

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

April 12, 2021

Max Knop

K.P. Kauffman

1675 Broadway

Denver, CO 80202

RE: Kiefer George W UT B #1A Flowline Release

Work Order #2103482

Enclosed are the results of analyses for samples received by Summit Scientific on 03/31/21 14:23. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury

President



K.P. Kauffman  
1675 Broadway  
Denver CO, 80202

Project: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
W Sample #1	2103482-01	Soil	03/30/21 13:00	03/31/21 14:23
S Sample #2	2103482-02	Soil	03/30/21 13:00	03/31/21 14:23
N Sample #3	2103482-03	Soil	03/30/21 13:00	03/31/21 14:23
Bottom Sample #4	2103482-04	Soil	03/30/21 13:00	03/31/21 14:23
SW Sample #5	2103482-05	Soil	03/30/21 13:00	03/31/21 14:23
NW Sample #6	2103482-06	Soil	03/30/21 13:00	03/31/21 14:23
NE Sample #7	2103482-07	Soil	03/30/21 13:00	03/31/21 14:23
SE Sample #8	2103482-08	Soil	03/30/21 13:00	03/31/21 14:23

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.*

## 2103482

Page 1 of 1

Project Manager:	Max Knop
E-Mail:	mknop@kpk.com; mduran@kpk.com
Project Name:	KIEFER GEORGE W UT B #1A Flowline Release
Project Number:	

				Preservative				Matrix				Analyze For:										Special Instructions				
Sample Description	Date Sampled	Time Sampled	Number of Containers	HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	Table 915-1 Suite														
W Sample #1	3/30/2021	13:00	1						x			x														
S Sample #2	3/30/2021	13:00	1						x			x														
N Sample #3	3/30/2021	13:00																								
Bottom Sample #4	3/30/2021	13:00																								
SW Sample #5	3/30/2021	13:00																								
NW Sample #6	3/30/2021	13:00																								
NE Sample #7	3/30/2021	13:00																								
SE Sample #8	3/30/2021	13:00																								
												New inorganic method										Notes:				
Relinquished by: <i>Stephanie Eilers</i>				Date/Time: <i>03/31/21 2:23 PM</i>				Received by: <i>[Signature]</i>				Date/Time: <i>2:23pm 3/31/21</i>				Turn Around Time (Check)										
																Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/>										
																24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/>										
Relinquished by:				Date/Time:				Received by:				Date/Time:				48 Hours <input type="checkbox"/>										
Relinquished by:				Date/Time:				Received in Lab by:				Date/Time:				Sample Integrity:										
																Temperature Upon Receipt: <i>3.4</i>										
																Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>										

S2 Work Order 2103482

Client: KP kauffman Client Project ID: Kieffer George W UT B #1A

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

☒ ☐ ☐ ☐ ☐

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

Temp (°C)	9.1
-----------	-----

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

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

MP	<i>Muri Premer</i>	3/31/21
Custodian Printed Name or Initials	Signature of Custodian	Date/Time



K.P. Kauffman  
1675 Broadway  
Denver CO, 80202

Project: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**W Sample #1**  
**2103482-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0080	04/06/21	04/07/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		94.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.7 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BED0052	04/05/21	04/06/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		95.1 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**W Sample #1**  
**2103482-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BED0022	04/01/21	04/03/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		86.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		87.1 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.487</b>	0.0100	mg/L	1	BED0081	04/06/21	04/07/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**W Sample #1**  
**2103482-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	5.91	0.240	mg/kg dry	1	BED0041	04/02/21	04/03/21	EPA 6020B
Barium	214	0.479	"	"	"	"	"	"
Cadmium	0.316	0.240	"	"	"	"	"	"
Copper	18.7	0.479	"	"	"	"	"	"
Lead	13.4	0.240	"	"	"	"	"	"
Nickel	18.5	0.479	"	"	"	"	"	"
Selenium	1.36	0.312	"	"	"	"	"	"
Silver	0.144	0.0240	"	"	"	"	"	"
Zinc	74.3	0.479	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BED0029	04/02/21	04/05/21	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	58.8	0.0599	mg/L dry	1	BED0121	04/07/21	04/09/21	EPA 6020B	
Magnesium	20.8	0.0599	"	"	"	"	"	"	
Sodium	33.6	0.0599	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.959	0.100	units	1	BED0169	04/09/21	04/09/21	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**W Sample #1**  
**2103482-01 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	83.4	%	1	BED0053	04/05/21	04/06/21	Calculation
----------	------	---	---	---------	----------	----------	-------------

