

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 18, 2018

Brandon Bruns
Tasman Geosciences
6899 Pecos St, Unit C
Denver, CO 80221
RE: Noble - Shable USX AB 11-3C

Enclosed are the results of analyses for samples received by Summit Scientific on 07/11/18 18:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury
Laboratory Manager



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

Project: Noble - Shable USX AB 11-3C

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/18/18 09:56

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@5'	1807129-01	Soil	07/11/18 13:50	07/11/18 18:30
SS02@3'	1807129-02	Soil	07/11/18 13:53	07/11/18 18:30

Summit Scientific

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Summit Scientific

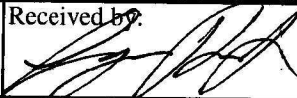
1807129

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: 970.210.6571 Fax: -
Sampler Name: T. Lichtenberg

Project Manager: Brandon Bruns, Invoice: Jacob Evans
E-Mail: Bbruns@tasman-geo.com
Project Name: SHABE USX AB 11-3C
Project Number:

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:								Special Instructions		
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR						
SS0105'	7/11/18	1350	1			X			X				X	X	X						PLEASE HOLD - SS0303' - SS0403' - SS0503'
SS0203'		1353											X	X	X						
SS0303'		1355																			
SS0403'		1357																			
SS0503'		1359																			
Relinquished by: <u> </u> Date/Time: <u>7-11-18 1830</u>				Received by: <u></u> Date/Time: <u>7-11-18 1830</u>				Turn Around Time (Check) 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"/>				Notes: <u> </u>									
Relinquished by: <u> </u> Date/Time: <u> </u>				Received by: <u> </u> Date/Time: <u> </u>																	
Relinquished by: <u> </u> Date/Time: <u> </u>				Received in Lab by: <u> </u> Date/Time: <u> </u>				Sample Integrity: Temperature Upon Receipt: <u>100</u> Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>													

Sample Receipt Checklist

1807129

S2 Work Order: _____

Client: Noble/TaamanClient Project ID: Shable USX AB 11-3CShipped Via: Pickup

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

Airbill #: _____

Matrix (check all that apply): Air ✓ Soil/Solid Water Other: _____
(Describe)

Temp (°C)	<u>13.0</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 ⁽¹⁾ ?	<u>✓</u>			
NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.				
Were all samples received intact ⁽¹⁾ ?	<u>✓</u>			
Was adequate sample volume provided ⁽¹⁾ ?	<u>✓</u>			
If custody seals are present, are they intact ⁽¹⁾ ?			<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 ⁽¹⁾ ?		<u>✓</u>		<u>name, analysis missing</u>
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<u>✓</u>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<u>✓</u>			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?		<u>✓</u>		<u>No sig.</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) ⁽¹⁾ ?			<u>✓</u>	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			<u>✓</u>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?			<u>✓</u>	
Record the pH in Comments.			<u>✓</u>	
If dissolved metals are requested, were samples field filtered?			<u>✓</u>	
Additional Comments (if any):				

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

Custodian Printed Name or Initials WSignature or Initials of Custodian [Signature]Date/Time 2.11.18 1830



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

Project: Noble - Shable USX AB 11-3C

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/18/18 09:56

SS01@5'
1807129-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/11/18 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807118	07/12/18	07/12/18	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: **07/11/18 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		96.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.5 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/11/18 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807117	07/12/18	07/13/18	EPA 8015M	

Date Sampled: **07/11/18 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		101 %	30-150		"	"	"	"	

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6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Shable USX AB 11-3C

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/18/18 09:56

SS02@3'
1807129-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/11/18 13:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807118	07/12/18	07/12/18	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: **07/11/18 13:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		93.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.2 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/11/18 13:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807117	07/12/18	07/13/18	EPA 8015M	

Date Sampled: **07/11/18 13:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		98.8 %	30-150		"	"	"	"	

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

Date Sampled: **07/11/18 13:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	807	11.0	mg/kg dry	1	1807133	07/12/18	07/12/18	EPA 6020B	
Magnesium	330	5.50	"	"	"	"	"	"	

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Project: Noble - Shable USX AB 11-3C
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/18/18 09:56

SS02@3'
1807129-02 (Soil)

Summit Scientific

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

Sodium	180	5.50 mg/kg dry	1	1807133	07/12/18	07/12/18	EPA 6020B
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Calculated Analysis

Date Sampled: **07/11/18 13:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.35	0.100	units	1	1807150	07/13/18	07/13/18	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/11/18 13:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.9		%	1	1807120	07/12/18	07/12/18	Calculation	
pH	8.37		pH Units	"	1807170	07/16/18	07/16/18	EPA 9045D	

Specific Conductance by EPA Method 120.1

Date Sampled: **07/11/18 13:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.910	0.0100	mmhos/cm	1	1807169	07/16/18	07/16/18	EPA 120.1	

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Project: Noble - Shable USX AB 11-3C

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/18/18 09:56

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 1807118 - EPA 5030 Soil MS

Blank (1807118-BLK1)

Prepared & Analyzed: 07/12/18

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	0.0370		"	0.0396	93.4	23-173				
Surrogate: Toluene-d8	0.0398		"	0.0400	99.6	20-170				
Surrogate: 4-Bromofluorobenzene	0.0382		"	0.0400	95.6	21-167				

LCS (1807118-BS1)

Prepared & Analyzed: 07/12/18

Benzene	0.0775	0.0020	mg/kg	0.100	77.5	70-130				
Toluene	0.0819	0.0050	"	0.100	81.9	70-130				
Ethylbenzene	0.0796	0.0050	"	0.100	79.6	70-130				
m,p-Xylene	0.153	0.010	"	0.200	76.5	70-130				
o-Xylene	0.0789	0.0050	"	0.100	78.9	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0357		"	0.0396	90.2	23-173				
Surrogate: Toluene-d8	0.0412		"	0.0400	103	20-170				
Surrogate: 4-Bromofluorobenzene	0.0384		"	0.0400	96.1	21-167				

