



**K.P. KAUFFMAN COMPANY, INC.**

WORLD TRADE CENTER  
1675 BROADWAY, 28<sup>TH</sup> FLOOR  
DENVER, COLORADO 80202-4628  
TELEPHONE (303) 825-4822  
FACSIMILE (303) 825-4825  
[www.kpk.com](http://www.kpk.com)

July 30, 2015

Mr. Chris Canfield  
Colorado Oil and Gas Conservation Commission  
1120 Lincoln Street, Suite 801  
Denver, CO 80203

Re: Remediation Summary and Request for No Further Action Status  
Document Number: 200215300  
Ruby B Carlson Unit D #1 Legacy Release

Dear Mr. Canfield:

K.P. Kauffman Inc. (KPK) is respectfully submitting a summary of the remediation work performed due to a legacy release at the Ruby B Carlson D #1 flowline that was initially reported on April 19, 2009. Re-sampling efforts were made on July 11, 2014, however results from the sampling analysis indicated presence of Total Petroleum Hydrocarbons-Diesel. Further remediation work has been made to remove all contaminated soil from this historical release.

Attached is a full report and soil sample analysis performed by Accutest Laboratories, Job Number D69481, for soil samples collected at the Ruby B Carlson D #1 flowline leak remediation area on July 2, 2015. Also included in the report is a summary of historical remediation efforts sample attempts made at the legacy release.

Following the results of the most recent soil sampling efforts and due to attainment of soil cleanup standards, KPK respectfully requests a No Further Action status for this flowline release. All additional reclamation activities at the remediation area will be compliant with COGCC rules.

Please do not hesitate contacting me if you require any further information at (303) 825-4822 or at [slaramesa@kpk.com](mailto:slaramesa@kpk.com)

Respectfully,

A handwritten signature in dark ink, appearing to read 'Slaramesa', is located below the 'Respectfully,' text.

Susana Lara-Mesa  
VP of Engineering

# **K.P. Kauffman Company, Inc.**

## **Legacy Flowline Remediation No Further Action Request**

Ruby B Carlson D #1 Flowline  
Weld County, Colorado

Date Submitted: July 14, 2015

1<sup>st</sup> Revised Version Submitted: July 22, 2015

2<sup>nd</sup> Revised Version Submitted: July 30, 2015

## Table of Contents

<b>1.0</b>	<b>INTRODUCTION .....</b>	<b>2</b>
<b>2.0</b>	<b>FIELD ACTIVITIES.....</b>	<b>3</b>
2.1	Excavation .....	3
2.2	Soil Sampling .....	4
2.3	Analytical Results .....	5
<b>3.0</b>	<b>CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>5</b>

## APPENDIX

## Appendix A: Location Maps

## Appendix B: Comparison of Results with Table 910-1 Standards

## Appendix C: Laboratory Analysis

## Appendix D: Soil Manifests

---

## **1.0 INTRODUCTION**

---

Beginning on April 19, 2009, K.P. Kauffman Company (KPK) was notified by a farmer of a leak from what was later determined to be coming from the Ruby B Carlson D #1 flowline (flowline). The site of the flowline leak is located just east of Weld County Road (CR) 23 and north of Mineral Road near Fort Lupton, Colorado (See Appendix A). KPK immediately reported the flowline leak to the Colorado Oil and Gas Conservation Commission (COGCC) via Form 19 (Document No. 200215300). Best efforts were implanted to contain the release on the surface due to the irrigation ditch, Lupton lower ditch, which is located in close proximity to the flowline leak. The wells were immediately shut-in and booms were installed up to four (4) miles down the Lupton lower ditch to prevent any water contamination.

Based on historical production of the wells connected to the fiberglass line, an estimated eight (8) bbl of oil and ten (10) bbl of produced water were released. A vacuum truck was used to recover four (4) bbl of oil and eight (8) bbl of water from the Lupton lower ditch. The remaining volume was believed to be contained in the soil within the established excavation area. The booms installed downstream of the release did not exhibit any staining as verified by inspectors from the Fort Lupton Fire Department and the Environmental Protection Agency (EPA) the day of the spill.

The fiberglass flowline was repaired with poly line in order to avoid any future failures. The contaminated soil at the flowline leak location was hauled off and disposed of at a certified facility. Once all remediation activities were completed, a report was filed at the COGCC, Colorado Department of Health and Environment (CDPHE), and EPA on April 28, 2009.

Composite samples from the spill location and the Lupton lower ditch were collected on April 24, 2009. A further confirmation sample was collected on July 11, 2014 at the historical spill location and was analyzed by Accutest Laboratories (ACCUTEST). Results from the confirmation sample, ACCUTEST Job No. D59689, indicated there remained a presence of Total Petroleum Hydrocarbons (TPH) – Diesel (DRO) in the soil at the flowline leak location. As a result, further excavation and remediation efforts were conducted by KPK. On April 7, 2015, a total of six (6) samples were collected from the remediated area in accordance with COGCC Rule 910.b.(3).B. The soil samples were delivered to ACCUTEST to perform analyses in accordance with COGCC Rule 910.b.(3).C. The laboratory analysis results indicated analyzed compounds were either not detected or had concentrations below COGCC cleanup standards specified in Table 910-1 (See Appendix B).

---

## 2.0 FIELD ACTIVITIES

---

### 2.1 Excavation

KPK began excavation of the contaminated soil at the location of the damaged flowline following notification of the release of fluids to the COGCC. Given that it has been over five (5) years since the date of the spill excavation began, it is challenging to specify the size of the excavation area. Based on KPK records showing that a total of eleven (11) loads of ten (10) cubic yards were hauled off location in 2009 and disposed at Waste Management's location (See Table 1), it is estimated that the excavation area would have been thirty-five (35) feet long, fifteen (15) feet wide, and five (5) deep. See Appendix D for Soil Manifests. Following the 2009 excavation of contaminated soil, KPK removed the damaged fiberglass flowline and made repairs with poly line in order to avoid any future failures.

An additional three (3) loads of ten (10) cubic yards were disposed of in 2015 as part of further excavation efforts following a high concentration of Total Petroleum Hydrocarbons – Diesel detected in a 2014 composite soil sample. The 2015 excavation is estimated to have been twelve (12) feet long, twelve (12) feet wide, and five (5) feet deep. The contaminated soil at the spill location was hauled off location and disposed of at a certified facility.

Date	WM Ticket	Volume
2/26/2009	68563	10 cy
2/26/2009	68632	10 cy
2/27/2009	68619	10 cy
2/27/2009	68651	10 cy
2/27/2009	68658	10 cy
2/27/2009	68660	10 cy
3/2/2009	68719	10 cy
3/2/2009	68736	10 cy
3/2/2009	68750	10 cy
3/30/2009	71403	10 cy
3/30/2009	713397	10 cy
1/23/2015	133376	8 cy
2/3/2015	136500	9 cy
1/15/2015	133368	11 cy
<b>TOTAL</b>		<b>138 cy</b>

Table 1: Soil Disposal Volumes

## **2.2 Soil Sampling**

Two composite soil samples were collected on April 24, 2009 from the excavation and downstream of the ditch. Additionally, a confirmation composite sample, ACCUTEST Job No. D59689, was collected from the spill site on July 11, 2014. The sample was collected at a depth of approximately 3 feet below ground surface (BGS). The soil sample was field screened for staining and/or discoloration. The sample did not exhibit any staining or discoloration. Groundwater was not encountered during the excavation or sampling. Due to the analytical results of this composite sample, further discussed in Section 2.3, additional excavation, remediation and sampling was needed. An approximate additional 28 cubic yards were removed in 2015 from the site in order to finalize cleanup activities.

Six (6) soil samples (Accutest Job No. D69481) were collected from the inferred flowline leak remediation area on April 7, 2015. The location was assumed to be the historical remediation area as ground surface showed indications that historical excavation work had been performed. The ground soil at this location also produced small PID readings for VOC content, which was thought to be trace indicators of the historical flowline release. The soil samples were collected at a depth of two (2) feet BGS. It was discovered later while mapping the location of the flowline that the six (6) collected samples were not from the correct location, as the flowline was located 50 ft. to the west of the collected samples. Because the samples were not representative of the actual location of the flowline failure, the analytical results of the soil samples have been omitted from this report.

Once the flowline was located and the historical flowline release and remediation area accurately located by KPK personnel who was present at the time of the flowline failure, four (4) soil samples (Accutest Job No. D69481) were collected from the flowline leak remediation area on July 2, 2015, in accordance with COGCC Rule 910.b.(3).B. The soil samples were collected at a depth of four (4) to five (5) feet BGS using a hand auger. The soil sample locations are illustrated in Appendix A. The soil samples were collected at or below the depth of the buried flowline. A field photoionization detector (PID) was used to measure volatile organic compounds (VOCs) for each soil sample collected. No VOCs were detected with the PID in any of the four (4) collected soil samples.

The soil samples were handled with clean, new, nitrile gloves and placed in a sanitary sample container with ice and properly labeled with sample number and location of sample collection. The samples did not exhibit any staining or discoloration.

### **2.3 Analytical Results**

All soil samples were delivered to a laboratory under chain-of-custody documentation attached to each soil analysis report. The 2009 samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX). In addition to these analyses, the 2014 and 2015 samples were also analyzed for Total Petroleum Hydrocarbons (TPH) – Diesel (DRO) and Gasoline Range Organics (GRO), Electrical Conductivity (EC), Specific Gravity (SG), Sodium Adsorption Ratio (SAR), and (pH) per COGCC Rule 910.b.(3).C.

The 2009 laboratory results indicated that BTEX was not detected in either of the composite samples and pH was not above the COGCC reporting limit. The July 11, 2014, composite sample, ACCUTEST Job No. D59689, had non-detected concentrations or detected concentrations below the COGCC cleanup standards specified in Table 910-1, except for TPH-DRO which had a concentration of 1800 mg/kg. The laboratory results of ACCUTEST Job No. D59689 have been summarized in Appendix B. The laboratory analytical reports for ACCUTEST Job No. D59689 and chain-of-custody forms provided by ACCUTEST are included in Appendix C.

The laboratory results for the July 2, 2015 soil samples, ACCUTEST Job No. D69481, had non-detected concentrations or detected concentrations below the COGCC cleanup standards specified in Table 910-1. The laboratory results of ACCUTEST Job No. D69481 have been summarized in Appendix B. The laboratory analytical reports for ACCUTEST Job No. D69481 and chain-of-custody forms provided by ACCUTEST are included in Appendix C.

---

## **3.0 CONCLUSIONS AND RECOMMENDATIONS**

---

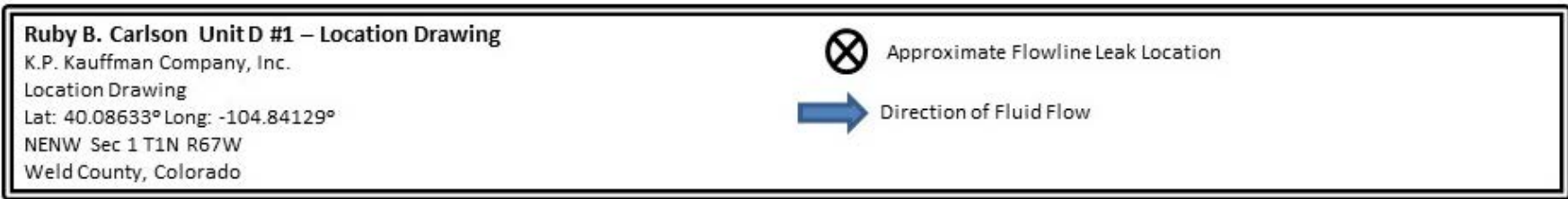
Following the excavation of the contaminated soil at the flowline leak reported to the COGCC on April 19, 2009, located immediately east of CR 23 and north of Mineral Road, multiple soil samples were collected to verify remediation efforts. The laboratory results from the July 11, 2014, composite sample, ACCUTEST Job No. D59689, contained high levels of TPH-DRO. As a result, further soil excavation occurred before more sampling could take place. Four (4) soil samples were collected on July 2, 2015, from the corner locations of the estimated 2015 excavation area using a hand auger to collect soil samples below the

existing flowline. All four (4) soil samples, ACCUTEST Job No. D69481, were analyzed for BTEX, TPH (GRO and DRO), EC, SG, SAR, and pH. Any detected concentrations were below the COGCC cleanup standards specified in Table 910-1 (See Appendix B).

Based on the analytical results, additional work at the property is not warranted at this time.



## **Appendix A: Location Maps**



Document Number: 200215300

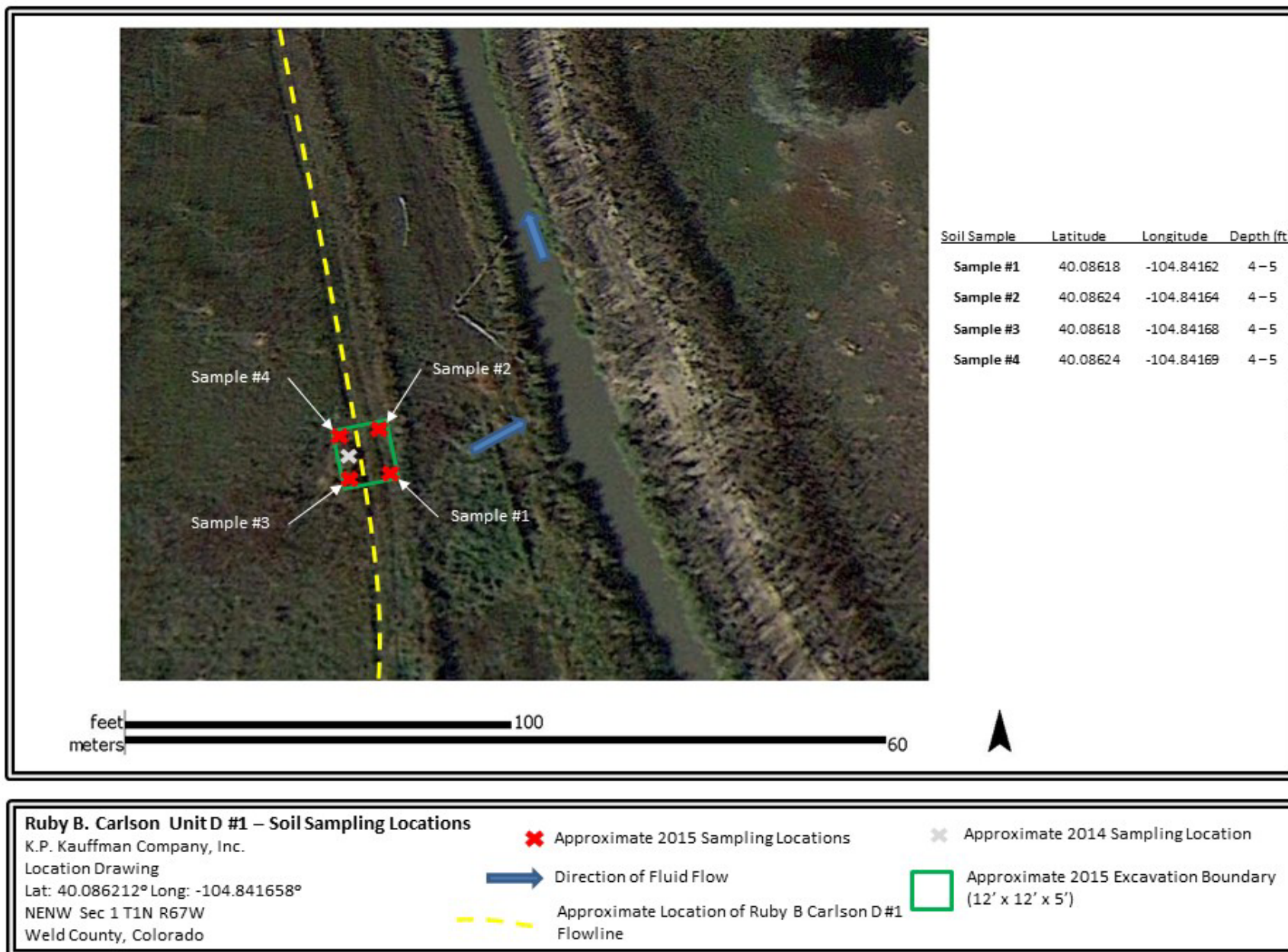


Figure 2 – Revised July 22, 2015

## **Appendix B: Comparison of Results with Table 910-1 Standards**

Comparison of COGCC Table 910-1						
Concentration Levels						
RUBY B CARLSON UNIT D #1			Sampling Results			
			Date Sampled:	7/11/2014	7/2/2015	7/2/2015
COGCC Table 910-1 Parameters			Sample ID:	D59689-1	D72443-1	D72443-2
Organic Compounds in Soil						
Contaminant of Concern	Concentrations					
TPH (total volatile and extractable petroleum hydrocarbons) - GRO (Gasoline Range Organics), mg/kg	500 mg/kg	ND	ND	ND	ND	ND
TPH (total volatile and extractable petroleum hydrocarbons) - DRO ( Diesel Range Organics), mg/kg	500 mg/kg	1800	ND	ND	ND	ND
Benzene, mg/kg	0.17 mg/kg <sup>2</sup>	ND	ND	ND	ND	ND
Toluene, mg/kg	85 mg/kg <sup>2</sup>	ND	ND	ND	ND	ND
Ethylbenzene, mg/kg	100 mg/kg <sup>2</sup>	ND	ND	ND	ND	ND
Xylenes (total), mg/kg	175 mg/kg <sup>2</sup>	ND	ND	ND	ND	ND
Acenaphthene	1,000 mg/kg <sup>2</sup>					
Anthracene	1,000 mg/kg <sup>2</sup>					
Benzo(A)anthracene	0.22 mg/kg <sup>2</sup>					
Benzo(B)fluoranthene	0.22 mg/kg <sup>2</sup>					
Benzo(K)fluoranthene	2.2 mg/kg <sup>2</sup>					
Benzo(A)pyrene	22 mg/kg <sup>2</sup>					
Dibenzo(A,H)andthracene	0.022 mg/kg <sup>2</sup>					
Fluoranthene	1,000 mg/kg <sup>2</sup>					
Fluorene	1,000 mg/kg <sup>2</sup>					
Indeno(1,2,3,C,D)pyrene	0.22 mg/kg <sup>2</sup>					
Napthalene	23 mg/kg <sup>2</sup>					
Pyrene	1,000 mg/kg <sup>2</sup>					
Organic Compounds in Ground Water						
Contaminant of Concern	Concentrations					
Benzene	5 µg/l <sup>3</sup>					
Toluene	560 to 1,000 µg/l <sup>3</sup>					
Ethylbenzene	700 µg/l <sup>3</sup>					
Xylenes (total)	1,400 to 10,000 µg/l <sup>3</sup>					
Inorganics in Soils						
Electrical Conductivity (EC), mmhos/cm	< 4 mmhos/cm or 2x background	0.517	0.306	0.0763	0.0886	0.211
Sodium Adsorption Ration (SAR)	< 12 <sup>5</sup>	0.898	1.97	1.34	0.475	1.63
pH	6-9	7.25	8	8.19	8.24	7.67
Inorganics in Ground Water						
Total Dissolved Solids (TDS)	< 1.25 x background <sup>3</sup>					
Chlorides	< 1.25 x background <sup>3</sup>					
Sulfates	< 1.25 x background <sup>3</sup>					
Metals in Soils						
Contaminant of Concern	Concentrations					
Arsenic	0.39 mg/kg <sup>2</sup>					
Barium (LDNR True Total Barium)	15,000 mg/kg <sup>2</sup>					
Boron (Hot Water Soluble)	2 mg/l <sup>3</sup>					
Cadmium	70 mg/kg <sup>2,3</sup>					
Chromium (III)	120,000 mg/kg <sup>2</sup>					
Chromium (VI)	23 mg/kg <sup>2,6</sup>					
Copper	3,100 mg/kg <sup>2</sup>					
Lead (inorganic)	400 mg/kg <sup>2</sup>					
Mercury	23 mg/kg <sup>2</sup>					
Nickel (soluble salts)	1,600 mg/kg <sup>2,6</sup>					
Selenium	390 mg/kg <sup>2,6</sup>					
Silver	390 mg/kg <sup>2</sup>					
Zinc	23,000 mg/kg <sup>2,6</sup>					
Liquid Hydrocarbons in Soils and Ground Water						
Liquid Hydrocarbons including condensate and oil	Below detection Level					
*ND = NON DETECT						

## **Appendix C: Laboratory Analysis**

The Analytica Group  
CLIENT INVOICE

**Remit to:** Accounting Dpt  
SP-Analytica, Inc.  
P.O. Box 973426  
Dallas, TX 75397-3426

**Phone:** (303) 469-8868

**Attention:** Mr.Kent Gilbert  
**Invoice to:** K. P. Kauffman Co.  
1675 Broadway  
Suite 2800  
Denver, CO 80202

**Invoice #:** 98821  
**Work Order#:** B0904202  
**Account#:** 012340  
**Quote ID#:** 2138  
**Invoice Date:** 4/29/2009  
**Work ID:** Lupton B.D.  
**PO #:**  
**Received:** 4/24/2009  
**Reported:** 4/29/2009  
**Client Project#:** Lupton B.D.

**Comments:**

<u>Item charges</u>	<u>Qty</u>	<u>Price</u>	<u>Total</u>
Aromatic VOCs by GC/PID via method 8021B - BTEX - 7 Day Unpreserv In Aqueous	2	59.00	118.00
<b>Total of Items Above:</b>			<b>\$118.00</b>
<u>Adjustments or Special Services</u>	<u>Qty</u>	<u>Price</u>	<u>Total</u>
75% Surcharge for a 3 day TAT	1	88.50	88.50
<b>Total of Items Above:</b>			<b>\$88.50</b>
<b>Grand Total:</b>			<b>\$206.50</b>

All invoices are due and payable upon receipt. Outstanding balances over 30 days are subject to a finance charge of 1.5% per month, plus a late fee of \$25.00. If Analytica engages legal counsel to enforce its rights or any other rights under an application for payment, the customer will be liable to Analytica for all costs of collection and other legal expenses, including reasonable attorney fees.

---

The Analytica Group  
CLIENT INVOICE

---

REMITTANCE ADVICE  
PLEASE RETURN THIS PORTION WITH YOUR  
PAYMENT

Mr.Kent Gilbert  
K. P. Kauffman Co.  
1675 Broadway  
Suite 2800  
Denver, CO 80202

**Account#:** 012340  
**Invoice #:** 98821  
**Invoice Date:** 4/29/2009

TOTAL INVOICE AMOUNT: **\$206.50**

PAYMENT AMOUNT ENCLOSED: \_\_\_\_\_





SP-Analytica, Inc.  
12189 Pennsylvania Street  
Thornton, CO 80241  
Phone: 303-469-8868  
Fax: 303-469-5254

---

4/29/2009

K. P. Kauffman Co.  
1675 Broadway  
Suite 2800  
Denver, CO 80202  
Attn: Kent Gilbert

Work Order #: B0904202  
Date: 4/29/2009  
Work ID: Lupton B.D.  
Date Received: 4/24/2009  
Proj #: NONE

### Sample Identification

Lab Sample Number	Client Description	Lab Sample Number	Client Description
B0904202-01	A South	B0904202-02	B North

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. Listings of data qualifiers, analytical codes, key dates, and QC relationships are provided at the end of the report.

Sincerely,

Kristen Stone  
Project Manager

*"The Science of Analysis, The Art of Service"*

## **Case Narrative**

*Analytica Environmental Laboratories, Inc.*

*Work Order: B0904202*

Samples were prepared and analyzed according to EPA or equivalent methods outlined in the following references:

Test Methods for Evaluating Solid Waste, USEPA SW-846, Third Edition, Revision 4, December 1996.

### **SAMPLE RECEIPT:**

Two (2) samples were received on 4/24/2009 9:52:00 AM at a temperature of 2°C at Analytica-Thornton. The samples were received in good condition and in order per chain of custody.

### **REVIEW FOR COMPLIANCE WITH ANALYTICA QA PLAN**

A summary of our review is shown below.

All analytical results contained in this report have been reviewed under Analytica's internal quality assurance and quality control program. Any deviations in quality control parameters for specific analyses are noted in the following text. A complete quality assurance report, including laboratory control, matrix spike, and sample duplicate recoveries is kept on file in our office and is available upon request.

All method specifications were met for the following tests, unless otherwise noted:

Test Method: Aromatic VOCs by GC/PID via method 8021B - BTEX - 7 Day Unpreserv - Aqueous

# Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0904202

Project: Lupton B.D.

Client: K. P. Kauffman Co.

Client Project Number: NONE

## Report Section: Client Sample Report

Client Sample Name: A South

Matrix: Water

Collection Date: 4/24/2009 8:09:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0904202-01A

Analysis Date: 4/28/2009 10:49:00AM

Prep Date: 4/27/2009

Instrument: GC\_B

Analytical Method ID: Aromatic VOCs by GC/PID via method 8021B - BTEX - 7 Day Unp

File Name: 09042730.D

Prep Method ID: 5030B

Dilution Factor: 1

Prep Batch Number: T090428017

Report Basis: As Received

Analyst Initials: DL

Sample prep wt./vol: 5.00 ml

Prep Extract Vol: 5.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>					<u>run #:</u>
Benzene	71-43-2	ND		ug/L	1.0	0.33					1
Ethylbenzene	100-41-4	ND		ug/L	1.5	0.46					
tert-Butyl Methyl Ether	1634-04-4	ND		ug/L	2.0	0.65					
Toluene	108-88-3	ND		ug/L	1.2	0.35					
Xylenes, Total	1330-20-7	ND		ug/L	3.0	0.82					
<u>Surrogate</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>Spike</u>	<u>% Recov</u>	<u>LCL</u>	<u>UCL</u>	<u>run #:</u>
p-Bromofluorobenzene	460-00-4	30		ug/L	0.50	0.12	27	109	80	120	1

# Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0904202

Project: Lupton B.D.

Client: K. P. Kauffman Co.

Client Project Number: NONE

## Report Section: Client Sample Report

Client Sample Name: B North

Matrix: Water

Collection Date: 4/24/2009 8:32:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0904202-02A

Analysis Date: 4/28/2009 11:22:00AM

Prep Date: 4/27/2009

Instrument: GC\_B

Analytical Method ID: Aromatic VOCs by GC/PID via method 8021B - BTEX - 7 Day Unp

File Name: 09042731.D

Prep Method ID: 5030B

Dilution Factor: 1

Prep Batch Number: T090428017

Report Basis: As Received

Analyst Initials: DL

Sample prep wt./vol: 5.00 ml

Prep Extract Vol: 5.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>					<u>run #:</u>
Benzene	71-43-2	ND		ug/L	1.0	0.33					1
Ethylbenzene	100-41-4	ND		ug/L	1.5	0.46					
tert-Butyl Methyl Ether	1634-04-4	ND		ug/L	2.0	0.65					
Toluene	108-88-3	ND		ug/L	1.2	0.35					
Xylenes, Total	1330-20-7	ND		ug/L	3.0	0.82					
<u>Surrogate</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>Spike</u>	<u>% Recov</u>	<u>LCL</u>	<u>UCL</u>	<u>run #:</u>
p-Bromofluorobenzene	460-00-4	27		ug/L	0.50	0.12	27	98.4	80	120	1

## Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0904202

Project: Lupton B.D.

Client: K. P. Kauffman Co.

Client Project Number: NONE

### QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 99,996 Lab Project Number: B0904202

Prep Date: 4/27/2009

Lab Method Blank Id: T090428017-MB

Prep Batch ID: T090428017

Method: Aromatic VOCs by GC/PID via method 8021B - BTEX - 7 Day Unp

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
T090428017-LCS	LCS	09042723.D	4/28/2009 6:57:00AM
T090428017-LCSD	LCSD	09042724.D	4/28/2009 7:30:00AM
B0904202-01A	A South	09042730.D	4/28/2009 10:49:00AM
B0904202-02A	B North	09042731.D	4/28/2009 11:22:00AM

## Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0904202

**Project:** Lupton B.D.

**Client:** K. P. Kauffman Co.

**Client Project Number:** NONE

### DATA FLAGS AND DEFINITIONS

The PQL is the Method Quantitation Limit as defined by USACE.

Reporting Limit: Limit below which results are shown as "ND". This may be the PQL, MDL, or a value between. See the report conventions below.

#### Result Field:

ND = Not Detected at or above the Reporting Limit

NA = Analyte not applicable (see Case Narrative for discussion)

#### Qualifier Fields:

LOW = Recovery is below Lower Control Limit

HIGH = Recovery, RPD, or other parameter is above Upper Control Limit

E = Reported concentration is above the instrument calibration upper range

#### Organic Analysis Flags:

B = Analyte was detected in the laboratory method blank

J = Analyte was detected above MDL or Reporting Limit but below the Quant Limit (PQL)

#### Inorganic Analysis Flags:

J = Analyte was detected above the Reporting Limit but below the Quant Limit (PQL)

W = Post digestion spike did not meet criteria

S = Reported value determined by the Method of Standard Additions (MSA)

Several ways of defining the limit of detection and quantitation are prevalent in the laboratory industry and may appear in Analytica reports. These include the following:

MRL = "minimum reporting level", from the EPA Safe Drinking Water program (SDW)

PQL = "practical quantitation limit", from SW-846

EQL = "estimated quantitation limit", from SW-846

LOQ = "limit of quantitation", from a number of authoritative sources

In Analytica's work, all of these terms have the same meaning, equivalent to the EPA definition of the MRL. This reporting level is supported by a satisfactory calibration data point which is at that level or lower, and also is supported by a method detection limit (MDL) determined by the procedure in 40CFR. The MDL is lower than the MRL and represents an estimate of the level where positive detections have a 99% probability of being real, but where quantitation accuracy is unknown.

The MRL as defined by Analytica is the lowest demonstrated point of known quantitation accuracy.

The MRL should not be confused with the MCL, which is the EPA-defined "maximum contaminant level" allowed for certain regulated targets under specific regulations, such as the National Primary Drinking Water Regulations. Normally, the MRL is set at a level which is much lower than the MCL in order to ensure that levels are well below those limits. Not all target analytes have MCL levels established.

Other Flags may be applied. See Case Narrative for Description

## Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0904202

Project: Lupton B.D.

Client: K. P. Kauffman Co.

Client Project Number: NONE

### REPORTING CONVENTIONS FOR THIS REPORT

B0904202

<u>TestPkgName</u>	<u>Basis</u>	<u># Sig Figs</u>	<u>Reporting Limit</u>
8021/5030B (Aqueous) - BTEX - 7 Day Unpreserv	As Received	2	Report to PQL



# Analytica Chain of Custody Form

ANALYTICA GROUP 96

12189 Pennsylvania St. 4307 Arctic Boulevard 475 Hall St. 5438 Shaune Drive  
Thornton, CO 80241 Anchorage, AK 99503 Fairbanks, AK 99701 Juneau, AK 99801  
(303) 469-9868 (907) 258-2155 (907) 456-3116 (907) 780-6568  
(303) 469-5254 fax (907) 258-6634 fax (907) 456-3125 Fax (907) 780-6670 fax

Chain of Custody No:

69106

Client Name & Address:

K.P. Kauffman Co. #2800  
1675 Broadway Co 80002  
Denver

Public Water System (PWS) ID#:

Project Name:

Lupton B. D

Quote ID:

LGN:

B0904202

Report to: R. Gorka

Turnaround Time for Results (TAT)

Invoice to Name & Address:

Phone No: 31825 4822

Standard

☒ Expedited (< 10 days, prior authorization required)  
(please specify due date below;  
additional charges may apply)

Same

Fax No: ---

E-mail: rgorka@kpc.com

Requested Due Date for Results:

Special Instructions/Comments:

P.O. or Contract No:

4/29-09

Requested Analysis/Method

Kit Prep/Shipping Charge: \$

Client Sample Identification / Location

Date Sampled

Time Sampled

Matrix (S-DW-WW-Other)

No. of Containers

BTEX  
1008

Lot #

Pres

Lot #

Pres

Lot #

Pres

Lot #

Pres

Lot #

Pres

Field Preserved

Field Filtered

MS/MSD ?

Relinquished by:

Date

Time

Received by:

Date

Time

Section To Be Completed by Analytica

Relinquished by:

Date

Time

Received by:

Date

Time

Condition of Custody Seal?

IHO

ANC

JNU

FBKS

Relinquished by:

Date

Time

Received by:

Date

Time

Temp/loc:

2.0

Thermo ID#:

Name of Sampler: (printed)

Shipped Via:

Client





## Cooler Receipt Form

Client: K. P. Kauffman Co.  
Project: Lupton B.D.

Client Code: 012340

Order #: B0904202

Cooler ID: 1

**A. Preliminary Examination Phase:**

Date cooler opened: 4/24/2009

Cooler opened by: NL

Signature: NL

1. Was airbill Attached? N/A

Airbill #:

Carrier Name: Client

2. Custody Seals? N/A

How many? 0

Location:

Seal Name:

3. Seals intact? N/A

4. COC Attached? Yes

Properly Completed? Yes

Signed by AEL employee? Yes

5. Project Identification from custody paper: Lupton B.D.

6. Preservative: WetIce

Temperature: 2.0 deg. C

Designated person initial here to acknowledge receipt:

NL

Date:

4/24/09

COMMENTS:

**B. Log-In Phase:**

Samples Log-in Date: 4/24/2009

Log-in By: NL

1. Packing Type: Ice

2. Were samples in separate bags? N/A

3. Were containers intact? Yes

Labels agree with COC? Yes

4. Number of bottles received: 4

Number of samples received: 2

5. Correct containers used? Yes

Correct preservatives added? Yes

6. Sufficient sample volume? Yes

7. Bubbles in VOA samples? N/A

8. Was Project manager called and status discussed? No

9. Was anyone called? No

Who was called?

By whom?

Date:

COMMENTS:



07/17/14

## Technical Report for

**K.P. Kauffman Company, Inc.**

**Soil Sampling 07-11-2014**

**Accutest Job Number: D59689**

**Sampling Date: 07/11/14**

### Report to:

K.P. Kauffman Company, Inc.  
1675 Broadway Suite 2800  
Denver, CO 80202-4628  
mhattel@msn.com; slaramesa@kpk.com;  
kgilbert@kpk.com; dkuhn@kpk.com  
ATTN: Susana Lara-Mesa

**Total number of pages in report: 43**



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

A handwritten signature in black ink, appearing to read 'Scott Heideman'.

**Scott Heideman**  
**Laboratory Director**

**Client Service contact: Renea Jackson 303-425-6021**

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), TX (T104704511)

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-

<b>Section 1: Sample Summary .....</b>	<b>3</b>
<b>Section 2: Case Narrative/Conformance Summary .....</b>	<b>4</b>
<b>Section 3: Summary of Hits .....</b>	<b>6</b>
<b>Section 4: Sample Results .....</b>	<b>7</b>
<b>4.1: D59689-1: RUBY B CARLSON UNIT D 1 .....</b>	<b>8</b>
<b>4.2: D59689-1A: RUBY B CARLSON UNIT D 1 .....</b>	<b>12</b>
<b>Section 5: Misc. Forms .....</b>	<b>14</b>
<b>5.1: Chain of Custody .....</b>	<b>15</b>
<b>Section 6: GC/MS Volatiles - QC Data Summaries .....</b>	<b>16</b>
<b>6.1: Method Blank Summary .....</b>	<b>17</b>
<b>6.2: Blank Spike Summary .....</b>	<b>18</b>
<b>6.3: Matrix Spike Summary .....</b>	<b>20</b>
<b>6.4: Duplicate Summary .....</b>	<b>22</b>
<b>Section 7: GC Volatiles - QC Data Summaries .....</b>	<b>23</b>
<b>7.1: Method Blank Summary .....</b>	<b>24</b>
<b>7.2: Blank Spike Summary .....</b>	<b>25</b>
<b>7.3: Matrix Spike/Matrix Spike Duplicate Summary .....</b>	<b>26</b>
<b>Section 8: GC Semi-volatiles - QC Data Summaries .....</b>	<b>27</b>
<b>8.1: Method Blank Summary .....</b>	<b>28</b>
<b>8.2: Blank Spike Summary .....</b>	<b>29</b>
<b>8.3: Matrix Spike/Matrix Spike Duplicate Summary .....</b>	<b>30</b>
<b>Section 9: Metals Analysis - QC Data Summaries .....</b>	<b>31</b>
<b>9.1: Prep QC MP13449: Ca,Mg,Na,Sodium Adsorption Ratio .....</b>	<b>32</b>
<b>Section 10: General Chemistry - QC Data Summaries .....</b>	<b>42</b>
<b>10.1: Method Blank and Spike Results Summary .....</b>	<b>43</b>



Sample Summary

K.P. Kauffman Company, Inc.

Job No: D59689

Soil Sampling 07-11-2014

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D59689-1	07/11/14	09:38 RP	07/11/14	SO	Soil	RUBY B CARLSON UNIT D 1
D59689-1A	07/11/14	09:38 RP	07/11/14	SO	Soil	RUBY B CARLSON UNIT D 1

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



## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** K.P. Kauffman Company, Inc.

**Job No** D59689

**Site:** Soil Sampling 07-11-2014

**Report Date** 7/17/2014 2:43:59 PM

On 07/11/2014, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 20 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D59689 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

### Volatiles by GCMS By Method SW846 8260B

<b>Matrix</b> SO	<b>Batch ID:</b> V3V1837
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- Sample(s) D59690-1MS, D59690-2DUP were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

### Volatiles by GC By Method SW846 8015B

<b>Matrix</b> SO	<b>Batch ID:</b> GGB1399
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- Sample(s) D59700-1MS, D59700-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

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

<b>Matrix</b> SO	<b>Batch ID:</b> OP10234
------------------	--------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59700-1MS, D59700-1MSD were used as the QC samples indicated.
- The matrix spike (MS) recovery(s) of TPH-DRO (C10-C28) are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- The RPD(s) for the MS and MSD recoveries of TPH-DRO (C10-C28) are outside control limits for sample OP10234-MSD. High RPD due to possible sample nonhomogeneity.

