

# Summit Scientific

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August 13, 2018

Alyssa Beard

Foundation Energy

1801 Broadway, Suite 1500

Denver, CO 80202

RE: SOS 4-4

Enclosed are the results of analyses for samples received by Summit Scientific on 08/08/18 09:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury

Laboratory Manager



Foundation Energy  
1801 Broadway, Suite 1500  
Denver CO, 80202

Project: SOS 4-4

Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
08/13/18 07:35

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
North@2'	1808117-01	Soil	08/07/18 11:00	08/08/18 09:00
South@2'	1808117-02	Soil	08/07/18 11:10	08/08/18 09:00
East@2'	1808117-03	Soil	08/07/18 11:20	08/08/18 09:00
West@2'	1808117-04	Soil	08/07/18 11:30	08/08/18 09:00

Summit Scientific

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**Sample Receipt Checklist**

1808117

S2 Work Order \_\_\_\_\_

Client: FOUNDATION ENERGY Client Project ID: SOS 4-4

Shipped Via: P.U. Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

Temp (°C)	<u>.4</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> ?				
NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	x			
Were all samples received intact <sup>(1)</sup> ?	x			
Was adequate sample volume provided <sup>(1)</sup> ?	x			
If custody seals are present, are they intact <sup>(1)</sup> ?			x	
Are samples with holding times due within 48 hours sample due within 48 hours present?			x	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	x			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	x			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	x			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	x			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>			x	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?				
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			x	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?				
Record the pH in Comments.			x	
If dissolved metals are requested, were samples field filtered?			x	
Additional Comments (if any):				

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

Muri  
 Custodian Printed Name or Initials

[Signature] 8-8-18  
 Signature of Custodian

12:15  
 Date/Time



Foundation Energy  
1801 Broadway, Suite 1500  
Denver CO, 80202

Project: SOS 4-4

Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
08/13/18 07:35

**North@2'**  
**1808117-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/07/18 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	3540	13.5	mg/kg dry	1	1808113	08/09/18	08/10/18	EPA 6020B	
Magnesium	471	6.75	"	"	"	"	"	"	
Sodium	734	6.75	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/07/18 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	3.08	0.100	units	1	1808129	08/10/18	08/10/18	Calculation	

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

Date Sampled: **08/07/18 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	74.1		%	1	1808109	08/09/18	08/10/18	Calculation	

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1801 Broadway, Suite 1500  
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Project: SOS 4-4

Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
08/13/18 07:35

**South@2'**  
**1808117-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/07/18 11:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Calcium</b>	<b>2950</b>	15.0	mg/kg dry	1	1808113	08/09/18	08/10/18	EPA 6020B	
<b>Magnesium</b>	<b>442</b>	7.51	"	"	"	"	"	"	
<b>Sodium</b>	<b>604</b>	7.51	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/07/18 11:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>2.74</b>	0.100	units	1	1808129	08/10/18	08/10/18	Calculation	

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

Date Sampled: **08/07/18 11:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>% Solids</b>	<b>66.6</b>		%	1	1808109	08/09/18	08/10/18	Calculation	

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Project: SOS 4-4

Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
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**East@2'**  
**1808117-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/07/18 11:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	2730	13.8	mg/kg dry	1	1808113	08/09/18	08/10/18	EPA 6020B	
Magnesium	441	6.90	"	"	"	"	"	"	
Sodium	211	6.90	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/07/18 11:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.988	0.100	units	1	1808129	08/10/18	08/10/18	Calculation	

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

Date Sampled: **08/07/18 11:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	72.5		%	1	1808109	08/09/18	08/10/18	Calculation	

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Project: SOS 4-4

Project Number: [none]  
Project Manager: Alyssa Beard

**Reported:**  
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**West@2'**  
**1808117-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/07/18 11:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Calcium</b>	<b>1660</b>	12.0	mg/kg dry	1	1808113	08/09/18	08/10/18	EPA 6020B	
<b>Magnesium</b>	<b>236</b>	5.98	"	"	"	"	"	"	
<b>Sodium</b>	<b>701</b>	5.98	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/07/18 11:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>4.26</b>	0.100	units	1	1808129	08/10/18	08/10/18	Calculation	

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

Date Sampled: **08/07/18 11:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>% Solids</b>	<b>83.6</b>		%	1	1808109	08/09/18	08/10/18	Calculation	

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Project: SOS 4-4

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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		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch 1808113 - General Preparation**

**Blank (1808113-BLK1)**

Prepared & Analyzed: 08/09/18

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

**LCS (1808113-BS1)**

Prepared & Analyzed: 08/09/18

Calcium	446	10.0	mg/kg wet	500		89.2	70-130		
Magnesium	492	5.00	"	500		98.4	70-130		
Sodium	496	5.00	"	500		99.2	70-130		

**Duplicate (1808113-DUP1)**

Source: 1808060-03

Prepared & Analyzed: 08/09/18

Calcium	328	11.6	mg/kg dry		320			2.44	20
Magnesium	172	5.81	"		189			9.67	20
Sodium	19.0	5.81	"		21.2			10.9	20

**Matrix Spike (1808113-MS1)**

Source: 1808060-03

Prepared & Analyzed: 08/09/18

Calcium	855	11.6	mg/kg dry	581	320	92.0	70-130		
Magnesium	676	5.81	"	581	189	83.8	70-130		
Sodium	473	5.81	"	581	21.2	77.8	70-130		

**Matrix Spike Dup (1808113-MSD1)**

Source: 1808060-03

Prepared & Analyzed: 08/09/18

Calcium	816	11.6	mg/kg dry	581	320	85.3	70-130	4.71	25
Magnesium	768	5.81	"	581	189	99.5	70-130	12.7	25
Sodium	441	5.81	"	581	21.2	72.2	70-130	7.12	25

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**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 1808109 - General Preparation**

**Duplicate (1808109-DUP1)**

**Source: 1808102-01**

Prepared: 08/09/18 Analyzed: 08/10/18

% Solids	96.8	%		97.1		0.242	20
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Project Number: [none]  
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### 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