

**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



April 3, 2014

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  
Remediation Project Number: 4431  
UPRR 50 PAN AM D #5 Legacy Spill

Dear Mr. Canfield:

K.P. Kauffman Inc. (KPK) is respectfully submitting a summary of the remediation work performed due to a legacy remediation project that was initially reported as a spill on November 23, 2008. Attached is a full report and a soil sample analysis performed in 2009 and 2014 for the above mentioned project.

Due to attainment of soil cleanup standards at the Facility, KPK respectfully requests a No Further Action status for this Facility. All additional reclamation activities at the Facility will be compliant with Colorado Oil and Gas Conservation Commission (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 'Slaram', is written above the printed name of the sender.

Susana Lara-Mesa  
VP of Engineering

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## 1. INTRODUCTION

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On November 23, 2008 KPK reported a flowline leak that caused an approximately 3 barrels of oil and 4 barrels of water to spill in a pasture area of about 80 ft (length) by 6 ft (width) by 2 ft (depth). This spill was reported via Form 19 (1941138) and work was performed based on remediation plan (Form 27) submitted on March 12, 2009. Based on conversations with field personnel that were involved in the cleanup activities, the location of the legacy spill was identified and ten samples were collected 2 ft outside the backfilled area at a depth of 5 ft in order to avoid collecting clean soil samples.

It should be noted that the API number on the original Form 19 is incorrect and references a well that is unrelated to this project. Additionally, this report references Facility #2, which is the consolidation tank battery to which the subject well is connected to with the flowline that failed.

The affected area illustrated in **Appendix A** was cleanup and a total of 190 cubic yards of soil were removed from location and disposed of a Waste Management's (WM) facility in Bennett, Colorado. Given the time of the spill, either KPK or WM have physical copies of the manifests, but records of ticket numbers and volumes of soil disposed are presented in Table 1. Once the contaminated soil was removed from location, the flowline was repaired, six composite soil samples were collected and analyzed and the site was backfilled and remediated to its original condition.

In order to verify that remediation activities were performed following cleanup standards at the time of the spill, Accutest Laboratories (Accutest) was retained by KPK to perform a laboratory analysis on the collected composite soil sample at the UPRR 50 Pan Am D #1 in Weld County, Colorado (spill location). The location is just south of Weld County Road (CR) 14 and about 1,500 ft East of CR 31 near Fort Lupton, Colorado.

Date	WM Ticket	Volume
1/9/2009	NA	10 cy
1/16/2009	67734	10 cy
1/16/2009	67735	10 cy
1/29/2009	94063	10 cy
1/29/2009	94070	10 cy
1/29/2009	94066	10 cy
1/30/2009	68009	10 cy
2/5/2009	94212	10 cy
6/12/2009	94376	10 cy
2/13/2009	94422	10 cy
2/13/2009	94421	10 cy
2/13/2009	94418	10 cy
2/13/2009	94417	10 cy
2/13/2009	94430	10 cy
2/13/2009	94429	10 cy
2/13/2009	94426	10 cy
2/13/2009	94425	10 cy
2/16/2009	94436	10 cy
2/16/2009	94435	10 cy
<b>TOTAL</b>		<b>190 cy</b>

*Table 1: Soil Disposal Summary*

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## 2. FIELD ACTIVITIES

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### a. Soil Sampling

Once field screening indicated that the contaminated soil had been removed, six composite soil samples were collected from the excavation at depths ranging from surface to the bottom of the excavation at 2 feet. These samples were 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). These results are attached to Appendix C.

As described earlier, the verification sampling location was determined by interviewing current qualified staff that was involved in the cleanup activities and verified with the map submitted to the COGCC with the original Form 27 on March of 2009.

On July 24, 2014, ten soil samples were collected around the backfilled area and consolidated into one soil sample (D59686) submitted to Accutest. The samples were collected at depths of approximately 2 ft below ground surface (BGS). The soil sample location is illustrated in

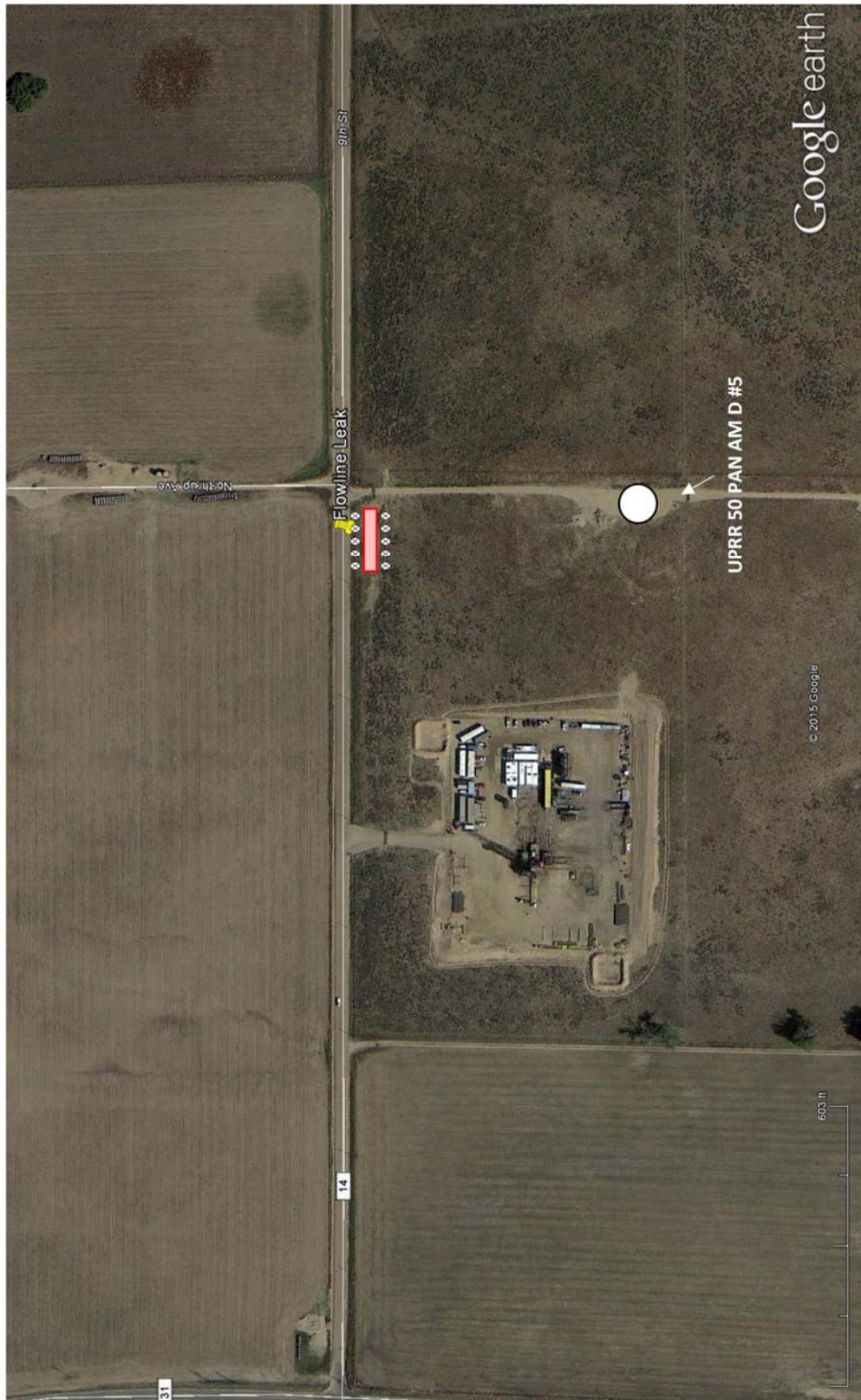
**Appendix A.** The soil sample was field screened for staining and/or discoloration. The sample did not exhibit any staining or discoloration.