### Metals By Method SW846 6010C

<b>Matrix</b> AQ	<b>Batch ID:</b> MP13449
------------------	--------------------------

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59687-1AMS, D59687-1AMSD, D59687-1ASDL were used as the QC samples for the metals analysis.

### Wet Chemistry By Method SM2540G-2011 M

<b>Matrix</b> SO	<b>Batch ID:</b> GN25538
------------------	--------------------------

- The data for SM2540G-2011 M meets quality control requirements.

**Wet Chemistry By Method SW846 9045D****Matrix** SO**Batch ID:** GN25550

- The following samples were run outside of holding time for method SW846 9045D: D59689-1

**Wet Chemistry By Method USDA HANDBOOK 60****Matrix** SO**Batch ID:** MP13449

- D59689-1A for Sodium Adsorption Ratio: Calculated as:  $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

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

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

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

## Summary of Hits

Page 1 of 1

**Job Number:** D59689  
**Account:** K.P. Kauffman Company, Inc.  
**Project:** Soil Sampling 07-11-2014  
**Collected:** 07/11/14



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

### D59689-1 RUBY B CARLSON UNIT D 1

TPH-DRO (C10-C28)	1800	69	52	mg/kg	SW846-8015B
Specific Conductivity	517	1.0		umhos/cm	SM 2510B-2011 MOD
pH	7.25			su	SW846 9045D

### D59689-1A RUBY B CARLSON UNIT D 1

Calcium	47.3	2.0		mg/l	SW846 6010C
Magnesium	13.5	1.0		mg/l	SW846 6010C
Sodium	27.2	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio <sup>a</sup>	0.898			ratio	USDA HANDBOOK 60

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

Sample Results

Report of Analysis



## Report of Analysis

<b>Client Sample ID:</b>	RUBY B CARLSON UNIT D 1	
<b>Lab Sample ID:</b>	D59689-1	<b>Date Sampled:</b> 07/11/14
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b> 07/11/14
<b>Method:</b>	SW846 8260B	<b>Percent Solids:</b> 95.5
<b>Project:</b>	Soil Sampling 07-11-2014	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V31488.D	1	07/14/14	JL	n/a	n/a	V3V1837
Run #2							

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

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	55	21	ug/kg	
108-88-3	Toluene	ND	110	55	ug/kg	
100-41-4	Ethylbenzene	ND	110	21	ug/kg	
1330-20-7	Xylene (total)	ND	220	110	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	90%		64-130%
460-00-4	4-Bromofluorobenzene	100%		62-131%
17060-07-0	1,2-Dichloroethane-D4	106%		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

Page 1 of 1

<b>Client Sample ID:</b>	RUBY B CARLSON UNIT D 1	<b>Date Sampled:</b>	07/11/14
<b>Lab Sample ID:</b>	D59689-1	<b>Date Received:</b>	07/11/14
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	95.5
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	Soil Sampling 07-11-2014		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB25693.D	1	07/14/14	EP	n/a	n/a	GGB1399
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	11	5.5	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	102%		60-140%		

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

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

## Report of Analysis

<b>Client Sample ID:</b>	RUBY B CARLSON UNIT D 1	<b>Date Sampled:</b>	07/11/14
<b>Lab Sample ID:</b>	D59689-1	<b>Date Received:</b>	07/11/14
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	95.5
<b>Method:</b>	SW846-8015B SW846 3546		
<b>Project:</b>	Soil Sampling 07-11-2014		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI14232.D	10	07/17/14	JS	07/14/14	OP10234	GFI861
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	1800	69	52	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	85%		20-130%		

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:** RUBY B CARLSON UNIT D 1**Lab Sample ID:** D59689-1**Matrix:** SO - Soil**Project:** Soil Sampling 07-11-2014**Date Sampled:** 07/11/14**Date Received:** 07/11/14**Percent Solids:** 95.5**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>%solids</b>							
Solids, Percent	95.5		%	1	07/14/14	SWT	SM2540G-2011 M
<b>prep: DEPT.OF AG, BOOK N9</b>							
Specific Conductivity	517	1.0	umhos/cm	1	07/17/14	JD	SM 2510B-2011 MOD
pH	7.25		su	1	07/14/14 15:20	JD	SW846 9045D

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	RUBY B CARLSON UNIT D 1	<b>Date Sampled:</b>	07/11/14
<b>Lab Sample ID:</b>	D59689-1A	<b>Date Received:</b>	07/11/14
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	95.5
<b>Project:</b>	Soil Sampling 07-11-2014		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	47.3	2.0	mg/l	1	07/16/14	07/16/14 KV	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>2</sup>
Magnesium	13.5	1.0	mg/l	1	07/16/14	07/16/14 KV	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>2</sup>
Sodium	27.2	2.0	mg/l	1	07/16/14	07/16/14 KV	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>2</sup>

(1) Instrument QC Batch: MA4996  
(2) Prep QC Batch: MP13449

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	RUBY B CARLSON UNIT D 1	<b>Date Sampled:</b>	07/11/14
<b>Lab Sample ID:</b>	D59689-1A	<b>Date Received:</b>	07/11/14
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	95.5
<b>Project:</b>	Soil Sampling 07-11-2014		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	0.898		ratio	1	07/16/14 18:08	KV	USDA HANDBOOK 60

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

RL = Reporting Limit

## Misc. Forms

5

### Custody Documents and Other Forms

---

Includes the following where applicable:

- Chain of Custody

4036 Youngfield Street, Wheat Ridge, CO 80033  
TEL: 303-425-6021 FAX: 303-425-6854  
[www.acctest.com](http://www.acctest.com)

FED-EX Tracking #				Shipment Order Control #			
Account/ Quote #				Account/ Job #			
Requested Analysis ( see TEST CODE sheet)				Matrix Codes			
BTEX	TPH	DRO + GRO	EC	SAR	PH	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 - Wipes FB-Field Blank EB-Equipment Blank RB- Rinse Blank TB-Trip Blank	
						LAB USE ONLY	
X	X	X	X	X	X		
X	X	X	X	X	X		
X	X	X	X	X	X		
X	X	X	X	X	X		
X	X	X	X	X	X		
X	X	X	X	X	X		
X	X	X	X	X	X		Separate report
X	X	X	X	X	X		Separate report
X	X	X	X	X	X		
X	X	X	X	X	X		OL
X	X	X	X	X	X		
X	X	X	X	X	X		
Comments / Special Instructions							
Required State * Please generate separate reports for each location.							
(grams) Including courier delivery.							
Date Time:				Received By:			
2				2			
Date Time:				Received By:			
4				4			
Instant Not Instant <input checked="" type="checkbox"/>				On Ice <input type="checkbox"/>		Cooler Temp. 78.0	

5.15

## D59689: Chain of Custody

Page 1 of 1



## GC/MS 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:** D59689

**Account:** KPKCOD K.P. Kauffman Company, Inc.

**Project:** Soil Sampling 07-11-2014

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1837-MB	3V31475.D	1	07/14/14	JL	n/a	n/a	V3V1837

The QC reported here applies to the following samples:

Method: SW846 8260B

D59689-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	19	ug/kg	
100-41-4	Ethylbenzene	ND	100	19	ug/kg	
108-88-3	Toluene	ND	100	50	ug/kg	
1330-20-7	Xylene (total)	ND	200	100	ug/kg	

CAS No.	Surrogate Recoveries	Limits
2037-26-5	Toluene-D8	101% 64-130%
460-00-4	4-Bromofluorobenzene	98% 62-131%
17060-07-0	1,2-Dichloroethane-D4	99% 70-130%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D59689

**Account:** KPKCOD K.P. Kauffman Company, Inc.

**Project:** Soil Sampling 07-11-2014

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1837-BS	3V31476.D	1	07/14/14	JL	n/a	n/a	V3V1837

The QC reported here applies to the following samples:

Method: SW846 8260B

D59689-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2530	101	70-130
100-41-4	Ethylbenzene	2500	2420	97	70-130
108-88-3	Toluene	2500	2380	95	70-130
1330-20-7	Xylene (total)	7500	7160	95	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	102%	64-130%
460-00-4	4-Bromofluorobenzene	100%	62-131%
17060-07-0	1,2-Dichloroethane-D4	99%	70-130%

\* = Outside of Control Limits.

## Blank Spike Summary

Page 1 of 1

**Job Number:** D59689

**Account:** KPKCOD K.P. Kauffman Company, Inc.

**Project:** Soil Sampling 07-11-2014

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1837-BS	3V31477.D	1	07/14/14	JL	n/a	n/a	V3V1837

The QC reported here applies to the following samples:

Method: SW846 8260B

D59689-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
---------	----------	----------------	--------------	----------	--------

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	104%	64-130%
460-00-4	4-Bromofluorobenzene	101%	62-131%
17060-07-0	1,2-Dichloroethane-D4	99%	70-130%

\* = Outside of Control Limits.

# Matrix Spike Summary

Page 1 of 1

**Job Number:** D59689  
**Account:** KPKCOD K.P. Kauffman Company, Inc.  
**Project:** Soil Sampling 07-11-2014

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D59690-1MS	3V31478.D	1	07/14/14	JL	n/a	n/a	V3V1837
D59690-1	3V31480.D	1	07/14/14	JL	n/a	n/a	V3V1837

The QC reported here applies to the following samples:

Method: SW846 8260B

D59689-1

CAS No.	Compound	D59690-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Limits
71-43-2	Benzene	ND		3460	3040	88	64-139
100-41-4	Ethylbenzene	ND		3460	2960	86	68-136
108-88-3	Toluene	ND		3460	2710	78	60-130
1330-20-7	Xylene (total)	ND		10400	8940	86	58-142

CAS No.	Surrogate Recoveries	MS	D59690-1	Limits
2037-26-5	Toluene-D8	91%	92%	64-130%
460-00-4	4-Bromofluorobenzene	103%	103%	62-131%
17060-07-0	1,2-Dichloroethane-D4	96%	102%	70-130%

\* = Outside of Control Limits.

## Matrix Spike Summary

Page 1 of 1

**Job Number:** D59689

**Account:** KPKCOD K.P. Kauffman Company, Inc.

**Project:** Soil Sampling 07-11-2014

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D59690-1MS	3V31479.D	1	07/14/14	JL	n/a	n/a	V3V1837
D59690-1	3V31480.D	1	07/14/14	JL	n/a	n/a	V3V1837

The QC reported here applies to the following samples:

Method: SW846 8260B

D59689-1

CAS No.	Compound	D59690-1 ug/kg	Spike Q	MS ug/kg	MS %	Limits
---------	----------	-------------------	------------	-------------	---------	--------

CAS No.	Surrogate Recoveries	MS	D59690-1	Limits
2037-26-5	Toluene-D8	91%	92%	64-130%
460-00-4	4-Bromofluorobenzene	104%	103%	62-131%
17060-07-0	1,2-Dichloroethane-D4	98%	102%	70-130%

\* = Outside of Control Limits.

## Duplicate Summary

Page 1 of 1

**Job Number:** D59689

**Account:** KPKCOD K.P. Kauffman Company, Inc.

**Project:** Soil Sampling 07-11-2014

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D59690-2DUP	3V31482.D	1	07/14/14	JL	n/a	n/a	V3V1837
D59690-2	3V31481.D	1	07/14/14	JL	n/a	n/a	V3V1837

The QC reported here applies to the following samples:

Method: SW846 8260B

D59689-1

CAS No.	Compound	D59690-2 ug/kg	DUP Q	Q	RPD	Limits
71-43-2	Benzene	ND	ND		nc	30
100-41-4	Ethylbenzene	ND	ND		nc	30
108-88-3	Toluene	ND	ND		nc	30
1330-20-7	Xylene (total)	ND	ND		nc	30

CAS No.	Surrogate Recoveries	DUP	D59690-2	Limits
2037-26-5	Toluene-D8	91%	90%	64-130%
460-00-4	4-Bromofluorobenzene	102%	103%	62-131%
17060-07-0	1,2-Dichloroethane-D4	107%	100%	70-130%

\* = Outside of Control Limits.

## GC Volatiles

## QC Data Summaries

---

Includes the following where applicable:

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



## Method Blank Summary

Page 1 of 1

**Job Number:** D59689

**Account:** KPKCOD K.P. Kauffman Company, Inc.

**Project:** Soil Sampling 07-11-2014

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1399-MB	GB25683.D	1	07/14/14	EP	n/a	n/a	GGB1399

The QC reported here applies to the following samples:

Method: SW846 8015B

D59689-1

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	102% 60-140%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D59689  
**Account:** KPKCOD K.P. Kauffman Company, Inc.  
**Project:** Soil Sampling 07-11-2014

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1399-BS	GB25684.D	1	07/14/14	EP	n/a	n/a	GGB1399

The QC reported here applies to the following samples:

Method: SW846 8015B

D59689-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	102	93	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	107%	60-140%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D59689

**Account:** KPKCOD K.P. Kauffman Company, Inc.

**Project:** Soil Sampling 07-11-2014

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D59700-1MS	GB25686.D	1	07/14/14	EP	n/a	n/a	GGB1399
D59700-1MSD	GB25687.D	1	07/14/14	EP	n/a	n/a	GGB1399
D59700-1	GB25685.D	1	07/14/14	EP	n/a	n/a	GGB1399

The QC reported here applies to the following samples:

Method: SW846 8015B

D59689-1

CAS No.	Compound	D59700-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		148	139	94	148	142	96	2	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D59700-1	Limits
120-82-1	1,2,4-Trichlorobenzene	114%	115%	111%	60-140%

\* = Outside of Control Limits.

## 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:** D59689  
**Account:** KPKCOD K.P. Kauffman Company, Inc.  
**Project:** Soil Sampling 07-11-2014

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10234-MB	FD33640.D	1	07/14/14	JJ	07/14/14	OP10234	GFD1591

The QC reported here applies to the following samples:

Method: SW846-8015B

D59689-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	6.7	5.0	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	69% 20-130%

8.1.1

8

## Blank Spike Summary

Page 1 of 1

**Job Number:** D59689

**Account:** KPKCOD K.P. Kauffman Company, Inc.

**Project:** Soil Sampling 07-11-2014

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10234-BS	FD33642.D	1	07/14/14	JJ	07/14/14	OP10234	GFD1591

The QC reported here applies to the following samples:

Method: SW846-8015B

D59689-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	167	73.0	44	42-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	64%	20-130%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D59689  
**Account:** KPKCOD K.P. Kauffman Company, Inc.  
**Project:** Soil Sampling 07-11-2014

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10234-MS	FD33654.D	5	07/14/14	JJ	07/14/14	OP10234	GFD1591
OP10234-MSD	FD33656.D	5	07/14/14	JJ	07/14/14	OP10234	GFD1591
D59700-1	FD33658.D	5	07/14/14	JJ	07/14/14	OP10234	GFD1591

The QC reported here applies to the following samples:

Method: SW846-8015B

D59689-1

CAS No.	Compound	D59700-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	928		195	1230	155* a	195	789	-71* a	44* b	20-150/30

CAS No.	Surrogate Recoveries	MS	MSD	D59700-1	Limits
84-15-1	o-Terphenyl	81%	60%	71%	20-130%

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

(b) High RPD due to possible sample nonhomogeneity.

\* = Outside of Control Limits.

## 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: D59689  
Account: KPKCOD - K.P. Kauffman Company, Inc.  
Project: Soil Sampling 07-11-2014

QC Batch ID: MP13449  
Matrix Type: AQUEOUS

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

Prep Date: 07/16/14

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	55	210		
Antimony	150	11	95		
Arsenic	130	19	28		
Barium	50	1	7		
Beryllium	50	4.5	6		
Boron	250	4	33		
Cadmium	50	1	1.8		
Calcium	2000	12	210	29.5	<2000
Chromium	50	1.5	2		
Cobalt	25	2.5	2.9		
Copper	50	4	9.5		
Iron	350	7.5	48		
Lead	250	11	110		
Lithium	25	2	14		
Magnesium	1000	34	95	-2.0	<1000
Manganese	25	2.5	2.3		
Molybdenum	50	2	4.2		
Nickel	150	2.5	4.4		
Phosphorus	500	75	100		
Potassium	5000	500	1400		
Selenium	250	36	55		
Silicon	250	24	26		
Silver	150	1.5	3		
Sodium	2000	37	850	-350	<2000
Strontium	25	.05	.6		
Thallium	50	9	20		
Tin	250	60	80		
Titanium	50	.5	11		
Uranium	250	15	28		
Vanadium	50	2	2		
Zinc	150	2	16		

Associated samples MP13449: D59689-1A

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D59689  
Account: KPKCOD - K.P. Kauffman Company, Inc.  
Project: Soil Sampling 07-11-2014

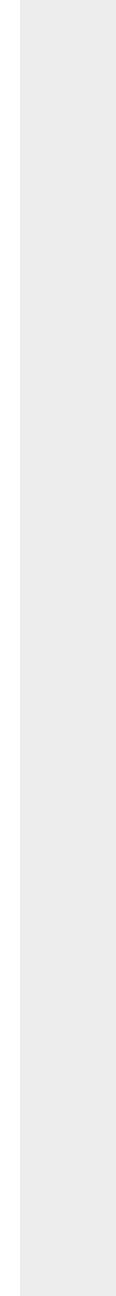
QC Batch ID: MP13449  
Matrix Type: AQUEOUS

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

Prep Date: 07/16/14

Metal	RL	IDL	MDL	MB raw	final
-------	----	-----	-----	-----------	-------

(anr) Analyte not requested



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D59689  
 Account: KPKCOD - K.P. Kauffman Company, Inc.  
 Project: Soil Sampling 07-11-2014

QC Batch ID: MP13449  
 Matrix Type: AQUEOUS

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

Prep Date: 07/16/14

Metal	D59687-1A Original MS		Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	271000	395000	125000	99.2	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	136000	268000	125000	105.6	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	415000	530000	125000	92.0	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP13449: D59689-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D59689  
 Account: KPKCOD - K.P. Kauffman Company, Inc.  
 Project: Soil Sampling 07-11-2014

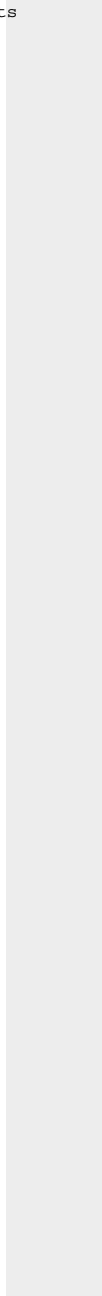
QC Batch ID: MP13449  
 Matrix Type: AQUEOUS

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

Prep Date: 07/16/14

Metal	D59687-1A Original MS	Spikelot ICPALL2	% Rec	QC Limits
-------	--------------------------	---------------------	-------	--------------

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



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D59689  
 Account: KPKCOD - K.P. Kauffman Company, Inc.  
 Project: Soil Sampling 07-11-2014

QC Batch ID: MP13449  
 Matrix Type: AQUEOUS

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

Prep Date: 07/16/14

Metal	D59687-1A Original	MSD	SpikeLot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	271000	392000	125000	96.8	0.8	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	136000	265000	125000	103.2	1.1	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	415000	534000	125000	95.2	0.8	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP13449: D59689-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D59689  
 Account: KPKCOD - K.P. Kauffman Company, Inc.  
 Project: Soil Sampling 07-11-2014

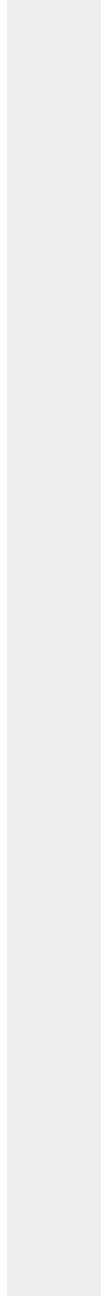
QC Batch ID: MP13449  
 Matrix Type: AQUEOUS

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

Prep Date: 07/16/14

Metal	D59687-1A Original MSD	SpikeLot ICPALL2 % Rec	MSD RPD	QC Limit
-------	---------------------------	---------------------------	------------	-------------

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



SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D59689  
 Account: KPKCOD - K.P. Kauffman Company, Inc.  
 Project: Soil Sampling 07-11-2014

QC Batch ID: MP13449  
 Matrix Type: AQUEOUS

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

Prep Date: 07/16/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	128000	125000	102.4	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	131000	125000	104.8	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	126000	125000	100.8	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP13449: D59689-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D59689  
Account: KPKCOD - K.P. Kauffman Company, Inc.  
Project: Soil Sampling 07-11-2014

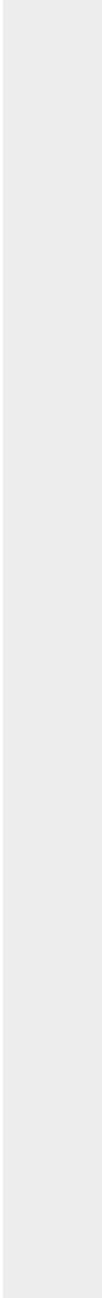
QC Batch ID: MP13449  
Matrix Type: AQUEOUS

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

Prep Date: 07/16/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
-------	---------------	---------------------	-------	--------------

(anr) Analyte not requested





# SERIAL DILUTION RESULTS SUMMARY

Login Number: D59689  
 Account: KPKCOD - K.P. Kauffman Company, Inc.  
 Project: Soil Sampling 07-11-2014

QC Batch ID: MP13449  
 Matrix Type: AQUEOUS

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

Prep Date: 07/16/14

Metal	D59687-1A Original SDL 1:5		%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	54200	54800	1.0	0-10
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	27200	27400	0.7	0-10
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	83000	84200	1.4	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP13449: D59689-1A

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D59689  
 Account: KPKCOD - K.P. Kauffman Company, Inc.  
 Project: Soil Sampling 07-11-2014

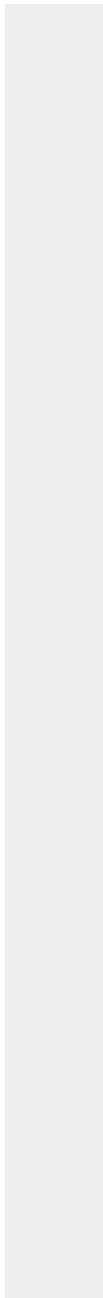
QC Batch ID: MP13449  
 Matrix Type: AQUEOUS

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

Prep Date: 07/16/14

	D59687-1A		QC
Metal	Original SDL 1:5	%DIF	Limits

(anr) Analyte not requested



9.1.4

9

## 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: D59689  
Account: KPKCOD - K.P. Kauffman Company, Inc.  
Project: Soil Sampling 07-11-2014

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP13058/GN25606			umhos/cm	10000	9930	99.3	90-110%
pH	GN25550			su	8.00	8.00	100.0	99.1-100.9%

Associated Samples:  
Batch GN25550: D59689-1  
Batch GP13058: D59689-1  
(\*) Outside of QC limits



07/13/15

## Technical Report for

K.P. Kauffman Company, Inc.

Ruby B Carlson Unit D #1

Accutest Job Number: D72443

Sampling Date: 07/02/15

Report to:

K.P. Kauffman Company, Inc.  
1675 Broadway Suite 2800  
Denver, CO 80202-4628  
slaramesa@kpk.com

ATTN: Susana Lara-Mesa

Total number of pages in report: **128**



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

A handwritten signature in black ink, appearing to read 'Scott Heideman'.

Scott Heideman  
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), LA (LA150028), TX (T104704511), WY

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-

<b>Section 1: Sample Summary .....</b>	<b>3</b>
<b>Section 2: Case Narrative/Conformance Summary .....</b>	<b>4</b>
<b>Section 3: Summary of Hits .....</b>	<b>7</b>
<b>Section 4: Sample Results .....</b>	<b>9</b>
<b>4.1:</b> D72443-1: SAMPLE #1 SE .....	10
<b>4.2:</b> D72443-1A: SAMPLE #1 SE .....	14
<b>4.3:</b> D72443-2: SAMPLE #2 NE .....	16
<b>4.4:</b> D72443-2A: SAMPLE #2 NE .....	20
<b>4.5:</b> D72443-3: SAMPLE #3 SW .....	22
<b>4.6:</b> D72443-3A: SAMPLE #3 SW .....	26
<b>4.7:</b> D72443-4: SAMPLE #4 NW .....	28
<b>4.8:</b> D72443-4A: SAMPLE #4 NW .....	32
<b>Section 5: Misc. Forms .....</b>	<b>34</b>
<b>5.1:</b> Chain of Custody .....	35
<b>Section 6: GC Volatiles - QC Data Summaries .....</b>	<b>37</b>
<b>6.1:</b> Method Blank Summary .....	38
<b>6.2:</b> Blank Spike Summary .....	39
<b>6.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	40
<b>Section 7: GC Volatiles - Raw Data .....</b>	<b>41</b>
<b>7.1:</b> Samples .....	42
<b>7.2:</b> Method Blanks .....	62
<b>Section 8: GC Semi-volatiles - QC Data Summaries .....</b>	<b>67</b>
<b>8.1:</b> Method Blank Summary .....	68
<b>8.2:</b> Blank Spike Summary .....	69
<b>8.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	70
<b>Section 9: GC Semi-volatiles - Raw Data .....</b>	<b>71</b>
<b>9.1:</b> Samples .....	72
<b>9.2:</b> Method Blanks .....	84
<b>Section 10: Metals Analysis - QC Data Summaries .....</b>	<b>87</b>
<b>10.1:</b> Prep QC MP16348: Ca,Mg,Na,Sodium Adsorption Ratio .....	88
<b>Section 11: General Chemistry - QC Data Summaries .....</b>	<b>98</b>
<b>11.1:</b> Method Blank and Spike Results Summary .....	99
<b>Section 12: Misc. Forms (Accutest Labs of New England, Inc.) .....</b>	<b>100</b>
<b>12.1:</b> Chain of Custody .....	101
<b>Section 13: GC/MS Volatiles - QC Data (Accutest Labs of New England, Inc.) .....</b>	<b>103</b>
<b>13.1:</b> Method Blank Summary .....	104
<b>13.2:</b> Blank Spike/Blank Spike Duplicate Summary .....	105
<b>13.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	106
<b>Section 14: GC/MS Volatiles - Raw Data (Accutest Labs of New England, Inc.) .....</b>	<b>107</b>
<b>14.1:</b> Samples .....	108
<b>14.2:</b> Method Blanks .....	127



Sample Summary

K.P. Kauffman Company, Inc.  
Ruby B Carlson Unit D #1

Job No: D72443

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D72443-1	07/02/15	12:30 MK	07/02/15	SO	Soil	SAMPLE #1 SE
D72443-1A	07/02/15	12:30 MK	07/02/15	SO	Soil	SAMPLE #1 SE
D72443-2	07/02/15	12:30 MK	07/02/15	SO	Soil	SAMPLE #2 NE
D72443-2A	07/02/15	12:30 MK	07/02/15	SO	Soil	SAMPLE #2 NE
D72443-3	07/02/15	12:30 MK	07/02/15	SO	Soil	SAMPLE #3 SW
D72443-3A	07/02/15	12:30 MK	07/02/15	SO	Soil	SAMPLE #3 SW
D72443-4	07/02/15	12:30 MK	07/02/15	SO	Soil	SAMPLE #4 NW
D72443-4A	07/02/15	12:30 MK	07/02/15	SO	Soil	SAMPLE #4 NW

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

## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** K.P. Kauffman Company, Inc.

**Job No** D72443

**Site:** Ruby B Carlson Unit D #1

**Report Date** 7/13/2015 9:49:03 AM

On 07/02/2015, 4 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 D72443 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

### Volatiles by GCMS By Method SW846 8260C

**Matrix:** SO

**Batch ID:** M:MSK2778

- The data for SW846 8260C meets quality control requirements.
- D72443-1 through -4: Analysis performed at Accutest Laboratories, Marlborough, MA.

### Volatiles by GC By Method SW846 8015B

**Matrix:** SO

**Batch ID:** GGB1662

- All samples were analyzed within the recommended method holding time.
- Sample(s) D72443-1MS, D72443-1MSD 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:** OP12011

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D72451-1MS, D72451-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- The matrix spike (MS) recovery(s) and matrix spike duplicate (MSD) recovery(s) of TPH-DRO (C10-C28) are outside control limits. Outside control limits due to high level in sample relative to spike amount.

### Metals By Method SW846 6010C

**Matrix:** AQ

**Batch ID:** MP16348

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D72233-47AMS, D72233-47AMSD, D72233-47ASDL were used as the QC samples for the metals analysis.
- The matrix spike duplicate (MSD) recovery(s) of Calcium are outside control limits. Probable cause due to matrix interference.
- The matrix spike (MS) recovery(s) of Sodium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The serial dilution RPD(s) for Calcium are outside control limits for sample MP16348-SD1. Probable cause due to sample homogeneity.
- MP16348-SD1 for Calcium: Serial dilution indicates possible matrix interference.



**Wet Chemistry By Method SM2540G-2011 M****Matrix:** SO**Batch ID:** GN30624

- The data for SM2540G-2011 M meets quality control requirements.

**Wet Chemistry By Method SW846 9045D****Matrix:** SO**Batch ID:** GN30631

- The following samples were run outside of holding time for method SW846 9045D: D72443-1, D72443-2, D72443-3, D72443-4

**Wet Chemistry By Method USDA HANDBOOK 60****Matrix:** SO**Batch ID:** MP16348

- D72443-1A through -4A 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** D72443

**Site:** KPKCOD: Ruby B Carlson Unit D #1

**Report Date** 7/13/2015 9:24:23 AM

4 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 07/02/2015 and were received at Accutest on 07/02/2015 properly preserved, at 1 Deg. C and intact. These Samples received an Accutest job number of D72443. 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.

### Volatiles by GCMS By Method SW846 8260C

**Matrix:** SO

**Batch ID:** MSK2778

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D72443-4MS, D72443-4MSD were used as the QC samples indicated.

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(D72443).

## Summary of Hits

**Job Number:** D72443  
**Account:** K.P. Kauffman Company, Inc.  
**Project:** Ruby B Carlson Unit D #1  
**Collected:** 07/02/15



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
<b>D72443-1</b>	<b>SAMPLE #1 SE</b>					
Specific Conductivity		306	1.0		umhos/cm	SM 2510B-2011 MOD
pH		8.00			su	SW846 9045D
<b>D72443-1A</b>	<b>SAMPLE #1 SE</b>					
Calcium		19.8	2.0		mg/l	SW846 6010C
Magnesium		7.53	1.0		mg/l	SW846 6010C
Sodium		40.7	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio <sup>a</sup>		1.97			ratio	USDA HANDBOOK 60
<b>D72443-2</b>	<b>SAMPLE #2 NE</b>					
Specific Conductivity		76.3	1.0		umhos/cm	SM 2510B-2011 MOD
pH		8.19			su	SW846 9045D
<b>D72443-2A</b>	<b>SAMPLE #2 NE</b>					
Calcium		5.25	2.0		mg/l	SW846 6010C
Magnesium		2.41	1.0		mg/l	SW846 6010C
Sodium		14.8	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio <sup>a</sup>		1.34			ratio	USDA HANDBOOK 60
<b>D72443-3</b>	<b>SAMPLE #3 SW</b>					
Specific Conductivity		88.6	1.0		umhos/cm	SM 2510B-2011 MOD
pH		8.24			su	SW846 9045D
<b>D72443-3A</b>	<b>SAMPLE #3 SW</b>					
Calcium		33.0	2.0		mg/l	SW846 6010C
Magnesium		19.4	1.0		mg/l	SW846 6010C
Sodium		13.9	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio <sup>a</sup>		0.475			ratio	USDA HANDBOOK 60
<b>D72443-4</b>	<b>SAMPLE #4 NW</b>					
Specific Conductivity		211	1.0		umhos/cm	SM 2510B-2011 MOD
pH		7.67			su	SW846 9045D
<b>D72443-4A</b>	<b>SAMPLE #4 NW</b>					
Calcium		12.1	2.0		mg/l	SW846 6010C
Magnesium		3.64	1.0		mg/l	SW846 6010C

Summary of Hits

Job Number: D72443  
Account: K.P. Kauffman Company, Inc.  
Project: Ruby B Carlson Unit D #1  
Collected: 07/02/15



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Sodium		25.2	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio <sup>a</sup>		1.63			ratio	USDA HANDBOOK 60

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



Sample Results

Report of Analysis

Accutest Laboratories

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	SAMPLE #1 SE	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-1	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	80.8
<b>Method:</b>	SW846 8260C		
<b>Project:</b>	Ruby B Carlson Unit D #1		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	K89491.D	1	07/09/15	AMA	n/a	n/a	M:MSK2778
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	10.6 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	35	26	ug/kg	
108-88-3	Toluene	ND	350	28	ug/kg	
100-41-4	Ethylbenzene	ND	140	27	ug/kg	
1330-20-7	Xylene (total)	ND	140	25	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		65-141%
2037-26-5	Toluene-D8	100%		65-129%
460-00-4	4-Bromofluorobenzene	99%		63-137%

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

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

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

Accutest Laboratories

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	SAMPLE #1 SE	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-1	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	80.8
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	Ruby B Carlson Unit D #1		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB30975.D	1	07/07/15	EP	n/a	n/a	GGB1662
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	15	7.3	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	88%		60-140%		

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

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

Accutest Laboratories

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	SAMPLE #1 SE	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-1	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	80.8
<b>Method:</b>	SW846-8015B SW846 3546		
<b>Project:</b>	Ruby B Carlson Unit D #1		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI26955.D	1	07/07/15	GN	07/06/15	OP12011	GFI1335
Run #2							

	Initial Weight	Final Volume
Run #1	20.1 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	12	9.2	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	81%		20-130%		

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

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



Report of Analysis

<b>Client Sample ID:</b>	SAMPLE #1 SE	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-1	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	80.8
<b>Project:</b>	Ruby B Carlson Unit D #1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
%solids							
Solids, Percent	80.8		%	1	07/06/15	SWT	SM2540G-2011 M
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	306	1.0	umhos/cm	1	07/07/15	AK	SM 2510B-2011 MOD
pH	8.00		su	1	07/06/15 11:00	TB	SW846 9045D

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	SAMPLE #1 SE	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-1A	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	80.8
<b>Project:</b>	Ruby B Carlson Unit D #1		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	19.8	2.0	mg/l	1	07/07/15	07/09/15 JB	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>2</sup>
Magnesium	7.53	1.0	mg/l	1	07/07/15	07/08/15 JB	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>2</sup>
Sodium	40.7	2.0	mg/l	1	07/07/15	07/08/15 JB	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>2</sup>

(1) Instrument QC Batch: MA6298  
(2) Prep QC Batch: MP16348

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	SAMPLE #1 SE	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-1A	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	80.8
<b>Project:</b>	Ruby B Carlson Unit D #1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	1.97		ratio	1	07/09/15 11:37	JB	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

<b>Client Sample ID:</b>	SAMPLE #2 NE	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-2	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	92.3
<b>Method:</b>	SW846 8260C		
<b>Project:</b>	Ruby B Carlson Unit D #1		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	K89492.D	1	07/09/15	AMA	n/a	n/a	M:MSK2778
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	10.7 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	27	20	ug/kg	
108-88-3	Toluene	ND	270	22	ug/kg	
100-41-4	Ethylbenzene	ND	110	21	ug/kg	
1330-20-7	Xylene (total)	ND	110	19	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		65-141%
2037-26-5	Toluene-D8	97%		65-129%
460-00-4	4-Bromofluorobenzene	99%		63-137%

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

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

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

Accutest Laboratories

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	SAMPLE #2 NE	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-2	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	92.3
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	Ruby B Carlson Unit D #1		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB30978.D	1	07/07/15	EP	n/a	n/a	GGB1662
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	12	5.8	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

Accutest Laboratories

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	SAMPLE #2 NE	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-2	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	92.3
<b>Method:</b>	SW846-8015B SW846 3546		
<b>Project:</b>	Ruby B Carlson Unit D #1		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI26957.D	1	07/07/15	GN	07/06/15	OP12011	GFI1335
Run #2							

	Initial Weight	Final Volume
Run #1	20.1 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	11	8.1	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	73%		20-130%		

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

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

Report of Analysis

<b>Client Sample ID:</b>	SAMPLE #2 NE	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-2	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	92.3
<b>Project:</b>	Ruby B Carlson Unit D #1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
%solids							
Solids, Percent	92.3		%	1	07/06/15	SWT	SM2540G-2011 M
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	76.3	1.0	umhos/cm	1	07/07/15	AK	SM 2510B-2011 MOD
pH	8.19		su	1	07/06/15 11:00	TB	SW846 9045D

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	SAMPLE #2 NE	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-2A	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	92.3
<b>Project:</b>	Ruby B Carlson Unit D #1		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	5.25	2.0	mg/l	1	07/07/15	07/09/15 JB	SW846 6010C <sup>2</sup>	SW846 3010A/M <sup>3</sup>
Magnesium	2.41	1.0	mg/l	1	07/07/15	07/08/15 JB	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>3</sup>
Sodium	14.8	2.0	mg/l	1	07/07/15	07/08/15 JB	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>3</sup>

- (1) Instrument QC Batch: MA6298
- (2) Instrument QC Batch: MA6302
- (3) Prep QC Batch: MP16348

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	SAMPLE #2 NE	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-2A	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	92.3
<b>Project:</b>	Ruby B Carlson Unit D #1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	1.34		ratio	1	07/09/15 15:56	JB	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

<b>Client Sample ID:</b>	SAMPLE #3 SW	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-3	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	90.3
<b>Method:</b>	SW846 8260C		
<b>Project:</b>	Ruby B Carlson Unit D #1		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	K89493.D	1	07/09/15	AMA	n/a	n/a	M:MSK2778
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	10.5 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	29	22	ug/kg	
108-88-3	Toluene	ND	290	23	ug/kg	
100-41-4	Ethylbenzene	ND	120	22	ug/kg	
1330-20-7	Xylene (total)	ND	120	20	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		65-141%
2037-26-5	Toluene-D8	95%		65-129%
460-00-4	4-Bromofluorobenzene	101%		63-137%