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.362	0.0100	mmhos/cm	1	BED0151	04/08/21	04/08/21	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.60		pH Units	1	BED0152	04/08/21	04/08/21	EPA 9045D	

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**S Sample #2**  
**2103482-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BED0080	04/06/21	04/07/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		94.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.6 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BED0052	04/05/21	04/06/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		99.2 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**S Sample #2**  
**2103482-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BED0022	04/01/21	04/03/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		81.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		87.0 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.305</b>	0.0100	mg/L	1	BED0081	04/06/21	04/07/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**S Sample #2**  
**2103482-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	10.3	0.242	mg/kg dry	1	BED0041	04/02/21	04/03/21	EPA 6020B
Barium	255	0.485	"	"	"	"	"	"
Cadmium	0.608	0.242	"	"	"	"	"	"
Copper	25.8	0.485	"	"	"	"	"	"
Lead	19.1	0.242	"	"	"	"	"	"
Nickel	27.5	0.485	"	"	"	"	"	"
Selenium	1.95	0.315	"	"	"	"	"	"
Silver	0.189	0.0242	"	"	"	"	"	"
Zinc	101	0.485	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BED0029	04/02/21	04/05/21	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	551	0.0606	mg/L dry	1	BED0121	04/07/21	04/09/21	EPA 6020B	
Magnesium	173	0.0606	"	"	"	"	"	"	
Sodium	361	0.0606	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.44	0.100	units	1	BED0169	04/09/21	04/09/21	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**S Sample #2**  
**2103482-02 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	82.6	%	1	BED0053	04/05/21	04/06/21	Calculation
----------	------	---	---	---------	----------	----------	-------------

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	4.19	0.0100	mmhos/cm	1	BED0151	04/08/21	04/08/21	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.84		pH Units	1	BED0152	04/08/21	04/08/21	EPA 9045D	

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**N Sample #3**  
**2103482-03 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BED0080	04/06/21	04/07/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		91.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.6 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BED0052	04/05/21	04/06/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		102 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**N Sample #3**  
**2103482-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BED0022	04/01/21	04/03/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		81.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		82.2 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.423</b>	0.0100	mg/L	1	BED0081	04/06/21	04/07/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**N Sample #3**  
**2103482-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	5.66	0.223	mg/kg dry	1	BED0041	04/02/21	04/03/21	EPA 6020B
Barium	165	0.446	"	"	"	"	"	"
Cadmium	0.445	0.223	"	"	"	"	"	"
Copper	20.9	0.446	"	"	"	"	"	"
Lead	19.4	0.223	"	"	"	"	"	"
Nickel	15.0	0.446	"	"	"	"	"	"
Selenium	1.35	0.290	"	"	"	"	"	"
Silver	0.220	0.0223	"	"	"	"	"	"
Zinc	81.7	0.446	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BED0029	04/02/21	04/05/21	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	466	0.0558	mg/L dry	1	BED0121	04/07/21	04/09/21	EPA 6020B	
Magnesium	127	0.0558	"	"	"	"	"	"	
Sodium	355	0.0558	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.76	0.100	units	1	BED0169	04/09/21	04/09/21	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**N Sample #3**  
**2103482-03 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	89.6	%	1	BED0053	04/05/21	04/06/21	Calculation
----------	------	---	---	---------	----------	----------	-------------

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	3.91	0.0100	mmhos/cm	1	BED0151	04/08/21	04/08/21	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.08		pH Units	1	BED0152	04/08/21	04/08/21	EPA 9045D	

