

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

April 17, 2019

Alyssa Beard

Foundation Energy

1801 Broadway, Suite 1500

Denver, CO 80202

RE: Federal 23-4

Enclosed are the results of analyses for samples received by Summit Scientific on 04/10/19 16:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink on a light blue background. The signature is written in a cursive style and reads "Muri Premier".

Muri Premier For Ben Shrewsbury

Laboratory Manager



Foundation Energy  
1801 Broadway, Suite 1500  
Denver CO, 80202

Project: Federal 23-4

Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
04/17/19 13:01

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B @3'	1904147-01	Soil	04/08/19 11:15	04/10/19 16:00
S @2'	1904147-02	Soil	04/08/19 11:10	04/10/19 16:00
W @2'	1904147-03	Soil	04/08/19 11:05	04/10/19 16:00
N @2'	1904147-04	Soil	04/08/19 11:00	04/10/19 16:00
E @2'	1904147-05	Soil	04/08/19 10:55	04/10/19 16:00

Summit Scientific

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# Summit Scientific

S<sub>2</sub>

4653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310

1904147

Page 1 of 1

Client: Foundation Energy

Project Manager: Alyssa Beard

Address: 1801 Broadway, Suite 1500

E-Mail: abeard@foundationenergy.com

City/State/Zip: Denver, CO 80202

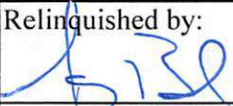
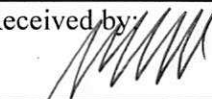

Phone: 303.844.2114 720 257 2302

Project Name: Federal 23-4

Sampler Name: Alyssa Beard

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions
					HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	GBTEX	DRO	PH	EC	SAR		
1	B@3'	4/8/19	11:15	1						X				↓	↓	↓	↓	↓	
2	S@2'	4/8/19	11:10	1						X				↓	↓	↓	↓	↓	
3	W@2'	4/8/19	11:05	1						X				↓	↓	↓	↓	↓	
4	N@2'	4/8/19	11:00	1						X				↓	↓	↓	↓	↓	
5	E@2'	4/8/19	10:55	1						X				↓	↓	↓	↓	↓	
6																			
7																			
8																			
9																			
10																			

Relinquished by: 	Date/Time: 4/10/19 1608	Received by:	Date/Time:	Turn Around Time (Check)	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:	Same Day <input type="checkbox"/> 72 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 hours <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received by: 	Date/Time: 4-10-19 1600	Sample Integrity: Temperature Upon Receipt: 5.2 on  Samples Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

# Sample Receipt Checklist

S2 Work Order 1904147

Client: Foundation

Client Project ID: Federal 23-4

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>5.2</u>
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Thermometer ID: 61857155-K

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

Additional Comments (if any):

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

Custodian Printed Name or Initials

Signature of Custodian

4-10-19 1606  
Date/Time



Foundation Energy  
1801 Broadway, Suite 1500  
Denver CO, 80202

Project: Federal 23-4

Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
04/17/19 13:01

**B @3'**  
**1904147-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **04/08/19 11:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1904204	04/12/19	04/13/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/08/19 11:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.2 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/08/19 11:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1904205	04/12/19	04/13/19	EPA 8015M	

Date Sampled: **04/08/19 11:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		106 %	30-150		"	"	"	"	

**Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis**

Date Sampled: **04/08/19 11:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	2700	11.9	mg/kg dry	1	1904213	04/12/19	04/12/19	EPA 6020B	
Magnesium	1000	5.93	"	"	"	"	"	"	

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Foundation Energy  
1801 Broadway, Suite 1500  
Denver CO, 80202

Project: Federal 23-4  
Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
04/17/19 13:01

**B @3'**  
**1904147-01 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis**

Sodium	9.13	5.93	mg/kg dry	1	1904213	04/12/19	04/12/19	EPA 6020B
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**Calculated Analysis**

Date Sampled: **04/08/19 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	ND	0.100	units	1	1904262	04/16/19	04/16/19	Calculation	

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

Date Sampled: **04/08/19 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	84.3		%	1	1904165	04/11/19	04/11/19	Calculation	
pH	8.45		pH Units	"	1904242	04/12/19	04/12/19	EPA 9045D	

**Specific Conductance by EPA Method 120.1**

Date Sampled: **04/08/19 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.482	0.0100	mmhos/cm	1	1904243	04/16/19	04/17/19	EPA 120.1	

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Foundation Energy  
1801 Broadway, Suite 1500  
Denver CO, 80202

Project: Federal 23-4

Project Number: [none]

Project Manager: Alyssa Beard

**Reported:**  
04/17/19 13:01

**S @2'**  
**1904147-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **04/08/19 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1904204	04/12/19	04/13/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/08/19 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.0 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/08/19 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1904205	04/12/19	04/13/19	EPA 8015M	

Date Sampled: **04/08/19 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		106 %	30-150		"	"	"	"	

**Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis**

Date Sampled: **04/08/19 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1440	11.3	mg/kg dry	1	1904213	04/12/19	04/12/19	EPA 6020B	
Magnesium	650	5.66	"	"	"	"	"	"	
Sodium	43.6	5.66	"	"	"	"	"	"	

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Foundation Energy  
1801 Broadway, Suite 1500  
Denver CO, 80202

Project: Federal 23-4

Project Number: [none]

Project Manager: Alyssa Beard

**Reported:**  
04/17/19 13:01

**S @2'**  
**1904147-02 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis**

**Calculated Analysis**

Date Sampled: **04/08/19 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.240	0.100	units	1	1904262	04/16/19	04/16/19	Calculation	

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

Date Sampled: **04/08/19 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	88.3		%	1	1904165	04/11/19	04/11/19	Calculation	
pH	8.31		pH Units	"	1904242	04/12/19	04/12/19	EPA 9045D	

**Specific Conductance by EPA Method 120.1**

Date Sampled: **04/08/19 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.736	0.0100	mmhos/cm	1	1904243	04/16/19	04/17/19	EPA 120.1	

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Foundation Energy  
1801 Broadway, Suite 1500  
Denver CO, 80202

Project: Federal 23-4

Project Number: [none]

Project Manager: Alyssa Beard

**Reported:**  
04/17/19 13:01

**W @2'**  
**1904147-03 (Soil)**

### Summit Scientific

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

Date Sampled: **04/08/19 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1904204	04/12/19	04/13/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/08/19 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		110 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.8 %	21-167		"	"	"	"	

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/08/19 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1904205	04/12/19	04/13/19	EPA 8015M	

Date Sampled: **04/08/19 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		116 %	30-150		"	"	"	"	

#### Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis

Date Sampled: **04/08/19 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1500	11.1	mg/kg dry	1	1904213	04/12/19	04/12/19	EPA 6020B	
Magnesium	730	5.54	"	"	"	"	"	"	
Sodium	8.99	5.54	"	"	"	"	"	"	

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1801 Broadway, Suite 1500  
Denver CO, 80202

Project: Federal 23-4

Project Number: [none]

Project Manager: Alyssa Beard

**Reported:**  
04/17/19 13:01

**W @2'**  
**1904147-03 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis**

**Calculated Analysis**

Date Sampled: **04/08/19 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	ND	0.100	units	1	1904262	04/16/19	04/16/19	Calculation	

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

Date Sampled: **04/08/19 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	<b>90.2</b>		%	1	1904165	04/11/19	04/11/19	Calculation	
pH	<b>8.66</b>		pH Units	"	1904242	04/12/19	04/12/19	EPA 9045D	

**Specific Conductance by EPA Method 120.1**

Date Sampled: **04/08/19 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	<b>0.293</b>	0.0100	mmhos/cm	1	1904243	04/16/19	04/17/19	EPA 120.1	

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Foundation Energy  
1801 Broadway, Suite 1500  
Denver CO, 80202

Project: Federal 23-4

Project Number: [none]

Project Manager: Alyssa Beard

**Reported:**  
04/17/19 13:01

**N @2'**  
**1904147-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **04/08/19 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1904204	04/12/19	04/13/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/08/19 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.3 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/08/19 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1904205	04/12/19	04/13/19	EPA 8015M	

Date Sampled: **04/08/19 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		111 %	30-150		"	"	"	"	

**Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis**

Date Sampled: **04/08/19 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	1810	11.4	mg/kg dry	1	1904213	04/12/19	04/12/19	EPA 6020B	
Magnesium	929	5.72	"	"	"	"	"	"	
Sodium	51.4	5.72	"	"	"	"	"	"	

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Foundation Energy  
1801 Broadway, Suite 1500  
Denver CO, 80202

Project: Federal 23-4

Project Number: [none]

Project Manager: Alyssa Beard

**Reported:**  
04/17/19 13:01

**N @2'**  
**1904147-04 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis**

**Calculated Analysis**

Date Sampled: **04/08/19 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.245	0.100	units	1	1904262	04/16/19	04/16/19	Calculation	