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

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

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

Accutest Laboratories

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	SAMPLE #3 SW	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-3	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	90.3
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	Ruby B Carlson Unit D #1		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB30979.D	1	07/07/15	EP	n/a	n/a	GGB1662
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	12	6.1	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	88%		60-140%		

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

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

Accutest Laboratories

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	SAMPLE #3 SW	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-3	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	90.3
<b>Method:</b>	SW846-8015B SW846 3546		
<b>Project:</b>	Ruby B Carlson Unit D #1		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI26959.D	1	07/07/15	GN	07/06/15	OP12011	GFI1335
Run #2							

	Initial Weight	Final Volume
Run #1	20.1 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	11	8.3	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	91%		20-130%		

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

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

Report of Analysis

<b>Client Sample ID:</b>	SAMPLE #3 SW	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-3	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	90.3
<b>Project:</b>	Ruby B Carlson Unit D #1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
%solids							
Solids, Percent	90.3		%	1	07/06/15	SWT	SM2540G-2011 M
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	88.6	1.0	umhos/cm	1	07/07/15	AK	SM 2510B-2011 MOD
pH	8.24		su	1	07/06/15 11:00	TB	SW846 9045D

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	SAMPLE #3 SW	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-3A	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	90.3
<b>Project:</b>	Ruby B Carlson Unit D #1		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	33.0	2.0	mg/l	1	07/07/15	07/09/15 JB	SW846 6010C <sup>2</sup>	SW846 3010A/M <sup>3</sup>
Magnesium	19.4	1.0	mg/l	1	07/07/15	07/08/15 JB	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>3</sup>
Sodium	13.9	2.0	mg/l	1	07/07/15	07/08/15 JB	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>3</sup>

- (1) Instrument QC Batch: MA6298  
(2) Instrument QC Batch: MA6302  
(3) Prep QC Batch: MP16348

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	SAMPLE #3 SW	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-3A	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	90.3
<b>Project:</b>	Ruby B Carlson Unit D #1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	0.475		ratio	1	07/09/15 16:04	JB	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

<b>Client Sample ID:</b>	SAMPLE #4 NW	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-4	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	95.0
<b>Method:</b>	SW846 8260C		
<b>Project:</b>	Ruby B Carlson Unit D #1		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	K89494.D	1	07/09/15	AMA	n/a	n/a	M:MSK2778
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	10.5 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	26	20	ug/kg	
108-88-3	Toluene	ND	260	21	ug/kg	
100-41-4	Ethylbenzene	ND	110	20	ug/kg	
1330-20-7	Xylene (total)	ND	110	18	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		65-141%
2037-26-5	Toluene-D8	98%		65-129%
460-00-4	4-Bromofluorobenzene	97%		63-137%

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

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

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



Accutest Laboratories

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	SAMPLE #4 NW	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-4	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	95.0
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	Ruby B Carlson Unit D #1		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB30980.D	1	07/07/15	EP	n/a	n/a	GGB1662
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	11	5.5	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	83%		60-140%		

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

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

Accutest Laboratories

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	SAMPLE #4 NW	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-4	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	95.0
<b>Method:</b>	SW846-8015B SW846 3546		
<b>Project:</b>	Ruby B Carlson Unit D #1		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI26961.D	1	07/07/15	GN	07/06/15	OP12011	GFI1335
Run #2							

	Initial Weight	Final Volume
Run #1	20.2 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	10	7.8	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	86%		20-130%		

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

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

Report of Analysis

<b>Client Sample ID:</b>	SAMPLE #4 NW	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-4	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	95.0
<b>Project:</b>	Ruby B Carlson Unit D #1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
%solids							
Solids, Percent	95		%	1	07/06/15	SWT	SM2540G-2011 M
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	211	1.0	umhos/cm	1	07/07/15	AK	SM 2510B-2011 MOD
pH	7.67		su	1	07/06/15 11:00	TB	SW846 9045D

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	SAMPLE #4 NW	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-4A	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	95.0
<b>Project:</b>	Ruby B Carlson Unit D #1		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	12.1	2.0	mg/l	1	07/07/15	07/09/15 JB	SW846 6010C <sup>2</sup>	SW846 3010A/M <sup>3</sup>
Magnesium	3.64	1.0	mg/l	1	07/07/15	07/08/15 JB	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>3</sup>
Sodium	25.2	2.0	mg/l	1	07/07/15	07/09/15 JB	SW846 6010C <sup>2</sup>	SW846 3010A/M <sup>3</sup>

- (1) Instrument QC Batch: MA6298
- (2) Instrument QC Batch: MA6302
- (3) Prep QC Batch: MP16348

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	SAMPLE #4 NW	<b>Date Sampled:</b>	07/02/15
<b>Lab Sample ID:</b>	D72443-4A	<b>Date Received:</b>	07/02/15
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	95.0
<b>Project:</b>	Ruby B Carlson Unit D #1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	1.63		ratio	1	07/09/15 16:10	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

## Misc. Forms

5

### Custody Documents and Other Forms

---

Includes the following where applicable:

- Chain of Custody

4036 Youngfield Street, Wheat Ridge, CO 80033  
TEL. 303-425-6021 FAX: 303-425-6854  
[www.acculast.com](http://www.acculast.com)

[illegible]

5.1

## D72443: Chain of Custody

Page 1 of 2

## Accutest Laboratories Sample Receipt Summary

**Accutest Job Number:** D72443      **Client:** KPK      **Project:** RUBY  
**Date / Time Received:** 7/2/2015 2:12:00 PM      **Delivery Method:** \_\_\_\_\_      **Airbill #'s:** HD  
**Cooler Temps (Initial/Adjusted):** #1: (3.5/3.5);

**Cooler Security**
**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: _____  | IR Gun;   |
| 3. Cooler media: _____  | Ice (Bag) |
| 4. No. Coolers: _____   | 1         |

**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"/>                   | ✓ |

Comments

**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"/>                    | ✓ |
| 5. Filtering instructions clear: <input type="checkbox"/> <input type="checkbox"/>                      | ✓ |



## 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: D72443  
Account: KP KCOD K.P. Kauffman Company, Inc.  
Project: Ruby B Carlson Unit D #1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1662-MB	GB30973.D	1	07/07/15	EP	n/a	n/a	GGB1662

The QC reported here applies to the following samples: Method: SW846 8015B  
D72443-1, D72443-2, D72443-3, D72443-4

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	86% 60-140%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D72443  
**Account:** KPKCOD K.P. Kauffman Company, Inc.  
**Project:** Ruby B Carlson Unit D #1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1662-BS	GB30974.D	1	07/07/15	EP	n/a	n/a	GGB1662

The QC reported here applies to the following samples:

Method: SW846 8015B

D72443-1, D72443-2, D72443-3, D72443-4

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	118	107	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	97%	60-140%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D72443  
**Account:** KPKCOD K.P. Kauffman Company, Inc.  
**Project:** Ruby B Carlson Unit D #1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D72443-1MS	GB30976.D	1	07/07/15	EP	n/a	n/a	GGB1662
D72443-1MSD	GB30977.D	1	07/07/15	EP	n/a	n/a	GGB1662
D72443-1	GB30975.D	1	07/07/15	EP	n/a	n/a	GGB1662

The QC reported here applies to the following samples:

Method: SW846 8015B

D72443-1, D72443-2, D72443-3, D72443-4

CAS No.	Compound	D72443-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		160	173	108	160	173	108	0	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D72443-1	Limits
120-82-1	1,2,4-Trichlorobenzene	96%	98%	88%	60-140%

\* = Outside of Control Limits.

GC Volatiles

Raw Data

7

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\070715\GB30975.D\FID1A.CH Vial: 7  
 Signal #2 : Y:\1\DATA\070715\GB30975.D\FID2B.CH  
 Acq On : 7 Jul 2015 2:22 pm Operator: ELIJAH  
 Sample : D72443-1 Inst : GC/MS Ins  
 Misc : GC5498,GGB1662,5.09,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TOLUENE.E IntFile Signal #2: FB2.E  
 Quant Time: Jul 08 08:07:10 2015 Quant Results File: TB1654GB1654SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB1654GB1654SOIL.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Mon Jun 29 10:46:20 2015  
 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

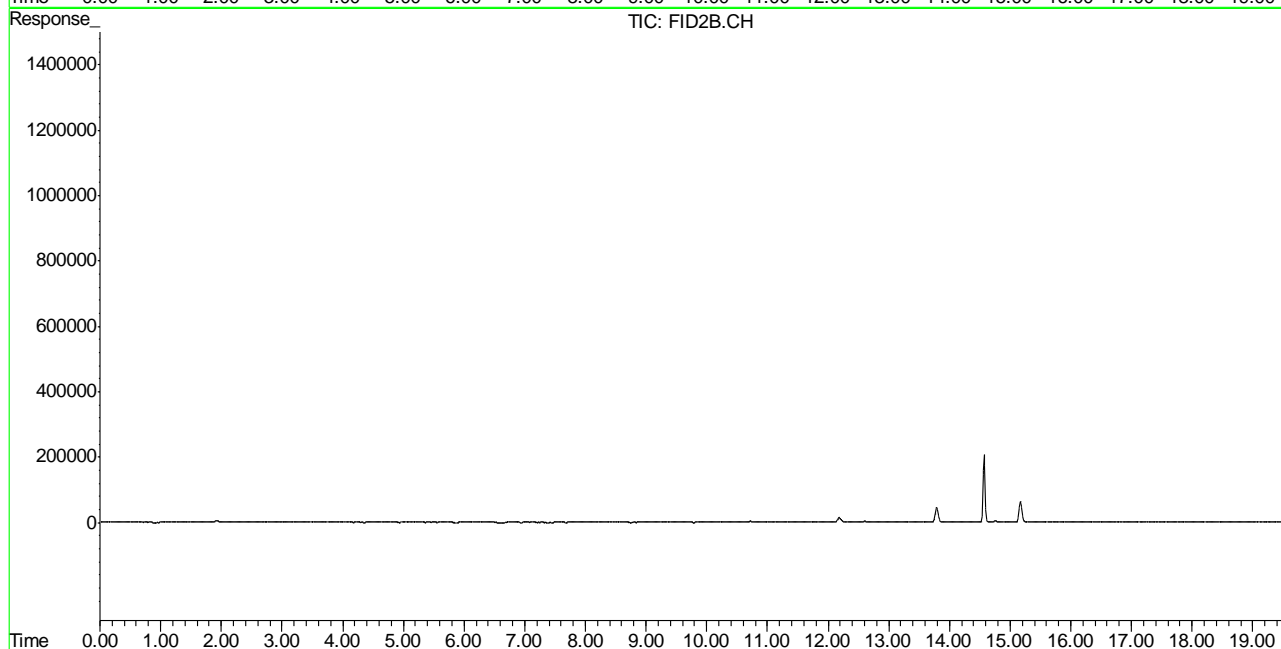
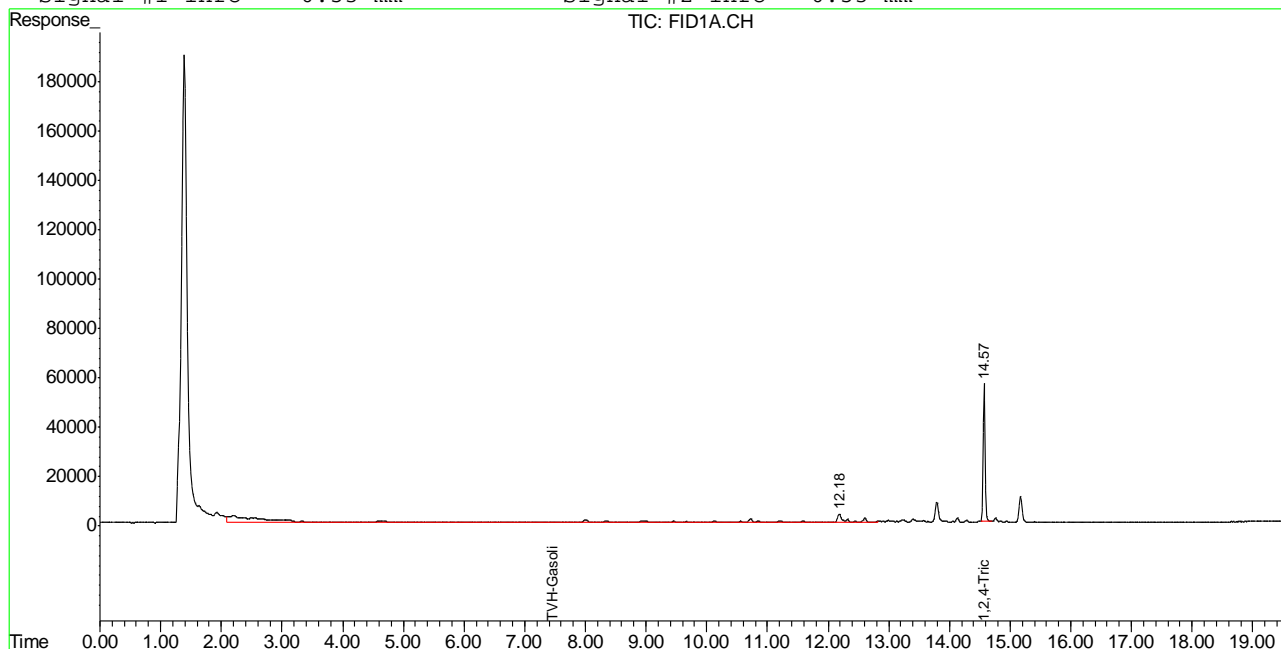
	Compound	R.T.	Response	Conc	Units	
-----						
System Monitoring Compounds						
2) S	1,2,4-Trichlorobenzene	14.57	1209610	87.552	%	
10) S	1,2,4-Trichlorobenzene (P)	0.00	0	N.D.	%	d
Target Compounds						
1) H	TVH-Gasoline	7.45	2303369	0.013	mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5) T	Benzene	0.00	0	N.D.	ug/L	d
6) T	Toluene	0.00	0	N.D.	ug/L	d
7) T	Ethylbenzene	0.00	0	N.D.	ug/L	d
8) T	m,p-Xylene	0.00	0	N.D.	ug/L	d
9) T	o-Xylene	0.00	0	N.D.	ug/L	d
11) T	Naphthalene	0.00	0	N.D.	ug/L	d

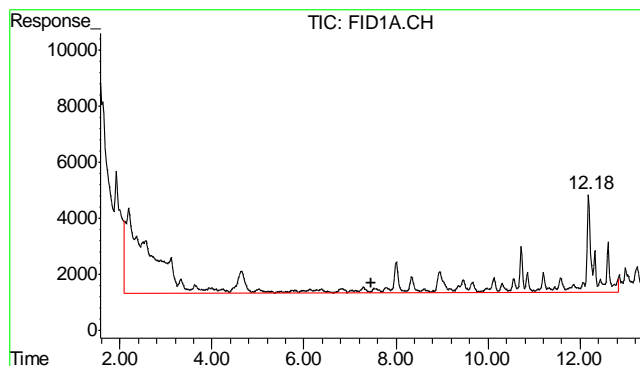
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\070715\GB30975.D\FID1A.CH Vial: 7  
 Signal #2 : Y:\1\DATA\070715\GB30975.D\FID2B.CH  
 Acq On : 7 Jul 2015 2:22 pm Operator: ELIJAH  
 Sample : D72443-1 Inst : GC/MS Ins  
 Misc : GC5498,GGB1662,5.09,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TOLUENE.E IntFile Signal #2: FB2.E  
 Quant Time: Jul 8 8:16 2015 Quant Results File: TB1654GB1654SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB1654GB1654SOIL.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Mon Jun 29 10:46:20 2015  
 Response via : Multiple Level Calibration  
 DataAcq Meth : TVB4.M

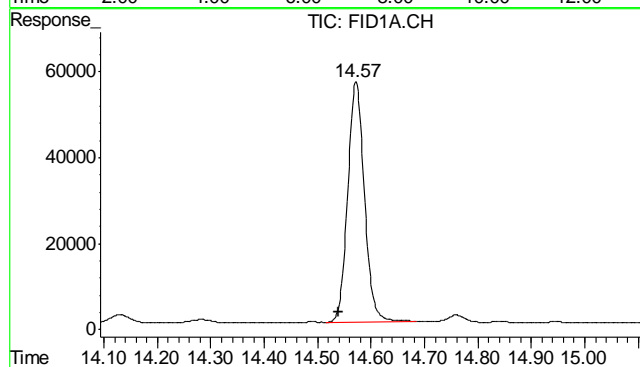
Volume Inj. :  
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





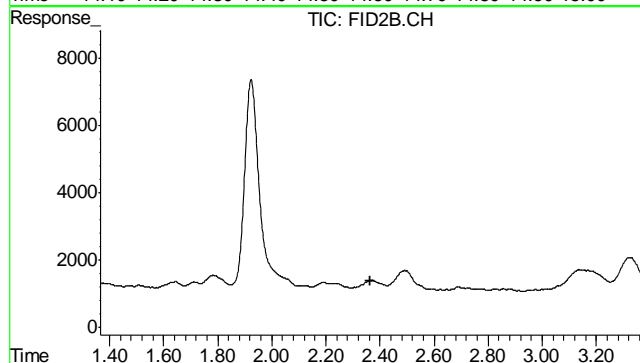
#1 TVH-Gasoline

R.T.: 7.450 min  
Delta R.T.: 0.000 min  
Response: 2303369  
Conc: 0.01 mg/L m



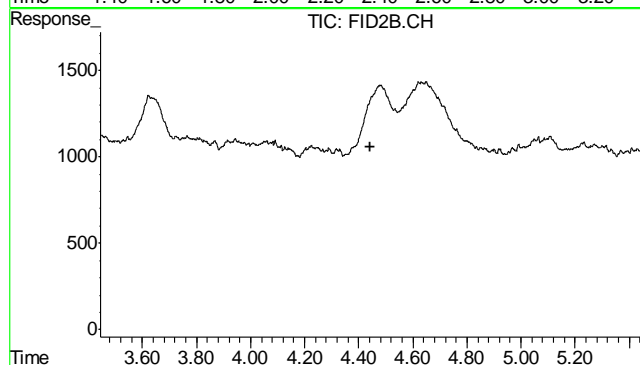
#2 1,2,4-Trichlorobenzene

R.T.: 14.572 min  
Delta R.T.: 0.033 min  
Response: 1209610  
Conc: 87.55 %



#4 Methyl-t-butyl-ether

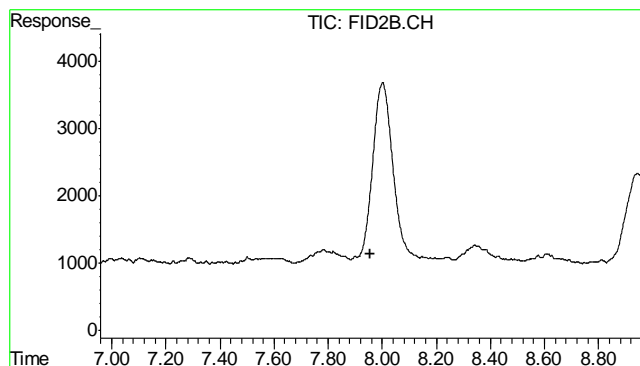
R.T.: 0.000 min  
Exp R.T.: 2.365 min  
Response: 0  
Conc: N.D.



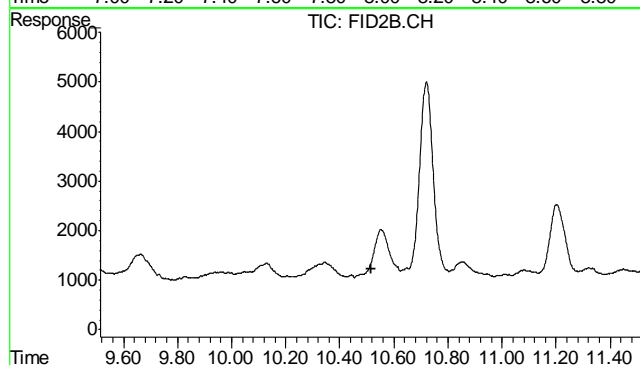
#5 Benzene

R.T.: 0.000 min  
Exp R.T.: 4.444 min  
Response: 0  
Conc: N.D.

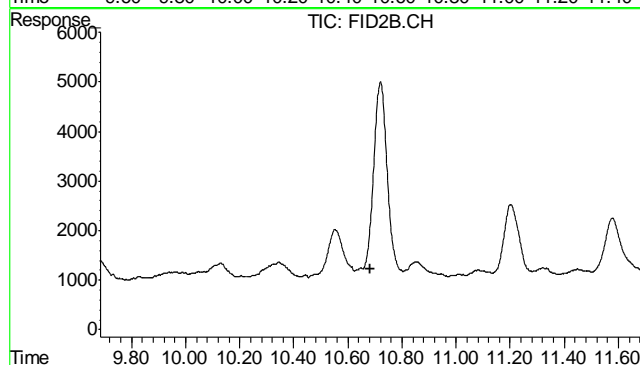




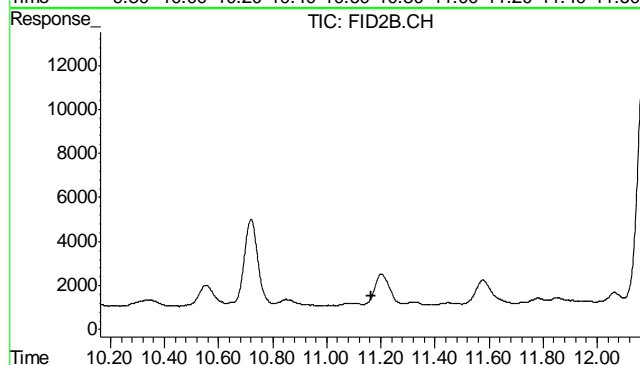
#6 Toluene  
 R.T.: 0.000 min  
 Exp R.T. : 7.957 min  
 Response: 0  
 Conc: N.D.



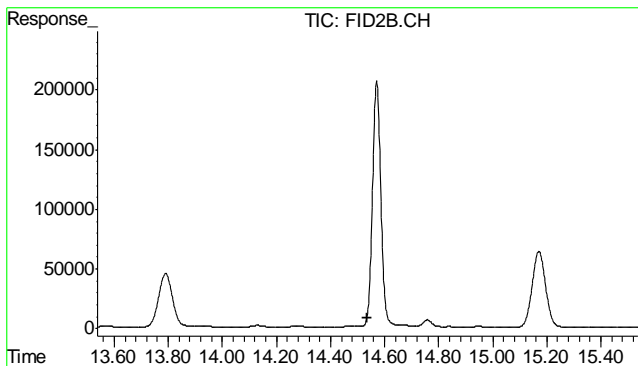
#7 Ethylbenzene  
 R.T.: 0.000 min  
 Exp R.T. : 10.515 min  
 Response: 0  
 Conc: N.D.



#8 m,p-Xylene  
 R.T.: 0.000 min  
 Exp R.T. : 10.684 min  
 Response: 0  
 Conc: N.D.

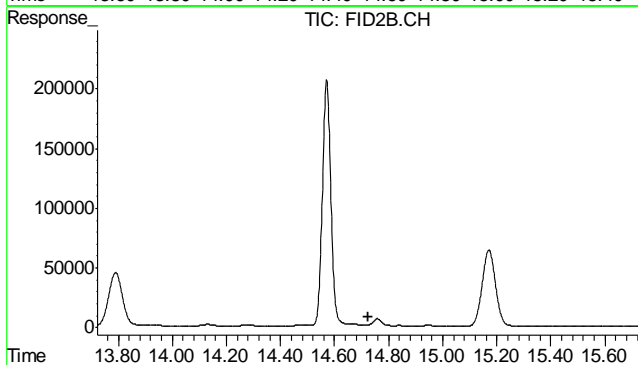


#9 o-Xylene  
 R.T.: 0.000 min  
 Exp R.T. : 11.163 min  
 Response: 0  
 Conc: N.D.



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

R.T.: 0.000 min  
Exp R.T. : 14.537 min  
Response: 0  
Conc: N.D.



#11 Naphthalene

R.T.: 0.000 min  
Exp R.T. : 14.723 min  
Response: 0  
Conc: N.D.

7.1.1  
7

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\070715\GB30978.D\FID1A.CH Vial: 10  
 Signal #2 : Y:\1\DATA\070715\GB30978.D\FID2B.CH  
 Acq On : 7 Jul 2015 4:08 pm Operator: ELIJAH  
 Sample : D72443-2 Inst : GC/MS Ins  
 Misc : GC5498,GGB1662,5.06,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TOLUENE.E IntFile Signal #2: FB2.E  
 Quant Time: Jul 08 08:07:19 2015 Quant Results File: TB1654GB1654SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB1654GB1654SOIL.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Mon Jun 29 10:46:20 2015  
 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

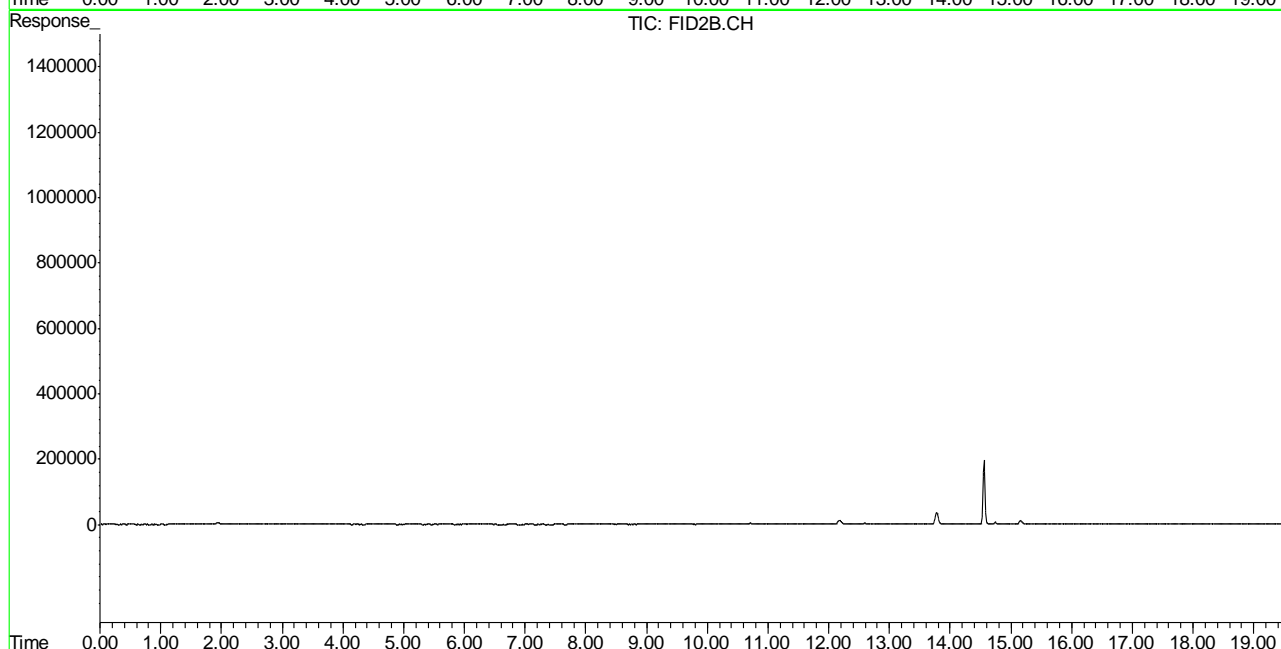
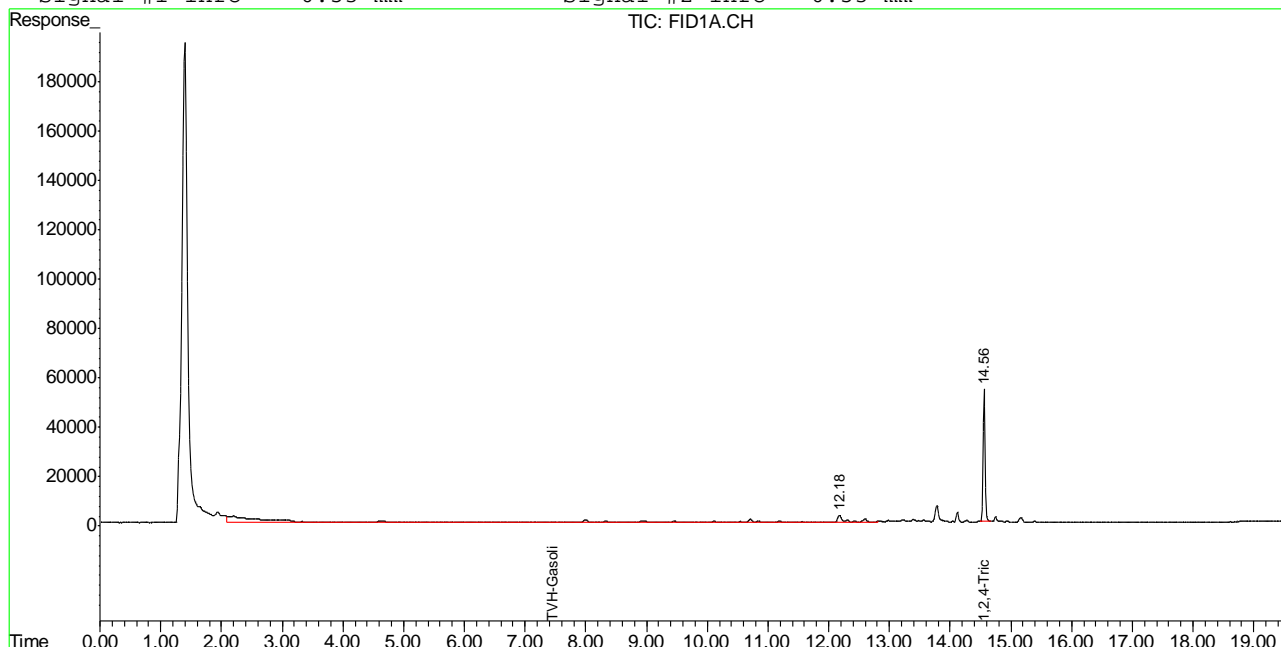
	Compound	R.T.	Response	Conc	Units	
-----						
System Monitoring Compounds						
2) S	1,2,4-Trichlorobenzene	14.56	1163695	84.229	%	
10) S	1,2,4-Trichlorobenzene (P)	0.00	0	N.D.	%	d
Target Compounds						
1) H	TVH-Gasoline	7.45	2249480	0.013	mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5) T	Benzene	0.00	0	N.D.	ug/L	d
6) T	Toluene	0.00	0	N.D.	ug/L	d
7) T	Ethylbenzene	0.00	0	N.D.	ug/L	d
8) T	m,p-Xylene	0.00	0	N.D.	ug/L	d
9) T	o-Xylene	0.00	0	N.D.	ug/L	d
11) T	Naphthalene	0.00	0	N.D.	ug/L	d

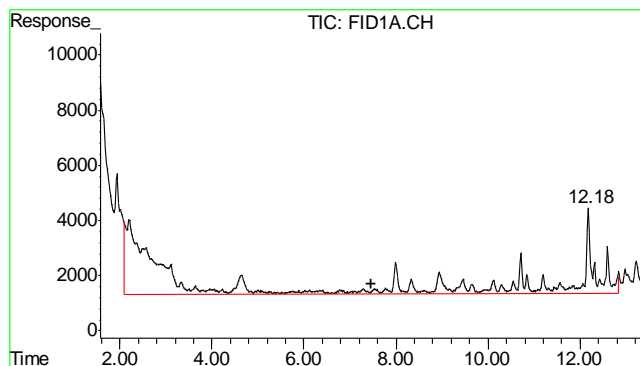
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\070715\GB30978.D\FID1A.CH Vial: 10  
 Signal #2 : Y:\1\DATA\070715\GB30978.D\FID2B.CH  
 Acq On : 7 Jul 2015 4:08 pm Operator: ELIJAH  
 Sample : D72443-2 Inst : GC/MS Ins  
 Misc : GC5498,GGB1662,5.06,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TOLUENE.E IntFile Signal #2: FB2.E  
 Quant Time: Jul 8 8:17 2015 Quant Results File: TB1654GB1654SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB1654GB1654SOIL.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Mon Jun 29 10:46:20 2015  
 Response via : Multiple Level Calibration  
 DataAcq Meth : TVB4.M

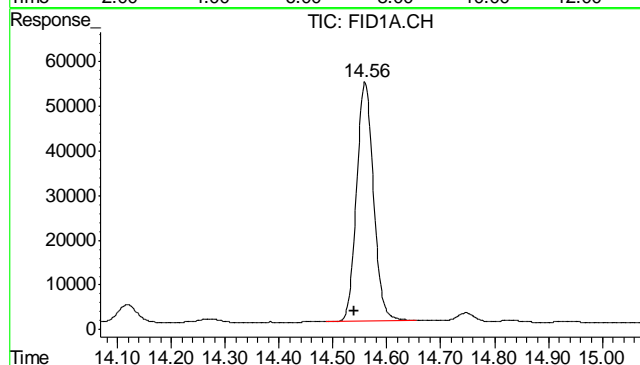
Volume Inj. :  
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





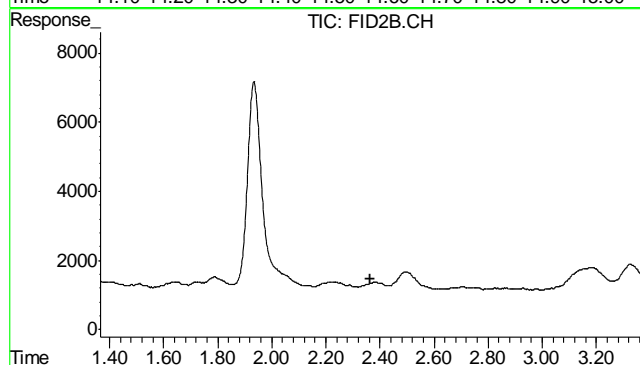
#1 TVH-Gasoline

R.T.: 7.450 min  
Delta R.T.: 0.000 min  
Response: 2249480  
Conc: 0.01 mg/L m



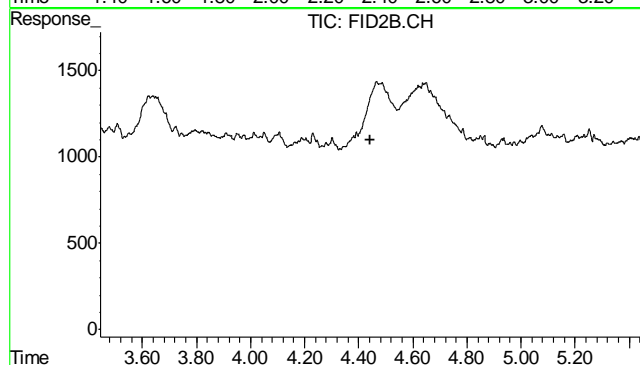
#2 1,2,4-Trichlorobenzene

R.T.: 14.560 min  
Delta R.T.: 0.021 min  
Response: 1163695  
Conc: 84.23 %



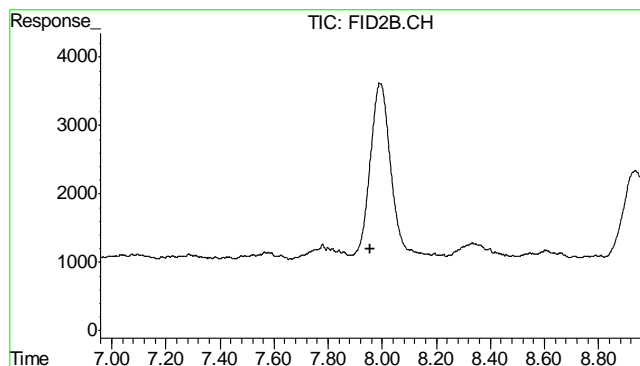
#4 Methyl-t-butyl-ether

R.T.: 0.000 min  
Exp R.T.: 2.365 min  
Response: 0  
Conc: N.D.

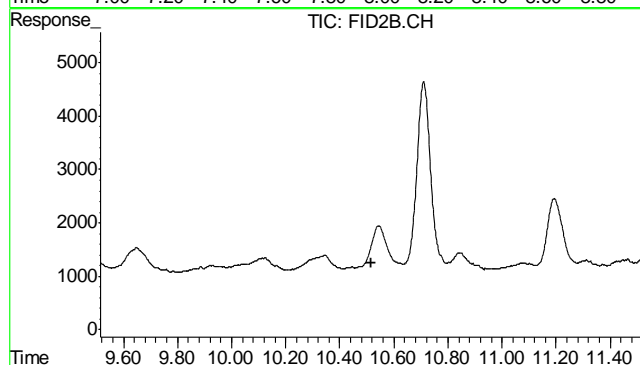


#5 Benzene

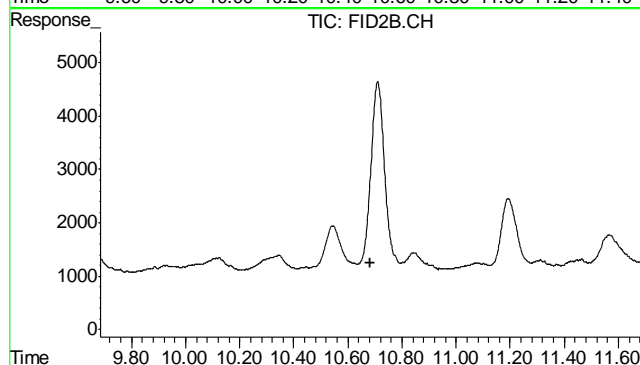
R.T.: 0.000 min  
Exp R.T.: 4.444 min  
Response: 0  
Conc: N.D.