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**Bottom Sample #4**  
**2103482-04 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BED0080	04/06/21	04/07/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		93.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BED0052	04/05/21	04/06/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		88.2 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**Bottom Sample #4**  
**2103482-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BED0022	04/01/21	04/03/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		79.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		82.5 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.355</b>	0.0100	mg/L	1	BED0081	04/06/21	04/07/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**Bottom Sample #4**  
**2103482-04 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	4.55	0.252	mg/kg dry	1	BED0041	04/02/21	04/03/21	EPA 6020B
Barium	175	0.503	"	"	"	"	"	"
Cadmium	0.286	0.252	"	"	"	"	"	"
Copper	14.8	0.503	"	"	"	"	"	"
Lead	9.26	0.252	"	"	"	"	"	"
Nickel	15.3	0.503	"	"	"	"	"	"
Selenium	1.26	0.327	"	"	"	"	"	"
Silver	0.0596	0.0252	"	"	"	"	"	"
Zinc	61.1	0.503	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BED0029	04/02/21	04/05/21	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	80.6	0.0629	mg/L dry	1	BED0121	04/07/21	04/09/21	EPA 6020B	
Magnesium	23.5	0.0629	"	"	"	"	"	"	
Sodium	104	0.0629	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.62	0.100	units	1	BED0169	04/09/21	04/09/21	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**Bottom Sample #4**  
**2103482-04 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	79.5	%	1	BED0053	04/05/21	04/06/21	Calculation
----------	------	---	---	---------	----------	----------	-------------

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	<b>0.909</b>	0.0100	mmhos/cm	1	BED0151	04/08/21	04/08/21	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	<b>8.38</b>		pH Units	1	BED0152	04/08/21	04/08/21	EPA 9045D	

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**SW Sample #5**  
**2103482-05 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BED0080	04/06/21	04/07/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		98.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		89.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.4 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BED0052	04/05/21	04/06/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		96.4 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**SW Sample #5**  
**2103482-05 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BED0022	04/01/21	04/03/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		79.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		79.0 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.487</b>	0.0100	mg/L	1	BED0081	04/06/21	04/07/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**SW Sample #5**  
**2103482-05 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	9.57	0.225	mg/kg dry	1	BED0041	04/02/21	04/03/21	EPA 6020B
Barium	268	0.450	"	"	"	"	"	"
Cadmium	0.697	0.225	"	"	"	"	"	"
Copper	28.2	0.450	"	"	"	"	"	"
Lead	20.8	0.225	"	"	"	"	"	"
Nickel	24.7	0.450	"	"	"	"	"	"
Selenium	2.18	0.293	"	"	"	"	"	"
Silver	0.207	0.0225	"	"	"	"	"	"
Zinc	116	0.450	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BED0029	04/02/21	04/05/21	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	339	0.0563	mg/L dry	1	BED0121	04/07/21	04/09/21	EPA 6020B	
Magnesium	131	0.0563	"	"	"	"	"	"	
Sodium	448	0.0563	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	5.24	0.100	units	1	BED0169	04/09/21	04/09/21	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**SW Sample #5**  
**2103482-05 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	88.8	%	1	BED0053	04/05/21	04/06/21	Calculation
----------	------	---	---	---------	----------	----------	-------------

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	3.91	0.0100	mmhos/cm	1	BED0151	04/08/21	04/08/21	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.17		pH Units	1	BED0152	04/08/21	04/08/21	EPA 9045D	

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**NW Sample #6**  
**2103482-06 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BED0080	04/06/21	04/07/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		92.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.0 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BED0052	04/05/21	04/07/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		85.1 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**NW Sample #6**  
**2103482-06 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BED0022	04/01/21	04/03/21	EPA 8270D SIM	
<b>Anthracene</b>	<b>0.0109</b>	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
<b>Fluoranthene</b>	<b>0.00570</b>	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
<b>Pyrene</b>	<b>0.00537</b>	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		91.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		90.2 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.336</b>	0.0100	mg/L	1	BED0081	04/06/21	04/07/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**NW Sample #6**  
**2103482-06 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	9.71	0.249	mg/kg dry	1	BED0041	04/02/21	04/03/21	EPA 6020B
Barium	266	0.497	"	"	"	"	"	"
Cadmium	0.439	0.249	"	"	"	"	"	"
Copper	25.5	0.497	"	"	"	"	"	"
Lead	18.5	0.249	"	"	"	"	"	"
Nickel	27.3	0.497	"	"	"	"	"	"
Selenium	2.04	0.323	"	"	"	"	"	"
Silver	0.183	0.0249	"	"	"	"	"	"
Zinc	107	0.497	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BED0029	04/02/21	04/05/21	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	67.3	0.0622	mg/L dry	1	BED0121	04/07/21	04/09/21	EPA 6020B	
Magnesium	30.6	0.0622	"	"	"	"	"	"	
Sodium	182	0.0622	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	4.62	0.100	units	1	BED0169	04/09/21	04/09/21	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**NW Sample #6**  
**2103482-06 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	80.4	%	1	BED0053	04/05/21	04/06/21	Calculation
----------	------	---	---	---------	----------	----------	-------------

