



# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

August 06, 2018

Brandon Bruns

Tasman Geosciences

6899 Pecos St, Unit C

Denver, CO 80221

RE: Noble - Wells Ranch USX AA13-11,12,13,14,25

Enclosed are the results of analyses for samples received by Summit Scientific on 07/17/18 10:10. 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 - Wells Ranch USX AA13-11,12,13,14,25

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/06/18 16:17

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@3'	1807187-01	Soil	07/16/18 13:40	07/17/18 10:10
SS05@6'	1807187-05	Soil	07/16/18 13:48	07/17/18 10:10

Summit Scientific

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1807187

# Summit Scientific

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: 720-616-8383

Fax:


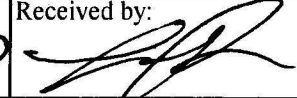
Sampler Name: J Whritenour

Project Manager: Brandon Bruns, Invoice: Jacob Evans

E-Mail: bbruns@tasman-geo.com

Project Name: Wells Ranch USX AA13-11,12,13,14,25

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)	8200GBTEXU	8015 DRO	SAR, PA, EC										
SS01@3'	7-16-18	1340				X							X	X	X									Hold SS02-SS04
SS02@3'		1342																						
SS03@3'		1344																						
SS04@3'		1346																						
SS05@6'		1348											X	X										
Relinquished by: 				Date/Time: 7/12/18 1010		Received by: 				Date/Time: 7-12-18 1010		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: 5.6 Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No												

# Sample Receipt Checklist

S2 Work Order 1807187

Client: Noble Tasman

Client Project ID: Wells Ranch USX AA13-11,12,13,14,25

Shipped Via: Pickup

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: \_\_\_\_\_

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

Temp (°C)	<u>5.6</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? If yes, contact client and note in narrative.			<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.

CP  
Custodian Printed Name or Initials

[Signature]  
Signature of Custodian

7.17.18 1010  
Date/Time



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

Project: Noble - Wells Ranch USX AA13-11,12,13,14,25

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/06/18 16:17

**SS01@3'**  
**1807187-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/16/18 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807191	07/18/18	07/18/18	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: **07/16/18 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		112 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/16/18 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807192	07/18/18	07/20/18	EPA 8015M	

Date Sampled: **07/16/18 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

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

Date Sampled: **07/16/18 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1300	11.0	mg/kg dry	1	1807228	07/19/18	07/20/18	EPA 6020B	

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6899 Pecos St, Unit C  
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Project: Noble - Wells Ranch USX AA13-11,12,13,14,25

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/06/18 16:17

**SS01@3'**  
**1807187-01 (Soil)**

**Summit Scientific**

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

Magnesium	120	5.51	mg/kg dry	1	1807228	07/19/18	07/20/18	EPA 6020B
Sodium	224	5.51	"	"	"	"	"	"

**Calculated Analysis**

Date Sampled: **07/16/18 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.59	0.100	units	1	1807273	07/23/18	07/23/18	Calculation	

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

Date Sampled: **07/16/18 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.8		%	1	1807206	07/18/18	07/19/18	Calculation	
pH	8.90		pH Units	"	1807210	07/18/18	07/18/18	EPA 9045D	

**Specific Conductance by EPA Method 120.1**

Date Sampled: **07/16/18 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.377	0.0100	mmhos/cm	1	1807211	07/18/18	07/18/18	EPA 120.1	

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6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Wells Ranch USX AA13-11,12,13,14,25

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/06/18 16:17

**SS05@6'**  
**1807187-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/16/18 13:48**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1807191	07/18/18	07/18/18	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: **07/16/18 13:48**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/16/18 13:48**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1807192	07/18/18	07/20/18	EPA 8015M	

Date Sampled: **07/16/18 13:48**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		107 %	30-150		"	"	"	"	

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Denver CO, 80221

Project: Noble - Wells Ranch USX AA13-11,12,13,14,25

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
08/06/18 16:17

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

#### Batch 1807191 - EPA 5030 Soil MS

##### Blank (1807191-BLK1)

Prepared & Analyzed: 07/18/18

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	0.0431		"	0.0396	109	23-173				
Surrogate: Toluene-d8	0.0394		"	0.0400	98.4	20-170				
Surrogate: 4-Bromofluorobenzene	0.0418		"	0.0400	105	21-167				

##### LCS (1807191-BS1)

Prepared & Analyzed: 07/18/18

Benzene	0.0833	0.0020	mg/kg	0.100	83.3	70-130				
Toluene	0.0869	0.0050	"	0.100	86.9	70-130				
Ethylbenzene	0.0873	0.0050	"	0.100	87.3	70-130				
m,p-Xylene	0.168	0.010	"	0.200	83.9	70-130				
o-Xylene	0.0860	0.0050	"	0.100	86.0	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0421		"	0.0396	106	23-173				
Surrogate: Toluene-d8	0.0415		"	0.0400	104	20-170				
Surrogate: 4-Bromofluorobenzene	0.0393		"	0.0400	98.2	21-167				