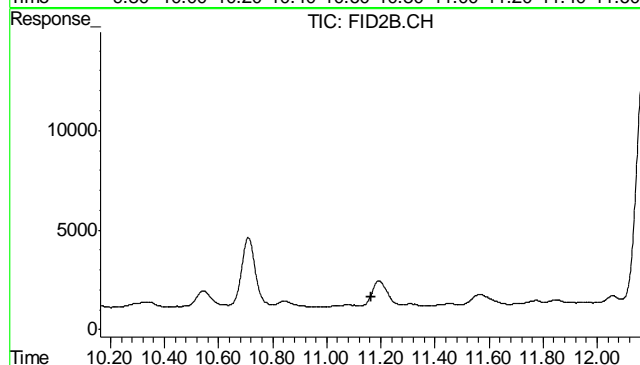
#6 Toluene  
 R.T.: 0.000 min  
 Exp R.T. : 7.957 min  
 Response: 0  
 Conc: N.D.



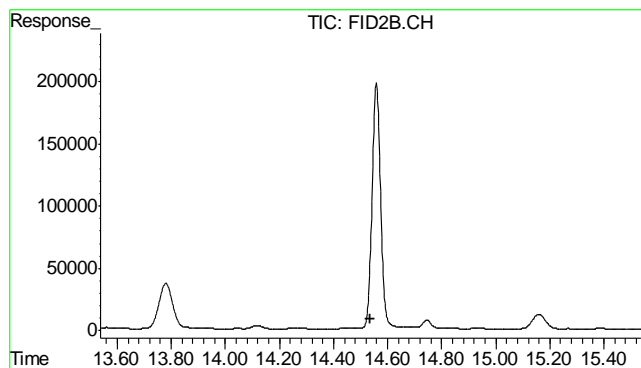
#7 Ethylbenzene  
 R.T.: 0.000 min  
 Exp R.T. : 10.515 min  
 Response: 0  
 Conc: N.D.



#8 m,p-Xylene  
 R.T.: 0.000 min  
 Exp R.T. : 10.684 min  
 Response: 0  
 Conc: N.D.

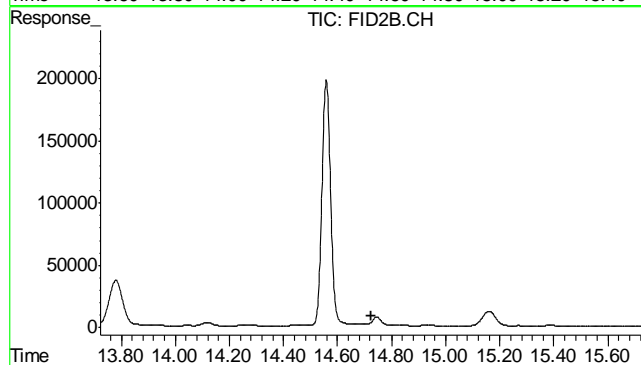


#9 o-Xylene  
 R.T.: 0.000 min  
 Exp R.T. : 11.163 min  
 Response: 0  
 Conc: N.D.



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

R.T.: 0.000 min  
Exp R.T. : 14.537 min  
Response: 0  
Conc: N.D.



#11 Naphthalene

R.T.: 0.000 min  
Exp R.T. : 14.723 min  
Response: 0  
Conc: N.D.

7.1.2

7

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\070715\GB30979.D\FID1A.CH Vial: 11  
 Signal #2 : Y:\1\DATA\070715\GB30979.D\FID2B.CH  
 Acq On : 7 Jul 2015 4:44 pm Operator: ELIJAH  
 Sample : D72443-3 Inst : GC/MS Ins  
 Misc : GC5498,GGB1662,5.02,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TOLUENE.E IntFile Signal #2: FB2.E  
 Quant Time: Jul 08 08:07:22 2015 Quant Results File: TB1654GB1654SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB1654GB1654SOIL.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Mon Jun 29 10:46:20 2015  
 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	14.57	1213457	87.831	%	
10) S	1,2,4-Trichlorobenzene (P)	0.00	0	N.D.	%	d
Target Compounds						
1) H	TVH-Gasoline	7.45	2164961	0.011	mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5) T	Benzene	0.00	0	N.D.	ug/L	d
6) T	Toluene	0.00	0	N.D.	ug/L	d
7) T	Ethylbenzene	0.00	0	N.D.	ug/L	d
8) T	m,p-Xylene	0.00	0	N.D.	ug/L	d
9) T	o-Xylene	0.00	0	N.D.	ug/L	d
11) T	Naphthalene	0.00	0	N.D.	ug/L	d

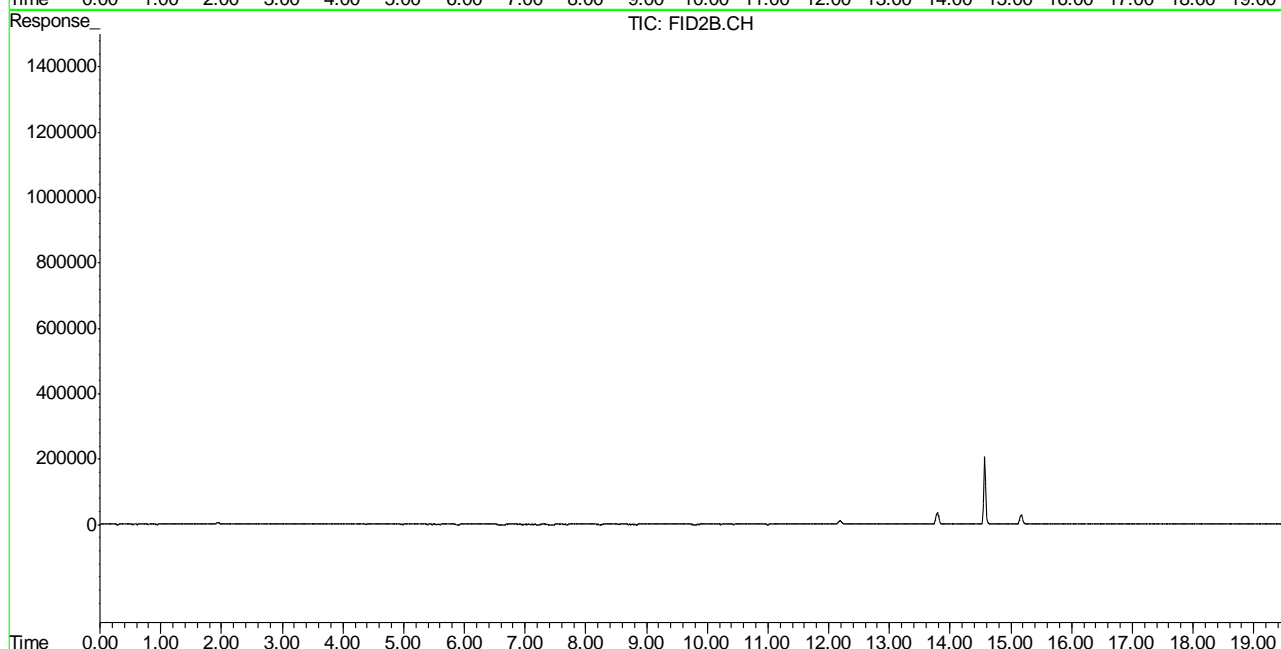
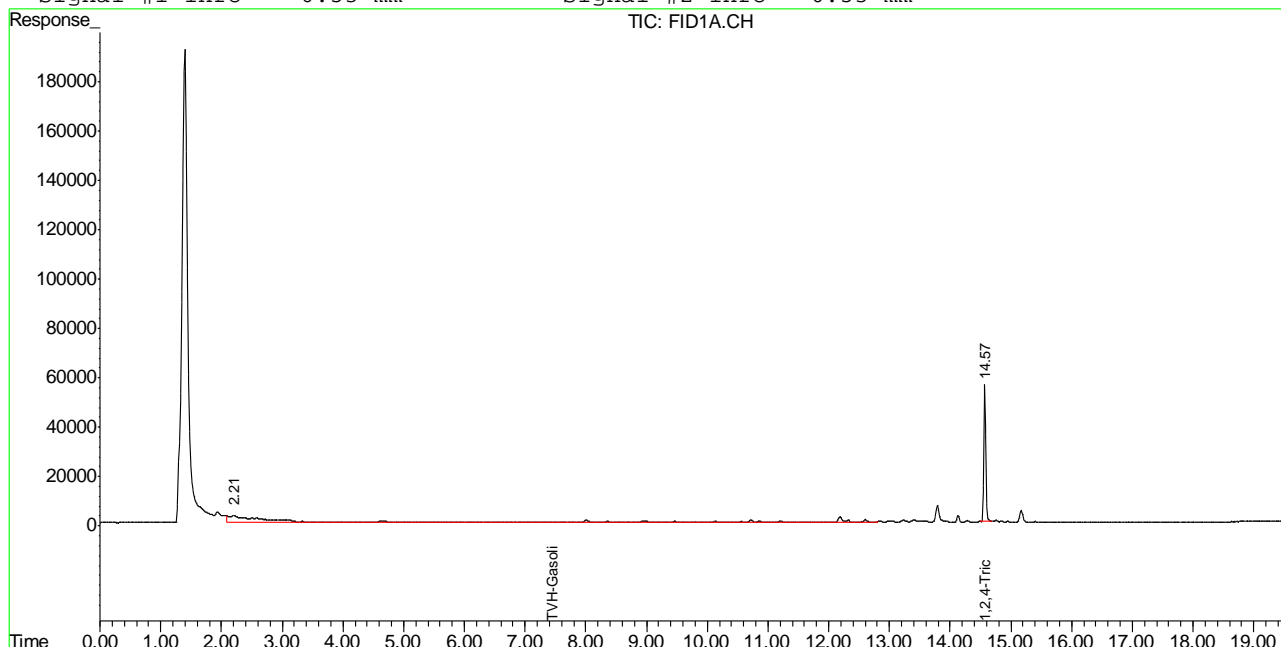


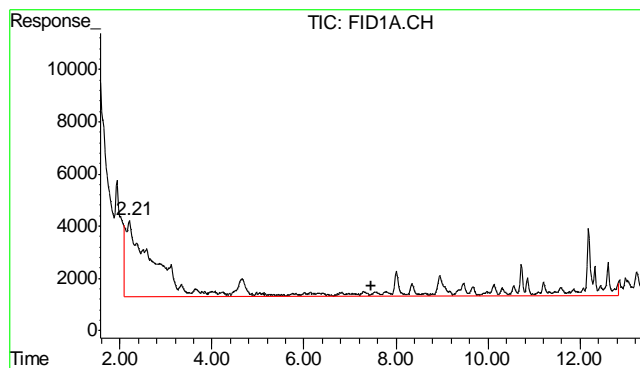
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\070715\GB30979.D\FID1A.CH Vial: 11  
 Signal #2 : Y:\1\DATA\070715\GB30979.D\FID2B.CH  
 Acq On : 7 Jul 2015 4:44 pm Operator: ELIJAH  
 Sample : D72443-3 Inst : GC/MS Ins  
 Misc : GC5498,GGB1662,5.02,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TOLUENE.E IntFile Signal #2: FB2.E  
 Quant Time: Jul 8 8:17 2015 Quant Results File: TB1654GB1654SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB1654GB1654SOIL.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Mon Jun 29 10:46:20 2015  
 Response via : Multiple Level Calibration  
 DataAcq Meth : TVB4.M

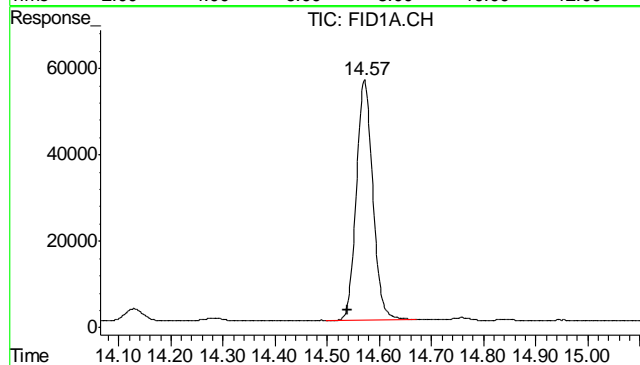
Volume Inj. :  
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





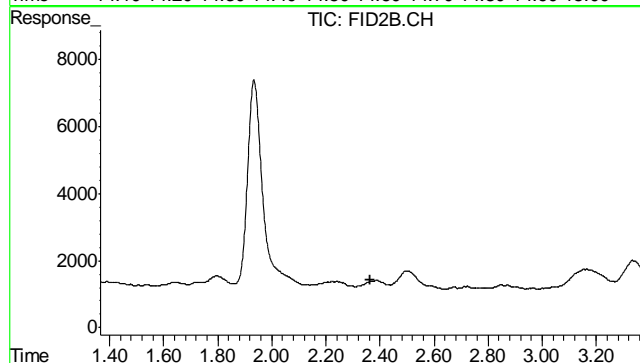
#1 TVH-Gasoline

R.T.: 7.450 min  
Delta R.T.: 0.000 min  
Response: 2164961  
Conc: 0.01 mg/L m



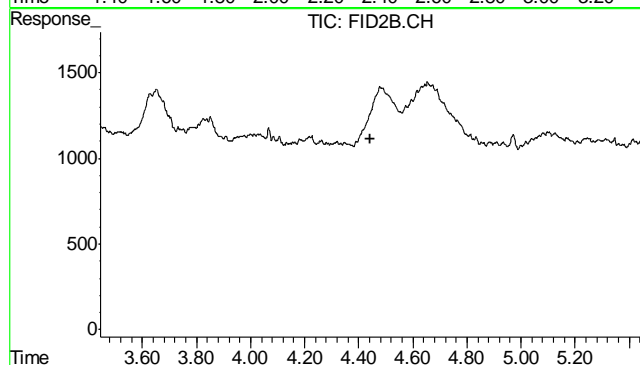
#2 1,2,4-Trichlorobenzene

R.T.: 14.572 min  
Delta R.T.: 0.033 min  
Response: 1213457  
Conc: 87.83 %



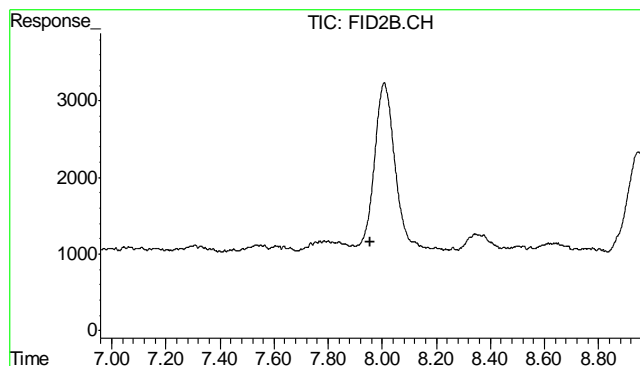
#4 Methyl-t-butyl-ether

R.T.: 0.000 min  
Exp R.T.: 2.365 min  
Response: 0  
Conc: N.D.

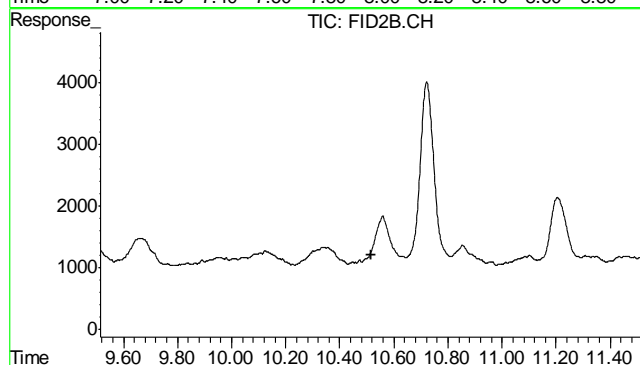


#5 Benzene

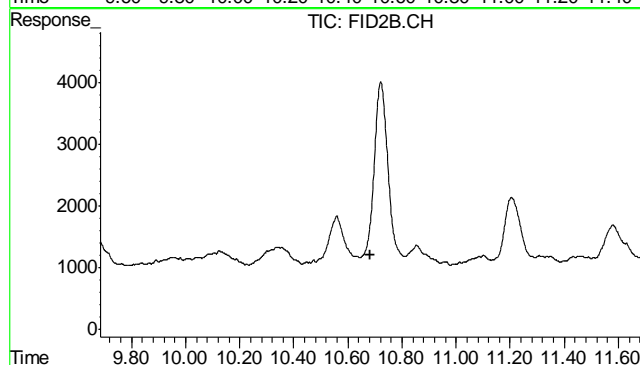
R.T.: 0.000 min  
Exp R.T.: 4.444 min  
Response: 0  
Conc: N.D.



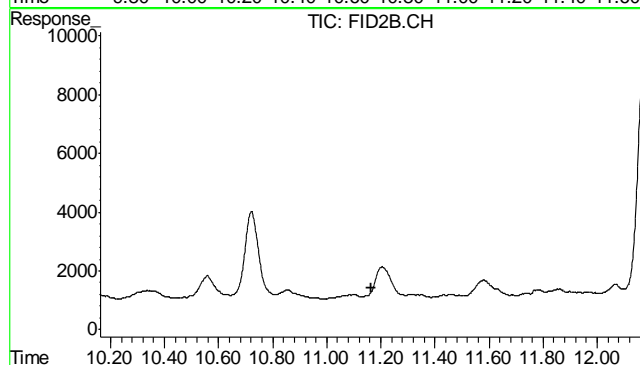
#6 Toluene  
R.T.: 0.000 min  
Exp R.T. : 7.957 min  
Response: 0  
Conc: N.D.



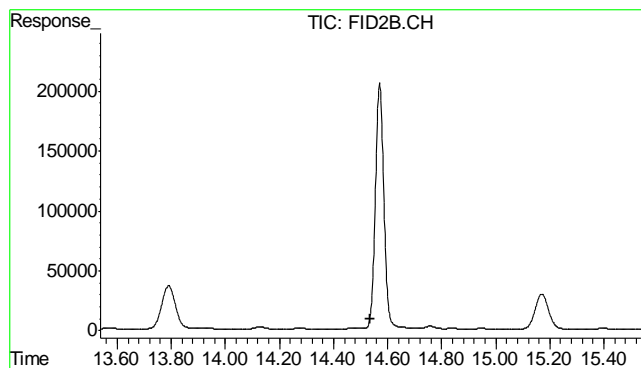
#7 Ethylbenzene  
R.T.: 0.000 min  
Exp R.T. : 10.515 min  
Response: 0  
Conc: N.D.



#8 m,p-Xylene  
R.T.: 0.000 min  
Exp R.T. : 10.684 min  
Response: 0  
Conc: N.D.

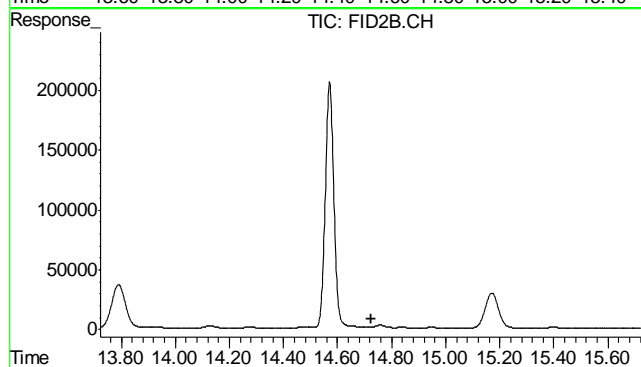


#9 o-Xylene  
R.T.: 0.000 min  
Exp R.T. : 11.163 min  
Response: 0  
Conc: N.D.



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

R.T.: 0.000 min  
Exp R.T. : 14.537 min  
Response: 0  
Conc: N.D.



#11 Naphthalene

R.T.: 0.000 min  
Exp R.T. : 14.723 min  
Response: 0  
Conc: N.D.

7.1.3

7

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\070715\GB30980.D\FID1A.CH Vial: 12  
 Signal #2 : Y:\1\DATA\070715\GB30980.D\FID2B.CH  
 Acq On : 7 Jul 2015 5:19 pm Operator: ELIJAH  
 Sample : D72443-4 Inst : GC/MS Ins  
 Misc : GC5498,GGB1662,5.01,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TOLUENE.E IntFile Signal #2: FB2.E  
 Quant Time: Jul 08 08:07:25 2015 Quant Results File: TB1654GB1654SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB1654GB1654SOIL.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Mon Jun 29 10:46:20 2015  
 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

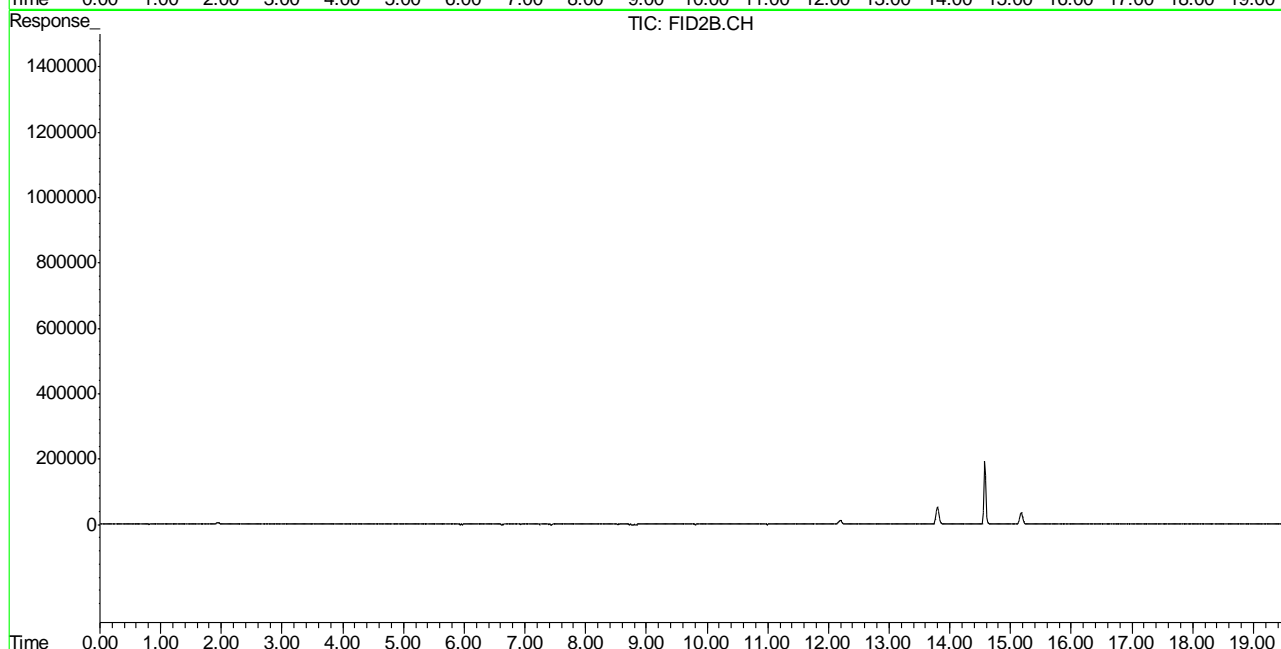
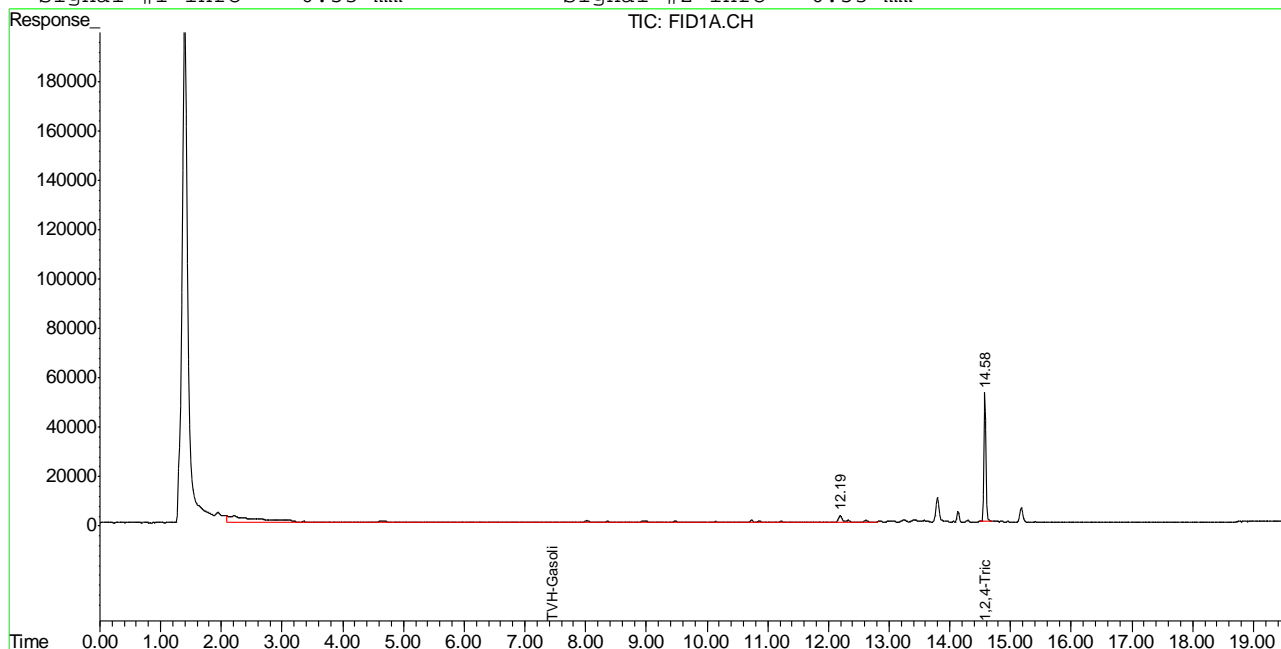
	Compound	R.T.	Response	Conc	Units	
-----						
System Monitoring Compounds						
2) S	1,2,4-Trichlorobenzene	14.58	1145411	82.906	%	
10) S	1,2,4-Trichlorobenzene (P)	0.00	0	N.D.	%	d
Target Compounds						
1) H	TVH-Gasoline	7.45	2216414	0.012	mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5) T	Benzene	0.00	0	N.D.	ug/L	d
6) T	Toluene	0.00	0	N.D.	ug/L	d
7) T	Ethylbenzene	0.00	0	N.D.	ug/L	d
8) T	m,p-Xylene	0.00	0	N.D.	ug/L	d
9) T	o-Xylene	0.00	0	N.D.	ug/L	d
11) T	Naphthalene	0.00	0	N.D.	ug/L	d

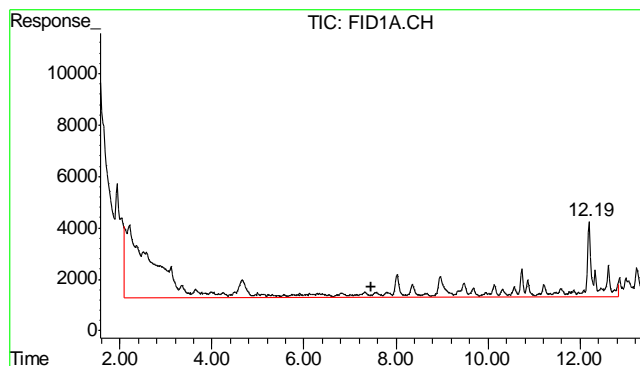
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\070715\GB30980.D\FID1A.CH Vial: 12  
 Signal #2 : Y:\1\DATA\070715\GB30980.D\FID2B.CH  
 Acq On : 7 Jul 2015 5:19 pm Operator: ELIJAH  
 Sample : D72443-4 Inst : GC/MS Ins  
 Misc : GC5498,GGB1662,5.01,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TOLUENE.E IntFile Signal #2: FB2.E  
 Quant Time: Jul 8 8:17 2015 Quant Results File: TB1654GB1654SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB1654GB1654SOIL.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Mon Jun 29 10:46:20 2015  
 Response via : Multiple Level Calibration  
 DataAcq Meth : TVB4.M

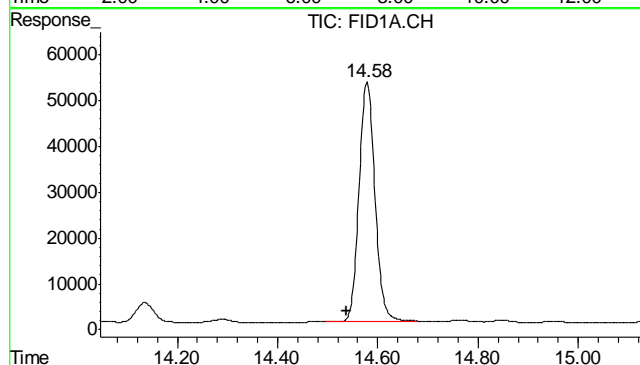
Volume Inj. :  
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





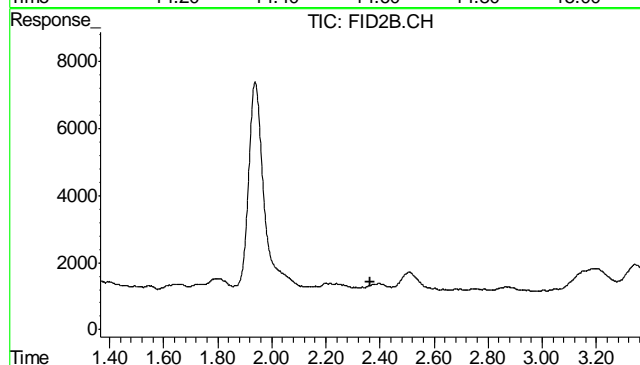
#1 TVH-Gasoline

R.T.: 7.450 min  
Delta R.T.: 0.000 min  
Response: 2216414  
Conc: 0.01 mg/L m



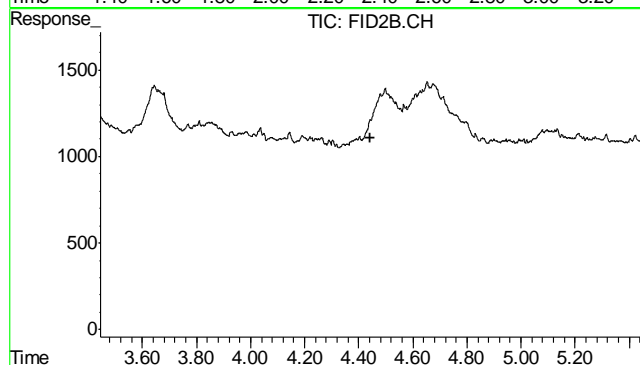
#2 1,2,4-Trichlorobenzene

R.T.: 14.579 min  
Delta R.T.: 0.040 min  
Response: 1145411  
Conc: 82.91 %



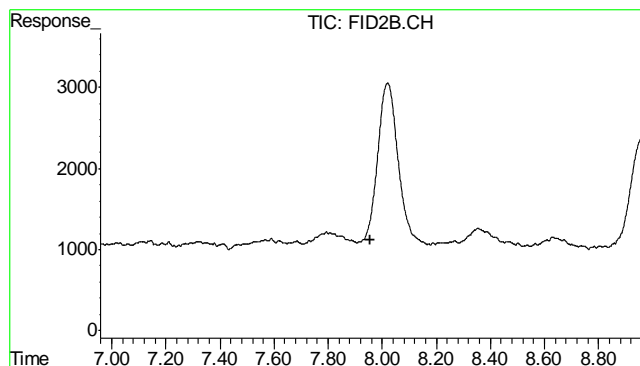
#4 Methyl-t-butyl-ether

R.T.: 0.000 min  
Exp R.T.: 2.365 min  
Response: 0  
Conc: N.D.

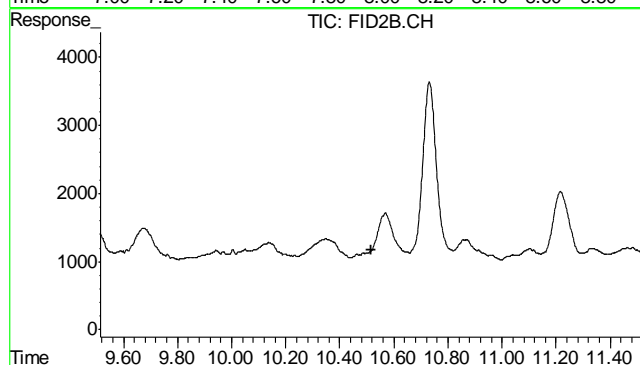


#5 Benzene

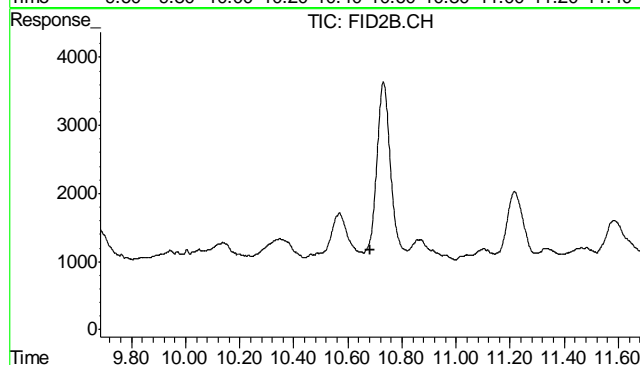
R.T.: 0.000 min  
Exp R.T.: 4.444 min  
Response: 0  
Conc: N.D.



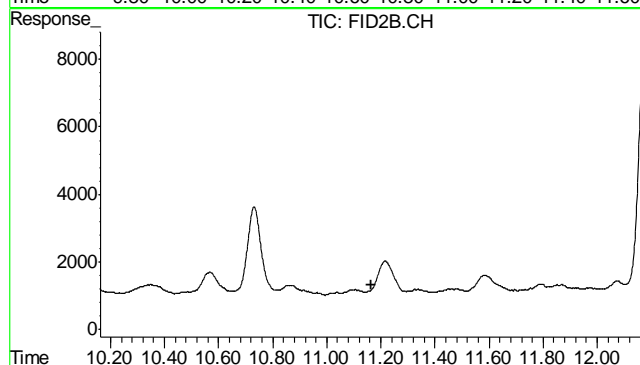
#6 Toluene  
R.T.: 0.000 min  
Exp R.T. : 7.957 min  
Response: 0  
Conc: N.D.



#7 Ethylbenzene  
R.T.: 0.000 min  
Exp R.T. : 10.515 min  
Response: 0  
Conc: N.D.

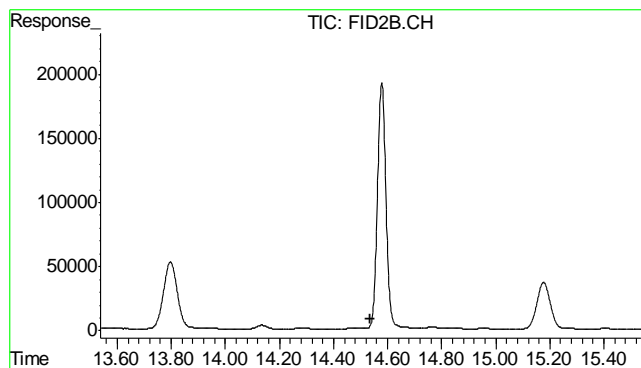


#8 m,p-Xylene  
R.T.: 0.000 min  
Exp R.T. : 10.684 min  
Response: 0  
Conc: N.D.



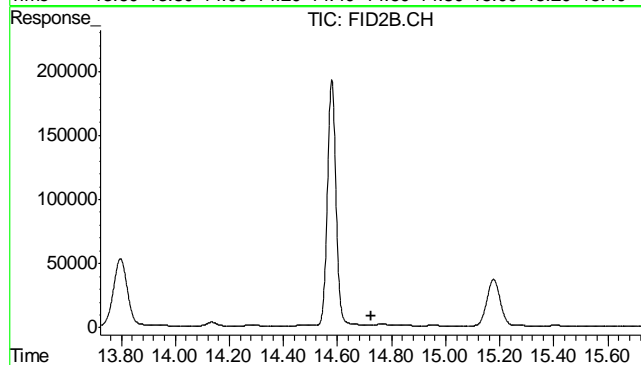
#9 o-Xylene  
R.T.: 0.000 min  
Exp R.T. : 11.163 min  
Response: 0  
Conc: N.D.





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

R.T.: 0.000 min  
Exp R.T. : 14.537 min  
Response: 0  
Conc: N.D.



#11 Naphthalene

R.T.: 0.000 min  
Exp R.T. : 14.723 min  
Response: 0  
Conc: N.D.