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.62	0.0100	mmhos/cm	1	BED0151	04/08/21	04/08/21	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.45		pH Units	1	BED0152	04/08/21	04/08/21	EPA 9045D	

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**NE Sample #7**  
**2103482-07 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BED0080	04/06/21	04/07/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		90.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.7 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BED0052	04/05/21	04/07/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		88.5 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**NE Sample #7**  
**2103482-07 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BED0022	04/01/21	04/03/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		84.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		93.3 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.368</b>	0.0100	mg/L	1	BED0081	04/06/21	04/07/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**NE Sample #7**  
**2103482-07 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	7.23	0.261	mg/kg dry	1	BED0041	04/02/21	04/03/21	EPA 6020B
Barium	227	0.523	"	"	"	"	"	"
Cadmium	0.383	0.261	"	"	"	"	"	"
Copper	19.2	0.523	"	"	"	"	"	"
Lead	13.9	0.261	"	"	"	"	"	"
Nickel	20.4	0.523	"	"	"	"	"	"
Selenium	1.48	0.340	"	"	"	"	"	"
Silver	0.145	0.0261	"	"	"	"	"	"
Zinc	82.4	0.523	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BED0029	04/02/21	04/05/21	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	72.2	0.0653	mg/L dry	1	BED0121	04/07/21	04/09/21	EPA 6020B	
Magnesium	30.7	0.0653	"	"	"	"	"	"	
Sodium	187	0.0653	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	4.65	0.100	units	1	BED0169	04/09/21	04/09/21	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**NE Sample #7**  
**2103482-07 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	76.5	%	1	BED0053	04/05/21	04/06/21	Calculation
----------	------	---	---	---------	----------	----------	-------------

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.26	0.0100	mmhos/cm	1	BED0151	04/08/21	04/08/21	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.44		pH Units	1	BED0152	04/08/21	04/08/21	EPA 9045D	

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**SE Sample #8**  
**2103482-08 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BED0080	04/06/21	04/07/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		90.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.5 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BED0052	04/05/21	04/07/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		87.7 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**SE Sample #8**  
**2103482-08 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BED0022	04/01/21	04/03/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		80.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		82.8 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.450</b>	0.0100	mg/L	1	BED0081	04/06/21	04/07/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**SE Sample #8**  
**2103482-08 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	8.92	0.227	mg/kg dry	1	BED0041	04/02/21	04/03/21	EPA 6020B
Barium	222	0.455	"	"	"	"	"	"
Cadmium	0.547	0.227	"	"	"	"	"	"
Copper	24.0	0.455	"	"	"	"	"	"
Lead	16.6	0.227	"	"	"	"	"	"
Nickel	26.0	0.455	"	"	"	"	"	"
Selenium	1.82	0.296	"	"	"	"	"	"
Silver	0.154	0.0227	"	"	"	"	"	"
Zinc	97.7	0.455	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BED0029	04/02/21	04/05/21	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	234	0.0569	mg/L dry	1	BED0121	04/07/21	04/09/21	EPA 6020B	
Magnesium	108	0.0569	"	"	"	"	"	"	
Sodium	494	0.0569	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	6.70	0.100	units	1	BED0169	04/09/21	04/09/21	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**SE Sample #8**  
**2103482-08 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	87.9	%	1	BED0053	04/05/21	04/06/21	Calculation
----------	------	---	---	---------	----------	----------	-------------

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	3.59	0.0100	mmhos/cm	1	BED0151	04/08/21	04/08/21	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **03/30/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.34		pH Units	1	BED0152	04/08/21	04/08/21	EPA 9045D	

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

## 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 BED0080 - EPA 5030 Soil MS

##### Blank (BED0080-BLK1)

Prepared: 04/06/21 Analyzed: 04/07/21

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0353		"	0.0400		88.2	23-173			
Surrogate: Toluene-d8	0.0411		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.4	21-167			

