

Prepared For

**K.P. KAUFFMAN COMPANY, INC.
WORLD TRADE CENTER
1675 BROADWAY, SUITE 2800
DENVER, CO 80202-4825**

**SPILL INVESTIGATION FOR
ROBERT G BERGE #2 FACILITY
HIGHWAY 52 AND WELD COUNTY ROAD 23
FORT LUPTON, WELD COUNTY, COLORADO**

**Date Issued: December 3, 2020
APEX Project Number 1-0025.030.00**

Prepared By

**APEX CONSULTING SERVICES, INC.
P.O. Box 369
LOUISVILLE, CO 80027-0369**

566 West Willow Court
Reply to: P.O. Box 369
Louisville, CO 80027-0369
Phone: 303-665-1400
Fax: 303-665-0620
email: apexcsi@comcast.net

December 3, 2020

Mr. Max Knop
K.P. Kauffman Company, Inc.
World Trade Center
1675 Broadway, Suite 2800
Denver, CO 80202-4825

RE: Spill Investigation For Robert G Berge #2 Facility, Highway 52 and Weld County Road 23, Weld County, Colorado

Dear Mr. Knop:

Apex Consulting Services, Inc. is pleased to provide the results of our Spill Investigation for the Robert G Berge #2 Facility, Highway 52 and Weld County Road 23, Weld County, Colorado. The following report details the field methods and findings of the investigation.

We appreciate the opportunity to provide environmental services for this project. If you have any questions concerning this report, or if we can assist you in any other matter, please call.

Sincerely,

APEX CONSULTING SERVICES, INC.



Michael D. Hattel, P.G., R.E.A.
Principal

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1.0 INTRODUCTION

Apex Consulting Services, Inc. (APEX) was retained by K.P. Kauffman Company, Inc. (KPK) to perform a spill investigation at the Robert G Berge #2 Facility (FACILITY). The FACILITY is located approximately 3/4-mile south of Highway 52 and 1/2-mile west of Weld County Road 23. The location of the flow line leak is illustrated on Figure 1 which is included in Appendix A. On June 15, 2020, a leak from a flowline was discovered. The leak was repaired and visually contaminated soil in the vicinity of the leak was excavated and disposed. On August 27, 2020, APEX collected a groundwater sample from a private water well located approximately 850' northwest of the FACILITY. APEX also collected surface water samples from the Brantner irrigation ditch (Located immediately east of the FACILITY) on August 27, 2020. Samples were collected approximately 300 feet upstream of the FACILITY, at the FACILITY and approximately 300 feet downstream of the FACILITY. Benzene, toluene, ethylbenzene and total xylenes (BTEX) compounds were not detected in any of the samples.

This investigation was requested by the Colorado Oil and Gas Conservation Commission (COGCC) and performed in accordance with a work plan approved by the COGCC.

2.0 FIELD ACTIVITIES

2.1 Utility Locates

Prior to initiating the field activities (soil borings), the State of Colorado law requires that, at least 48 hours prior to the initiation of any subsurface work (drilling, backhoe operation, etc.), a utility inspection be performed at the Property. This inspection consists of the marking of underground utility locations by authorized utility locating personnel. The utility inspection was performed prior to the probing activities.

2.2 Soil and Groundwater Sampling

On September 29, 2020, APEX contracted Drill Pro of Denver, Colorado to provide and operate probing equipment. Ms. Kari Brown with the COGCC was present during the investigation. Drill Pro, under the direction of APEX, advanced 10 probe borings (PB-1 through PB-10) with a direct-push, truck-mounted GeoProbe probe rig equipped with a four-foot long stainless-steel dual rod system. All drilling rods and/or sampling equipment were decontaminated between samples and/or borings to prevent cross-contamination. The borings were installed to terminal depths ranging from 12 to 16 feet below ground surface (BGS). The borings were completed in the vicinity of the flow line leak. The location of the borings is illustrated on Figure 2 which is included in Appendix A.

Soil samples (cores) were continuously collected from the borings. Fill (gravel) or top soil was present in the borings from the surface to depths of approximately two (2) foot BGS. The fill and top soil was underlain by

silty to sandy clay. Weathered claystone was present beneath the silty to sandy clay and present at depths ranging from eight (8) to 12 feet BGS. Groundwater was not encountered in any of the borings except boring PB-5. Soil cores were field screened for the presence of volatile organic compounds (VOC's) with a photo-ionization detector (PID). VOC's were detected at concentrations ranging from less than one (1) to 80 parts per million (ppm). The samples were also screened for odors, staining and/or discoloration. The soil samples from borings PB-1 and PB-2 exhibited VOC's, staining, odors and discoloration. Boring logs are included in Appendix B.

A soil sample from the core collected from borings PB-1 and PB-2 were selected for analysis. The samples were collected from areas in the core that exhibited the highest VOC concentration. Soil boring/sample locations are illustrated on Figure 2 which is included in Appendix A.

