

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

May 05, 2021

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.

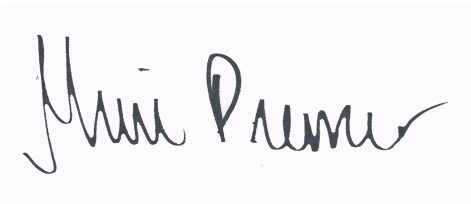
Broomfield, CO 80020

RE: Noble - Kastner 41-03

Work Order #2104369

Enclosed are the results of analyses for samples received by Summit Scientific on 04/23/21 17:06. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large initial "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury  
President



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
05/05/21 16:29

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FS01@5'	2104369-02	Soil	04/23/21 14:45	04/23/21 17:06
FL01-A@4'	2104369-03	Soil	04/23/21 14:50	04/23/21 17:06

Summit Scientific

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2104369

Sample Receipt Checklist

S2 Work Order \_\_\_\_\_

Client: Noble / Tasman Client Project ID: Kastner 41-03

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other \_\_\_\_\_ Airbill #: \_\_\_\_\_

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

Temp (°C)	5
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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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	On ice.
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<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) <sup>(1)</sup> ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<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):				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				

JB  
Custodian Printed Name or Initials

[Signature]  
Signature of Custodian

4/23/21 1830  
Date/Time



Tasman Geosciences  
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Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
05/05/21 16:29

**FS01@5'**  
**2104369-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BED0444	04/26/21	04/28/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		172 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		108 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BED0429	04/26/21	04/27/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		108 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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05/05/21 16:29

**FS01@5'**  
**2104369-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEE0003	05/01/21	05/04/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		69.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		86.3 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.124</b>	0.0100	mg/L	1	BED0467	04/27/21	04/28/21	EPA 6020B	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

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Project Number: [none]  
Project Manager: Brandon Brun

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**FS01@5'**  
**2104369-02 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	83.8	0.0575	mg/L dry	1	BED0502	04/29/21	05/01/21	EPA 6020B	
Magnesium	19.8	0.0575	"	"	"	"	"	"	
Sodium	24.1	0.0575	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.615	0.00100	units	1	BEE0016	05/03/21	05/03/21	Calculation	

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

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	86.9		%	1	BED0487	04/29/21	04/29/21	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.936	0.0100	mmhos/cm	1	BED0525	04/30/21	04/30/21	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **04/23/21 14:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.28		pH Units	1	BED0526	04/30/21	04/30/21	EPA 9045D	

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Project: Noble - Kastner 41-03

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
05/05/21 16:29

**FL01-A@4'**  
**2104369-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0444	04/26/21	04/28/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		170 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BED0429	04/26/21	04/27/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		99.2 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Project Number: [none]  
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**FL01-A@4'**  
**2104369-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEE0003	05/01/21	05/04/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		66.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		83.6 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.0665</b>	0.0100	mg/L	1	BED0467	04/27/21	04/28/21	EPA 6020B	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

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Project: Noble - Kastner 41-03

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
05/05/21 16:29

**FL01-A@4'**  
**2104369-03 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	<b>84.2</b>	0.0561	mg/L dry	1	BED0502	04/29/21	05/01/21	EPA 6020B	
Magnesium	<b>20.0</b>	0.0561	"	"	"	"	"	"	
Sodium	<b>23.0</b>	0.0561	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	<b>0.585</b>	0.00100	units	1	BEE0016	05/03/21	05/03/21	Calculation	

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

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	<b>89.1</b>		%	1	BED0487	04/29/21	04/29/21	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	<b>0.940</b>	0.0100	mmhos/cm	1	BED0525	04/30/21	04/30/21	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **04/23/21 14:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	<b>8.34</b>		pH Units	1	BED0526	04/30/21	04/30/21	EPA 9045D	

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Project: Noble - Kastner 41-03

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
05/05/21 16:29

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

#### Summit Scientific

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

#### Batch BED0444 - EPA 5030 Soil MS

##### Blank (BED0444-BLK1)

Prepared: 04/26/21 Analyzed: 04/28/21

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0361		"	0.0400		90.2	23-173			
<i>Surrogate: Toluene-d8</i>	0.0509		"	0.0400		127	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0417		"	0.0400		104	21-167			

