



# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

December 21, 2018

Brandon Bruns

Tasman Geosciences

6899 Pecos St, Unit C

Denver, CO 80221

RE: Noble - Cecil USX A1-13,14

Enclosed are the results of analyses for samples received by Summit Scientific on 12/14/18 18:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury For Ben Shrewsbury

Laboratory Manager



Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Cecil USX A1-13,14

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/21/18 08:01

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS04@2'	1812191-04	Soil	12/14/18 12:12	12/14/18 18:45
SS05@5'	1812191-05	Soil	12/14/18 12:15	12/14/18 18:45

Summit Scientific

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# Summit Scientific

1812191

741 Corporate Circle Suite I ♦ Golden, Colorado 80401

303-277-9310 ♦ 303-374-5933 Fax

Page 1 of 1

Client: Noble/Tasman  
 Address: -  
 City/State/Zip: -  
 Phone: 303-487-1228 Fax: -  
 Sampler Name: GB

Project Manager: Brandon Bruns, Invoice: Jacob Evans  
 E-Mail: Bbruns@tasman-geo.com  
 Project Name: Cecil USX A1-13,14  
 Project Number: -

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix				Analyze For:								Special Instructions		
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR	140LD						
SS01 @ 2'	12/14/18	1205	1			X			X					X	X	X						
SS02 @ 2'		1207	1			X			X					X	X	X						
SS03 @ 2'		1210	1			X			X					X	X	X						
SS04 @ 2'		1212	1			X			X					X	X	X						
SS05 @ 5'		1215	1			X			X					X	X	X						
Relinquished by:	Date/Time: 1845 12/14/18			Received by:				Date/Time: 12-14-18 1845				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 in Lab by:				Date/Time:				Sample Integrity: Temperature Upon Receipt: 7.1 Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>										



# Sample Receipt Checklist

S2 Work Order: 1812191

Client: Noble/Tasman Client Project ID: Cecil USX A1-13,14

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

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

Temp (°C)	<u>7.1</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.	<u>  </u>			
Were all samples received intact <sup>(1)</sup> ?	<u>  </u>			
Was adequate sample volume provided <sup>(1)</sup> ?	<u>  </u>			
If custody seals are present, are they intact <sup>(1)</sup> ?			<u>  </u>	
Are samples with holding times due within 48 hours sample due within 48 hours present?			<u>  </u>	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	<u>  </u>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<u>  </u>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<u>  </u>			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<u>  </u>			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>			<u>  </u>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?			<u>  </u>	
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> ?			<u>  </u>	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			<u>  </u>	
Additional Comments (if any):				

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

LP  
Custodian Printed Name or Initials

[Signature]  
Signature or Initials of Custodian

12.14.18 1845  
Date/Time



Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Cecil USX A1-13,14

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/21/18 08:01

**SS04@2'**  
**1812191-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **12/14/18 12:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1812212	12/14/18	12/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **12/14/18 12:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.6 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/14/18 12:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1812213	"	12/18/18	EPA 8015M	

Date Sampled: **12/14/18 12:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.7 %	30-150		"	"	"	"	

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

Date Sampled: **12/14/18 12:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	<b>523</b>	11.5	mg/kg dry	1	1812243	12/18/18	12/18/18	EPA 6020B	

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6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Cecil USX A1-13,14

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/21/18 08:01

**SS04@2'**  
**1812191-04 (Soil)**

**Summit Scientific**

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

Magnesium	243	5.77	mg/kg dry	1	1812243	12/18/18	12/18/18	EPA 6020B
Sodium	108	5.77	"	"	"	"	"	"

**Calculated Analysis**

Date Sampled: **12/14/18 12:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.979	0.100	units	1	1812288	12/20/18	12/20/18	Calculation	

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

Date Sampled: **12/14/18 12:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	86.7		%	1	1812248	12/19/18	12/19/18	Calculation	
pH	8.21		pH Units	"	1812250	12/19/18	12/19/18	EPA 9045D	

**Specific Conductance by EPA Method 120.1**

Date Sampled: **12/14/18 12:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.64	0.0100	mmhos/cm	1	1812249	12/19/18	12/19/18	EPA 120.1	

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6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Cecil USX A1-13,14

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/21/18 08:01

**SS05@5'**  
**1812191-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **12/14/18 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1812212	12/14/18	12/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **12/14/18 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		94.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		89.4 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/14/18 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1812213	"	12/18/18	EPA 8015M	

Date Sampled: **12/14/18 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		96.9 %	30-150		"	"	"	"	

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6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Cecil USX A1-13,14

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
12/21/18 08:01

## 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 1812212 - EPA 5030 Soil MS

##### Blank (1812212-BLK1)

Prepared: 12/14/18 Analyzed: 12/18/18

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Naphthalene	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0416		"	0.0396	105	23-173				
Surrogate: Toluene-d8	0.0386		"	0.0400	96.5	20-170				
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400	97.4	21-167				

##### LCS (1812212-BS1)

Prepared: 12/14/18 Analyzed: 12/18/18

Benzene	0.0945	0.0020	mg/kg	0.100	94.5	70-130				
Toluene	0.0913	0.0050	"	0.100	91.3	70-130				
Ethylbenzene	0.0917	0.0050	"	0.100	91.7	70-130				
m,p-Xylene	0.175	0.010	"	0.200	87.6	70-130				
o-Xylene	0.0904	0.0050	"	0.100	90.4	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0392		"	0.0396	99.1	23-173				
Surrogate: Toluene-d8	0.0395		"	0.0400	98.7	20-170				
Surrogate: 4-Bromofluorobenzene	0.0378		"	0.0400	94.6	21-167				