Following the completion of probing, boring PB-5 was completed as temporary monitoring well by placing polyvinyl chloride (PVC) casing and factory slotted screen in the soil boring. A groundwater sample was collected from temporary monitoring well with a disposable bailer.

The PVC casing and screen were removed from boring PB-5 following the collection of the groundwater sample. All the borings were backfilled with the soils derived from the drilling activities and hydrated bentonite.

2.3 Soil and Groundwater Analytical Results

The soil and groundwater samples were handled with clean, new, nitrile gloves and placed in laboratory supplied sample containers and labeled. The samples were placed in a cooler on ice and were delivered to Summit Scientific in Golden, Colorado for laboratory analysis. The soil and groundwater samples were analyzed for BTEX by EPA Method 8260. The soil samples were also analyzed for gasoline range organics (GRO) by EPA Method 8260 and total extractable petroleum hydrocarbons (TEPH) by EPA Method 8015.

The laboratory results indicate that BTEX compounds were not present above the laboratory reporting limit in the groundwater sample. Low BTEX compound concentrations were detected in each of the soil samples. GRO compounds were detected at respective concentrations of 130 and 35 milligrams per kilogram (mg/kg) in each of the samples collected from borings PB-1 (4 feet) and PB-2 (8 feet). Finally, TEPH compounds were detected at respective concentrations of 870 and 86 mg/kg from borings PB-1 (4 feet) and PB-2 (8 feet).

The laboratory analytical reports and chain-of-custody forms provided by eAnalytics Laboratory are included in Appendix C. The analytical results are summarized on Tables 1 and 2 which are also included in Appendix C.

3.0 CONCLUSIONS AND RECOMMENDATIONS

On June 15, 2020, a leak from a flowline was discovered. The leak was repaired and visually contaminated soil in the vicinity of the leak was excavated and disposed. On August 27, 2020, APEX collected a groundwater sample from a private water well located approximately 850' northwest of the FACILITY and three (3) samples from the Brantner Ditch. BTEX compounds were not detected in any of the samples.

On September 29, 2020, 10 soil probe borings (PB-1 through PB-10) were completed in the vicinity of the flow line leak. The borings were installed to terminal depths ranging from 12 to 16 feet below ground surface (BGS). Groundwater was not encountered in boring PB-5. VOC's were detected at concentrations ranging from less than 1 to 80 parts per million (ppm). Soil cores and samples were screened for odors, staining and/or discoloration. The soil cores and samples from borings PB-1 and PB-2 exhibited VOC's, staining, odors and discoloration. Soil samples from the core collected from borings PB-1 and PB-2 were selected for analysis. Also, a groundwater sample was collected from a temporary well completed in boring PB-5. The laboratory results indicate that BTEX compounds were not present above the laboratory reporting limit the groundwater sample collected from boring PB-5. Low BTEX compound concentrations were detected in the soil samples collected from boring PB-1 and PB-2. The detected concentrations are well below COGCC standards. GRO and TEPH compounds were also detected in the soil samples collected from boring PB-1 and PB-2. The combined GRO and TEPH concentration of 1000 mg/kg exceeds the COGCC standard of 500 mg/kg.

Based on the analytical results, soils in the immediate vicinity of boring PB-1 (at a depth of 4 feet) should be excavated and disposed. Also, BTEX compounds were not detected in any of the surface or groundwater samples submitted for analysis. Consequently, it does not appear that the spill has impacted surface or groundwater in the area.

APPENDIX A

FIGURES



Legend



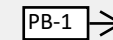
Direction of Surface Flow



Release Location
Lat:40.07498 Long:-104.85437



Flow Line



Boring Location and Number

Date:	June 2020
Designed By:	K.P. Kauffman Co.
Drawn By:	MWK



K.P. Kauffman Company, Inc.
1675 Broadway, Suite 2800
Denver CO, 80202

K.P. Kauffman Company, Inc.
Robert G. Berge #2Release
SWSE, Section 2, Township 1 North, Range 67 West
Weld County, Colorado