##### LCS (BED0080-BS1)

Prepared: 04/06/21 Analyzed: 04/07/21

Benzene	0.0779	0.0020	mg/kg	0.100		77.9	70-130			
Toluene	0.0825	0.0050	"	0.100		82.5	70-130			
Ethylbenzene	0.0891	0.0050	"	0.100		89.1	70-130			
m,p-Xylene	0.155	0.010	"	0.200		77.5	70-130			
o-Xylene	0.0776	0.0050	"	0.100		77.6	70-130			
1,2,4-Trimethylbenzene	0.0820	0.0050	"	0.100		82.0	70-130			
1,3,5-Trimethylbenzene	0.0771	0.0050	"	0.100		77.1	70-130			
Naphthalene	0.0865	0.0038	"	0.100		86.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0313		"	0.0400		78.2	23-173			
Surrogate: Toluene-d8	0.0382		"	0.0400		95.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0380		"	0.0400		94.9	21-167			

##### Matrix Spike (BED0080-MS1)

Source: 2103472-01

Prepared: 04/06/21 Analyzed: 04/07/21

Benzene	0.0854	0.0020	mg/kg	0.100	ND	85.4	70-130			
Toluene	0.0826	0.0050	"	0.100	ND	82.6	70-130			
Ethylbenzene	0.0969	0.0050	"	0.100	ND	96.9	70-130			
m,p-Xylene	0.166	0.010	"	0.200	ND	83.0	70-130			
o-Xylene	0.0833	0.0050	"	0.100	ND	83.3	70-130			
1,2,4-Trimethylbenzene	0.0851	0.0050	"	0.100	ND	85.1	70-130			
1,3,5-Trimethylbenzene	0.0801	0.0050	"	0.100	ND	80.1	70-130			
Naphthalene	0.0931	0.0038	"	0.100	ND	93.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0332		"	0.0400		83.0	23-173			
Surrogate: Toluene-d8	0.0344		"	0.0400		86.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0374		"	0.0400		93.5	21-167			

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

## 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 BED0080 - EPA 5030 Soil MS

Matrix Spike Dup (BED0080-MSD1)	Source: 2103472-01			Prepared: 04/06/21 Analyzed: 04/07/21						
Benzene	0.0878	0.0020	mg/kg	0.100	ND	87.8	70-130	2.77	30	
Toluene	0.0856	0.0050	"	0.100	ND	85.6	70-130	3.57	30	
Ethylbenzene	0.0973	0.0050	"	0.100	ND	97.3	70-130	0.463	30	
m,p-Xylene	0.165	0.010	"	0.200	ND	82.7	70-130	0.435	30	
o-Xylene	0.0848	0.0050	"	0.100	ND	84.8	70-130	1.75	30	
1,2,4-Trimethylbenzene	0.0874	0.0050	"	0.100	ND	87.4	70-130	2.64	30	
1,3,5-Trimethylbenzene	0.0819	0.0050	"	0.100	ND	81.9	70-130	2.15	30	
Naphthalene	0.0946	0.0038	"	0.100	ND	94.6	70-130	1.57	30	
Surrogate: 1,2-Dichloroethane-d4	0.0364		"	0.0400		91.0	23-173			
Surrogate: Toluene-d8	0.0351		"	0.0400		87.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0382		"	0.0400		95.5	21-167			

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**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 BED0052 - EPA 3550A**

**Blank (BED0052-BLK1)**

Prepared: 04/05/21 Analyzed: 04/06/21

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								

**LCS (BED0052-BS1)**

Prepared: 04/05/21 Analyzed: 04/06/21

C10-C28 (DRO)	569	50	mg/kg	500		114	70-130				
---------------	-----	----	-------	-----	--	-----	--------	--	--	--	--

**Matrix Spike (BED0052-MS1)**

Source: 2103113-05

Prepared: 04/05/21 Analyzed: 04/06/21

C10-C28 (DRO)	472	50	mg/kg	500	27.0	89.0	70-130				
---------------	-----	----	-------	-----	------	------	--------	--	--	--	--

**Matrix Spike Dup (BED0052-MSD1)**

Source: 2103113-05

Prepared: 04/05/21 Analyzed: 04/06/21

C10-C28 (DRO)	472	50	mg/kg	500	27.0	89.0	70-130	0.0778	20		
---------------	-----	----	-------	-----	------	------	--------	--------	----	--	--

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BED0022 - EPA 5030 Soil MS

##### Blank (BED0022-BLK1)

Prepared: 04/01/21 Analyzed: 04/02/21

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0310		"	0.0333		92.9	40-150			
Surrogate: Fluoranthene-d10	0.0301		"	0.0333		90.2	40-150			