##### Matrix Spike (1812212-MS1)

Source: 1812173-01

Prepared: 12/14/18 Analyzed: 12/18/18

Benzene	0.0794	0.0020	mg/kg	0.100	ND	79.4	70-130			
Toluene	0.0762	0.0050	"	0.100	ND	76.2	70-130			
Ethylbenzene	0.0770	0.0050	"	0.100	ND	77.0	70-130			
m,p-Xylene	0.145	0.010	"	0.200	ND	72.7	70-130			
o-Xylene	0.0733	0.0050	"	0.100	ND	73.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0393		"	0.0396	99.2	23-173				
Surrogate: Toluene-d8	0.0399		"	0.0400	99.8	20-170				
Surrogate: 4-Bromofluorobenzene	0.0373		"	0.0400	93.2	21-167				

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6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Cecil USX A1-13,14

Project Number: [none]  
Project Manager: Brandon Brun

**Reported:**  
12/21/18 08:01

**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 1812212 - EPA 5030 Soil MS**

Matrix Spike Dup (1812212-MSD1)		Source: 1812173-01			Prepared: 12/14/18 Analyzed: 12/18/18					
Benzene	0.0814	0.0020	mg/kg	0.100	ND	81.4	70-130	2.50	30	
Toluene	0.0778	0.0050	"	0.100	ND	77.8	70-130	2.18	30	
Ethylbenzene	0.0781	0.0050	"	0.100	ND	78.1	70-130	1.43	30	
m,p-Xylene	0.147	0.010	"	0.200	ND	73.3	70-130	0.904	30	
o-Xylene	0.0762	0.0050	"	0.100	ND	76.2	70-130	3.97	30	
<hr/>										
Surrogate: 1,2-Dichloroethane-d4	0.0418		"	0.0396		106	23-173			
Surrogate: Toluene-d8	0.0402		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0386		"	0.0400		96.6	21-167			

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Project: Noble - Cecil USX A1-13,14

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**Reported:**  
12/21/18 08:01

**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 1812213 - EPA 3550A**

**Blank (1812213-BLK1)**

Prepared: 12/14/18 Analyzed: 12/18/18

C10-C28 (DRO) ND 50 mg/kg

**LCS (1812213-BS1)**

Prepared: 12/14/18 Analyzed: 12/18/18

C10-C28 (DRO) 543 50 mg/kg 500 109 70-130

**Matrix Spike (1812213-MS1)**

**Source: 1812173-01**

Prepared: 12/14/18 Analyzed: 12/18/18

C10-C28 (DRO) 516 50 mg/kg 500 45.3 94.2 70-130

**Matrix Spike Dup (1812213-MSD1)**

**Source: 1812173-01**

Prepared: 12/14/18 Analyzed: 12/18/18

C10-C28 (DRO) 508 50 mg/kg 500 45.3 92.5 70-130 1.73 20

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6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Cecil USX A1-13,14

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/21/18 08:01

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

### Summit Scientific

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

#### Batch 1812243 - General Preparation

##### Blank (1812243-BLK1)

Prepared & Analyzed: 12/18/18

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

##### LCS (1812243-BS1)

Prepared & Analyzed: 12/18/18

Calcium	531	10.0	mg/kg wet	500	106	70-130
Magnesium	549	5.00	"	500	110	70-130
Sodium	556	5.00	"	500	111	70-130

##### Duplicate (1812243-DUP1)

Source: 1812139-01

Prepared & Analyzed: 12/18/18

Calcium	4020	12.2	mg/kg dry	3880	3.38	20
Magnesium	311	6.11	"	287	7.91	20
Sodium	1620	6.11	"	1660	2.54	20

##### Matrix Spike (1812243-MS1)

Source: 1812139-01

Prepared & Analyzed: 12/18/18

Calcium	4380	12.2	mg/kg dry	611	3880	81.0	70-130
Magnesium	885	6.11	"	611	287	97.8	70-130
Sodium	2150	6.11	"	611	1660	80.1	70-130

##### Matrix Spike Dup (1812243-MSD1)

Source: 1812139-01

Prepared & Analyzed: 12/18/18

Calcium	4580	12.2	mg/kg dry	611	3880	115	70-130	4.59	25
Magnesium	942	6.11	"	611	287	107	70-130	6.19	25
Sodium	2310	6.11	"	611	1660	106	70-130	7.03	25

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6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Cecil USX A1-13,14

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/21/18 08:01

**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 1812248 - General Preparation**

<b>Duplicate (1812248-DUP1)</b>		<b>Source: 1812139-01</b>			Prepared & Analyzed: 12/19/18					
% Solids	80.7		%		81.8			1.34	20	

**Batch 1812250 - General Preparation**

<b>LCS (1812250-BS1)</b>		Prepared & Analyzed: 12/19/18								
pH	9.22		pH Units	9.23		99.9	95-105			
<b>Duplicate (1812250-DUP1)</b>		<b>Source: 1812127-02</b>			Prepared & Analyzed: 12/19/18					
pH	8.85		pH Units	8.62		2.63	20			

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Denver CO, 80221

Project: Noble - Cecil USX A1-13,14

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/21/18 08:01

**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 1812249 - General Preparation**

**Blank (1812249-BLK1)**

Prepared & Analyzed: 12/19/18

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (1812249-BS1)**

Prepared & Analyzed: 12/19/18

Specific Conductance (EC) 0.756 0.0100 mmhos/cm 0.750 101 90-110

**Duplicate (1812249-DUP1)**

**Source: 1812127-02**

Prepared & Analyzed: 12/19/18

Specific Conductance (EC) 0.439 0.0100 mmhos/cm 0.422 3.86 20

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6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Cecil USX A1-13,14

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/21/18 08:01

### 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