7.1.4

7

## Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\070715\GB30973.D\FID1A.CH Vial: 5  
 Signal #2 : Y:\1\DATA\070715\GB30973.D\FID2B.CH  
 Acq On : 7 Jul 2015 1:11 pm Operator: ELIJAH  
 Sample : MB Inst : GC/MS Ins  
 Misc : GC5498,GGB1662,5.00,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TOLUENE.E IntFile Signal #2: FB2.E  
 Quant Time: Jul 08 08:07:04 2015 Quant Results File: TB1654GB1654SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB1654GB1654SOIL.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Mon Jun 29 10:46:20 2015  
 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	14.54	1185945	85.840	%	
10) S	1,2,4-Trichlorobenzene (P)	0.00	0	N.D.	%	d
Target Compounds						
1) H	TVH-Gasoline	7.45	2350156	0.014	mg/L	
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5) T	Benzene	0.00	0	N.D.	ug/L	d
6) T	Toluene	0.00	0	N.D.	ug/L	d
7) T	Ethylbenzene	0.00	0	N.D.	ug/L	d
8) T	m,p-Xylene	0.00	0	N.D.	ug/L	d
9) T	o-Xylene	0.00	0	N.D.	ug/L	d
11) T	Naphthalene	0.00	0	N.D.	ug/L	d

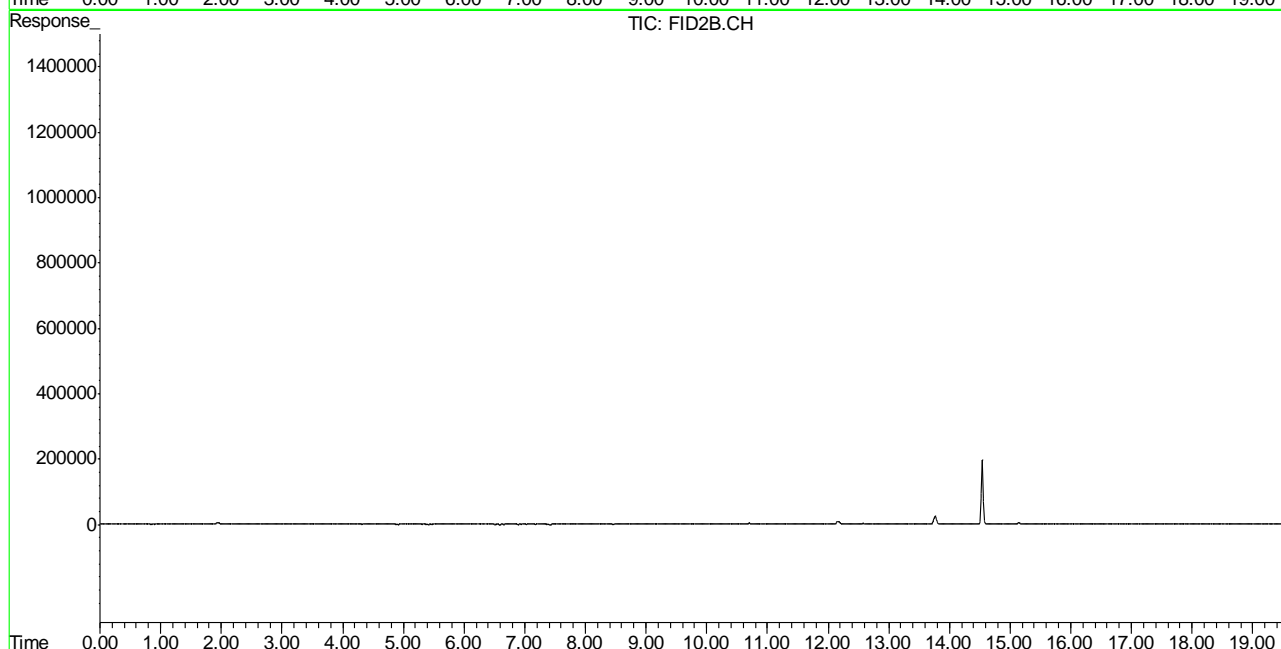
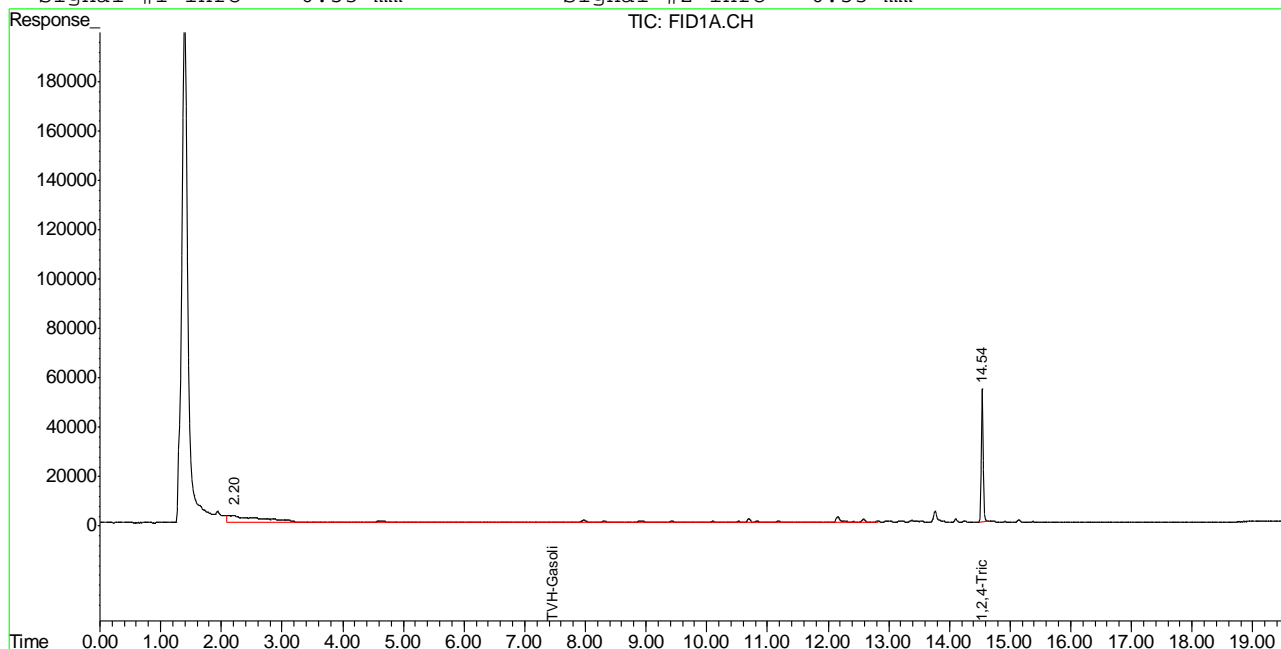
(f)=RT Delta > 1/2 Window (m)=manual int.  
 GB30973.D TB1654GB1654SOIL.M Wed Jul 08 08:11:29 2015 GC

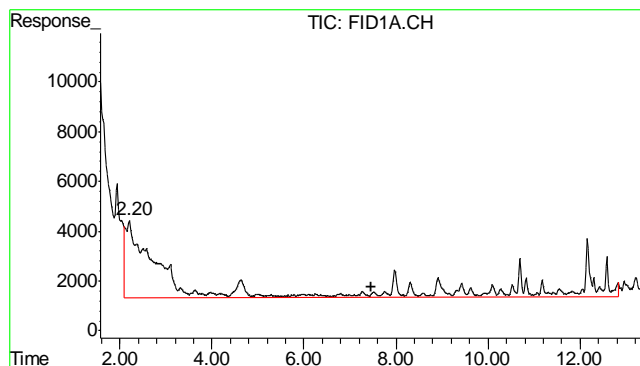
## Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\070715\GB30973.D\FID1A.CH Vial: 5  
Signal #2 : Y:\1\DATA\070715\GB30973.D\FID2B.CH  
Acq On : 7 Jul 2015 1:11 pm Operator: ELIJAH  
Sample : MB Inst : GC/MS Ins  
Misc : GC5498,GGB1662,5.00,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TOLUENE.E IntFile Signal #2: FB2.E  
Quant Time: Jul 8 8:16 2015 Quant Results File: TB1654GB1654SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB1654GB1654SOIL.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Mon Jun 29 10:46:20 2015  
Response via : Multiple Level Calibration  
DataAcq Meth : TVB4.M

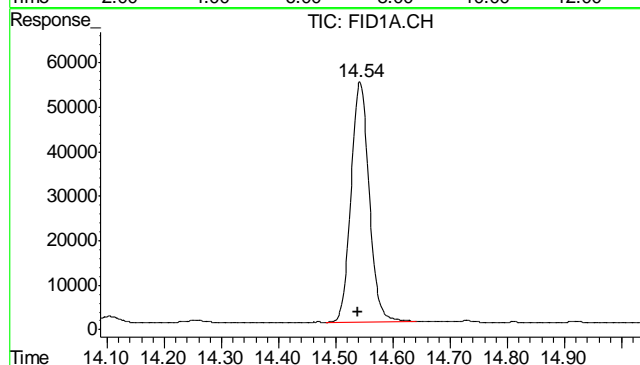
Volume Inj. :  
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





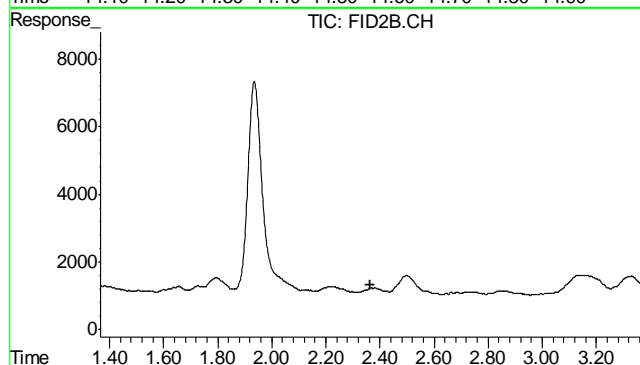
#1 TVH-Gasoline

R.T.: 7.450 min  
Delta R.T.: 0.000 min  
Response: 2350156  
Conc: 0.01 mg/L m



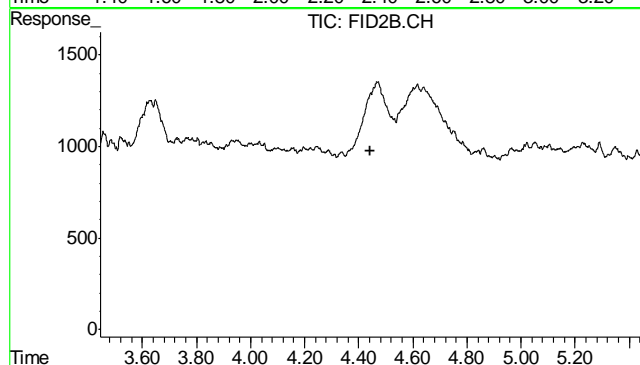
#2 1,2,4-Trichlorobenzene

R.T.: 14.542 min  
Delta R.T.: 0.003 min  
Response: 1185945  
Conc: 85.84 %



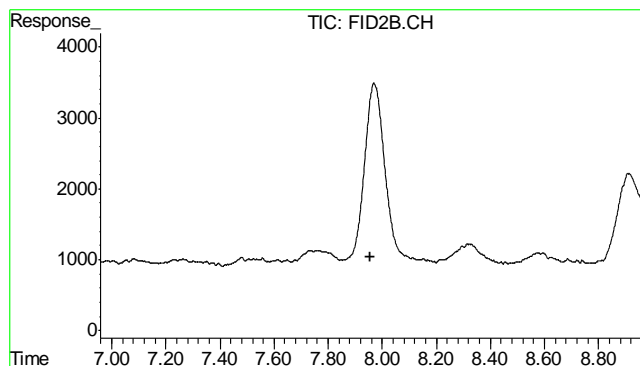
#4 Methyl-t-butyl-ether

R.T.: 0.000 min  
Exp R.T. : 2.365 min  
Response: 0  
Conc: N.D.



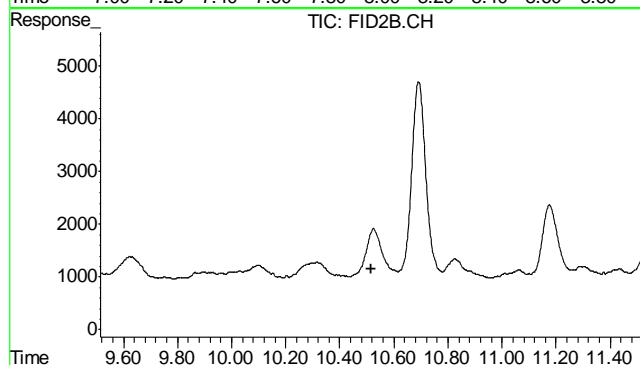
#5 Benzene

R.T.: 0.000 min  
Exp R.T. : 4.444 min  
Response: 0  
Conc: N.D.



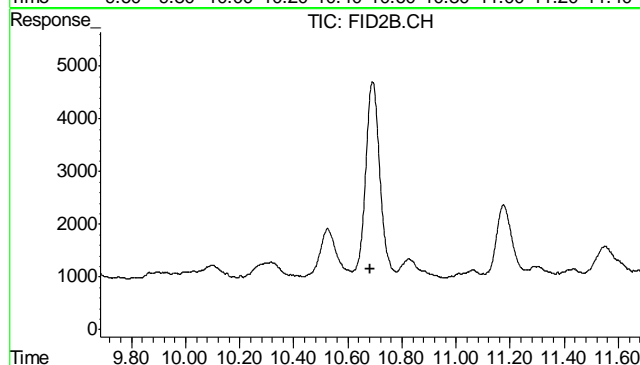
#6 Toluene

R.T.: 0.000 min  
Exp R.T. : 7.957 min  
Response: 0  
Conc: N.D.



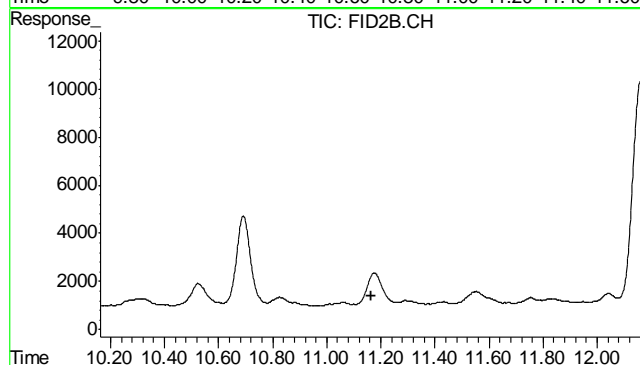
#7 Ethylbenzene

R.T.: 0.000 min  
Exp R.T. : 10.515 min  
Response: 0  
Conc: N.D.



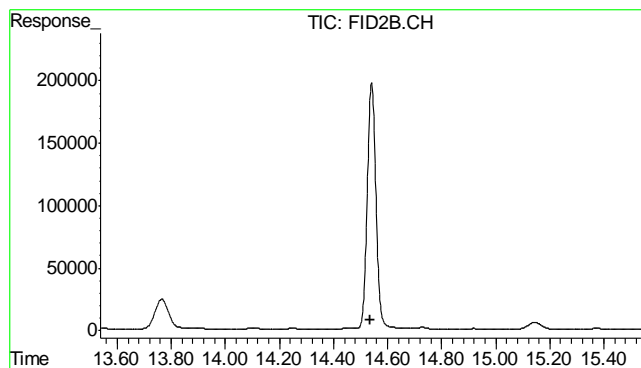
#8 m,p-Xylene

R.T.: 0.000 min  
Exp R.T. : 10.684 min  
Response: 0  
Conc: N.D.



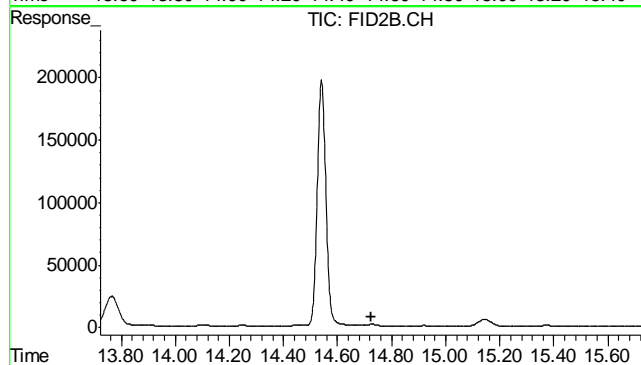
#9 o-Xylene

R.T.: 0.000 min  
Exp R.T. : 11.163 min  
Response: 0  
Conc: N.D.



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

R.T.: 0.000 min  
Exp R.T. : 14.537 min  
Response: 0  
Conc: N.D.



#11 Naphthalene

R.T.: 0.000 min  
Exp R.T. : 14.723 min  
Response: 0  
Conc: N.D.

7.2.1

7

## GC Semi-volatiles

### QC Data Summaries

---

Includes the following where applicable:

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

Method Blank Summary

Job Number: D72443  
Account: KPKCOD K.P. Kauffman Company, Inc.  
Project: Ruby B Carlson Unit D #1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP12011-MB	FI26948.D	1	07/07/15	GN	07/06/15	OP12011	GFI1334

The QC reported here applies to the following samples: Method: SW846-8015B  
D72443-1, D72443-2, D72443-3, D72443-4

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	10	7.5	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	79% 20-130%



## Blank Spike Summary

Page 1 of 1

**Job Number:** D72443  
**Account:** KPKCOD K.P. Kauffman Company, Inc.  
**Project:** Ruby B Carlson Unit D #1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP12011-BS	FI26950.D	1	07/07/15	GN	07/06/15	OP12011	GFI1334

The QC reported here applies to the following samples:

Method: SW846-8015B

D72443-1, D72443-2, D72443-3, D72443-4

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	250	160	64	32-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	86%	20-130%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D72443  
**Account:** KPKCOD K.P. Kauffman Company, Inc.  
**Project:** Ruby B Carlson Unit D #1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP12011-MS	FI26952.D	1	07/07/15	GN	07/06/15	OP12011	GFI1334
OP12011-MSD	FI26954.D	1	07/07/15	GN	07/06/15	OP12011	GFI1334
D72451-1	FI26956.D	1	07/07/15	GN	07/06/15	OP12011	GFI1334

The QC reported here applies to the following samples:

Method: SW846-8015B

D72443-1, D72443-2, D72443-3, D72443-4

CAS No.	Compound	D72451-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	752		253	690	-24* a	251	657	-38* a	5	20-152/54

CAS No.	Surrogate Recoveries	MS	MSD	D72451-1	Limits
84-15-1	o-Terphenyl	70%	70%	67%	20-130%

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

\* = Outside of Control Limits.

GC Semi-volatiles

Raw Data

6

Quantitation Report (QT Reviewed)

Data File : C:\FID6\_DATA\FI070715\FI26955.D Vial: 7  
Acq On : 7 Jul 2015 3:38 pm Operator: GRANTN  
Sample : D72443-1 Inst : Fid6  
Misc : OP12011,GFI1335,20.1,,,1,1 Multiplr: 1.00  
IntFile : AUTOINT1.E  
Quant Time: Jul 08 08:57:37 2015 Quant Results File: ORO-FR-GFI1279.RES

Quant Method : C:\MSDCHEM\1...\ORO-FR-GFI1279.M (Chemstation Integrator)  
Title : 8015B TEH Front detector  
Last Update : Wed Jul 01 08:32:12 2015  
Response via : Initial Calibration  
DataAcq Meth : DUAL\_B2.M

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

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	12.24f	139422223	1628.747 mg/L
Target Compounds			
2) H TPH-DRO (C10-C28)	10.35	7818450	88.327 mg/L

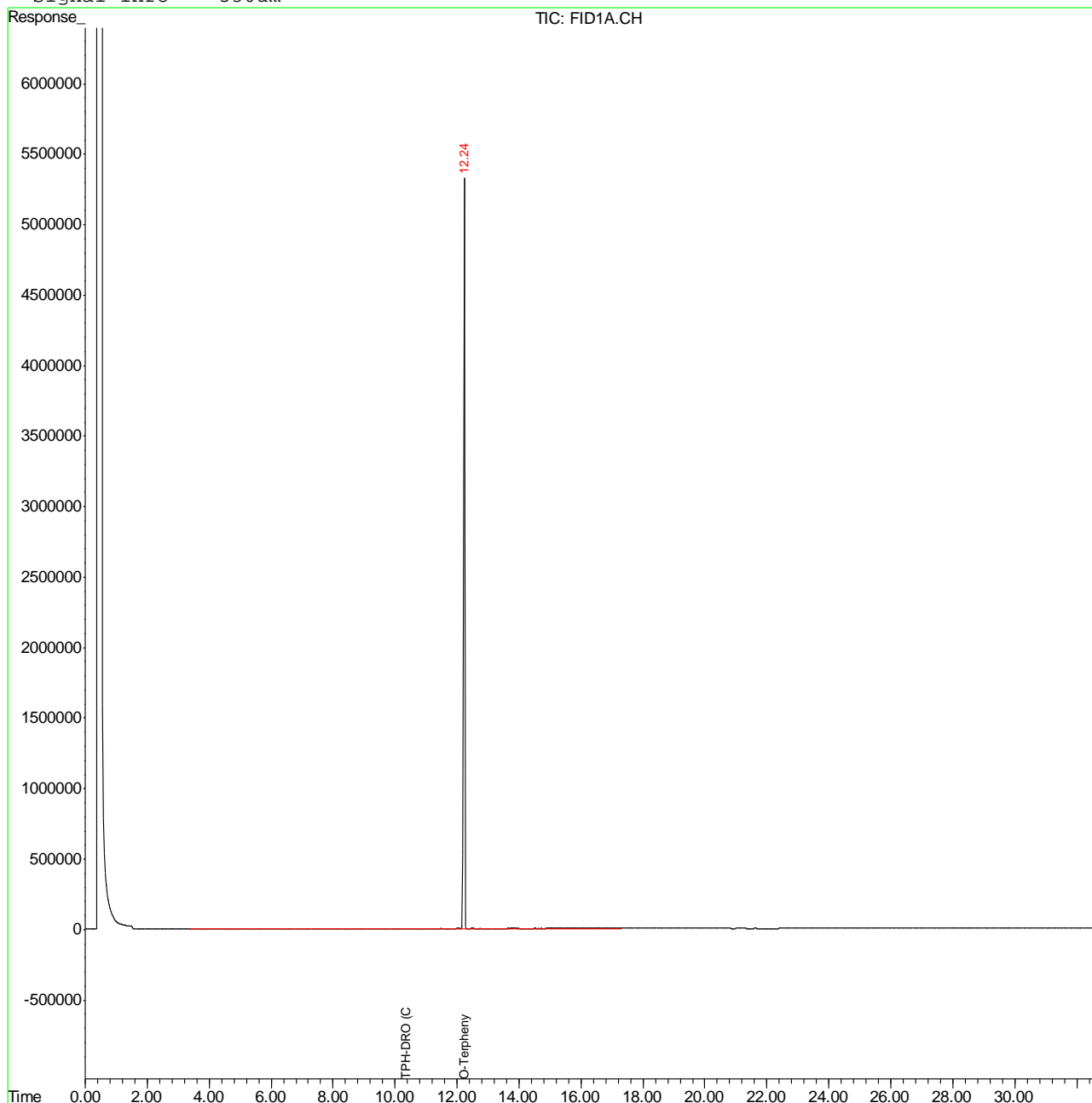
9.1.1  
9

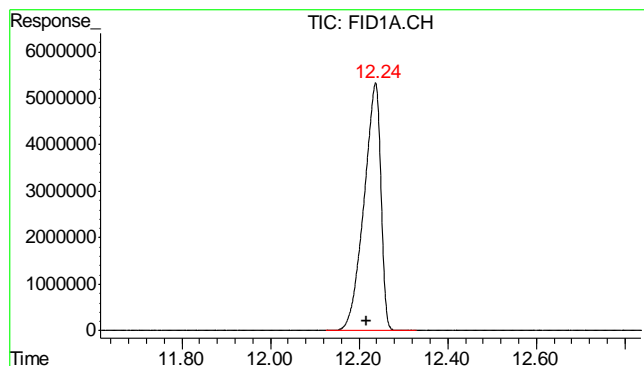
Quantitation Report (QT Reviewed)

Data File : C:\FID6\_DATA\FI070715\FI26955.D Vial: 7  
 Acq On : 7 Jul 2015 3:38 pm Operator: GRANTN  
 Sample : D72443-1 Inst : Fid6  
 Misc : OP12011,GFI1335,20.1,,,1,1 Multiplr: 1.00  
 IntFile : AUTOINT1.E  
 Quant Time: Jul 8 8:59 2015 Quant Results File: ORO-FR-GFI1279.RES

Quant Method : C:\MSDCHEM\1...\ORO-FR-GFI1279.M (Chemstation Integrator)  
 Title : 8015B TEH Front detector  
 Last Update : Wed Jul 01 08:32:12 2015  
 Response via : Multiple Level Calibration  
 DataAcq Meth : DUAL\_B2.M

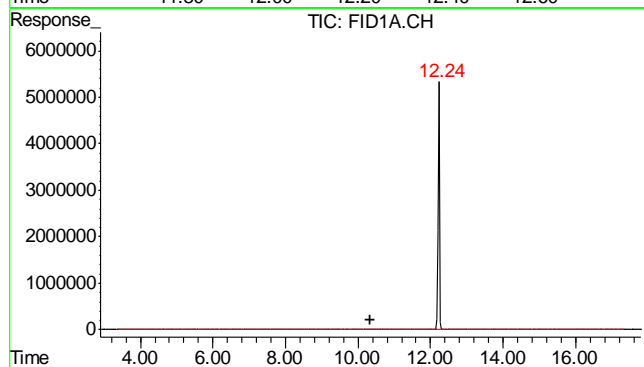
Volume Inj. : 1ul  
 Signal Phase : RTX-5  
 Signal Info : 530um





#1 O-Terphenyl

R.T.: 12.237 min  
 Delta R.T.: 0.020 min  
 Response: 139422223  
 Conc: 1628.75 mg/L



#2 TPH-DRO (C10-C28)

R.T.: 10.350 min  
 Delta R.T.: 0.000 min  
 Response: 7818450  
 Conc: 88.33 mg/L m

Quantitation Report (QT Reviewed)

Data File : C:\FID6\_DATA\FI070715\FI26957.D Vial: 8  
Acq On : 7 Jul 2015 4:19 pm Operator: GRANTN  
Sample : D72443-2 Inst : Fid6  
Misc : OP12011,GFI1335,20.1,,,1,1 Multiplr: 1.00  
IntFile : AUTOINT1.E  
Quant Time: Jul 08 08:57:39 2015 Quant Results File: ORO-FR-GFI1279.RES

Quant Method : C:\MSDCHEM\1...\ORO-FR-GFI1279.M (Chemstation Integrator)  
Title : 8015B TEH Front detector  
Last Update : Wed Jul 01 08:32:12 2015  
Response via : Initial Calibration  
DataAcq Meth : DUAL\_B2.M

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

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	12.23f	125483281	1465.910 mg/L
Target Compounds			
2) H TPH-DRO (C10-C28)	10.35	5063344	57.202 mg/L

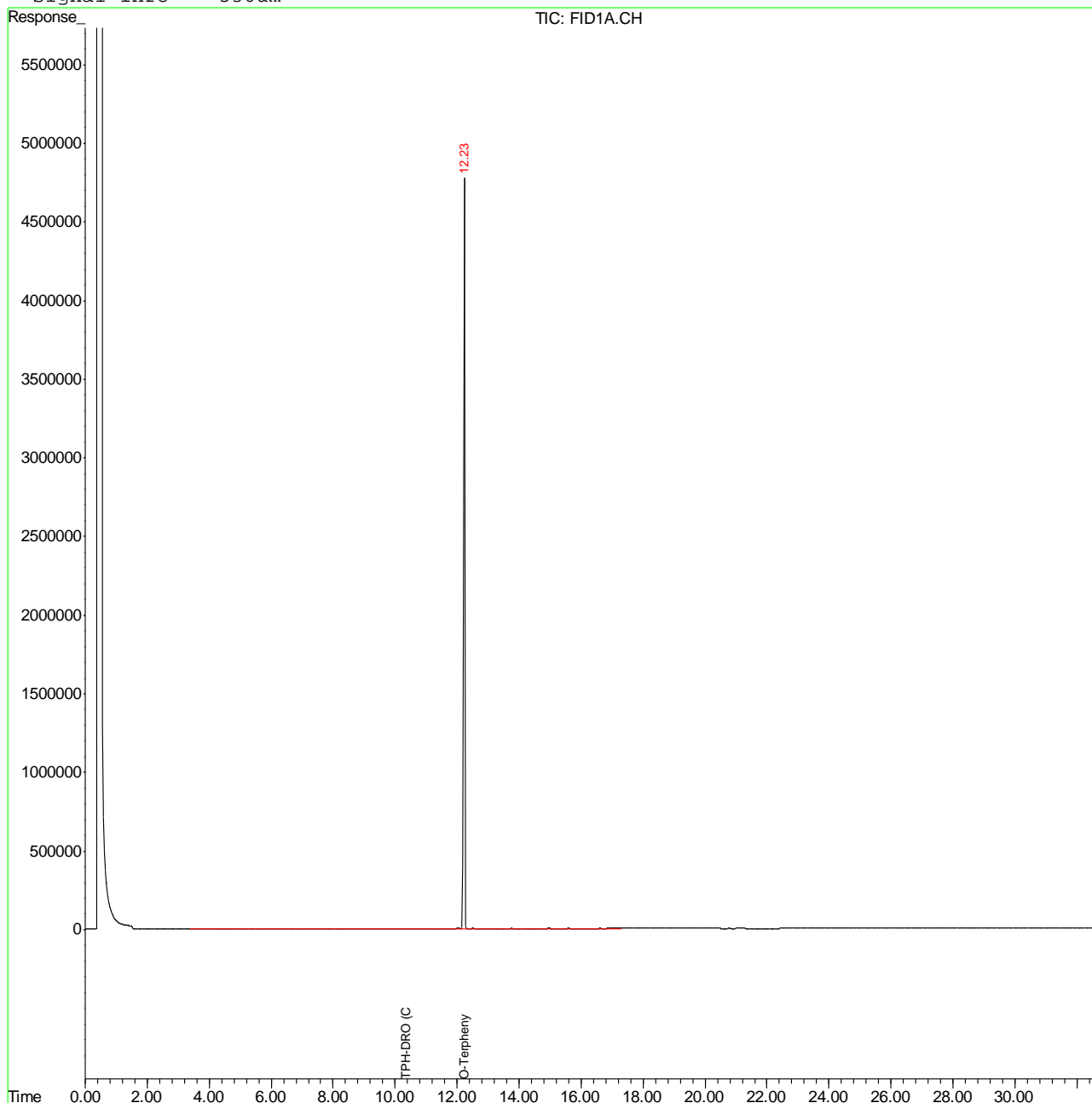
9.12  
9

Quantitation Report (QT Reviewed)

Data File : C:\FID6\_DATA\FI070715\FI26957.D Vial: 8  
Acq On : 7 Jul 2015 4:19 pm Operator: GRANTN  
Sample : D72443-2 Inst : Fid6  
Misc : OP12011,GFI1335,20.1,,,1,1 Multiplr: 1.00  
IntFile : AUTOINT1.E  
Quant Time: Jul 8 8:59 2015 Quant Results File: ORO-FR-GFI1279.RES

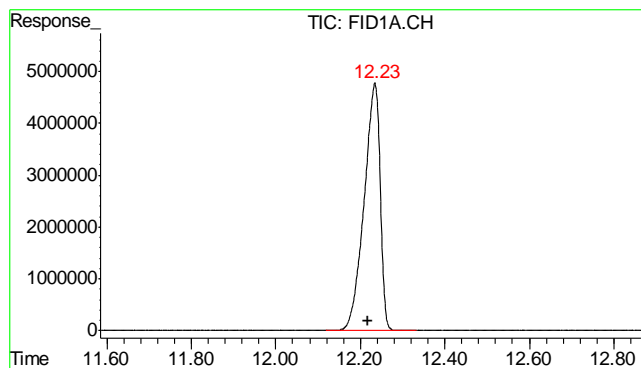
Quant Method : C:\MSDCHEM\1...\ORO-FR-GFI1279.M (Chemstation Integrator)  
Title : 8015B TEH Front detector  
Last Update : Wed Jul 01 08:32:12 2015  
Response via : Multiple Level Calibration  
DataAcq Meth : DUAL\_B2.M

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



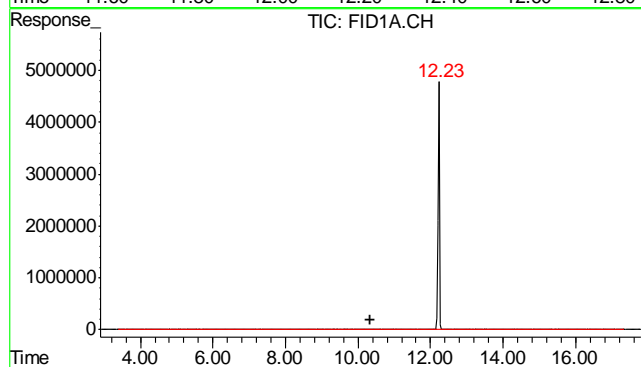
9.1.2  
9





#1 O-Terphenyl

R.T.: 12.234 min  
Delta R.T.: 0.017 min  
Response: 125483281  
Conc: 1465.91 mg/L



#2 TPH-DRO (C10-C28)

R.T.: 10.350 min  
Delta R.T.: 0.000 min  
Response: 5063344  
Conc: 57.20 mg/L m

9.1.2  
9

Quantitation Report (QT Reviewed)

Data File : C:\FID6\_DATA\FI070715\FI26959.D Vial: 9  
Acq On : 7 Jul 2015 4:59 pm Operator: GRANTN  
Sample : D72443-3 Inst : Fid6  
Misc : OP12011,GFI1335,20.1,,,1,1 Multiplr: 1.00  
IntFile : AUTOINT1.E  
Quant Time: Jul 08 08:57:41 2015 Quant Results File: ORO-FR-GFI1279.RES

Quant Method : C:\MSDCHEM\1...\ORO-FR-GFI1279.M (Chemstation Integrator)  
Title : 8015B TEH Front detector  
Last Update : Wed Jul 01 08:32:12 2015  
Response via : Initial Calibration  
DataAcq Meth : DUAL\_B2.M

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

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	12.24f	155354332	1814.867 mg/L
Target Compounds			
2) H TPH-DRO (C10-C28)	10.35	12267219	138.586 mg/L

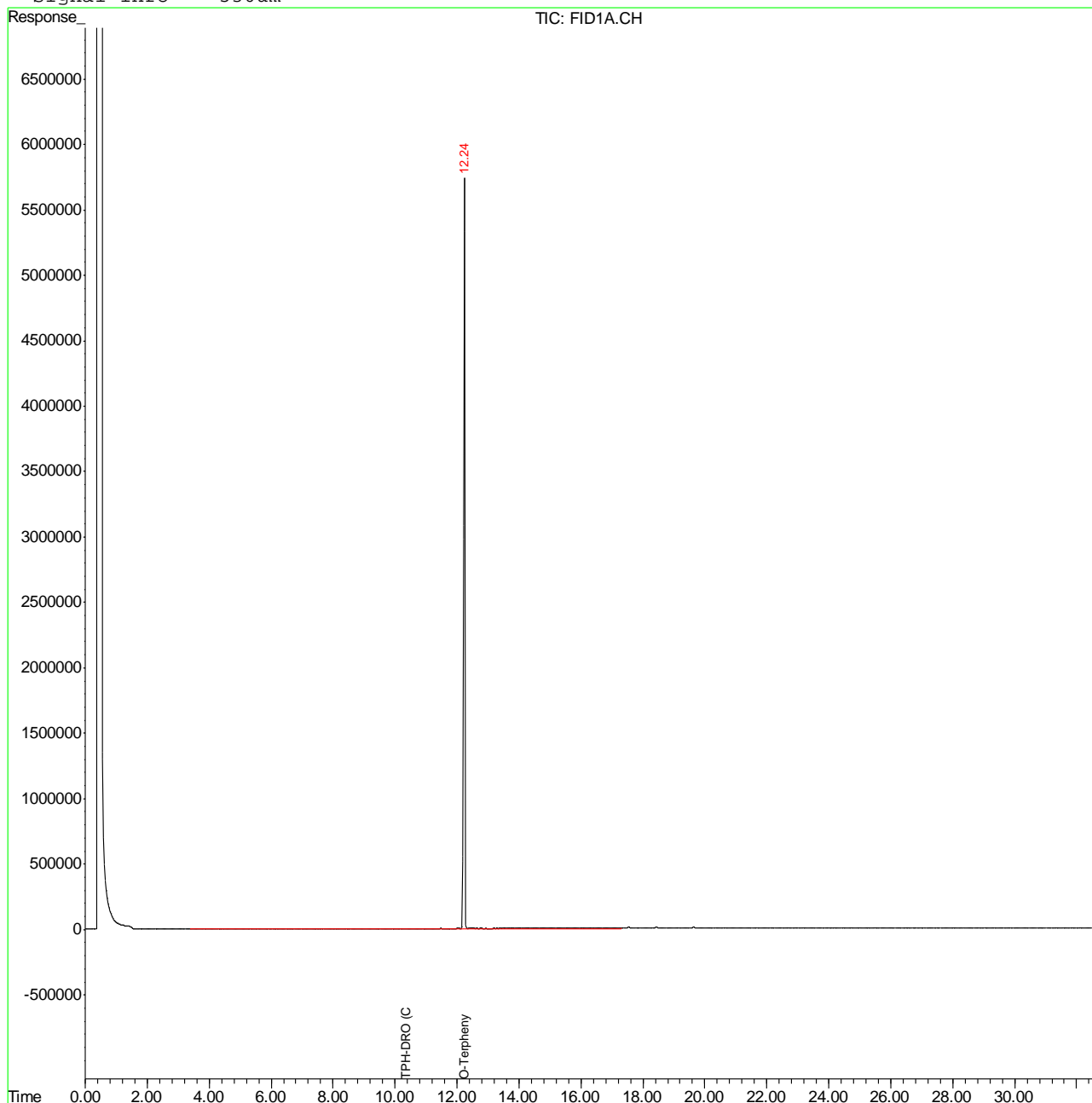
9.1.3  
9

Quantitation Report (QT Reviewed)

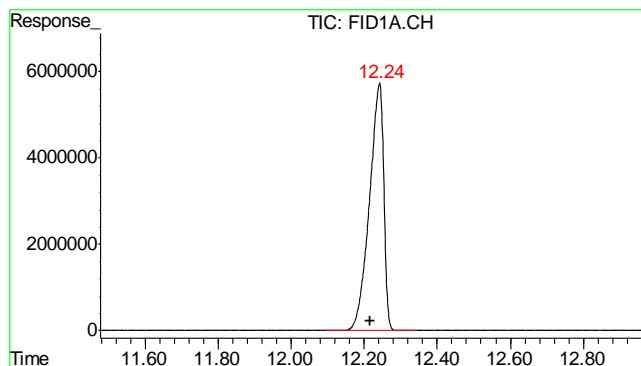
Data File : C:\FID6\_DATA\FI070715\FI26959.D Vial: 9  
 Acq On : 7 Jul 2015 4:59 pm Operator: GRANTN  
 Sample : D72443-3 Inst : Fid6  
 Misc : OP12011,GFI1335,20.1,,,1,1 Multiplr: 1.00  
 IntFile : AUTOINT1.E  
 Quant Time: Jul 8 9:00 2015 Quant Results File: ORO-FR-GFI1279.RES