Top soil was present in the excavation from the surface to a depth of 1.5 feet BGS. The top soil was underlain by sand and gravel. Groundwater was not encountered during the excavation or the sampling process.

**b. Analytical Results**

The 2009 and 2014 composite soil samples were handled with clean, new, nitrile gloves and placed in a laboratory supplied sample container and labeled. The composite samples were placed in a cooler and were delivered to Accutest under chain-of-custody documentation. The composite samples were 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) for both 2009 and 2014, and additionally for benzene, toluene, ethylbenzene, and total xylenes (BTEX) in 2014.

The laboratory results indicate the BTEX, TPH (GRO), EC, SG, SAR, and pH were not above the COGCC reporting limit based on parameters established in Table 910-1. TPH (DRO) compounds were detected in sample (D59686) at a concentration of 259 milligrams per kilogram (mg/kg). The laboratory results are summarized in



**UPRR 50 PAN AM D #5 (FACILITY #2)**

- K.P. Kauffman Company, Inc.
- Location Drawing
- Lat: 40.087205,-104.765980
- NENW 3 1N 66W 6 PM
- Weld County, Colorado



Excavation Area (300' x 6' x 6')



Wellhead



Soil Sample Point

**Appendix B.** The laboratory analytical reports and chain-of-custody forms provided by Accutest are also included in **Appendix C.**

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### **3. CONCLUSIONS AND RECOMMENDATIONS**

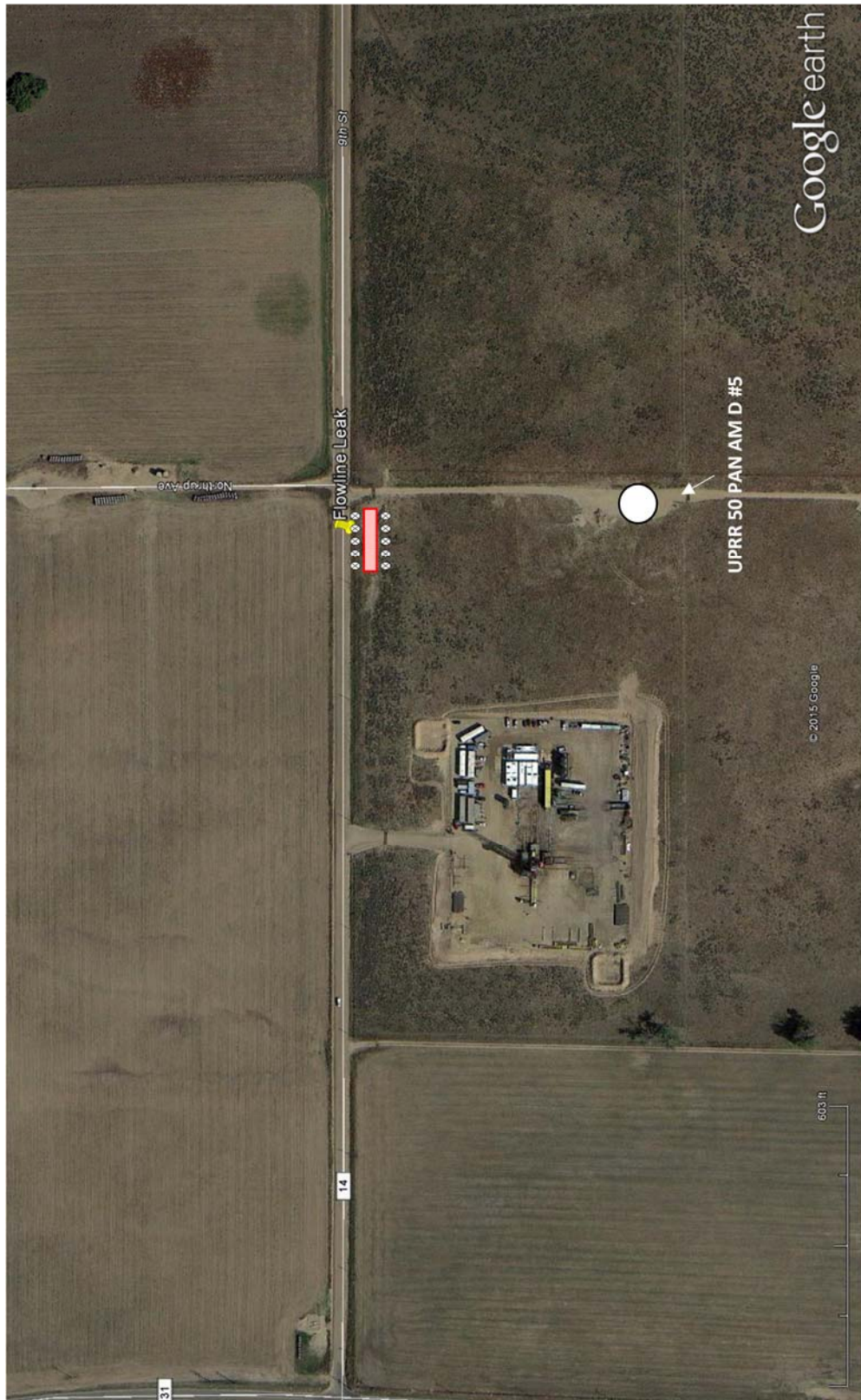
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Composite soil samples were collected from around the historical excavation located immediately south of CR 14 and 1,500 ft East of CR 31. No staining or discoloration was observed in any of the soil or in the samples collected from the around the historical excavation. The detected concentrations are below COGCC cleanup standards specified in Table 910-1.