**FIGURE 1
SITE MAP**

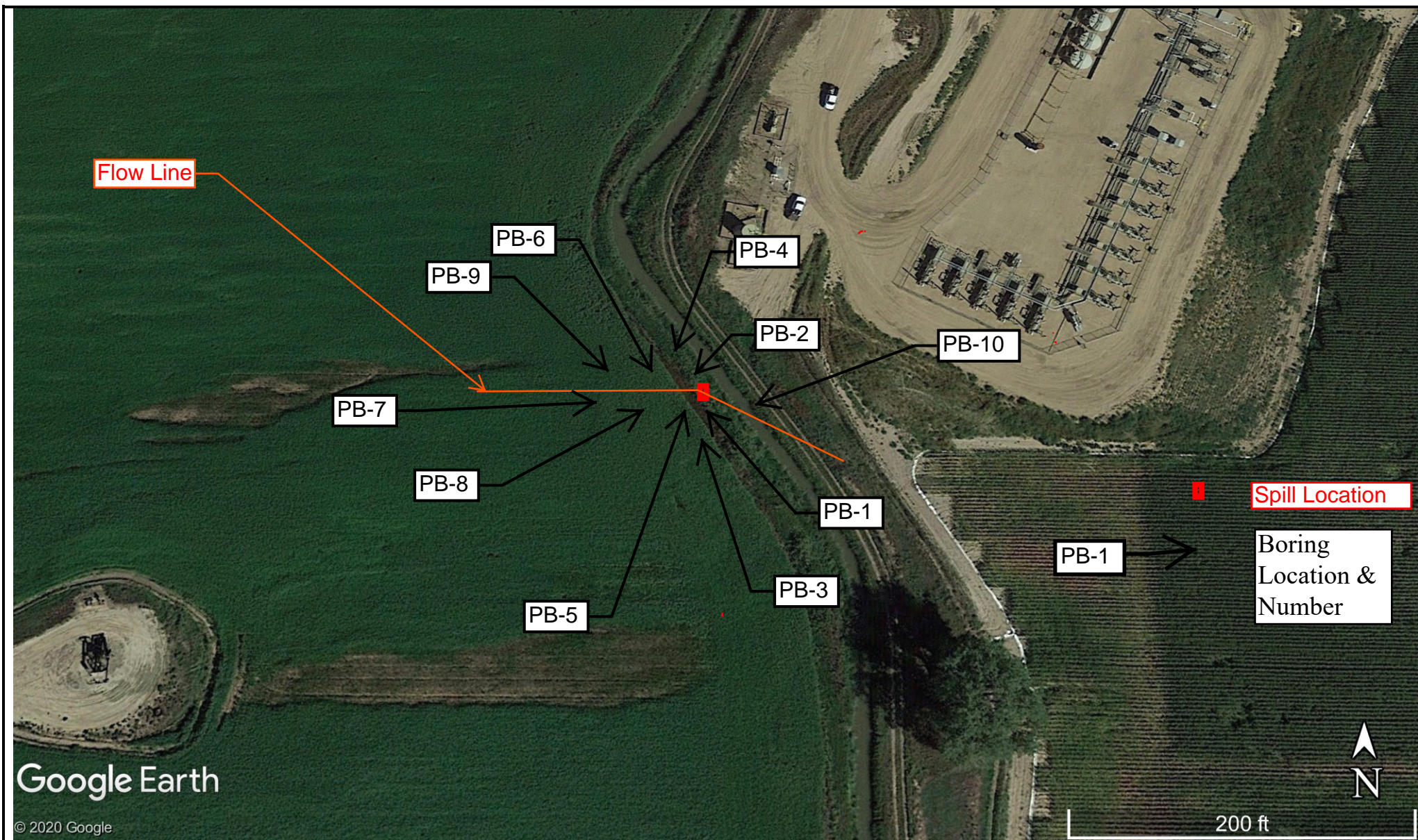


FIGURE 2: BORING MAP

Robert G. Berge #2
SWSE, Section 2, Township 1 North,
Range 67 West
Weld County, Colorado