##### LCS (BED0022-BS1)

Prepared: 04/01/21 Analyzed: 04/02/21

Acenaphthene	0.0357	0.00500	mg/kg	0.0333	107	31-137
Anthracene	0.0355	0.00500	"	0.0333	107	30-120
Benzo (a) anthracene	0.0334	0.00500	"	0.0333	100	30-120
Benzo (a) pyrene	0.0367	0.00500	"	0.0333	110	30-120
Benzo (b) fluoranthene	0.0381	0.00500	"	0.0333	114	30-120
Benzo (k) fluoranthene	0.0359	0.00500	"	0.0333	108	30-120
Chrysene	0.0341	0.00500	"	0.0333	102	30-120
Dibenz (a,h) anthracene	0.0310	0.00500	"	0.0333	92.9	30-120
Fluoranthene	0.0270	0.00500	"	0.0333	80.9	30-120
Fluorene	0.0217	0.00500	"	0.0333	65.0	30-120
Indeno (1,2,3-cd) pyrene	0.0398	0.00500	"	0.0333	119	30-120
Pyrene	0.0262	0.00500	"	0.0333	78.5	35-142
1-Methylnaphthalene	0.0298	0.00500	"	0.0333	89.3	35-142
2-Methylnaphthalene	0.0310	0.00500	"	0.0333	93.0	35-142
Surrogate: 2-Methylnaphthalene-d10	0.0314		"	0.0333	94.1	40-150
Surrogate: Fluoranthene-d10	0.0339		"	0.0333	102	40-150

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BED0022 - EPA 5030 Soil MS

##### Matrix Spike (BED0022-MS1)

Source: 2103466-01

Prepared: 04/01/21 Analyzed: 04/02/21

Acenaphthene	0.0356	0.00500	mg/kg	0.0333	ND	107	31-137				
Anthracene	0.0367	0.00500	"	0.0333	ND	110	30-120				
Benzo (a) anthracene	0.0333	0.00500	"	0.0333	ND	99.9	30-120				
Benzo (a) pyrene	0.0375	0.00500	"	0.0333	ND	112	30-120				
Benzo (b) fluoranthene	0.0392	0.00500	"	0.0333	ND	118	30-120				
Benzo (k) fluoranthene	0.0374	0.00500	"	0.0333	ND	112	30-120				
Chrysene	0.0347	0.00500	"	0.0333	ND	104	30-120				
Dibenz (a,h) anthracene	0.0324	0.00500	"	0.0333	ND	97.2	30-120				
Fluoranthene	0.0274	0.00500	"	0.0333	ND	82.3	30-120				
Fluorene	0.0199	0.00500	"	0.0333	ND	59.6	30-120				
Indeno (1,2,3-cd) pyrene	0.0340	0.00500	"	0.0333	ND	102	30-120				
Pyrene	0.0261	0.00500	"	0.0333	ND	78.3	35-142				
1-Methylnaphthalene	0.0294	0.00500	"	0.0333	ND	88.2	15-130				
2-Methylnaphthalene	0.0323	0.00500	"	0.0333	ND	96.8	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0315		"	0.0333		94.5	40-150				
Surrogate: Fluoranthene-d10	0.0343		"	0.0333		103	40-150				

##### Matrix Spike Dup (BED0022-MSD1)

Source: 2103466-01

Prepared: 04/01/21 Analyzed: 04/02/21

Acenaphthene	0.0397	0.00500	mg/kg	0.0333	ND	119	31-137	11.0	30
Anthracene	0.0380	0.00500	"	0.0333	ND	114	30-120	3.27	30
Benzo (a) anthracene	0.0361	0.00500	"	0.0333	ND	108	30-120	8.09	30
Benzo (a) pyrene	0.0382	0.00500	"	0.0333	ND	115	30-120	1.84	30
Benzo (b) fluoranthene	0.0350	0.00500	"	0.0333	ND	105	30-120	11.3	30
Benzo (k) fluoranthene	0.0325	0.00500	"	0.0333	ND	97.5	30-120	13.9	30
Chrysene	0.0373	0.00500	"	0.0333	ND	112	30-120	7.08	30
Dibenz (a,h) anthracene	0.0306	0.00500	"	0.0333	ND	91.7	30-120	5.85	30
Fluoranthene	0.0284	0.00500	"	0.0333	ND	85.2	30-120	3.54	30
Fluorene	0.0238	0.00500	"	0.0333	ND	71.3	30-120	17.9	30
Indeno (1,2,3-cd) pyrene	0.0350	0.00500	"	0.0333	ND	105	30-120	2.88	30
Pyrene	0.0285	0.00500	"	0.0333	ND	85.6	35-142	8.94	30
1-Methylnaphthalene	0.0323	0.00500	"	0.0333	ND	96.9	15-130	9.41	50
2-Methylnaphthalene	0.0344	0.00500	"	0.0333	ND	103	15-130	6.41	50
Surrogate: 2-Methylnaphthalene-d10	0.0326		"	0.0333		97.9	40-150		
Surrogate: Fluoranthene-d10	0.0351		"	0.0333		105	40-150		

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control**

**Summit Scientific**

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

**Batch BED0081 - EPA 3050B**

**Blank (BED0081-BLK1)**

Prepared: 04/06/21 Analyzed: 04/07/21

Boron ND 0.0100 mg/L

**LCS (BED0081-BS1)**

Prepared: 04/06/21 Analyzed: 04/07/21

Boron 5.31 0.0100 mg/L 5.00 106 80-120

**Duplicate (BED0081-DUP1)**

**Source: 2103289-01**

Prepared: 04/06/21 Analyzed: 04/07/21

Boron 0.0469 0.0100 mg/L 0.0490 4.36 20

**Matrix Spike (BED0081-MS1)**

**Source: 2103289-01**

Prepared: 04/06/21 Analyzed: 04/07/21

Boron 5.38 0.0100 mg/L 5.00 0.0490 107 75-125

**Matrix Spike Dup (BED0081-MSD1)**

**Source: 2103289-01**

Prepared: 04/06/21 Analyzed: 04/07/21

Boron 5.30 0.0100 mg/L 5.00 0.0490 105 75-125 1.47 25

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

## Total Metals by EPA 6020B - Quality Control

### Summit Scientific

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

#### Batch BED0041 - EPA 3050B

##### Blank (BED0041-BLK1)

Prepared: 04/02/21 Analyzed: 04/03/21

Arsenic	ND	0.200	mg/kg wet
Barium	ND	0.400	"
Cadmium	ND	0.200	"
Copper	ND	0.400	"
Lead	ND	0.200	"
Nickel	ND	0.400	"
Selenium	ND	0.260	"
Silver	ND	0.0200	"
Zinc	ND	0.400	"

##### LCS (BED0041-BS1)

Prepared: 04/02/21 Analyzed: 04/03/21

Arsenic	45.2	0.200	mg/kg wet	40.0	113	80-120
Barium	35.0	0.400	"	40.0	87.5	80-120
Cadmium	1.96	0.200	"	2.00	98.0	80-120
Copper	38.7	0.400	"	40.0	96.8	80-120
Lead	16.1	0.200	"	20.0	80.7	80-120
Nickel	39.1	0.400	"	40.0	97.6	80-120
Selenium	3.94	0.260	"	4.00	98.5	80-120
Silver	1.81	0.0200	"	2.00	90.5	80-120
Zinc	47.4	0.400	"	40.0	119	80-120

##### Duplicate (BED0041-DUP1)

Source: 2103482-01

Prepared: 04/02/21 Analyzed: 04/03/21

Arsenic	6.64	0.240	mg/kg dry	5.91	11.6	30
Barium	235	0.479	"	214	9.18	30
Cadmium	0.323	0.240	"	0.316	2.15	30
Copper	20.3	0.479	"	18.7	8.28	30
Lead	14.3	0.240	"	13.4	6.74	30
Nickel	20.2	0.479	"	18.5	8.87	30
Selenium	1.43	0.312	"	1.36	5.33	30
Silver	0.162	0.0240	"	0.144	12.0	30
Zinc	81.1	0.479	"	74.3	8.73	30

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

### Total Metals by EPA 6020B - Quality Control

#### Summit Scientific

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

#### Batch BED0041 - EPA 3050B

##### Matrix Spike (BED0041-MS1)

Source: 2103482-01

Prepared: 04/02/21 Analyzed: 04/03/21

Arsenic	56.8	0.240	mg/kg dry	47.9	5.91	106	75-125
Barium	253	0.479	"	47.9	214	79.9	75-125
Cadmium	2.61	0.240	"	2.40	0.316	95.7	75-125
Copper	62.7	0.479	"	47.9	18.7	91.9	75-125
Lead	32.0	0.240	"	24.0	13.4	77.9	75-125
Nickel	64.4	0.479	"	47.9	18.5	95.7	75-125
Selenium	5.02	0.312	"	4.79	1.36	76.4	75-125
Silver	2.26	0.0240	"	2.40	0.144	88.4	75-125
Zinc	128	0.479	"	47.9	74.3	112	75-125