Quant Method : C:\MSDCHEM\1...\ORO-FR-GFI1279.M (Chemstation Integrator)  
 Title : 8015B TEH Front detector  
 Last Update : Wed Jul 01 08:32:12 2015  
 Response via : Multiple Level Calibration  
 DataAcq Meth : DUAL\_B2.M

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

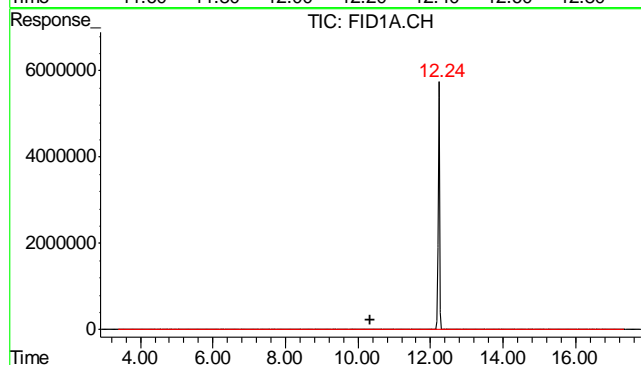


9.1.3  
6



#1 O-Terphenyl

R.T.: 12.241 min  
Delta R.T.: 0.024 min  
Response: 155354332  
Conc: 1814.87 mg/L



#2 TPH-DRO (C10-C28)

R.T.: 10.350 min  
Delta R.T.: 0.000 min  
Response: 12267219  
Conc: 138.59 mg/L m

Quantitation Report (QT Reviewed)

Data File : C:\FID6\_DATA\FI070715\FI26961.D Vial: 10  
Acq On : 7 Jul 2015 5:40 pm Operator: GRANTN  
Sample : D72443-4 Inst : Fid6  
Misc : OP12011,GFI1335,20.2,,,1,1 Multiplr: 1.00  
IntFile : AUTOINT1.E  
Quant Time: Jul 08 08:57:43 2015 Quant Results File: ORO-FR-GFI1279.RES

Quant Method : C:\MSDCHEM\1...\ORO-FR-GFI1279.M (Chemstation Integrator)  
Title : 8015B TEH Front detector  
Last Update : Wed Jul 01 08:32:12 2015  
Response via : Initial Calibration  
DataAcq Meth : DUAL\_B2.M

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

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	12.24f	147124424	1718.725 mg/L
Target Compounds			
2) H TPH-DRO (C10-C28)	10.35	8496381	95.986 mg/L

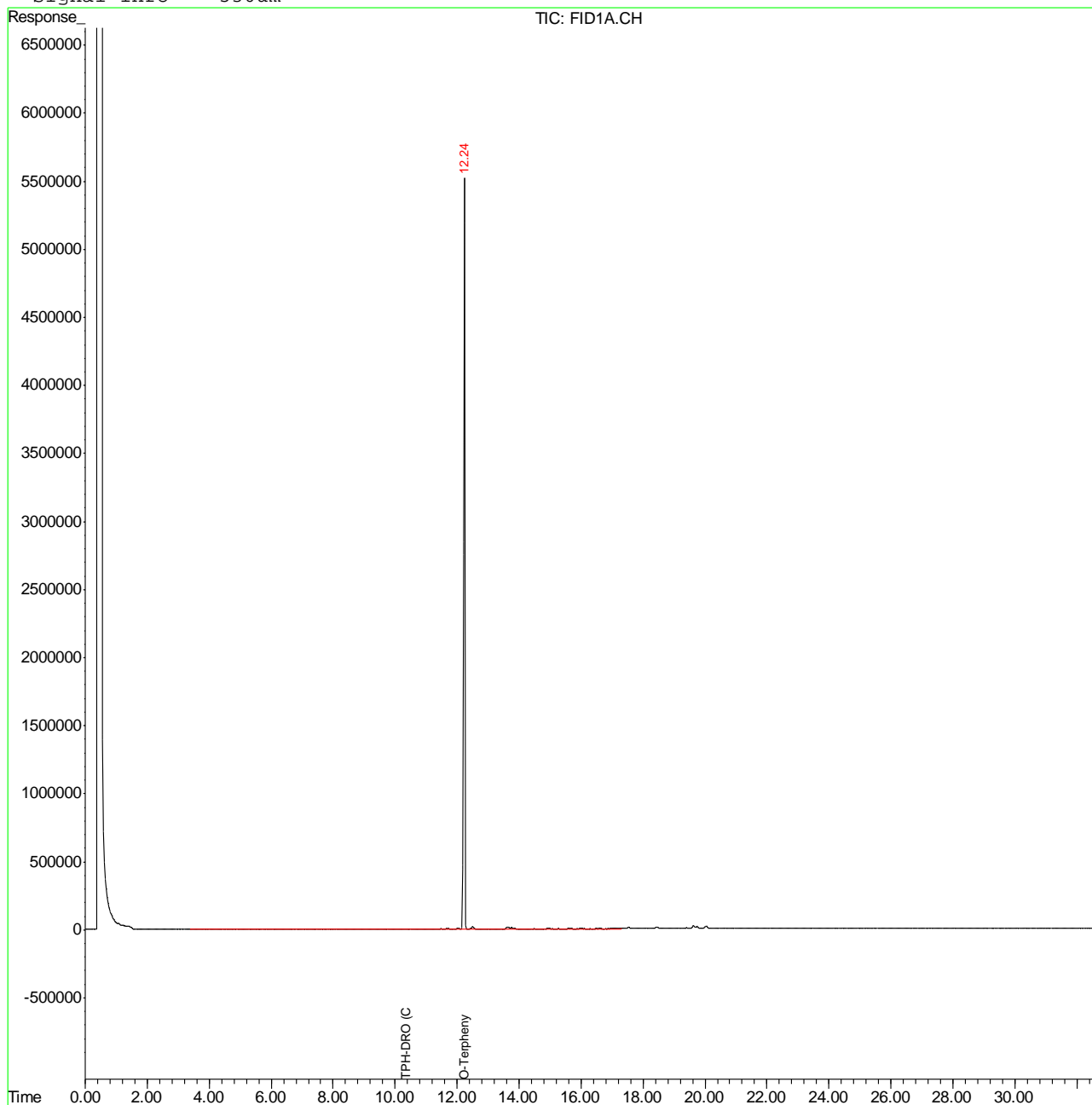
9.1.4  
9

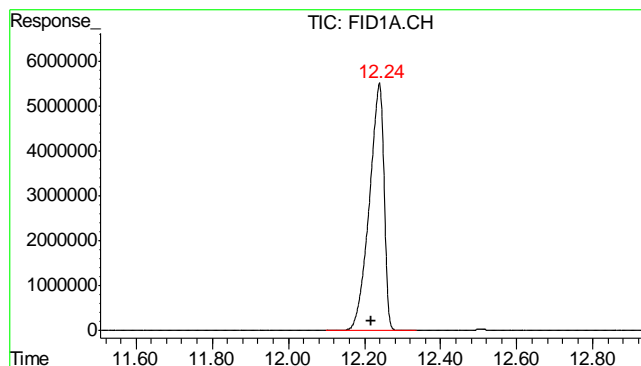
## Quantitation Report (QT Reviewed)

Data File : C:\FID6\_DATA\FI070715\FI26961.D Vial: 10  
Acq On : 7 Jul 2015 5:40 pm Operator: GRANTN  
Sample : D72443-4 Inst : Fid6  
Misc : OP12011,GFI1335,20.2,,,1,1 Multiplr: 1.00  
IntFile : AUTOINT1.E  
Quant Time: Jul 8 9:00 2015 Quant Results File: ORO-FR-GFI1279.RES

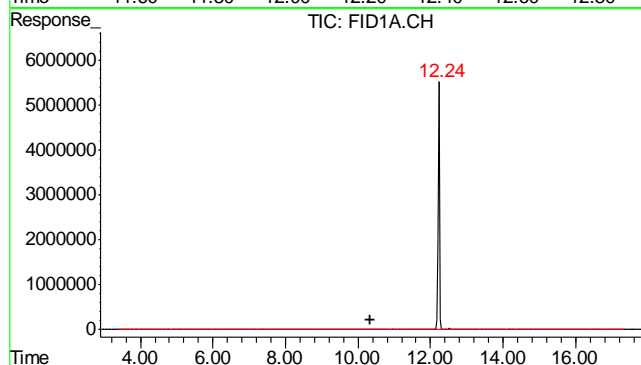
Quant Method : C:\MSDCHEM\1...\ORO-FR-GFI1279.M (Chemstation Integrator)  
Title : 8015B TEH Front detector  
Last Update : Wed Jul 01 08:32:12 2015  
Response via : Multiple Level Calibration  
DataAcq Meth : DUAL\_B2.M

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





#1 O-Terphenyl  
 R.T.: 12.239 min  
 Delta R.T.: 0.022 min  
 Response: 147124424  
 Conc: 1718.72 mg/L



#2 TPH-DRO (C10-C28)  
 R.T.: 10.350 min  
 Delta R.T.: 0.000 min  
 Response: 8496381  
 Conc: 95.99 mg/L m

## Quantitation Report (QT Reviewed)

Data File : C:\FID6\_DATA\FI070715.SEC\FI26948.D Vial: 29  
Acq On : 7 Jul 2015 1:37 pm Operator: GRANTN  
Sample : OP12011-MB Inst : Fid6  
Misc : OP12011,GFI1334,20.0,,,1,1 Multiplr: 1.00  
IntFile : AUTOINT1.E  
Quant Time: Jul 08 08:49:58 2015 Quant Results File: ORO-RR-GFI1266.RES

Quant Method : C:\MSDCHEM\1...\ORO-RR-GFI1266.M (Chemstation Integrator)  
Title : 8015B TEH Front detector  
Last Update : Thu Jun 18 09:04:47 2015  
Response via : Initial Calibration  
DataAcq Meth : DUAL\_B2.M

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

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	12.06f	113301135	1578.158 mg/L
Target Compounds			
2) H TPH-DRO (C10-C28)	9.96	4416703	60.671 mg/L

-----  
(f)=RT Delta > 1/2 Window (m)=manual int.  
FI26948.D ORO-RR-GFI1266.M Wed Jul 08 08:55:30 2015 TEH

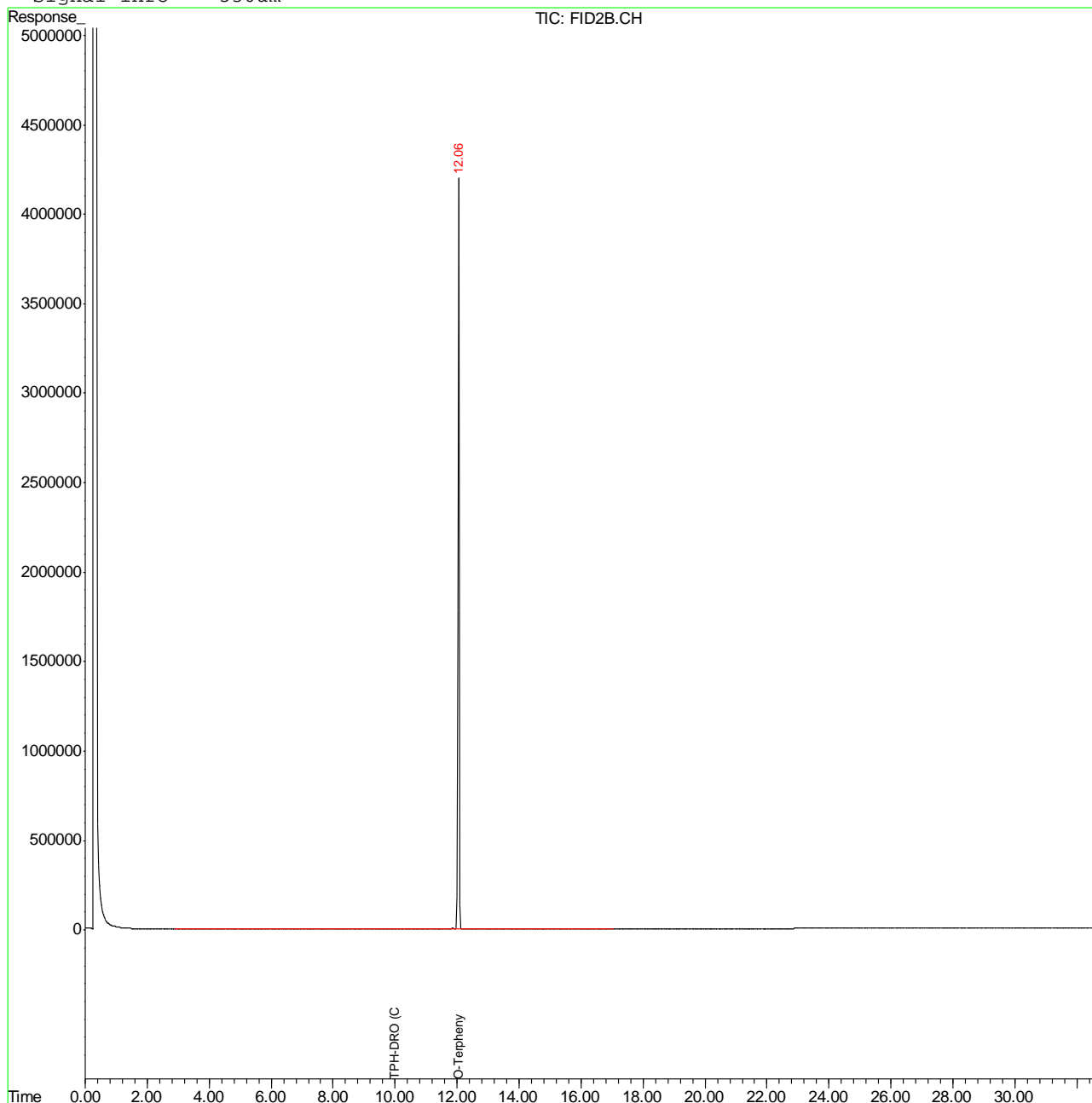


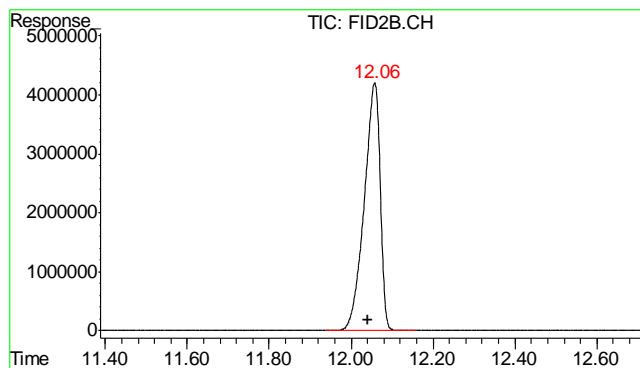
## Quantitation Report (QT Reviewed)

Data File : C:\FID6\_DATA\FI070715.SEC\FI26948.D Vial: 29  
Acq On : 7 Jul 2015 1:37 pm Operator: GRANTN  
Sample : OP12011-MB Inst : Fid6  
Misc : OP12011,GFI1334,20.0,,,1,1 Multiplr: 1.00  
IntFile : AUTOINT1.E  
Quant Time: Jul 8 8:50 2015 Quant Results File: ORO-RR-GFI1266.RES

Quant Method : C:\MSDCHEM\1...\ORO-RR-GFI1266.M (Chemstation Integrator)  
Title : 8015B TEH Front detector  
Last Update : Thu Jun 18 09:04:47 2015  
Response via : Multiple Level Calibration  
DataAcq Meth : DUAL\_B2.M

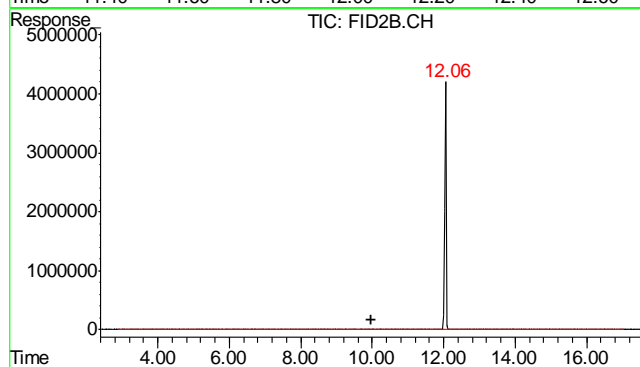
Volume Inj. : 1ul  
Signal Phase : RTX-5  
Signal Info : 530um





#1 O-Terphenyl

R.T.: 12.058 min  
Delta R.T.: 0.018 min  
Response: 113301135  
Conc: 1578.16 mg/L



#2 TPH-DRO (C10-C28)

R.T.: 9.960 min  
Delta R.T.: 0.000 min  
Response: 4416703  
Conc: 60.67 mg/L m

## 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: D72443  
Account: KPKCOD - K.P. Kauffman Company, Inc.  
Project: Ruby B Carlson Unit D #1

QC Batch ID: MP16348  
Matrix Type: AQUEOUS

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

Prep Date: 07/07/15

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	55	65		
Antimony	150	11	44		
Arsenic	130	19	60		
Barium	50	1	2		
Beryllium	50	4.5	8		
Boron	250	4	18		
Cadmium	50	1	4		
Calcium	2000	12	50	-6.5	<2000
Chromium	50	1.5	3.5		
Cobalt	25	2.5	6		
Copper	50	4	19		
Iron	350	7.5	35		
Lead	250	11	25		
Lithium	25	2	3.5		
Magnesium	1000	34	200	152	<1000
Manganese	25	2.5	4.5		
Molybdenum	50	2	18		
Nickel	150	2.5	14		
Phosphorus	500	75	170		
Potassium	5000	500	360		
Selenium	250	36	50		
Silicon	250	24	42		
Silver	150	1.5	3		
Sodium	2000	37	70	27.0	<2000
Strontium	25	.05	1.5		
Thallium	50	9	40		
Tin	250	60	60		
Titanium	50	.5	14		
Uranium	250	15	22		
Vanadium	50	2	3		
Zinc	150	2	18		

Associated samples MP16348: D72443-1A, D72443-2A, D72443-3A, D72443-4A

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D72443  
Account: KPKCOD - K.P. Kauffman Company, Inc.  
Project: Ruby B Carlson Unit D #1

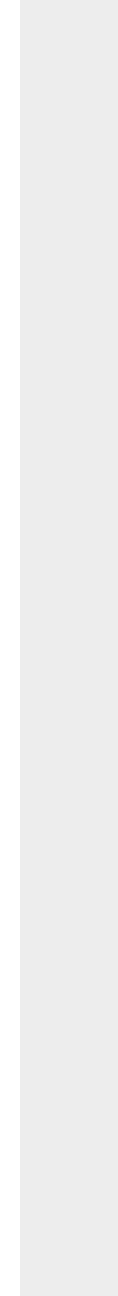
QC Batch ID: MP16348  
Matrix Type: AQUEOUS

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

Prep Date: 07/07/15

Metal	RL	IDL	MDL	MB raw	final
-------	----	-----	-----	-----------	-------

(anr) Analyte not requested



10.1.1  
10

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D72443  
 Account: KPKCOD - K.P. Kauffman Company, Inc.  
 Project: Ruby B Carlson Unit D #1

QC Batch ID: MP16348  
 Matrix Type: AQUEOUS

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

Prep Date: 07/07/15

Metal	D72233-47A Original MS		Spikelot ICPAL2 % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	215000	365000	125000	120.0	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	50300	185000	125000	107.8	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	2990000	3220000	125000	184.0(a)	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP16348: D72443-1A, D72443-2A, D72443-3A, D72443-4A

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

10.1.2  
10

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D72443  
 Account: KPKCOD - K.P. Kauffman Company, Inc.  
 Project: Ruby B Carlson Unit D #1

QC Batch ID: MP16348  
 Matrix Type: AQUEOUS

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

Prep Date: 07/07/15

Metal	D72233-47A Original MS	Spikelot ICPALL2	% Rec	QC Limits
-------	---------------------------	---------------------	-------	--------------

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D72443  
 Account: KPKCOD - K.P. Kauffman Company, Inc.  
 Project: Ruby B Carlson Unit D #1

QC Batch ID: MP16348  
 Matrix Type: AQUEOUS

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

Prep Date: 07/07/15

Metal	D72233-47A Original MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	215000	374000	125000	127.2N(a) 2.4	20
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	50300	187000	125000	109.4	1.1
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	2990000	3280000	125000	232.0(b) 1.8	20
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP16348: D72443-1A, D72443-2A, D72443-3A, D72443-4A

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



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D72443  
 Account: KPKCOD - K.P. Kauffman Company, Inc.  
 Project: Ruby B Carlson Unit D #1

QC Batch ID: MP16348  
 Matrix Type: AQUEOUS

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

Prep Date: 07/07/15

Metal	D72233-47A Original MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
-------	----------------------------	---------------------	-------	------------	-------------

- (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested  
 (a) Spike recovery indicates possible matrix interference.  
 (b) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D72443

Account: KPKCOD - K.P. Kauffman Company, Inc.

Project: Ruby B Carlson Unit D #1

QC Batch ID: MP16348

Methods: SW846 6010C, USDA HANDBOOK 60

Matrix Type: AQUEOUS

Units: ug/l

Prep Date:

07/07/15

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	142000	125000	113.6	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	136000	125000	108.8	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	132000	125000	105.6	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP16348: D72443-1A, D72443-2A, D72443-3A, D72443-4A

Results &lt; IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

Login Number: D72443  
Account: KPKCOD - K.P. Kauffman Company, Inc.  
Project: Ruby B Carlson Unit D #1

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

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
-------	---------------	---------------------	-------	--------------

# SERIAL DILUTION RESULTS SUMMARY

Login Number: D72443  
 Account: KPKCOD - K.P. Kauffman Company, Inc.  
 Project: Ruby B Carlson Unit D #1

QC Batch ID: MP16348  
 Matrix Type: AQUEOUS

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

Prep Date: 07/07/15

Metal	D72233-47A Original SDL 1:5		%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	43000	47700	11.0*(a)	0-10
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	10100	10100	0.8	0-10
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	598000	620000	3.6	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP16348: D72443-1A, D72443-2A, D72443-3A, D72443-4A

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D72443  
 Account: KPKCOD - K.P. Kauffman Company, Inc.  
 Project: Ruby B Carlson Unit D #1

QC Batch ID: MP16348  
 Matrix Type: AQUEOUS

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

Prep Date: 07/07/15

	D72233-47A		QC
Metal	Original SDL 1:5	%DIF	Limits

(anr) Analyte not requested  
 (a) Serial dilution indicates possible matrix interference.

10.1.4  
 10

## 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: D72443  
Account: KPKCOD - K.P. Kauffman Company, Inc.  
Project: Ruby B Carlson Unit D #1

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP15706/GN30661			umhos/cm	998	987	98.9	90-110%
pH	GN30631			su	8.00	7.97	99.6	99.1-100.9%

Associated Samples:  
Batch GN30631: D72443-1, D72443-2, D72443-3, D72443-4  
Batch GP15706: D72443-1, D72443-2, D72443-3, D72443-4  
(\*) Outside of QC limits

11.1  
11

## 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:** D72443      **Client:** AMS      **Project:** SUB  
**Date / Time Received:** 7/3/2015 9:45:00 AM      **Delivery Method:** \_\_\_\_\_      **Airbill #'s:** \_\_\_\_\_  
**Cooler Temps (Initial/Adjusted):** #1: (1/1):

**Cooler Security**

	<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"/>

**Cooler Temperature**

	<u>Y</u>	<u>or</u>	<u>N</u>
1. Temp criteria achieved:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Thermometer ID:	<u>G1;</u>		
3. Cooler media:	<u>Ice (Bag)</u>		
4. No. Coolers:	<u>1</u>		

**Quality Control Preservation**

	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>		<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 type="checkbox"/>

**Sample Integrity - Documentation**

	<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"/>

**Sample Integrity - Condition**

	<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:	<u>Intact</u>		

**Sample Integrity - Instructions**

	<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 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

## GC/MS Volatiles

### QC Data Summaries

(Accutest Labs of New England, Inc.)

---

Includes the following where applicable:

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

Method Blank Summary

Job Number: D72443  
Account: ALMS Accutest Mountain States  
Project: KPKCOD: Ruby B Carlson Unit D #1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2778-MB	K89485.D	1	07/09/15	KD	n/a	n/a	MSK2778

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

D72443-1, D72443-2, D72443-3, D72443-4

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	25	19	ug/kg	
100-41-4	Ethylbenzene	ND	100	19	ug/kg	
108-88-3	Toluene	ND	250	20	ug/kg	
1330-20-7	Xylene (total)	ND	100	17	ug/kg	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	105% 65-141%
2037-26-5	Toluene-D8	97% 65-129%
460-00-4	4-Bromofluorobenzene	102% 63-137%

13.1.1  
13

# Blank Spike/Blank Spike Duplicate Summary

Page 1 of 1

**Job Number:** D72443

**Account:** ALMS Accutest Mountain States

**Project:** KPKCOD: Ruby B Carlson Unit D #1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2778-BS	K89482.D	1	07/09/15	KD	n/a	n/a	MSK2778
MSK2778-BSD	K89483.D	1	07/09/15	KD	n/a	n/a	MSK2778

**The QC reported here applies to the following samples:**

**Method:** SW846 8260C

D72443-1, D72443-2, D72443-3, D72443-4

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	2500	2360	94	2200	88	7	67-124/25
100-41-4	Ethylbenzene	2500	2460	98	2280	91	8	75-120/25
108-88-3	Toluene	2500	2450	98	2330	93	5	76-122/25
1330-20-7	Xylene (total)	7500	7490	100	6920	92	8	78-121/25

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	99%	99%	65-141%
2037-26-5	Toluene-D8	102%	101%	65-129%
460-00-4	4-Bromofluorobenzene	99%	99%	63-137%

\* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D72443  
Account: ALMS Accutest Mountain States  
Project: KPKCOD: Ruby B Carlson Unit D #1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D72443-4MS	K89502.D	1	07/09/15	KD	n/a	n/a	MSK2778
D72443-4MSD	K89503.D	1	07/09/15	KD	n/a	n/a	MSK2778
D72443-4	K89494.D	1	07/09/15	KD	n/a	n/a	MSK2778

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

D72443-1, D72443-2, D72443-3, D72443-4

CAS No.	Compound	D72443-4 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		2640	2490	94	2640	2440	92	2	34-139/30
100-41-4	Ethylbenzene	ND		2640	2570	97	2640	2500	95	3	24-146/30
108-88-3	Toluene	ND		2640	2650	100	2640	2570	97	3	30-147/30
1330-20-7	Xylene (total)	ND		7930	7830	99	7930	7600	96	3	25-147/30

CAS No.	Surrogate Recoveries	MS	MSD	D72443-4	Limits
1868-53-7	Dibromofluoromethane	99%	100%	102%	65-141%
2037-26-5	Toluene-D8	102%	100%	98%	65-129%
460-00-4	4-Bromofluorobenzene	99%	101%	97%	63-137%

\* = Outside of Control Limits.

## GC/MS Volatiles

Raw Data

(Accutest Labs of New England, Inc.)

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\150709\  
Data File : k89491.D  
Acq On : 9 Jul 2015 3:18 pm  
Operator : krystend  
Sample : d72443-1  
Misc : ms34793,msk2778,10.566,,100,10,1  
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 10 09:33:09 2015  
Quant Method : C:\msdchem\1\methods\K150708S.M  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Jul 09 09:39:55 2015  
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert butyl alcohol-d9	6.417	65	43438m	500.00	ug/kg	0.00
4) pentafluorobenzene	8.770	168	133057	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.616	114	189374	50.00	ug/kg	0.00
67) chlorobenzene-d5	12.872	82	85146	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.427	152	128472	50.00	ug/kg	0.00
System Monitoring Compounds						
41) dibromofluoromethane (s)	8.399	113	67286	49.73	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	99.46%		
61) toluene-d8 (s)	11.407	98	215464	49.94	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	99.88%		
84) bromofluorobenzene (s)	14.089	95	90803	49.69	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	99.38%		
Target Compounds						
					Qvalue	
91) 1,3,5-trimethylbenzene	14.754	105	1604	0.24	ug/kg	90
93) 1,2,4-trimethylbenzene	15.165	105	30496	4.34	ug/kg	97
94) sec-butylbenzene	15.290	105	5050	0.62	ug/kg	90
96) p-isopropyltoluene	15.457	119	4697	0.63	ug/kg	92
99) n-butylbenzene	15.873	91	72347	11.88	ug/kg#	1
104) naphthalene	17.900	128	339023	52.56	ug/kg	100
106) 2-methylnaphthalene	19.231	142	39113	25.26	ug/kg	96
107) 1-methylnaphthalene	19.466	142	16414	14.62	ug/kg#	1

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

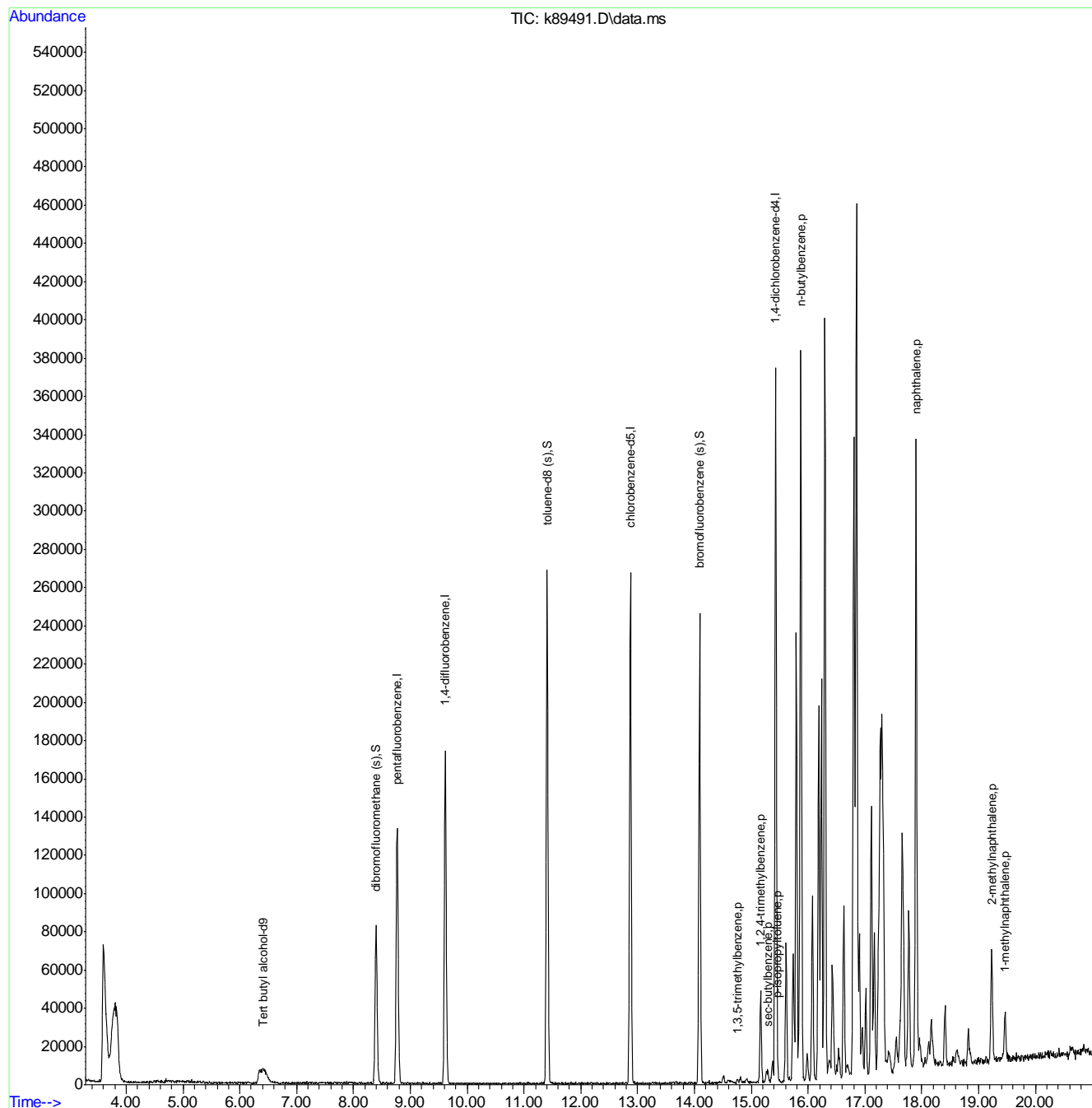
14.1.1  
14

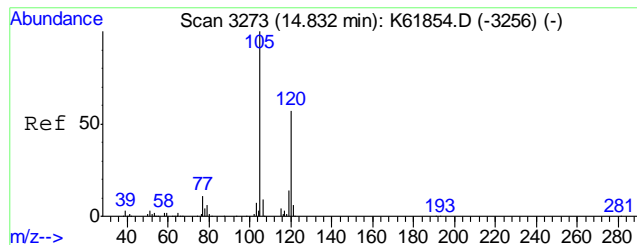


## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\150709\  
Data File : k89491.D  
Acq On : 9 Jul 2015 3:18 pm  
Operator : krystend  
Sample : d72443-1  
Misc : ms34793,msk2778,10.566,,100,10,1  
ALS Vial : 13 Sample Multiplier: 1

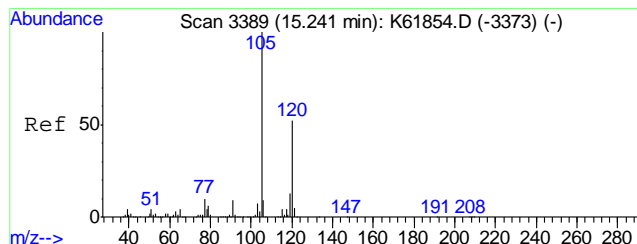
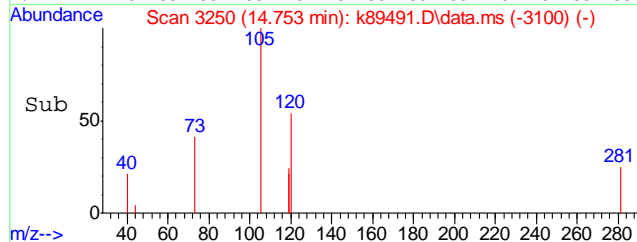
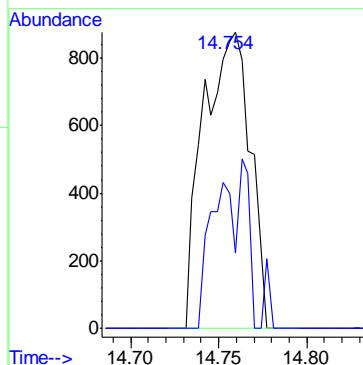
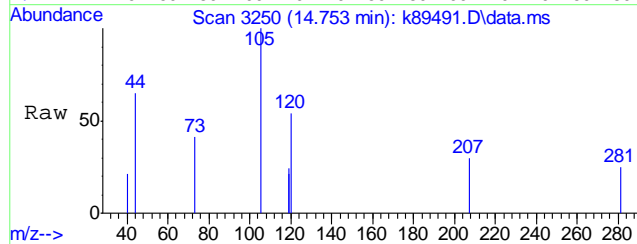
Quant Time: Jul 10 09:33:09 2015  
Quant Method : C:\msdchem\1\methods\K150708S.M  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Jul 09 09:39:55 2015  
Response via : Initial Calibration





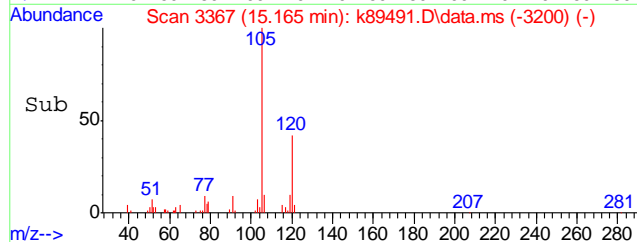
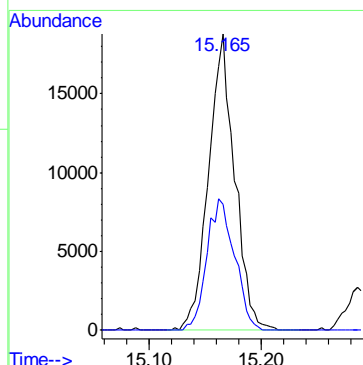
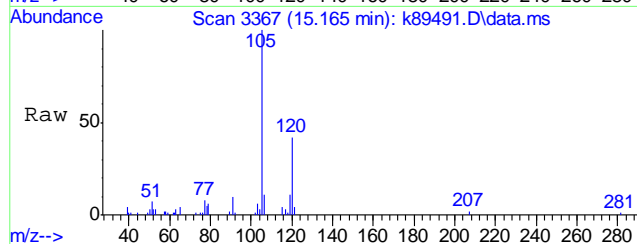
#91  
1,3,5-trimethylbenzene  
Concen: 0.24 ug/kg  
RT: 14.754 min Scan# 3250  
Delta R.T. -0.000 min  
Lab File: k89491.D  
Acq: 9 Jul 2015 3:18 pm

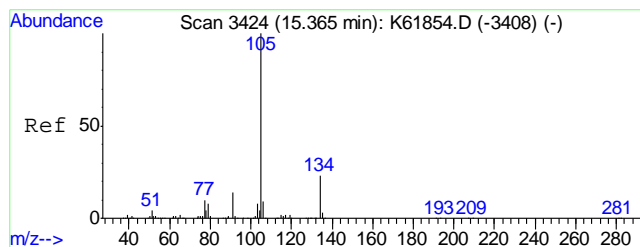
Tgt Ion	Ratio	Lower	Upper
105	100		
120	54.4	17.4	77.4



