

Flowline Closure Checklist

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

Additional Attachments:		Tank Battery Closure		Wellhead Closure		Pit Closure		Partially Buried Vault Closure
-------------------------	--	----------------------	--	------------------	--	-------------	--	--------------------------------

Site Name & COGCC Facility Number: Guttersen State CC20-32D	Date: 12/19/2023	Remediation Project #: 31544
---	------------------	------------------------------

Associated Wells:	Age of Site:	Number of Photos Attached: 5
-------------------	--------------	------------------------------

Starting point: (GPS coordinates and descriptions)
(40.296203, -104.469193)

End point: (GPS coordinates and descriptions)
(40.294556, -104.468127)

USCS Soil Type: SW	Estimated Depth to Groundwater: > 3'
--------------------	--------------------------------------

Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)
Not Observed

Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)
Not Observed

Flowlines

Flowline type	Oil, Water, Gas			
Depth	3'			
Age	-			
Length	1327'			
Construction Material	Steel			
Were flowlines pulled?	Yes			
Visual Integrity of lines	Good			
Visual impacts if trenched	Good			
PID Readings if trenched	0.0-1.9			
Sample taken? Location/Sample ID#	Yes (See Below)			
Photo Number(s)	1-5			

Other observations regarding on location flowlines:
Samples were taken at the wellhead (FL01-A@2'), as well as screened along the flowline path (FL01-C@3' - FL01-F@3'). Directional changes were observed at sampling points FL01-D@3' and FL01-E@3'. The separator sample was collected during decommissioning of the associated facility (REM #31580).

Summary

Was impacted soil identified? No	
Total number of samples field screened: 5	Total number of samples collected: 5
Highest PID Reading: 1.9	Total number of samples submitted to lab for analysis: 3
If more than 10 cubic yards of impacted soil were observed:	
Vertical extent:	Estimated spill volume:
Lateral extent:	Volume of soil removed:
Is additional investigation required?	
Was groundwater encountered during the investigation? No	
Measured depth to groundwater:	Was remedial groundwater removal conducted?
Date Groundwater was encountered:	Commencement date of removal:
Sheen on groundwater?	Volume of groundwater removed prior to sampling:
Free product observed?	Volume of groundwater removed post sampling:
Total number of samples collected:	Total Volume of groundwater removed:
Total number of samples submitted to lab for analysis:	

Photographic Log



Equipment ID: FL01-C@3'		Equipment Type: Flowline			Equipment ID: FL01-D@3'		Equipment Type: Flowline		
Material: Steel		Volume:	Contents: Oil/Gas/Water		Material: Steel		Volume:	Contents: Oil/Gas/Water	
Notes/Conditions: Facing East					Notes/Conditions: Facing Southeast Direction Change				

Photographic Log



Equipment ID: FL01-E@3'	Equipment Type: Flowline	
Material: Steel	Volume:	Contents: Oil/Gas/Water
Notes/Conditions: Facing West Direction Change Common trench with Guttersen State CC20-12 FL		

Equipment ID: FL01-A@3'	Equipment Type: Flowline	
Material: Steel	Volume:	Contents: Oil/Gas/Water
Notes/Conditions: Facing South		

Photographic Log



Equipment ID: FL01-F@3'		Equipment Type: Flowline		Equipment ID:		Equipment Type:	
Material: Steel		Volume:		Contents: Oil/Gas/Water		Material:	
Material:		Volume:		Contents:		Material:	
Notes/Conditions: Facing Common Trenched with previously abandoned flowline				Notes/Conditions:			

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. - GUTTERSEN STATE CC20-32D

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude ¹	Longitude	PDOP
FL01-A@2'	12/19/23	0.0	No Staining	No Odor	Lab	40.296203	-104.469193	NC
FL01-C@3'	12/19/23	1.9	No Staining	No Odor	Grab	40.294556	-104.468127	NC
FL01-D@3'	12/19/23	0.3	No Staining	No Odor	Lab	40.295010	-104.468911	NC
FL01-E@3'	12/19/23	0.3	No Staining	No Odor	Lab	40.295407	-104.469157	NC
FL01-F@3'	12/19/23	0.2	No Staining	No Odor	Grab	40.294126	-104.467586	1.0

Notes:

PID = Photoionization detector

ppm = parts per million

PDOP = Position dilution of precision

HC = Hydrocarbon

NC = Not Collected

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. - GUTTERSEN STATE CC20-32D

Soil Sample ID	Date	¹ 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 ^{1,2}		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 ^{1,2,3}		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@2'	12/19/23	<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-D@3'	12/19/23	<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-E@3'	12/19/23	<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)
SSR ^{1,2}		6 - 8.3	<6	<4mmhos/cm	2
FL01-A@2'	12/19/23	8.55	0.170	0.0929	<2.00
FL01-D@3'	12/19/23	8.14	0.173	0.0506	<2.00
FL01-E@3'	12/19/23	8.14	0.124	0.0496	<2.00

Sample ID	Date Sampled	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
Residential SSL ^{1,2}		0.68	15000	71	0.3	3100	400	1500	390	390	23000
Protection of Groundwater SSL ^{1,2,3}		0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
FL01-A@2'	12/19/23	1.30	74.7	<0.200	<0.30	6.79	5.47	3.21	<0.260	<0.0200	16.7
FL01-D@3'	12/19/23	1.06	41.2	<0.200	<0.30	2.48	4.16	2.36	<0.260	<0.0200	9.21
FL01-E@3'	12/19/23	1.02	34.9	<0.200	<0.30	2.35	3.90	2.19	<0.260	<0.0200	8.70

Notes:

- Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.
- Soil Screening Levels (SSL) and Soil Suitability for Reclamation (SSR) standards 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:

ECMC = Energy and Carbon Management 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) = Benzo(a)anthracene
 Benzo(b) = Benzo(b)fluoranthene
 Benzo(k) = Benzo(k)fluoranthene
 Benzo(a) = Benzo(a)pyrene
 A,H = Dibenzo(a,h)anthracene
 1,2,3-CD = Indeno(1,2,3-cd)pyrene
 1-M = 1-methylnaphthalene
 2-M = 2-methylnaphthalene

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

FL01-A@2'
(12/19/23)
PID = 0.0 ppm
pH = **8.55**
Arsenic = **1.30** mg/kg

FL01-E@3'
(12/19/23)
PID = 0.3 ppm
Arsenic = **1.02** mg/kg

FL01-D@3'
(12/19/23)
PID = 0.3 ppm
Arsenic = **1.06** mg/kg

FL01-C@3'
(12/19/23)
PID = 1.9 ppm

FL01-F@3'
(12/19/23)
PID = 0.2 ppm

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 ECMC Table 915-1 not shown.
- 4) Concentration in exceedance of ECMC table 915-1 soil standards indicated in **RED**.

GPS – Global Positioning System
mg/kg – Milligrams per kilogram
PID – Photoionization Detector
ppm – parts per million

0 ft. 125ft. 250ft.



Image Source: Google Earth; Google 2020

DATE:	01/24/2023
DESIGNED BY:	JW
DRAWN BY:	EH



TASMAN
GEOSCIENCES

Tasman Geosciences, Inc.
6855 W 119th Avenue
Broomfield, CO 80020

Noble Energy, Inc. – DJ Basin
Guttersen State CC20-32D
NWSW, Section 20, Township 4 North, Range 63 West
Weld County, Colorado

Flowline Closure & Soil
Analytical Results Map
(12/19/2023)

FIGURE
1

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

January 15, 2024

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

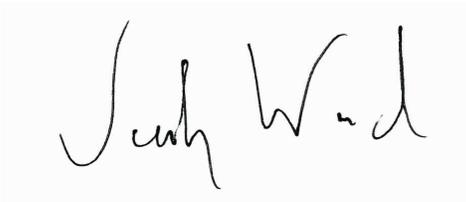
Broomfield, CO 80020

RE: Noble - Gutttersen State CC20-32D

Work Order #2312380

Enclosed are the results of analyses for samples received by Summit Scientific on 12/19/23 18:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink that reads "Jacob Wood". The signature is written in a cursive style with a large initial "J" and a distinct "W".

Jacob Wood For Paul Shrewsbury

President



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

Project: Noble - Guttarsen State CC20-32D

Project Number: UWRWE-A3470-ABN

Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-A@2'	2312380-01	Soil	12/19/23 12:38	12/19/23 18:00
FL01-D@3'	2312380-02	Soil	12/19/23 12:18	12/19/23 18:00
FL01-E@3'	2312380-03	Soil	12/19/23 12:28	12/19/23 18:00

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.