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

## Appendix A: Soil Sampling Location





**UPRR 50 PAN AM D #5 (FACILITY #2)**

- K.P. Kauffman Company, Inc.
- Location Drawing
- Lat: 40.087205,-104.765980
- NENW 3 1N 66W 6 PM
- Weld County, Colorado



Excavation Area (300' x 6' x 6')



Wellhead



Soil Sample Point



**Appendix B: Laboratory Results Comparison 2014**

Table 910-1		
Accutest Project Number: D59686		
Concentration Levels		
Contaminant of Concern	Concentrations	Results
Organic Compounds in Soil		
TPH (total volatile and extractable petroleum hydrocarbons) - GRO (Gasoline Range Organics)	500 mg/kg	ND
TPH (total volatile and extractable petroleum hydrocarbons) - DRO (Diesel Range Organics)	500 mg/kg	259 mg/kg
Benzene	0.17 mg/kg <sup>2</sup>	ND
Toluene	85 mg/kg <sup>2</sup>	ND
Ethylbenzene	100 mg/kg <sup>2</sup>	ND
Xylenes (total)	175 mg/kg <sup>2</sup>	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)anthracene	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		
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)	< 4 mmhos/cm or 2x background	1.53 mmhos/cm
Sodium Adsorption Ratio (SAR)	< 12 <sup>5</sup>	7.28
pH	6-9	7.41
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		
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 – Not Detected

## Appendix C: Laboratory Results

**WORK ORDER Summary****Evergreen Analytical, Inc.****09-0825****Rpt To:** Ray Gorka**Email To:** rgorka@kpk.com

K.P.Kauffman

1675 Broadway, Suite 2800

Denver, CO 80202

(303) 825-4822

2/6/2009 4:04:13 PM

**Client Project ID:** Fac. 2**QC Level:** Level I**Comments**

<b>Sample ID</b>	<b>Client Sample ID</b>	<b>Matrix</b>	<b>Collection Date</b>	<b>Date Received</b>	<b>Test Code</b>	<b>Test Name</b>	<b>Hold</b>	<b>MS</b>	<b>Date Due</b>	<b>Hold Time</b>
09-0825-01A	Fac 2	Soil	2/06/09 1421	2/06/09	TEH_S *	8015: TEH-Diesel	<input type="checkbox"/>	<input type="checkbox"/>	2/11/09	2/20/09
09-0825-01B	Fac 2	Soil	2/06/09 1421	2/06/09	TVH_S *	8015: TVH-Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	2/11/09	2/20/09
09-0825-01C	Fac 2	Soil	2/06/09 1421	2/06/09	6010_D *	6010: Dissolved Metals	<input type="checkbox"/>	<input type="checkbox"/>	2/20/09	8/05/09
09-0825-01C	Fac 2	Soil	2/06/09 1421	2/06/09	COND_S	Specific Conductance @ 25°C	<input type="checkbox"/>	<input type="checkbox"/>	2/20/09	3/06/09
09-0825-01C	Fac 2	Soil	2/06/09 1421	2/06/09	PH_S	9045C: pH	<input type="checkbox"/>	<input type="checkbox"/>	2/20/09	2/07/09
09-0825-01C	Fac 2	Soil	2/06/09 1421	2/06/09	SAR_S	Sodium Adsorption Ratio, Soil Leachate	<input type="checkbox"/>	<input type="checkbox"/>	2/20/09	8/05/09



**Evergreen Analytical, Inc.**

Date: 20-Feb-09

Lab Order: 09-0825

Client Project ID Fac. 2

**CASE NARRATIVE****SAMPLE RECEIVING**

Sample(s) were hand delivered to the laboratory by the client.

Custody seals were not present.

The temperature of the sample(s) upon arrival was 9.2°C. Samples were received within two hours of collection.

Sample(s) were received in good condition, in the proper container, and within holding times.

VOC sample(s) were received with no headspace present. NJO/TP

**QUALITY ASSURANCE (QA)**

Analyses performed on samples in this work order by EAL meet the requirements of the EAL Quality Assurance Program unless otherwise explained. Analyses of RCRA samples meet the requirements of NELAC and Utah Rule R444-14 unless otherwise explained. TP

**CLIENT SERVICES**

There are no anomalies to report. EKH

**GENERAL CHEMISTRY**

There are no anomalies to report. MM

**METALS ANALYSIS**

There are no anomalies to report. WKH

**GAS CHROMATOGRAPHY**

Method TVH\_S: The surrogate recovery for sample Fac 2 (09-0825-01B) is above the QC limit due to coeluting interference. This does not affect the analysis of the target analyte, which elute before the interference. The surrogate recovery for the laboratory control spike (LCS) is 1% above the QC limit; all spiked analyte recoveries are within QC limits, so the sample result is not affected. There are no other anomalies to report. VM/TP

Method SW8015B: The matrix spike and matrix spike duplicate (MS/MSD, on client's sample) recoveries are below the QC limits due to the high concentration in the sample versus the low concentration of the spike. The laboratory control spike (LCS) recoveries are within QC limits, showing the analysis is in control. There are no other anomalies to report. JM/TP



**Evergreen Analytical, Inc.**  
4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862  
(303) 425-6021

Lab Order: 09-0825  
Client Project ID: Fac. 2  
Matrix: Soil

Date Received: 2/6/09  
Date Prepared: 2/9/09  
Prep Batch ID: 18047  
Units: mg/Kg

**Total Extractable Hydrocarbons**  
**Diesel Fuel (No. 2)**

Method: SW8015B Mod

Prep Method: SW3550B

Lab ID	Client Sample ID	File ID	Date Collected	Date Analyzed	DF	Surr REC	Sample Results	LQL
09-0825-01A	Fac 2	FID50209\006F0601	2/6/09	2/9/09	10	56%	2200	140

Surrogate QC Limits: 35-157 %REC      Surr: OTP

Surrogate QC Limits: 39-130 %REC      Surr: TBB

  
\_\_\_\_\_  
Analyst

  
\_\_\_\_\_  
Approved

**Qualifiers:** B - Analyte detected in the associated Method Blank, value not subtracted from result  
E - Extrapolated value. Value exceeds calibration range  
H - Sample analysis exceeded analytical holding time  
J - Indicates an estimated value when the compound is detected, but is below the LQL  
S - Spike Recovery outside accepted limits  
U - Compound analyzed for but not detected  
X - See case narrative  
\* - Value exceeded the Maximum Contamination Level (MCL), TCLP limit, or if compound is undetected, LQL exceeds MCL.

