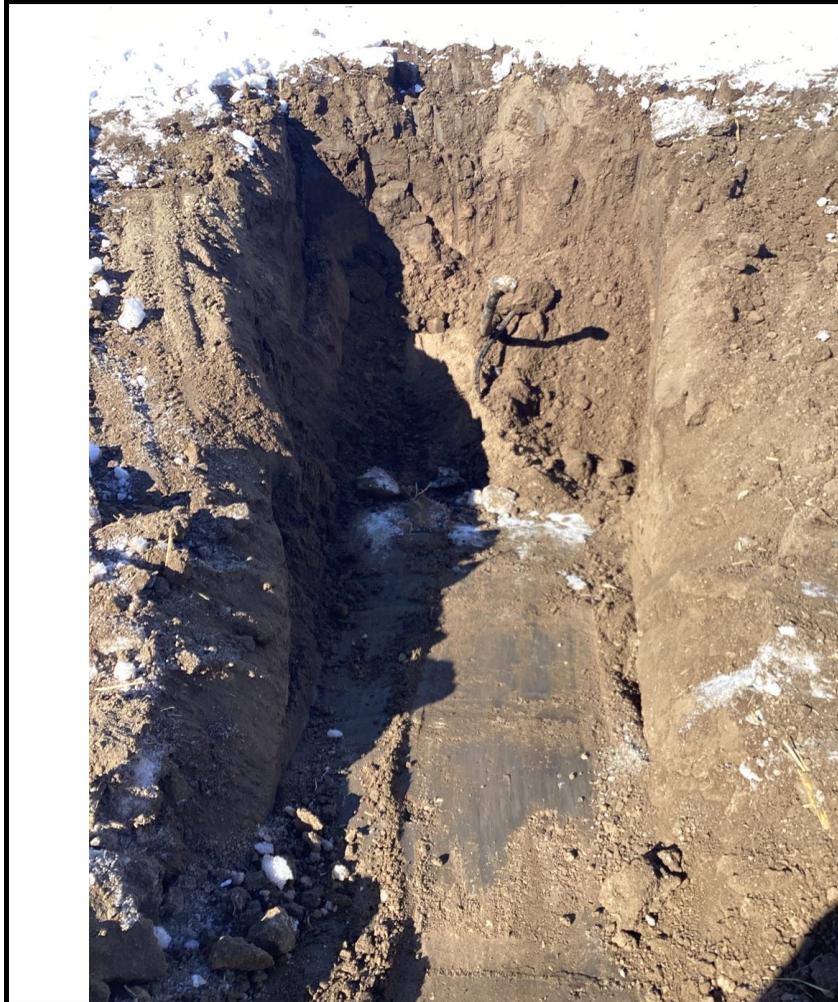


## Flowline Closure Checklist

### 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> Roth 12-30		<i>Date:</i> 2/16/2023			<i>Remediation Project #:</i> 22292			
<i>Associated Wells:</i>		<i>Age of Site:</i>			<i>Number of Photos Attached:</i> 1			
<i>Starting point: (GPS coordinates and descriptions)</i> 40.455048, -104.599908								
<i>End point: (GPS coordinates and descriptions)</i> 40.455214, -104.600165								
<i>USCS Soil Type:</i> Poorly Graded Sand - SP					<i>Estimated Depth to Groundwater:</i> >4'			
<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>Oil/Water/Gas</i>							
<i>Depth</i>	4'							
<i>Age</i>								
<i>Length</i>	90'							
<i>Construction Material</i>	Steel							
<i>Were flowlines pulled?</i>	Yes							
<i>Visual Integrity of lines</i>	Good							
<i>Visual impacts if trenched</i>	NA							
<i>PID Readings if trenched</i>	NA							
<i>Sample taken? Location/Sample ID#</i>	Yes, see below							
<i>Photo Number(s)</i>	1							
<i>Other observations regarding on location flowlines:</i> Flowline sampled along flowline path starting at wellhead (FL01-A@4')								
Summary								
<i>Was impacted soil identified?</i> <span style="background-color: yellow;">No</span> Yes - less than 10 cubic yards      Yes - more than 10 cubic yards								
<i>Total number of samples field screened:</i> 1					<i>Total number of samples collected:</i> 1			
<i>Highest PID Reading:</i> 0.0					<i>Total number of samples submitted to lab for analysis:</i> 1			
<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> <span style="background-color: yellow;">No</span> 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-A@4'		<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>				<b>Notes/Conditions:</b>			

