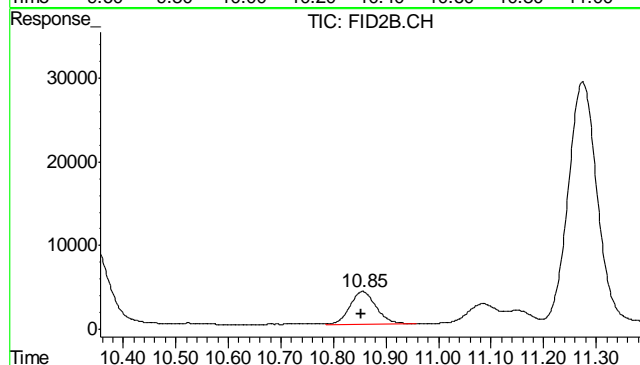
#6 Toluene
 R.T.: 7.501 min
 Delta R.T.: -0.001 min
 Response: 118782
 Conc: 0.18 ug/L



#7 Ethylbenzene
 R.T.: 0.000 min
 Exp R.T.: 10.157 min
 Response: 0
 Conc: N.D.

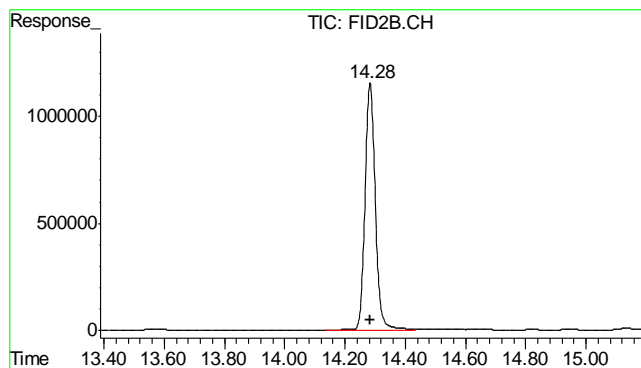


#8 m,p-Xylene
 R.T.: 10.343 min
 Delta R.T.: -0.001 min
 Response: 397348
 Conc: 0.59 ug/L



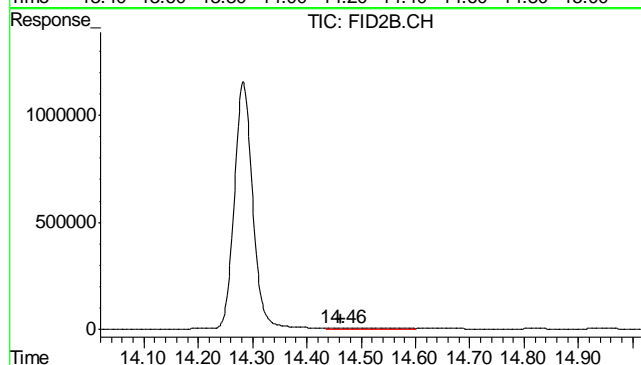
#9 o-Xylene
 R.T.: 10.855 min
 Delta R.T.: 0.002 min
 Response: 134767
 Conc: 0.24 ug/L

10.1.1
 10



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

R.T.: 14.283 min
 Delta R.T.: 0.002 min
 Response: 27417871
 Conc: 81.24 %



#11 Naphthalene

R.T.: 14.463 min
 Delta R.T.: 0.001 min
 Response: 349204
 Conc: 1.09 ug/L

10.1.1
10

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\062411\GB11398.D\FID1A.CH Vial: 14
Signal #2 : Y:\1\DATA\062411\GB11398.D\FID2B.CH
Acq On : 25 Jun 2011 2:44 am Operator: StephK
Sample : D24773-2, 50X Inst : GC/MS Ins
Misc : GC1991,GGB654,5.169,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jun 25 11:56:40 2011 Quant Results File: TB630GB630.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB630GB630.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Jun 23 08:27:03 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	

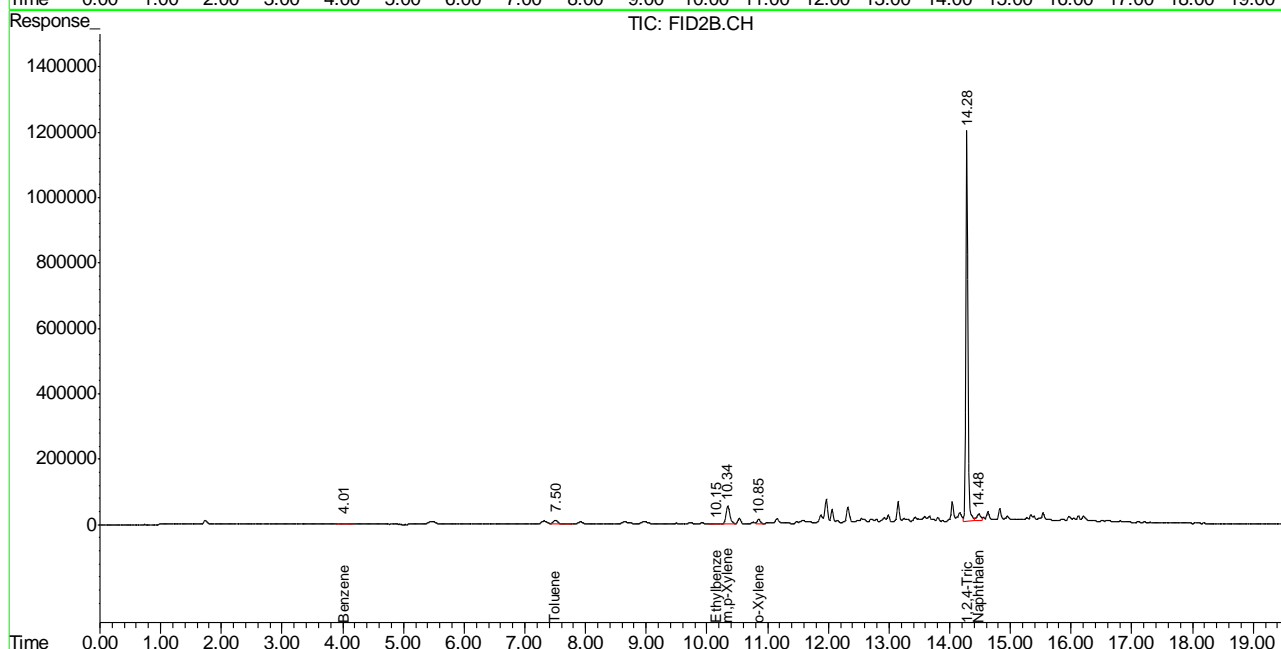
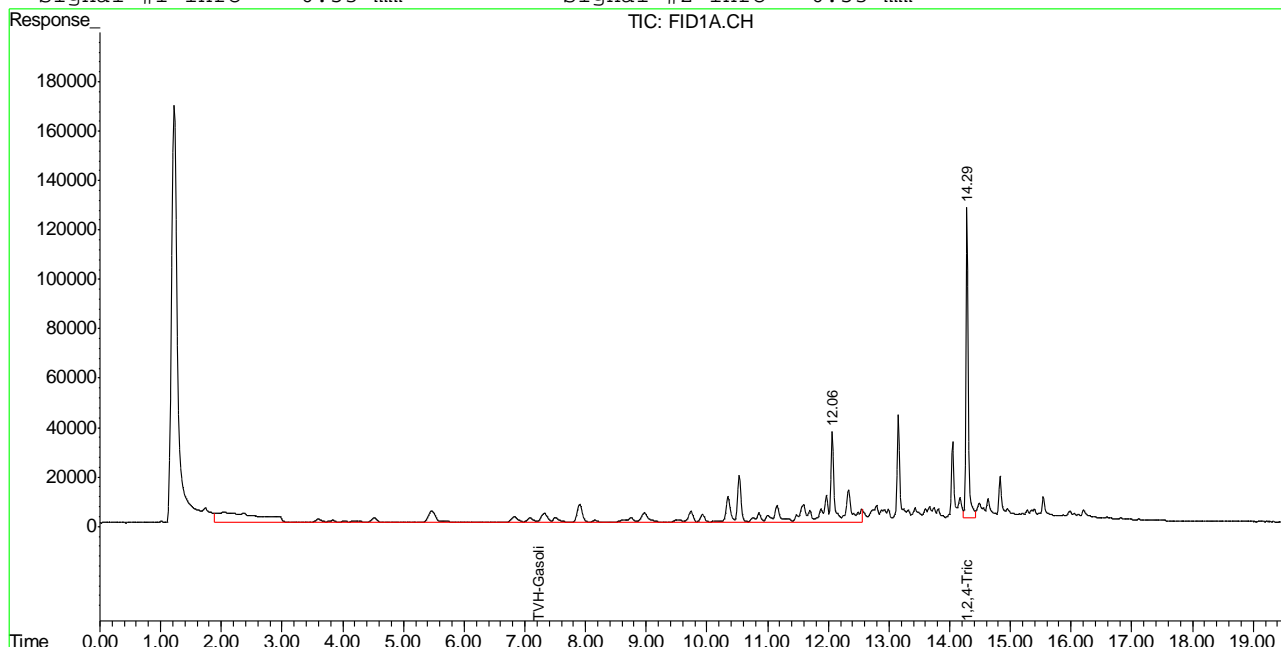
System Monitoring Compounds						
2) S	1,2,4-Trichlorobenzene	14.29	3249447	83.953 %	m	
10) S	1,2,4-Trichlorobenzene (P)	14.28	28122644	83.595 %		
Target Compounds						
1) H	TVH-Gasoline	7.21	11547346	0.133 mg/L		
4) T	Methyl-t-butyl-ether	0.00	0	N.D. ug/L	d	
5) T	Benzene	4.01	161210	0.238 ug/L		
6) T	Toluene	7.50	756941	1.159 ug/L		
7) T	Ethylbenzene	10.15	139005	0.242 ug/L		
8) T	m,p-Xylene	10.34	2589754	3.822 ug/L		
9) T	o-Xylene	10.85	582422	1.025 ug/L		
11) T	Naphthalene	14.48	1033998	3.229 ug/L		

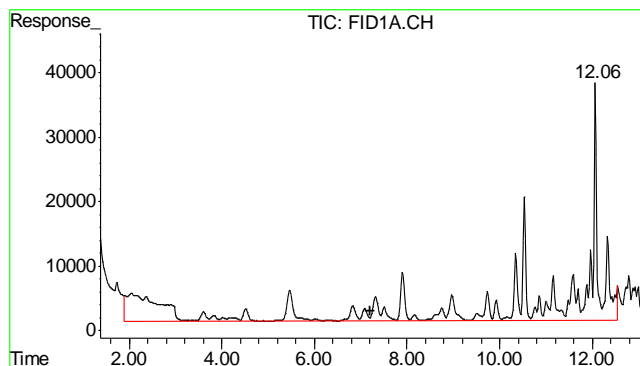
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\062411\GB11398.D\FID1A.CH Vial: 14
 Signal #2 : Y:\1\DATA\062411\GB11398.D\FID2B.CH
 Acq On : 25 Jun 2011 2:44 am Operator: StephK
 Sample : D24773-2, 50X Inst : GC/MS Ins
 Misc : GC1991,GGB654,5.169,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Jun 25 11:02 2011 Quant Results File: TB630GB630.RES

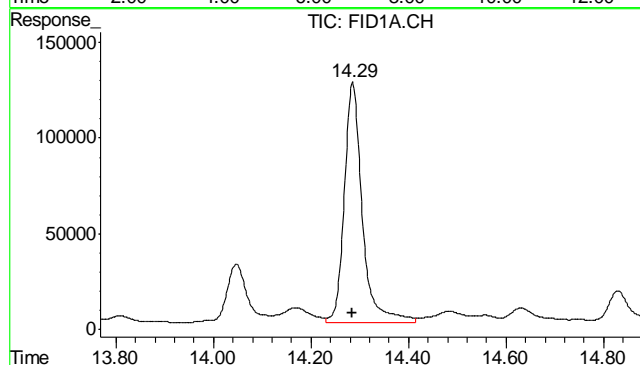
Quant Method : C:\MSDCHEM\1\METHODS\TB630GB630.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Jun 23 08:27:03 2011
 Response via : Multiple Level Calibration
 DataAcq Meth : TVB4.M

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

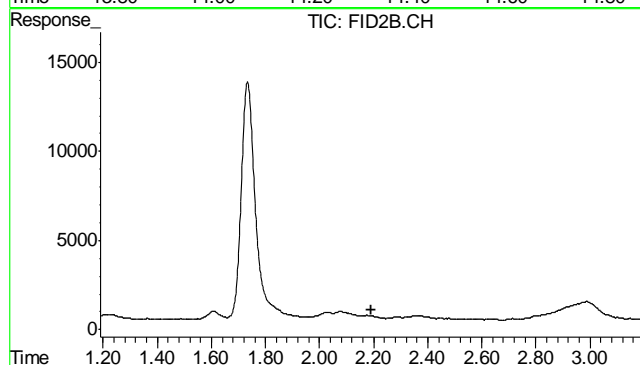




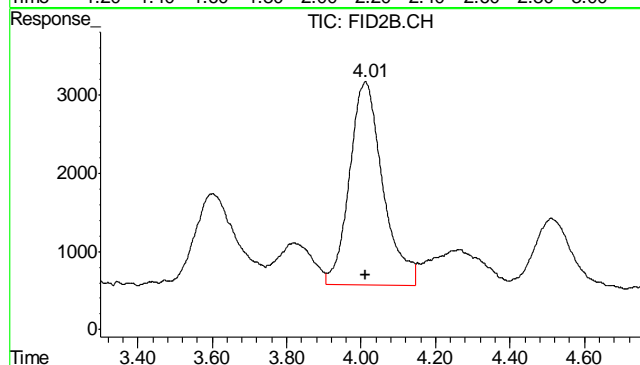
#1 TVH-Gasoline
 R.T.: 7.215 min
 Delta R.T.: 0.000 min
 Response: 11547346
 Conc: 0.13 mg/L m



#2 1,2,4-Trichlorobenzene
 R.T.: 14.285 min
 Delta R.T.: 0.001 min
 Response: 3249447
 Conc: 83.95 % m

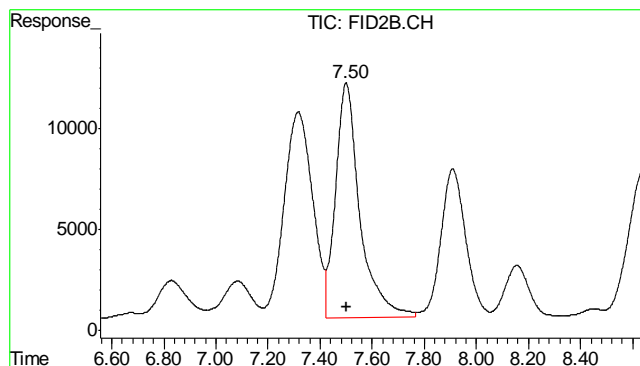


#4 Methyl-t-butyl-ether
 R.T.: 0.000 min
 Exp R.T.: 2.190 min
 Response: 0
 Conc: N.D.



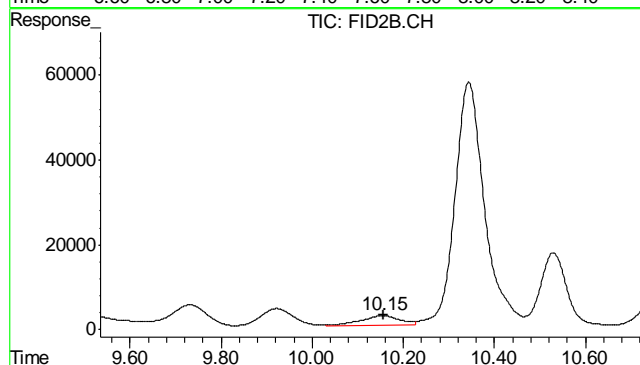
#5 Benzene
 R.T.: 4.012 min
 Delta R.T.: -0.001 min
 Response: 161210
 Conc: 0.24 ug/L

10.12 10



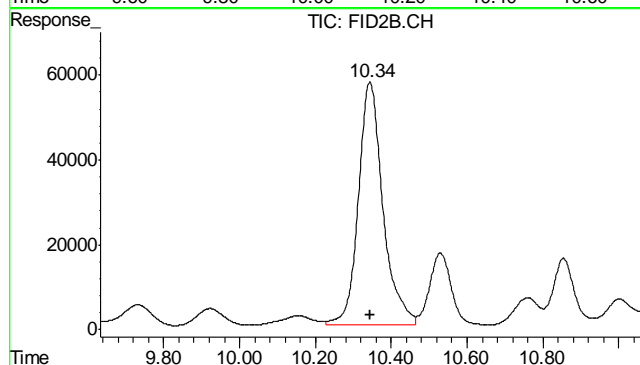
#6 Toluene

R.T.: 7.500 min
Delta R.T.: -0.002 min
Response: 756941
Conc: 1.16 ug/L



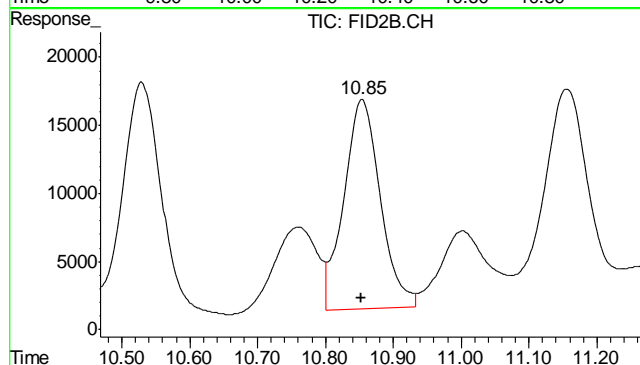
#7 Ethylbenzene

R.T.: 10.155 min
Delta R.T.: -0.002 min
Response: 139005
Conc: 0.24 ug/L



#8 m,p-Xylene

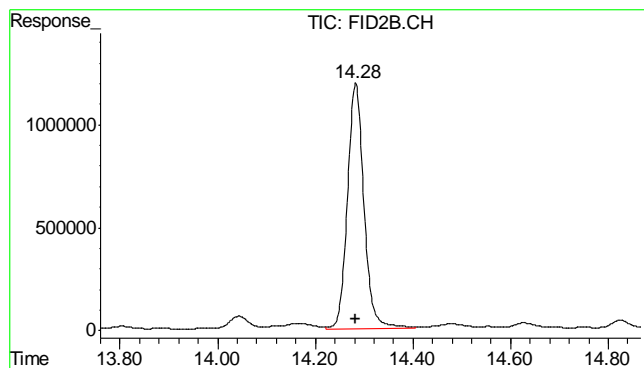
R.T.: 10.344 min
Delta R.T.: 0.000 min
Response: 2589754
Conc: 3.82 ug/L



#9 o-Xylene

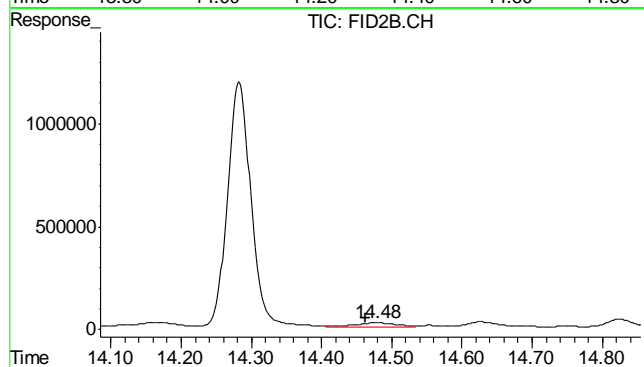
R.T.: 10.854 min
Delta R.T.: 0.000 min
Response: 582422
Conc: 1.03 ug/L

10.12 10



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

R.T.: 14.283 min
Delta R.T.: 0.001 min
Response: 28122644
Conc: 83.59 %



#11 Naphthalene

R.T.: 14.478 min
Delta R.T.: 0.016 min
Response: 1033998
Conc: 3.23 ug/L

10.1.2
10

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\062411\GB11386.D\FID1A.CH Vial: 2
 Signal #2 : Y:\1\DATA\062411\GB11386.D\FID2B.CH
 Acq On : 24 Jun 2011 7:33 pm Operator: StephK
 Sample : MB, S Inst : GC/MS Ins
 Misc : GC1991,GGB654,5.000,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Jun 25 11:55:52 2011 Quant Results File: TB630GB630.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB630GB630.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Jun 23 08:27:03 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	3138991	81.099	%
10) S	1,2,4-Trichlorobenzene (P)	14.28	27887308	82.807	%
Target Compounds					
1) H	TVH-Gasoline	7.21	2714317	<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	7.50	191408	0.293	ug/L
7) T	Ethylbenzene	10.15	108525	0.189	ug/L
8) T	m,p-Xylene	10.34	584264	0.862	ug/L
9) T	o-Xylene	10.85	351755	0.619	ug/L
11) T	Naphthalene	14.46	378951	1.184	ug/L

