

# Flowline Closure Checklist

## COGCC Rule 911.a.(4) Environmental Site Closure Assessment Field Form

<i>Additional Attachments:</i>		Tank Battery Closure		Wellhead Closure		Pit Closure		Partially Buried Vault Closure
<i>Site Name &amp; COGCC Facility Number:</i> RIES 3-19		<i>Date:</i> 1/16/23			<i>Remediation Project #:</i> 24968			
<i>Associated Wells:</i>		<i>Age of Site:</i>			<i>Number of Photos Attached:</i>			
<i>Starting point: (GPS coordinates and descriptions)</i> 40.128064, -104.597139								
<i>End point: (GPS coordinates and descriptions)</i> 40.128355, -104.589479								
<i>USCS Soil Type:</i>					<i>Estimated Depth to Groundwater:</i>			
<i>Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)</i> None Observed								
<i>Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)</i> None Observed								
Flowlines								
<i>Flowline type</i>								
<i>Depth</i>	~3'							
<i>Age</i>								
<i>Length</i>	2,280'							
<i>Construction Material</i>	Steel							
<i>Were flowlines pulled?</i>	Partial pull							
<i>Visual Integrity of lines</i>	good							
<i>Visual impacts if trenched</i>	good							
<i>PID Readings if trenched</i>	0.3-2.0							
<i>Sample taken? Location/Sample ID#</i>								
<i>Photo Number(s)</i>								
<i>Other observations regarding on location flowlines:</i> Sections of flow line abandoned in place due to intersecting active lines								
Summary								
<i>Was impacted soil identified?</i> <b>No</b> Yes - less than 10 cubic yards                      Yes - more than 10 cubic yards								
<i>Total number of samples field screened:</i> 9					<i>Total number of samples collected:</i> 9			
<i>Highest PID Reading:</i> 2.0					<i>Total number of samples submitted to lab for analysis:</i> 6			
<i>If more than 10 cubic yards of impacted soil were observed:</i>								
<i>Vertical extent:</i>					<i>Estimated spill volume:</i>			
<i>Lateral extent:</i>					<i>Volume of soil removed:</i>			
<i>Is additional investigation required?</i>								
<i>Was groundwater encountered during the investigation?</i> <b>No</b> Yes - not impacted or in contact with impacted soils                      Yes - groundwater impacted and/or in contact with impacted soils								
<i>Measured depth to groundwater:</i>					<i>Was remedial groundwater removal conducted?</i> Yes                      No			
<i>Date Groundwater was encountered:</i>					<i>Commencement date of removal:</i>			
<i>Sheen on groundwater?</i> Yes                      No					<i>Volume of groundwater removed prior to sampling:</i>			
<i>Free product observed?</i> Yes                      No					<i>Volume of groundwater removed post sampling:</i>			
<i>Total number of samples collected:</i>					<i>Total Volume of groundwater removed:</i>			
<i>Total number of samples submitted to lab for analysis:</i>								

**Photographic Log**



<b>Equipment ID:</b> FL01-C@3'		<b>Equipment Type:</b> Flowline		<b>Equipment ID:</b> FL01-D@3'		<b>Equipment Type:</b> Flowline	
<b>Material:</b> Steel	<b>Volume:</b>	<b>Contents:</b> Oil/Gas/Water		<b>Material:</b> Steel	<b>Volume:</b>	<b>Contents:</b> Oil/Gas/Water	
<b>Notes/Conditions:</b> Abandonment occurs here				<b>Notes/Conditions:</b>			

**Photographic Log**


<b>Equipment ID:</b> FL01-E@3'		<b>Equipment Type:</b> Flowline		<b>Equipment ID:</b> FL01-F@3'		<b>Equipment Type:</b> Flowline	
<b>Material:</b> Steel	<b>Volume:</b>	<b>Contents:</b> Oil/Gas/Water		<b>Material:</b> Steel	<b>Volume:</b>	<b>Contents:</b> Oil/Gas/Water	
<b>Notes/Conditions:</b>				<b>Notes/Conditions:</b> Abandonment occurs here due to intersecting lines			

**Photographic Log**


<b>Equipment ID:</b> FL01-G@3'	<b>Equipment Type:</b> Flowline	
<b>Material:</b> Steel	<b>Volume:</b>	<b>Contents:</b> Oil/Gas/Water
<b>Notes/Conditions:</b> Abandonment occurs here due to intersecting lines		



<b>Equipment ID:</b> FL01-H@3'	<b>Equipment Type:</b> Flowline	
<b>Material:</b> Steel	<b>Volume:</b>	<b>Contents:</b> Oil/Gas/Water
<b>Notes/Conditions:</b>		

**Photographic Log**



<b>Equipment ID:</b> FL01-I@3'	<b>Equipment Type:</b> Flowline
<b>Material:</b> Steel	<b>Volume:</b>
<b>Contents:</b> Oil/Gas/Water	

<b>Equipment ID:</b> FL01-B@4'	<b>Equipment Type:</b> Separator
<b>Material:</b> Steel	<b>Volume:</b>
<b>Contents:</b> Oil/Gas/Water	

**Notes/Conditions:** Abandonment occurs here until separator due to multiple lines intersecting

**Notes/Conditions:** Abandonment occurs between here and FL01-I

**Photographic Log**



<b>Equipment ID:</b> FL01-J@3'		<b>Equipment Type:</b> Flowline		<b>Equipment ID:</b>		<b>Equipment Type:</b>	
<b>Material:</b> Steel		<b>Volume:</b>		<b>Contents:</b> Oil/Gas/Water		<b>Material:</b>	
<b>Volume:</b>		<b>Contents:</b>		<b>Volume:</b>		<b>Contents:</b>	
<b>Notes/Conditions:</b> Abandonment occurs between here and FL01-C				<b>Notes/Conditions:</b>			

**TABLE 1**  
**SOIL SAMPLE LOCATIONS**  
**NOBLE ENERGY, INC. - RIES 3-19**

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude <sup>1</sup>	Longitude	PDOP
FL01-C@3'	01/16/23	2.0	No Staining	No Odor	Lab	40.12836268	-104.5895010	1.1
FL01-D@3'	01/13/23	1.0	No Staining	No Odor	Grab	40.12757596	-104.5937536	1.1
FL01-E@3'	01/13/23	0.4	No Staining	No Odor	Grab	40.12760358	-104.5930147	1.3
FL01-F@3'	01/13/23	0.8	No Staining	No Odor	Lab	40.12764441	-104.5922951	1.0
FL01-G@3'	01/13/23	0.3	No Staining	No Odor	Lab	40.12768693	-104.5913340	1.4
FL01-H@3'	01/13/23	0.5	No Staining	No Odor	Grab	40.12769994	-104.5910702	1.0
FL01-I@3'	01/13/23	0.9	No Staining	No Odor	Lab	40.12777207	-104.5903641	1.0
FL01-B@4'	01/16/23	0.8	No Staining	No Odor	Lab	40.12783510	-104.5898540	1.2
FL01-J@3'	01/16/23	0.5	No Staining	No Odor	Lab	40.12767046	-104.5971268	1.3