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

Date Sampled: **04/08/19 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.4		%	1	1904165	04/11/19	04/11/19	Calculation	
pH	7.96		pH Units	"	1904242	04/12/19	04/12/19	EPA 9045D	

**Specific Conductance by EPA Method 120.1**

Date Sampled: **04/08/19 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	3.64	0.0100	mmhos/cm	1	1904243	04/16/19	04/17/19	EPA 120.1	

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Foundation Energy  
1801 Broadway, Suite 1500  
Denver CO, 80202

Project: Federal 23-4  
Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
04/17/19 13:01

**E @2'**  
**1904147-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **04/08/19 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1904204	04/12/19	04/13/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>11</b>	0.50	"	"	"	"	"	"	

Date Sampled: **04/08/19 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		173 %	21-167		"	"	"	"	S-02

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/08/19 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<b>C10-C28 (DRO)</b>	<b>540</b>	50	mg/kg	1	1904205	04/12/19	04/13/19	EPA 8015M	

Date Sampled: **04/08/19 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		106 %	30-150		"	"	"	"	

**Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis**

Date Sampled: **04/08/19 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<b>Calcium</b>	<b>2950</b>	11.4	mg/kg dry	1	1904213	04/12/19	04/12/19	EPA 6020B	
<b>Magnesium</b>	<b>1380</b>	5.70	"	"	"	"	"	"	
<b>Sodium</b>	<b>193</b>	5.70	"	"	"	"	"	"	

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Foundation Energy  
1801 Broadway, Suite 1500  
Denver CO, 80202

Project: Federal 23-4

Project Number: [none]

Project Manager: Alyssa Beard

**Reported:**  
04/17/19 13:01

**E @2'**  
**1904147-05 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis**

**Calculated Analysis**

Date Sampled: **04/08/19 10:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.735	0.100	units	1	1904262	04/16/19	04/16/19	Calculation	

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

Date Sampled: **04/08/19 10:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.8		%	1	1904165	04/11/19	04/11/19	Calculation	
pH	7.63		pH Units	"	1904242	04/12/19	04/12/19	EPA 9045D	

**Specific Conductance by EPA Method 120.1**

Date Sampled: **04/08/19 10:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	3.87	0.0100	mmhos/cm	1	1904243	04/16/19	04/17/19	EPA 120.1	

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Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
04/17/19 13:01

## 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 1904204 - EPA 5030 Soil MS

##### Blank (1904204-BLK1)

Prepared: 04/12/19 Analyzed: 04/13/19

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	0.0403		"	0.0400		101	23-173			
Surrogate: Toluene-d8	0.0373		"	0.0400		93.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0395		"	0.0400		98.7	21-167			

##### LCS (1904204-BS1)

Prepared: 04/12/19 Analyzed: 04/13/19

Benzene	0.147	0.0020	mg/kg	0.150		98.0	70-130			
Toluene	0.167	0.0050	"	0.150		112	70-130			
Ethylbenzene	0.146	0.0050	"	0.150		97.1	70-130			
m,p-Xylene	0.292	0.010	"	0.300		97.5	70-130			
o-Xylene	0.136	0.0050	"	0.150		90.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0434		"	0.0400		108	23-173			
Surrogate: Toluene-d8	0.0457		"	0.0400		114	20-170			
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400		97.4	21-167			

##### Matrix Spike (1904204-MS1)

Source: 1904147-01

Prepared: 04/12/19 Analyzed: 04/13/19

Benzene	0.136	0.0020	mg/kg	0.150	ND	90.8	70-130			
Toluene	0.160	0.0050	"	0.150	ND	106	70-130			
Ethylbenzene	0.148	0.0050	"	0.150	ND	99.0	70-130			
m,p-Xylene	0.293	0.010	"	0.300	ND	97.7	70-130			
o-Xylene	0.136	0.0050	"	0.150	ND	90.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0424		"	0.0400		106	23-173			
Surrogate: Toluene-d8	0.0435		"	0.0400		109	20-170			
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400		97.2	21-167			

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Project Manager: Alyssa Beard

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04/17/19 13:01

## 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 1904204 - EPA 5030 Soil MS

##### Matrix Spike Dup (1904204-MSD1)

Source: 1904147-01

Prepared: 04/12/19 Analyzed: 04/13/19

Benzene	0.140	0.0020	mg/kg	0.150	ND	93.3	70-130	2.78	30	
Toluene	0.172	0.0050	"	0.150	ND	115	70-130	7.44	30	
Ethylbenzene	0.152	0.0050	"	0.150	ND	101	70-130	2.47	30	
m,p-Xylene	0.302	0.010	"	0.300	ND	101	70-130	3.04	30	
o-Xylene	0.139	0.0050	"	0.150	ND	92.7	70-130	2.45	30	
Surrogate: 1,2-Dichloroethane-d4	0.0424		"	0.0400		106	23-173			
Surrogate: Toluene-d8	0.0471		"	0.0400		118	20-170			
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400		97.2	21-167			

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Project Manager: Alyssa Beard

**Reported:**  
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**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch 1904205 - EPA 3550A**

**Blank (1904205-BLK1)**

Prepared: 04/12/19 Analyzed: 04/13/19

C10-C28 (DRO) ND 50 mg/kg

**LCS (1904205-BS1)**

Prepared: 04/12/19 Analyzed: 04/13/19

C10-C28 (DRO) 548 50 mg/kg 500 110 70-130

**Matrix Spike (1904205-MS1)**

**Source: 1904146-01**

Prepared: 04/12/19 Analyzed: 04/13/19

C10-C28 (DRO) 507 50 mg/kg 500 35.7 94.3 70-130

**Matrix Spike Dup (1904205-MSD1)**

**Source: 1904146-01**

Prepared: 04/12/19 Analyzed: 04/13/19

C10-C28 (DRO) 511 50 mg/kg 500 35.7 95.1 70-130 0.792 20

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**Reported:**  
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**Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis - Quality Control**

**Summit Scientific**

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

**Batch 1904213 - General Preparation**

**Blank (1904213-BLK1)**

Prepared & Analyzed: 04/12/19

Calcium	ND	10.0	mg/kg wet
Magnesium	ND	5.00	"
Sodium	ND	5.00	"

**LCS (1904213-BS1)**

Prepared & Analyzed: 04/12/19

Calcium	500	10.0	mg/kg wet	500	100	70-130
Magnesium	532	5.00	"	500	106	70-130
Sodium	527	5.00	"	500	105	70-130

**Duplicate (1904213-DUP1)**

Source: 1904147-01

Prepared & Analyzed: 04/12/19

Calcium	2270	11.9	mg/kg dry	2700	17.3	20
Magnesium	841	5.93	"	1000	17.6	20
Sodium	7.65	5.93	"	9.13	17.7	20

**Matrix Spike (1904213-MS1)**

Source: 1904147-01

Prepared & Analyzed: 04/12/19

Calcium	3450	11.9	mg/kg dry	593	2700	126	70-130
Magnesium	1540	5.93	"	593	1000	90.8	70-130
Sodium	587	5.93	"	593	9.13	97.5	70-130

**Matrix Spike Dup (1904213-MSD1)**

Source: 1904147-01

Prepared & Analyzed: 04/12/19

Calcium	3420	11.9	mg/kg dry	593	2700	122	70-130	0.713	25
Magnesium	1570	5.93	"	593	1000	95.0	70-130	1.59	25
Sodium	577	5.93	"	593	9.13	95.8	70-130	1.75	25

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Project: Federal 23-4

Project Number: [none]

Project Manager: Alyssa Beard

**Reported:**  
04/17/19 13:01

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

#### Summit Scientific

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

#### Batch 1904165 - General Preparation

##### Duplicate (1904165-DUP1)

Source: 1904135-01

Prepared & Analyzed: 04/11/19

% Solids	82.1	%		82.3		0.239	20
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#### Batch 1904242 - General Preparation

##### LCS (1904242-BS1)

Prepared & Analyzed: 04/12/19

pH	9.37	pH Units		9.23		102	95-105
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##### Duplicate (1904242-DUP1)

Source: 1904142-01

Prepared & Analyzed: 04/12/19

pH	8.89	pH Units		8.84		0.564	20
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Project: Federal 23-4

Project Number: [none]

Project Manager: Alyssa Beard

**Reported:**  
04/17/19 13:01

### Specific Conductance by EPA Method 120.1 - Quality Control

#### Summit Scientific

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

#### Batch 1904243 - General Preparation

##### Blank (1904243-BLK1)

Prepared: 04/16/19 Analyzed: 04/17/19

Specific Conductance (EC) ND 0.0100 mmhos/cm

##### LCS (1904243-BS1)

Prepared: 04/16/19 Analyzed: 04/17/19

Specific Conductance (EC) 0.769 0.0100 mmhos/cm 0.750 103 90-110

##### Duplicate (1904243-DUP1)

Source: 1904142-01

Prepared: 04/16/19 Analyzed: 04/17/19

Specific Conductance (EC) 0.529 0.0100 mmhos/cm 0.624 16.4 20

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04/17/19 13:01

### 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.
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