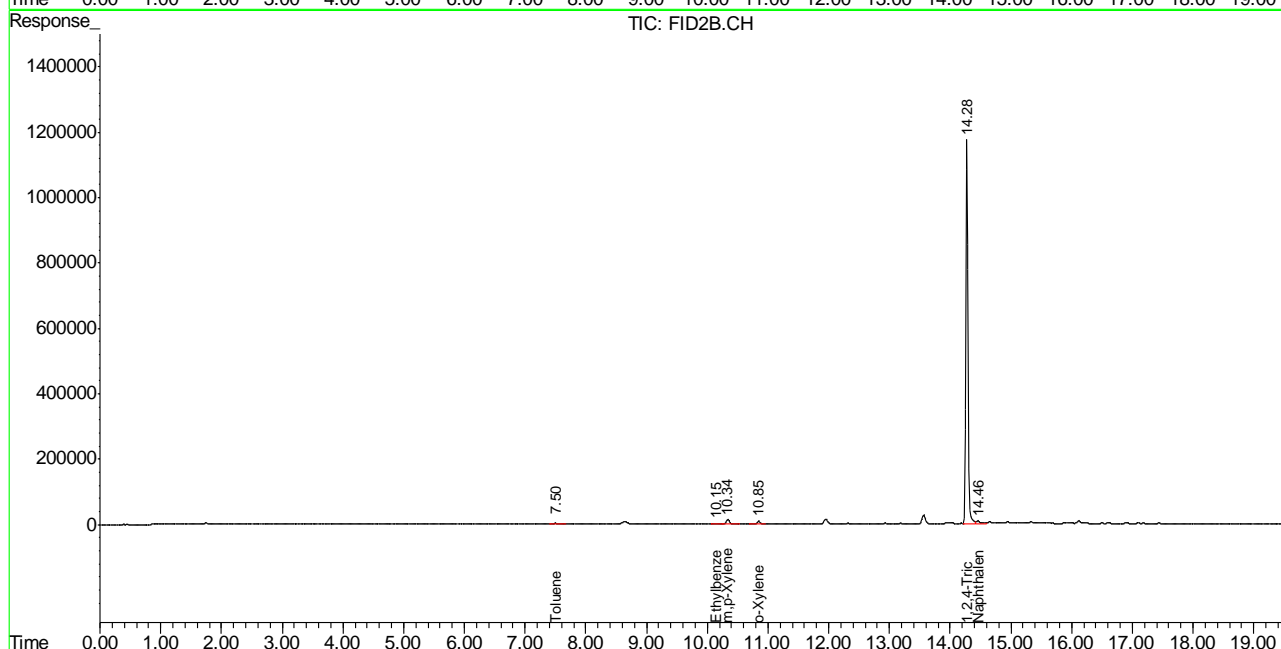
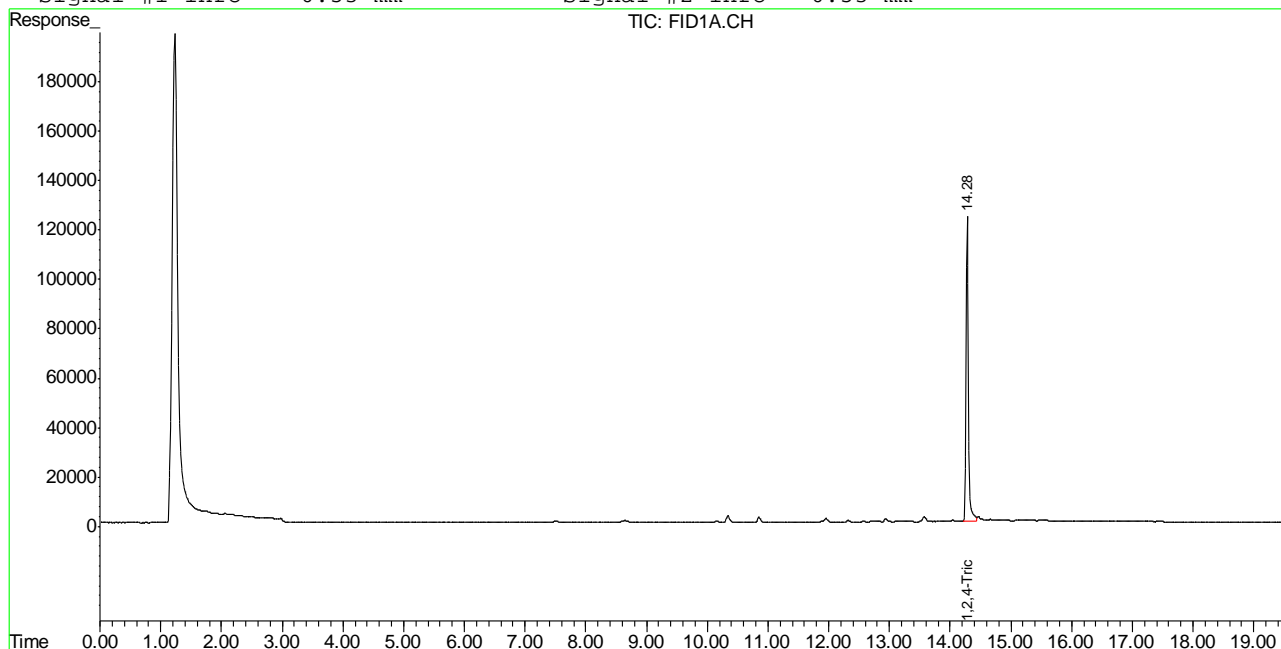
 (f)=RT Delta > 1/2 Window (m)=manual int.
 GB11386.D TB630GB630.M Sat Jun 25 12:12:14 2011 GC

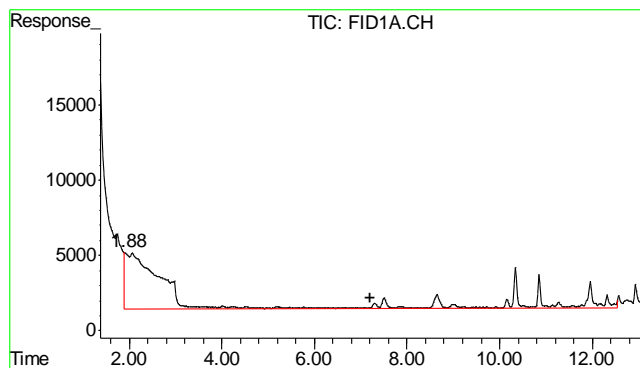
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\062411\GB11386.D\FID1A.CH Vial: 2
Signal #2 : Y:\1\DATA\062411\GB11386.D\FID2B.CH
Acq On : 24 Jun 2011 7:33 pm Operator: StephK
Sample : MB, S Inst : GC/MS Ins
Misc : GC1991,GGB654,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jun 25 10:57 2011 Quant Results File: TB630GB630.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB630GB630.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Jun 23 08:27:03 2011
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

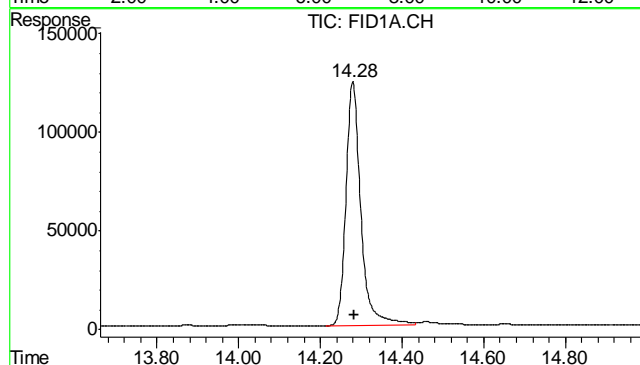
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





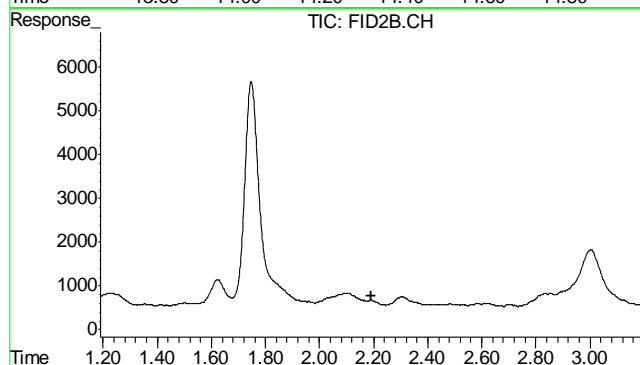
#1 TVH-Gasoline

R.T.: 7.215 min
Delta R.T.: 0.000 min
Response: 2714317
Conc: N.D.



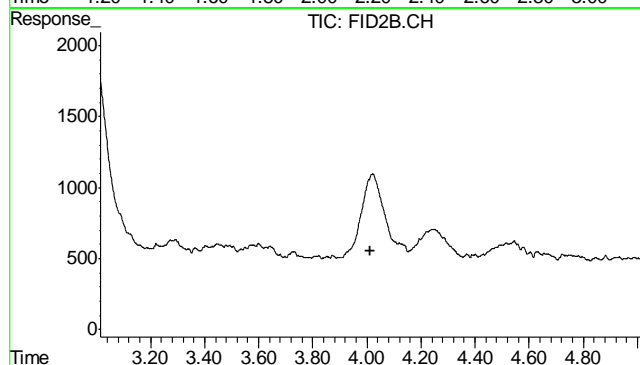
#2 1,2,4-Trichlorobenzene

R.T.: 14.280 min
Delta R.T.: -0.004 min
Response: 3138991
Conc: 81.10 %



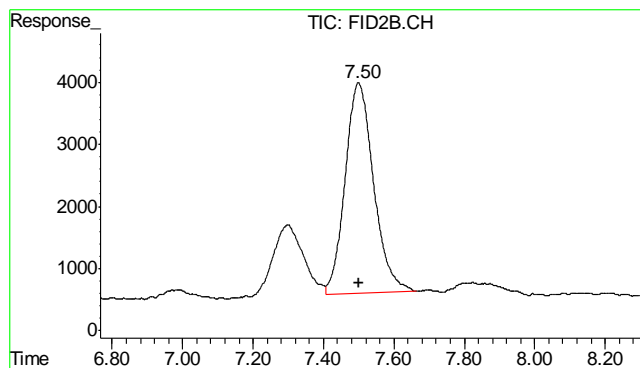
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.190 min
Response: 0
Conc: N.D.



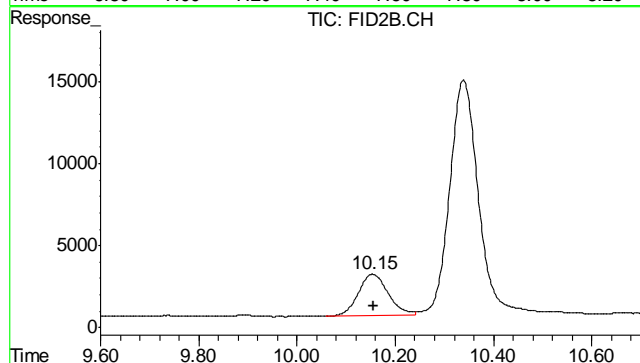
#5 Benzene

R.T.: 0.000 min
Exp R.T. : 4.013 min
Response: 0
Conc: N.D.



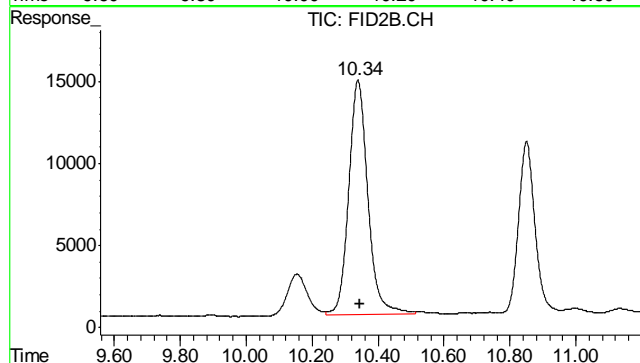
#6 Toluene

R.T.: 7.500 min
Delta R.T.: -0.003 min
Response: 191408
Conc: 0.29 ug/L



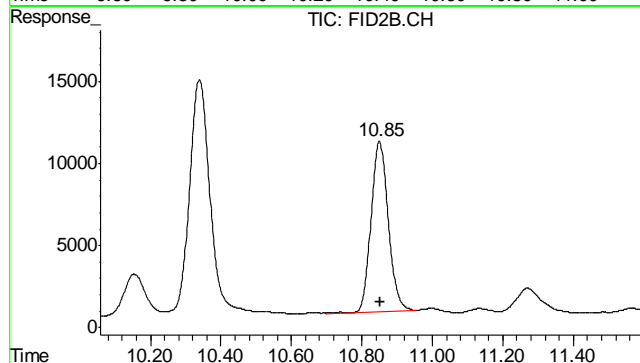
#7 Ethylbenzene

R.T.: 10.154 min
Delta R.T.: -0.003 min
Response: 108525
Conc: 0.19 ug/L



#8 m,p-Xylene

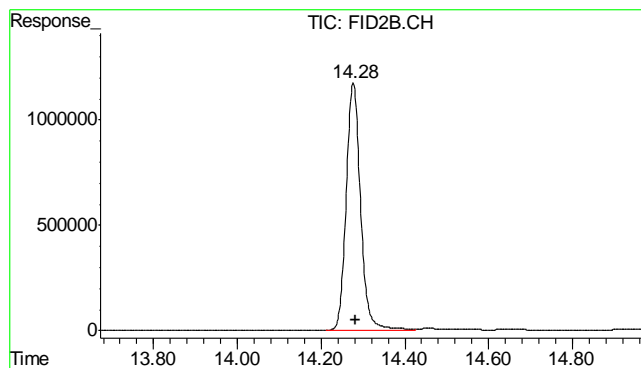
R.T.: 10.339 min
Delta R.T.: -0.005 min
Response: 584264
Conc: 0.86 ug/L



#9 o-Xylene

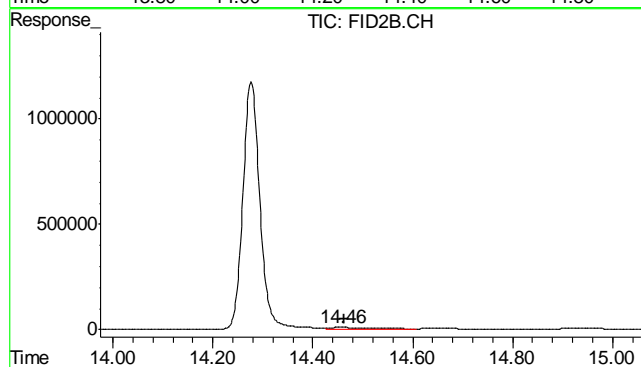
R.T.: 10.850 min
Delta R.T.: -0.003 min
Response: 351755
Conc: 0.62 ug/L

10.2.1 10



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

R.T.: 14.277 min
Delta R.T.: -0.004 min
Response: 27887308
Conc: 82.81 %



#11 Naphthalene

R.T.: 14.457 min
Delta R.T.: -0.005 min
Response: 378951
Conc: 1.18 ug/L

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: D24773
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3938-MB	FD07394.D	1	06/25/11	JB	06/24/11	OP3938	GFD323

The QC reported here applies to the following samples:

Method: SW846-8015B

D24773-2

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	78% 61-142%

11.1.1
11

Method Blank Summary

Job Number: D24773
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3965-MB	FI02975.D	1	06/29/11	JB	06/28/11	OP3965	GFI183

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

D24773-1

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	91% 61-142%

11.1.2
11

Blank Spike Summary

Job Number: D24773
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3938-BS	FD07395.D	1	06/25/11	JB	06/24/11	OP3938	GFD323

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

D24773-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	431	65	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	80%	61-142%

11.2.1
11

Blank Spike Summary

Page 1 of 1

Job Number: D24773

Account: KRWCCOL KRW Consulting, Inc.

Project: PCU 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3965-BS	FI02976.D	1	06/29/11	JB	06/28/11	OP3965	GFI183

The QC reported here applies to the following samples:

Method: SW846-8015B

D24773-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	561	84	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	93%	61-142%

11.22
11

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D24773
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3938-MS	FD07396.D	1	06/25/11	JB	06/24/11	OP3938	GFD323
OP3938-MSD	FD07397.D	1	06/25/11	JB	06/24/11	OP3938	GFD323
D24702-2	FD07398.D	1	06/25/11	JB	06/24/11	OP3938	GFD323

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

D24773-2

CAS No.	Compound	D24702-2 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	42.3		828	502	56	507	56	1	24-157/35

CAS No.	Surrogate Recoveries	MS	MSD	D24702-2	Limits
84-15-1	o-Terphenyl	73%	71%	69%	61-142%

11.3.1
11

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D24773
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3965-MS	FI02977.D	1	06/29/11	JB	06/28/11	OP3965	GFI183
OP3965-MSD	FI02978.D	1	06/29/11	JB	06/28/11	OP3965	GFI183
D24773-1	FI02979.D	1	06/29/11	JB	06/28/11	OP3965	GFI183

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

D24773-1

CAS No.	Compound	D24773-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	54.4		766	623	74	608	72	2	24-157/35

CAS No.	Surrogate Recoveries	MS	MSD	D24773-1	Limits
84-15-1	o-Terphenyl	84%	82%	88%	61-142%

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : E:\DATA\FI062711\FI02979.D Vial: 66
Acq On : 29 Jun 2011 11:29 am Operator: jacobbb
Sample : D24773-1 Inst : FID6
Misc : OP3965,GFI183,30.00,,,2,1 Multiplr: 1.00
IntFile : DF-GFE136.E
Quant Time: Jun 29 11:48:31 2011 Quant Results File: DF-GFI101.RES

Quant Method : C:\MSDCHEM\1\METHODS\DF-GFI101.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Jun 17 08:32:02 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	13.65	61826540	877.240 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	11.82	46443452	708.112 mg/L

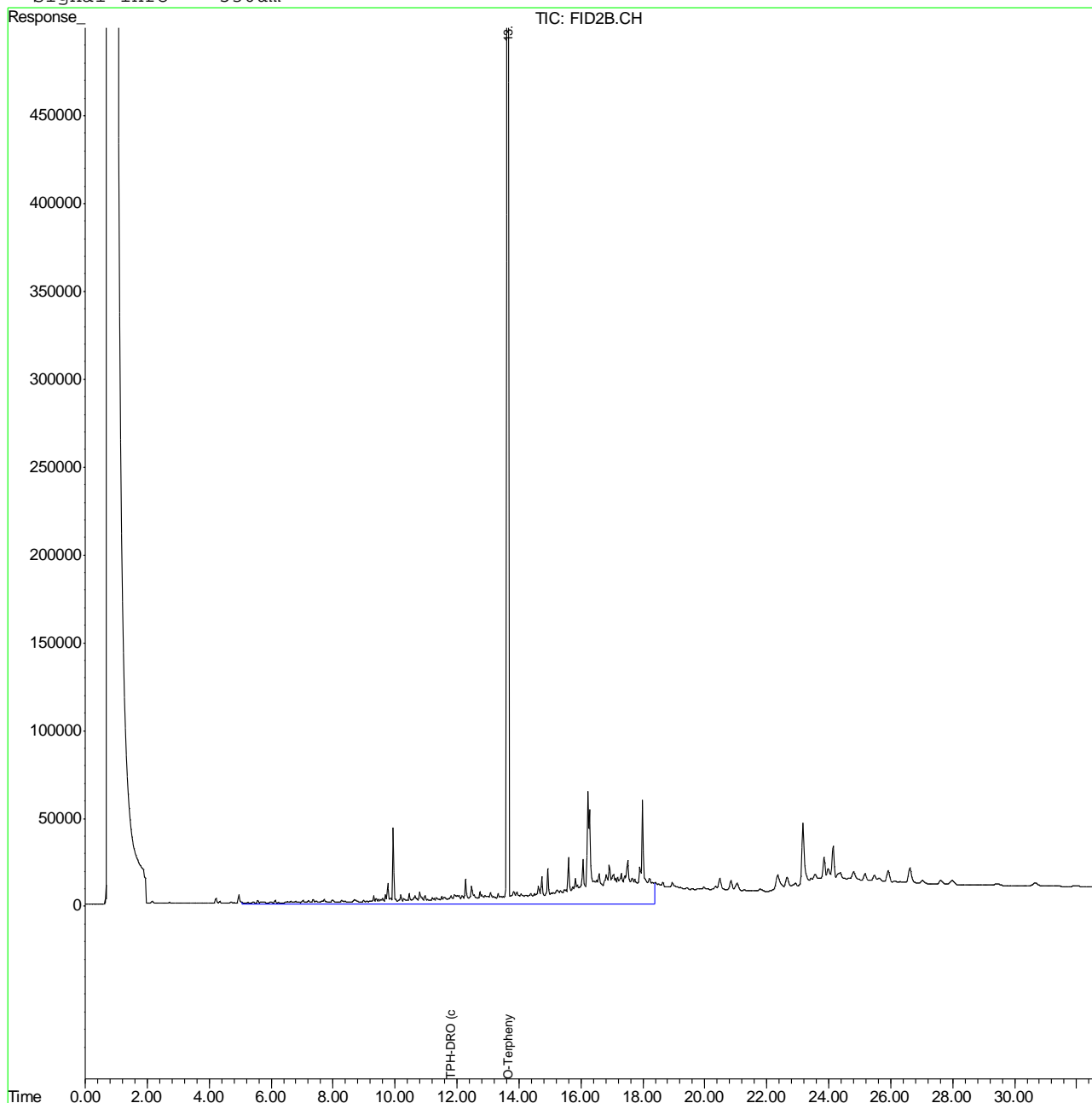
12.1.1
12

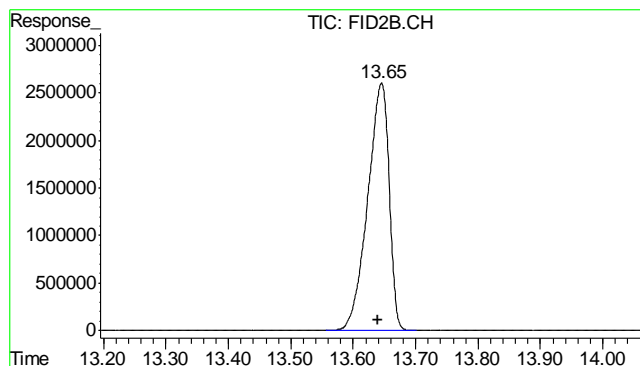
Quantitation Report (QT Reviewed)

Data File : E:\DATA\FI062711\FI02979.D Vial: 66
 Acq On : 29 Jun 2011 11:29 am Operator: jacobbb
 Sample : D24773-1 Inst : FID6
 Misc : OP3965,GFI183,30.00,,,2,1 Multiplr: 1.00
 IntFile : DF-GFE136.E
 Quant Time: Jun 29 14:05 2011 Quant Results File: DF-GFI101.RES

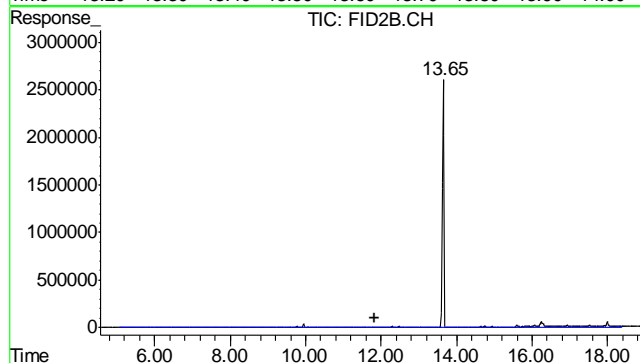
Quant Method : C:\MSDCHEM\1\METHODS\DF-GFI101.M (Chemstation Integrator)
 Title : 8015B TEH
 Last Update : Fri Jun 17 08:32:02 2011
 Response via : Multiple Level Calibration
 DataAcq Meth : RR_BASE2.M

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

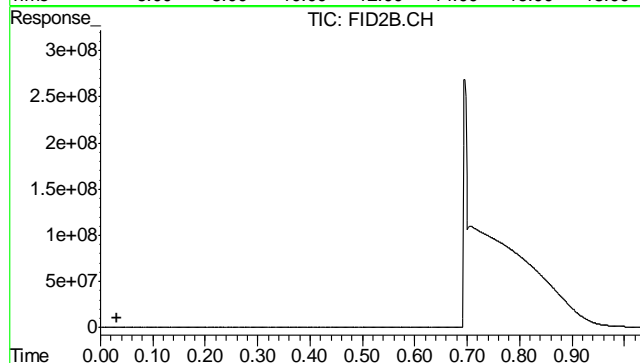




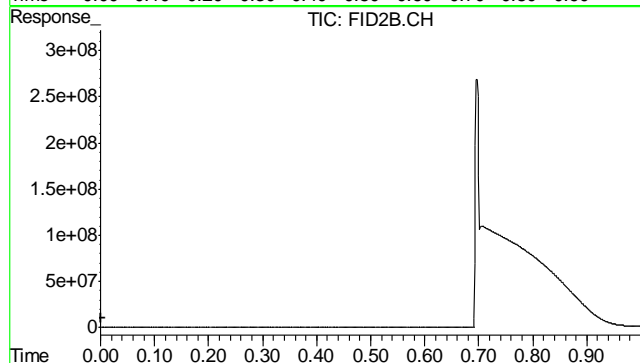
#1 O-Terphenyl
 R.T.: 13.645 min
 Delta R.T.: 0.005 min
 Response: 61826540
 Conc: 877.24 mg/L m



#2 TPH-DRO (c10-c28)
 R.T.: 11.825 min
 Delta R.T.: 0.000 min
 Response: 46443452
 Conc: 708.11 mg/L m

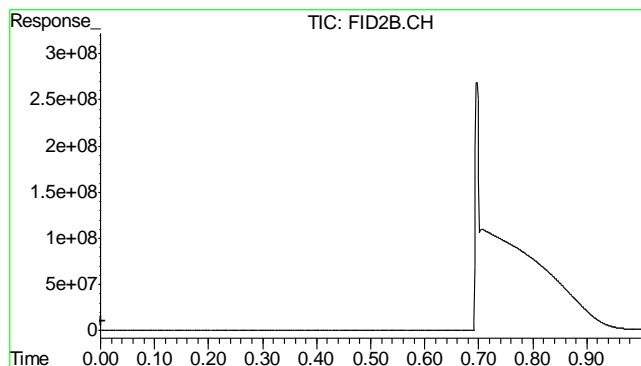


#9 5a-Androstane
 R.T.: 0.033 min
 Delta R.T.: 0.001 min
 Response: 87
 Conc: N.D.