**TABLE 1**  
**SOIL SAMPLE LOCATIONS**  
**NOBLE ENERGY, INC. - ROTH 12-30**

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude <sup>1</sup>	Longitude	PDOP
FL01-A@4'	02/16/23	0.0	No Staining	No Odor	Lab	40.45504633	-104.5999343	1.0

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. - ROTH 12-30

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-A@4'	02/16/23	<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-A@4'	02/16/23	7.77	0.385	0.256	0.0913

Notes:

- Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.
- Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
- SSLs are applicable if a pathway for communication with groundwater is present.

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 = Millimhos 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

Highlighted results are equal to or exceed the COGCC Table 915-1 standard



**Legend**

- Flowline
- +

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  
 PID – Photo-ionization Detector  
 ppm – Parts per million

0 ft.                      20 ft.                      40 ft.

Image Source: Google Earth; Google 2020

DATE:	03/24/2023
DESIGNED BY:	JW
DRAWN BY:	HM



**TASMAN**  
GEOSCIENCES

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

**Noble Energy, Inc. – DJ Basin  
Roth 12-30**  
NWSW, Section 30, Township 6 North, Range 64 West  
Weld County, Colorado

Flowline Closure & Soil  
Analytical Results Map  
(02/16/2023)

**FIGURE**  
1

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

February 27, 2023

Jacob Whritenour  
Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield, CO 80020  
RE: Noble - Roth 12-30  
Work Order #2302336

Enclosed are the results of analyses for samples received by Summit Scientific on 02/16/23 17:55. 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 - Roth 12-30

Project Number: UWRWE-A1643-ABN

Project Manager: Jacob Whritenour

**Reported:**  
02/27/23 10:47

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-A@4'	2302336-01	Soil	02/16/23 11:52	02/16/23 17:55

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.*

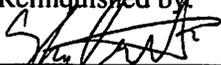
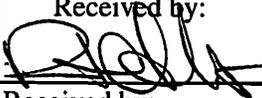
# SUMMIT SCIENTIFIC

4653 Table Mountain Drive  
Golden, CO 80403  
303-277-9310

Lab ID	Page <u>1</u> of <u>1</u>
<b>2302336</b>	

<b>Send Data To:</b>		<b>Send Invoice To:</b>
Client: Noble / Tasman	Project Manager: Jake Whritenour	Company: Chevron
Address: 6855 W. 119th Ave	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: Both 12-30
City/State/Zip: Broomfield, CO 80020		AFE#:
Phone: 303-261-6246	Project Name: Both 12-30	PO/Billing Codes:
Sampler Name: Stanley Gilbert	Project Number: UWRWE-A2643-ABN	Contact: Jeff White

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		Metals - 915	HOLD	
1	FLO1-A64'	2/16/23	11:52	2			X			X			X	X	X	X	X	X	X		pH, EC, SAR by saturated paste
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by: 	Date/Time: 2/16/23 13:45	Received by:	Date/Time: 2/16/23 13:45	TAT Business Days	Field DO	<b>Notes:</b>
Relinquished by: Tasman Lect Box	Date/Time: 2/16/23 17:55	Received by: 	Date/Time: 2/16/23 17:55	Same Day	Field EC	
Relinquished by:	Date/Time:	Received by:	Date/Time:	1 Day	Field ORP	
Relinquished by:	Date/Time:	Received by:	Date/Time:	2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
Temperature Upon Receipt: 8.1	Corrected Temperature: 	IR gun #: 1	HNO3 lot #:	Standard	<input checked="" type="checkbox"/> Field Turb.	