Matrix Spike (1807118-MS1)

Source: 1807129-01

Prepared & Analyzed: 07/12/18

Benzene	0.0978	0.0020	mg/kg	0.100	ND	97.8	70-130			
Toluene	0.0717	0.0050	"	0.100	ND	71.7	70-130			
Ethylbenzene	0.0715	0.0050	"	0.100	ND	71.5	70-130			
m,p-Xylene	0.196	0.010	"	0.200	ND	98.2	70-130			
o-Xylene	0.0711	0.0050	"	0.100	ND	71.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0370		"	0.0396	93.4	23-173				
Surrogate: Toluene-d8	0.0410		"	0.0400	103	20-170				
Surrogate: 4-Bromofluorobenzene	0.0386		"	0.0400	96.4	21-167				

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6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Shable USX AB 11-3C

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/18/18 09:56

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 1807118 - EPA 5030 Soil MS

Matrix Spike Dup (1807118-MSD1)	Source: 1807129-01			Prepared & Analyzed: 07/12/18						
Benzene	0.0759	0.0020	mg/kg	0.100	ND	75.9	70-130	25.2	30	
Toluene	0.0808	0.0050	"	0.100	ND	80.8	70-130	12.0	30	
Ethylbenzene	0.0779	0.0050	"	0.100	ND	77.9	70-130	8.60	30	
m,p-Xylene	0.151	0.010	"	0.200	ND	75.3	70-130	26.4	30	
o-Xylene	0.0780	0.0050	"	0.100	ND	78.0	70-130	9.30	30	
Surrogate: 1,2-Dichloroethane-d4	0.0366		"	0.0396		92.4	23-173			
Surrogate: Toluene-d8	0.0409		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0380		"	0.0400		95.1	21-167			

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Project: Noble - Shable USX AB 11-3C

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/18/18 09:56

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1807117 - EPA 3550A

Blank (1807117-BLK1)

Prepared: 07/12/18 Analyzed: 07/13/18

C10-C28 (DRO) ND 50 mg/kg

LCS (1807117-BS1)

Prepared: 07/12/18 Analyzed: 07/13/18

C10-C28 (DRO) 471 50 mg/kg 70-130

Matrix Spike (1807117-MS1)

Source: 1807129-01

Prepared: 07/12/18 Analyzed: 07/13/18

C10-C28 (DRO) 487 50 mg/kg 27.8 70-130

Matrix Spike Dup (1807117-MSD1)

Source: 1807129-01

Prepared: 07/12/18 Analyzed: 07/13/18

C10-C28 (DRO) 471 50 mg/kg 27.8 70-130 3.30 20

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Project: Noble - Shable USX AB 11-3C

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/18/18 09:56

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

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

Batch 1807133 - General Preparation

Blank (1807133-BLK1)

Prepared & Analyzed: 07/12/18

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

LCS (1807133-BS1)

Prepared & Analyzed: 07/12/18

Calcium	486	10.0	mg/kg wet	500	97.2	70-130
Magnesium	518	5.00	"	500	104	70-130
Sodium	534	5.00	"	500	107	70-130

Duplicate (1807133-DUP1)

Source: 1807094-01

Prepared & Analyzed: 07/12/18

Calcium	1720	12.6	mg/kg dry	2010	15.6	20
Magnesium	730	6.30	"	832	13.1	20
Sodium	789	6.30	"	781	1.07	20

Matrix Spike (1807133-MS1)

Source: 1807094-01

Prepared & Analyzed: 07/12/18

Calcium	2460	12.6	mg/kg dry	630	2010	71.3	70-130
Magnesium	1400	6.30	"	630	832	89.4	70-130
Sodium	1500	6.30	"	630	781	114	70-130

Matrix Spike Dup (1807133-MSD1)

Source: 1807094-01

Prepared & Analyzed: 07/12/18

Calcium	2530	12.6	mg/kg dry	630	2010	82.6	70-130	2.84	25
Magnesium	1490	6.30	"	630	832	105	70-130	6.76	25
Sodium	1530	6.30	"	630	781	119	70-130	1.89	25

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6899 Pecos St, Unit C
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Project: Noble - Shable USX AB 11-3C

Project Number: [none]
Project Manager: Brandon Bruns

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

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

Batch 1807120 - General Preparation

Duplicate (1807120-DUP1) **Source: 1807128-01** Prepared & Analyzed: 07/12/18

% Solids	95.7		%		95.9			0.236	20	
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Batch 1807170 - General Preparation

LCS (1807170-BS1) Prepared & Analyzed: 07/16/18

pH	9.2		pH Units	9.18	99.7	95-105				
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Duplicate (1807170-DUP1) **Source: 1807129-02** Prepared & Analyzed: 07/16/18

pH	8.3		pH Units		8.4			0.960	20	
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6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Shable USX AB 11-3C

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/18/18 09:56

Specific Conductance by EPA Method 120.1 - Quality Control
Summit Scientific

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

Batch 1807169 - General Preparation

LCS (1807169-BS1)

Prepared & Analyzed: 07/16/18

Specific Conductance (EC)	0.748	0.0100	mmhos/cm	0.750	99.7	90-110
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Duplicate (1807169-DUP1)

Source: 1807129-02

Prepared & Analyzed: 07/16/18

Specific Conductance (EC)	0.896	0.0100	mmhos/cm	0.910	1.55	20
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6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Shable USX AB 11-3C

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/18/18 09:56

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