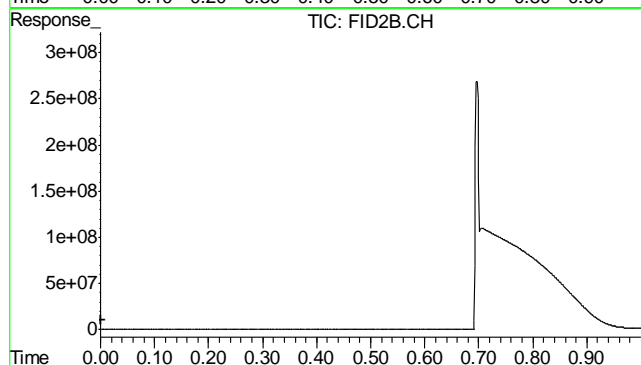
#10 2-Fluorophenol
 R.T.: 0.033 min
 Delta R.T.: 0.033 min
 Response: 87
 Conc: N.D.

12.1.1
 12



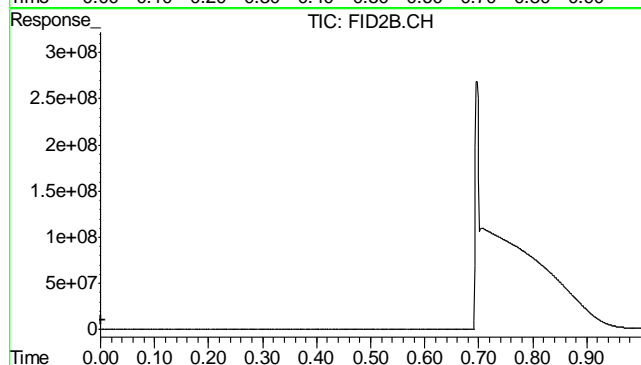
#11 Phenol-d5

R.T.: 0.033 min
Delta R.T.: 0.033 min
Response: 87
Conc: N.D.



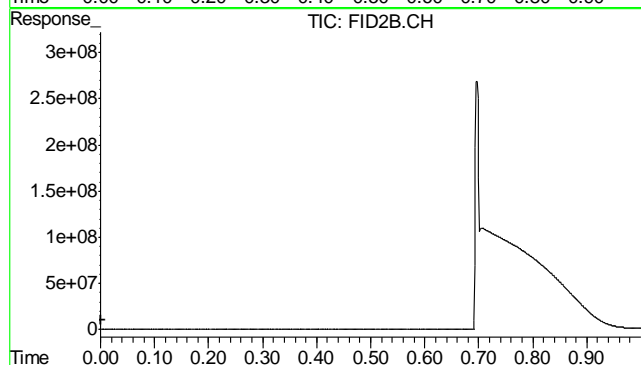
#12 Nitrobenzene-d5

R.T.: 0.033 min
Delta R.T.: 0.033 min
Response: 87
Conc: N.D.



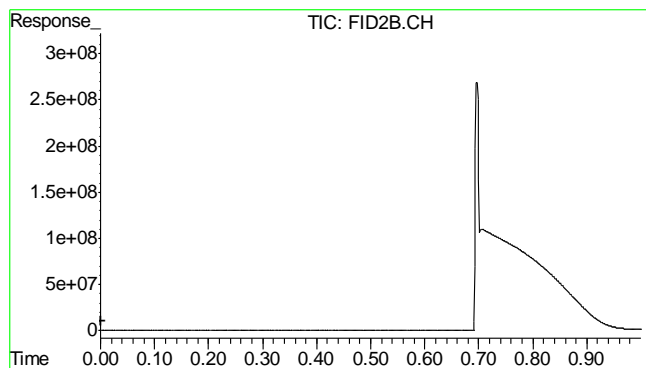
#13 2-Fluorobiphenyl

R.T.: 0.033 min
Delta R.T.: 0.033 min
Response: 87
Conc: N.D.



#14 2,4,6-Tribromophenol

R.T.: 0.033 min
Delta R.T.: 0.033 min
Response: 87
Conc: N.D.



#15 Terphenyl-d14

R.T.: 0.033 min
Delta R.T.: 0.033 min
Response: 87
Conc: N.D.

12.1.1
12

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\FD062511\FD07418.D Vial: 27
Acq On : 6-26-2011 03:11:28 AM Operator: jacobbb
Sample : D24773-2 Inst : FID5
Misc : OP3938,GFD323,30.08,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Jun 27 08:42:40 2011 Quant Results File: DR-GFD321.RES

Quant Method : C:\MSDCHEM\2\METHODS\DR-GFD321.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Jun 24 11:16:49 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	9.52	49797298	741.740 mg/L m
Target Compounds			
2) H TPH-DRO (c10-c28)	7.34	512680622	8143.053 mg/L

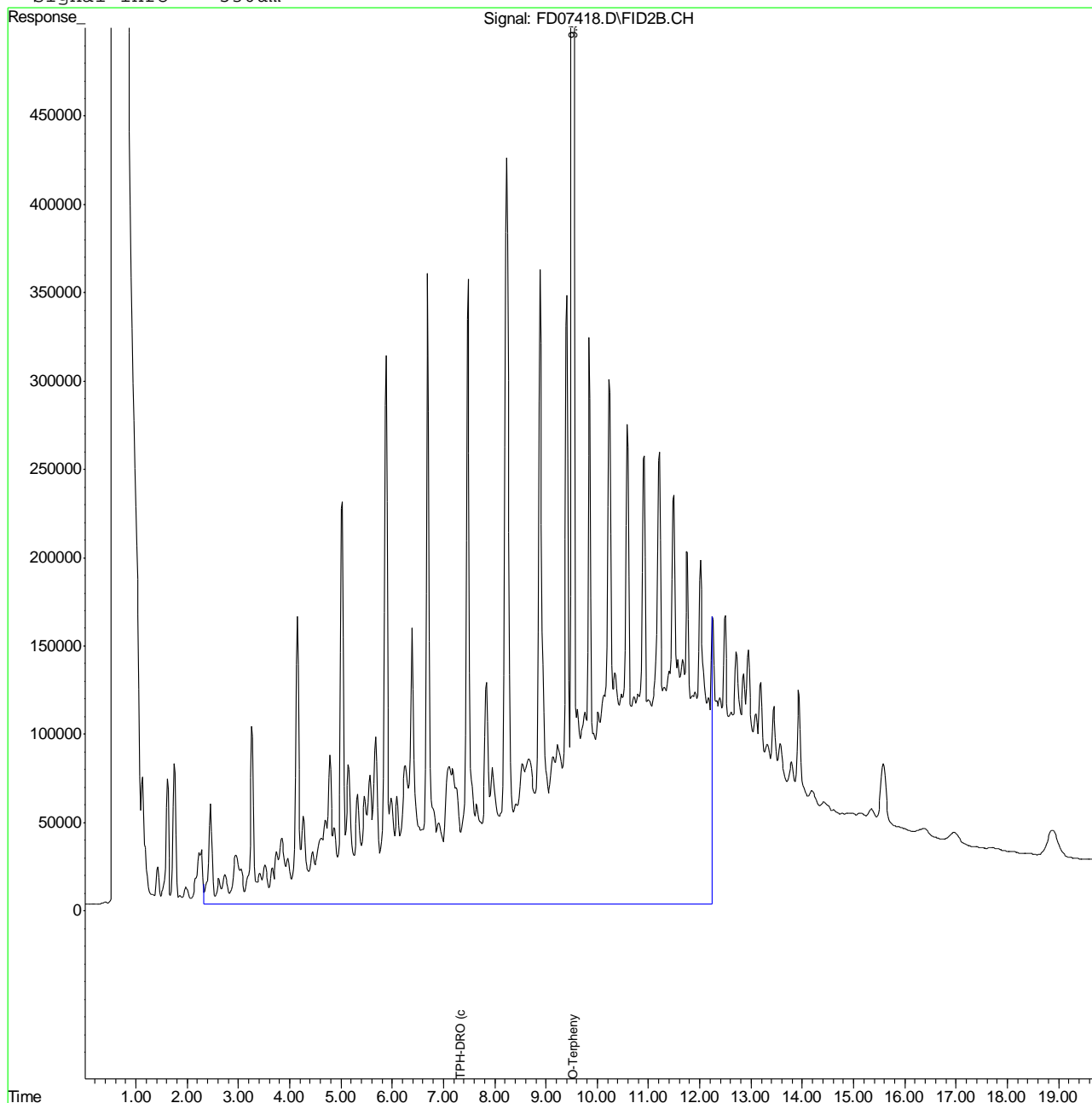
12.1.2
12

Quantitation Report (QT Reviewed)

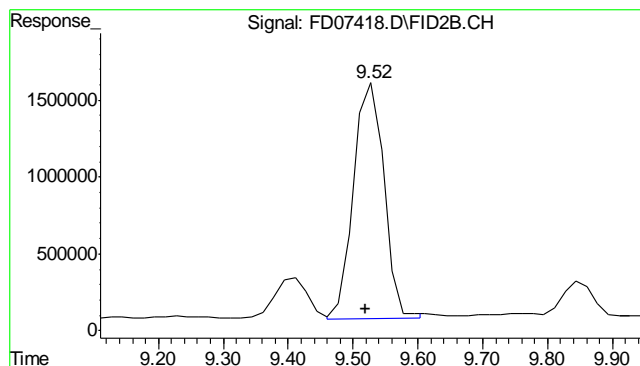
Data File : C:\MSDCHEM\2\DATA\FD062511\FD07418.D Vial: 27
 Acq On : 6-26-2011 03:11:28 AM Operator: jacobbb
 Sample : D24773-2 Inst : FID5
 Misc : OP3938,GFD323,30.08,,,2,1 Multiplr: 1.00
 IntFile : DF-GFC101.E
 Quant Time: Jun 27 11:48 2011 Quant Results File: DR-GFD321.RES

Quant Method : C:\MSDCHEM\2\METHODS\DR-GFD321.M (Chemstation Integrator)
 Title : 8015B TEH
 Last Update : Fri Jun 24 11:16:49 2011
 Response via : Multiple Level Calibration
 DataAcq Meth : RR_BASE4.M

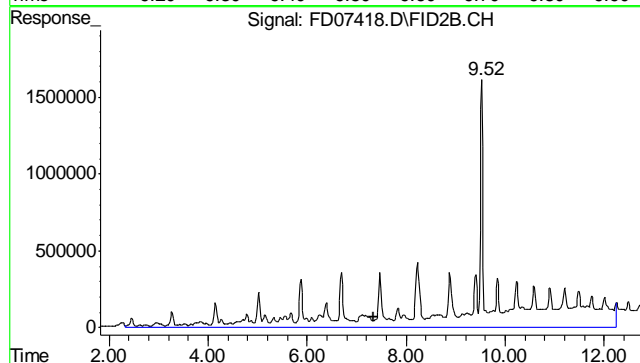
Volume Inj. : 1ul
 Signal Phase : RTX-5
 Signal Info : 530um



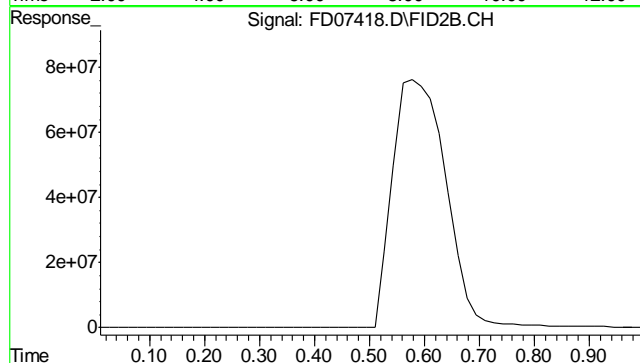
12.1.2
12



#1 O-Terphenyl
 R.T.: 9.524 min
 Delta R.T.: 0.004 min
 Response: 49797298
 Conc: 741.74 mg/L m



#2 TPH-DRO (c10-c28)
 R.T.: 7.335 min
 Delta R.T.: 0.000 min
 Response: 512680622
 Conc: 8143.05 mg/L m



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

12.1.2
12

Judy Melson
06/27/11 14:17

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\FD062511\FD07394.D Vial: 3
Acq On : 6-25-2011 04:56:37 PM Operator: jacobbb
Sample : OP3938-MB Inst : FID5
Misc : OP3938,GFD323,30.00,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Jun 27 08:41:52 2011 Quant Results File: DR-GFD321.RES

Quant Method : C:\MSDCHEM\2\METHODS\DR-GFD321.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Jun 24 11:16:49 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

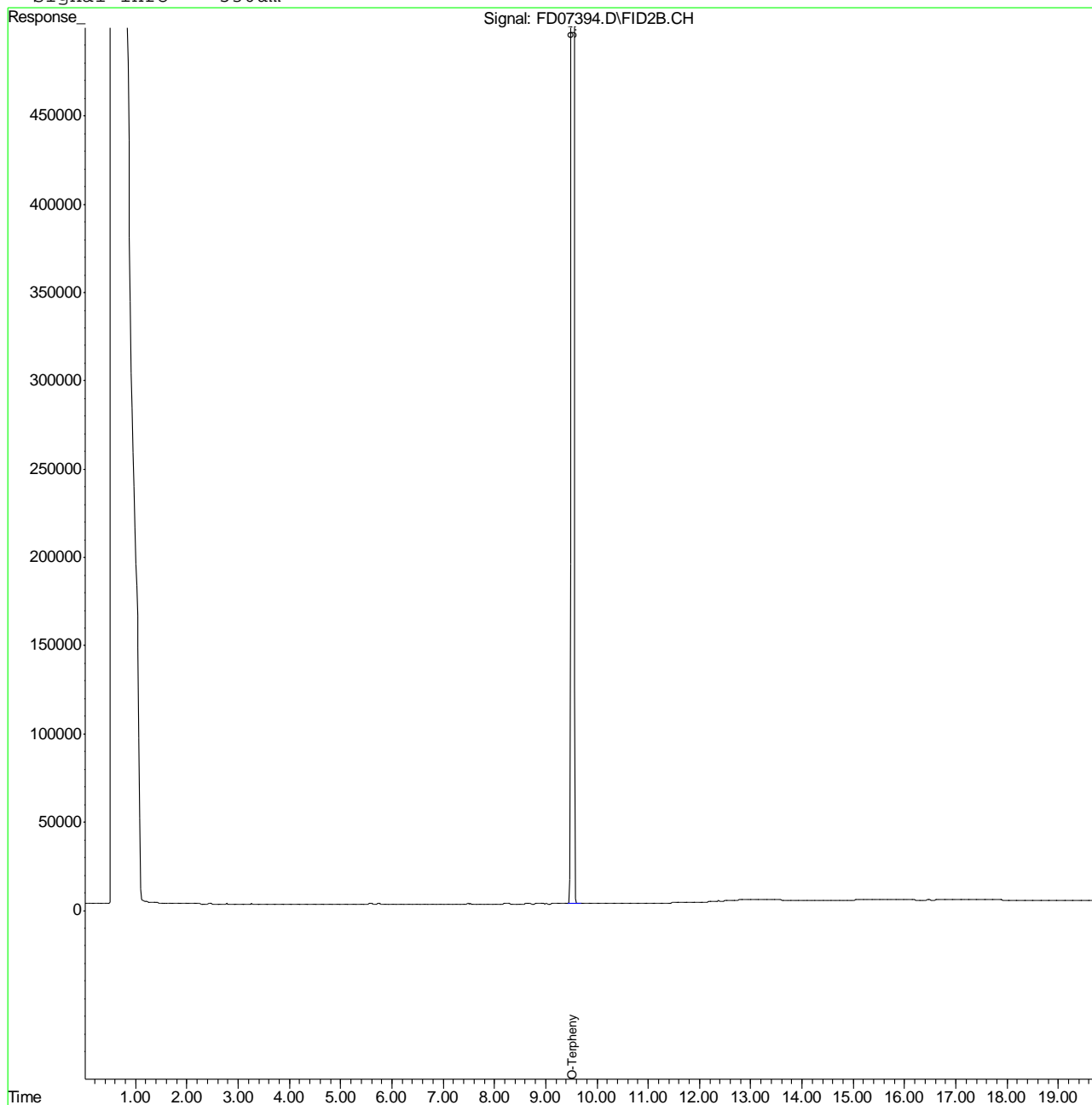
System Monitoring Compounds			
1) S O-Terphenyl	9.52	52228243	777.950 mg/L m
Target Compounds			

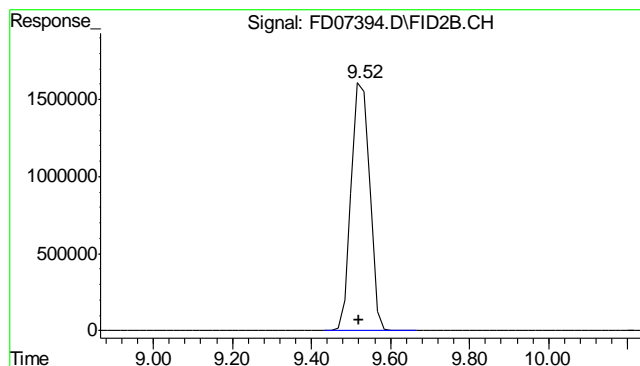
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\FD062511\FD07394.D Vial: 3
Acq On : 6-25-2011 04:56:37 PM Operator: jacobbb
Sample : OP3938-MB Inst : FID5
Misc : OP3938,GFD323,30.00,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Jun 27 11:42 2011 Quant Results File: DR-GFD321.RES

Quant Method : C:\MSDCHEM\2\METHODS\DR-GFD321.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Jun 24 11:16:49 2011
Response via : Multiple Level Calibration
DataAcq Meth : RR_BASE4.M

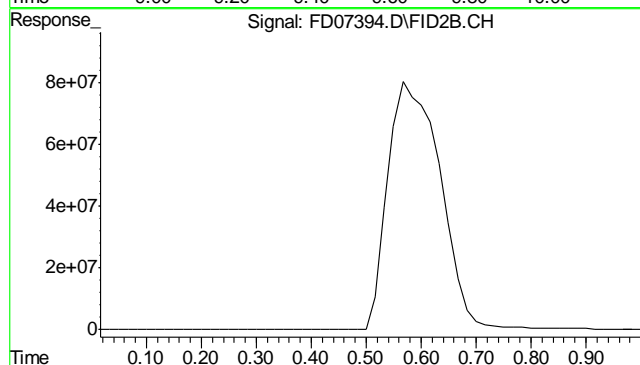
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.524 min
Delta R.T.: 0.004 min
Response: 52228243
Conc: 777.95 mg/L m



#9 5a-Androstane

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

Quantitation Report (QT Reviewed)

Data File : E:\DATA\FI062711\FI02975.D Vial: 62
Acq On : 29 Jun 2011 8:51 am Operator: jacobbb
Sample : OP3965-MB Inst : FID6
Misc : OP3965,GFI183,30.00,,,2,1 Multiplr: 1.00
IntFile : DF-GFE136.E
Quant Time: Jun 29 09:30:07 2011 Quant Results File: DF-GFI101.RES

Quant Method : C:\MSDCHEM\1\METHODS\DF-GFI101.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Jun 17 08:32:02 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

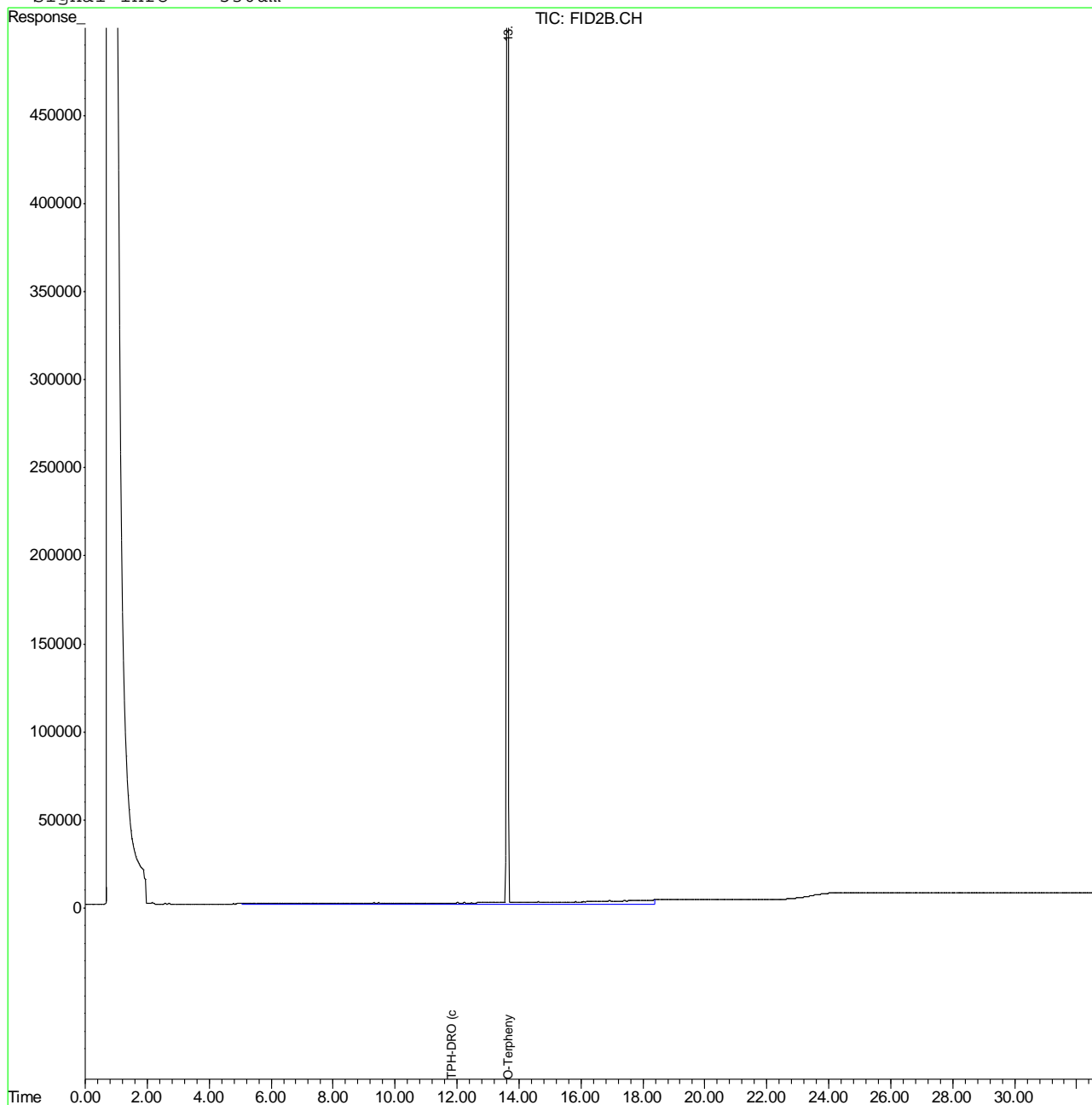
System Monitoring Compounds			
1) S O-Terphenyl	13.64	63911902	906.829 mg/L
Target Compounds			
2) H TPH-DRO (c10-c28)	11.82	5837290	89.000 mg/L