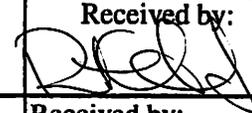
SUMMIT SCIENTIFIC

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

Lab ID	Page 1 of 1
2312380	

Send Data To:		Send Invoice To:
Client: Noble / Tasman	Project Manager: Jake Whritenour	Company: Chevron
Address: 6855 W. 119th Ave	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: GutterSen State CC20-320
City/State/Zip: Broomfield, CO 80020		AFE#: UWRWE-A3470-ABN
Phone: 303-903-5168	Project Name: GutterSen State CC20-320	PO/Billing Codes:
Sampler Name: Dalton Hagen	Project Number:	Contact: Miguel Barron

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix		Analysis Requested							Special Instruction					
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	VOC - 915	TPH - 915	PAH - 915	pH, EC, SAR	Boron - HWS		Metals - 915	HOLD			
1	FL01-A e2'	12/19/23	1238	3			X			X				X	X	X	X	X	X	X		pH, EC, SAR by saturated paste	
2	FL01-D e3'	I	1218	I										I	I	I	I	I	I	I			
3	FL01-E e3'	I	1228	I										I	I	I	I	I	I	I			
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							
13																							
14																							
15																							

Relinquished by:  Date/Time: 12/19/23 1615	Received by: Tasman Lockbox Date/Time: 12/19/23 1615	TAT Business Days	Field DO	Notes:
		Same Day	Field EC	
Relinquished by: Tasman Lockbox Date/Time: 12/23 1800	Received by:  Date/Time: 12/19/23 1800	1 Day	Field ORP	
		2 Days	Field pH	
Relinquished by: Date/Time:	Received by: Date/Time:	3 Days	Field Temp.	
		Standard	X Field Turb.	
Temperature Upon Receipt: 15.1	Corrected Temperature: 15.1	IR gun #:	HNO3 lot #:	

S₂

Sample Receipt Checklist

S2 Work Order# 2312380

Client: Noble Gasman

Client Project ID: Gutherson State C020-32D

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other

Airbill #: _____

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

Temp (°C) 15.1

Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ NOTE: 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? ⁽¹⁾	<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 ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water - is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? ⁽¹⁾ Note the type of preservative in the comments column - HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ 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):				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

AS
Custodian Printed Name

12/19/23
Date/Time

330 33



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

Project: Noble - Guttersen State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

FL01-A@2'
2312380-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/19/23 12:38**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGL0817	12/21/23	12/22/23	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: **12/19/23 12:38**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0362	90.5 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0407	102 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0394	98.6 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/19/23 12:38**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGL0822	12/21/23	12/22/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **12/19/23 12:38**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	11.4	91.1 %		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 - Guttersen State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

FL01-A@2'
2312380-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/19/23 12:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0957	12/27/23	12/29/23	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: **12/19/23 12:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0148	44.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0161	48.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/19/23 12:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0870	12/26/23	12/28/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/19/23 12:38**

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 - Guttersen State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

FL01-A@2'
2312380-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.30	0.200	mg/kg dry	1	BGL1004	12/28/23	01/02/24	EPA 6020B	
Barium	74.7	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	6.79	0.400	"	"	"	"	"	"	
Nickel	3.21	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	16.7	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: 12/19/23 12:38

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0843	12/21/23	12/21/23	EPA 7196A	

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

Date Sampled: 12/19/23 12:38

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	80.3	0.0500	mg/L dry	1	BHA0027	01/02/24	01/05/24	EPA 6020B	
Magnesium	9.34	0.0500	"	"	"	"	"	"	
Sodium	3.30	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 12/19/23 12:38

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0929	0.00100	units	1	BHA0177	01/05/24	01/05/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 12/19/23 12:38

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 - Gutterson State CC20-32D
Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

FL01-A@2'
2312380-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	94.5	%	1	BGL0978	12/28/23	12/28/23	Calculation
----------	------	---	---	---------	----------	----------	-------------

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/19/23 12:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.170	0.0100	mmhos/cm	1	BHA0098	01/03/24	01/03/24	EPA 120.1	

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

Date Sampled: **12/19/23 12:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.55		pH Units	1	BHA0099	01/03/24	01/03/24	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 - Guttersen State CC20-32D