Notes:

PID = Photo-ionization detector

ppm = parts per million

PDOP = Position dilution of precision

HC = Hydrocarbon

1.) Latitude and longitude coordinates will be provided in decimal degrees with an accuracy and precision of 5 decimals of a degree using the North American Datum ("NAD") of 1983

TABLE 2  
SOIL ANALYTICAL DATA  
NOBLE ENERGY, INC. - RIES 3-19

Soil Sample ID	Date	<sup>1</sup> Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1,2,4 - TMB (mg/kg)	1,3,5 - TMB (mg/kg)	Naphthalene (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-ORO (mg/kg)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL <sup>2</sup>		1.2	490	5.8	58	30	27	2	500			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL <sup>2,3</sup>		0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500			0.55	6	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
FL01-F@3'	01/13/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FL01-G@3'	01/13/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FL01-I@3'	01/13/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	0.00671	<0.00500	0.00678	<0.00500	0.00526	<0.00500	0.0158	<0.00500	<0.00500	0.0154	<0.00500	<0.00500
FL01-C@3'	01/16/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FL01-B@4'	01/16/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FL01-J@3'	01/16/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL <sup>2</sup>		6 - 8.3	<6	<4mmhos/cm	2
FL01-F@3'	01/13/23	7.90	3.01	1.74	0.140
FL01-G@3'	01/13/23	7.94	4.90	2.33	0.246
FL01-I@3'	01/13/23	7.88	7.34	2.13	0.293
FL01-C@3'	01/16/23	7.80	0.372	0.301	0.0448
FL01-B@4'	01/16/23	8.09	1.64	0.452	0.125
FL01-J@3'	01/16/23	7.87	1.78	0.839	0.0784

Notes:

1. Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.

2. Soil

3. SSLs are

Definitions:

COGCC = Colorado Oil and Gas Conservation Commission

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

TPH-ORO = Total petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

SAR = Sodium Adsorption Ratio

EC = Electrical Conductivity

mmhos/cm = Millmhos per centimeter

mg/L = Milligrams per liter

< = Analytical result is less than the indicated laboratory reporting limit

1,2,4 - TMB = 1,2,4 Trimethylbenzene

1,3,5 - TMB = 1,3,5 Trimethylbenzene

Benz(a) = Benzantracene

Benzo(b) = Benzofluoranthene

Benzo(k) = Benzofluoranthene

Benzo(a) = Benzopyrene

A,H = Dibenzoanthracene

1,2,3-CD = Indenopyrene

1-M = 1-methylnaphthalene

2-M = 2-methylnaphthalene



**Legend**

- Flowline Location
- + Soil Sample Location – Field Screen (Collected via Trimble GPS)
- + Soil Sample Location – Lab Analyzed (Collected via Trimble GPS)

**Notes**

- 1) All locations are approximate unless otherwise noted.
- 2) Buried infrastructure has been spatially projected.
- 3) Analytical results below laboratory detection limits or within compliance of COGCC Table 915-1 not shown.
- 4) Concentration in exceedance of COGCC table 915-1 soil standards indicated in **RED**.

GPS – Global Positioning System  
 mg/kg – Milligrams per kilogram

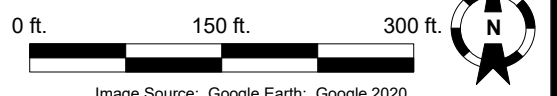


Image Source: Google Earth; Google 2020

DATE:	4/26/2023
DESIGNED BY:	JW
DRAWN BY:	MG

**TASMAN**  
 GEOSCIENCES  
 Tasman Geosciences, Inc.  
 6855 W 119<sup>th</sup> Avenue  
 Broomfield, CO 80020

**Noble Energy, Inc. – DJ Basin**  
**Ries 3-19**  
 NENE, Section 19, Township 2 North, Range 64 West  
 Weld County, Colorado

Flowline Closure & Soil  
 Analytical Results Map  
 (01/13/2023 & 01/16/2023)

**FIGURE**  
**1**

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

January 23, 2023

Jacob Whritenour  
Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield, CO 80020  
RE: Noble - Ries 3-19  
Work Order #2301265

Enclosed are the results of analyses for samples received by Summit Scientific on 01/13/23 17:57. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Scott Sheely For Paul Shrewsbury  
President



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

Project: Noble - Ries 3-19

Project Number: UWRWE-A2747-ABN

Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-F@3'	2301265-01	Soil	01/13/23 11:40	01/13/23 17:57
FL01-G@3'	2301265-02	Soil	01/13/23 11:55	01/13/23 17:57
FL01-I@3'	2301265-03	Soil	01/13/23 12:15	01/13/23 17:57

Summit Scientific

*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.*

# Summit Scientific

2301265

S<sub>2</sub>

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 1 of 1

Client: Noble / Tasman Project Manager: Jacob Whritenour Invoice: Cole Moore  
 Address: 6855 W. 119th Ave E-Mail: JWhritenour@tasman-geo.com  
 City/State/Zip: Broomfield/ CO/ 80020  
 Phone: 503-915-3046 Project Name: RIES 3-19  
 Sampler Name: Martin Medeiros Project Number: UWR WE- A274-7-ABN

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested					Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	VOC-915	TPH-915	PAH-915	Boron-HWS	pH, EC, SAR		
1	FL01-F@3'	1/13/23	11:40	2			X			X				X	X	X	X	X	PH, EC, SAR by saturated paste
2	FL01-G@3'	↓	11:55	↓										↓	↓	↓	↓		
3	FL01-I@3'	↓	12:15	↓										↓	↓	↓	↓		
4														↓	↓	↓	↓		
5																			
6																			
7																			
8																			
9																			
10																			

Relinquished by: <i>Martin Medeiros</i> Martin Medeiros	Date/Time: 1/13/23 14:30	Received by: Tasman's Lock Box	Date/Time: 1/13/23 14:30	Turn Around Time (Check) Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 1/13/23 1757	Received by: <i>[Signature]</i>	Date/Time: 1/13/23 1757	Sample Integrity:	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Temperature Upon Receipt: 8.4 Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

S<sub>2</sub>

Sample Receipt Checklist

S2 Work Order# 2301265

Client: Noble Fesman Client Project ID: Ries 3-19

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

Matrix (Check all that apply) Air  Soil/Solid  Water  Other

Temp (°C) 8.4 Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> <b>NOTE:</b> If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>ON ICE</u>
If custody seals are present, are they intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<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"/>	
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"/>	
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"/>	
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"/>	
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>	<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, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<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.