##### Matrix Spike Dup (BED0041-MSD1)

Source: 2103482-01

Prepared: 04/02/21 Analyzed: 04/03/21

Arsenic	61.2	0.240	mg/kg dry	47.9	5.91	115	75-125	7.45	25
Barium	251	0.479	"	47.9	214	76.2	75-125	0.713	25
Cadmium	3.13	0.240	"	2.40	0.316	118	75-125	18.3	25
Copper	70.7	0.479	"	47.9	18.7	108	75-125	11.9	25
Lead	38.3	0.240	"	24.0	13.4	104	75-125	17.9	25
Nickel	68.1	0.479	"	47.9	18.5	103	75-125	5.62	25
Selenium	6.38	0.312	"	4.79	1.36	105	75-125	23.7	25
Silver	2.72	0.0240	"	2.40	0.144	107	75-125	18.2	25
Zinc	116	0.479	"	47.9	74.3	86.7	75-125	10.1	25

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**Hexavalent Chromium by EPA Method 7196 - Quality Control**  
**Summit Scientific**

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

**Batch BED0029 - 3060A Mod**

**Blank (BED0029-BLK1)**

Prepared: 04/02/21 Analyzed: 04/05/21

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BED0029-BS1)**

Prepared: 04/02/21 Analyzed: 04/05/21

Chromium, Hexavalent 22.9 0.30 mg/kg wet 25.0 91.6 80-120

**Duplicate (BED0029-DUP1)**

**Source: 2102086-05**

Prepared: 04/02/21 Analyzed: 04/05/21

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BED0029-MS1)**

**Source: 2102086-05**

Prepared: 04/02/21 Analyzed: 04/05/21

Chromium, Hexavalent 27.4 0.30 mg/kg dry 28.3 ND 97.0 75-125

**Matrix Spike Dup (BED0029-MSD1)**

**Source: 2102086-05**

Prepared: 04/02/21 Analyzed: 04/05/21

Chromium, Hexavalent 27.3 0.30 mg/kg dry 28.3 ND 96.4 75-125 0.620 20

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control**

**Summit Scientific**

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

**Batch BED0121 - General Preparation**

**Blank (BED0121-BLK1)**

Prepared: 04/07/21 Analyzed: 04/09/21

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

**LCS (BED0121-BS1)**

Prepared: 04/07/21 Analyzed: 04/09/21

Calcium	6.09	0.0500	mg/L wet	5.00	122	70-130
Magnesium	6.50	0.0500	"	5.00	130	70-130
Sodium	6.08	0.0500	"	5.00	122	70-130

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**Physical Parameters by APHA/ASTM/EPA Methods - Quality Control**

**Summit Scientific**

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

**Batch BED0053 - General Preparation**

Duplicate (BED0053-DUP1)		Source: 2103388-07		Prepared: 04/05/21 Analyzed: 04/06/21	
% Solids	95.5		%	95.5	0.00469 20

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control**

**Summit Scientific**

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

**Batch BED0151 - General Preparation**

**Blank (BED0151-BLK1)**

Prepared & Analyzed: 04/08/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BED0151-BS1)**

Prepared & Analyzed: 04/08/21

Specific Conductance (EC) 0.152 0.0100 mmhos/cm 0.150 101 90-110

**Duplicate (BED0151-DUP1)**

**Source: 2103341-03**

Prepared & Analyzed: 04/08/21

Specific Conductance (EC) 4.61 0.0100 mmhos/cm 4.50 2.42 20

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control**

**Summit Scientific**

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

**Batch BED0152 - General Preparation**

**LCS (BED0152-BS1)**

Prepared & Analyzed: 04/08/21

pH	9.29	pH Units	9.21	101	95-105
----	------	----------	------	-----	--------

**Duplicate (BED0152-DUP1)**

**Source: 2103341-03**

Prepared & Analyzed: 04/08/21

pH	8.18	pH Units	8.11	0.859	20
----	------	----------	------	-------	----

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: Kiefer George W UT B #1A Flowline Release

Project Number: [none]  
Project Manager: Max Knop

**Reported:**  
04/12/21 13:39

### Notes and Definitions

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