# S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2302336Client: Noble Gasman Client Project ID: Roth 12-30Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other  Airbill #:   
   Matrix (Check all that apply) Air  Soil/Solid  Water  Other Temp (°C)  Thermometer # 

	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"/>	ON ICE
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.AS  
Custodian Printed Name2/16/23  
Date/Time



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

Project: Noble - Roth 12-30  
Project Number: UWRWE-A1643-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
02/27/23 10:47

**FL01-A@4'**  
**2302336-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **02/16/23 11:52**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGB0524	02/17/23	02/17/23	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: **02/16/23 11:52**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0284	71.1 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0331	82.8 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0354	88.4 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **02/16/23 11:52**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGB0525	02/17/23	02/17/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **02/16/23 11:52**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	13.7	110 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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

Project: Noble - Roth 12-30  
Project Number: UWRWE-A1643-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
02/27/23 10:47

**FL01-A@4'**  
**2302336-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **02/16/23 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGB0602	02/20/23	02/21/23	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: **02/16/23 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0258	77.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0191	57.3 %	40-150		"	"	"	"	

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

Date Sampled: **02/16/23 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.0913</b>	0.0100	mg/L	1	BGB0604	02/20/23	02/21/23	EPA 6020B	

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

Date Sampled: **02/16/23 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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

Project: Noble - Roth 12-30  
Project Number: UWRWE-A1643-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
02/27/23 10:47

**FL01-A@4'**  
**2302336-01 (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	29.8	0.0535	mg/L dry	1	BGB0722	02/22/23	02/23/23	EPA 6020B	
Magnesium	6.44	0.0535	"	"	"	"	"	"	
Sodium	8.88	0.0535	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **02/16/23 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.385	0.00100	units	1	BGB0794	02/24/23	02/24/23	Calculation	

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

Date Sampled: **02/16/23 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	93.4		%	1	BGB0646	02/21/23	02/21/23	Calculation	

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

Date Sampled: **02/16/23 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.256	0.0100	mmhos/cm	1	BGB0742	02/23/23	02/23/23	EPA 120.1	

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

Date Sampled: **02/16/23 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.77		pH Units	1	BGB0743	02/23/23	02/23/23	EPA 9045D	

Summit Scientific

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

Project: Noble - Roth 12-30  
Project Number: UWRWE-A1643-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
02/27/23 10:47

### 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 BGB0524 - EPA 5030 Soil MS

##### Blank (BGB0524-BLK1)

Prepared & Analyzed: 02/17/23

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>	0.0281		"	0.0400		70.4		50-150		
<i>Surrogate: Toluene-d8</i>	0.0331		"	0.0400		82.7		50-150		
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0355		"	0.0400		88.6		50-150		

##### LCS (BGB0524-BS1)

Prepared & Analyzed: 02/17/23

Benzene	0.0809	0.0020	mg/kg	0.100		80.9		70-130		
Toluene	0.0747	0.0050	"	0.100		74.7		70-130		
Ethylbenzene	0.102	0.0050	"	0.100		102		70-130		
m,p-Xylene	0.196	0.010	"	0.200		97.9		70-130		
o-Xylene	0.0916	0.0050	"	0.100		91.6		70-130		
1,2,4-Trimethylbenzene	0.0821	0.0050	"	0.100		82.1		70-130		
1,3,5-Trimethylbenzene	0.0869	0.0050	"	0.100		86.9		70-130		
Naphthalene	0.0887	0.0038	"	0.100		88.7		70-130		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0248		"	0.0400		61.9		50-150		
<i>Surrogate: Toluene-d8</i>	0.0316		"	0.0400		79.0		50-150		
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0354		"	0.0400		88.6		50-150		

##### Matrix Spike (BGB0524-MS1)

Source: 2302325-01

Prepared & Analyzed: 02/17/23

Benzene	0.0822	0.0020	mg/kg	0.100	ND	82.2		70-130		
Toluene	0.0766	0.0050	"	0.100	ND	76.6		70-130		
Ethylbenzene	0.0996	0.0050	"	0.100	ND	99.6		70-130		
m,p-Xylene	0.194	0.010	"	0.200	ND	97.1		70-130		
o-Xylene	0.0905	0.0050	"	0.100	ND	90.5		70-130		
1,2,4-Trimethylbenzene	0.0816	0.0050	"	0.100	ND	81.6		70-130		
1,3,5-Trimethylbenzene	0.0868	0.0050	"	0.100	ND	86.8		70-130		
Naphthalene	0.0916	0.0038	"	0.100	ND	91.6		70-130		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0255		"	0.0400		63.8		50-150		
<i>Surrogate: Toluene-d8</i>	0.0325		"	0.0400		81.2		50-150		
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0338		"	0.0400		84.6		50-150		