[Signature]  
Custodian Printed Name

1-13-23 1757  
Date/Time



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

**FL01-F@3'**  
**2301265-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **01/13/23 11:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGA0340	01/16/23	01/16/23	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: **01/13/23 11:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0304	76.0 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0389	97.4 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0390	97.4 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **01/13/23 11:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGA0339	01/16/23	01/17/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **01/13/23 11:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	13.5	108 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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.



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

**FL01-F@3'**  
**2301265-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **01/13/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGA0375	01/17/23	01/18/23	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	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **01/13/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0215	64.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0151	45.3 %	40-150		"	"	"	"	

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

Date Sampled: **01/13/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.140</b>	0.0100	mg/L	1	BGA0460	01/19/23	01/21/23	EPA 6020B	

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

Date Sampled: **01/13/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific

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.



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

**FL01-F@3'**  
**2301265-01 (Soil)**

**Summit Scientific**

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	83.9	0.0539	mg/L dry	1	BGA0455	01/18/23	01/20/23	EPA 6020B	
Magnesium	42.8	0.0539	"	"	"	"	"	"	
Sodium	136	0.0539	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **01/13/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.01	0.00100	units	1	BGA0530	01/22/23	01/22/23	Calculation	

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

Date Sampled: **01/13/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	92.8		%	1	BGA0464	01/19/23	01/19/23	Calculation	

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

Date Sampled: **01/13/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.74	0.0100	mmhos/cm	1	BGA0470	01/19/23	01/19/23	EPA 120.1	

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

Date Sampled: **01/13/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.90		pH Units	1	BGA0469	01/19/23	01/19/23	EPA 9045D	

Summit Scientific

*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.*



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

**FL01-G@3'**  
**2301265-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **01/13/23 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGA0340	01/16/23	01/16/23	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: **01/13/23 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0268	67.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0394	98.6 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0406	101 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **01/13/23 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGA0339	01/16/23	01/17/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **01/13/23 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	12.1	97.0 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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.



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

**FL01-G@3'**  
**2301265-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **01/13/23 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGA0375	01/17/23	01/18/23	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	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **01/13/23 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0205	61.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0147	44.0 %	40-150		"	"	"	"	

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

Date Sampled: **01/13/23 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.246</b>	0.0100	mg/L	1	BGA0460	01/19/23	01/21/23	EPA 6020B	

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

Date Sampled: **01/13/23 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific

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.



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

**FL01-G@3'**  
**2301265-02 (Soil)**

**Summit Scientific**

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	108	0.0564	mg/L dry	1	BGA0455	01/18/23	01/20/23	EPA 6020B	
Magnesium	54.1	0.0564	"	"	"	"	"	"	
Sodium	250	0.0564	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **01/13/23 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	4.90	0.00100	units	1	BGA0530	01/22/23	01/22/23	Calculation	

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

Date Sampled: **01/13/23 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	88.6		%	1	BGA0464	01/19/23	01/19/23	Calculation	

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

Date Sampled: **01/13/23 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.33	0.0100	mmhos/cm	1	BGA0470	01/19/23	01/19/23	EPA 120.1	

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

Date Sampled: **01/13/23 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.94		pH Units	1	BGA0469	01/19/23	01/19/23	EPA 9045D	

Summit Scientific

*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.*



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

**FL01-I@3'**  
**2301265-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **01/13/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGA0340	01/16/23	01/16/23	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: **01/13/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0228	56.9 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0371	92.8 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0369	92.3 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **01/13/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGA0339	01/16/23	01/17/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **01/13/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	12.6	101 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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.



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

**FL01-I@3'**  
**2301265-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **01/13/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGA0375	01/17/23	01/18/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
<b>Benzo (a) anthracene</b>	<b>0.00671</b>	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
<b>Benzo (b) fluoranthene</b>	<b>0.00678</b>	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
<b>Chrysene</b>	<b>0.00526</b>	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
<b>Fluoranthene</b>	<b>0.0158</b>	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
<b>Pyrene</b>	<b>0.0154</b>	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **01/13/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0238	71.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0190	56.9 %	40-150		"	"	"	"	

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

Date Sampled: **01/13/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.293</b>	0.0100	mg/L	1	BGA0460	01/19/23	01/21/23	EPA 6020B	

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

Date Sampled: **01/13/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific

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.



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

**FL01-I@3'**  
**2301265-03 (Soil)**

**Summit Scientific**

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	54.3	0.0586	mg/L dry	1	BGA0455	01/18/23	01/20/23	EPA 6020B	
Magnesium	34.8	0.0586	"	"	"	"	"	"	
Sodium	282	0.0586	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **01/13/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	7.34	0.00100	units	1	BGA0530	01/22/23	01/22/23	Calculation	

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

Date Sampled: **01/13/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	85.3		%	1	BGA0464	01/19/23	01/19/23	Calculation	

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

Date Sampled: **01/13/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.13	0.0100	mmhos/cm	1	BGA0470	01/19/23	01/19/23	EPA 120.1	

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

Date Sampled: **01/13/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.88		pH Units	1	BGA0469	01/19/23	01/19/23	EPA 9045D	

Summit Scientific

*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.*



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

### 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 BGA0340 - EPA 5030 Soil MS

##### Blank (BGA0340-BLK1)

Prepared & Analyzed: 01/16/23

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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0308		"	0.0400		77.0	50-150			
Surrogate: Toluene-d8	0.0426		"	0.0400		107	50-150			
Surrogate: 4-Bromofluorobenzene	0.0411		"	0.0400		103	50-150			

##### LCS (BGA0340-BS1)

Prepared & Analyzed: 01/16/23

Benzene	0.0712	0.0020	mg/kg	0.0750		95.0	70-130			
Toluene	0.0801	0.0050	"	0.0750		107	70-130			
Ethylbenzene	0.0926	0.0050	"	0.0750		123	70-130			
m,p-Xylene	0.185	0.010	"	0.150		123	70-130			
o-Xylene	0.0920	0.0050	"	0.0750		123	70-130			
1,2,4-Trimethylbenzene	0.0973	0.0050	"	0.0750		130	70-130			
1,3,5-Trimethylbenzene	0.0941	0.0050	"	0.0750		126	70-130			
Naphthalene	0.0771	0.0038	"	0.0750		103	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0346		"	0.0400		86.6	50-150			
Surrogate: Toluene-d8	0.0423		"	0.0400		106	50-150			
Surrogate: 4-Bromofluorobenzene	0.0360		"	0.0400		89.9	50-150			