##### Matrix Spike (1807191-MS1)

Source: 1807187-01

Prepared & Analyzed: 07/18/18

Benzene	0.0817	0.0020	mg/kg	0.100	ND	81.7	70-130			
Toluene	0.0849	0.0050	"	0.100	ND	84.9	70-130			
Ethylbenzene	0.0875	0.0050	"	0.100	ND	87.5	70-130			
m,p-Xylene	0.167	0.010	"	0.200	ND	83.7	70-130			
o-Xylene	0.0852	0.0050	"	0.100	ND	85.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0421		"	0.0396	106	23-173				
Surrogate: Toluene-d8	0.0406		"	0.0400	102	20-170				
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400	98.6	21-167				

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Denver CO, 80221

Project: Noble - Wells Ranch USX AA13-11,12,13,14,25

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/06/18 16:17

**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 1807191 - EPA 5030 Soil MS**

Matrix Spike Dup (1807191-MSD1)		Source: 1807187-01			Prepared & Analyzed: 07/18/18					
Benzene	0.0790	0.0020	mg/kg	0.100	ND	79.0	70-130	3.36	30	
Toluene	0.0822	0.0050	"	0.100	ND	82.2	70-130	3.23	30	
Ethylbenzene	0.0848	0.0050	"	0.100	ND	84.8	70-130	3.17	30	
m,p-Xylene	0.162	0.010	"	0.200	ND	81.1	70-130	3.09	30	
o-Xylene	0.0835	0.0050	"	0.100	ND	83.5	70-130	2.06	30	
Surrogate: 1,2-Dichloroethane-d4		0.0415	"	0.0396		105	23-173			
Surrogate: Toluene-d8		0.0409	"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene		0.0394	"	0.0400		98.6	21-167			

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Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/06/18 16:17

**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 1807192 - EPA 3550A**

**Blank (1807192-BLK1)**

Prepared: 07/18/18 Analyzed: 07/20/18

C10-C28 (DRO) ND 50 mg/kg

**LCS (1807192-BS1)**

Prepared: 07/18/18 Analyzed: 07/20/18

C10-C28 (DRO) 503 50 mg/kg 500 101 70-130

**Matrix Spike (1807192-MS1)**

**Source: 1807187-01**

Prepared: 07/18/18 Analyzed: 07/20/18

C10-C28 (DRO) 500 50 mg/kg 500 34.1 93.1 70-130

**Matrix Spike Dup (1807192-MSD1)**

**Source: 1807187-01**

Prepared: 07/18/18 Analyzed: 07/20/18

C10-C28 (DRO) 505 50 mg/kg 500 34.1 94.1 70-130 1.01 20

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6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Wells Ranch USX AA13-11,12,13,14,25

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/06/18 16:17

## 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 1807228 - General Preparation

##### Blank (1807228-BLK1)

Prepared: 07/19/18 Analyzed: 07/20/18

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

##### LCS (1807228-BS1)

Prepared: 07/19/18 Analyzed: 07/20/18

Calcium	459	10.0	mg/kg wet	500	91.8	70-130
Magnesium	568	5.00	"	500	114	70-130
Sodium	592	5.00	"	500	118	70-130

##### Duplicate (1807228-DUP1)

Source: 1807186-01

Prepared: 07/19/18 Analyzed: 07/20/18

Calcium	1160	11.3	mg/kg dry	1100	4.64	20
Magnesium	213	5.63	"	202	5.43	20
Sodium	137	5.63	"	139	1.25	20

##### Matrix Spike (1807228-MS1)

Source: 1807186-01

Prepared: 07/19/18 Analyzed: 07/20/18

Calcium	1570	11.3	mg/kg dry	563	1100	83.8	70-130
Magnesium	815	5.63	"	563	202	109	70-130
Sodium	753	5.63	"	563	139	109	70-130

##### Matrix Spike Dup (1807228-MSD1)

Source: 1807186-01

Prepared: 07/19/18 Analyzed: 07/20/18

Calcium	1750	11.3	mg/kg dry	563	1100	115	70-130	10.6	25
Magnesium	823	5.63	"	563	202	110	70-130	0.947	25
Sodium	783	5.63	"	563	139	115	70-130	3.90	25

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6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Wells Ranch USX AA13-11,12,13,14,25

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/06/18 16:17

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

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

**Batch 1807206 - General Preparation**

<b>Duplicate (1807206-DUP1)</b>		<b>Source: 1807185-01</b>			Prepared: 07/18/18 Analyzed: 07/19/18					
% Solids	95.5		%		95.1			0.339	20	

**Batch 1807210 - General Preparation**

<b>LCS (1807210-BS1)</b>		Prepared & Analyzed: 07/18/18								
pH	9.2		pH Units	9.18		99.7	95-105			
<b>Duplicate (1807210-DUP1)</b>		<b>Source: 1807186-01</b>			Prepared & Analyzed: 07/18/18					
pH	8.2		pH Units		8.1			1.11	20	

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Project: Noble - Wells Ranch USX AA13-11,12,13,14,25

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
08/06/18 16:17

**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 1807211 - General Preparation**

**LCS (1807211-BS1)**

Prepared & Analyzed: 07/18/18

Specific Conductance (EC)	0.750	0.0100	mmhos/cm	0.750	100	90-110
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**Duplicate (1807211-DUP1)**

Source: 1807186-01

Prepared & Analyzed: 07/18/18

Specific Conductance (EC)	1.66	0.0100	mmhos/cm	1.70	2.23	20
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Tasman Geosciences  
6899 Pecos St, Unit C  
Denver CO, 80221

Project: Noble - Wells Ranch USX AA13-11,12,13,14,25

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/06/18 16:17

### 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