##### LCS (BED0444-BS1)

Prepared: 04/26/21 Analyzed: 04/28/21

Benzene	0.155	0.0020	mg/kg	0.150		104	70-130			
Toluene	0.151	0.0050	"	0.150		101	70-130			
Ethylbenzene	0.158	0.0050	"	0.150		105	70-130			
m,p-Xylene	0.315	0.010	"	0.300		105	70-130			
o-Xylene	0.160	0.0050	"	0.150		107	70-130			
1,2,4-Trimethylbenzene	0.157	0.0050	"	0.150		105	70-130			
1,3,5-Trimethylbenzene	0.157	0.0050	"	0.150		104	70-130			
Naphthalene	0.160	0.0038	"	0.150		107	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0386		"	0.0400		96.5	23-173			
<i>Surrogate: Toluene-d8</i>	0.0393		"	0.0400		98.2	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0411		"	0.0400		103	21-167			

##### Matrix Spike (BED0444-MS1)

Source: 2104315-01

Prepared: 04/26/21 Analyzed: 04/28/21

Benzene	0.147	0.0020	mg/kg	0.150	ND	97.9	70-130			
Toluene	0.148	0.0050	"	0.150	ND	98.9	70-130			
Ethylbenzene	0.158	0.0050	"	0.150	ND	105	70-130			
m,p-Xylene	0.316	0.010	"	0.300	ND	105	70-130			
o-Xylene	0.160	0.0050	"	0.150	ND	106	70-130			
1,2,4-Trimethylbenzene	0.154	0.0050	"	0.150	ND	103	70-130			
1,3,5-Trimethylbenzene	0.152	0.0050	"	0.150	ND	101	70-130			
Naphthalene	0.169	0.0038	"	0.150	ND	113	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0429		"	0.0400		107	23-173			
<i>Surrogate: Toluene-d8</i>	0.0406		"	0.0400		101	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0420		"	0.0400		105	21-167			

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Project: Noble - Kastner 41-03

Project Number: [none]  
Project Manager: Brandon Brun

**Reported:**  
05/05/21 16:29

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

**Summit Scientific**

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

**Batch BED0444 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (BED0444-MSD1)</b>	<b>Source: 2104315-01</b>			Prepared: 04/26/21 Analyzed: 04/28/21						
Benzene	0.165	0.0020	mg/kg	0.150	ND	110	70-130	11.6	30	
Toluene	0.166	0.0050	"	0.150	ND	111	70-130	11.3	30	
Ethylbenzene	0.161	0.0050	"	0.150	ND	108	70-130	2.37	30	
m,p-Xylene	0.325	0.010	"	0.300	ND	108	70-130	2.82	30	
o-Xylene	0.164	0.0050	"	0.150	ND	109	70-130	2.63	30	
1,2,4-Trimethylbenzene	0.156	0.0050	"	0.150	ND	104	70-130	1.51	30	
1,3,5-Trimethylbenzene	0.154	0.0050	"	0.150	ND	103	70-130	1.55	30	
Naphthalene	0.179	0.0038	"	0.150	ND	119	70-130	5.56	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0464</i>		<i>"</i>	<i>0.0400</i>		<i>116</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0410</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0427</i>		<i>"</i>	<i>0.0400</i>		<i>107</i>	<i>21-167</i>			

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
05/05/21 16:29

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch BED0429 - EPA 3550A**

**Blank (BED0429-BLK1)**

Prepared & Analyzed: 04/26/21

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							

**LCS (BED0429-BS1)**

Prepared: 04/26/21 Analyzed: 04/27/21

C10-C28 (DRO)	562	50	mg/kg	500	112	70-130				
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**Matrix Spike (BED0429-MS1)**

Source: 2104315-01

Prepared: 04/26/21 Analyzed: 04/27/21

C10-C28 (DRO)	369	50	mg/kg	500	12.0	71.4	70-130			
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**Matrix Spike Dup (BED0429-MSD1)**

Source: 2104315-01

Prepared: 04/26/21 Analyzed: 04/27/21

C10-C28 (DRO)	416	50	mg/kg	500	12.0	80.9	70-130	12.1	20	
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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
05/05/21 16:29

**PAH by EPA Method 8270D SIM - Quality Control**

**Summit Scientific**

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

**Batch BEE0003 - EPA 5030 Soil MS**

**Blank (BEE0003-BLK1)**

Prepared: 05/01/21 Analyzed: 05/03/21

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Naphthalene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0270</i>		<i>"</i>	<i>0.0333</i>		<i>81.0</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0335</i>		<i>"</i>	<i>0.0333</i>		<i>100</i>	<i>40-150</i>			