#93  
1,2,4-trimethylbenzene  
Concen: 4.34 ug/kg  
RT: 15.165 min Scan# 3367  
Delta R.T. -0.000 min  
Lab File: k89491.D  
Acq: 9 Jul 2015 3:18 pm

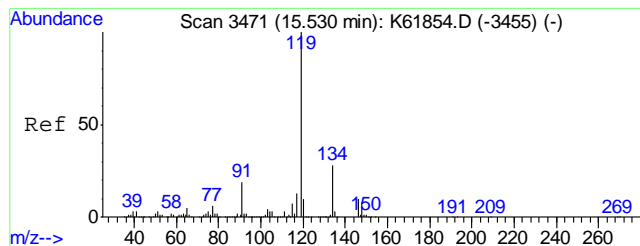
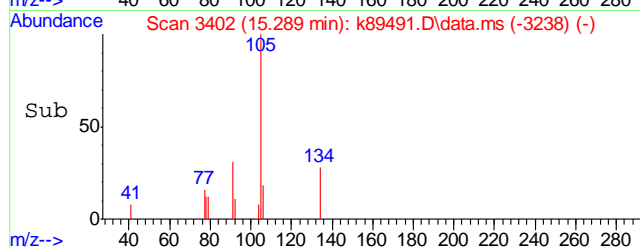
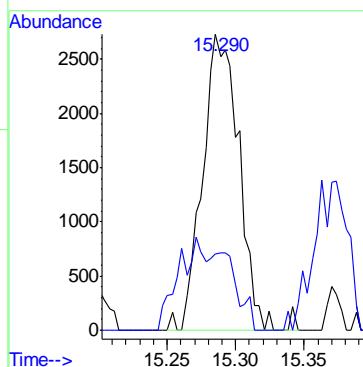
Tgt Ion	Ratio	Lower	Upper
105	100		
120	42.4	10.8	70.8





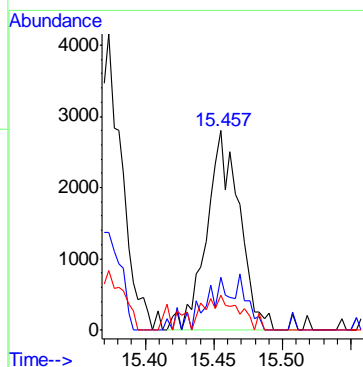
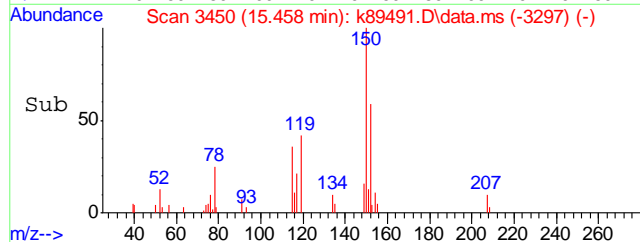
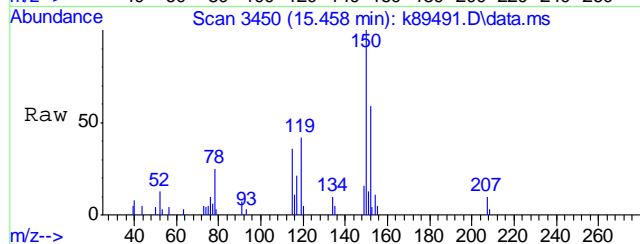
#94  
sec-butylbenzene  
Concen: 0.62 ug/kg  
RT: 15.290 min Scan# 3402  
Delta R.T. 0.001 min  
Lab File: k89491.D  
Acq: 9 Jul 2015 3:18 pm

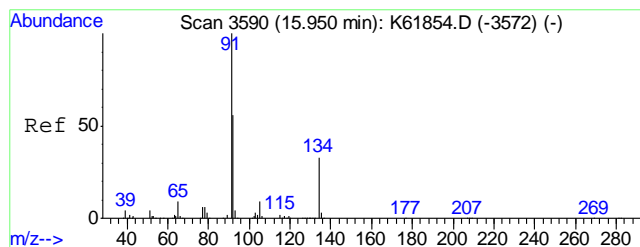
Tgt Ion	Ratio	Lower	Upper
105	100		
134	18.5	0.0	53.1



#96  
p-isopropyltoluene  
Concen: 0.63 ug/kg  
RT: 15.457 min Scan# 3450  
Delta R.T. 0.000 min  
Lab File: k89491.D  
Acq: 9 Jul 2015 3:18 pm

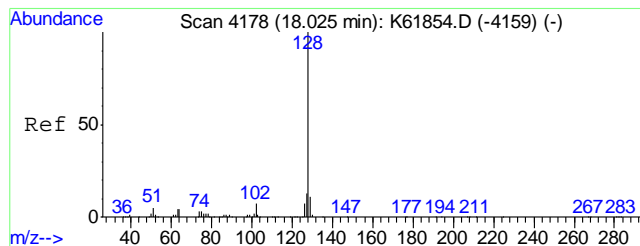
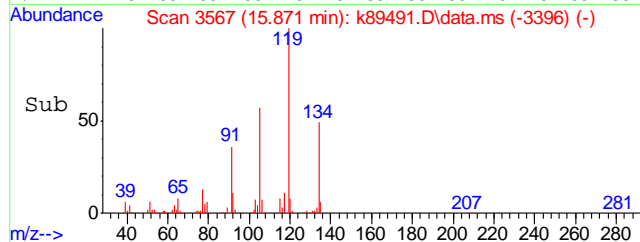
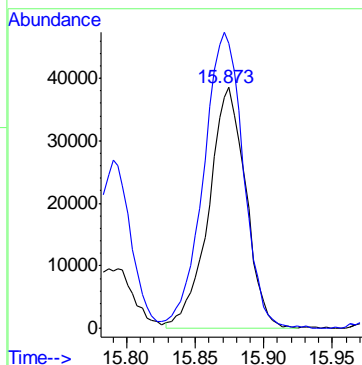
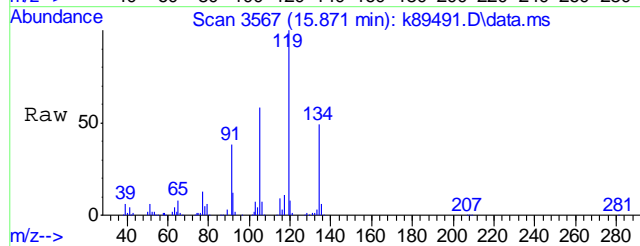
Tgt Ion	Ratio	Lower	Upper
119	100		
134	25.0	0.0	58.5
91	17.8	0.0	52.6





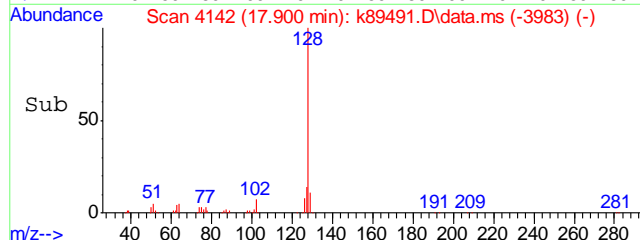
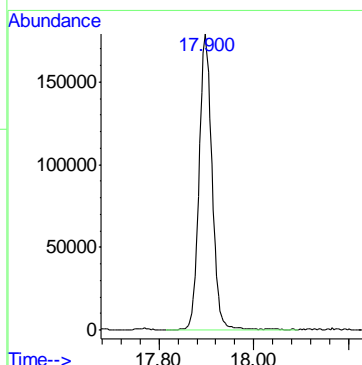
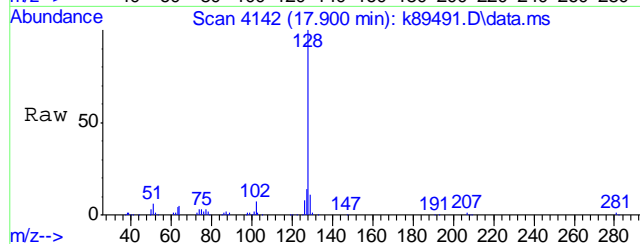
#99  
n-butylbenzene  
Concen: 11.88 ug/kg  
RT: 15.873 min Scan# 3567  
Delta R.T. -0.004 min  
Lab File: k89491.D  
Acq: 9 Jul 2015 3:18 pm

Tgt Ion: 91 Resp: 72347  
Ion Ratio Lower Upper  
91 100  
134 127.3 6.9 66.9#

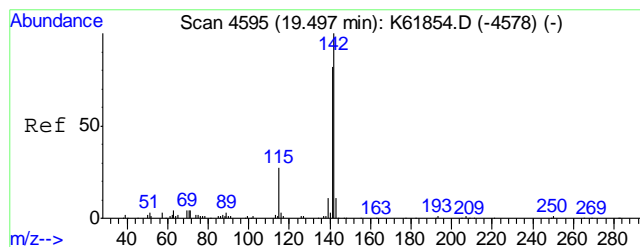


#104  
naphthalene  
Concen: 52.56 ug/kg  
RT: 17.900 min Scan# 4142  
Delta R.T. 0.000 min  
Lab File: k89491.D  
Acq: 9 Jul 2015 3:18 pm

Tgt Ion: 128 Resp: 339023

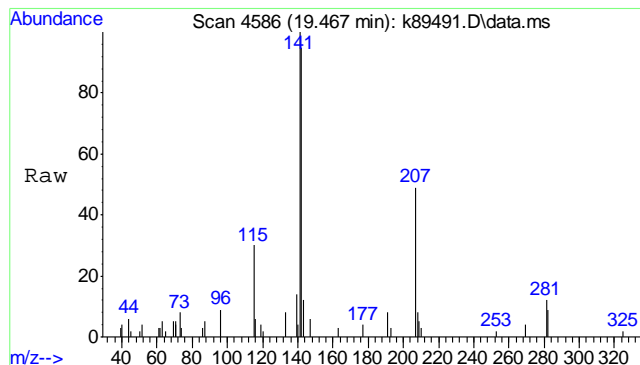
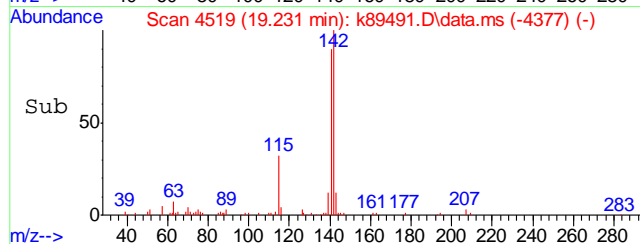
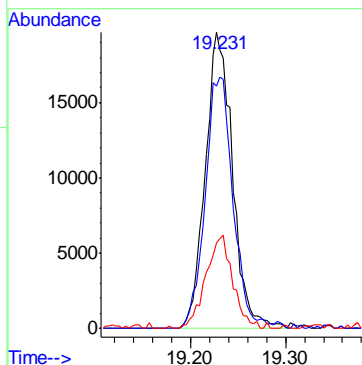
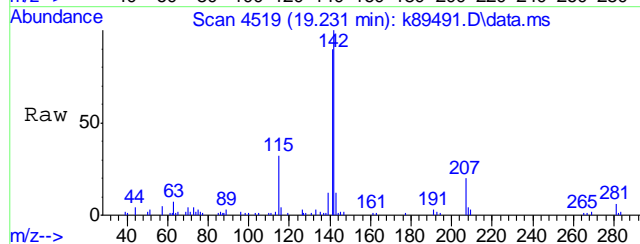


14.1.1  
14



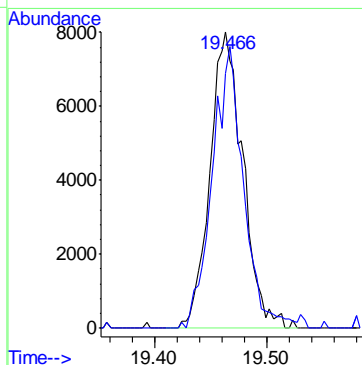
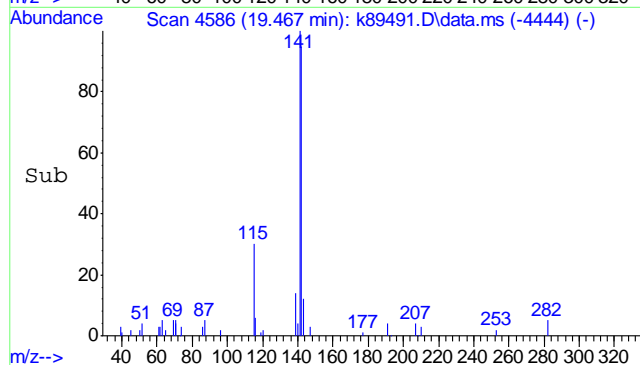
#106  
2-methylnaphthalene  
Concen: 25.26 ug/kg  
RT: 19.231 min Scan# 4519  
Delta R.T. 0.000 min  
Lab File: k89491.D  
Acq: 9 Jul 2015 3:18 pm

Tgt Ion	Ratio	Lower	Upper
142	100		
141	87.0	68.8	103.2
115	31.3	29.8	44.6



#107  
1-methylnaphthalene  
Concen: 14.62 ug/kg  
RT: 19.466 min Scan# 4586  
Delta R.T. -0.001 min  
Lab File: k89491.D  
Acq: 9 Jul 2015 3:18 pm

Tgt Ion	Ratio	Lower	Upper
142	100		
141	90.7	21.0	31.6#



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\150709\  
Data File : k89492.D  
Acq On : 9 Jul 2015 3:46 pm  
Operator : krystend  
Sample : d72443-2  
Misc : ms34793,msk2778,10.739,,100,10,1  
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jul 10 09:34:29 2015  
Quant Method : C:\msdchem\1\methods\K150708S.M  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Jul 09 09:39:55 2015  
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert butyl alcohol-d9	6.421	65	52605	500.00	ug/kg	# 0.00
4) pentafluorobenzene	8.771	168	146613	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.616	114	212302	50.00	ug/kg	0.00
67) chlorobenzene-d5	12.872	82	90742	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.428	152	136003	50.00	ug/kg	0.00
System Monitoring Compounds						
41) dibromofluoromethane (s)	8.400	113	75083	50.37	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery	=	100.74%	
61) toluene-d8 (s)	11.408	98	235298	48.64	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery	=	97.28%	
84) bromofluorobenzene (s)	14.090	95	95555	49.40	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery	=	98.80%	
Target Compounds						
						Qvalue
93) 1,2,4-trimethylbenzene	15.164	105	1187	0.16	ug/kg	92
99) n-butylbenzene	15.873	91	12122	1.88	ug/kg#	1
104) naphthalene	17.901	128	34107	5.00	ug/kg	100
106) 2-methylnaphthalene	19.230	142	4178	2.55	ug/kg	91
107) 1-methylnaphthalene	19.465	142	2005	1.69	ug/kg#	1

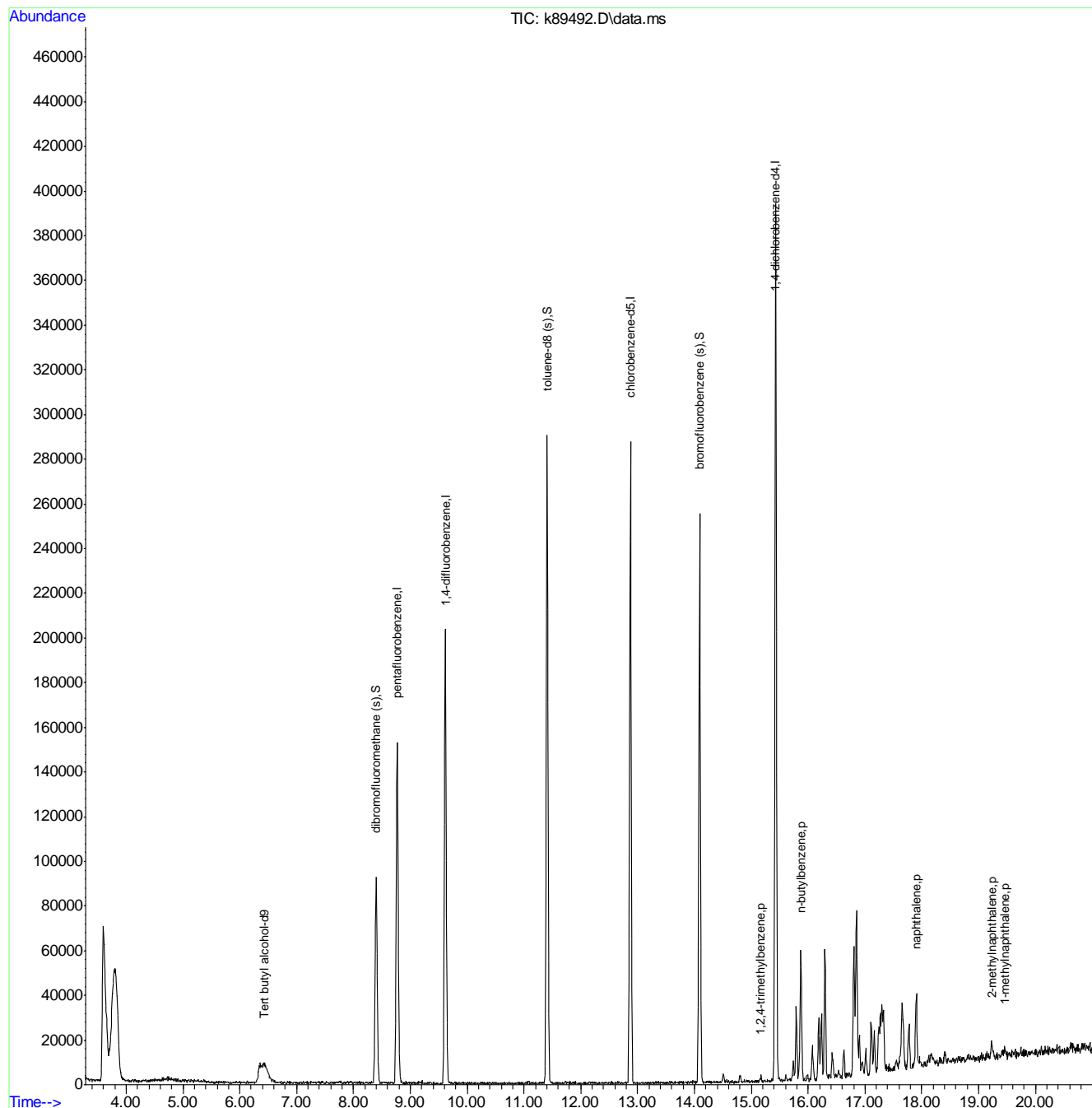
(#) = qualifier out of range (m) = manual integration (+) = signals summed

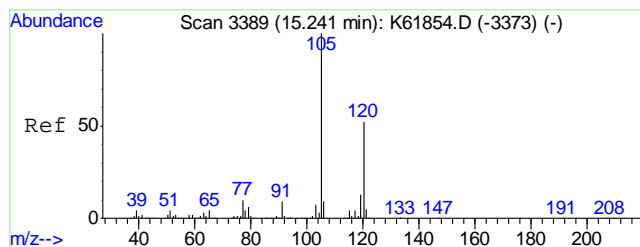
14.1.2  
14

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\150709\  
Data File : k89492.D  
Acq On : 9 Jul 2015 3:46 pm  
Operator : krystend  
Sample : d72443-2  
Misc : ms34793,msk2778,10.739,,100,10,1  
ALS Vial : 14 Sample Multiplier: 1

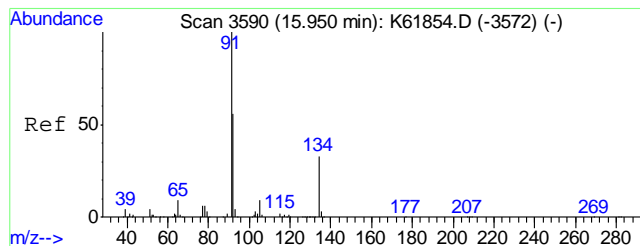
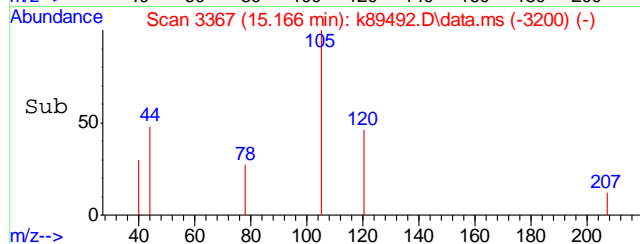
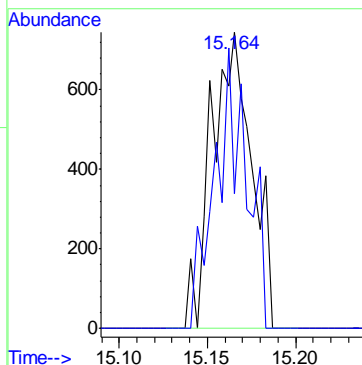
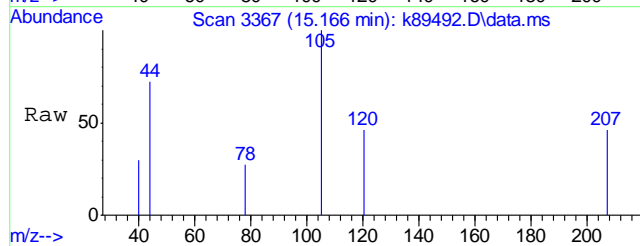
Quant Time: Jul 10 09:34:29 2015  
Quant Method : C:\msdchem\1\methods\K150708S.M  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Jul 09 09:39:55 2015  
Response via : Initial Calibration





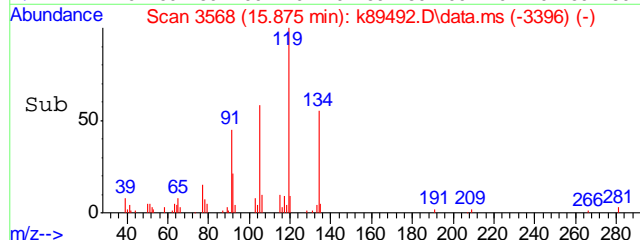
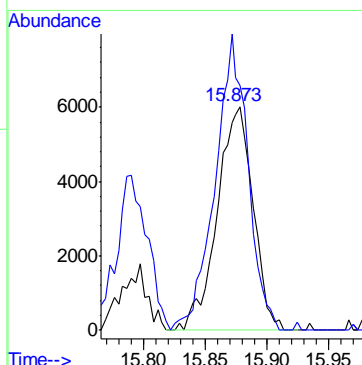
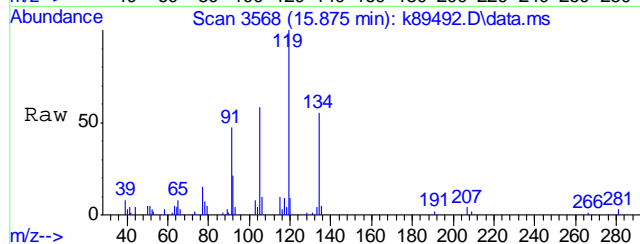
#93  
1,2,4-trimethylbenzene  
Concen: 0.16 ug/kg  
RT: 15.164 min Scan# 3367  
Delta R.T. -0.001 min  
Lab File: k89492.D  
Acq: 9 Jul 2015 3:46 pm

Tgt Ion: 105 Resp: 1187  
Ion Ratio Lower Upper  
105 100  
120 45.5 10.8 70.8

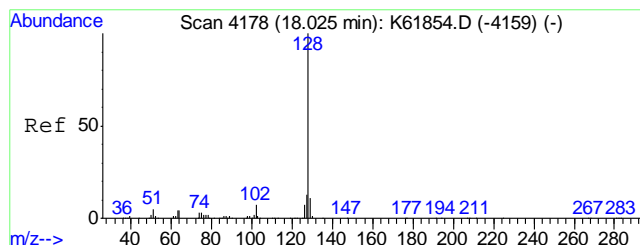


#99  
n-butylbenzene  
Concen: 1.88 ug/kg  
RT: 15.873 min Scan# 3568  
Delta R.T. -0.004 min  
Lab File: k89492.D  
Acq: 9 Jul 2015 3:46 pm

Tgt Ion: 91 Resp: 12122  
Ion Ratio Lower Upper  
91 100  
134 113.5 6.9 66.9#

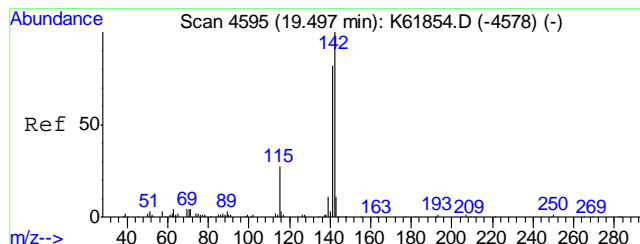
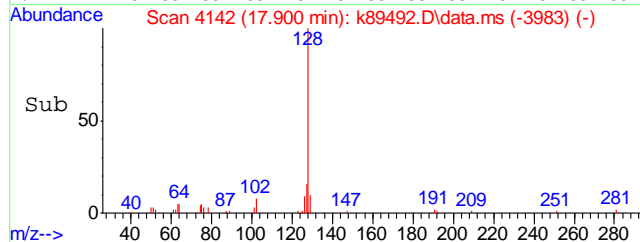
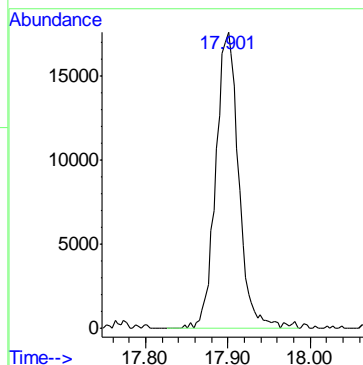
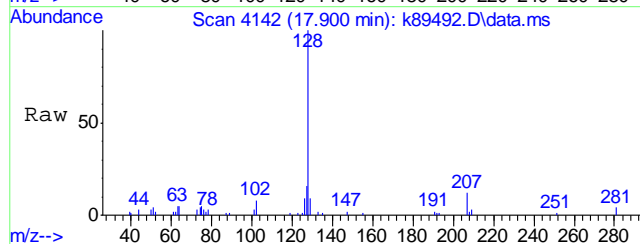






#104  
naphthalene  
Concen: 5.00 ug/kg  
RT: 17.901 min Scan# 4142  
Delta R.T. 0.001 min  
Lab File: k89492.D  
Acq: 9 Jul 2015 3:46 pm

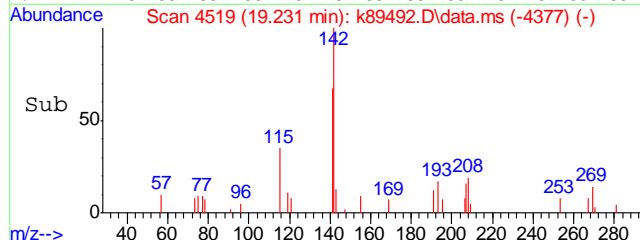
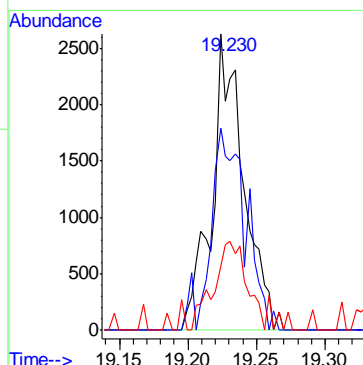
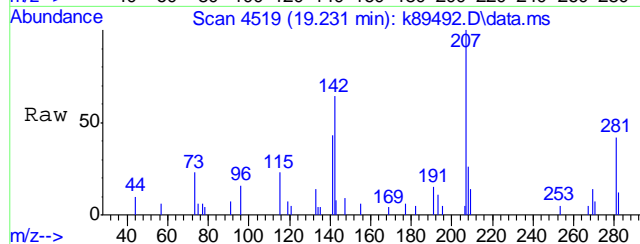
Tgt Ion:128 Resp: 34107

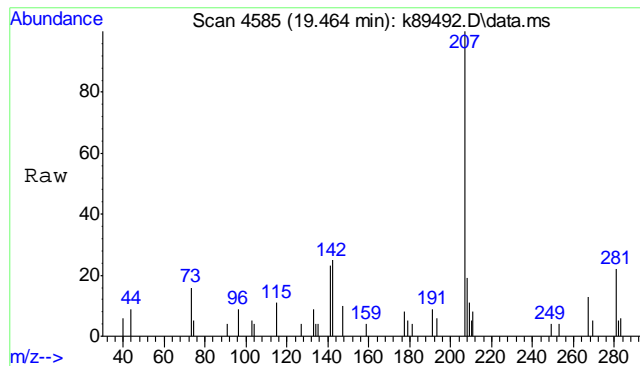


#106  
2-methylnaphthalene  
Concen: 2.55 ug/kg  
RT: 19.230 min Scan# 4519  
Delta R.T. -0.001 min  
Lab File: k89492.D  
Acq: 9 Jul 2015 3:46 pm

Tgt Ion:142 Resp: 4178

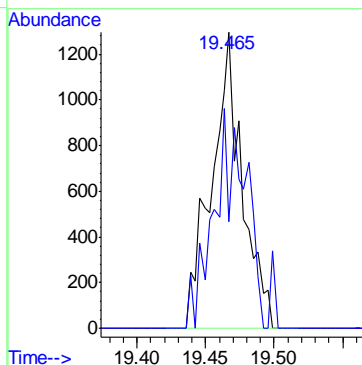
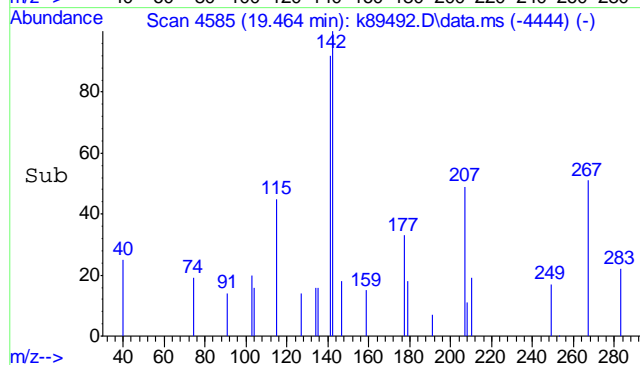
Ion	Ratio	Lower	Upper
142	100		
141	75.0	68.8	103.2
115	38.0	29.8	44.6





#107  
 1-methylnaphthalene  
 Concen: 1.69 ug/kg  
 RT: 19.465 min Scan# 4585  
 Delta R.T. -0.002 min  
 Lab File: k89492.D  
 Acq: 9 Jul 2015 3:46 pm

Tgt Ion:142 Resp: 2005  
 Ion Ratio Lower Upper  
 142 100  
 141 80.9 21.0 31.6#



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\150709\  
 Data File : k89493.D  
 Acq On : 9 Jul 2015 4:14 pm  
 Operator : krystend  
 Sample : d72443-3  
 Misc : ms34793,msk2778,10.528,,100,10,1  
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jul 10 09:35:30 2015  
 Quant Method : C:\msdchem\1\methods\K150708S.M  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Jul 09 09:39:55 2015  
 Response via : Initial Calibration

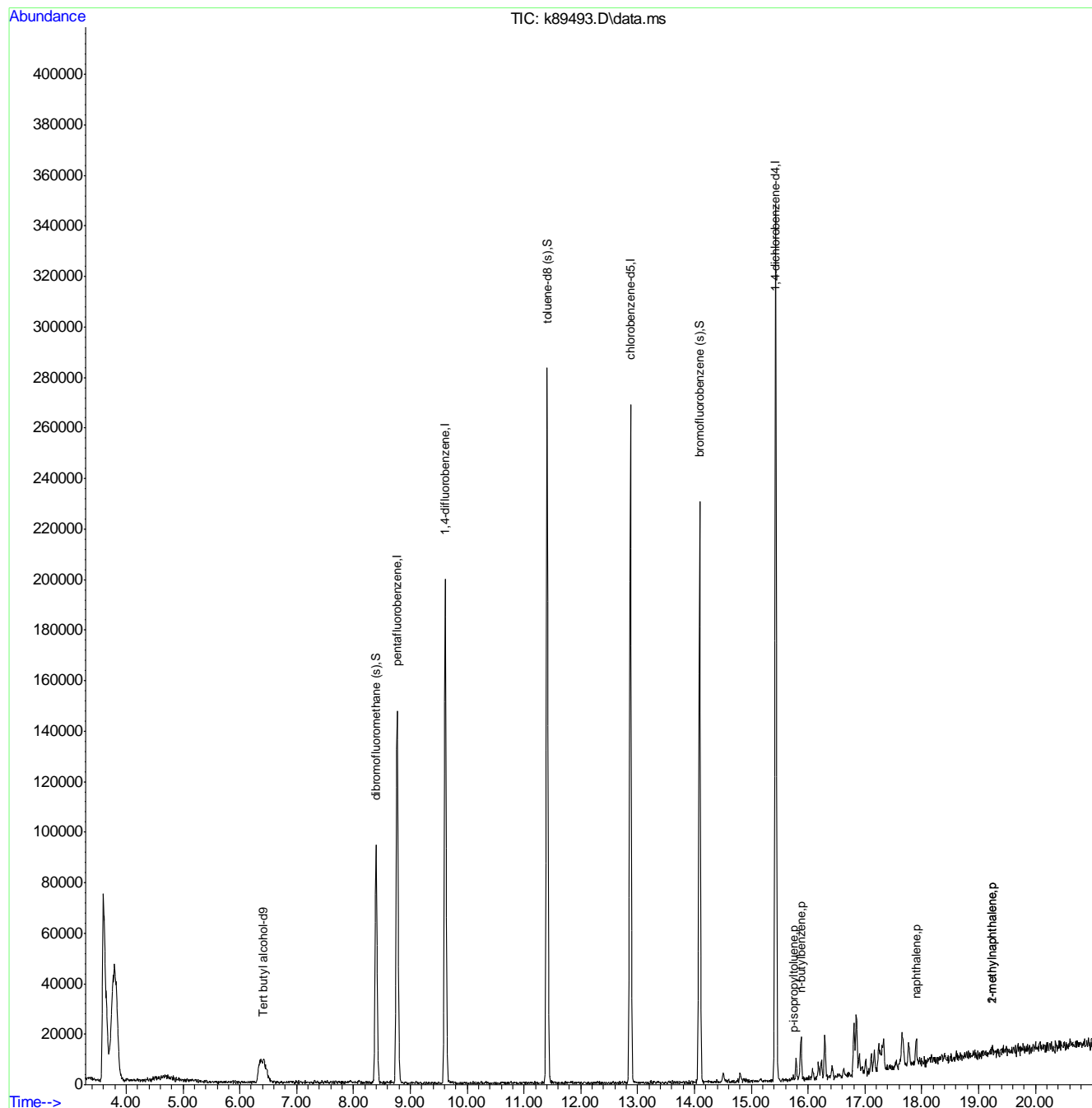
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert butyl alcohol-d9	6.408	65	48545	500.00	ug/kg	# 0.00
4) pentafluorobenzene	8.769	168	139563	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.616	114	204644	50.00	ug/kg	0.00
67) chlorobenzene-d5	12.871	82	83906	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.427	152	118919	50.00	ug/kg	0.00
System Monitoring Compounds						
41) dibromofluoromethane (s)	8.399	113	76054	53.60	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	107.20%		
61) toluene-d8 (s)	11.407	98	221611	47.53	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	95.06%		
84) bromofluorobenzene (s)	14.089	95	85337	50.45	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	100.90%		
Target Compounds						
					Qvalue	
96) p-isopropyltoluene	15.740	119	1003	0.15	ug/kg	68
99) n-butylbenzene	15.874	91	3424	0.61	ug/kg#	1
104) naphthalene	17.899	128	9785	1.64	ug/kg	100
106) 2-methylnaphthalene	19.231	142	851	0.59	ug/kg#	72
107) 1-methylnaphthalene	19.231	142	851	0.82	ug/kg#	1

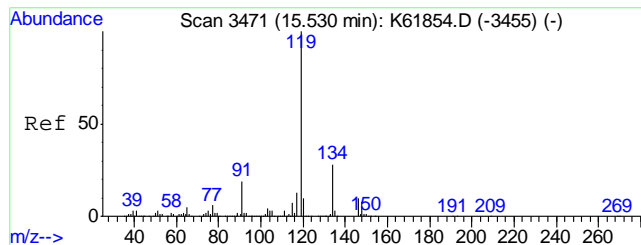
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\150709\  
Data File : k89493.D  
Acq On : 9 Jul 2015 4:14 pm  
Operator : krystend  
Sample : d72443-3  
Misc : ms34793,msk2778,10.528,,100,10,1  
ALS Vial : 15 Sample Multiplier: 1

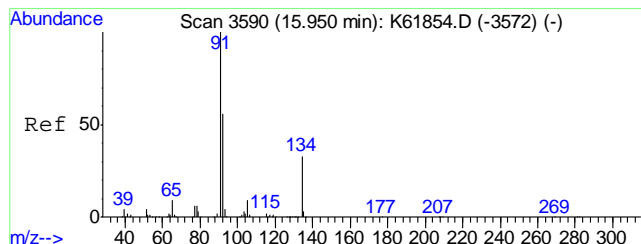
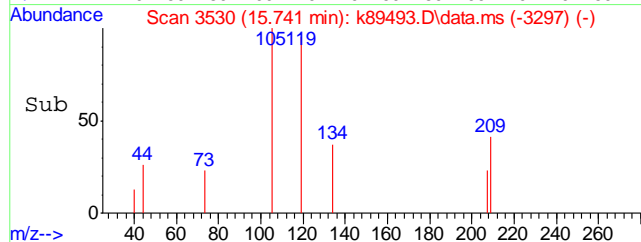
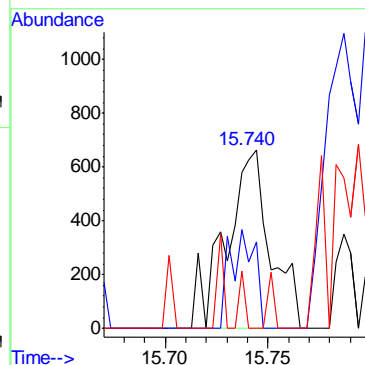
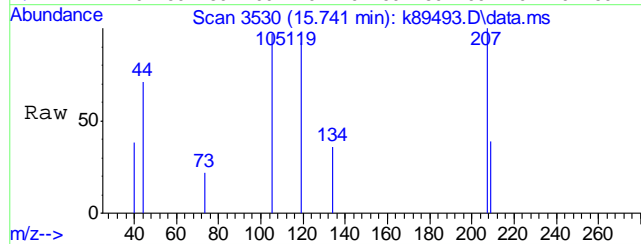
Quant Time: Jul 10 09:35:30 2015  
Quant Method : C:\msdchem\1\methods\K150708S.M  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Jul 09 09:39:55 2015  
Response via : Initial Calibration