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

Project: Noble - Roth 12-30  
Project Number: UWRWE-A1643-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
02/27/23 10:47

**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 BGB0524 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (BGB0524-MSD1)</b>	<b>Source: 2302325-01</b>			<b>Prepared &amp; Analyzed: 02/17/23</b>						
Benzene	0.0790	0.0020	mg/kg	0.100	ND	79.0	70-130	3.91	30	
Toluene	0.0739	0.0050	"	0.100	ND	73.9	70-130	3.63	30	
Ethylbenzene	0.102	0.0050	"	0.100	ND	102	70-130	1.97	30	
m,p-Xylene	0.199	0.010	"	0.200	ND	99.4	70-130	2.40	30	
o-Xylene	0.0909	0.0050	"	0.100	ND	90.9	70-130	0.397	30	
1,2,4-Trimethylbenzene	0.0827	0.0050	"	0.100	ND	82.7	70-130	1.35	30	
1,3,5-Trimethylbenzene	0.0874	0.0050	"	0.100	ND	87.4	70-130	0.723	30	
Naphthalene	0.0920	0.0038	"	0.100	ND	92.0	70-130	0.490	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0237</i>		<i>"</i>	<i>0.0400</i>		<i>59.2</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0314</i>		<i>"</i>	<i>0.0400</i>		<i>78.5</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0340</i>		<i>"</i>	<i>0.0400</i>		<i>85.1</i>	<i>50-150</i>			

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Roth 12-30  
Project Number: UWRWE-A1643-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
02/27/23 10:47

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

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

**Batch BGB0525 - EPA 3550A**

**Blank (BGB0525-BLK1)**

Prepared & Analyzed: 02/17/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	15.8		"	12.5	12.2	92.1	70-130				

**LCS (BGB0525-BS1)**

Prepared & Analyzed: 02/17/23

C10-C28 (DRO)	476	50	mg/kg	500	12.2	92.1	70-130				
Surrogate: <i>o</i> -Terphenyl	15.7		"	12.5	12.2	92.1	70-130				

**Matrix Spike (BGB0525-MS1)**

Source: 2302325-01

Prepared & Analyzed: 02/17/23

C10-C28 (DRO)	473	50	mg/kg	500	12.2	92.1	70-130				
Surrogate: <i>o</i> -Terphenyl	17.8		"	12.5	12.2	92.1	70-130				

**Matrix Spike Dup (BGB0525-MSD1)**

Source: 2302325-01

Prepared & Analyzed: 02/17/23

C10-C28 (DRO)	427	50	mg/kg	500	12.2	83.0	70-130	10.1	20		
Surrogate: <i>o</i> -Terphenyl	14.2		"	12.5	12.2	83.0	70-130	10.1	20		

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

Project: Noble - Roth 12-30  
Project Number: UWRWE-A1643-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
02/27/23 10:47

**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 BGB0602 - EPA 5030 Soil MS**

**Blank (BGB0602-BLK1)**

Prepared: 02/20/23 Analyzed: 02/21/23

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	0.0366		"	0.0333		110	40-150			
Surrogate: Fluoranthene-d10	0.0287		"	0.0333		86.1	40-150			