**LCS (BEE0003-BS1)**

Prepared: 05/01/21 Analyzed: 05/03/21

Acenaphthene	0.0280	0.00500	mg/kg	0.0333		84.1	31-137			
Anthracene	0.0278	0.00500	"	0.0333		83.5	30-120			
Benzo (a) anthracene	0.0285	0.00500	"	0.0333		85.4	30-120			
Benzo (a) pyrene	0.0279	0.00500	"	0.0333		83.8	30-120			
Benzo (b) fluoranthene	0.0253	0.00500	"	0.0333		75.8	30-120			
Benzo (k) fluoranthene	0.0269	0.00500	"	0.0333		80.7	30-120			
Chrysene	0.0275	0.00500	"	0.0333		82.6	30-120			
Dibenz (a,h) anthracene	0.0331	0.00500	"	0.0333		99.4	30-120			
Fluoranthene	0.0228	0.00500	"	0.0333		68.4	30-120			
Fluorene	0.0297	0.00500	"	0.0333		89.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0317	0.00500	"	0.0333		95.1	30-120			
Naphthalene	0.0281	0.00500	"	0.0333		84.3	30-120			
Pyrene	0.0235	0.00500	"	0.0333		70.6	35-142			
1-Methylnaphthalene	0.0307	0.00500	"	0.0333		92.1	35-142			
2-Methylnaphthalene	0.0295	0.00500	"	0.0333		88.4	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0283</i>		<i>"</i>	<i>0.0333</i>		<i>85.0</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0374</i>		<i>"</i>	<i>0.0333</i>		<i>112</i>	<i>40-150</i>			

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
05/05/21 16:29

**PAH by EPA Method 8270D SIM - Quality Control**

**Summit Scientific**

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

**Batch BEE0003 - EPA 5030 Soil MS**

<b>Matrix Spike (BEE0003-MS1)</b>	<b>Source: 2104361-02</b>			Prepared: 05/01/21 Analyzed: 05/03/21					
Acenaphthene	0.0280	0.00500	mg/kg	0.0333	ND	84.0	31-137		
Anthracene	0.0285	0.00500	"	0.0333	ND	85.6	30-120		
Benzo (a) anthracene	0.0283	0.00500	"	0.0333	ND	85.0	30-120		
Benzo (a) pyrene	0.0281	0.00500	"	0.0333	ND	84.4	30-120		
Benzo (b) fluoranthene	0.0248	0.00500	"	0.0333	ND	74.4	30-120		
Benzo (k) fluoranthene	0.0271	0.00500	"	0.0333	ND	81.4	30-120		
Chrysene	0.0273	0.00500	"	0.0333	ND	81.8	30-120		
Dibenz (a,h) anthracene	0.0331	0.00500	"	0.0333	ND	99.4	30-120		
Fluoranthene	0.0231	0.00500	"	0.0333	ND	69.3	30-120		
Fluorene	0.0307	0.00500	"	0.0333	ND	92.0	30-120		
Indeno (1,2,3-cd) pyrene	0.0315	0.00500	"	0.0333	ND	94.5	30-120		
Naphthalene	0.0293	0.00500	"	0.0333	ND	88.0	30-120		
Pyrene	0.0238	0.00500	"	0.0333	ND	71.5	35-142		
1-Methylnaphthalene	0.0338	0.00500	"	0.0333	ND	101	15-130		
2-Methylnaphthalene	0.0323	0.00500	"	0.0333	ND	96.9	15-130		
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0268</i>		<i>"</i>	<i>0.0333</i>		<i>80.4</i>	<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0339</i>		<i>"</i>	<i>0.0333</i>		<i>102</i>	<i>40-150</i>		