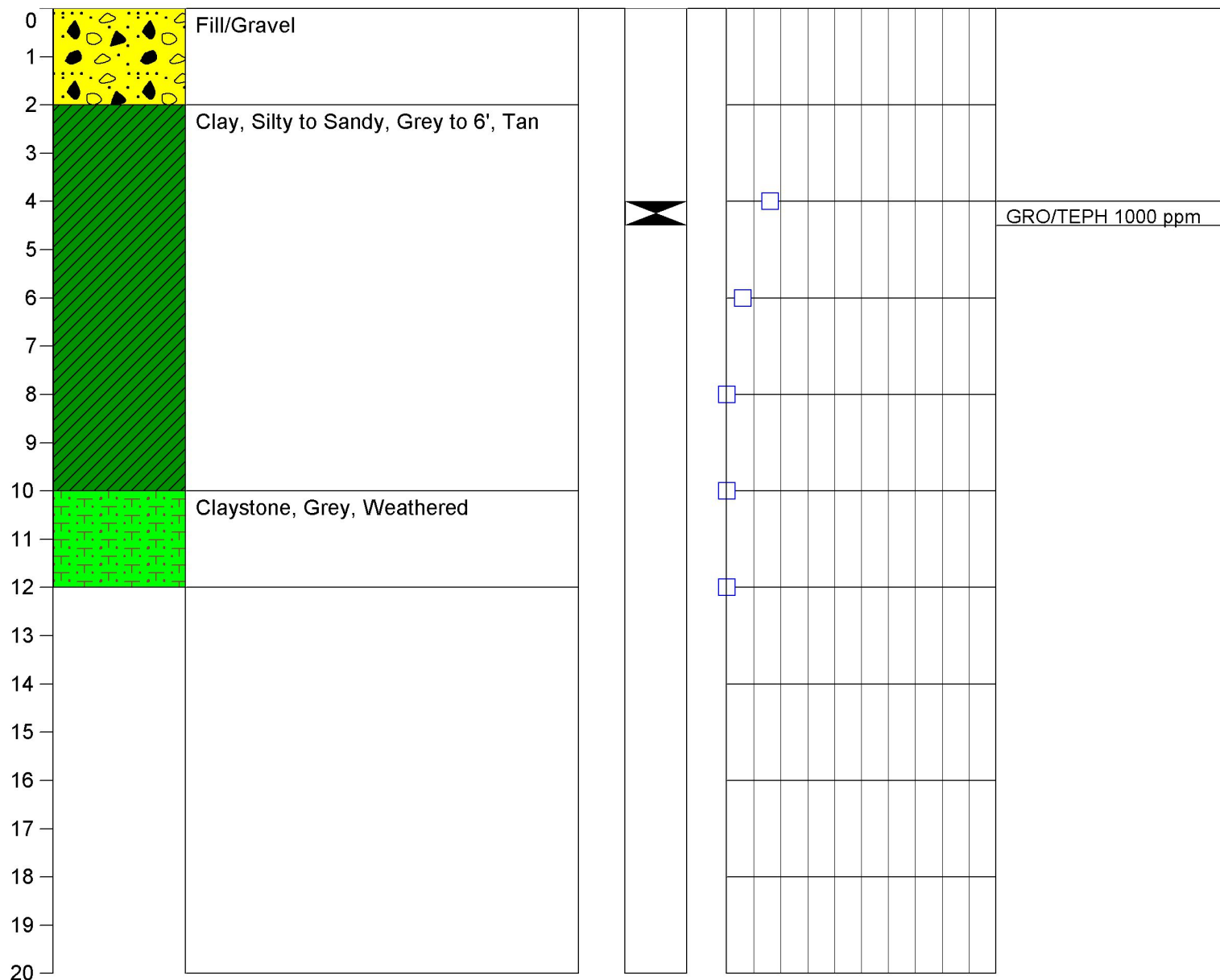
Google Earth
Created: 2020
Revised: None

APEX CONSULTING SERVICES, INC.