##### Matrix Spike (BGA0340-MS1)

Source: 2301243-01

Prepared & Analyzed: 01/16/23

Benzene	0.0639	0.0020	mg/kg	0.0750	ND	85.2	70-130			
Toluene	0.0658	0.0050	"	0.0750	ND	87.7	70-130			
Ethylbenzene	0.0865	0.0050	"	0.0750	ND	115	70-130			
m,p-Xylene	0.180	0.010	"	0.150	ND	120	70-130			
o-Xylene	0.0840	0.0050	"	0.0750	ND	112	70-130			
1,2,4-Trimethylbenzene	0.0930	0.0050	"	0.0750	ND	124	70-130			
1,3,5-Trimethylbenzene	0.0971	0.0050	"	0.0750	ND	129	70-130			
Naphthalene	0.0746	0.0038	"	0.0750	ND	99.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0248		"	0.0400		62.1	50-150			
Surrogate: Toluene-d8	0.0364		"	0.0400		90.9	50-150			
Surrogate: 4-Bromofluorobenzene	0.0347		"	0.0400		86.8	50-150			

Summit Scientific

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.



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

**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 BGA0340 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (BGA0340-MSD1)</b>	<b>Source: 2301243-01</b>			<b>Prepared &amp; Analyzed: 01/16/23</b>						
Benzene	0.0670	0.0020	mg/kg	0.0750	ND	89.3	70-130	4.72	30	
Toluene	0.0680	0.0050	"	0.0750	ND	90.7	70-130	3.41	30	
Ethylbenzene	0.0854	0.0050	"	0.0750	ND	114	70-130	1.26	30	
m,p-Xylene	0.180	0.010	"	0.150	ND	120	70-130	0.450	30	
o-Xylene	0.0884	0.0050	"	0.0750	ND	118	70-130	5.01	30	
1,2,4-Trimethylbenzene	0.0969	0.0050	"	0.0750	ND	129	70-130	4.14	30	
1,3,5-Trimethylbenzene	0.0978	0.0050	"	0.0750	ND	130	70-130	0.708	30	
Naphthalene	0.0812	0.0038	"	0.0750	ND	108	70-130	8.39	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0278</i>		<i>"</i>	<i>0.0400</i>		<i>69.4</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0391</i>		<i>"</i>	<i>0.0400</i>		<i>97.7</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0352</i>		<i>"</i>	<i>0.0400</i>		<i>88.1</i>	<i>50-150</i>			

Summit Scientific

*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.*



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

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

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

**Batch BGA0339 - EPA 3550A**

**Blank (BGA0339-BLK1)**

Prepared: 01/16/23 Analyzed: 01/17/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: <i>o</i> -Terphenyl	13.9		"	12.5		111	30-150			

**LCS (BGA0339-BS1)**

Prepared: 01/16/23 Analyzed: 01/17/23

C10-C28 (DRO)	453	50	mg/kg	500		90.6	70-130			
Surrogate: <i>o</i> -Terphenyl	12.5		"	12.5		100	30-150			

**Matrix Spike (BGA0339-MS1)**

Source: 2301243-01

Prepared: 01/16/23 Analyzed: 01/17/23

C10-C28 (DRO)	483	50	mg/kg	500	16.2	93.4	70-130			
Surrogate: <i>o</i> -Terphenyl	14.1		"	12.5		113	30-150			

**Matrix Spike Dup (BGA0339-MSD1)**

Source: 2301243-01

Prepared: 01/16/23 Analyzed: 01/17/23

C10-C28 (DRO)	474	50	mg/kg	500	16.2	91.5	70-130	1.96	20	
Surrogate: <i>o</i> -Terphenyl	12.1		"	12.5		96.9	30-150			

Summit Scientific

*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.*



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

**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 BGA0375 - EPA 5030 Soil MS**

**Blank (BGA0375-BLK1)**

Prepared & Analyzed: 01/17/23

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	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0361</i>		"	<i>0.0333</i>	<i>108</i>	<i>40-150</i>				
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0296</i>		"	<i>0.0333</i>	<i>88.7</i>	<i>40-150</i>				

**LCS (BGA0375-BS1)**

Prepared & Analyzed: 01/17/23

Acenaphthene	0.0469	0.00500	mg/kg	0.0333	141	31-137			QLCS-02
Anthracene	0.0416	0.00500	"	0.0333	125	30-120			QLCS-02
Benzo (a) anthracene	0.0310	0.00500	"	0.0333	93.1	30-120			
Benzo (a) pyrene	0.0341	0.00500	"	0.0333	102	30-120			
Benzo (b) fluoranthene	0.0381	0.00500	"	0.0333	114	30-120			
Benzo (k) fluoranthene	0.0433	0.00500	"	0.0333	130	30-120			QLCS-02
Chrysene	0.0349	0.00500	"	0.0333	105	30-120			
Dibenz (a,h) anthracene	0.0353	0.00500	"	0.0333	106	30-120			
Fluoranthene	0.0428	0.00500	"	0.0333	128	30-120			QLCS-02
Fluorene	0.0472	0.00500	"	0.0333	142	30-120			QLCS-02
Indeno (1,2,3-cd) pyrene	0.0312	0.00500	"	0.0333	93.5	30-120			
Pyrene	0.0349	0.00500	"	0.0333	105	35-142			
1-Methylnaphthalene	0.0386	0.00500	"	0.0333	116	35-142			
2-Methylnaphthalene	0.0373	0.00500	"	0.0333	112	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0364</i>		"	<i>0.0333</i>	<i>109</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0424</i>		"	<i>0.0333</i>	<i>127</i>	<i>40-150</i>			

Summit Scientific

*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.*



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

**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 BGA0375 - EPA 5030 Soil MS**

<b>Matrix Spike (BGA0375-MS1)</b>	<b>Source: 2301243-01</b>			<b>Prepared &amp; Analyzed: 01/17/23</b>						
Acenaphthene	0.0261	0.00500	mg/kg	0.0333	ND	78.4	31-137			
Anthracene	0.0244	0.00500	"	0.0333	ND	73.1	30-120			
Benzo (a) anthracene	0.0203	0.00500	"	0.0333	ND	61.0	30-120			
Benzo (a) pyrene	0.0215	0.00500	"	0.0333	ND	64.6	30-120			
Benzo (b) fluoranthene	0.0221	0.00500	"	0.0333	ND	66.2	30-120			
Benzo (k) fluoranthene	0.0238	0.00500	"	0.0333	ND	71.3	30-120			
Chrysene	0.0208	0.00500	"	0.0333	ND	62.5	30-120			
Dibenz (a,h) anthracene	0.0230	0.00500	"	0.0333	ND	68.9	30-120			
Fluoranthene	0.0242	0.00500	"	0.0333	ND	72.7	30-120			
Fluorene	0.0276	0.00500	"	0.0333	ND	82.8	30-120			
Indeno (1,2,3-cd) pyrene	0.0197	0.00500	"	0.0333	ND	59.0	30-120			
Pyrene	0.0236	0.00500	"	0.0333	ND	70.8	35-142			
1-Methylnaphthalene	0.0233	0.00500	"	0.0333	ND	70.0	15-130			
2-Methylnaphthalene	0.0245	0.00500	"	0.0333	ND	73.4	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0238</i>		<i>"</i>	<i>0.0333</i>		<i>71.3</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0248</i>		<i>"</i>	<i>0.0333</i>		<i>74.3</i>	<i>40-150</i>			