**LCS (BGB0602-BS1)**

Prepared: 02/20/23 Analyzed: 02/21/23

Acenaphthene	0.0375	0.00500	mg/kg	0.0333		112	31-137			
Anthracene	0.0368	0.00500	"	0.0333		110	30-120			
Benzo (a) anthracene	0.0325	0.00500	"	0.0333		97.5	30-120			
Benzo (a) pyrene	0.0359	0.00500	"	0.0333		108	30-120			
Benzo (b) fluoranthene	0.0252	0.00500	"	0.0333		75.5	30-120			
Benzo (k) fluoranthene	0.0365	0.00500	"	0.0333		109	30-120			
Chrysene	0.0327	0.00500	"	0.0333		98.2	30-120			
Dibenz (a,h) anthracene	0.0380	0.00500	"	0.0333		114	30-120			
Fluoranthene	0.0371	0.00500	"	0.0333		111	30-120			
Fluorene	0.0304	0.00500	"	0.0333		91.1	30-120			
Indeno (1,2,3-cd) pyrene	0.0372	0.00500	"	0.0333		111	30-120			
Pyrene	0.0389	0.00500	"	0.0333		117	35-142			
1-Methylnaphthalene	0.0302	0.00500	"	0.0333		90.7	35-142			
2-Methylnaphthalene	0.0321	0.00500	"	0.0333		96.4	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0326		"	0.0333		97.8	40-150			
Surrogate: Fluoranthene-d10	0.0341		"	0.0333		102	40-150			

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Roth 12-30  
Project Number: UWRWE-A1643-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
02/27/23 10:47

**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 BGB0602 - EPA 5030 Soil MS**

**Matrix Spike (BGB0602-MS1)**

Source: 2302309-01

Prepared: 02/20/23 Analyzed: 02/21/23

Acenaphthene	0.0238	0.00500	mg/kg	0.0333	ND	71.5	31-137			
Anthracene	0.0191	0.00500	"	0.0333	ND	57.3	30-120			
Benzo (a) anthracene	0.0169	0.00500	"	0.0333	ND	50.8	30-120			
Benzo (a) pyrene	0.0197	0.00500	"	0.0333	ND	59.2	30-120			
Benzo (b) fluoranthene	0.0166	0.00500	"	0.0333	ND	49.9	30-120			
Benzo (k) fluoranthene	0.0167	0.00500	"	0.0333	ND	50.2	30-120			
Chrysene	0.0202	0.00500	"	0.0333	ND	60.7	30-120			
Dibenz (a,h) anthracene	0.0167	0.00500	"	0.0333	ND	50.1	30-120			
Fluoranthene	0.0209	0.00500	"	0.0333	ND	62.6	30-120			
Fluorene	0.0156	0.00500	"	0.0333	ND	46.7	30-120			
Indeno (1,2,3-cd) pyrene	0.0139	0.00500	"	0.0333	ND	41.7	30-120			
Pyrene	0.0223	0.00500	"	0.0333	ND	66.8	35-142			
1-Methylnaphthalene	0.0182	0.00500	"	0.0333	ND	54.7	15-130			
2-Methylnaphthalene	0.0213	0.00500	"	0.0333	ND	64.0	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0171</i>		<i>"</i>	<i>0.0333</i>		<i>51.2</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0184</i>		<i>"</i>	<i>0.0333</i>		<i>55.3</i>	<i>40-150</i>			

**Matrix Spike Dup (BGB0602-MSD1)**

Source: 2302309-01

Prepared: 02/20/23 Analyzed: 02/21/23

Acenaphthene	0.0215	0.00500	mg/kg	0.0333	ND	64.5	31-137	10.3	30	
Anthracene	0.0193	0.00500	"	0.0333	ND	57.9	30-120	1.00	30	
Benzo (a) anthracene	0.0168	0.00500	"	0.0333	ND	50.5	30-120	0.468	30	
Benzo (a) pyrene	0.0211	0.00500	"	0.0333	ND	63.3	30-120	6.69	30	
Benzo (b) fluoranthene	0.0165	0.00500	"	0.0333	ND	49.6	30-120	0.488	30	
Benzo (k) fluoranthene	0.0172	0.00500	"	0.0333	ND	51.5	30-120	2.64	30	
Chrysene	0.0216	0.00500	"	0.0333	ND	64.9	30-120	6.76	30	
Dibenz (a,h) anthracene	0.0169	0.00500	"	0.0333	ND	50.6	30-120	0.911	30	
Fluoranthene	0.0229	0.00500	"	0.0333	ND	68.6	30-120	9.20	30	
Fluorene	0.0147	0.00500	"	0.0333	ND	44.0	30-120	5.94	30	
Indeno (1,2,3-cd) pyrene	0.0153	0.00500	"	0.0333	ND	45.8	30-120	9.56	30	
Pyrene	0.0231	0.00500	"	0.0333	ND	69.2	35-142	3.45	30	
1-Methylnaphthalene	0.0165	0.00500	"	0.0333	ND	49.6	15-130	9.76	50	
2-Methylnaphthalene	0.0188	0.00500	"	0.0333	ND	56.3	15-130	12.9	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0160</i>		<i>"</i>	<i>0.0333</i>		<i>48.0</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0195</i>		<i>"</i>	<i>0.0333</i>		<i>58.4</i>	<i>40-150</i>			