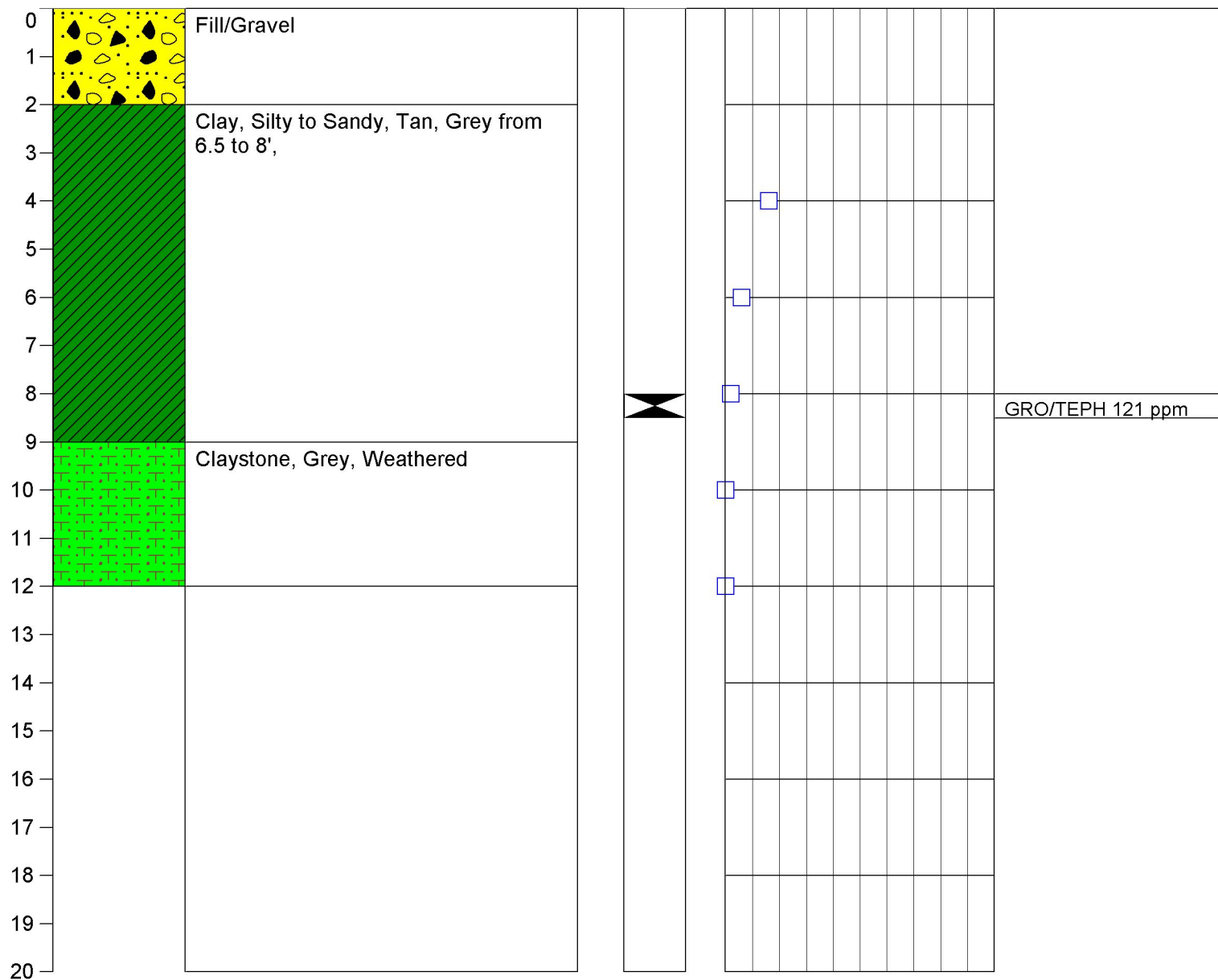
APPENDIX B

BORING LOGS

Project		Berge #2		Borehole # PB-1					
Project No		1-0025.033.00							
Client		K.P.K.							
Location		Ft Lupton, CO							
				Recorded By		Michael Hattel			
SUBSURFACE PROFILE				SAMPLE		VOC Concentrator			
Depth (m)	Lithology	Lithologic Description	Number	Type	Recovery	ppm			
						0 500			



Project		Berge #2		Borehole # PB-2					
Project No		1-0025.033.00							
Client		K.P.K.							
Location		Ft Lupton, CO							
				Recorded By		Michael Hattel			
SUBSURFACE PROFILE				SAMPLE		VOC Concentrator			
Depth (m)	Lithology	Lithologic Description	Number	Type	Recovery	ppm			
						0 500			
						%LEL			
						0 50 100			
						Lab Analysis			



Project	Berge #2							Borehole # PB-3
Project No	1-0025.033.00	Date	9/29/20					
Client	K.P.K.	Elevation						
Location	Ft Lupton, CO	Recorded By	Michael Hattel					
SUBSURFACE PROFILE				SAMPLE			VOC Concentrator	Lab Analysis
Depth (m)	Lithology	Lithologic Description	Number	Type	Recovery	0 ppm 500		
						0 %LEL 100		
						<div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> </div>		

The diagram illustrates a geological cross-section with three distinct soil layers and a series of sampling points. The vertical axis on the left is labeled from 0 to 20 in increments of 1.

- Layer 1 (0 to 2):** Labeled "Fill/Gravel". It is represented by a yellow background with black patterns of dots, triangles, and circles.
- Layer 2 (2 to 8):** Labeled "Clay, Silty to Sandy, Tan". It is represented by a green background with diagonal black hatching.
- Layer 3 (8 to 12):** Labeled "Claystone, Grey, Weathered". It is represented by a red background with a black brick pattern.

To the right of the soil layers is a vertical column representing a borehole or sampling area. It contains several horizontal lines and small blue squares indicating sampling points at depths of approximately 4, 6, 8, 10, and 12 units.

Project	Berge #2							Borehole # PB-4	
Project No	1-0025.033.00	Date	9/29/20						
Client	K.P.K.	Elevation							
Location	Ft Lupton, CO	Recorded By	Michael Hattel						
SUBSURFACE PROFILE			SAMPLE			VOC Concentrator		Lab Analysis	
Depth (m)	Lithology	Lithologic Description	Number	Type	Recovery	0	ppm		500
						0	%LEL		100

The diagram illustrates a geological cross-section with the following layers and features:

- Soil Profile (Left):**
 - 0 to 2:** Fill/Gravel (Yellow background with black and white symbols).
 - 2 to 10:** Clay, Silty to Sandy, Tan (Green background with diagonal lines).
 - 10 to 12:** Claystone, Grey, Weathered (Green background with a brick pattern).
 - 12 to 20:** Unlabeled layer (White background).
- Sampling Points (Right):**
 - Five blue square markers are positioned at depths of 4, 6, 8, 10, and 12.
 - Each marker has a horizontal line extending to the right, connecting to a grid of 10 vertical lines.
- Vertical Scale (Left):**
 - Numbers 0 through 20 are listed vertically on the left side, corresponding to the depth of the soil profile.

