



Summit Scientific

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September 08, 2017

Brandon Bruns
Tasman Geosciences
6899 Pecos Street
Denver, CO 80221
RE: Noble - Bauer 01-34

Enclosed are the results of analyses for samples received by Summit Scientific on 08/31/17 10:00. 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 Street
Denver CO, 80221

Project: Noble - Bauer 01-34

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
09/08/17 09:15

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS02@3'	1708287-01	Soil	08/30/17 13:02	08/31/17 10:00
SS05@6'	1708287-02	Soil	08/30/17 13:08	08/31/17 10:00

Summit Scientific

A handwritten signature in black ink, appearing to be 'MSM'.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

1708287

Page of

Project Manager:	Brandon Bruns, Invoice: Jacob Evans
E-Mail:	Bbruns@tasman-geo.com
Project Name:	Bauer 01-34
Project Number:	—

www.s2scientific.com

1708287

Sample Receipt Checklist

S2 Work Order: _____

Client: Noble/Tasman Client Project ID: Bauer 01-34Shipped Via: P/U Airbill #: _____
(UPS, FedEx, Hand Delivered, Pick-up, etc.)Matrix (check all that apply): Air ✓ Soil/Solid Water Other: _____
(Describe)

Cooler ID					
Temp (°C)	3.1				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ?				
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⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
If custody seals are present, are they intact ⁽¹⁾ ?			✓	
Are short holding time analytes or samples with HTs due within 48 hours present?			✓	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	✓			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	✓			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	✓			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			✓	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?			✓	
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 ⁽¹⁾ ? Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				

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

Nakita
Custodian Printed Name[Signature]
Signature or Initials of Custodian8/31/17 1040
Date/Time



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Noble - Bauer 01-34

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
09/08/17 09:15

SS02@3'
1708287-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/30/17 13:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1709008	09/01/17	09/02/17	8015M	

Date Sampled: **08/30/17 13:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		96.7 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/30/17 13:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1709007	09/01/17	09/01/17	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **08/30/17 13:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.2 %	21-167		"	"	"	"	

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

Date Sampled: **08/30/17 13:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1360	10.7	mg/kg dry	1	1709019	09/05/17	09/07/17	EPA 6020/Mod. USDA60 6(2, 3A)	

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Project: Noble - Bauer 01-34

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09/08/17 09:15

SS02@3'
1708287-01 (Soil)

Summit Scientific

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

Magnesium	240	5.34	mg/kg dry	1	1709019	09/05/17	09/07/17	EPA 6020/Mod. USDA60 6(2, 3A)
Sodium	32.2	5.34	"	"	"	"	"	"
Sodium Adsorption Ratio	0.212		units	"	1709040	09/07/17	09/07/17	"

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/30/17 13:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.96	0.100	pH Units	1	1709038	09/06/17	09/06/17	EPA 9045	
Specific Conductance (EC)	0.423	0.0100	mmhos/cm	"	1709039	09/06/17	09/07/17	SM 2510B	
% Solids	93.7		%	"	1709018	09/05/17	09/06/17	% calculation	

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Project: Noble - Bauer 01-34
Project Number: [none]
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Reported:
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SS05@6'
1708287-02 (Soil)

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Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/30/17 13:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1709008	09/01/17	09/02/17	8015M	

Date Sampled: **08/30/17 13:08**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/30/17 13:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1709007	09/01/17	09/02/17	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **08/30/17 13:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.2 %	21-167		"	"	"	"	

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Project: Noble - Bauer 01-34

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Reported:
09/08/17 09:15

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 1709008 - EPA 3550A

Blank (1709008-BLK1)

Prepared & Analyzed: 09/01/17

C10-C28 (DRO) ND 50 mg/kg

Surrogate: o-Terphenyl 13.2 " 12.5 106 30-150

LCS (1709008-BS1)

Prepared: 09/01/17 Analyzed: 09/02/17

C10-C28 (DRO) 436 50 mg/kg 499 87.4 73-134

Surrogate: o-Terphenyl 13.2 " 12.5 106 30-150

Matrix Spike (1709008-MS1)

Source: 1708287-01

Prepared: 09/01/17 Analyzed: 09/02/17

C10-C28 (DRO) 437 50 mg/kg 499 15.2 84.6 50-148

Surrogate: o-Terphenyl 13.2 " 12.5 105 30-150

Matrix Spike Dup (1709008-MSD1)

Source: 1708287-01

Prepared: 09/01/17 Analyzed: 09/02/17

C10-C28 (DRO) 423 50 mg/kg 499 15.2 81.7 50-148 3.33 20

Surrogate: o-Terphenyl 12.2 " 12.5 97.9 30-150

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Project: Noble - Bauer 01-34

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
09/08/17 09:15

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 1709007 - EPA 5030 Soil MS

Blank (1709007-BLK1)

Prepared & Analyzed: 09/01/17

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0400</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0394</i>		<i>"</i>	<i>0.0400</i>		<i>98.6</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0368</i>		<i>"</i>	<i>0.0400</i>		<i>92.0</i>	<i>21-167</i>			

LCS (1709007-BS1)