<b>Matrix Spike Dup (BGA0375-MSD1)</b>	<b>Source: 2301243-01</b>			<b>Prepared &amp; Analyzed: 01/17/23</b>						
Acenaphthene	0.0293	0.00500	mg/kg	0.0333	ND	87.9	31-137	11.5	30	
Anthracene	0.0263	0.00500	"	0.0333	ND	78.9	30-120	7.69	30	
Benzo (a) anthracene	0.0225	0.00500	"	0.0333	ND	67.5	30-120	10.0	30	
Benzo (a) pyrene	0.0220	0.00500	"	0.0333	ND	66.0	30-120	2.13	30	
Benzo (b) fluoranthene	0.0246	0.00500	"	0.0333	ND	73.8	30-120	10.7	30	
Benzo (k) fluoranthene	0.0251	0.00500	"	0.0333	ND	75.3	30-120	5.53	30	
Chrysene	0.0220	0.00500	"	0.0333	ND	66.1	30-120	5.55	30	
Dibenz (a,h) anthracene	0.0228	0.00500	"	0.0333	ND	68.3	30-120	0.829	30	
Fluoranthene	0.0261	0.00500	"	0.0333	ND	78.4	30-120	7.47	30	
Fluorene	0.0283	0.00500	"	0.0333	ND	84.8	30-120	2.42	30	
Indeno (1,2,3-cd) pyrene	0.0210	0.00500	"	0.0333	ND	62.9	30-120	6.40	30	
Pyrene	0.0249	0.00500	"	0.0333	ND	74.8	35-142	5.45	30	
1-Methylnaphthalene	0.0251	0.00500	"	0.0333	ND	75.4	15-130	7.46	50	
2-Methylnaphthalene	0.0244	0.00500	"	0.0333	ND	73.1	15-130	0.438	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0246</i>		<i>"</i>	<i>0.0333</i>		<i>73.8</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0273</i>		<i>"</i>	<i>0.0333</i>		<i>81.9</i>	<i>40-150</i>			

Summit Scientific

*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.*



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

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

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

**Batch BGA0460 - EPA 3050B**

**Blank (BGA0460-BLK1)**

Prepared: 01/19/23 Analyzed: 01/21/23

Boron ND 0.0100 mg/L

**LCS (BGA0460-BS1)**

Prepared: 01/19/23 Analyzed: 01/21/23

Boron 5.78 0.0100 mg/L 5.00 116 80-120

**Duplicate (BGA0460-DUP1)**

**Source: 2301265-01**

Prepared: 01/19/23 Analyzed: 01/21/23

Boron 0.137 0.0100 mg/L 0.140 2.11 20

**Matrix Spike (BGA0460-MS1)**

**Source: 2301265-01**

Prepared: 01/19/23 Analyzed: 01/21/23

Boron 5.83 0.0100 mg/L 5.00 0.140 114 75-125

**Matrix Spike Dup (BGA0460-MSD1)**

**Source: 2301265-01**

Prepared: 01/19/23 Analyzed: 01/21/23

Boron 5.83 0.0100 mg/L 5.00 0.140 114 75-125 0.0582 25

Summit Scientific

*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.*





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

Project: Noble - Ries 3-19

Project Number: UWRWE-A2747-ABN

Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

**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 BGA0455 - General Preparation**

**Blank (BGA0455-BLK1)**

Prepared: 01/18/23 Analyzed: 01/20/23

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

**LCS (BGA0455-BS1)**

Prepared: 01/18/23 Analyzed: 01/20/23

Calcium	5.61	0.0500	mg/L wet	5.00	112	70-130				
Magnesium	5.07	0.0500	"	5.00	101	70-130				
Sodium	4.92	0.0500	"	5.00	98.3	70-130				

Summit Scientific

*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.*



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

Project: Noble - Ries 3-19

Project Number: UWRWE-A2747-ABN  
 Project Manager: Jacob Whritenour

**Reported:**  
 01/23/23 14:12

**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 BGA0464 - General Preparation**

**Duplicate (BGA0464-DUP1)**

**Source: 2301217-01**

Prepared & Analyzed: 01/19/23

% Solids	98.8		%		98.5			0.266	20	
----------	------	--	---	--	------	--	--	-------	----	--

Summit Scientific

*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.*



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

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

**Summit Scientific**

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

**Batch BGA0470 - General Preparation**

**Blank (BGA0470-BLK1)**

Prepared & Analyzed: 01/19/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BGA0470-BS1)**

Prepared & Analyzed: 01/19/23

Specific Conductance (EC) 0.144 0.0100 mmhos/cm 0.150 95.8 95-105

**Duplicate (BGA0470-DUP1)**

Source: 2301241-01

Prepared & Analyzed: 01/19/23

Specific Conductance (EC) 0.308 0.0100 mmhos/cm 0.311 1.03 20

Summit Scientific

*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.*





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

Project: Noble - Ries 3-19

Project Number: UWRWE-A2747-ABN  
 Project Manager: Jacob Whritenour

**Reported:**  
 01/23/23 14:12

**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 BGA0469 - General Preparation**

**LCS (BGA0469-BS1)**

Prepared & Analyzed: 01/19/23

pH	9.18	pH Units	9.18	100	95-105
----	------	----------	------	-----	--------

**Duplicate (BGA0469-DUP1)**

Source: 2301241-01

Prepared & Analyzed: 01/19/23

pH	7.77	pH Units	7.81	0.513	20
----	------	----------	------	-------	----

Summit Scientific

*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.*





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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/23/23 14:12

### Notes and Definitions

QLCS-02 The spike recovery was outside acceptance limits for this analyte indicating a potential high bias.