Project		Berge #2		Borehole # PB-6							
Project No		1-0025.033.00						Date		9/29/20	
Client		K.P.K.						Elevation			
Location		Ft Lupton, CO						Recorded By		Michael Hattel	
SUBSURFACE PROFILE				SAMPLE		VOC Concentrator		Lab Analysis			
Depth (m)	Lithology	Lithologic Description	Number	Type	Recovery	0	500				
						%LEL					
						0	100				

0		Top Soil
1		
2		
3		Clay, Silty to Sandy, Tan
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Project		Berge #2		Borehole # PB-8					
Project No		1-0025.033.00							
Client		K.P.K.							
Location		Ft Lupton, CO							
				Recorded By		Michael Hattel			
SUBSURFACE PROFILE				SAMPLE		VOC Concentrator			
Depth (m)	Lithology	Lithologic Description	Number	Type	Recovery	ppm			
						0 500			
						%LEL			
						0 50 100			
						Lab Analysis			

[illegible]

APPENDIX C

ANALYTICAL REPORT

TABLE 1

**SUMMARY OF LABORATORY RESULTS
FOR SOIL SAMPLE COLLECTED FROM
BERGE #2, WELD COUNTY, COLORADO**

Sample	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Total Xylenes (mg/kg)	GRO (mg/kg)	TEPH (mg/kg)
PB-1-4	9/29/20	0.580	1.300	0.310	8.500	130	870
PB-2-8	9/29/20	0.056	<0.005	0.210	0.084	35	86
Standard	NA	5	1000	700	1400	500	500

Standard = Colorado Oil and Gas Conservation Commission (COGCC) and/or State of Colorado

mg/kg = Milligrams per kilogram

GRO = Gasoline Range Organics

Benzene, toluene, ethylbenzene, total xylenes and GRO by EPA Method 8260

TEPH = Total Extractable Petroleum Hydrocarbons by EPA Method 8015

TABLE 2

**SUMMARY OF LABORATORY RESULTS
FOR GROUNDWATER SAMPLE COLLECTED FROM
BERGE #2, WELD COUNTY, COLORADO**

Sample	Date	Benzene (ug/L)	Toluene (ug/L)	Ethyl-Benzene (ug/L)	Total Xylenes (ug/L)
PB-5-2	9/29/20	<1	<1	<1	<2
Standard	NA	5	1000	700	1400

Standard = Colorado Oil and Gas Conservation Commission (COGCC) and/or State of Colorado

ug/L = Micrograms per liter

Benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8260

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 12, 2020

Max Knop

K.P. Kauffman

1675 Broadway

Denver, CO 80202

RE: Berge

Work Order #2010037

Enclosed are the results of analyses for samples received by Summit Scientific on 10/05/20 08:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Muri Premier", is displayed on a light purple rectangular background.

Muri Premier For Paul Shrewsbury
President



K.P. Kauffman
1675 Broadway
Denver CO, 80202

Project: Berge
Project Number: [none]
Project Manager: Max Knop

Reported:
10/12/20 17:32

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
PB-1-4	2010037-01	Soil	09/29/20 07:50	10/05/20 08:50
PB-2-8	2010037-02	Soil	09/29/20 08:00	10/05/20 08:50
PB-5-2	2010037-03	Water	09/29/20 09:25	10/05/20 08:50

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

2010037

Summit Scientific



4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310 ♦ 303-374-5933 (f)

Page 1 of 1

Client: K.P. Kauffman Company, Inc.

Project Manager: Max Knop

Address: 1675 Broadway, Suite 2800

E-Mail: MKnop@kpk.com

City/State/Zip: Denver, CO 80202-4628

Phone: 303-825-4822

Project Name:

Berge

Sampler Name: Mike Hattel (mhattel@msn.com)

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions			
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	BTEX	VOCs	TPH	TEPH								
1	PB-1-4	9/29/20	750	1											X	X	X							
2	PB-2-0	9/29/20	800	1											X	X	X							
3	PB-5-2	9/29/20	925	4	X										X									
4																								
5																								
6																								
7																								
8																								
9																								
10																								

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time	(Check)	Notes:
M. Hattel	10/5/20 850	Max Knop	10/5/20 8:50	Same Day	72 hours	
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 hours	Standard	
				48 hours		
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:		
				Temperature Upon Receipt:	4.2	
				Samples Intact:	Yes No	

Sample Receipt Checklist

S2 Work Order 2010037

Client: KP Kauffman Client Project ID: Berge.