<b>Matrix Spike Dup (BEE0003-MSD1)</b>	<b>Source: 2104361-02</b>			Prepared: 05/01/21 Analyzed: 05/03/21					
Acenaphthene	0.0284	0.00500	mg/kg	0.0333	ND	85.3	31-137	1.64	30
Anthracene	0.0295	0.00500	"	0.0333	ND	88.4	30-120	3.20	30
Benzo (a) anthracene	0.0290	0.00500	"	0.0333	ND	86.9	30-120	2.13	30
Benzo (a) pyrene	0.0284	0.00500	"	0.0333	ND	85.3	30-120	0.998	30
Benzo (b) fluoranthene	0.0267	0.00500	"	0.0333	ND	80.1	30-120	7.45	30
Benzo (k) fluoranthene	0.0270	0.00500	"	0.0333	ND	81.1	30-120	0.362	30
Chrysene	0.0281	0.00500	"	0.0333	ND	84.3	30-120	3.05	30
Dibenz (a,h) anthracene	0.0329	0.00500	"	0.0333	ND	98.8	30-120	0.598	30
Fluoranthene	0.0229	0.00500	"	0.0333	ND	68.6	30-120	1.02	30
Fluorene	0.0288	0.00500	"	0.0333	ND	86.4	30-120	6.31	30
Indeno (1,2,3-cd) pyrene	0.0317	0.00500	"	0.0333	ND	95.1	30-120	0.712	30
Naphthalene	0.0288	0.00500	"	0.0333	ND	86.4	30-120	1.90	30
Pyrene	0.0237	0.00500	"	0.0333	ND	71.0	35-142	0.731	30
1-Methylnaphthalene	0.0322	0.00500	"	0.0333	ND	96.6	15-130	4.74	50
2-Methylnaphthalene	0.0314	0.00500	"	0.0333	ND	94.2	15-130	2.87	50
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0278</i>		<i>"</i>	<i>0.0333</i>		<i>83.3</i>	<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0362</i>		<i>"</i>	<i>0.0333</i>		<i>109</i>	<i>40-150</i>		

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
05/05/21 16:29

**Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control**  
**Summit Scientific**

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

**Batch BED0467 - EPA 3050B**

**Blank (BED0467-BLK1)**

Prepared: 04/27/21 Analyzed: 04/28/21

Boron ND 0.0100 mg/L

**LCS (BED0467-BS1)**

Prepared: 04/27/21 Analyzed: 04/28/21

Boron 5.29 0.0100 mg/L 5.00 106 80-120

**Duplicate (BED0467-DUP1)**

Source: 2104327-02

Prepared: 04/27/21 Analyzed: 04/28/21

Boron 0.111 0.0100 mg/L 0.118 5.93 20

**Matrix Spike (BED0467-MS1)**

Source: 2104327-02

Prepared: 04/27/21 Analyzed: 04/28/21

Boron 5.14 0.0100 mg/L 5.00 0.118 100 75-125

**Matrix Spike Dup (BED0467-MSD1)**

Source: 2104327-02

Prepared: 04/27/21 Analyzed: 04/28/21

Boron 5.40 0.0100 mg/L 5.00 0.118 106 75-125 4.98 25

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
05/05/21 16:29

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control**

**Summit Scientific**

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

**Batch BED0502 - General Preparation**

**Blank (BED0502-BLK1)**

Prepared: 04/29/21 Analyzed: 05/01/21

Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							

**LCS (BED0502-BS1)**

Prepared: 04/29/21 Analyzed: 05/01/21

Calcium	5.63	0.0500	mg/L wet	5.00	113	70-130				
Magnesium	5.69	0.0500	"	5.00	114	70-130				
Sodium	5.71	0.0500	"	5.00	114	70-130				

Summit Scientific

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Tasman Geosciences  
 6855 W. 119th Ave.  
 Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]  
 Project Manager: Brandon Bruns

**Reported:**  
 05/05/21 16:29

**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 BED0487 - General Preparation**

Duplicate (BED0487-DUP1)	Source: 2104204-01	Prepared & Analyzed: 04/29/21		
% Solids	80.9	% 81.0	0.240	20

Summit Scientific

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
05/05/21 16:29

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control**

**Summit Scientific**

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

**Batch BED0525 - General Preparation**

**Blank (BED0525-BLK1)**

Prepared & Analyzed: 04/30/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BED0525-BS1)**

Prepared & Analyzed: 04/30/21

Specific Conductance (EC) 0.152 0.0100 mmhos/cm 0.150 102 90-110

**Duplicate (BED0525-DUP1)**

Source: 2103057-02

Prepared & Analyzed: 04/30/21

Specific Conductance (EC) 0.838 0.0100 mmhos/cm 0.837 0.0119 20

Summit Scientific

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
05/05/21 16:29

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control**

**Summit Scientific**

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

**Batch BED0526 - General Preparation**

**LCS (BED0526-BS1)**

Prepared & Analyzed: 04/30/21

pH 9.27 pH Units 9.21 101 95-105

**Duplicate (BED0526-DUP1)**

Source: 2103057-02

Prepared & Analyzed: 04/30/21

pH 8.31 pH Units 8.30 0.120 20

Summit Scientific

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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Kastner 41-03

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
05/05/21 16:29

### 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