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

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

January 24, 2023

Jacob Whritenour  
Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield, CO 80020  
RE: Noble - Ries 3-19  
Work Order #2301290

Enclosed are the results of analyses for samples received by Summit Scientific on 01/16/23 17:26. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Scott Sheely For Paul Shrewsbury  
President



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

Project: Noble - Ries 3-19

Project Number: UWRWE-A2747-ABN

Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-B@4'	2301290-01	Soil	01/16/23 09:00	01/16/23 17:26
FL01-C@3'	2301290-02	Soil	01/16/23 11:40	01/16/23 17:26
FL01-J@3'	2301290-03	Soil	01/16/23 11:10	01/16/23 17:26

Summit Scientific

*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.*

# Summit Scientific

S<sub>2</sub>

2301290

4653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310

Client: Noble / Tasman Project Manager: Jacob Whritenour Invoice: Cole Moore  
Address: 6855 W. 119th Ave E-Mail: [jwhritenour@tasman-geo.com](mailto:jwhritenour@tasman-geo.com)  
City/State/Zip: Broomfield/ CO/ 80020 Project Name: RIES 3-19  
Phone: 503-915-3046 Project Number: UWRWE-A2747-ABN  
Sampler Name: Martin Medeiros

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested					Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	VOC-915	TPH-915	PAH-915	PH, EC, SAR	Boron-HWS		
1	FL01-B@4'	1/16/23	9:00	2			X			X				X	X	X	X	X	PH, EC, SAR by saturated paste
2	FL01-C@3'	↓	11:40	↓										↓	↓	↓	↓		
3	FL01-J@3'	↓	11:10	↓										↓	↓	↓	↓		
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Relinquished by: <i>Martin Medeiros</i> Martin Medeiros	Date/Time: 1/16/23 14:30	Received by: Tasman's Lock Box	Date/Time: 1/16/23 14:30	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:
Relinquished by: Tasman's Lock Box	Date/Time: 1/16/23 1720	Received by: <i>[Signature]</i>	Date/Time: 1/16/23 1720	Sample Integrity: Temperature Upon Receipt: 7.9	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Samples Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	





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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

**FL01-B@4'**  
**2301290-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **01/16/23 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGA0378	01/17/23	01/18/23	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: **01/16/23 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0550	137 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0380	95.0 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0408	102 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **01/16/23 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGA0383	01/17/23	01/17/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **01/16/23 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	9.21	73.7 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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.



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

**FL01-B@4'**  
**2301290-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **01/16/23 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGA0375	01/17/23	01/18/23	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	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **01/16/23 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0275	82.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0235	70.5 %	40-150		"	"	"	"	

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

Date Sampled: **01/16/23 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.125</b>	0.0100	mg/L	1	BGA0460	01/19/23	01/21/23	EPA 6020B	

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

Date Sampled: **01/16/23 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific

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.



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

**FL01-B@4'**  
**2301290-01 (Soil)**

**Summit Scientific**

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	34.0	0.0588	mg/L dry	1	BGA0487	01/19/23	01/20/23	EPA 6020B	
Magnesium	12.7	0.0588	"	"	"	"	"	"	
Sodium	44.3	0.0588	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **01/16/23 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.64	0.00100	units	1	BGA0545	01/23/23	01/23/23	Calculation	

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

Date Sampled: **01/16/23 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	85.0		%	1	BGA0485	01/19/23	01/19/23	Calculation	

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

Date Sampled: **01/16/23 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.452	0.0100	mmhos/cm	1	BGA0505	01/20/23	01/20/23	EPA 120.1	

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

Date Sampled: **01/16/23 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.09		pH Units	1	BGA0504	01/20/23	01/20/23	EPA 9045D	

Summit Scientific

*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.*



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

**FL01-C@3'**  
**2301290-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **01/16/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGA0378	01/17/23	01/18/23	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: **01/16/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0534	133 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0374	93.5 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0412	103 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **01/16/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGA0383	01/17/23	01/17/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **01/16/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	8.59	68.7 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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.



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

**FL01-C@3'**  
**2301290-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **01/16/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGA0375	01/17/23	01/18/23	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	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **01/16/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0236	70.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0187	56.2 %	40-150		"	"	"	"	

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

Date Sampled: **01/16/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.0448</b>	0.0100	mg/L	1	BGA0460	01/19/23	01/21/23	EPA 6020B	

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

Date Sampled: **01/16/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific

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.



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

**FL01-C@3'**  
**2301290-02 (Soil)**

**Summit Scientific**

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	31.6	0.0533	mg/L dry	1	BGA0487	01/19/23	01/20/23	EPA 6020B	
Magnesium	7.51	0.0533	"	"	"	"	"	"	
Sodium	8.96	0.0533	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **01/16/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.372	0.00100	units	1	BGA0545	01/23/23	01/23/23	Calculation	

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

Date Sampled: **01/16/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	93.7		%	1	BGA0485	01/19/23	01/19/23	Calculation	

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

Date Sampled: **01/16/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.301	0.0100	mmhos/cm	1	BGA0505	01/20/23	01/20/23	EPA 120.1	

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

Date Sampled: **01/16/23 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.80		pH Units	1	BGA0504	01/20/23	01/20/23	EPA 9045D	

Summit Scientific

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.



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

**FL01-J@3'**  
**2301290-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **01/16/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGA0378	01/17/23	01/18/23	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: **01/16/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0536	134 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0381	95.2 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0404	101 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **01/16/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGA0383	01/17/23	01/17/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **01/16/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	11.8	94.8 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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.



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

**FL01-J@3'**  
**2301290-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **01/16/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGA0375	01/17/23	01/18/23	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	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **01/16/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0207	62.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0166	49.7 %	40-150		"	"	"	"	

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

Date Sampled: **01/16/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.0784</b>	0.0100	mg/L	1	BGA0460	01/19/23	01/21/23	EPA 6020B	

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

Date Sampled: **01/16/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific

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.



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

**FL01-J@3'**  
**2301290-03 (Soil)**

**Summit Scientific**

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	45.2	0.0524	mg/L dry	1	BGA0487	01/19/23	01/20/23	EPA 6020B	
Magnesium	18.0	0.0524	"	"	"	"	"	"	
Sodium	56.0	0.0524	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **01/16/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.78	0.00100	units	1	BGA0545	01/23/23	01/23/23	Calculation	

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

Date Sampled: **01/16/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.4		%	1	BGA0485	01/19/23	01/19/23	Calculation	

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

Date Sampled: **01/16/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.839	0.0100	mmhos/cm	1	BGA0505	01/20/23	01/20/23	EPA 120.1	

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

Date Sampled: **01/16/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.87		pH Units	1	BGA0504	01/20/23	01/20/23	EPA 9045D	

Summit Scientific

*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.*



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

### 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 BGA0378 - EPA 5030 Soil MS

##### Blank (BGA0378-BLK1)

Prepared & Analyzed: 01/17/23

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>	0.0545		"	0.0400		136	50-150			
<i>Surrogate: Toluene-d8</i>	0.0378		"	0.0400		94.4	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0407		"	0.0400		102	50-150			