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other _____ Airbill #: _____

Matrix (check all that apply): _____ Air ☒ Soil/Solid ☒ Water _____ Other: _____
(Describe)

Temp (°C)	<u>4.2</u>
-----------	------------

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>HCl</u>
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Comments (if any):				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

mc
Custodian Printed Name or Initials

mc
Signature of Custodian

10/5/20
Date/Time



K.P. Kauffman
1675 Broadway
Denver CO, 80202

Project: Berge
Project Number: [none]
Project Manager: Max Knop

Reported:
10/12/20 17:32

PB-1-4
2010037-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/29/20 07:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	0.58	0.0020	mg/kg	1	BDJ0026	10/06/20	10/07/20	EPA 8260B	
Toluene	1.3	0.50	"	100	"	"	"	"	
Ethylbenzene	0.31	0.0050	"	1	"	"	"	"	
Xylenes (total)	8.5	1.0	"	100	"	"	"	"	
Gasoline Range Hydrocarbons	130	0.50	"	1	"	"	"	"	

Date Sampled: **09/29/20 07:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		245 %	23-173		"	"	"	"	S-02
Surrogate: Toluene-d8		82.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		476 %	21-167		"	"	"	"	S-02

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/29/20 07:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	870	50	mg/kg	1	BDJ0025	10/06/20	10/08/20	EPA 8015M	

Date Sampled: **09/29/20 07:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		85.8 %	30-150		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



K.P. Kauffman
1675 Broadway
Denver CO, 80202

Project: Berge
Project Number: [none]
Project Manager: Max Knop

Reported:
10/12/20 17:32

PB-2-8
2010037-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/29/20 08:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	0.0056	0.0020	mg/kg	1	BDJ0026	10/06/20	10/07/20	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.021	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.084	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	35	0.50	"	"	"	"	"	"	

Date Sampled: **09/29/20 08:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<i>Surrogate: 1,2-Dichloroethane-d4</i>		109 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		95.9 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		161 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/29/20 08:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	86	50	mg/kg	1	BDJ0025	10/06/20	10/08/20	EPA 8015M	

Date Sampled: **09/29/20 08:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<i>Surrogate: o-Terphenyl</i>		85.4 %	30-150		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



K.P. Kauffman
1675 Broadway
Denver CO, 80202

Project: Berge
Project Number: [none]
Project Manager: Max Knop

Reported:
10/12/20 17:32

PB-5-2
2010037-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/29/20 09:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BDJ0059	10/07/20	10/09/20	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **09/29/20 09:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		96.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.4 %	21-167		"	"	"	"	

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K.P. Kauffman
1675 Broadway
Denver CO, 80202

Project: Berge
Project Number: [none]
Project Manager: Max Knop

Reported:
10/12/20 17:32

Volatile Organic Compounds by EPA Method 8260B - Quality Control

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Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch BDJ0026 - EPA 5030 Soil MS

Blank (BDJ0026-BLK1)

Prepared & Analyzed: 10/06/20

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0379		"	0.0400		94.6	23-173			
Surrogate: Toluene-d8	0.0415		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0370		"	0.0400		92.4	21-167			

LCS (BDJ0026-BS1)

Prepared: 10/06/20 Analyzed: 10/07/20

Benzene	0.0676	0.0020	mg/kg	0.0750		90.2	70-130			
Toluene	0.0701	0.0050	"	0.0750		93.5	70-130			
Ethylbenzene	0.0866	0.0050	"	0.0750		115	70-130			
m,p-Xylene	0.164	0.010	"	0.150		109	70-130			
o-Xylene	0.0844	0.0050	"	0.0750		113	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0305		"	0.0400		76.4	23-173			
Surrogate: Toluene-d8	0.0378		"	0.0400		94.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0371		"	0.0400		92.7	21-167			

Matrix Spike (BDJ0026-MS1)

Source: 2010019-01

Prepared: 10/06/20 Analyzed: 10/07/20

Benzene	0.0617	0.0020	mg/kg	0.0750	ND	82.3	70-130			
Toluene	0.0624	0.0050	"	0.0750	ND	83.2	70-130			
Ethylbenzene	0.0803	0.0050	"	0.0750	ND	107	70-130			
m,p-Xylene	0.156	0.010	"	0.150	0.00330	102	70-130			
o-Xylene	0.0802	0.0050	"	0.0750	ND	107	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0304		"	0.0400		76.0	23-173			
Surrogate: Toluene-d8	0.0382		"	0.0400		95.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0369		"	0.0400		92.2	21-167			

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Project Manager: Max Knop

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Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BDJ0026 - EPA 5030 Soil MS

Matrix Spike Dup (BDJ0026-MSD1)