Prepared & Analyzed: 09/01/17

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0824	0.0020	"	0.100		82.4	58-130			
Toluene	0.0976	0.0050	"	0.100		97.6	61-134			
Ethylbenzene	0.111	0.0050	"	0.0992		112	74-139			
m,p-Xylene	0.219	0.010	"	0.200		109	73-137			
o-Xylene	0.105	0.0050	"	0.0980		108	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0417</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0391</i>		<i>"</i>	<i>0.0400</i>		<i>97.8</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0392</i>		<i>"</i>	<i>0.0400</i>		<i>97.9</i>	<i>21-167</i>			

Matrix Spike (1709007-MS1)

Source: 1708276-01

Prepared & Analyzed: 09/01/17

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0819	0.0020	"	0.100	ND	81.9	30-131			
Toluene	0.0958	0.0050	"	0.100	ND	95.8	30-134			
Ethylbenzene	0.110	0.0050	"	0.0992	ND	111	22-153			
m,p-Xylene	0.218	0.010	"	0.200	ND	109	10-159			
o-Xylene	0.108	0.0050	"	0.0980	ND	110	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0421</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0384</i>		<i>"</i>	<i>0.0400</i>		<i>96.0</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0397</i>		<i>"</i>	<i>0.0400</i>		<i>99.2</i>	<i>21-167</i>			

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Project Number: [none]
Project Manager: Brandon Brunns

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09/08/17 09:15

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 1709007 - EPA 5030 Soil MS

Matrix Spike Dup (1709007-MSD1)		Source: 1708276-01			Prepared & Analyzed: 09/01/17					
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0814	0.0020	"	0.100	ND	81.4	30-131	0.624	34	
Toluene	0.0924	0.0050	"	0.100	ND	92.4	30-134	3.67	30	
Ethylbenzene	0.111	0.0050	"	0.0992	ND	112	22-153	0.788	24	
m,p-Xylene	0.212	0.010	"	0.200	ND	106	10-159	2.71	68	
o-Xylene	0.103	0.0050	"	0.0980	ND	105	31-151	4.35	38	
Surrogate: 1,2-Dichloroethane-d4		0.0410	"	0.0400		103	23-173			
Surrogate: Toluene-d8		0.0396	"	0.0400		99.1	20-170			
Surrogate: 4-Bromofluorobenzene		0.0383	"	0.0400		95.8	21-167			

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Project Number: [none]
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09/08/17 09:15

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

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

Batch 1709019 - General Preparation

Blank (1709019-BLK1)

Prepared: 09/05/17 Analyzed: 09/06/17

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

LCS (1709019-BS1)

Prepared: 09/05/17 Analyzed: 09/06/17

Calcium	500	10.0	mg/kg wet	500	100	82.9-118
Magnesium	526	5.00	"	500	105	77.1-123
Sodium	491	5.00	"	500	98.3	71-129

Duplicate (1709019-DUP1)

Source: 1708285-01

Prepared: 09/05/17 Analyzed: 09/07/17

Calcium	1180	12.5	mg/kg dry	1230	3.90	200
Magnesium	196	6.27	"	221	11.7	200
Sodium	832	6.27	"	827	0.664	200

Matrix Spike (1709019-MS1)

Source: 1708285-01

Prepared: 09/05/17 Analyzed: 09/07/17

Calcium	1750	12.5	mg/kg dry	627	1230	82.8	75-125
Magnesium	841	6.27	"	627	221	98.9	75-125
Sodium	1370	6.27	"	627	827	86.0	75-125

Matrix Spike Dup (1709019-MSD1)

Source: 1708285-01

Prepared: 09/05/17 Analyzed: 09/07/17

Calcium	1740	12.5	mg/kg dry	627	1230	81.6	75-125	0.459	25
Magnesium	882	6.27	"	627	221	105	75-125	4.78	25
Sodium	1410	6.27	"	627	827	93.1	75-125	3.19	25

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Project: Noble - Bauer 01-34

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
09/08/17 09:15

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 1709018 - General Preparation

Duplicate (1709018-DUP1) **Source: 1708285-01** Prepared: 09/05/17 Analyzed: 09/06/17

% Solids	77.9		%		79.7			2.28	20	
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Batch 1709038 - General Preparation

LCS (1709038-BS1) Prepared & Analyzed: 09/06/17

pH	9.22	0.100	pH Units	9.16	101	95-105
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Duplicate (1709038-DUP1) **Source: 1708281-01** Prepared & Analyzed: 09/05/17

pH	8.51	0.100	pH Units	8.49		0.235	20
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Batch 1709039 - General Preparation

Blank (1709039-BLK1) Prepared: 09/06/17 Analyzed: 09/07/17

Specific Conductance (EC)	ND	0.0100	mmhos/cm
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LCS (1709039-BS1) Prepared: 09/06/17 Analyzed: 09/07/17

Specific Conductance (EC)	0.750	0.0100	mmhos/cm	0.750	100	90-110
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Duplicate (1709039-DUP1) **Source: 1708281-01** Prepared: 09/06/17 Analyzed: 09/07/17

Specific Conductance (EC)	0.297	0.0100	mmhos/cm	0.297		0.0505	20
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6899 Pecos Street
Denver CO, 80221

Project: Noble - Bauer 01-34

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
09/08/17 09:15

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