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

Project: Noble - Roth 12-30  
Project Number: UWRWE-A1643-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
02/27/23 10:47

**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 BGB0604 - EPA 3050B**

**Blank (BGB0604-BLK1)**

Prepared: 02/20/23 Analyzed: 02/21/23

Boron ND 0.0100 mg/L

**LCS (BGB0604-BS1)**

Prepared: 02/20/23 Analyzed: 02/21/23

Boron 4.73 0.0100 mg/L 5.00 94.7 80-120

**Duplicate (BGB0604-DUP1)**

Source: 2302335-01

Prepared: 02/20/23 Analyzed: 02/21/23

Boron 0.0790 0.0100 mg/L 0.0813 2.89 20

**Matrix Spike (BGB0604-MS1)**

Source: 2302335-01

Prepared: 02/20/23 Analyzed: 02/21/23

Boron 4.60 0.0100 mg/L 5.00 0.0813 90.5 75-125

**Matrix Spike Dup (BGB0604-MSD1)**

Source: 2302335-01

Prepared: 02/20/23 Analyzed: 02/21/23

Boron 4.57 0.0100 mg/L 5.00 0.0813 89.8 75-125 0.741 25

Summit Scientific

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

Project: Noble - Roth 12-30

Project Number: UWRWE-A1643-ABN

Project Manager: Jacob Whritenour

**Reported:**  
02/27/23 10:47

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

**Summit Scientific**

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

**Batch BGB0722 - General Preparation**

**Blank (BGB0722-BLK1)**

Prepared: 02/22/23 Analyzed: 02/23/23

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

**LCS (BGB0722-BS1)**

Prepared: 02/22/23 Analyzed: 02/23/23

Calcium	4.62	0.0500	mg/L wet	5.00	92.3	70-130
Magnesium	4.88	0.0500	"	5.00	97.5	70-130
Sodium	4.99	0.0500	"	5.00	99.7	70-130

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

Project: Noble - Roth 12-30

Project Number: UWRWE-A1643-ABN

Project Manager: Jacob Whritenour

**Reported:**  
 02/27/23 10:47

**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 BGB0646 - General Preparation**

<b>Duplicate (BGB0646-DUP1)</b>		<b>Source: 2302325-01</b>			<b>Prepared &amp; Analyzed: 02/21/23</b>			
% Solids	96.6		%		96.7		0.132	20

Summit Scientific

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

Project: Noble - Roth 12-30

Project Number: UWRWE-A1643-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
02/27/23 10:47

**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 BGB0742 - General Preparation**

**Blank (BGB0742-BLK1)**

Prepared & Analyzed: 02/23/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BGB0742-BS1)**

Prepared & Analyzed: 02/23/23

Specific Conductance (EC) 0.144 0.0100 mmhos/cm 0.150 96.2 95-105

**Duplicate (BGB0742-DUP1)**

Source: 2302325-01

Prepared & Analyzed: 02/23/23

Specific Conductance (EC) 0.240 0.0100 mmhos/cm 0.244 1.44 20

Summit Scientific

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

Project: Noble - Roth 12-30

Project Number: UWRWE-A1643-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
02/27/23 10:47

**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 BGB0743 - General Preparation**

**LCS (BGB0743-BS1)**

Prepared & Analyzed: 02/23/23

pH 9.11 pH Units 9.18 99.2 95-105

**Duplicate (BGB0743-DUP1)**

Source: 2302325-01

Prepared & Analyzed: 02/23/23

pH 7.86 pH Units 7.94 1.01 20

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

Project: Noble - Roth 12-30

Project Number: UWRWE-A1643-ABN

Project Manager: Jacob Whritenour

**Reported:**  
02/27/23 10:47

### 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