Source: 2010019-01

Prepared: 10/06/20 Analyzed: 10/07/20

Benzene	0.0651	0.0020	mg/kg	0.0750	ND	86.8	70-130	5.30	30	
Toluene	0.0650	0.0050	"	0.0750	ND	86.7	70-130	4.10	30	
Ethylbenzene	0.0856	0.0050	"	0.0750	ND	114	70-130	6.40	30	
m,p-Xylene	0.167	0.010	"	0.150	0.00330	109	70-130	6.98	30	
o-Xylene	0.0843	0.0050	"	0.0750	ND	112	70-130	5.07	30	
Surrogate: 1,2-Dichloroethane-d4	0.0288		"	0.0400		72.1	23-173			
Surrogate: Toluene-d8	0.0376		"	0.0400		94.1	20-170			
Surrogate: 4-Bromofluorobenzene	0.0365		"	0.0400		91.2	21-167			

Batch BDJ0059 - EPA 5030 Water MS

Blank (BDJ0059-BLK1)

Prepared: 10/07/20 Analyzed: 10/08/20

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	12.7		"	13.3		95.3	23-173			
Surrogate: Toluene-d8	13.4		"	13.3		101	20-170			
Surrogate: 4-Bromofluorobenzene	12.0		"	13.3		90.1	21-167			

LCS (BDJ0059-BS1)

Prepared: 10/07/20 Analyzed: 10/08/20

Benzene	23.0	1.0	ug/l	33.3		68.9	51-132			
Toluene	28.4	1.0	"	33.3		85.3	51-138			
Ethylbenzene	36.3	1.0	"	33.3		109	58-146			
m,p-Xylene	76.6	2.0	"	66.7		115	57-144			
o-Xylene	37.8	1.0	"	33.3		113	53-146			
Surrogate: 1,2-Dichloroethane-d4	13.2		"	13.3		99.2	23-173			
Surrogate: Toluene-d8	13.5		"	13.3		101	20-170			
Surrogate: 4-Bromofluorobenzene	12.4		"	13.3		92.6	21-167			

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Project: Berge
Project Number: [none]
Project Manager: Max Knop

Reported:
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Volatile Organic Compounds by EPA Method 8260B - Quality Control

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Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BDJ0059 - EPA 5030 Water MS

Matrix Spike (BDJ0059-MS1)				Source: 2010037-03		Prepared: 10/07/20 Analyzed: 10/09/20				
Benzene	23.7	1.0	ug/l	33.3	ND	71.2	34-141			
Toluene	30.2	1.0	"	33.3	ND	90.7	27-151			
Ethylbenzene	38.5	1.0	"	33.3	ND	116	29-160			
m,p-Xylene	78.9	2.0	"	66.7	ND	118	20-166			
o-Xylene	40.2	1.0	"	33.3	ND	120	33-159			
Surrogate: 1,2-Dichloroethane-d4	13.2		"	13.3		98.9	23-173			
Surrogate: Toluene-d8	13.2		"	13.3		99.2	20-170			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		96.2	21-167			
Matrix Spike Dup (BDJ0059-MSD1)				Source: 2010037-03		Prepared: 10/07/20 Analyzed: 10/09/20				
Benzene	22.4	1.0	ug/l	33.3	ND	67.2	34-141	5.72	30	
Toluene	27.9	1.0	"	33.3	ND	83.8	27-151	7.88	30	
Ethylbenzene	37.4	1.0	"	33.3	ND	112	29-160	2.90	30	
m,p-Xylene	79.2	2.0	"	66.7	ND	119	20-166	0.418	30	
o-Xylene	39.2	1.0	"	33.3	ND	118	33-159	2.47	30	
Surrogate: 1,2-Dichloroethane-d4	14.3		"	13.3		107	23-173			
Surrogate: Toluene-d8	12.9		"	13.3		96.7	20-170			
Surrogate: 4-Bromofluorobenzene	12.4		"	13.3		92.7	21-167			

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1675 Broadway
Denver CO, 80202

Project: Berge
Project Number: [none]
Project Manager: Max Knop

Reported:
10/12/20 17:32

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Result	Reporting			Spike	Source	%REC		RPD	
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BDJ0025 - EPA 3550A

Blank (BDJ0025-BLK1)

Prepared: 10/06/20 Analyzed: 10/08/20

C10-C28 (DRO) ND 50 mg/kg

LCS (BDJ0025-BS1)

Prepared: 10/06/20 Analyzed: 10/08/20

C10-C28 (DRO) 560 50 mg/kg 500 112 70-130

Matrix Spike (BDJ0025-MS1)

Source: 2010004-01

Prepared: 10/06/20 Analyzed: 10/08/20

C10-C28 (DRO) 1270 50 mg/kg 500 463 161 70-130 QM-07

Matrix Spike Dup (BDJ0025-MSD1)

Source: 2010004-01

Prepared: 10/06/20 Analyzed: 10/08/20

C10-C28 (DRO) 786 50 mg/kg 500 463 64.5 70-130 46.9 20 QM-07

Summit Scientific

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Denver CO, 80202

Project: Berge
Project Number: [none]
Project Manager: Max Knop

Reported:
10/12/20 17:32

Notes and Definitions

S-02 The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference