



Summit Scientific

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August 06, 2018

Brandon Bruns

Tasman Geosciences

6899 Pecos St, Unit C

Denver, CO 80221

RE: Noble - Trebor B 12-2,7

Enclosed are the results of analyses for samples received by Summit Scientific on 07/24/18 19:30. 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 - Trebor B 12-2,7

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/06/18 16:18

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@5'	1807307-01	Soil	07/24/18 12:45	07/24/18 19:30
SS05@3'	1807307-05	Soil	07/24/18 12:53	07/24/18 19:30

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1807307

Page 1 of 1

Project Manager: Brandon Bruns, Invoice: Jacob Evans
E-Mail: Bbruns@tasman-geo.com
Project Name: TREBOR B 12-2,7
Project Number: —

www.s2scientific.com

Sample Receipt Checklist

S2 Work Order 1807307

Client: Noble/Tsoman

Client Project ID: Trebor B 12-2, 7

Shipped Via: Pickup

Airbill #: _____

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

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

Temp (°C)

6.9

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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.				
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Record the pH in Comments.			<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				
<p>⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.</p>				

Custodian Printed Name or Initials W

Signature of Custodian [Signature]

7.24.18 1930
Date/Time



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Denver CO, 80221

Project: Noble - Trebor B 12-2,7

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/06/18 16:18

SS01@5'
1807307-01 (Soil)

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Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/24/18 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807296	07/25/18	07/25/18	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: **07/24/18 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/24/18 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	86	50	mg/kg	1	1807297	07/25/18	07/26/18	EPA 8015M	

Date Sampled: **07/24/18 12:45**

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

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Project: Noble - Trebor B 12-2,7

Project Number: [none]
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Reported:
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SS05@3'
1807307-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/24/18 12:53**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1807296	07/25/18	07/25/18	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: **07/24/18 12:53**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.5 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/24/18 12:53**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1807297	07/25/18	07/26/18	EPA 8015M	

Date Sampled: **07/24/18 12:53**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		100 %	30-150		"	"	"	"	

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

Date Sampled: **07/24/18 12:53**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	842	10.6	mg/kg dry	1	1807303	07/25/18	07/28/18	EPA 6020B	
Magnesium	66.8	5.28	"	"	"	"	"	"	

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SS05@3'
1807307-05 (Soil)

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

Sodium	431	5.28	mg/kg dry	1	1807303	07/25/18	07/28/18	EPA 6020B
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Calculated Analysis

Date Sampled: **07/24/18 12:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.85	0.100	units	1	1807342	07/30/18	07/30/18	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/24/18 12:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.8		%	1	1807302	07/25/18	07/26/18	Calculation	
pH	8.58		pH Units	"	1807331	07/27/18	07/30/18	EPA 9045D	

Specific Conductance by EPA Method 120.1

Date Sampled: **07/24/18 12:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.343	0.0100	mmhos/cm	1	1807332	07/27/18	07/30/18	EPA 120.1	

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Project: Noble - Trebor B 12-2,7

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
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Volatile Organic Compounds by EPA Method 8260B - Quality Control

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

Batch 1807296 - EPA 5030 Soil MS

Blank (1807296-BLK1)

Prepared: 07/25/18 Analyzed: 07/26/18

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	0.0368		"	0.0396		93.0		23-173			
Surrogate: Toluene-d8	0.0385		"	0.0400		96.3		20-170			
Surrogate: 4-Bromofluorobenzene	0.0402		"	0.0400		100		21-167			

LCS (1807296-BS1)

Prepared: 07/25/18 Analyzed: 07/26/18

Benzene	0.0801	0.0020	mg/kg	0.100		80.1		70-130			
Toluene	0.0910	0.0050	"	0.100		91.0		70-130			
Ethylbenzene	0.0987	0.0050	"	0.100		98.7		70-130			
m,p-Xylene	0.196	0.010	"	0.200		98.2		70-130			
o-Xylene	0.0923	0.0050	"	0.100		92.3		70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0356		"	0.0396		89.8		23-173			
Surrogate: Toluene-d8	0.0389		"	0.0400		97.3		20-170			
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400		97.2		21-167			

Matrix Spike (1807296-MS1)

Source: 1807306-01

Prepared: 07/25/18 Analyzed: 07/26/18

Benzene	0.0934	0.0020	mg/kg	0.100	ND	93.4		70-130			
Toluene	0.105	0.0050	"	0.100	ND	105		70-130			
Ethylbenzene	0.117	0.0050	"	0.100	ND	117		70-130			
m,p-Xylene	0.229	0.010	"	0.200	ND	115		70-130			
o-Xylene	0.108	0.0050	"	0.100	ND	108		70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0380		"	0.0396		95.9		23-173			
Surrogate: Toluene-d8	0.0392		"	0.0400		98.0		20-170			
Surrogate: 4-Bromofluorobenzene	0.0407		"	0.0400		102		21-167			

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Project Number: [none]
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Volatile Organic Compounds by EPA Method 8260B - Quality Control
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Analyte	Reporting			Spike	Source	%REC		RPD		
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1807296 - EPA 5030 Soil MS

Matrix Spike Dup (1807296-MSD1)		Source: 1807306-01			Prepared: 07/25/18 Analyzed: 07/26/18					
Benzene	0.0916	0.0020	mg/kg	0.100	ND	91.6	70-130	2.01	30	
Toluene	0.102	0.0050	"	0.100	ND	102	70-130	2.89	30	
Ethylbenzene	0.117	0.0050	"	0.100	ND	117	70-130	0.230	30	
m,p-Xylene	0.228	0.010	"	0.200	ND	114	70-130	0.617	30	
o-Xylene	0.109	0.0050	"	0.100	ND	109	70-130	0.856	30	
Surrogate: 1,2-Dichloroethane-d4	0.0372		"	0.0396		94.0	23-173			
Surrogate: Toluene-d8	0.0375		"	0.0400		93.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0400		102	21-167			

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Project Number: [none]
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Extractable Petroleum Hydrocarbons by 8015 - Quality Control
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Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

Batch 1807297 - EPA 3550A

Blank (1807297-BLK1)

Prepared: 07/25/18 Analyzed: 07/26/18

C10-C28 (DRO) ND 50 mg/kg

LCS (1807297-BS1)

Prepared: 07/25/18 Analyzed: 07/26/18

C10-C28 (DRO) 489 50 mg/kg 500 97.8 70-130

Matrix Spike (1807297-MS1)

Source: 1807306-01

Prepared: 07/25/18 Analyzed: 07/26/18

C10-C28 (DRO) 483 50 mg/kg 500 28.6 90.8 70-130

Matrix Spike Dup (1807297-MSD1)

Source: 1807306-01

Prepared: 07/25/18 Analyzed: 07/26/18

C10-C28 (DRO) 519 50 mg/kg 500 28.6 98.0 70-130 7.15 20

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Project: Noble - Trebor B 12-2,7

Project Number: [none]
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Reported:
08/06/18 16:18

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

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

Batch 1807303 - General Preparation

Blank (1807303-BLK1)

Prepared: 07/25/18 Analyzed: 07/28/18

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

LCS (1807303-BS1)

Prepared: 07/25/18 Analyzed: 07/28/18

Calcium	527	10.0	mg/kg wet	500	105	70-130
Magnesium	540	5.00	"	500	108	70-130
Sodium	545	5.00	"	500	109	70-130

Duplicate (1807303-DUP1)

Source: 1807291-01

Prepared: 07/25/18 Analyzed: 07/28/18

Calcium	528	10.8	mg/kg dry	517	2.00	20
Magnesium	80.9	5.39	"	83.1	2.72	20
Sodium	382	5.39	"	362	5.40	20

Matrix Spike (1807303-MS1)

Source: 1807291-01

Prepared: 07/25/18 Analyzed: 07/28/18

Calcium	1120	10.8	mg/kg dry	539	517	112	70-130
Magnesium	690	5.39	"	539	83.1	113	70-130
Sodium	998	5.39	"	539	362	118	70-130

Matrix Spike Dup (1807303-MSD1)

Source: 1807291-01

Prepared: 07/25/18 Analyzed: 07/28/18

Calcium	1160	10.8	mg/kg dry	539	517	119	70-130	3.32	25
Magnesium	732	5.39	"	539	83.1	120	70-130	5.93	25
Sodium	988	5.39	"	539	362	116	70-130	0.987	25

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Project: Noble - Trebor B 12-2,7

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
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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 1807302 - General Preparation

Duplicate (1807302-DUP1)		Source: 1807291-01			Prepared: 07/25/18 Analyzed: 07/26/18						
% Solids	92.5		%		92.8			0.291		20	

Batch 1807331 - General Preparation

LCS (1807331-BS1)		Prepared: 07/27/18 Analyzed: 07/30/18									
pH	9.2		pH Units		9.18		100	95-105			
Duplicate (1807331-DUP1)		Source: 1807306-01			Prepared: 07/27/18 Analyzed: 07/30/18						
pH	8.1		pH Units		8.0			0.872		20	

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Project: Noble - Trebor B 12-2,7

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
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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 1807332 - General Preparation

Blank (1807332-BLK1)

Prepared: 07/27/18 Analyzed: 07/30/18

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (1807332-BS1)

Prepared: 07/27/18 Analyzed: 07/30/18

Specific Conductance (EC) 0.753 0.0100 mmhos/cm 0.750 100 90-110

Duplicate (1807332-DUP1)

Source: 1807306-01

Prepared: 07/27/18 Analyzed: 07/30/18

Specific Conductance (EC) 1.15 0.0100 mmhos/cm 1.12 2.65 20

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Project: Noble - Trebor B 12-2,7

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/06/18 16:18

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