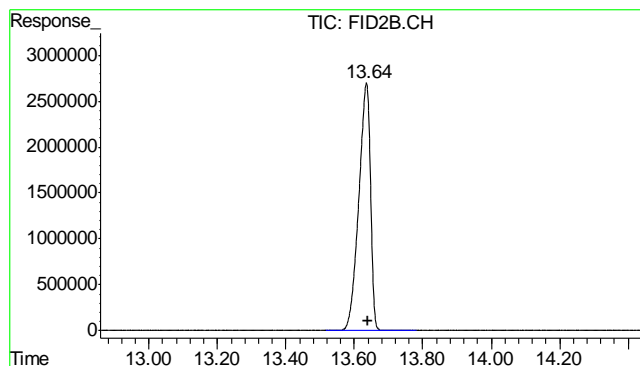
Quantitation Report (QT Reviewed)

Data File : E:\DATA\FI062711\FI02975.D Vial: 62
Acq On : 29 Jun 2011 8:51 am Operator: jacobbb
Sample : OP3965-MB Inst : FID6
Misc : OP3965,GFI183,30.00,,,2,1 Multiplr: 1.00
IntFile : DF-GFE136.E
Quant Time: Jun 29 13:52 2011 Quant Results File: DF-GFI101.RES

Quant Method : C:\MSDCHEM\1\METHODS\DF-GFI101.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Fri Jun 17 08:32:02 2011
Response via : Multiple Level Calibration
DataAcq Meth : RR_BASE2.M

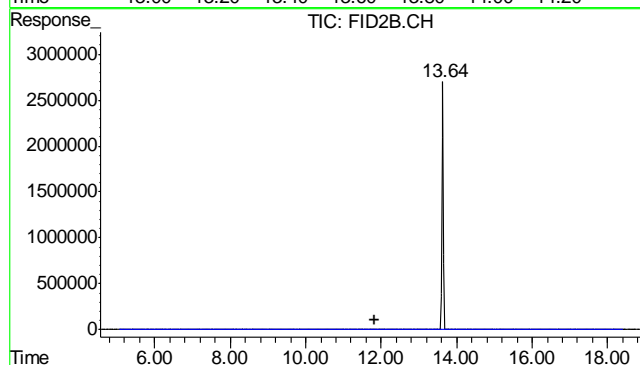
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





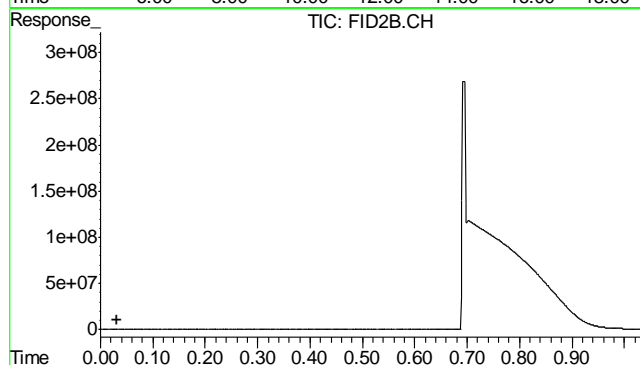
#1 O-Terphenyl

R.T.: 13.635 min
Delta R.T.: -0.005 min
Response: 63911902
Conc: 906.83 mg/L



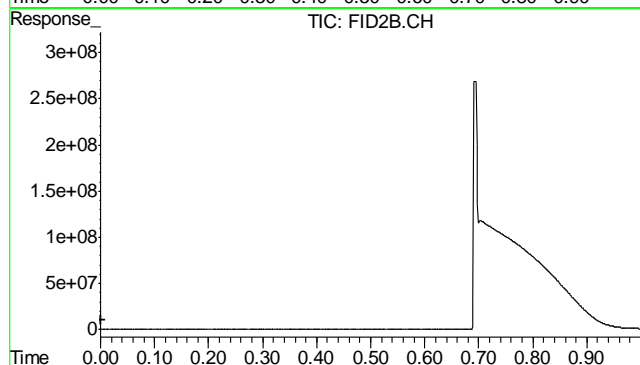
#2 TPH-DRO (c10-c28)

R.T.: 11.825 min
Delta R.T.: 0.000 min
Response: 5837290
Conc: 89.00 mg/L m



#9 5a-Androstane

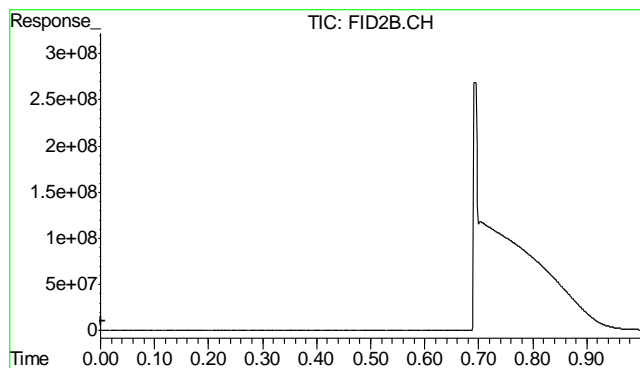
R.T.: 0.000 min
Exp R.T.: 0.032 min
Response: 0
Conc: N.D.



#10 2-Fluorophenol

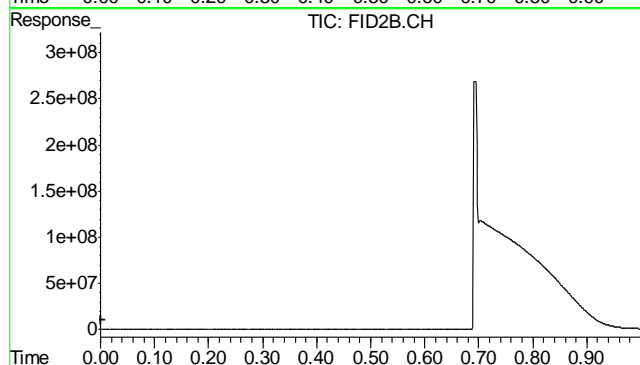
R.T.: 0.000 min
Exp R.T.: 0.000 min
Response: 0
Conc: N.D.

12.2.2 12



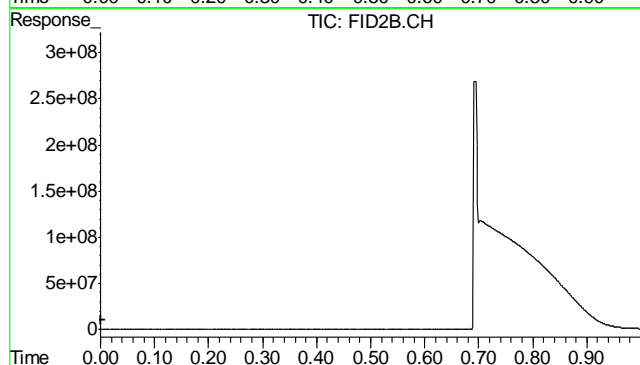
#11 Phenol-d5

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



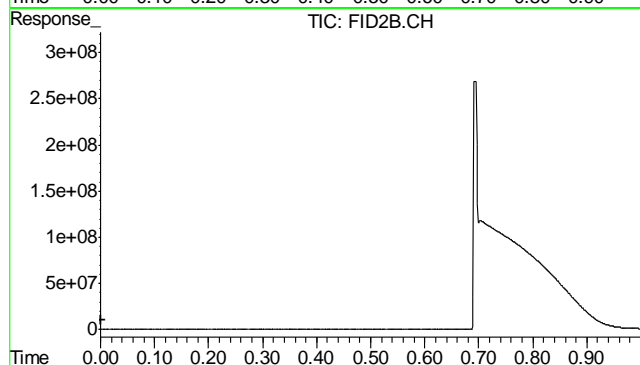
#12 Nitrobenzene-d5

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



#13 2-Fluorobiphenyl

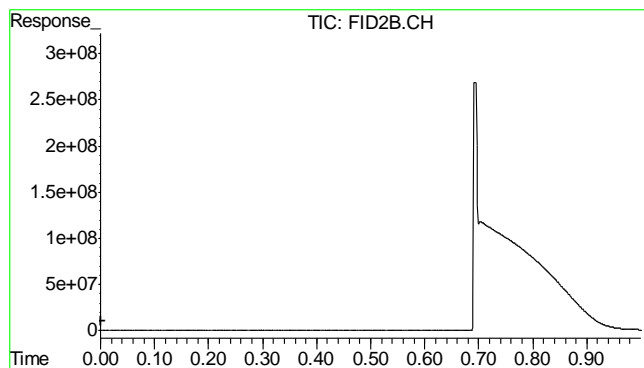
R.T.: 0.000 min
Exp R.T. : 0.000 min
Response: 0
Conc: N.D.



#14 2,4,6-Tribromophenol

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

12.2.2 12



#15 Terphenyl-d14

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

12.2.2
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: D24773
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 35-11

QC Batch ID: MP5049
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 06/24/11

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.10	.0011	.013	0.00078	<0.10

Associated samples MP5049: D24773-2

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: D24773
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: PCU 35-11

QC Batch ID: MP5049
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 06/24/11

Metal	D24719-1		Spikelot		QC	
	Original	MS	HGWSR1	% Rec	Limits	
Mercury	0.0063	0.52	0.443	116.0N(a)	85-115	

Associated samples MP5049: D24773-2

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: D24773
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: PCU 35-11

QC Batch ID: MP5049
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 06/24/11

Metal	D24719-1 Original MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.0063	0.49	0.41	117.9N(a) 5.9	20

Associated samples MP5049: D24773-2

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.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D24773
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: PCU 35-11

QC Batch ID: MP5049
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 06/24/11

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.48	0.4	120.0	80-120

Associated samples MP5049: D24773-2

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: D24773
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 35-11

QC Batch ID: MP5052
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 06/24/11

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	0.090	<1.0
Beryllium	1.0	.044	.1		
Boron	5.0	.48	.48		
Cadmium	1.0	.027	.27	0.020	<1.0
Calcium	40	.96	1.1		
Chromium	1.0	.018	.031	0.030	<1.0
Cobalt	0.50	.035	.035		
Copper	1.0	.085	.16	0.090	<1.0
Iron	7.0	.34	2		
Lead	5.0	.16	.21	0.10	<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	0.40	<5.0
Silicon	5.0	.38	.51		
Silver	3.0	.018	.051	0.0	<3.0
Sodium	40	11	11		
Strontium	5.0		.017		
Thallium	1.0	.29	.34		
Tin	5.0	.55	1.3		
Titanium	1.0	.011	.1		
Uranium	5.0	.15	.2		
Vanadium	1.0	.016	.025		
Zinc	3.0	.028	.06	0.13	<3.0

Associated samples MP5052: D24773-2

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D24773
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 35-11

QC Batch ID: MP5052
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: D24773
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 35-11

QC Batch ID: MP5052
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 06/24/11

Metal	D24773-2 Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony	anr				
Arsenic	anr				
Barium	212	442	273	84.2	75-125
Beryllium	anr				
Boron					
Cadmium	0.22	57.6	68.3	84.1	75-125
Calcium					
Chromium	21.6	81.3	68.3	87.5	75-125
Cobalt					
Copper	9.9	72.9	68.3	92.3	75-125
Iron					
Lead	10.4	126	137	84.7	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	12.5	67.6	68.3	80.7	75-125
Phosphorus					
Potassium					
Selenium	1.3	114	137	82.6	75-125
Silicon					
Silver	0.083	24.1	27.3	88.0	75-125
Sodium					
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	33.2	91.1	68.3	84.8	75-125

Associated samples MP5052: D24773-2

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24773
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 35-11

QC Batch ID: MP5052
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

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

13.2.2
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24773
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 35-11

QC Batch ID: MP5052
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 06/24/11

Metal	D24773-2 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	212	439	268	84.8	0.7	20
Beryllium	anr					
Boron						
Cadmium	0.22	56.5	66.9	84.1	1.9	20
Calcium						
Chromium	21.6	80.1	66.9	87.4	1.5	20
Cobalt						
Copper	9.9	71.2	66.9	91.6	2.4	20
Iron						
Lead	10.4	124	134	84.9	1.6	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	12.5	66.5	66.9	80.7	1.6	20
Phosphorus						
Potassium						
Selenium	1.3	112	134	82.7	1.8	20
Silicon						
Silver	0.083	23.5	26.8	87.5	2.5	20
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	33.2	90.9	66.9	86.2	0.2	20

Associated samples MP5052: D24773-2

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24773
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 35-11

QC Batch ID: MP5052
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

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

13.2.2
13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D24773

Account: KRWCCOL - KRW Consulting, Inc.

Project: PCU 35-11

QC Batch ID: MP5052

Methods: SW846 6010B

Matrix Type: SOLID

Units: mg/kg

Prep Date:

06/24/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	188	200	94.0	80-120
Beryllium	anr			
Boron				
Cadmium	47.2	50	94.4	80-120
Calcium				
Chromium	47.6	50	95.2	80-120
Cobalt				
Copper	48.6	50	97.2	80-120
Iron				
Lead	96.4	100	96.4	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	46.8	50	93.6	80-120
Phosphorus				
Potassium				
Selenium	93.2	100	93.2	80-120
Silicon				
Silver	19.6	20	98.0	80-120
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	47.0	50	94.0	80-120

Associated samples MP5052: D24773-2

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

13.2.3
13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D24773

Account: KRWCCOL - KRW Consulting, Inc.

Project: PCU 35-11

QC Batch ID: MP5052

Methods: SW846 6010B

Matrix Type: SOLID

Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

13.2.3

13

SERIAL DILUTION RESULTS SUMMARY

Login Number: D24773
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: PCU 35-11

QC Batch ID: MP5052
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: ug/l

Prep Date: 06/24/11

Metal	D24773-2 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	1540	1640	6.9	0-10
Beryllium	anr			
Boron				
Cadmium	1.60	0.00	100.0(a)	0-10
Calcium				
Chromium	157	170	8.4	0-10
Cobalt				
Copper	75.1	66.5	7.6	0-10
Iron				
Lead	75.7	71.5	5.5	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	90.5	102	12.2*(b)	0-10
Phosphorus				
Potassium				
Selenium	9.50	22.5	136.8(a)	0-10
Silicon				
Silver	0.600	2.50	316.7(a)	0-10
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	241	291	20.7*(b)	0-10

Associated samples MP5052: D24773-2

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

13.2.4
13

SERIAL DILUTION RESULTS SUMMARY

Login Number: D24773
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 35-11

QC Batch ID: MP5052
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.

13.2.4

13

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D24773
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 35-11

QC Batch ID: MP5053
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 06/24/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	-0.045	<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 MP5053: D24773-1, D24773-2

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: D24773
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: PCU 35-11

QC Batch ID: MP5053
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 06/24/11

Metal	D24773-2 Original MS		Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	3.7	127	137	90.3	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 MP5053: D24773-1, D24773-2

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: D24773
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: PCU 35-11

QC Batch ID: MP5053
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 06/24/11

Metal	D24773-2 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	3.7	121	134	87.7	4.8	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 MP5053: D24773-1, D24773-2

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: D24773

Account: KRWCCOL - KRW Consulting, Inc.

Project: PCU 35-11

QC Batch ID: MP5053

Methods: SW846 6020

Matrix Type: SOLID

Units: mg/kg

Prep Date:

06/24/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	98.4	100	98.4	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP5053: D24773-1, D24773-2

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D24773
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: PCU 35-11

QC Batch ID: MP5053
 Matrix Type: SOLID

Methods: SW846 6020
 Units: ug/l

Prep Date: 06/24/11

Metal	D24773-2			QC
	Original	SDL 5:25	%DIF	Limits
Aluminum				
Antimony				
Arsenic	29.3	26.9	0.4	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 MP5053: D24773-1, D24773-2

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: D24773
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 35-11

QC Batch ID: MP5054
Matrix Type: AQUEOUS

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

Prep Date: 06/24/11

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	61.5	<2000
Chromium	50	.9	4		
Cobalt	25	1.8	1.8		
Copper	50	4.3	14		
Iron	350	17	65		
Lead	250	8	11		
Lithium	10	1.4	6		
Magnesium	1000	29	50	33.5	<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	-190	<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 MP5054: D24773-1A, D24773-2A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D24773
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 35-11

QC Batch ID: MP5054
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

13.4.1

13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24773
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: PCU 35-11

QC Batch ID: MP5054
 Matrix Type: AQUEOUS

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

Prep Date: 06/24/11

Metal	D24772-1 Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	61000	191000	125000	104.0	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	1960	130000	125000	102.4	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	541000	641000	125000	80.0	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP5054: D24773-1A, D24773-2A

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: D24773
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 35-11

QC Batch ID: MP5054
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: D24773
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: PCU 35-11

QC Batch ID: MP5054
 Matrix Type: AQUEOUS

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

Prep Date: 06/24/11

Metal	D24772-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	61000	197000	125000	108.8	3.1	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	1960	133000	125000	104.8	2.3	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	541000	641000	125000	80.0	0.0	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP5054: D24773-1A, D24773-2A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24773
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 35-11

QC Batch ID: MP5054
Matrix Type: AQUEOUS

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

Prep Date:

Metal

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

13.4.2
13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D24773

Account: KRWCCOL - KRW Consulting, Inc.

Project: PCU 35-11

QC Batch ID: MP5054

Methods: SW846 6010B, USDA HANDBOOK 60

Matrix Type: AQUEOUS

Units: ug/l

Prep Date:

06/24/11

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	129000	125000	103.2	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	136000	125000	108.8	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP5054: D24773-1A, D24773-2A

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: D24773
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 35-11

QC Batch ID: MP5054
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: D24773
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 35-11

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP4759/GN10226	1.0	<1.0	umhos/cm	9961	9870	99.1	90-110%
pH	GN10235			su	8.00	7.97	99.6	99.3-100.7%

Associated Samples:
Batch GN10235: D24773-1, D24773-2
Batch GP4759: D24773-1, D24773-2
(*) Outside of QC limits

14.1
14

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D24773
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU 35-11

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Redox Potential Vs H2	GN10246	D24773-2	mv	321	325	1.2	0-20%

Associated Samples:
Batch GN10246: D24773-2
(*) 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: D24773

Client: AMS

Immediate Client Services Action Required: No

Date / Time Received: 6/27/2011

Delivery Method:

Client Service Action Required at Login: No

Project:

No. Coolers: 1

Airbill #'s:

Cooler Security

Y or N

Y or N

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

Cooler Temperature

Y or N

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

Quality Control Preservation

Y or N

N/A

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

Sample Integrity - Documentation

Y or N

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

Sample Integrity - Condition

Y or N

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

Sample Integrity - Instructions

Y or N N/A

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

Comments

General Chemistry

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D24773
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: PCU 35-11

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP13153/GN35315	0.40	0.20	mg/kg	12	11.3	94.2	80-120%
Chromium, Hexavalent	GP13153/GN35315			mg/kg	702	759	108.1	80-120%

Associated Samples:
Batch GP13153: D24773-2
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D24773
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: PCU 35-11

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP13153/GN35315	D24388-1	mg/kg	0.25	0.29	14.8	0-20%

Associated Samples:
Batch GP13153: D24773-2
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D24773
Account: ALMS - Accutest Mountain States
Project: KRWCCOL: PCU 35-11

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP13153/GN35315	D24388-1	mg/kg	0.25	12.1	12.3	99.9	75-125%
Chromium, Hexavalent	GP13153/GN35315	D24388-1	mg/kg	0.25	662	646	97.6	75-125%

Associated Samples:

Batch GP13153: D24773-2

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits



07/01/11

Technical Report for

KRW Consulting, Inc.

PCU T35X-11G

Pipe Strike 1106-03

Accutest Job Number: D24832

Sampling Date: 06/23/11

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: **51**



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: 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.

Table of Contents

-1-

Section 1: Sample Summary	3
Section 2: Case Narrative/Conformance Summary	4
Section 3: Sample Results	6
3.1: D24832-1: WALL 1	7
3.2: D24832-1A: WALL 1	11
3.3: D24832-2: WALL 2	13
3.4: D24832-2A: WALL 2	17
3.5: D24832-3: WALL 3	19
3.6: D24832-3A: WALL 3	23
Section 4: Misc. Forms	25
4.1: Chain of Custody	26
Section 5: GC Volatiles - QC Data Summaries	28
5.1: Method Blank Summary	29
5.2: Blank Spike Summary	30
5.3: Matrix Spike/Matrix Spike Duplicate Summary	31
Section 6: GC Semi-volatiles - QC Data Summaries	32
6.1: Method Blank Summary	33
6.2: Blank Spike Summary	34
6.3: Matrix Spike/Matrix Spike Duplicate Summary	35
Section 7: Metals Analysis - QC Data Summaries	36
7.1: Prep QC MP5062: Ca,Mg,Na,Sodium Adsorption Ratio	37
7.2: Prep QC MP5064: As	45
Section 8: General Chemistry - QC Data Summaries	50
8.1: Method Blank and Spike Results Summary	51



Sample Summary

KRW Consulting, Inc.

Job No: D24832

PCU T35X-11G
Project No: Pipe Strike 1106-03

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D24832-1	06/23/11	09:30 BB	06/24/11	SO	Soil	WALL 1
D24832-1A	06/23/11	09:30 BB	06/24/11	SO	Soil	WALL 1
D24832-2	06/23/11	09:30 BB	06/24/11	SO	Soil	WALL 2
D24832-2A	06/23/11	09:30 BB	06/24/11	SO	Soil	WALL 2
D24832-3	06/23/11	09:30 BB	06/24/11	SO	Soil	WALL 3
D24832-3A	06/23/11	09:30 BB	06/24/11	SO	Soil	WALL 3

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: KRW Consulting, Inc.

Job No D24832

Site: PCU T35X-11G

Report Dat 7/1/2011 10:48:41 AM

On 06/24/2011, 3 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D24832 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: GGB655

- All samples were analyzed within the recommended method holding time.
- Sample(s) D24822-1MS, D24822-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GC By Method SW846-8015B

Matrix SO

Batch ID: OP3959

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D24829-1MS, D24829-1MSD were used as the QC samples indicated.

Metals By Method SW846 6010B

Matrix AQ

Batch ID: MP5062

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D24830-2MS, D24830-2MSD were used as the QC samples for the metals analysis.

Metals By Method SW846 6020

Matrix SO

Batch ID: MP5064

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D24849-1MS, D24849-1MSD, D24849-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Arsenic are outside control limits for sample MP5064-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN10250

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

Wet Chemistry By Method SW846 9045C**Matrix** SO**Batch ID:** GN10254

- The following samples were run outside of holding time for method SW846 9045C: D24832-1, D24832-2, D24832-3.

Wet Chemistry By Method USDA HANDBOOK 60**Matrix** SO**Batch ID:** MP5062

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

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: WALL 1
Lab Sample ID: D24832-1
Matrix: SO - Soil
Method: SW846 8015B
Project: PCU T35X-11G

Date Sampled: 06/23/11
Date Received: 06/24/11
Percent Solids: 82.3

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB11432.D	1	06/25/11	SK	n/a	n/a	GGB655
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)	31.4	14	7.0	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

Client Sample ID:	WALL 1		
Lab Sample ID:	D24832-1	Date Sampled:	06/23/11
Matrix:	SO - Soil	Date Received:	06/24/11
Method:	SW846-8015B SW846 3546	Percent Solids:	82.3
Project:	PCU T35X-11G		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI02942.D	1	06/28/11	JB	06/27/11	OP3959	GFI181
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)	224	16	11	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	86%		61-142%		

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

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

Report of Analysis

Client Sample ID:	WALL 1		
Lab Sample ID:	D24832-1	Date Sampled:	06/23/11
Matrix:	SO - Soil	Date Received:	06/24/11
		Percent Solids:	82.3
Project:	PCU T35X-11G		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	3.7	0.49	mg/kg	5	06/27/11	06/28/11 GJ	SW846 6020 ¹	SW846 3050B ²

(1) Instrument QC Batch: MA1633
(2) Prep QC Batch: MP5064

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WALL 1	Date Sampled:	06/23/11
Lab Sample ID:	D24832-1	Date Received:	06/24/11
Matrix:	SO - Soil	Percent Solids:	82.3
Project:	PCU T35X-11G		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	82.3		%	1	06/27/11	JD	SM19 2540B M
Specific Conductivity	1980	1.0	umhos/cm	1	06/28/11	JD	DEPT.OF AG, BOOK N9
pH	9.23		su	1	06/27/11 12:20	JK	SW846 9045C

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WALL 1	Date Sampled:	06/23/11
Lab Sample ID:	D24832-1A	Date Received:	06/24/11
Matrix:	SO - Soil	Percent Solids:	82.3
Project:	PCU T35X-11G		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	49.0	2.0	mg/l	1	06/27/11	06/28/11 JM	SW846 6010B ¹	EPA 200.7 ²
Magnesium	12.8	1.0	mg/l	1	06/27/11	06/28/11 JM	SW846 6010B ¹	EPA 200.7 ²
Sodium	338	2.0	mg/l	1	06/27/11	06/28/11 JM	SW846 6010B ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA1631
(2) Prep QC Batch: MP5062

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WALL 1	Date Sampled:	06/23/11
Lab Sample ID:	D24832-1A	Date Received:	06/24/11
Matrix:	SO - Soil	Percent Solids:	82.3
Project:	PCU T35X-11G		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	11.1		ratio	1	06/28/11 11:29	JM	USDA HANDBOOK 60

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: WALL 2
Lab Sample ID: D24832-2
Matrix: SO - Soil
Method: SW846 8015B
Project: PCU T35X-11G

Date Sampled: 06/23/11
Date Received: 06/24/11
Percent Solids: 86.0

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB11433.D	1	06/25/11	SK	n/a	n/a	GGB655
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	6.6	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

Client Sample ID:	WALL 2	Date Sampled:	06/23/11
Lab Sample ID:	D24832-2	Date Received:	06/24/11
Matrix:	SO - Soil	Percent Solids:	86.0
Method:	SW846-8015B SW846 3546		
Project:	PCU T35X-11G		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI02943.D	1	06/28/11	JB	06/27/11	OP3959	GFI181
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)	175	15	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	86%		61-142%		

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

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

Report of Analysis

Client Sample ID:	WALL 2	Date Sampled:	06/23/11
Lab Sample ID:	D24832-2	Date Received:	06/24/11
Matrix:	SO - Soil	Percent Solids:	86.0
Project:	PCU T35X-11G		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	4.4	0.45	mg/kg	5	06/27/11	06/28/11 GJ	SW846 6020 ¹	SW846 3050B ²

(1) Instrument QC Batch: MA1633
(2) Prep QC Batch: MP5064

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WALL 2	Date Sampled:	06/23/11
Lab Sample ID:	D24832-2	Date Received:	06/24/11
Matrix:	SO - Soil	Percent Solids:	86.0
Project:	PCU T35X-11G		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	86		%	1	06/27/11	JD	SM19 2540B M
Specific Conductivity	1860	1.0	umhos/cm	1	06/28/11	JD	DEPT.OF AG, BOOK N9
pH	9.74		su	1	06/27/11 12:20	JK	SW846 9045C

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WALL 2		
Lab Sample ID:	D24832-2A	Date Sampled:	06/23/11
Matrix:	SO - Soil	Date Received:	06/24/11
Project:	PCU T35X-11G	Percent Solids:	86.0

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	28.2	2.0	mg/l	1	06/27/11	06/28/11 JM	SW846 6010B ¹	EPA 200.7 ²
Magnesium	8.90	1.0	mg/l	1	06/27/11	06/28/11 JM	SW846 6010B ¹	EPA 200.7 ²
Sodium	354	2.0	mg/l	1	06/27/11	06/28/11 JM	SW846 6010B ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA1631
(2) Prep QC Batch: MP5062

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WALL 2	Date Sampled:	06/23/11
Lab Sample ID:	D24832-2A	Date Received:	06/24/11
Matrix:	SO - Soil	Percent Solids:	86.0
Project:	PCU T35X-11G		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	14.9		ratio	1	06/28/11 11:56	JM	USDA HANDBOOK 60

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: WALL 3
Lab Sample ID: D24832-3
Matrix: SO - Soil
Method: SW846 8015B
Project: PCU T35X-11G

Date Sampled: 06/23/11
Date Received: 06/24/11
Percent Solids: 82.0

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB11434.D	1	06/26/11	SK	n/a	n/a	GGB655
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)	15.8	14	7.1	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	87%		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

Client Sample ID:	WALL 3		
Lab Sample ID:	D24832-3	Date Sampled:	06/23/11
Matrix:	SO - Soil	Date Received:	06/24/11
Method:	SW846-8015B SW846 3546	Percent Solids:	82.0
Project:	PCU T35X-11G		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI02944.D	1	06/28/11	JB	06/27/11	OP3959	GFI181
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)	162	16	11	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	80%		61-142%		

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

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

Report of Analysis

Client Sample ID:	WALL 3	Date Sampled:	06/23/11
Lab Sample ID:	D24832-3	Date Received:	06/24/11
Matrix:	SO - Soil	Percent Solids:	82.0
Project:	PCU T35X-11G		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	3.6	0.46	mg/kg	5	06/27/11	06/28/11 GJ	SW846 6020 ¹	SW846 3050B ²

(1) Instrument QC Batch: MA1633
(2) Prep QC Batch: MP5064

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WALL 3	Date Sampled:	06/23/11
Lab Sample ID:	D24832-3	Date Received:	06/24/11
Matrix:	SO - Soil	Percent Solids:	82.0
Project:	PCU T35X-11G		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	82		%	1	06/27/11	JD	SM19 2540B M
Specific Conductivity	2480	1.0	umhos/cm	1	06/28/11	JD	DEPT.OF AG, BOOK N9
pH	9.41		su	1	06/27/11 12:20	JK	SW846 9045C

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WALL 3		
Lab Sample ID:	D24832-3A	Date Sampled:	06/23/11
Matrix:	SO - Soil	Date Received:	06/24/11
		Percent Solids:	82.0
Project:	PCU T35X-11G		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	54.5	2.0	mg/l	1	06/27/11	06/28/11 JM	SW846 6010B ¹	EPA 200.7 ²
Magnesium	16.3	1.0	mg/l	1	06/27/11	06/28/11 JM	SW846 6010B ¹	EPA 200.7 ²
Sodium	463	2.0	mg/l	1	06/27/11	06/28/11 JM	SW846 6010B ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA1631
(2) Prep QC Batch: MP5062

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WALL 3	Date Sampled:	06/23/11
Lab Sample ID:	D24832-3A	Date Received:	06/24/11
Matrix:	SO - Soil	Percent Solids:	82.0
Project:	PCU T35X-11G		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	14.1		ratio	1	06/28/11 12:02	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

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

<div style="text-align: center;"> <p>ACCUTEST® LABORATORIES</p> </div>		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 # D 24832			
Client / Reporting Information Company Name: KRW Consulting Street Address: 8000 W 14th Ave Ste 200 City: Lakewood State: CO Zip: 80214 Project Contact: Dwight Karabson E-mail: dk@krc.com Phone #: 303 239 9011 Fax #: 303 239 9011 Sample(s) Name(s): Brat Burger		Project Information Project Name: PCA TSSX-11G Pipe Strike Street: _____ City: _____ Company Name: _____ Billing Information (If different from Report to): _____ Street Address: _____ City: _____ State: _____ Zip: _____ Client PO#: _____ Project Manager: _____ Attention: _____ PO#: _____		Requested Analysis (see TEST CODE sheet) <div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> TPH DRO / GRO EC (scow) SAR PH Arsenic </div> <div> 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 </div> </div>	
Accutest Sample # Field ID / Point of Collection <div style="display: flex; justify-content: space-between;"> <div> well 1 well 2 well 3 </div> <div> MEOH/DI Vial # Date Time Sampled by Matrix # of bottles HCl NaOH HNO3 H2SO4 HNO2 DI Water MCH TNCORE Residue </div> </div>		Collection <div style="display: flex; justify-content: space-between;"> <div> well 1 well 2 well 3 </div> <div> 6/23/2011 930 BB SO 3 </div> </div>		Number of preserved Bottles <div style="display: flex; justify-content: space-between;"> <div> well 1 well 2 well 3 </div> <div> 3 3 3 </div> </div>	
Turnaround Time (Business days) <input type="checkbox"/> Std- 10 Business Days <input checked="" type="checkbox"/> Std- 5 Business Days (By Contract only) <input checked="" type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY		Approved By (Accutest PM): _____ Date: _____ <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> Commercial "B" + Narrative <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format <input checked="" type="checkbox"/> PDF Commercial "A" = Results Only Commercial "B" = Results + QC Summary		Comments / Special Instructions Please email results to KRW priority creek team	
Emergency & Rush TJA data available VIA Lablink					
Sample Custody must be documented below each time samples change possession, including courier delivery.					
Relinquished by Sampler: 1 Brent Berger		Date Time: 6/23/2011 1800		Received By: 1 [Signature]	
Relinquished by Sampler: 3		Date Time: 3		Received By: 2	
Relinquished by: 5		Date Time: 5		Received By: 4	
Custody Seal # <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact		Preserved where applicable <input type="checkbox"/> On Ice <input checked="" type="checkbox"/> Cooler Temp.		Date Time: 40	

D24832: Chain of Custody

Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D24832

Client: KRW CONSULTING

Immediate Client Services Action Required: No

Date / Time Received: 6/24/2011 1:50:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: PCU T35XG PIPE STRIKE

Airbill #'s: HD/CO

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

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

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

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

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

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

Comments

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www.accutest.com

GC Volatiles

5

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D24832
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU T35X-11G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB655-MB	GB11412.D	1	06/25/11	SK	n/a	n/a	GGB655

The QC reported here applies to the following samples:

Method: SW846 8015B

D24832-1, D24832-2, D24832-3

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	78% 60-140%

Blank Spike Summary

Page 1 of 1

Job Number: D24832

Account: KRWCCOL KRW Consulting, Inc.

Project: PCU T35X-11G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB655-BS	GB11413.D	1	06/25/11	SK	n/a	n/a	GGB655

The QC reported here applies to the following samples:

Method: SW846 8015B

D24832-1, D24832-2, D24832-3

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	113	103	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	90%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D24832
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU T35X-11G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D24822-1MS	GB11415.D	1	06/25/11	SK	n/a	n/a	GGB655
D24822-1MSD	GB11416.D	1	06/25/11	SK	n/a	n/a	GGB655
D24822-1	GB11414.D	1	06/25/11	SK	n/a	n/a	GGB655

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

D24832-1, D24832-2, D24832-3

CAS No.	Compound	D24822-1 mg/kg	Spike Q	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND	152	159	105	159	105	0	62-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D24822-1	Limits
120-82-1	1,2,4-Trichlorobenzene	93%	92%	77%	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: D24832

Account: KRWCCOL KRW Consulting, Inc.

Project: PCU T35X-11G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3959-MB	FI02933.D	1	06/28/11	JB	06/27/11	OP3959	GFI181

The QC reported here applies to the following samples:

Method: SW846-8015B

D24832-1, D24832-2, D24832-3

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	13	8.7	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	97% 61-142%

Blank Spike Summary

Page 1 of 1

Job Number: D24832

Account: KRWCCOL KRW Consulting, Inc.

Project: PCU T35X-11G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3959-BS	FI02934.D	1	06/28/11	JB	06/27/11	OP3959	GFI181

The QC reported here applies to the following samples:

Method: SW846-8015B

D24832-1, D24832-2, D24832-3

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	597	90	60-130

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

6.2.1

6

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D24832
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU T35X-11G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3959-MS	FI02935.D	1	06/28/11	JB	06/27/11	OP3959	GFI181
OP3959-MSD	FI02936.D	1	06/28/11	JB	06/27/11	OP3959	GFI181
D24829-1	FI02937.D	1	06/28/11	JB	06/27/11	OP3959	GFI181

The QC reported here applies to the following samples:

Method: SW846-8015B

D24832-1, D24832-2, D24832-3

CAS No.	Compound	D24829-1 mg/kg	Spike Q	mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	669		666	1200	80	1250	87	4	24-157/35

CAS No.	Surrogate Recoveries	MS	MSD	D24829-1	Limits
84-15-1	o-Terphenyl	93%	96%	88%	61-142%

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: D24832
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

QC Batch ID: MP5062
Matrix Type: AQUEOUS

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

Prep Date: 06/27/11

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	11.5	<2000
Chromium	50	.9	4		
Cobalt	25	1.8	1.8		
Copper	50	4.3	14		
Iron	350	17	65		
Lead	250	8	11		
Lithium	10	1.4	6		
Magnesium	1000	29	50	-6.0	<1000
Manganese	25	.27	1.6		
Molybdenum	50	2.3	4.4		
Nickel	150	2.2	5		
Phosphorus	500	55	100		
Potassium	5000	280	280		
Selenium	250	19	19		
Silicon	250	19	19		
Silver	150	.9	1.6		
Sodium	2000	570	570	-450	<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 MP5062: D24832-1A, D24832-2A, D24832-3A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D24832
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

QC Batch ID: MP5062
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: D24832
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: PCU T35X-11G

QC Batch ID: MP5062
 Matrix Type: AQUEOUS

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

Prep Date: 06/27/11

Metal	D24830-2 Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	120000	255000	125000	108.0	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	20300	150000	125000	103.8	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	357000	482000	125000	100.0	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP5062: D24832-1A, D24832-2A, D24832-3A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24832
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

QC Batch ID: MP5062
Matrix Type: AQUEOUS

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

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24832
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

QC Batch ID: MP5062
Matrix Type: AQUEOUS

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

Prep Date: 06/27/11

Metal	D24830-2 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	120000	250000	125000	104.0	2.0	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	20300	150000	125000	103.8	0.0	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	357000	468000	125000	88.8	2.9	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP5062: D24832-1A, D24832-2A, D24832-3A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24832
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

QC Batch ID: MP5062
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: D24832

Account: KRWCCOL - KRW Consulting, Inc.

Project: PCU T35X-11G

QC Batch ID: MP5062

Methods: SW846 6010B, USDA HANDBOOK 60

Matrix Type: AQUEOUS

Units: ug/l

Prep Date:

06/27/11

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	135000	125000	108.0	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP5062: D24832-1A, D24832-2A, D24832-3A

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D24832
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

QC Batch ID: MP5062
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D24832
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

QC Batch ID: MP5064
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 06/27/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	-0.049	<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 MP5064: D24832-1, D24832-2, D24832-3

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: D24832
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

QC Batch ID: MP5064
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 06/27/11

Metal	D24849-1 Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	1.1	101	111	90.0	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 MP5064: D24832-1, D24832-2, D24832-3

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: D24832
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

QC Batch ID: MP5064
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 06/27/11

Metal	D24849-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	1.1	102	110	91.8	1.0	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 MP5064: D24832-1, D24832-2, D24832-3

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: D24832

Account: KRWCCOL - KRW Consulting, Inc.

Project: PCU T35X-11G

QC Batch ID: MP5064

Methods: SW846 6020

Matrix Type: SOLID

Units: mg/kg

Prep Date:

06/27/11

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

Associated samples MP5064: D24832-1, D24832-2, D24832-3

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D24832
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

QC Batch ID: MP5064
Matrix Type: SOLID

Methods: SW846 6020
Units: ug/l

Prep Date: 06/27/11

Metal		D24849-1		QC	
		Original	SDL 5:25	%DIF	Limits
Aluminum					
Antimony					
Arsenic	9.85	11.2	13.8	(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 MP5064: D24832-1, D24832-2, D24832-3

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).

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: D24832
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP4777/GN10272			umhos/cm	9961	9850	98.9	90-110%
pH	GN10254			su	8.00	7.96	99.5	99.3-100.7%

Associated Samples:

Batch GN10254: D24832-1, D24832-2, D24832-3

Batch GP4777: D24832-1, D24832-2, D24832-3

(*) Outside of QC limits

8.1

8



07/07/11

Technical Report for

KRW Consulting, Inc.

PCU T35X-11G

PCU, Line Strike 1106-03

Accutest Job Number: D24898

Sampling Date: 06/27/11

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: **45**



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: 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.

Table of Contents

-1-

Section 1: Sample Summary	3
Section 2: Case Narrative/Conformance Summary	4
Section 3: Sample Results	6
3.1: D24898-1: BEDDING 25-35'	7
3.2: D24898-1A: BEDDING 25-35'	11
3.3: D24898-2: BEDDING 15-25'	13
3.4: D24898-2A: BEDDING 15-25'	17
Section 4: Misc. Forms	19
4.1: Chain of Custody	20
Section 5: GC Volatiles - QC Data Summaries	22
5.1: Method Blank Summary	23
5.2: Blank Spike Summary	24
5.3: Matrix Spike/Matrix Spike Duplicate Summary	25
Section 6: GC Semi-volatiles - QC Data Summaries	26
6.1: Method Blank Summary	27
6.2: Blank Spike Summary	28
6.3: Matrix Spike/Matrix Spike Duplicate Summary	29
Section 7: Metals Analysis - QC Data Summaries	30
7.1: Prep QC MP5112: Ca,Mg,Na,Sodium Adsorption Ratio	31
7.2: Prep QC MP5116: As	39
Section 8: General Chemistry - QC Data Summaries	44
8.1: Method Blank and Spike Results Summary	45



Sample Summary

KRW Consulting, Inc.

Job No: D24898

PCU T35X-11G
Project No: PCU, Line Strike 1106-03

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D24898-1	06/27/11	13:05 CL	06/28/11	SO	Soil	BEDDING 25-35'
D24898-1A	06/27/11	13:05 CL	06/28/11	SO	Soil	BEDDING 25-35'
D24898-2	06/27/11	13:10 CL	06/28/11	SO	Soil	BEDDING 15-25'
D24898-2A	06/27/11	13:10 CL	06/28/11	SO	Soil	BEDDING 15-25'

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: KRW Consulting, Inc.

Job No D24898

Site: PCU T35X-11G

Report Dat 7/7/2011 11:52:51 AM

On 06/28/2011, 2 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 12.8 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D24898 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: GGB664

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D24999-4MS, D24999-4MSD were used as the QC samples indicated.

Extractables by GC By Method SW846-8015B

Matrix SO

Batch ID: OP3998

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D24898-1MS, D24898-1MSD were used as the QC samples indicated.

Metals By Method SW846 6010B

Matrix AQ

Batch ID: MP5112

- All samples were digested and analyzed within the recommended method holding time.
- The matrix spike duplicate (MSD) recovery of Sodium is outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D24898-2AMS, D24898-2AMSD were used as the QC samples for the metals analysis.

Metals By Method SW846 6020

Matrix SO

Batch ID: MP5116

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D25078-1MS, D25078-1MSD, D25078-1SDL were used as the QC samples for the metals analysis.

Wet Chemistry By Method DEPT.OF AG, BOOK N9

Matrix SO

Batch ID: GP4836

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method SM19 2540B M**Matrix** SO**Batch ID:** GN10370

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

Wet Chemistry By Method SW846 9045C**Matrix** SO**Batch ID:** GN10367

- The following samples were run outside of holding time for method SW846 9045C: D24898-1, D24898-2.

Wet Chemistry By Method USDA HANDBOOK 60**Matrix** SO**Batch ID:** MP5112

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

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	BEDDING 25-35'	Date Sampled:	06/27/11
Lab Sample ID:	D24898-1	Date Received:	06/28/11
Matrix:	SO - Soil	Percent Solids:	88.2
Method:	SW846 8015B		
Project:	PCU T35X-11G		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB11591.D	1	07/02/11	SK	n/a	n/a	GGB664
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.2 g	5.0 ml	100 ul
Run #2			

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	79%		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

Client Sample ID:	BEDDING 25-35'	Date Sampled:	06/27/11
Lab Sample ID:	D24898-1	Date Received:	06/28/11
Matrix:	SO - Soil	Percent Solids:	88.2
Method:	SW846-8015B SW846 3546		
Project:	PCU T35X-11G		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD07536.D	1	07/05/11	JB	07/02/11	OP3998	GFD330
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)	23.7	15	9.8	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	70%		61-142%		

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

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

Report of Analysis

Client Sample ID:	BEDDING 25-35'	Date Sampled:	06/27/11
Lab Sample ID:	D24898-1	Date Received:	06/28/11
Matrix:	SO - Soil	Percent Solids:	88.2
Project:	PCU T35X-11G		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	4.0	0.44	mg/kg	5	07/05/11	07/05/11 GJ	SW846 6020 ¹	SW846 3050B ²

(1) Instrument QC Batch: MA1647
(2) Prep QC Batch: MP5116

RL = Reporting Limit

Report of Analysis

Client Sample ID:	BEDDING 25-35'	Date Sampled:	06/27/11
Lab Sample ID:	D24898-1	Date Received:	06/28/11
Matrix:	SO - Soil	Percent Solids:	88.2
Project:	PCU T35X-11G		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	88.2		%	1	07/05/11	SWT	SM19 2540B M
Specific Conductivity	1920	1.0	umhos/cm	1	07/06/11	JK	DEPT.OF AG, BOOK N9
pH	9.32		su	1	07/04/11 04:50	JK	SW846 9045C

RL = Reporting Limit

Report of Analysis

Client Sample ID:	BEDDING 25-35'	Date Sampled:	06/27/11
Lab Sample ID:	D24898-1A	Date Received:	06/28/11
Matrix:	SO - Soil	Percent Solids:	88.2
Project:	PCU T35X-11G		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	69.5	2.0	mg/l	1	07/05/11	07/05/11 JB	SW846 6010B ¹	EPA 200.7 ²
Magnesium	18.3	1.0	mg/l	1	07/05/11	07/05/11 JB	SW846 6010B ¹	EPA 200.7 ²
Sodium	281	2.0	mg/l	1	07/05/11	07/05/11 JB	SW846 6010B ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA1648
(2) Prep QC Batch: MP5112

RL = Reporting Limit

Report of Analysis

Client Sample ID:	BEDDING 25-35'	Date Sampled:	06/27/11
Lab Sample ID:	D24898-1A	Date Received:	06/28/11
Matrix:	SO - Soil	Percent Solids:	88.2
Project:	PCU T35X-11G		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	7.75		ratio	1	07/05/11 16:12	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BEDDING 15-25'
Lab Sample ID: D24898-2
Matrix: SO - Soil
Method: SW846 8015B
Project: PCU T35X-11G

Date Sampled: 06/27/11
Date Received: 06/28/11
Percent Solids: 84.6

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB11592.D	1	07/02/11	SK	n/a	n/a	GGB664
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	6.8	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	79%		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

Client Sample ID:	BEDDING 15-25'	Date Sampled:	06/27/11
Lab Sample ID:	D24898-2	Date Received:	06/28/11
Matrix:	SO - Soil	Percent Solids:	84.6
Method:	SW846-8015B SW846 3546		
Project:	PCU T35X-11G		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD07539.D	1	07/05/11	JB	07/02/11	OP3998	GFD330
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)	26.5	16	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	76%		61-142%		

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

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

Report of Analysis

Client Sample ID:	BEDDING 15-25'	Date Sampled:	06/27/11
Lab Sample ID:	D24898-2	Date Received:	06/28/11
Matrix:	SO - Soil	Percent Solids:	84.6
Project:	PCU T35X-11G		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	4.3	0.50	mg/kg	5	07/05/11	07/05/11 GJ	SW846 6020 ¹	SW846 3050B ²

(1) Instrument QC Batch: MA1647
(2) Prep QC Batch: MP5116

RL = Reporting Limit

Report of Analysis

Client Sample ID:	BEDDING 15-25'	Date Sampled:	06/27/11
Lab Sample ID:	D24898-2	Date Received:	06/28/11
Matrix:	SO - Soil	Percent Solids:	84.6
Project:	PCU T35X-11G		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	84.6		%	1	07/05/11	SWT	SM19 2540B M
Specific Conductivity	3070	1.0	umhos/cm	1	07/06/11	JK	DEPT.OF AG, BOOK N9
pH	9.08		su	1	07/04/11 04:50	JK	SW846 9045C

RL = Reporting Limit

Report of Analysis

Client Sample ID:	BEDDING 15-25'	Date Sampled:	06/27/11
Lab Sample ID:	D24898-2A	Date Received:	06/28/11
Matrix:	SO - Soil	Percent Solids:	84.6
Project:	PCU T35X-11G		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	166	2.0	mg/l	1	07/05/11	07/05/11 JB	SW846 6010B ¹	EPA 200.7 ²
Magnesium	42.2	1.0	mg/l	1	07/05/11	07/05/11 JB	SW846 6010B ¹	EPA 200.7 ²
Sodium	394	2.0	mg/l	1	07/05/11	07/05/11 JB	SW846 6010B ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA1648
(2) Prep QC Batch: MP5112

RL = Reporting Limit

Report of Analysis

Client Sample ID:	BEDDING 15-25'	Date Sampled:	06/27/11
Lab Sample ID:	D24898-2A	Date Received:	06/28/11
Matrix:	SO - Soil	Percent Solids:	84.6
Project:	PCU T35X-11G		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	7.06		ratio	1	07/05/11 15:52	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

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

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job #
	D24898

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)		Matrix Codes											
Company Name: KRW Consulting Street Address: 8000 W 14th Ave Ste 200 City: Lakewood CO State: 80214 Zip: 80214 Project Contact: Dwylene Knudson E-mail: 303 239 9811 Fax #: 239 0745 Phone #: 303 239 9811 Phone #: 239 0745 Sample(s) Name(s): Brent Berger Chris Levy		Project Name: PCU T35X-116 116e st-lake Street: Billing Information (If different from Report to): Company Name: Street Address: City: State: Zip: Project#: 1106-03 Client PO#: Project Manager: Attention: PO#: 		Requested Analysis: TPH (DRO/GRO) PH EC SAR Arsenic		Matrix Codes: DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIO - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank											
Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vol #	Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	D1 Water	MEOH	ENCORE	Baseline	LAB USE ONLY
	bedding 25-35'		06/27/04	1305	CL	SO	3										01
	bedding 15-25'		06/27/04	1310	CL	SO	3										02

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 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	email results to ptearce cruk KRWteam Hold analysis Contact KRW about TAT when running taken off hold	

Sample Custody must be documented below each time samples change possession, including courier delivery.							
Relinquished by: 1 BTR	Date Time: 6/27/04 18:40	Received By: 1 CL	Date Time: 	Relinquished By: 2	Date Time: 	Received By: 2	Date Time: 6/28/04 14:00
Relinquished by: 3	Date Time: 	Received By: 3	Date Time: 	Relinquished By: 4	Date Time: 	Received By: 4	Date Time:
Relinquished by: 5	Date Time: 	Received By: 5	Date Time: 	Custody Seal # 	<input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Preserved where applicable N/A <input type="checkbox"/> On Ice <input type="checkbox"/> Cooler Temp. 12.8	Ice melted

D24898: Chain of Custody

Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D24898

Client: KRW

Immediate Client Services Action Required: No

Date / Time Received: 6/28/2011 2:00:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: PCU T35X-11G LINE STRIKE

Airbill #'s: HD/CO

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

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

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

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

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

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

Comments

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www.accutest.com

GC Volatiles

5

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D24898

Account: KRWCCOL KRW Consulting, Inc.

Project: PCU T35X-11G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB664-MB	GB11573.D	1	07/02/11	SK	n/a	n/a	GGB664

The QC reported here applies to the following samples:

Method: SW846 8015B

D24898-1, D24898-2

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	81% 60-140%

Blank Spike Summary

Page 1 of 1

Job Number: D24898

Account: KRWCCOL KRW Consulting, Inc.

Project: PCU T35X-11G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB664-BS	GB11574.D	1	07/02/11	SK	n/a	n/a	GGB664

The QC reported here applies to the following samples:

Method: SW846 8015B

D24898-1, D24898-2

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

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	87%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D24898
Account: KRWCCOL KRW Consulting, Inc.
Project: PCU T35X-11G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D24999-4MS	GB11576.D	1	07/02/11	SK	n/a	n/a	GGB664
D24999-4MSD	GB11577.D	1	07/02/11	SK	n/a	n/a	GGB664
D24999-4	GB11575.D	1	07/02/11	SK	n/a	n/a	GGB664

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

D24898-1, D24898-2

CAS No.	Compound	D24999-4 mg/kg	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND	134	137	102	132	98	4	62-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D24999-4	Limits
120-82-1	1,2,4-Trichlorobenzene	76%	76%	84%	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: D24898

Account: KRWCCOL KRW Consulting, Inc.

Project: PCU T35X-11G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3998-MB	FD07534.D	1	07/05/11	JB	07/02/11	OP3998	GFD330

The QC reported here applies to the following samples:

Method: SW846-8015B

D24898-1, D24898-2

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	89% 61-142%

Blank Spike Summary

Page 1 of 1

Job Number: D24898

Account: KRWCCOL KRW Consulting, Inc.

Project: PCU T35X-11G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3998-BS	FD07535.D	1	07/05/11	JB	07/02/11	OP3998	GFD330

The QC reported here applies to the following samples:

Method: SW846-8015B

D24898-1, D24898-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	528	79	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	88%	61-142%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D24898

Account: KRWCCOL KRW Consulting, Inc.

Project: PCU T35X-11G

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3998-MS	FD07538.D	1	07/05/11	JB	07/02/11	OP3998	GFD330
OP3998-MSD	FD07537.D	1	07/05/11	JB	07/02/11	OP3998	GFD330
D24898-1	FD07536.D	1	07/05/11	JB	07/02/11	OP3998	GFD330

The QC reported here applies to the following samples:

Method: SW846-8015B

D24898-1, D24898-2

CAS No.	Compound	D24898-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	23.7		756	570	72	548	69	4	24-157/35

CAS No.	Surrogate Recoveries	MS	MSD	D24898-1	Limits
84-15-1	o-Terphenyl	74%	74%	70%	61-142%

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: D24898
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

QC Batch ID: MP5112
Matrix Type: AQUEOUS

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

Prep Date: 07/05/11

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	102	<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	60.5	<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	-380	<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 MP5112: D24898-1A, D24898-2A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D24898
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

QC Batch ID: MP5112
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: D24898
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: PCU T35X-11G

QC Batch ID: MP5112
 Matrix Type: AQUEOUS

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

Prep Date: 07/05/11

Metal	D24898-2A Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	166000	304000	125000	110.4	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	42200	176000	125000	107.0	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	394000	533000	125000	111.2	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP5112: D24898-1A, D24898-2A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24898
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

QC Batch ID: MP5112
Matrix Type: AQUEOUS

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

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24898
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

QC Batch ID: MP5112
Matrix Type: AQUEOUS

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

Prep Date: 07/05/11

Metal	D24898-2A Original MSD		Spikelot MPICPAL % Rec		MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	166000	313000	125000	117.6	2.9	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	42200	177000	125000	107.8	0.6	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	394000	558000	125000	131.2N(a	4.6	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP5112: D24898-1A, D24898-2A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24898
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

QC Batch ID: MP5112
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
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D24898
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

QC Batch ID: MP5112
Matrix Type: AQUEOUS

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

Prep Date: 07/05/11

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	134000	125000	107.2	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	134000	125000	107.2	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP5112: D24898-1A, D24898-2A

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

7.1.3

Project: PCU T35X-11G

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

Prep Date:

Metal

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D24898
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

QC Batch ID: MP5116
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 07/05/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	0.093	<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 MP5116: D24898-1, D24898-2

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: D24898
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: PCU T35X-11G

QC Batch ID: MP5116
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 07/05/11

Metal	D25078-1 Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	4.4	104	112	89.2	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 MP5116: D24898-1, D24898-2

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: D24898
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: PCU T35X-11G

QC Batch ID: MP5116
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 07/05/11

Metal	D25078-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	4.4	112	112	96.4	7.4	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 MP5116: D24898-1, D24898-2

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: D24898

Account: KRWCCOL - KRW Consulting, Inc.

Project: PCU T35X-11G

QC Batch ID: MP5116

Methods: SW846 6020

Matrix Type: SOLID

Units: mg/kg

Prep Date:

07/05/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	101	100	101.0	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP5116: D24898-1, D24898-2

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D24898
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: PCU T35X-11G

QC Batch ID: MP5116
 Matrix Type: SOLID

Methods: SW846 6020
 Units: ug/l

Prep Date: 07/05/11

Metal	D25078-1			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic	40.0	39.8	0.4	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 MP5116: D24898-1, D24898-2

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

7.2.4
7

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: D24898
Account: KRWCCOL - KRW Consulting, Inc.
Project: PCU T35X-11G

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP4836/GN10395	1.0	<1.0	umhos/cm	9986	10000	100.3	90-110%
pH	GN10367			su	8.00	8.00	100.0	99.3-100.7%

Associated Samples:
Batch GN10367: D24898-1, D24898-2
Batch GP4836: D24898-1, D24898-2
(*) Outside of QC limits



07/13/11

Technical Report for

KRW Consulting, Inc.

35-11

Line Strike 1106-03

Accutest Job Number: D25359

Sampling Date: 07/07/11

Report to:

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

Total number of pages in report: **36**



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: 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.

Table of Contents

-1-

Section 1: Sample Summary	3
Section 2: Case Narrative/Conformance Summary	4
Section 3: Sample Results	5
3.1: D25359-1: PIPE BEDDING 7-7-11	6
Section 4: Misc. Forms	8
4.1: Chain of Custody	9
Section 5: GC Volatiles - QC Data Summaries	11
5.1: Method Blank Summary	12
5.2: Blank Spike Summary	13
5.3: Matrix Spike/Matrix Spike Duplicate Summary	14
Section 6: GC Volatiles - Raw Data	15
6.1: Samples	16
6.2: Method Blanks	21
Section 7: GC Semi-volatiles - QC Data Summaries	26
7.1: Method Blank Summary	27
7.2: Blank Spike Summary	28
7.3: Matrix Spike/Matrix Spike Duplicate Summary	29
Section 8: GC Semi-volatiles - Raw Data	30
8.1: Samples	31
8.2: Method Blanks	34



Sample Summary

KRW Consulting, Inc.

Job No: D25359

35-11

Project No: Line Strike 1106-03

Sample Number	Collected		Matrix Code	Type	Client Sample ID
	Date	Time By			
D25359-1	07/07/11	08:50 CB	07/08/11	SO Soil	PIPE BEDDING 7-7-11

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: KRW Consulting, Inc.

Job No D25359

Site: 35-11

Report Date 7/13/2011 2:16:53 PM

On 07/08/2011, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3.5 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D25359 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 GC By Method SW846 8015B

Matrix SO

Batch ID: GGB675

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D25361-1MS, D25361-1MSD were used as the QC samples indicated.

Extractables by GC By Method SW846-8015B

Matrix SO

Batch ID: OP4034

- All samples were extracted 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) D25360-1MS, D25360-1MSD were used as the QC samples indicated.
- The matrix spike (MS) recovery(s) of TPH-DRO (C10-C28) are outside control limits. Probable cause due to matrix interference or nonhomogeneity.

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN10465

- 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

Client Sample ID:	PIPE BEDDING 7-7-11			Date Sampled:	07/07/11		
Lab Sample ID:	D25359-1			Date Received:	07/08/11		
Matrix:	SO - Soil			Percent Solids:	79.4		
Method:	SW846 8015B						
Project:	35-11						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB11759.D	1	07/11/11	SK	n/a	n/a	GGB675
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	7.6	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	81%		60-140%

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

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

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	PIPE BEDDING 7-7-11		Date Sampled:	07/07/11
Lab Sample ID:	D25359-1		Date Received:	07/08/11
Matrix:	SO - Soil		Percent Solids:	79.4
Method:	SW846-8015B SW846 3546			
Project:	35-11			

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD07736.D	1	07/12/11	JB	07/09/11	OP4034	GFD340
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	17	11	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	70%		61-142%		

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

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

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

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

[illegible]

D25359: Chain of Custody

Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D25359

Client: KRW CONSULTING INC.

Immediate Client Services Action Required: No

Date / Time Received: 7/8/2011 1:15:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: 35-11 LINESTRIKE

Airbill #'s: HD/CO

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

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

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

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

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

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

Comments

GC Volatiles

5

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D25359**Account:** KRWCCOL KRW Consulting, Inc.**Project:** 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB675-MB	GB11751.D	1	07/11/11	SK	n/a	n/a	GGB675

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

D25359-1

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

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	84% 60-140%

Blank Spike Summary

Page 1 of 1

Job Number: D25359

Account: KRWCCOL KRW Consulting, Inc.

Project: 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB675-BS	GB11752.D	1	07/11/11	SK	n/a	n/a	GGB675

The QC reported here applies to the following samples:

Method: SW846 8015B

D25359-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	110	100	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	88%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D25359
Account: KRWCCOL KRW Consulting, Inc.
Project: 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D25361-1MS	GB11754.D	1	07/11/11	SK	n/a	n/a	GGB675
D25361-1MSD	GB11755.D	1	07/11/11	SK	n/a	n/a	GGB675
D25361-1	GB11753.D	1	07/11/11	SK	n/a	n/a	GGB675

The QC reported here applies to the following samples:

Method: SW846 8015B

D25359-1

CAS No.	Compound	D25361-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		151	154	102	152	101	1	62-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D25361-1	Limits
120-82-1	1,2,4-Trichlorobenzene	79%	77%	76%	60-140%

GC Volatiles

Raw Data



Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\071111\GB11759.D\FID1A.CH Vial: 10
 Signal #2 : Y:\1\DATA\071111\GB11759.D\FID2B.CH
 Acq On : 11 Jul 2011 12:47 pm Operator: StephK
 Sample : D25359-1, 50X Inst : GC/MS Ins
 Misc : GC2039,GGB675,,,100,5,1 Multiplr: 1.00
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
 Quant Time: Jul 12 09:46:37 2011 Quant Results File: TB630GB630.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB630GB630.M (Chemstation Integrator)
 Title : 8015B/8021B TVH/BTEX
 Last Update : Thu Jun 23 08:27:03 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	3152746	81.455	%
10) S	1,2,4-Trichlorobenzene (P)	14.28	27617793	81.905	%
Target Compounds					
1) H	TVH-Gasoline	7.21	2146426	N.D.	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	7.48	138360	0.212	ug/L
7) T	Ethylbenzene	10.15	105466	0.184	ug/L
8) T	m,p-Xylene	10.33	554887	0.819	ug/L
9) T	o-Xylene	10.85	426436	0.751	ug/L
11) T	Naphthalene	14.46	546349	1.706	ug/L

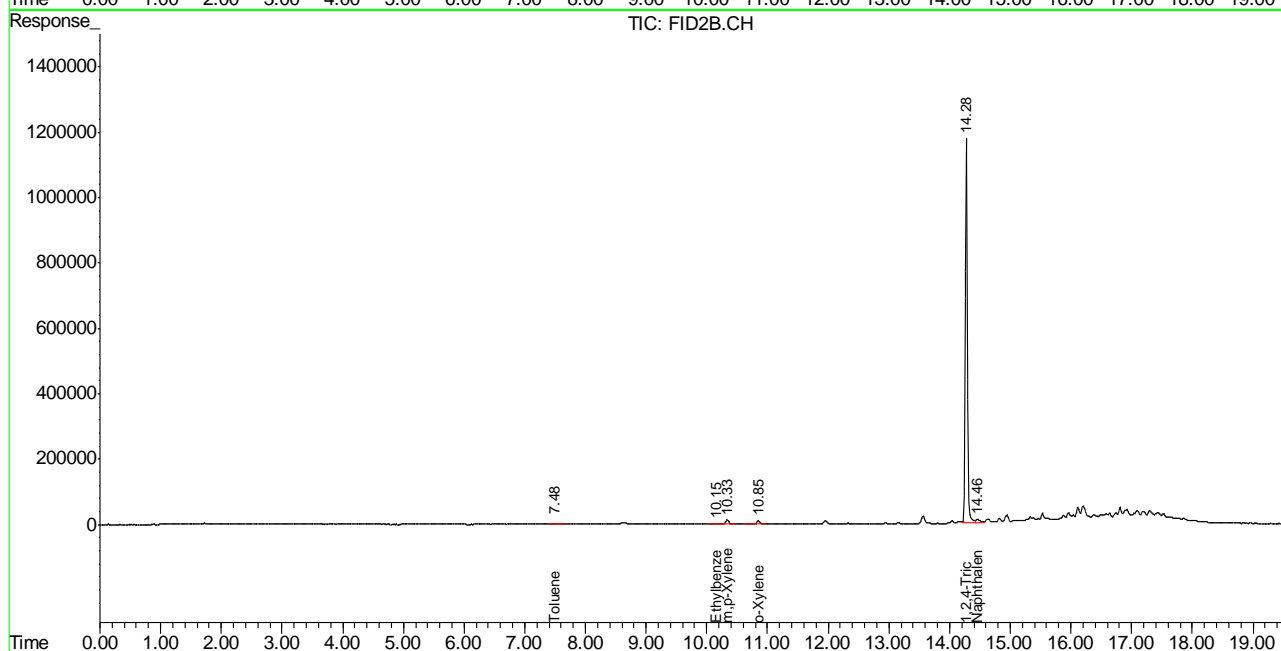
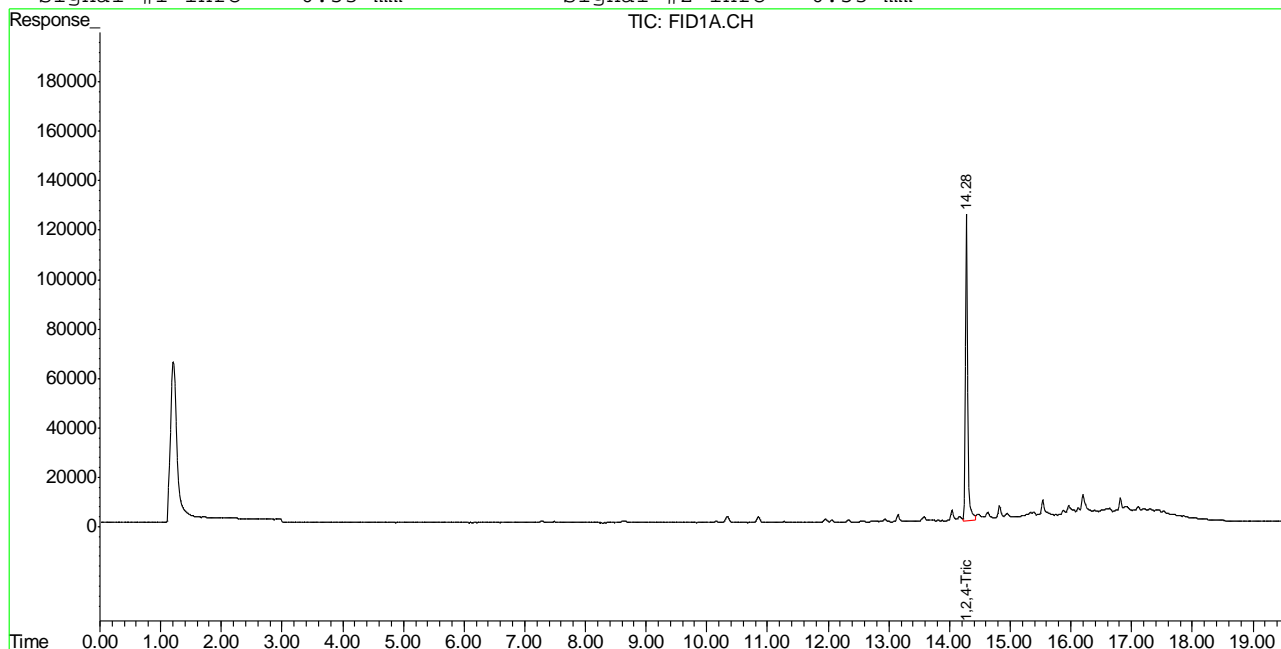
(f)=RT Delta > 1/2 Window (m)=manual int.
 GB11759.D TB630GB630.M Tue Jul 12 09:53:43 2011 GC

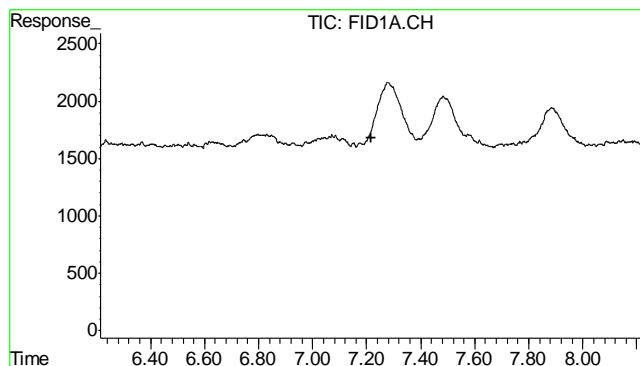
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\071111\GB11759.D\FID1A.CH Vial: 10
Signal #2 : Y:\1\DATA\071111\GB11759.D\FID2B.CH
Acq On : 11 Jul 2011 12:47 pm Operator: StephK
Sample : D25359-1, 50X Inst : GC/MS Ins
Misc : GC2039,GGB675,,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jul 12 4:33 2011 Quant Results File: TB630GB630.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB630GB630.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Jun 23 08:27:03 2011
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

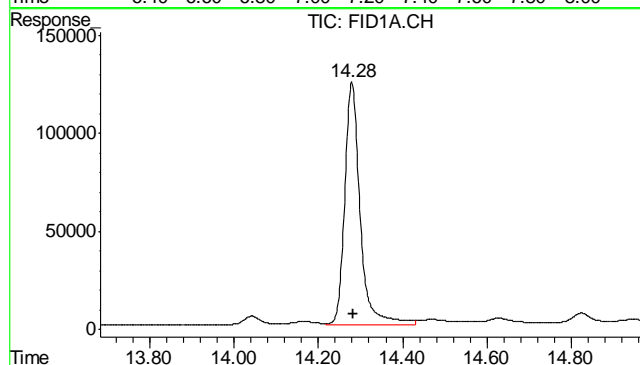
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





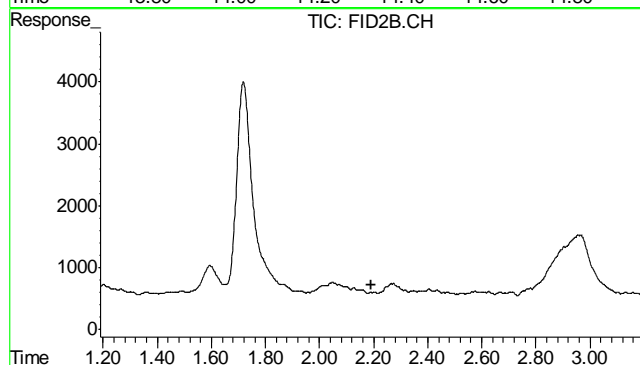
#1 TVH-Gasoline

R.T.: 7.215 min
Delta R.T.: 0.000 min
Response: 2146426
Conc: N.D.



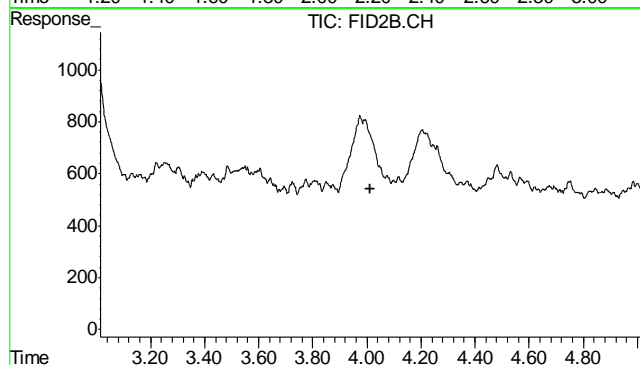
#2 1,2,4-Trichlorobenzene

R.T.: 14.280 min
Delta R.T.: -0.004 min
Response: 3152746
Conc: 81.45 %



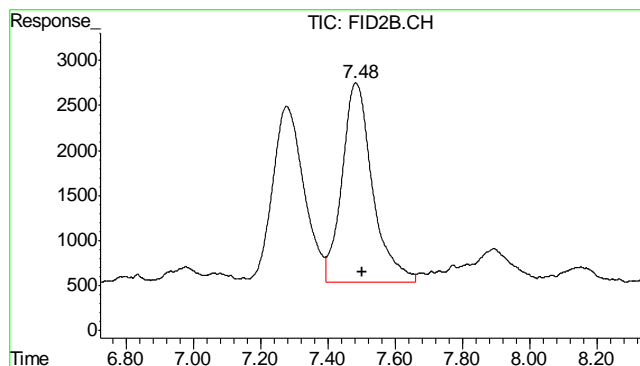
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T.: 2.190 min
Response: 0
Conc: N.D.



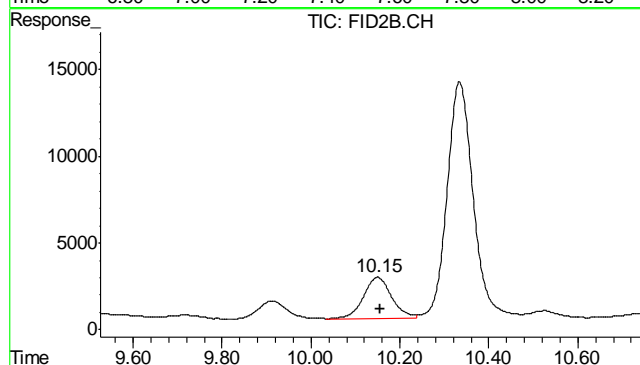
#5 Benzene

R.T.: 0.000 min
Exp R.T.: 4.013 min
Response: 0
Conc: N.D.



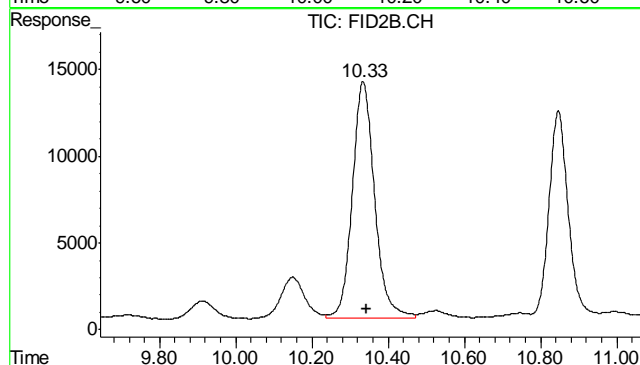
#6 Toluene

R.T.: 7.484 min
Delta R.T.: -0.018 min
Response: 138360
Conc: 0.21 ug/L



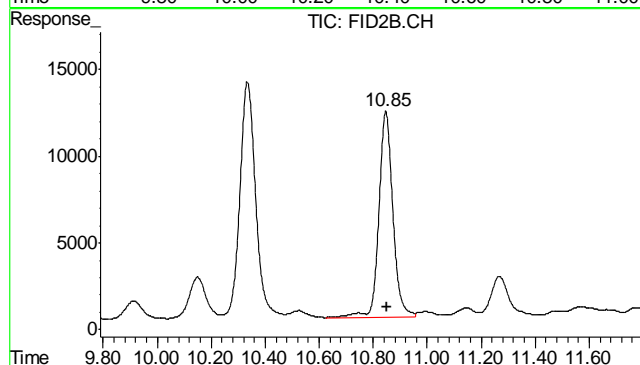
#7 Ethylbenzene

R.T.: 10.149 min
Delta R.T.: -0.007 min
Response: 105466
Conc: 0.18 ug/L



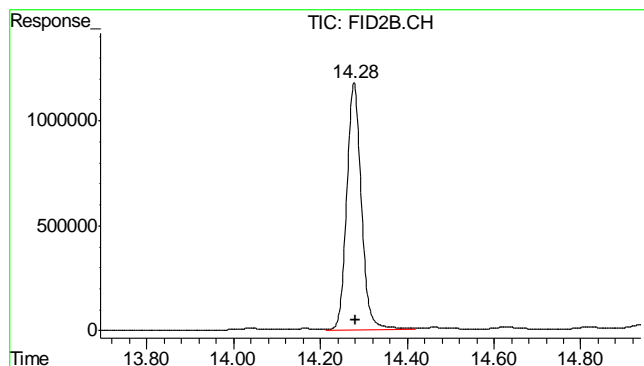
#8 m,p-Xylene

R.T.: 10.335 min
Delta R.T.: -0.009 min
Response: 554887
Conc: 0.82 ug/L



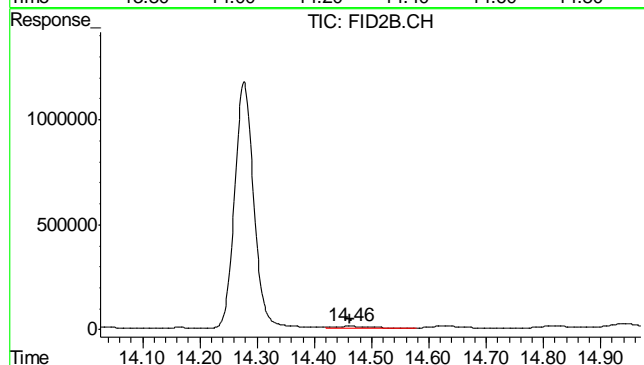
#9 o-Xylene

R.T.: 10.847 min
Delta R.T.: -0.006 min
Response: 426436
Conc: 0.75 ug/L



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

R.T.: 14.278 min
Delta R.T.: -0.004 min
Response: 27617793
Conc: 81.91 %



#11 Naphthalene

R.T.: 14.463 min
Delta R.T.: 0.000 min
Response: 546349
Conc: 1.71 ug/L

6.1.1

6

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\071111\GB11751.D\FID1A.CH Vial: 2
Signal #2 : Y:\1\DATA\071111\GB11751.D\FID2B.CH
Acq On : 11 Jul 2011 8:01 am Operator: StephK
Sample : MB, S Inst : GC/MS Ins
Misc : GC2039,GGB675,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jul 12 09:46:05 2011 Quant Results File: TB630GB630.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB630GB630.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Jun 23 08:27:03 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	3257826	84.169	%
10) S	1,2,4-Trichlorobenzene (P)	14.27	28789796	85.828	%
Target Compounds					
1) H	TVH-Gasoline	7.21	2156896	N.D.	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	7.48	178037	0.273	ug/L
7) T	Ethylbenzene	10.15	107192	0.187	ug/L
8) T	m,p-Xylene	10.33	544980	0.804	ug/L
9) T	o-Xylene	10.84	426966	0.752	ug/L
11) T	Naphthalene	14.45	382364	1.194	ug/L

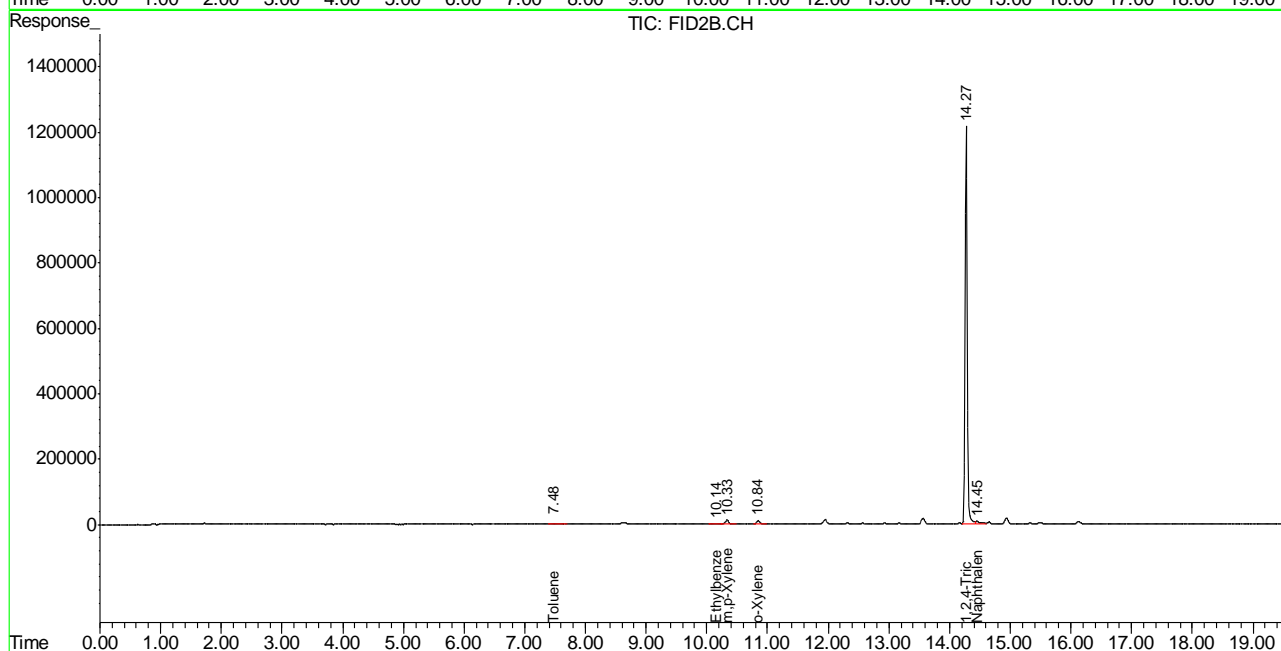
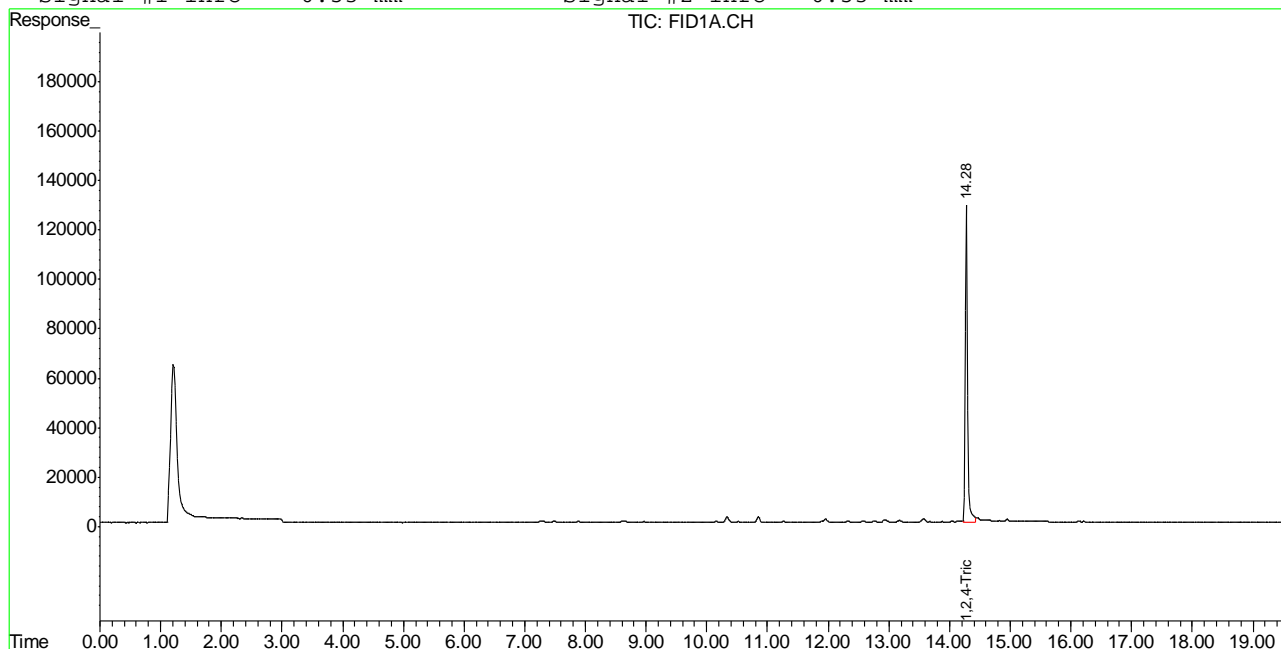
(f)=RT Delta > 1/2 Window (m)=manual int.
GB11751.D TB630GB630.M Tue Jul 12 09:53:19 2011 GC

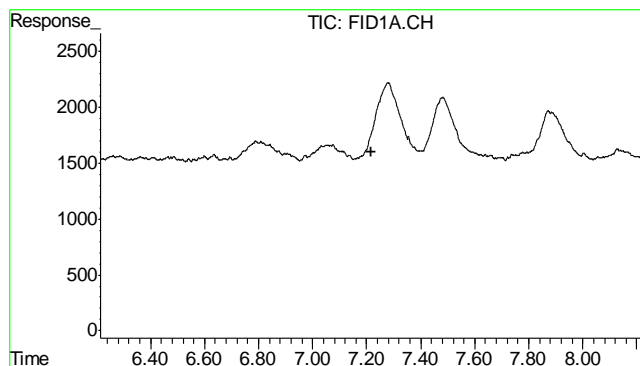
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\071111\GB11751.D\FID1A.CH Vial: 2
Signal #2 : Y:\1\DATA\071111\GB11751.D\FID2B.CH
Acq On : 11 Jul 2011 8:01 am Operator: StephK
Sample : MB, S Inst : GC/MS Ins
Misc : GC2039,GGB675,5.000,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Jul 12 4:29 2011 Quant Results File: TB630GB630.RES

Quant Method : C:\MSDCHEM\1\METHODS\TB630GB630.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Thu Jun 23 08:27:03 2011
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

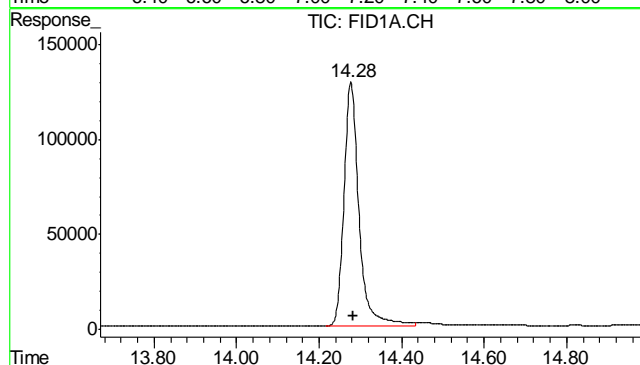
Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





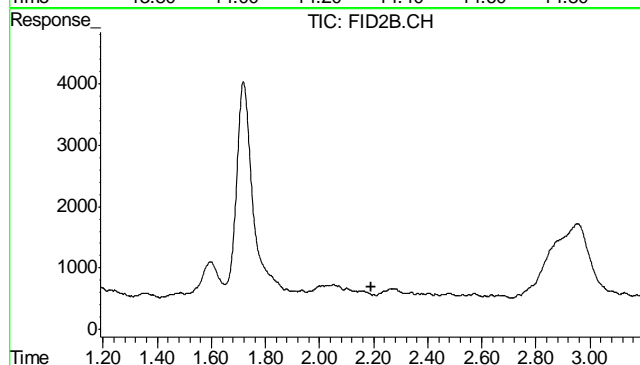
#1 TVH-Gasoline

R.T.: 7.215 min
Delta R.T.: 0.000 min
Response: 2156896
Conc: N.D.



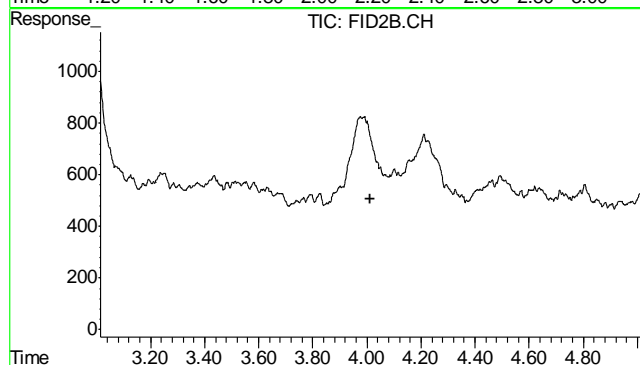
#2 1,2,4-Trichlorobenzene

R.T.: 14.277 min
Delta R.T.: -0.006 min
Response: 3257826
Conc: 84.17 %



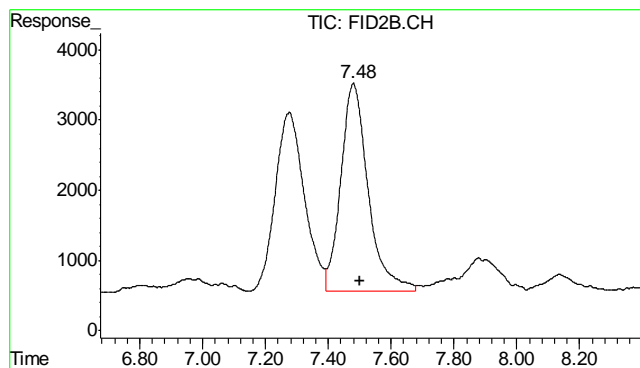
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T.: 2.190 min
Response: 0
Conc: N.D.



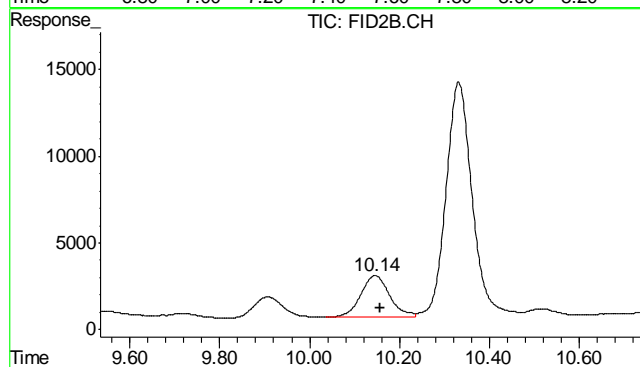
#5 Benzene

R.T.: 0.000 min
Exp R.T.: 4.013 min
Response: 0
Conc: N.D.



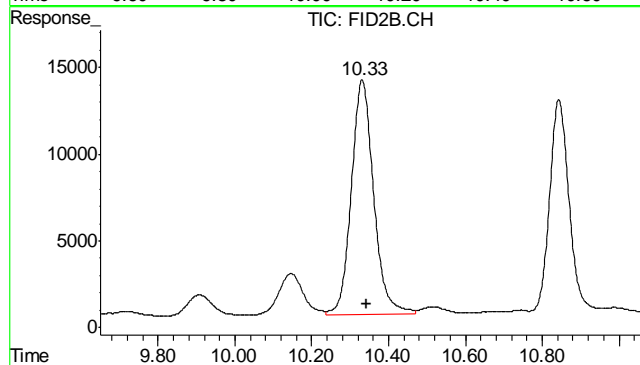
#6 Toluene

R.T.: 7.480 min
Delta R.T.: -0.022 min
Response: 178037
Conc: 0.27 ug/L



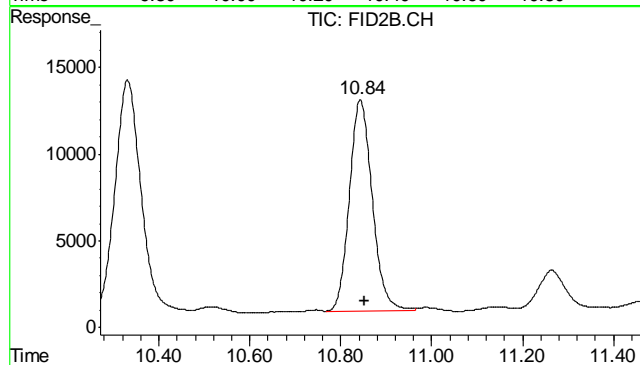
#7 Ethylbenzene

R.T.: 10.146 min
Delta R.T.: -0.011 min
Response: 107192
Conc: 0.19 ug/L



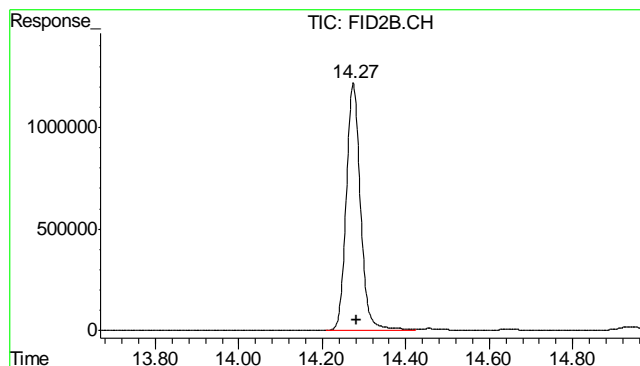
#8 m,p-Xylene

R.T.: 10.332 min
Delta R.T.: -0.013 min
Response: 544980
Conc: 0.80 ug/L



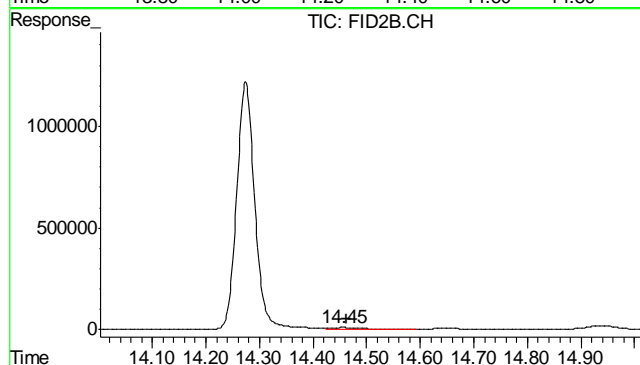
#9 o-Xylene

R.T.: 10.843 min
Delta R.T.: -0.010 min
Response: 426966
Conc: 0.75 ug/L



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

R.T.: 14.274 min
Delta R.T.: -0.007 min
Response: 28789796
Conc: 85.83 %



#11 Naphthalene

R.T.: 14.455 min
Delta R.T.: -0.007 min
Response: 382364
Conc: 1.19 ug/L

6.2.1

6

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: D25359
Account: KRWCCOL KRW Consulting, Inc.
Project: 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4034-MB	FD07724.D	1	07/12/11	JB	07/09/11	OP4034	GFD340

The QC reported here applies to the following samples:

Method: SW846-8015B

D25359-1

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	84% 61-142%

Blank Spike Summary

Job Number: D25359
Account: KRWCCOL KRW Consulting, Inc.
Project: 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4034-BS	FD07725.D	1	07/12/11	JB	07/09/11	OP4034	GFD340

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

D25359-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	484	73	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	80%	61-142%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D25359
Account: KRWCCOL KRW Consulting, Inc.
Project: 35-11

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4034-MS	FD07726.D	1	07/12/11	JB	07/09/11	OP4034	GFD340
OP4034-MSD	FD07727.D	1	07/12/11	JB	07/09/11	OP4034	GFD340
D25360-1	FD07728.D	1	07/12/11	JB	07/09/11	OP4034	GFD340

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

D25359-1

CAS No.	Compound	D25360-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	3130		893	5380	252* a	5760	294* a	7	24-157/35

CAS No.	Surrogate Recoveries	MS	MSD	D25360-1	Limits
84-15-1	o-Terphenyl	62%	65%	67%	61-142%

(a) Outside control limits due to possible sample nonhomogeneity.

GC Semi-volatiles

Raw Data

∞

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\FD071211\FD07736.D Vial: 14
Acq On : 7-12-2011 05:11:16 PM Operator: jacobbb
Sample : D25359-1 Inst : FID5
Misc : OP4034,GFD340,30.03,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Jul 13 08:38:41 2011 Quant Results File: DR-GFD328.RES

Quant Method : C:\MSDCHEM\2\METHODS\DR-GFD328.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Jul 05 11:02:59 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	9.62	32281405	697.359 mg/L
Target Compounds			
2) H TPH-DRO (c10-c28)	7.43	9568245	109.632 mg/L

8.1.1

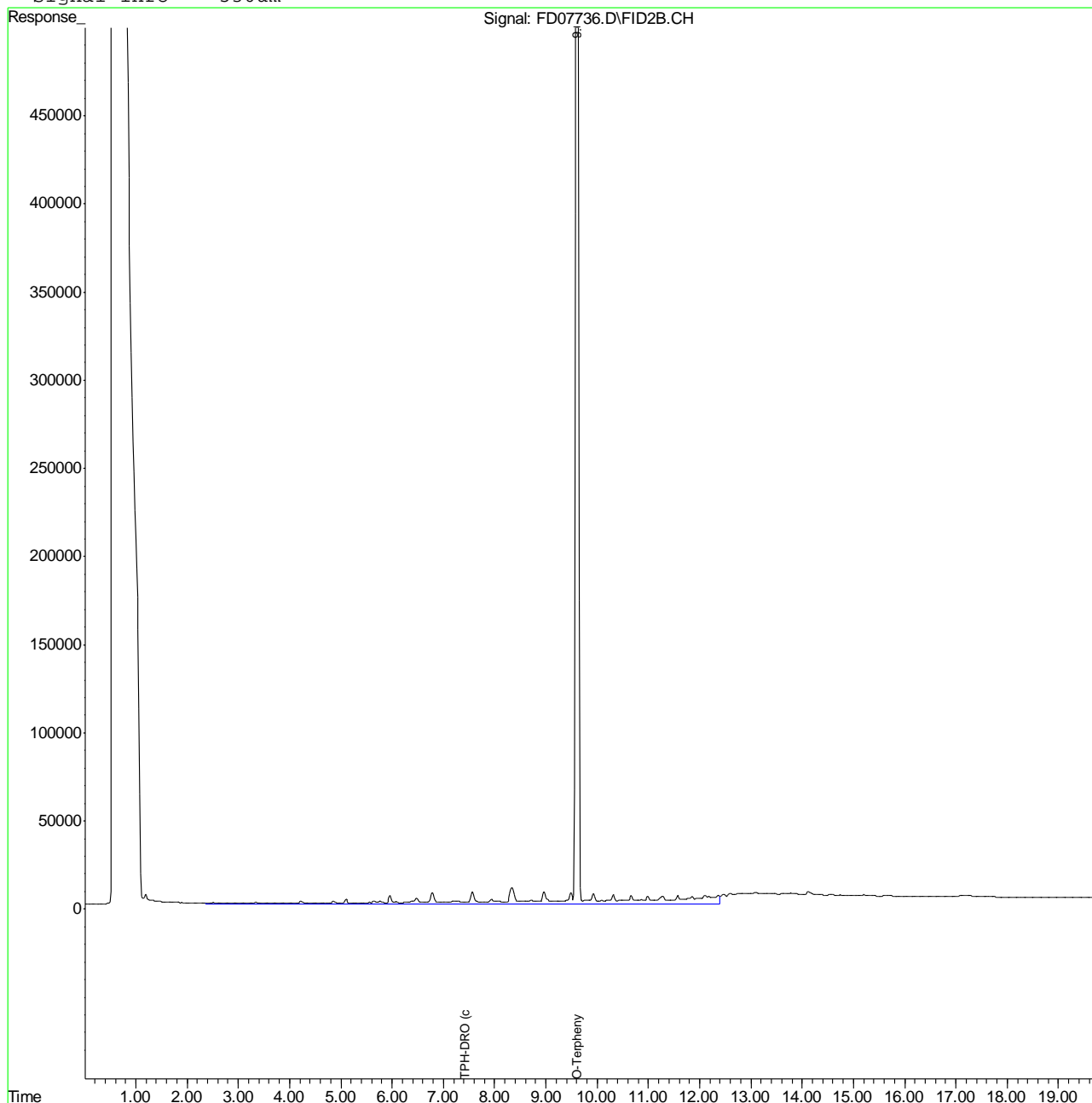
8

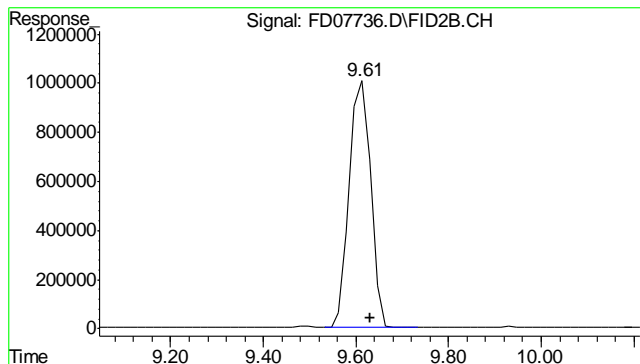
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\FD071211\FD07736.D Vial: 14
 Acq On : 7-12-2011 05:11:16 PM Operator: jacobbb
 Sample : D25359-1 Inst : FID5
 Misc : OP4034,GFD340,30.03,,,2,1 Multiplr: 1.00
 IntFile : DF-GFC101.E
 Quant Time: Jul 13 10:12 2011 Quant Results File: DR-GFD328.RES

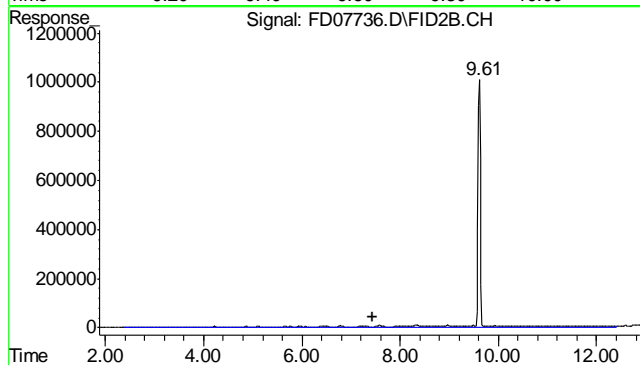
Quant Method : C:\MSDCHEM\2\METHODS\DR-GFD328.M (Chemstation Integrator)
 Title : 8015B TEH
 Last Update : Tue Jul 05 11:02:59 2011
 Response via : Multiple Level Calibration
 DataAcq Meth : RR_BASE4.M

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

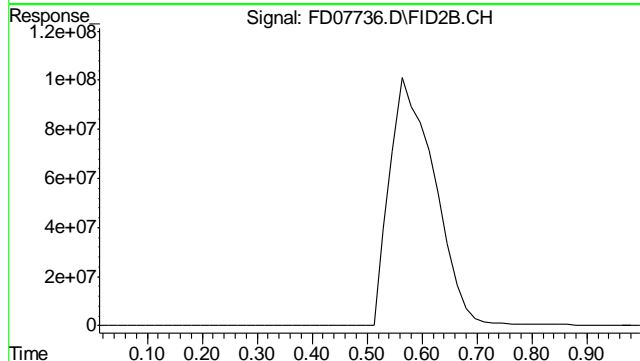




#1 O-Terphenyl
 R.T.: 9.616 min
 Delta R.T.: -0.014 min
 Response: 32281405
 Conc: 697.36 mg/L



#2 TPH-DRO (c10-c28)
 R.T.: 7.435 min
 Delta R.T.: 0.000 min
 Response: 9568245
 Conc: 109.63 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

Koroush Vaziri
07/13/11 11:38

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\FD071211\FD07724.D Vial: 2
Acq On : 12 Jul 2011 12:02 pm Operator: jacobbb
Sample : OP4034-MB Inst : FID5
Misc : OP4034,GFD340,30.00,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Jul 13 08:38:28 2011 Quant Results File: DR-GFD328.RES

Quant Method : C:\MSDCHEM\2\METHODS\DR-GFD328.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Jul 05 11:02:59 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	9.61	39052929	843.641 mg/L m
Target Compounds			

8.2.1

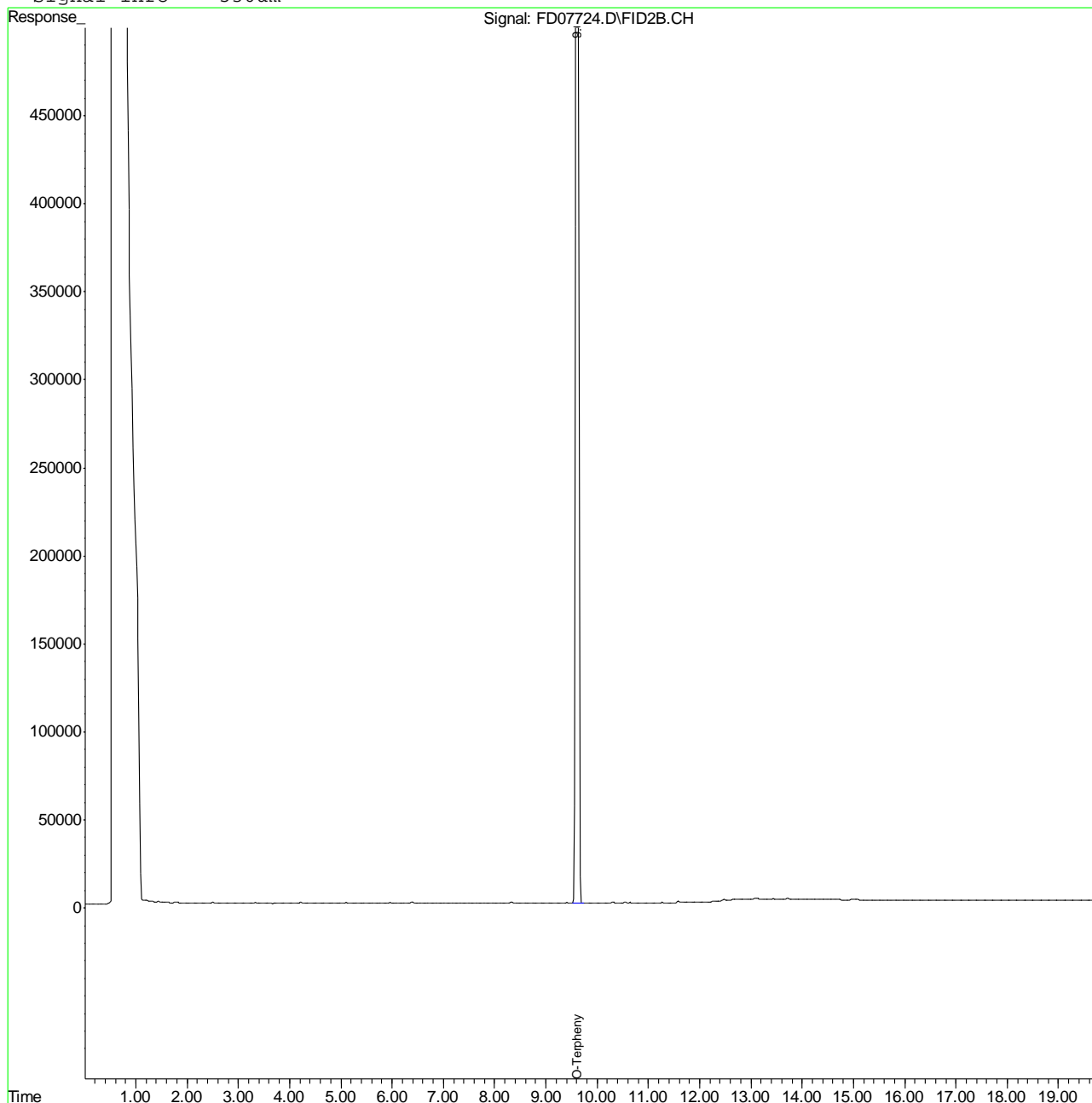
8

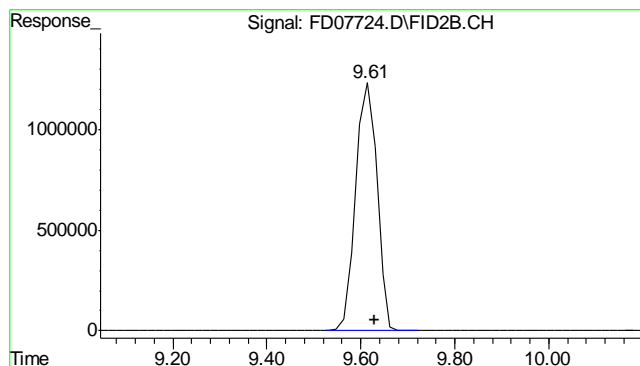
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\FD071211\FD07724.D Vial: 2
Acq On : 12 Jul 2011 12:02 pm Operator: jacobbb
Sample : OP4034-MB Inst : FID5
Misc : OP4034,GFD340,30.00,,,2,1 Multiplr: 1.00
IntFile : DF-GFC101.E
Quant Time: Jul 13 8:51 2011 Quant Results File: DR-GFD328.RES

Quant Method : C:\MSDCHEM\2\METHODS\DR-GFD328.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Jul 05 11:02:59 2011
Response via : Multiple Level Calibration
DataAcq Meth : RR_BASE4.M

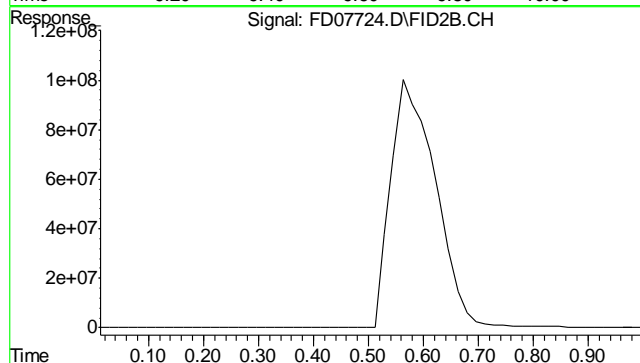
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.611 min
Delta R.T.: -0.019 min
Response: 39052929
Conc: 843.64 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

APPENDIX B
SITE PHOTOGRAPHS



Line Strike Area – 3-inch produced water line break



Line Strike Area – Post Hydrovac Activities



"Canfield, Chris"
<Chris.Canfield@state.co.us>

07/01/2011 11:29 AM

To <lisa.k.andrews@exxonmobil.com>, "Scan, OGCC"
<OGCC.Scan@state.co.us>
cc "Fischer, Alex" <Alex.Fischer@state.co.us>,
<joseph.d.mcelhaney@exxonmobil.com>

bcc

Subject RE: Form 19 - Piceance Creek

Lisa - thanks for the coordinates. No other questions on my part.

Alex - we need a location ID for this Form 19. Lat/long are listed below.

Amber - please enter the attached Form 19 as soon as you get a location ID from Alex. Also, please reply to this e-mail with the spill/release tracking number.

Chris

Chris Canfield, P.G.
Environmental Protection Specialist, Northwest Region
Colorado Oil & Gas Conservation Commission
707 Wapiti Court
Suite 204
Rifle, CO 81650

(970) 625-2497 Office
(970) 625-5682 Fax
(970) 216-6832 Cellular
chris.canfield@state.co.us

-----Original Message-----

From: lisa.k.andrews@exxonmobil.com [mailto:lisa.k.andrews@exxonmobil.com]
Sent: Friday, July 01, 2011 8:35 AM
To: Canfield, Chris
Cc: Fischer, Alex; joseph.d.mcelhaney@exxonmobil.com
Subject: RE: Form 19 - Piceance Creek

Good Morning Chris!

Lat/Long: N39 54.440' W 108 15.089'

Have a great weekend!

Thanks,
Lisa Andrews
Environmental Compliance
MI, Room 3012B
(281) 654-1125

"Canfield,
Chris"
<Chris.Canfield@state.co.us>
06/30/11 05:56 PM

To
<lisa.k.andrews@exxonmobil.com>
cc
<joseph.d.mcelhaney@exxonmobil.com>,
"Fischer, Alex"
<Alex.Fischer@state.co.us>
Subject
RE: Form 19 - Piceance Creek

Hi Lisa,

Please provide the lat/long for the place where the line was damaged as I'll need to have a location ID assigned to the subject spill. Otherwise, no questions on my part.

Thanks,

Chris

Chris Canfield, P.G.
Environmental Protection Specialist, Northwest Region
Colorado Oil & Gas Conservation Commission
707 Wapiti Court
Suite 204
Rifle, CO 81650
(970) 625-2497 Office
(970) 625-5682 Fax
(970) 216-6832 Cellular
chris.canfield@state.co.us

-----Original Message-----

From: lisa.k.andrews@exxonmobil.com [mailto:lisa.k.andrews@exxonmobil.com]
Sent: Wednesday, June 29, 2011 9:33 AM
To: Canfield, Chris
Cc: joseph.d.mcelhaney@exxonmobil.com
Subject: Form 19 - Piceance Creek

Attached is a copy of the Form 19 for a spill which occurred at our

Piceance Creek site, along with a topographical map. Should you need additional information, please let me know.

(See attached file: Form 19 - Piceance Basin.pdf)(See attached file: Topo Map - PCU 35-11.pdf)

Thanks!
Lisa Andrews
Environmental Compliance
MI, Room 3012B
(281) 654-1125



Form 19 - Piceance Basin.pdf



Topo Map - PCU 35-11.pdf