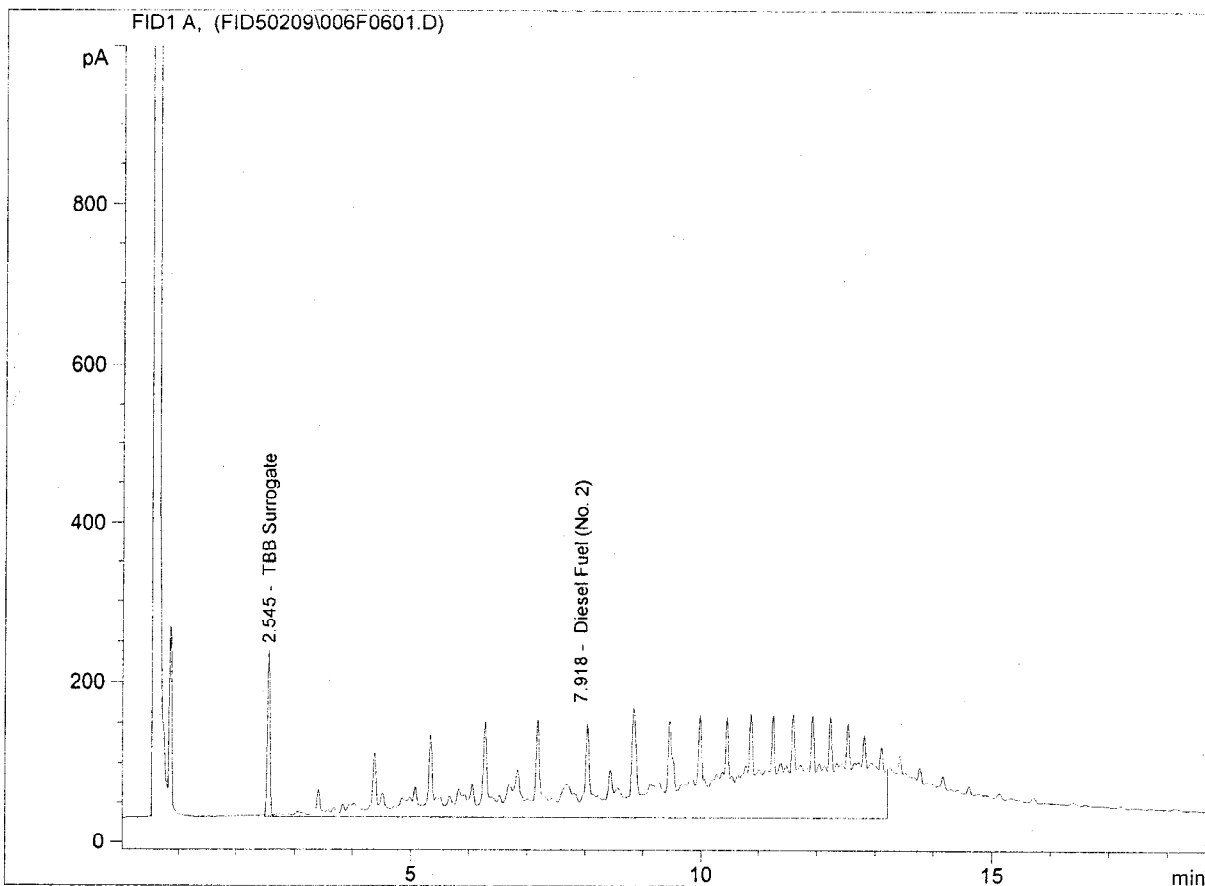
**Definitions:** DF - Dilution Factor  
LQL - Lower Quantitation Limit  
Surr - Surrogate

Print Date: 2/10/09

=====

Injection Date	: 2/9/2009 11:40:57 AM	Location	: Vial 6
Sample Name	: 09-0825-01A	Inj. No.	: 1
Acq. Operator	: JMelson	Inj. Vol.:	: 2 µl
Acq. Method	: FRONTBASE.M		
Analysis Method	: C:\HPCHEM\1\METHODS\FID5F1212B.M		
Last Changed	: 12/16/2008 09:14:27 am		

=====



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EAL External Standard Report

=====

Calib. Data Mod. : 12/16/2008 09:14:19 am  
Multiplier : 1.00  
Multiplier #2 : 1.00  
Sample Info : SAMP TEH\_S  
DF=10  
BATCH 18047

Exp. RT	RT [min]	Type	Area	Amount [mg/L]	Compound Name
2.585	2.545	VV	676.659	✓ 55.968	TBB Surrogate ✓
7.939	7.918	VBA+	26456.217	✓ 3346.908	Diesel Fuel (No. 2)

=====

# Evergreen Analytical, Inc.

4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862  
(303) 425-6021

Client Sample ID: Fac 2  
Client Project ID: Fac. 2  
Date Collected: 2/6/09  
Date Received: 2/6/09

Lab Work Order 09-0825  
Lab Sample ID: 09-0825-01B  
Sample Matrix: Soil

## TOTAL VOLATILE HYDROCARBONS

Method: SW8015B MOD

Prep Method: SW5035

Date Prepared: 2/8/09

Lab File ID: TVB40208\014F

Dilution Factor: 5

Date Analyzed: 2/9/09

Method Blank: MB4020809

Analytes	CAS Number	Result	LQL	Units
TVH-Gasoline	86290-81-5	U	1.0	mg/Kg
Surr: 1,2,4-Trichlorobenzene (S)	120-82-1	195 S	QC Limits: 60-140	%REC

VM

Analyst

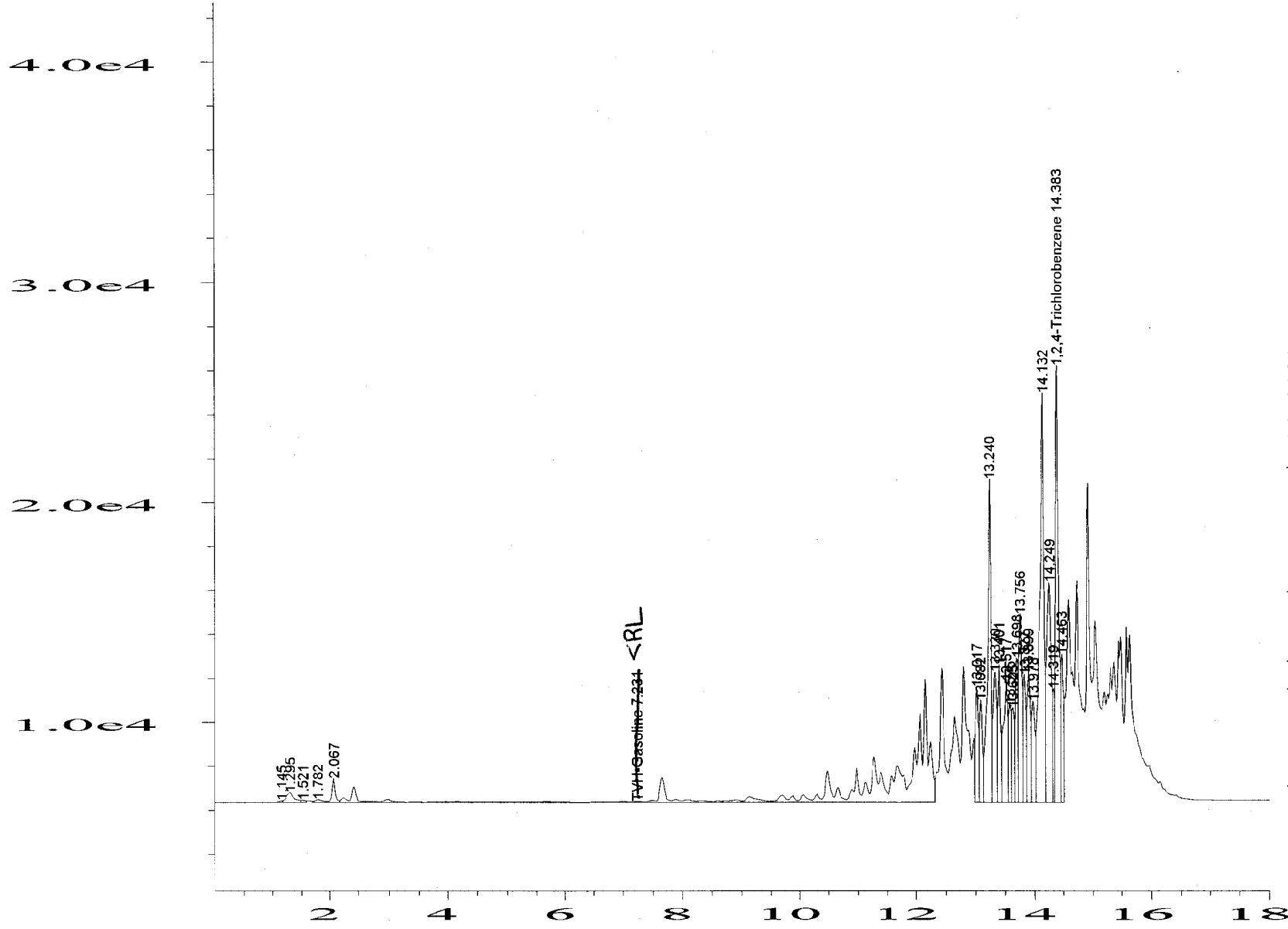
Approved

Notes: Total Xylenes consist of three isomers, two of which co-elute. The Xylene RL is for a single peak. Confirmation analysis was not performed.

**Qualifiers:** B - Analyte detected in the associated Method Blank, value not subtracted from result  
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S - Spike Recovery outside accepted limits  
U - Compound analyzed for but not detected  
X - See case narrative  
\* - Value exceeded the Maximum Contamination Level (MCL), TCLP limit, or if compound is undetected, LQL exceeds MCL.

**Definitions:** LQL - Lower Quantitation Limit  
Surr - Surrogate

Print Date: 2/9/09



Data File Name	: C:\HPCHEM\1\DATA\TVB40208\014F0101.D	Page Number	: 1
Operator	: Laura Cooper	Vial Number	: 14
Instrument	: TVHBTEX4	Injection Number	: 1
Sample Name	: 09-0825-01B	Sequence Line	: 1
Run Time Bar Code		Instrument Method	: TS40116D.MTH
Acquired on	: 09 Feb 09 00:30 AM	Analysis Method	: TS40116E.MTH
Report Created on	: 09 Feb 09 09:40 AM	Sample Amount	: 0
Last Recalib on	: 22 JAN 09 07:43 AM	ISTD Amount	:
Multiplier	: 1		
Sample Info	: SAMP		
	DF=5		
	VM2909		

0000

# Evergreen Analytical, Inc.

4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862  
(303) 425-6021

Client Sample ID: Fac 2  
Client Project ID: Fac. 2  
Date Collected: 2/6/09  
Date Received: 2/6/09

Lab Work Order 09-0825  
Lab Sample ID: 09-0825-01  
Sample Matrix: Soil

## DISSOLVED METALS

Method: SW6010B

Prep Method: E200.7/SW3010A

Date Prepared: 2/16/09  
Date Analyzed: 2/18/09

Lab File ID: 021809DY  
Method Blank: MB-18147

Dilution Factor: 1  
Lab Fraction ID: 09-0825-01C

Analytes	CAS Number	Result	LQL	Units
Calcium	7440-70-2	58	1.9	mg/L
Magnesium	7439-95-4	12	0.75	mg/L
Sodium	7440-23-5	110	2.0	mg/L

## SODIUM ADSORPTION RATIO, SOIL

Method: USDA


Prep Method:

Date Prepared: 2/16/09  
Date Analyzed: 2/18/09

Dilution Factor: 1  
Lab Fraction ID: 09-0825-01C

Analytes	CAS Number	Result	LQL	Units
Sodium-Adsorption-Ratio		3.4	0.10	ratio

  
Analyst

  
Approved

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U - Compound analyzed for but not detected  
X - See case narrative  
\* - Value exceeded the Maximum Contamination Level (MCL), TCLP limit, or if compound is undetected, LQL exceeds MCL.

**Definitions:** NA - Not Applicable  
LQL - Lower Quantitation Limit  
Suir - Surrogate

Print Date: 2/19/2009

# Evergreen Analytical, Inc.

4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862  
(303) 425-6021

Client Sample ID: Fac 2  
Client Project ID: Fac. 2  
Date Collected: 2/6/09 1421  
Date Received: 2/6/09

Lab Work Order 09-0825  
Lab Sample ID: 09-0825-01  
Sample Matrix: Soil

## SPECIFIC CONDUCTANCE @ 25°C

Method: Dept of Ag.

Prep Method:

Comments: Method: US Dept. of Ag, Handbook #60, p89

Date Prepared: 2/12/09

Lab File ID: 88

Dilution Factor: 1

Date Analyzed: 2/17/09

Lab Fraction ID: 09-0825-01C

Analytes	CAS Number	Result	LQL	Units
Specific Conductance		1470	1.00	µmhos/cm

## PH

Method: SW9045C

Prep Method:

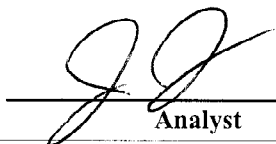
Date Prepared: 2/6/09

Dilution Factor: 1

Date Analyzed: 2/6/09 1600

Lab Fraction ID: 09-0825-01C

Analytes	CAS Number	Result	LQL	Units
pH		7.07	1.00	pH Units

  
Analyst

  
Approved

**Qualifiers:** B - Analyte detected in the associated Method Blank, value not subtracted from result  
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J - Indicates an estimated value when the compound is detected, but is below the LQL  
S - Spike Recovery outside accepted limits  
U - Compound analyzed for but not detected  
X - See case narrative  
\* - Value exceeded the Maximum Contamination Level (MCL), TCLP limit, or if compound is undetected, LQL exceeds MCL.

**Definitions:** NA - Not Applicable  
LQL - Lower Quantitation Limit  
Surr - Surrogate

Print Date: 2/18/2009



## **QUALITY ASSURANCE REPORTS**

**METHOD BLANKS (MB)**

**LABORATORY CONTROL SPIKES (LCS)**

**MATRIX SPIKES (MS/MSD)\***

**DUPLICATES (DUP)\***

\* **For Metals or Wet Chemistry analyses: only included if requested.**

Evergreen Analytical, Inc.

Date: 10-Feb-09

Work Order: 09-0825

Client Project ID: Fac. 2

## ANALYTICAL QC SUMMARY REPORT

BatchID: 18047

Sample ID: MB-18047	SampType: MBLK	TestCode: TEH_S	Run ID: FID5_090209A	Prep Date: 2/9/09	Units: mg/Kg						
	Batch ID: 18047	TestNo: SW8015B Mo	FileID: FID50209\004F0401	Analysis Date: 2/9/09	SeqNo: 797665						
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel Fuel (No. 2)

U

14

Surr: TBB

34.01

0

66.67

0

51

39

130

0

0

Sample ID: LCS-18047	SampType: LCS	TestCode: TEH_S	Run ID: FID5_090209A	Prep Date: 2/9/09	Units: mg/Kg						
	Batch ID: 18047	TestNo: SW8015B Mo	FileID: FID50209\005F0501	Analysis Date: 2/9/09	SeqNo: 797666						
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel Fuel (No. 2)

628.4

14

666.7

0

94.3

70

130

0

0

Surr: TBB

39.25

0

66.67

0

58.9

42

130

0

0

Sample ID: 09-0825-01AMS	SampType: MS	TestCode: TEH_S	Run ID: FID5_090209A	Prep Date: 2/9/09	Units: mg/Kg						
Client ID: Fac 2	Batch ID: 18047	TestNo: SW8015B Mo	FileID: FID50209\009F0901	Analysis Date: 2/9/09	SeqNo: 797668						
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel Fuel (No. 2)

2179

140

666.2

2231

-7.92

70

130

0

0

S

Surr: TBB

37.4

0

66.62

0

56.1

39

130

0

0

Sample ID: 09-0825-01AMSD	SampType: MSD	TestCode: TEH_S	Run ID: FID5_090209A	Prep Date: 2/9/09	Units: mg/Kg						
Client ID: Fac 2	Batch ID: 18047	TestNo: SW8015B Mo	FileID: A\FID50209\011F11	Analysis Date: 2/9/09	SeqNo: 797669						
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel Fuel (No. 2)

2570

140

666

2231

50.9

70

130

2179

16.5

30

S

Surr: TBB

41.16

0

66.6

0

61.8

39

130

0

0

0

**Qualifiers:**

U - Not detected at or above the Reporting Limit  
 J - Analyte detected below quantitation limits  
 S - Spike Recovery outside acceptance limits  
 E - Extrapolated value, value exceeds calibration range.

R - RPD outside acceptance limits  
 B - Analyte detected in the associated Method Blank  
 H - Prep or analytical holding time exceeded  
 X - See case narrative

Work Order: 09-0825

Client Project ID: Fac. 2

## ANALYTICAL QC SUMMARY REPORT

BatchID: R45068

Sample ID: MB4020809		SampType: MBLK	TestCode: TVH_S		Run ID: TVHBTEX4_090208B		Prep Date: 2/8/09		Units: mg/Kg		
		Batch ID: R45068	TestNo: SW8015B Mo		FileID: TVB40208\005F		Analysis Date: 2/8/09		SeqNo: 797471		
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TVH-Gasoline	U	1.0									
Surr: 1,2,4-Trichlorobenzene (S)	538.2	0	500	0	108	60	140	0	0		

Sample ID: LCS4020809		SampType: LCS	TestCode: TVH_S		Run ID: TVHBTEX4_090208B		Prep Date: 2/8/09		Units: mg/Kg		
		Batch ID: R45068	TestNo: SW8015B Mo		FileID: TVB40208\006F		Analysis Date: 2/8/09		SeqNo: 797472		
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TVH-Gasoline	9.18	1.0	11	0	83.5	70	130	0	0		
Surr: 1,2,4-Trichlorobenzene (S)	704.3	0	500	0	141	60	140	0	0		S

Sample ID: 09-0714-09AMS		SampType: MS	TestCode: TVH_S		Run ID: TVHBTEX4_090208B		Prep Date: 2/8/09		Units: mg/Kg		
		Batch ID: R45068	TestNo: SW8015B Mo		FileID: TVB40208\010F		Analysis Date: 2/8/09		SeqNo: 797476		
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TVH-Gasoline	8.285	1.0	11	0	75.3	62	130	0	0		
Surr: 1,2,4-Trichlorobenzene (S)	635.2	0	500	0	127	60	140	0	0		

Sample ID: 09-0714-09AMSD		SampType: MSD	TestCode: TVH_S		Run ID: TVHBTEX4_090208B		Prep Date: 2/8/09		Units: mg/Kg		
		Batch ID: R45068	TestNo: SW8015B Mo		FileID: TVB40208\011F		Analysis Date: 2/8/09		SeqNo: 797477		
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TVH-Gasoline	9.25	1.0	11	0	84.1	62	130	8.285	11.0	30	
Surr: 1,2,4-Trichlorobenzene (S)	685.5	0	500	0	137	60	140	0	0	0	

## Qualifiers:

U - Not detected at or above the Reporting Limit  
 J - Analyte detected below quantitation limits  
 S - Spike Recovery outside acceptance limits  
 E - Extrapolated value, value exceeds calibration range.

R - RPD outside acceptance limits  
 B - Analyte detected in the associated Method Blank  
 H - Prep or analytical holding time exceeded  
 X - See case narrative

Work Order: 09-0825

Client Project ID: Fac. 2

## ANALYTICAL QC SUMMARY REPORT

BatchID: 18147

Sample ID: MB-18147	SampType: MBLK	TestCode: 200.7_T	Run ID: ICP-OPTIMA 5300 DV_090218A	Prep Date: 2/16/2009	Units: mg/L						
	Batch ID: 18147	TestNo: E200.7, Rev.	FileID: 021809DY	Analysis Date: 2/18/2009	SeqNo: 802292						
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Calcium	U	0.387									
Magnesium	U	0.150									
Sodium	U	0.400									

Sample ID: LCS-18147	SampType: LCS	TestCode: 200.7_T	Run ID: ICP-OPTIMA 5300 DV_090218A	Prep Date: 2/16/2009	Units: mg/L						
	Batch ID: 18147	TestNo: E200.7, Rev.	FileID: 021809DY	Analysis Date: 2/18/2009	SeqNo: 802293						
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Calcium	9.978	0.387	10	0.3249	99.8	85	115	0	0		
Magnesium	9.814	0.150	10	0.04059	98.1	85	115	0	0		
Sodium	10.19	0.400	10	0.3488	102	85	115	0	0		

## Qualifiers:

U - Not detected at or above the Reporting Limit  
 J - Analyte detected below quantitation limits  
 S - Spike Recovery outside acceptance limits  
 E - Extrapolated value, value exceeds calibration range.

R - RPD outside acceptance limits  
 B - Analyte detected in the associated Method Blank  
 H - Prep or analytical holding time exceeded  
 X - See case narrative

Evergreen Analytical, Inc.

Date: 18-Feb-09

Work Order: 09-0825

Client Project ID: Fac. 2

## ANALYTICAL QC SUMMARY REPORT

TestCode: COND\_S

Sample ID	LCS	SampType: LCS	TestCode: COND_S	Run ID: COND_090217B	Prep Date: 2/17/2009	Units: µmhos/cm						
		Batch ID: R45259	TestNo: Dept of Ag.	FileID: 87	Analysis Date: 2/17/2009	SeqNo: 801334						
Analyte		Result	LQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance		10080	1.00	10050	0	100	90	110	0	0		

Qualifiers:

- U - Not detected at or above the Reporting Limit
- J - Analyte detected below quantitation limits
- S - Spike Recovery outside acceptance limits
- E - Extrapolated value, value exceeds calibration range.

- R - RPD outside acceptance limits
- B - Analyte detected in the associated Method Blank
- H - Prep or analytical holding time exceeded
- X - See case narrative

Work Order: 09-0825

Client Project ID: Fac. 2

## ANALYTICAL QC SUMMARY REPORT

TestCode: PH\_S

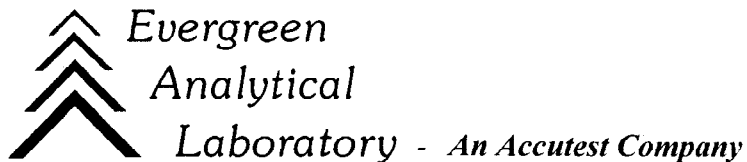
Sample ID	LCS-R45047	SampType: LCS	TestCode: PH_S	Run ID: PH_090206C	Prep Date: 2/6/2009	Units: pH Units					
		Batch ID: R45047	TestNo: SW9045C	FileID:	Analysis Date: 2/6/2009	SeqNo: 796857					
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.97	1.00	8	0	99.6	99.3	100.7	0	0		

## Qualifiers:

U - Not detected at or above the Reporting Limit  
J - Analyte detected below quantitation limits  
S - Spike Recovery outside acceptance limits  
E - Extrapolated value, value exceeds calibration range.

R - RPD outside acceptance limits  
B - Analyte detected in the associated Method Blank  
H - Prep or analytical holding time exceeded  
X - See case narrative





February 20, 2009

Ray Gorka  
K.P.Kauffman  
1675 Broadway, Suite 2800  
Denver, CO 80202

Lab Work Order: 09-0825  
Client Project ID: Fac. 2

Dear Ray Gorka:

Enclosed are the analytical results for the samples shown in the Laboratory Work Order Summary. The invoice is included with this report or has been mailed to another party as indicated on the chain of custody.

The enclosed data for testing performed at Evergreen Analytical Laboratory (EAL) have been reviewed for quality assurance. A case narrative is included to describe any anomalies associated with the samples or data.

EAL will dispose of all samples 44 days from the sample receipt date. If you want samples returned, please advise us by mail or fax as soon as possible.

A copy of this project report and supporting data will be retained for a period of five years unless we are otherwise advised by you. A document retrieval charge will apply.

Thank you for using the services of Evergreen Analytical. If you have any questions concerning the analytical data, please contact me. Please direct other questions to Client Services.

Sincerely,



Joseph J Egry IV/ Carl Smits  
Quality Assurance



07/17/14

## Technical Report for

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

**Soil Sampling 07-11-2014**

**Accutest Job Number: D59686**

**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.

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## Sample Summary

K.P. Kauffman Company, Inc.

**Job No:** D59686

Soil Sampling 07-11-2014

Sample Number	Collected			Received	Matrix		Client Sample ID
	Date	Time	By		Code	Type	
D59686-1	07/11/14	09:21	RP	07/11/14	SO	Soil	UPPR 50 PAN AM D-1
D59686-1A	07/11/14	09:21	RP	07/11/14	SO	Soil	UPPR 50 PAN AM 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** D59686

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

**Report Date** 7/17/2014 2:35:55 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 D59686 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: D59686-1

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

- D59686-1A 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:** D59686  
**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
---------------	------------------	-----------------	----	-----	-------	--------

### D59686-1 UPPR 50 PAN AM D-1

TPH-DRO (C10-C28)	259	6.9	5.2	mg/kg	SW846-8015B
Specific Conductivity	1530	1.0		umhos/cm	SM 2510B-2011 MOD
pH	7.41			su	SW846 9045D

### D59686-1A UPPR 50 PAN AM D-1

Calcium	57.6	2.0		mg/l	SW846 6010C
Magnesium	15.9	1.0		mg/l	SW846 6010C
Sodium	242	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio <sup>a</sup>	7.28			ratio	USDA HANDBOOK 60

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

Sample Results

Report of Analysis

## Report of Analysis

<b>Client Sample ID:</b>	UPPR 50 PAN AM D-1	<b>Date Sampled:</b>	07/11/14
<b>Lab Sample ID:</b>	D59686-1	<b>Date Received:</b>	07/11/14
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	95.6
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	Soil Sampling 07-11-2014		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V31485.D	1	07/14/14	JL	n/a	n/a	V3V1837
Run #2							

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

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	54	21	ug/kg	
108-88-3	Toluene	ND	110	54	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	88%		64-130%
460-00-4	4-Bromofluorobenzene	101%		62-131%
17060-07-0	1,2-Dichloroethane-D4	104%		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>	UPPR 50 PAN AM D-1	<b>Date Sampled:</b>	07/11/14
<b>Lab Sample ID:</b>	D59686-1	<b>Date Received:</b>	07/11/14
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	95.6
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	Soil Sampling 07-11-2014		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB25690.D	1	07/14/14	EP	n/a	n/a	GGB1399
Run #2							

Run #	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	5.4	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	103%		60-140%

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

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

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	UPPR 50 PAN AM D-1	<b>Date Sampled:</b>	07/11/14
<b>Lab Sample ID:</b>	D59686-1	<b>Date Received:</b>	07/11/14
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	95.6
<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	FH023062.D	1	07/14/14	JJ	07/14/14	OP10234	GFH1053
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	259	6.9	5.2	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	90%		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:** UPPR 50 PAN AM D-1  
**Lab Sample ID:** D59686-1  
**Matrix:** SO - Soil  
**Project:** Soil Sampling 07-11-2014

**Date Sampled:** 07/11/14  
**Date Received:** 07/11/14  
**Percent Solids:** 95.6

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
%solids							
Solids, Percent	95.6		%	1	07/14/14	SWT	SM2540G-2011 M
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	1530	1.0	umhos/cm	1	07/17/14	JD	SM 2510B-2011 MOD
pH	7.41		su	1	07/14/14 15:20	JD	SW846 9045D

---

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	UPPR 50 PAN AM D-1	<b>Date Sampled:</b>	07/11/14
<b>Lab Sample ID:</b>	D59686-1A	<b>Date Received:</b>	07/11/14
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	95.6
<b>Project:</b>	Soil Sampling 07-11-2014		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	57.6	2.0	mg/l	1	07/16/14	07/16/14 KV	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>2</sup>
Magnesium	15.9	1.0	mg/l	1	07/16/14	07/16/14 KV	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>2</sup>
Sodium	242	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

**Client Sample ID:** UPPR 50 PAN AM D-1  
**Lab Sample ID:** D59686-1A  
**Matrix:** SO - Soil  
**Project:** Soil Sampling 07-11-2014

**Date Sampled:** 07/11/14  
**Date Received:** 07/11/14  
**Percent Solids:** 95.6

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	7.28		ratio	1	07/16/14 17:54	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



## 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:** D59686

**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

D59686-1

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:** D59686

**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

D59686-1

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:** D59686

**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

D59686-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
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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:** D59686

**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

D59686-1

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:** D59686

**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

D59686-1

CAS No.	Compound	D59690-1 ug/kg	Spike Q	MS ug/kg	MS %	Limits
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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:** D59686

**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

D59686-1

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

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Includes the following where applicable:

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

## Method Blank Summary

Page 1 of 1

**Job Number:** D59686

**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

D59686-1

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:** D59686  
**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

D59686-1

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:** D59686

**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

D59686-1

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

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Includes the following where applicable:

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

## Method Blank Summary

Page 1 of 1

**Job Number:** D59686

**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

D59686-1

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:** D59686

**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

D59686-1

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:** D59686  
**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

D59686-1

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: D59686  
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: D59686-1A

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D59686  
Account: KPKCOD - K.P. Kauffman Company, Inc.  
Project: Soil Sampling 07-11-2014

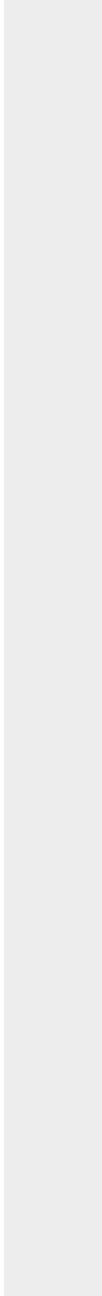
QC Batch ID: MP13449  
Matrix Type: AQUEOUS

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

Prep Date: 07/16/14

Metal	RL	IDL	MDL	MB raw	final
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(anr) Analyte not requested



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D59686  
 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: D59686-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D59686  
 Account: KPKCOD - K.P. Kauffman Company, Inc.  
 Project: Soil Sampling 07-11-2014

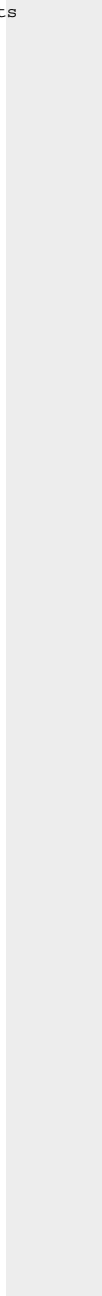
QC Batch ID: MP13449  
 Matrix Type: AQUEOUS

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

Prep Date: 07/16/14

Metal	D59687-1A Original MS	Spikelot ICPALL2 % Rec	QC Limits
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(N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D59686  
 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: D59686-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D59686  
 Account: KPKCOD - K.P. Kauffman Company, Inc.  
 Project: Soil Sampling 07-11-2014

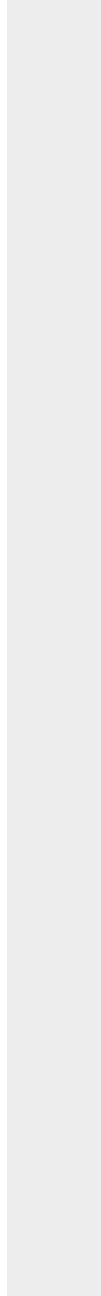
QC Batch ID: MP13449  
 Matrix Type: AQUEOUS

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





## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D59686  
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: D59686-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D59686  
Account: KPKCOD - K.P. Kauffman Company, Inc.  
Project: Soil Sampling 07-11-2014

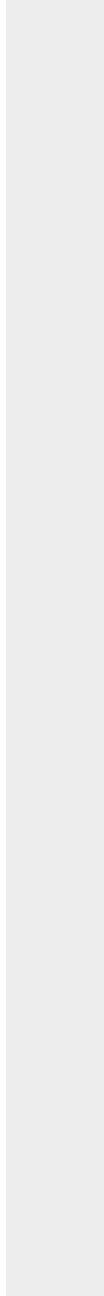
QC Batch ID: MP13449  
Matrix Type: AQUEOUS

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

Prep Date: 07/16/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
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(anr) Analyte not requested



# SERIAL DILUTION RESULTS SUMMARY

Login Number: D59686  
 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: D59686-1A

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D59686  
Account: KPKCOD - K.P. Kauffman Company, Inc.  
Project: Soil Sampling 07-11-2014

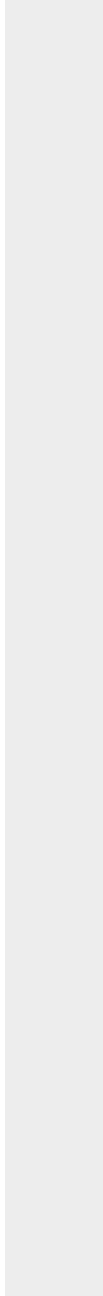
QC Batch ID: MP13449  
Matrix Type: AQUEOUS

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



## General Chemistry

### QC Data Summaries

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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: D59686  
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: D59686-1  
Batch GP13058: D59686-1  
(\*) Outside of QC limits