##### LCS (BGA0378-BS1)

Prepared & Analyzed: 01/17/23

Benzene	0.115	0.0020	mg/kg	0.125		91.7	70-130			
Toluene	0.115	0.0050	"	0.125		91.9	70-130			
Ethylbenzene	0.146	0.0050	"	0.125		116	70-130			
m,p-Xylene	0.277	0.010	"	0.250		111	70-130			
o-Xylene	0.138	0.0050	"	0.125		110	70-130			
1,2,4-Trimethylbenzene	0.152	0.0050	"	0.125		122	70-130			
1,3,5-Trimethylbenzene	0.151	0.0050	"	0.125		121	70-130			
Naphthalene	0.144	0.0038	"	0.125		115	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0545		"	0.0400		136	50-150			
<i>Surrogate: Toluene-d8</i>	0.0383		"	0.0400		95.7	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0386		"	0.0400		96.5	50-150			

##### Matrix Spike (BGA0378-MS1)

Source: 2301287-01

Prepared & Analyzed: 01/17/23

Benzene	0.112	0.0020	mg/kg	0.125	ND	90.0	70-130			
Toluene	0.112	0.0050	"	0.125	ND	89.9	70-130			
Ethylbenzene	0.142	0.0050	"	0.125	ND	114	70-130			
m,p-Xylene	0.274	0.010	"	0.250	ND	109	70-130			
o-Xylene	0.136	0.0050	"	0.125	ND	109	70-130			
1,2,4-Trimethylbenzene	0.151	0.0050	"	0.125	ND	121	70-130			
1,3,5-Trimethylbenzene	0.160	0.0050	"	0.125	ND	128	70-130			
Naphthalene	0.151	0.0038	"	0.125	ND	121	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0574		"	0.0400		144	50-150			
<i>Surrogate: Toluene-d8</i>	0.0384		"	0.0400		96.0	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0394		"	0.0400		98.4	50-150			

Summit Scientific

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.



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

**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 BGA0378 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (BGA0378-MSD1)</b>	<b>Source: 2301287-01</b>			<b>Prepared &amp; Analyzed: 01/17/23</b>						
Benzene	0.112	0.0020	mg/kg	0.125	ND	90.0	70-130	0.0267	30	
Toluene	0.114	0.0050	"	0.125	ND	91.4	70-130	1.64	30	
Ethylbenzene	0.142	0.0050	"	0.125	ND	113	70-130	0.232	30	
m,p-Xylene	0.273	0.010	"	0.250	ND	109	70-130	0.220	30	
o-Xylene	0.136	0.0050	"	0.125	ND	108	70-130	0.133	30	
1,2,4-Trimethylbenzene	0.152	0.0050	"	0.125	ND	122	70-130	0.869	30	
1,3,5-Trimethylbenzene	0.161	0.0050	"	0.125	ND	128	70-130	0.599	30	
Naphthalene	0.152	0.0038	"	0.125	ND	122	70-130	0.474	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0579</i>		<i>"</i>	<i>0.0400</i>		<i>145</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0386</i>		<i>"</i>	<i>0.0400</i>		<i>96.4</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0393</i>		<i>"</i>	<i>0.0400</i>		<i>98.2</i>	<i>50-150</i>			

Summit Scientific

*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.*





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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

**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 BGA0383 - EPA 3550A**

**Blank (BGA0383-BLK1)**

Prepared & Analyzed: 01/17/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	13.9		"	12.5		111	30-150				

**LCS (BGA0383-BS1)**

Prepared & Analyzed: 01/17/23

C10-C28 (DRO)	527	50	mg/kg	500		105	70-130				
Surrogate: <i>o</i> -Terphenyl	13.7		"	12.5		109	30-150				

**Matrix Spike (BGA0383-MS1)**

Source: 2301288-01

Prepared & Analyzed: 01/17/23

C10-C28 (DRO)	417	50	mg/kg	500	38.4	75.8	70-130				
Surrogate: <i>o</i> -Terphenyl	10.6		"	12.5		84.9	30-150				

**Matrix Spike Dup (BGA0383-MSD1)**

Source: 2301288-01

Prepared & Analyzed: 01/17/23

C10-C28 (DRO)	406	50	mg/kg	500	38.4	73.5	70-130	2.82	20		
Surrogate: <i>o</i> -Terphenyl	6.51		"	12.5		52.0	30-150				

Summit Scientific

*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.*



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

**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 BGA0375 - EPA 5030 Soil MS**

**Blank (BGA0375-BLK1)**

Prepared & Analyzed: 01/17/23

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	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0361		"	0.0333	108	40-150				
Surrogate: Fluoranthene-d10	0.0296		"	0.0333	88.7	40-150				

**LCS (BGA0375-BS1)**

Prepared & Analyzed: 01/17/23

Acenaphthene	0.0469	0.00500	mg/kg	0.0333	141	31-137			QLCS-02
Anthracene	0.0416	0.00500	"	0.0333	125	30-120			QLCS-02
Benzo (a) anthracene	0.0310	0.00500	"	0.0333	93.1	30-120			
Benzo (a) pyrene	0.0341	0.00500	"	0.0333	102	30-120			
Benzo (b) fluoranthene	0.0381	0.00500	"	0.0333	114	30-120			
Benzo (k) fluoranthene	0.0433	0.00500	"	0.0333	130	30-120			QLCS-02
Chrysene	0.0349	0.00500	"	0.0333	105	30-120			
Dibenz (a,h) anthracene	0.0353	0.00500	"	0.0333	106	30-120			
Fluoranthene	0.0428	0.00500	"	0.0333	128	30-120			QLCS-02
Fluorene	0.0472	0.00500	"	0.0333	142	30-120			QLCS-02
Indeno (1,2,3-cd) pyrene	0.0312	0.00500	"	0.0333	93.5	30-120			
Pyrene	0.0349	0.00500	"	0.0333	105	35-142			
1-Methylnaphthalene	0.0386	0.00500	"	0.0333	116	35-142			
2-Methylnaphthalene	0.0373	0.00500	"	0.0333	112	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0364		"	0.0333	109	40-150			
Surrogate: Fluoranthene-d10	0.0424		"	0.0333	127	40-150			

Summit Scientific

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.