Project Number: UWRWE-A3470-ABN
 Project Manager: Jacob Whritenour

Reported:
 01/15/24 16:08

FL01-A@2'
2312380-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **12/19/23 12:38**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Lead	5.47	0.200	mg/kg dry	1	BHA0342	12/28/23	01/10/24	EPA 6020B	

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 - Guttersen State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

FL01-D@3'
2312380-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/19/23 12:18**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGL0817	12/21/23	12/22/23	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: **12/19/23 12:18**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0351	87.7 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0402	101 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0394	98.5 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/19/23 12:18**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGL0822	12/21/23	12/22/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **12/19/23 12:18**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	13.0	104 %		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 - Guttersen State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

FL01-D@3'
2312380-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/19/23 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0957	12/27/23	12/29/23	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: **12/19/23 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0142	42.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0212	63.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/19/23 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0870	12/26/23	12/28/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/19/23 12:18**

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 - Guttersen State CC20-32D
Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

FL01-D@3'
2312380-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.06	0.200	mg/kg dry	1	BGL1004	12/28/23	01/02/24	EPA 6020B	
Barium	41.2	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.48	0.400	"	"	"	"	"	"	
Lead	4.16	0.200	"	"	"	"	"	"	
Nickel	2.36	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	9.21	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/19/23 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0843	12/21/23	12/21/23	EPA 7196A	

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

Date Sampled: **12/19/23 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	43.4	0.0500	mg/L dry	1	BHA0027	01/02/24	01/05/24	EPA 6020B	
Magnesium	7.39	0.0500	"	"	"	"	"	"	
Sodium	1.37	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **12/19/23 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0506	0.00100	units	1	BHA0177	01/05/24	01/05/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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 - Guttersen State CC20-32D
Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

FL01-D@3'
2312380-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/19/23 12:18**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	96.7			%	1	BGL0978	12/28/23	12/28/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/19/23 12:18**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.173	0.0100		mmhos/cm	1	BHA0098	01/03/24	01/03/24	EPA 120.1	

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

Date Sampled: **12/19/23 12:18**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.14			pH Units	1	BHA0099	01/03/24	01/03/24	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 - Guttersen State CC20-32D
Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

FL01-E@3'
2312380-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/19/23 12:28**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGL0817	12/21/23	12/23/23	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: **12/19/23 12:28**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0365	91.3 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0403	101 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0392	98.1 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/19/23 12:28**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGL0822	12/21/23	12/22/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **12/19/23 12:28**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	11.6	92.4 %		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 - Guttersen State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

FL01-E@3'
2312380-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/19/23 12:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0957	12/27/23	12/29/23	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: **12/19/23 12:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0160	47.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0221	66.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/19/23 12:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0870	12/26/23	12/28/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/19/23 12:28**

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 - Gutterson State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

FL01-E@3'
2312380-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.02	0.200	mg/kg dry	1	BGL1004	12/28/23	01/02/24	EPA 6020B	
Barium	34.9	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.35	0.400	"	"	"	"	"	"	
Lead	3.90	0.200	"	"	"	"	"	"	
Nickel	2.19	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	8.70	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: 12/19/23 12:28

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0843	12/21/23	12/21/23	EPA 7196A	

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

Date Sampled: 12/19/23 12:28

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	44.6	0.0500	mg/L dry	1	BHA0027	01/02/24	01/05/24	EPA 6020B	
Magnesium	7.55	0.0500	"	"	"	"	"	"	
Sodium	1.36	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 12/19/23 12:28

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0496	0.00100	units	1	BHA0177	01/05/24	01/05/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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 - Guttersen State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

FL01-E@3'
2312380-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/19/23 12:28**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	96.7			%	1	BGL0978	12/28/23	12/28/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/19/23 12:28**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.124	0.0100		mmhos/cm	1	BHA0098	01/03/24	01/03/24	EPA 120.1	

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

Date Sampled: **12/19/23 12:28**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.14			pH Units	1	BHA0099	01/03/24	01/03/24	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 - Guttersen State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

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 BGL0817 - EPA 5030 Soil MS

Blank (BGL0817-BLK1)