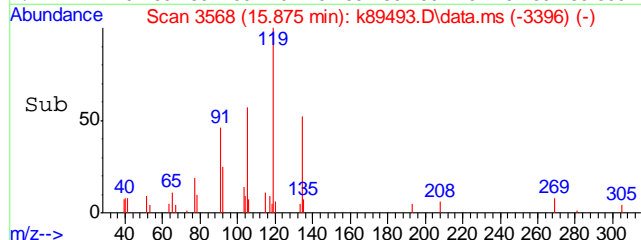
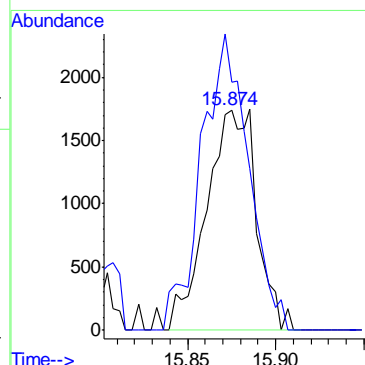
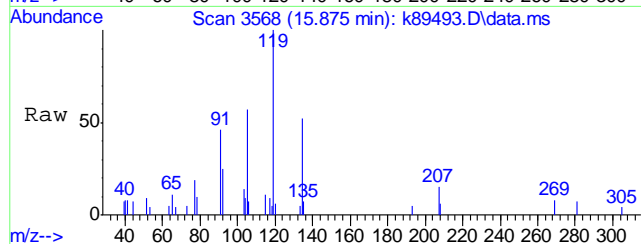
#96  
p-isopropyltoluene  
Concen: 0.15 ug/kg  
RT: 15.740 min Scan# 3530  
Delta R.T. 0.283 min  
Lab File: k89493.D  
Acq: 9 Jul 2015 4:14 pm

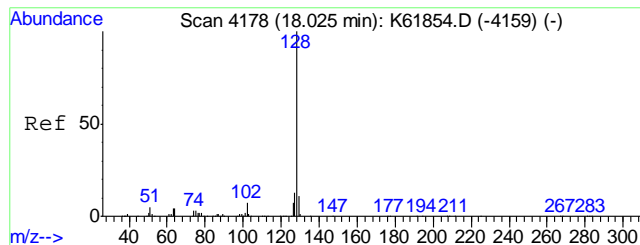
Tgt Ion:	119	Resp:	1003
Ion Ratio	Lower	Upper	
119	100		
134	39.4	0.0	58.5
91	0.0	0.0	52.6



#99  
n-butylbenzene  
Concen: 0.61 ug/kg  
RT: 15.874 min Scan# 3568  
Delta R.T. -0.003 min  
Lab File: k89493.D  
Acq: 9 Jul 2015 4:14 pm

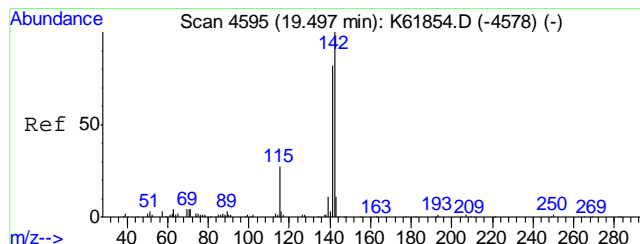
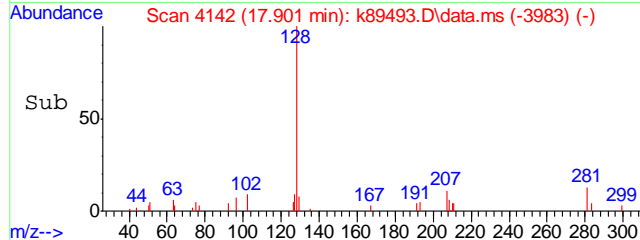
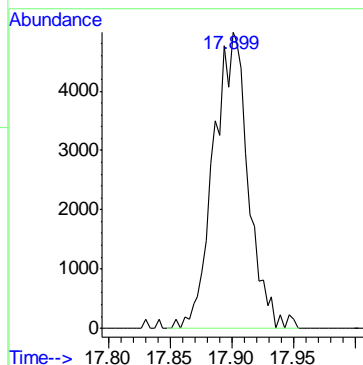
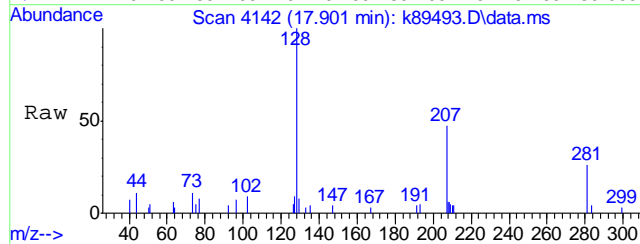
Tgt Ion:	91	Resp:	3424
Ion Ratio	Lower	Upper	
91	100		
134	112.9	6.9	66.9#





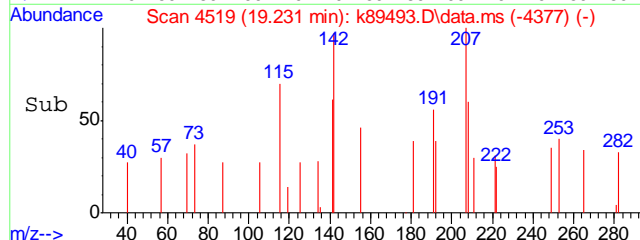
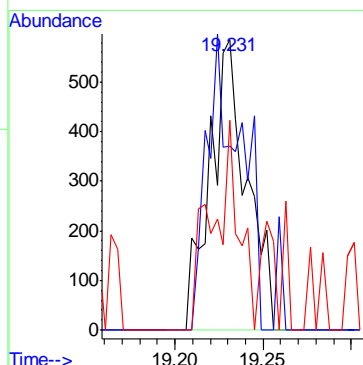
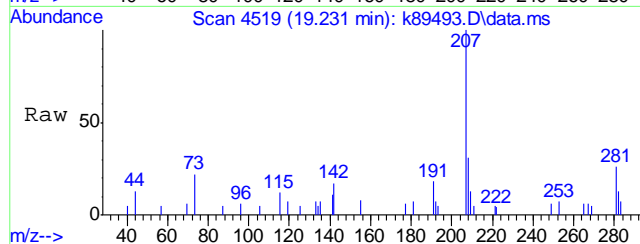
#104  
naphthalene  
Concen: 1.64 ug/kg  
RT: 17.899 min Scan# 4142  
Delta R.T. -0.001 min  
Lab File: k89493.D  
Acq: 9 Jul 2015 4:14 pm

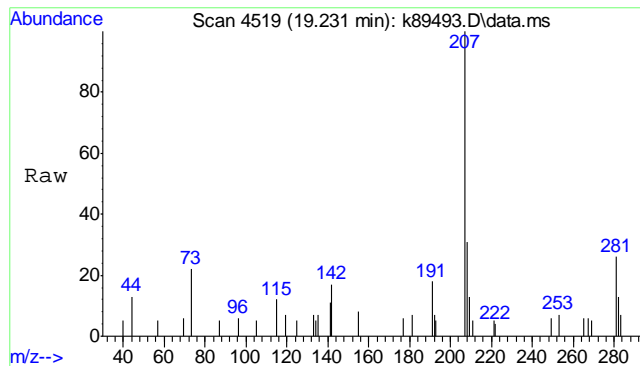
Tgt Ion:128 Resp: 9785



#106  
2-methylnaphthalene  
Concen: 0.59 ug/kg  
RT: 19.231 min Scan# 4519  
Delta R.T. -0.000 min  
Lab File: k89493.D  
Acq: 9 Jul 2015 4:14 pm

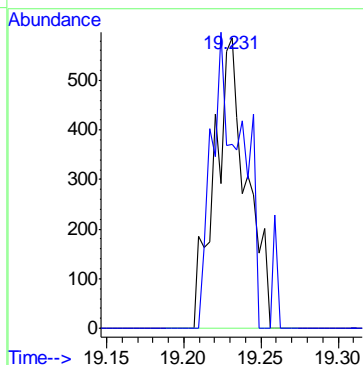
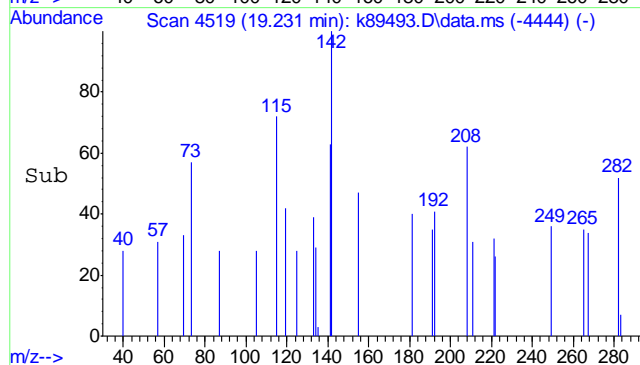
Tgt Ion:142 Resp: 851  
Ion Ratio Lower Upper  
142 100  
141 99.3 68.8 103.2  
115 72.0 29.8 44.6#





#107  
 1-methylnaphthalene  
 Concen: 0.82 ug/kg  
 RT: 19.231 min Scan# 4519  
 Delta R.T. -0.236 min  
 Lab File: k89493.D  
 Acq: 9 Jul 2015 4:14 pm

Tgt Ion:142 Resp: 851  
 Ion Ratio Lower Upper  
 142 100  
 141 99.3 21.0 31.6#



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\150709\  
Data File : k89494.D  
Acq On : 9 Jul 2015 4:41 pm  
Operator : krystend  
Sample : d72443-4  
Misc : ms34793,msk2778,10.479,,100,10,1  
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jul 10 09:36:57 2015  
Quant Method : C:\msdchem\1\methods\K150708S.M  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Jul 09 09:39:55 2015  
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert butyl alcohol-d9	6.410	65	45267m	500.00	ug/kg	0.00
4) pentafluorobenzene	8.769	168	136610	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.615	114	197310	50.00	ug/kg	0.00
67) chlorobenzene-d5	12.871	82	86607	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.428	152	129424	50.00	ug/kg	0.00
System Monitoring Compounds						
41) dibromofluoromethane (s)	8.398	113	71131	51.21	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	102.42%		
61) toluene-d8 (s)	11.407	98	220722	49.10	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	98.20%		
84) bromofluorobenzene (s)	14.089	95	89465	48.60	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	97.20%		
Target Compounds						
99) n-butylbenzene	15.874	91	1472	0.24	ug/kg#	1
104) naphthalene	17.901	128	3605	0.55	ug/kg	100

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

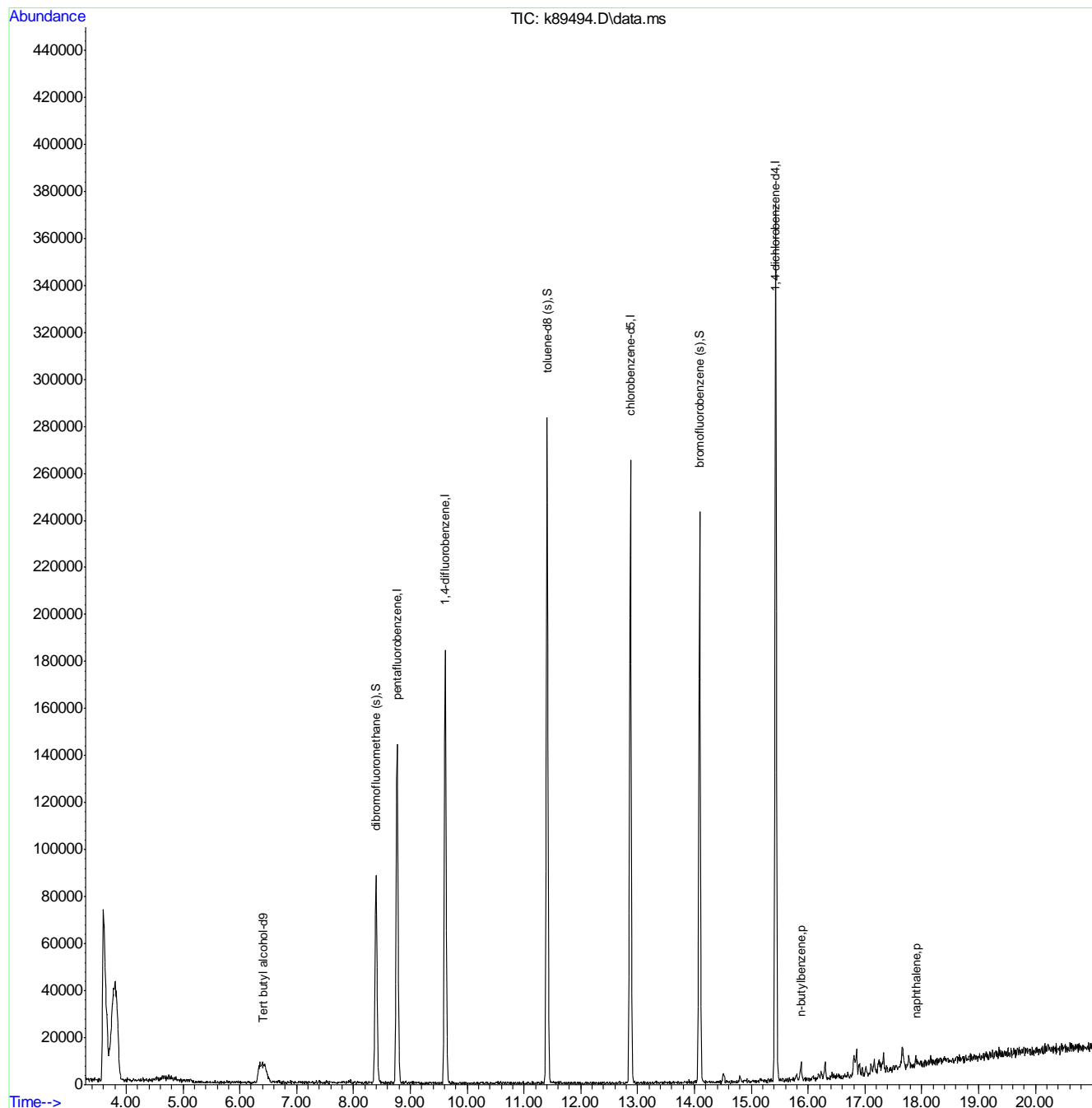
14.1.4  
14

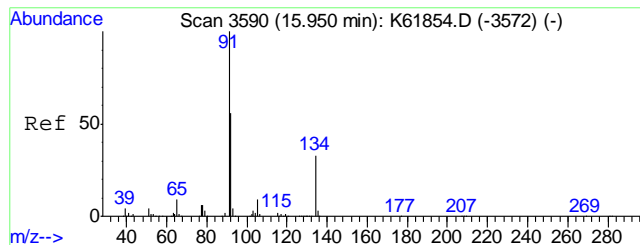


## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\150709\  
Data File : k89494.D  
Acq On : 9 Jul 2015 4:41 pm  
Operator : krystend  
Sample : d72443-4  
Misc : ms34793,msk2778,10.479,,100,10,1  
ALS Vial : 16 Sample Multiplier: 1

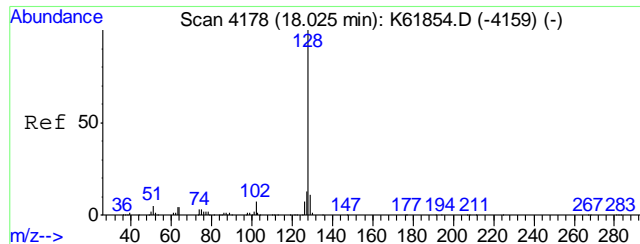
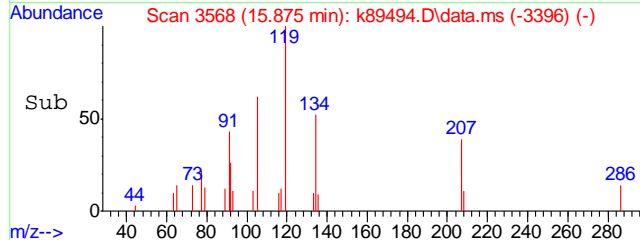
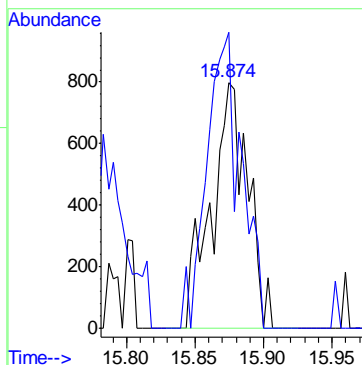
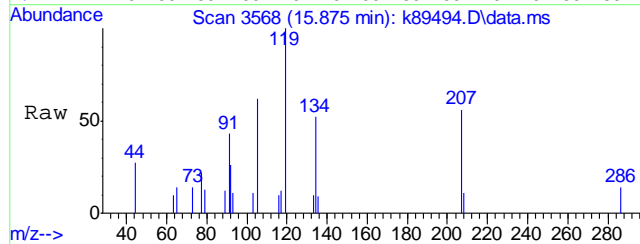
Quant Time: Jul 10 09:36:57 2015  
Quant Method : C:\msdchem\1\methods\K150708S.M  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Jul 09 09:39:55 2015  
Response via : Initial Calibration





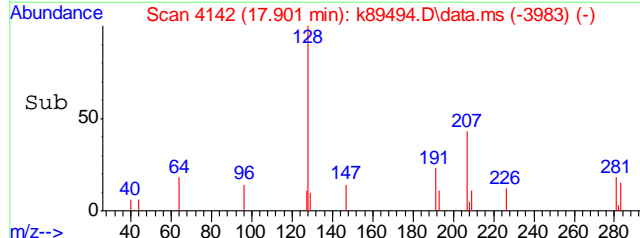
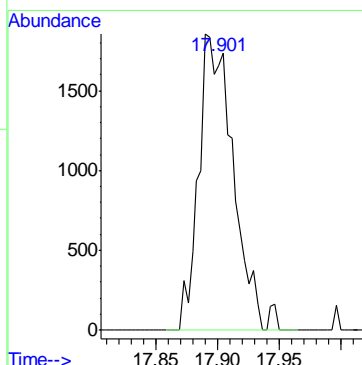
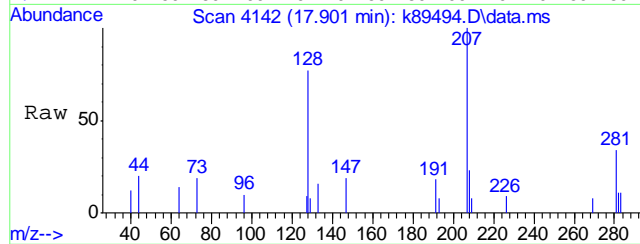
#99  
n-butylbenzene  
Concen: 0.24 ug/kg  
RT: 15.874 min Scan# 3568  
Delta R.T. -0.003 min  
Lab File: k89494.D  
Acq: 9 Jul 2015 4:41 pm

Tgt Ion: 91 Resp: 1472  
Ion Ratio Lower Upper  
91 100  
134 120.4 6.9 66.9#



#104  
naphthalene  
Concen: 0.55 ug/kg  
RT: 17.901 min Scan# 4142  
Delta R.T. 0.001 min  
Lab File: k89494.D  
Acq: 9 Jul 2015 4:41 pm

Tgt Ion: 128 Resp: 3605



14.1.4  
14

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\150709\  
Data File : k89485.D  
Acq On : 9 Jul 2015 12:33 pm  
Operator : krystend  
Sample : mb  
Misc : ms34782,msk2778,10,,100,10,1  
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 09 17:30:28 2015  
Quant Method : C:\msdchem\1\methods\K150708S.M  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Jul 09 09:39:55 2015  
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert butyl alcohol-d9	6.388	65	58629	500.00	ug/kg	#-0.03
4) pentafluorobenzene	8.772	168	142697	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.618	114	205925	50.00	ug/kg	0.00
67) chlorobenzene-d5	12.872	82	86568	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.428	152	123137	50.00	ug/kg	0.00
System Monitoring Compounds						
41) dibromofluoromethane (s)	8.401	113	76315	52.60	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	105.20%		
61) toluene-d8 (s)	11.408	98	227573	48.50	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	97.00%		
84) bromofluorobenzene (s)	14.089	95	88956	50.79	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery =	101.58%		

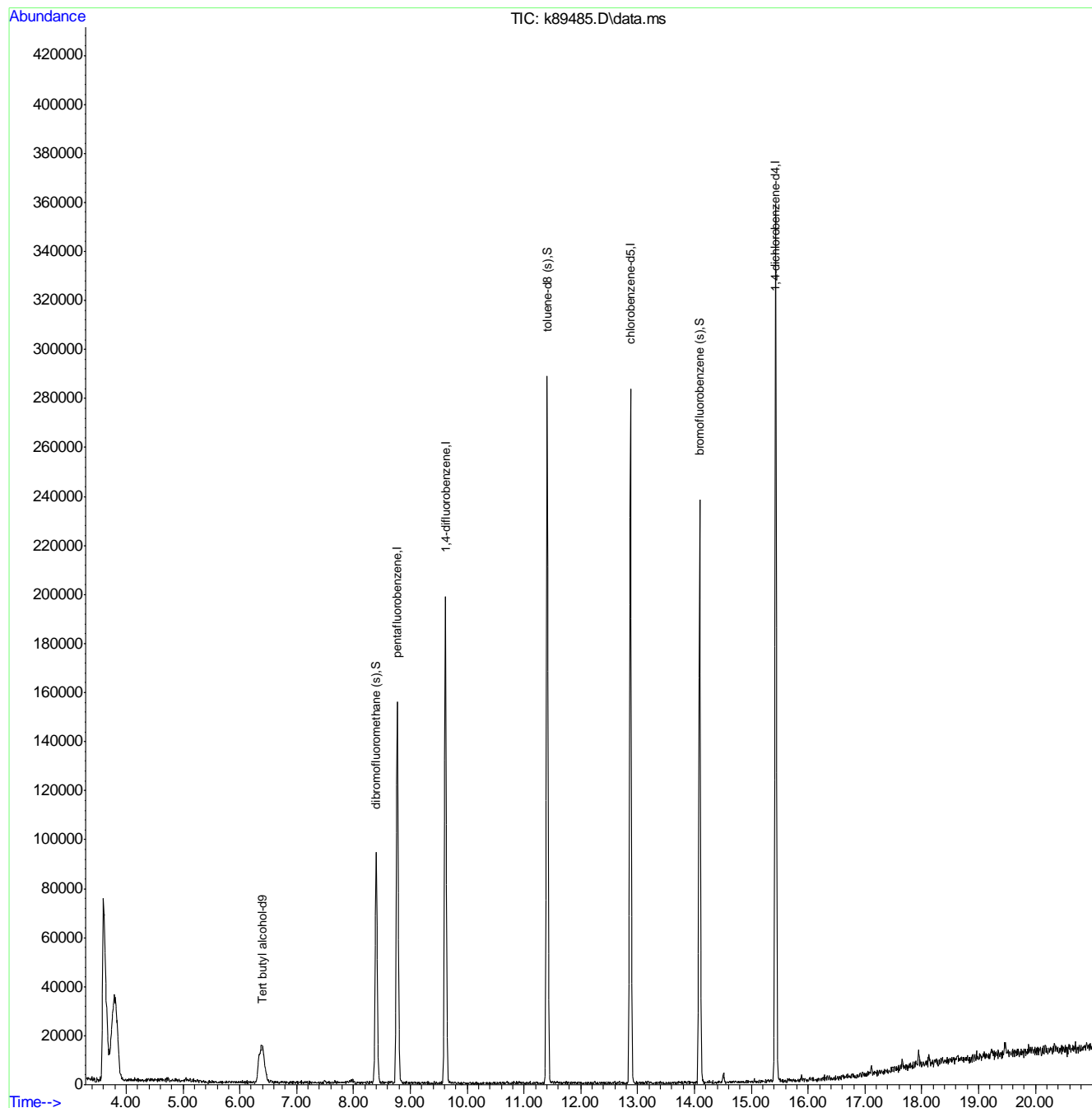
Target Compounds Qvalue

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

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\150709\  
Data File : k89485.D  
Acq On : 9 Jul 2015 12:33 pm  
Operator : krystend  
Sample : mb  
Misc : ms34782,msk2778,10,,100,10,1  
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 09 17:30:28 2015  
Quant Method : C:\msdchem\1\methods\K150708S.M  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Jul 09 09:39:55 2015  
Response via : Initial Calibration



## **Appendix D: Soil Manifests**





KAUFFMAN WELL SERVICE, INC.

TICKET  
NUMBER

120065

10137 WELD COUNTY ROAD  
FORT LUPTON, COLORADO 80221Customer KPK

Address \_\_\_\_\_

Date 2-26-08Lease Facility Well No. #8Customer  
P.O. No. \_\_\_\_\_Contractor  
Job No. \_\_\_\_\_

FROM	TO	HOURS	WORK PERFORMED	TOTAL AMOUNT
7	3	8	we went to location and we dig out contaminated soil and Potosi Plastic on location and load in truck 1 load	

EMPLOYEES TIME	HOURS	RATE	AMOUNT	EQUIPMENT	UNIT No.	HOURS	RATE	AMOUNT
Operator Foreman <u>Pascual</u>	8	45 <sup>00</sup>	360 <sup>00</sup>	Pickup	473	8	40 <sup>00</sup>	320 <sup>00</sup>
Helper <u>Pedro</u>	8	35 <sup>00</sup>	280 <sup>00</sup>	Truck ( ) Ton				
<u>Robert</u>	8	35 <sup>00</sup>	280 <sup>00</sup>	Trailer				
<u>Roy</u>	8	35 <sup>00</sup>	280 <sup>00</sup>	Backhoe	475	8	90 <sup>00</sup>	720 <sup>00</sup>
				Trackhoe				
TOTALS			1200 <sup>00</sup>	Winch Truck				

MATERIALS BOUGHT OUT	AMOUNT	
<u>150</u>		Bobtail Water Truck (80 bbls)
<u>38</u>		Transport (150 bbls)
		Dozer ( )
		Hot Oil Truck
<u>1500 / 930</u>		Blade <u>Ed. Holt</u> 2220 <sup>00</sup>
TOTAL		Dump Truck <u>5%</u> 114 <sup>00</sup>

Approved \_\_\_\_\_

FOR CUSTOMER

Approved \_\_\_\_\_

FOR CONTRACTOR

TOTAL TICKET AMOUNT

2374<sup>00</sup>







KAUFFMAN WELL SERVICE, INC.

TICKET  
NUMBER

120067

10137 WELD COUNTY ROAD  
FORT LUPTON, COLORADO 80221Customer KPK

Address \_\_\_\_\_

Date 7-2-09Lease Facility Well No. 7' 8Customer  
P.O. No. \_\_\_\_\_Contractor  
Job No. \_\_\_\_\_

FROM	TO	HOURS	WORK PERFORMED	TOTAL AMOUNT
7	11	4	We went to location and load up contaminated soil load on truck 4 load	

EMPLOYEES TIME		HOURS	RATE	AMOUNT	EQUIPMENT	UNIT No.	HOURS	RATE	AMOUNT
Operator	Foreman	4	45 <sup>00</sup>	180 <sup>00</sup>	Pickup	473	4	40 <sup>00</sup>	160 <sup>00</sup>
Helper		4	35 <sup>00</sup>	140 <sup>00</sup>	Truck ( ) Ton				
		4	35 <sup>00</sup>	140 <sup>00</sup>	Trailer				
					Backhoe	475	4	90 <sup>00</sup>	360 <sup>00</sup>
					Trackhoe				
TOTALS				460 <sup>00</sup>	Winch Truck				

MATERIALS BOUGHT OUT		AMOUNT	
			Bobtail Water Truck (80 bbls)
			Transport (150 bbls)
			Dozer ( )
			Hot Oil Truck
			Blade
			Dump Truck
TOTAL			

Approved \_\_\_\_\_

FOR CUSTOMER

Approved \_\_\_\_\_

FOR CONTRACTOR

TOTAL TICKET AMOUNT

1027



KAUFFMAN WELL SERVICE, INC.

TICKET  
NUMBER 12424610137 WELD COUNTY ROAD  
FORT LUPTON, COLORADO 80221Customer KPKAddress Fac 8Date 7/30/09Lease Dunberger

Well No. \_\_\_\_\_

Customer  
P.O. No. \_\_\_\_\_Contractor  
Job No. \_\_\_\_\_

FROM	TO	HOURS	WORK PERFORMED	TOTAL AMOUNT
7A	11A	4	Loaded containers but soil to be hauled off to dumps	

EMPLOYEES TIME	HOURS	RATE	AMOUNT	EQUIPMENT	UNIT No.	HOURS	RATE	AMOUNT
Operator				Pickup				
Foreman <u>John Herman</u>				Truck ( ) Ton				
Helper				Trailer				
				Backhoe loader	410	4	100	400
				Trackhoe				
TOTALS				Winch Truck				

MATERIALS BOUGHT OUT	AMOUNT	
		Bobtail Water Truck (80 bbls)
<u>150</u>		Transport (150 bbls)
<u>38</u>		Dozer ( )
		Hot Oil Truck
<u>1500</u>	<u>930</u>	Blade
TOTAL		Dump Truck

Approved \_\_\_\_\_

FOR CUSTOMER

Approved \_\_\_\_\_

FOR CONTRACTOR

TOTAL TICKET AMOUNT

420 00

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>N / A</b>		2. Page 1 of <b>1</b>	3. Emergency Response Phone <b>(800) 424-9300</b>		4. Waste Tracking Number <b>133376</b>		
5. Generator's Name and Mailing Address <b>K.P. KAUFFMAN CO., INC 10137 WCR 19 FORT LUPTON CO 80621</b>					Generator's Site Address (if different than mailing address)				
Generator's Phone: <b>(303) 833-5670</b>									
6. Transporter 1 Company Name					U.S. EPA ID Number				
7. Transporter 2 Company Name					U.S. EPA ID Number				
8. Designated Facility Name and Site Address <b>Buffalo Ridge Landfill 11655 WCR 59 Keenesburg CO 80643</b>					U.S. EPA ID Number				
Facility's Phone: <b>(303) 732-0218</b>									
9. Waste Shipping Name and Description					10. Containers		11. Total Quantity	12. Unit Wt./Vol.	
					No.	Type			
1. <b>NON REGULATED SOLID (PETROLEUM CONTAMINATED SOIL)</b>  <b>11391500</b>							<b>11.28 + on</b>	<b>NONE</b>	
2. <b>PAC #8</b>									
3.									
4.									
13. Special Handling Instructions and Additional Information <b>Customer Acct #: BR 305 Customer Name: K.P. KAUFFMAN CO., INC</b> <b>Transporter 1 address &amp; phone #:</b> <b>Transporter 2 address &amp; phone #:</b>									
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and governmental regulations.									
Generator's/Offendor's Printed/Typed Name <b>Roy D. Tietze</b>					Signature <i>[Signature]</i>		Month <b>1</b>	Day <b>23</b>	Year <b>15</b>
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.					Port of entry/exit: Date leaving U.S.:				
16. Transporter Acknowledgement of Receipt of Materials									
Transporter 1 Printed/Typed Name <b>JOSE GARCIA</b>					Signature <i>[Signature]</i>		Month <b>1</b>	Day <b>23</b>	Year <b>15</b>
Transporter 2 Printed/Typed Name					Signature <i>[Signature]</i>		Month	Day	Year
17. Discrepancy									
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection									
Manifest Reference Number:									
17b. Alternate Facility (or Generator)					U.S. EPA ID Number				
Facility's Phone:									
17c. Signature of Alternate Facility (or Generator)					Month Day Year				
Landfill <input checked="" type="checkbox"/> Monofil <input type="checkbox"/> Location: <b>917955</b>									
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a									
Printed/Typed Name <b>Sony G. Hock</b>					Signature <i>[Signature]</i>		Month <b>1</b>	Day <b>23</b>	Year <b>15</b>

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>N / A</b>		2. Page 1 of <b>1</b>		3. Emergency Response Phone <b>(800) 424-9300</b>		4. Waste Tracking Number <b>136500</b>			
		5. Generator's Name and Mailing Address <b>K.P. KAUFFMAN CO., INC 10137 WCR 19 FORT LUPTON CO 80621</b>		Generator's Site Address (if different than mailing address) <b>(303) 833-5670</b>							
6. Transporter 1 Company Name		U.S. EPA ID Number									
7. Transporter 2 Company Name		U.S. EPA ID Number									
8. Designated Facility Name and Site Address <b>Buffalo Ridge Landfill 11655 WCR 59 Keenesburg CO 80643</b>		U.S. EPA ID Number									
Facility's Phone: <b>(303) 732-0218</b>											
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.						
		No.	Type								
1. <b>NON REGULATED SOLID (PETROLEUM CONTAMINATED SOIL)</b> <b>113915CO</b>						<b>NONE</b>					
2. <b>FAC # 8</b>											
3.											
4.											
13. Special Handling Instructions and Additional Information <b>Customer Acct #: BR 305 Customer Name: K.P. KAUFFMAN CO., INC</b> <b>Transporter 1 address &amp; phone #:</b> <b>Transporter 2 address &amp; phone #:</b>											
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and governmental regulations.											
Generator's/Offoror's Printed/Typed Name <b>JANET SCOTT</b>				Signature <i>Janet Scott</i>		Month <b>2</b>		Day <b>3</b>		Year <b>15</b>	
15. International Shipments		<input type="checkbox"/> Import to U.S.		<input type="checkbox"/> Export from U.S.		Port of entry/exit: Date leaving U.S.:					
16. Transporter Acknowledgement of Receipt of Materials		Transporter 1 Printed/Typed Name <b>JOSE GARCIA</b>		Signature <i>JOSE GARCIA</i>		Month <b>2</b>		Day <b>3</b>		Year <b>15</b>	
		Transporter 2 Printed/Typed Name		Signature		Month		Day		Year	
17. Discrepancy											
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection											
Manifest Reference Number:											
17b. Alternate Facility (or Generator) U.S. EPA ID Number											
Facility's Phone:											
17c. Signature of Alternate Facility (or Generator)											
<div style="display: flex; justify-content: space-between;"> <span>Landfill <input checked="" type="checkbox"/></span> <span>Monofil <input type="checkbox"/></span> <span>Location: <b>920765</b> <b>918839</b></span> </div>											
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a											
Printed/Typed Name <b>Sonya Hedrick</b>				Signature <i>Sonya Hedrick</i>		Month <b>2</b>		Day <b>3</b>		Year <b>15</b>	

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>N / A</b>		2. Page 1 of <b>1</b>	3. Emergency Response Phone <b>(800) 424-9300</b>	4. Waste Tracking Number <b>133368</b>		
		5. Generator's Name and Mailing Address <b>K.P. KAUFFMAN CO., INC 10137 WCR 19 FORT LUPTON CO 80621</b> Generator's Site Address (if different than mailing address) <b>(303) 833-5670</b>						
<b>GENERATOR</b>		6. Transporter 1 Company Name <b>KWS</b>				U.S. EPA ID Number		
		7. Transporter 2 Company Name				U.S. EPA ID Number		
<b>DESIGNATED FACILITY</b>		8. Designated Facility Name and Site Address <b>Buffalo Ridge Landfill 11655 WCR 59 Keenesburg CO 80643</b> Facility's Phone: <b>(303) 732-0218</b>				U.S. EPA ID Number		
<b>TRANSPORTER</b>		9. Waste Shipping Name and Description <b>1. NON REGULATED SOLID (PETROLEUM CONTAMINATED SOIL) 11391500</b>		10. Containers		11. Total Quantity	12. Unit Wt./Vol.	
				No.	Type			
								NONE
		2. <b>Mylenek FAC #5</b>						
		3.						
4.								
13. Special Handling Instructions and Additional Information <b>Customer Acct #: BR 305 Customer Name: K.P. KAUFFMAN CO., INC</b> <b>Transporter 1 address &amp; phone #:</b> <b>Transporter 2 address &amp; phone #:</b>								
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and governmental regulations.								
<b>INT'L</b>		Generator's/Offoror's Printed/Typed Name <b>Willson Teter</b>				Signature <b>Willson Teter</b>		
		Month Day Year <b>1 15 15</b>						
<b>TRANSPORTER</b>		15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____						
		16. Transporter Acknowledgement of Receipt of Materials						
		Transporter 1 Printed/Typed Name <b>JPSE 629012</b>				Signature <b>JPSE 629012</b>		
<b>DESIGNATED FACILITY</b>		Transporter 2 Printed/Typed Name				Signature		
		Month Day Year				Month Day Year		
17. Discrepancy								
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection								
Manifest Reference Number: _____								
17b. Alternate Facility (or Generator) U.S. EPA ID Number								
Facility's Phone: _____								
17c. Signature of Alternate Facility (or Generator) Month Day Year								
Landfill <input checked="" type="checkbox"/> Monofil _____ Location: <b>917350</b>								
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a								
Printed/Typed Name <b>Sonyatta Lock</b>				Signature <b>Sonyatta Lock</b>		Month Day Year <b>10 15 15</b>		