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

**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 BGA0375 - EPA 5030 Soil MS**

<b>Matrix Spike (BGA0375-MS1)</b>	<b>Source: 2301243-01</b>			<b>Prepared &amp; Analyzed: 01/17/23</b>						
Acenaphthene	0.0261	0.00500	mg/kg	0.0333	ND	78.4	31-137			
Anthracene	0.0244	0.00500	"	0.0333	ND	73.1	30-120			
Benzo (a) anthracene	0.0203	0.00500	"	0.0333	ND	61.0	30-120			
Benzo (a) pyrene	0.0215	0.00500	"	0.0333	ND	64.6	30-120			
Benzo (b) fluoranthene	0.0221	0.00500	"	0.0333	ND	66.2	30-120			
Benzo (k) fluoranthene	0.0238	0.00500	"	0.0333	ND	71.3	30-120			
Chrysene	0.0208	0.00500	"	0.0333	ND	62.5	30-120			
Dibenz (a,h) anthracene	0.0230	0.00500	"	0.0333	ND	68.9	30-120			
Fluoranthene	0.0242	0.00500	"	0.0333	ND	72.7	30-120			
Fluorene	0.0276	0.00500	"	0.0333	ND	82.8	30-120			
Indeno (1,2,3-cd) pyrene	0.0197	0.00500	"	0.0333	ND	59.0	30-120			
Pyrene	0.0236	0.00500	"	0.0333	ND	70.8	35-142			
1-Methylnaphthalene	0.0233	0.00500	"	0.0333	ND	70.0	15-130			
2-Methylnaphthalene	0.0245	0.00500	"	0.0333	ND	73.4	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0238</i>		<i>"</i>	<i>0.0333</i>		<i>71.3</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0248</i>		<i>"</i>	<i>0.0333</i>		<i>74.3</i>	<i>40-150</i>			

<b>Matrix Spike Dup (BGA0375-MSD1)</b>	<b>Source: 2301243-01</b>			<b>Prepared &amp; Analyzed: 01/17/23</b>						
Acenaphthene	0.0293	0.00500	mg/kg	0.0333	ND	87.9	31-137	11.5	30	
Anthracene	0.0263	0.00500	"	0.0333	ND	78.9	30-120	7.69	30	
Benzo (a) anthracene	0.0225	0.00500	"	0.0333	ND	67.5	30-120	10.0	30	
Benzo (a) pyrene	0.0220	0.00500	"	0.0333	ND	66.0	30-120	2.13	30	
Benzo (b) fluoranthene	0.0246	0.00500	"	0.0333	ND	73.8	30-120	10.7	30	
Benzo (k) fluoranthene	0.0251	0.00500	"	0.0333	ND	75.3	30-120	5.53	30	
Chrysene	0.0220	0.00500	"	0.0333	ND	66.1	30-120	5.55	30	
Dibenz (a,h) anthracene	0.0228	0.00500	"	0.0333	ND	68.3	30-120	0.829	30	
Fluoranthene	0.0261	0.00500	"	0.0333	ND	78.4	30-120	7.47	30	
Fluorene	0.0283	0.00500	"	0.0333	ND	84.8	30-120	2.42	30	
Indeno (1,2,3-cd) pyrene	0.0210	0.00500	"	0.0333	ND	62.9	30-120	6.40	30	
Pyrene	0.0249	0.00500	"	0.0333	ND	74.8	35-142	5.45	30	
1-Methylnaphthalene	0.0251	0.00500	"	0.0333	ND	75.4	15-130	7.46	50	
2-Methylnaphthalene	0.0244	0.00500	"	0.0333	ND	73.1	15-130	0.438	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0246</i>		<i>"</i>	<i>0.0333</i>		<i>73.8</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0273</i>		<i>"</i>	<i>0.0333</i>		<i>81.9</i>	<i>40-150</i>			

Summit Scientific

*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.*



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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

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

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

**Batch BGA0460 - EPA 3050B**

**Blank (BGA0460-BLK1)**

Prepared: 01/19/23 Analyzed: 01/21/23

Boron ND 0.0100 mg/L

**LCS (BGA0460-BS1)**

Prepared: 01/19/23 Analyzed: 01/21/23

Boron 5.78 0.0100 mg/L 5.00 116 80-120

**Duplicate (BGA0460-DUP1)**

**Source: 2301265-01**

Prepared: 01/19/23 Analyzed: 01/21/23

Boron 0.137 0.0100 mg/L 0.140 2.11 20

**Matrix Spike (BGA0460-MS1)**

**Source: 2301265-01**

Prepared: 01/19/23 Analyzed: 01/21/23

Boron 5.83 0.0100 mg/L 5.00 0.140 114 75-125

**Matrix Spike Dup (BGA0460-MSD1)**

**Source: 2301265-01**

Prepared: 01/19/23 Analyzed: 01/21/23

Boron 5.83 0.0100 mg/L 5.00 0.140 114 75-125 0.0582 25

Summit Scientific

*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.*





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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

**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 BGA0487 - General Preparation**

**Blank (BGA0487-BLK1)**

Prepared: 01/19/23 Analyzed: 01/20/23

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

**LCS (BGA0487-BS1)**

Prepared: 01/19/23 Analyzed: 01/20/23

Calcium	4.61	0.0500	mg/L wet	5.00	92.3	70-130				
Magnesium	5.13	0.0500	"	5.00	103	70-130				
Sodium	5.02	0.0500	"	5.00	100	70-130				

Summit Scientific

*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.*





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

Project: Noble - Ries 3-19  
 Project Number: UWRWE-A2747-ABN  
 Project Manager: Jacob Whritenour

**Reported:**  
 01/24/23 12:32

**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 BGA0485 - General Preparation**

**Duplicate (BGA0485-DUP1)**

**Source: 2301290-01**

**Prepared & Analyzed: 01/19/23**

% Solids	85.4		%		85.0			0.378		20	
----------	------	--	---	--	------	--	--	-------	--	----	--

Summit Scientific

*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.*





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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

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

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

**Batch BGA0505 - General Preparation**

**Blank (BGA0505-BLK1)**

Prepared & Analyzed: 01/20/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BGA0505-BS1)**

Prepared & Analyzed: 01/20/23

Specific Conductance (EC) 0.148 0.0100 mmhos/cm 0.150 98.9 95-105

**Duplicate (BGA0505-DUP1)**

**Source: 2301287-01**

Prepared & Analyzed: 01/20/23

Specific Conductance (EC) 1.66 0.0100 mmhos/cm 1.67 0.780 20

Summit Scientific

*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.*





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

Project: Noble - Ries 3-19

Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

**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 BGA0504 - General Preparation**

**LCS (BGA0504-BS1)**

Prepared & Analyzed: 01/20/23

pH	9.04	pH Units	9.18	98.5	95-105
----	------	----------	------	------	--------

**Duplicate (BGA0504-DUP1)**

Source: 2301287-01

Prepared & Analyzed: 01/20/23

pH	7.76	pH Units	7.71	0.646	20
----	------	----------	------	-------	----

Summit Scientific

*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.*





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

Project: Noble - Ries 3-19  
Project Number: UWRWE-A2747-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
01/24/23 12:32

### Notes and Definitions

QLCS-02 The spike recovery was outside acceptance limits for this analyte indicating a potential high bias.

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