Prepared: 12/21/23 Analyzed: 12/22/23

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>	0.0398		"	0.0400		99.6	50-150				
<i>Surrogate: Toluene-d8</i>	0.0410		"	0.0400		102	50-150				
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0408		"	0.0400		102	50-150				

LCS (BGL0817-BS1)

Prepared: 12/21/23 Analyzed: 12/22/23

Benzene	0.106	0.0020	mg/kg	0.100		106	70-130				
Toluene	0.0910	0.0050	"	0.100		91.0	70-130				
Ethylbenzene	0.100	0.0050	"	0.100		100	70-130				
m,p-Xylene	0.189	0.010	"	0.200		94.6	70-130				
o-Xylene	0.0844	0.0050	"	0.100		84.4	70-130				
1,2,4-Trimethylbenzene	0.0744	0.0050	"	0.100		74.4	70-130				
1,3,5-Trimethylbenzene	0.0898	0.0050	"	0.100		89.8	70-130				
Naphthalene	0.0941	0.0038	"	0.100		94.1	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0355		"	0.0400		88.8	50-150				
<i>Surrogate: Toluene-d8</i>	0.0408		"	0.0400		102	50-150				
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0375		"	0.0400		93.8	50-150				

Matrix Spike (BGL0817-MS1)

Source: 2312380-01

Prepared: 12/21/23 Analyzed: 12/22/23

Benzene	0.0815	0.0020	mg/kg	0.100	ND	81.5	70-130				
Toluene	0.0959	0.0050	"	0.100	ND	95.9	70-130				
Ethylbenzene	0.0972	0.0050	"	0.100	ND	97.2	70-130				
m,p-Xylene	0.183	0.010	"	0.200	ND	91.7	70-130				
o-Xylene	0.111	0.0050	"	0.100	ND	111	70-130				
1,2,4-Trimethylbenzene	0.0996	0.0050	"	0.100	ND	99.6	70-130				
1,3,5-Trimethylbenzene	0.114	0.0050	"	0.100	ND	114	70-130				
Naphthalene	0.0993	0.0038	"	0.100	ND	99.3	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0370		"	0.0400		92.6	50-150				
<i>Surrogate: Toluene-d8</i>	0.0404		"	0.0400		101	50-150				
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0386		"	0.0400		96.5	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 - Guttersen State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

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 BGL0817 - EPA 5030 Soil MS

Matrix Spike Dup (BGL0817-MSD1)	Source: 2312380-01			Prepared: 12/21/23		Analyzed: 12/22/23				
Benzene	0.0832	0.0020	mg/kg	0.100	ND	83.2	70-130	1.97	30	
Toluene	0.0948	0.0050	"	0.100	ND	94.8	70-130	1.16	30	
Ethylbenzene	0.0907	0.0050	"	0.100	ND	90.7	70-130	6.93	30	
m,p-Xylene	0.201	0.010	"	0.200	ND	100	70-130	9.00	30	
o-Xylene	0.106	0.0050	"	0.100	ND	106	70-130	4.50	30	
1,2,4-Trimethylbenzene	0.0933	0.0050	"	0.100	ND	93.3	70-130	6.53	30	
1,3,5-Trimethylbenzene	0.107	0.0050	"	0.100	ND	107	70-130	6.64	30	
Naphthalene	0.0976	0.0038	"	0.100	ND	97.6	70-130	1.71	30	
Surrogate: 1,2-Dichloroethane-d4	0.0371		"	0.0400		92.8	50-150			
Surrogate: Toluene-d8	0.0405		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0400		99.4	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 - Guttersen State CC20-32D
Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

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 BGL0822 - EPA 3550A

Blank (BGL0822-BLK1)

Prepared: 12/21/23 Analyzed: 12/22/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	14.9		"	12.5		120		30-150			

LCS (BGL0822-BS1)

Prepared: 12/21/23 Analyzed: 12/22/23

C10-C28 (DRO)	460	50	mg/kg	500		92.1		70-130			
Surrogate: <i>o</i> -Terphenyl	13.1		"	12.5		105		30-150			

Matrix Spike (BGL0822-MS1)

Source: 2312380-01

Prepared: 12/21/23 Analyzed: 12/22/23

C10-C28 (DRO)	479	50	mg/kg	500	24.7	90.8		70-130			
Surrogate: <i>o</i> -Terphenyl	11.5		"	12.5		91.9		30-150			

Matrix Spike Dup (BGL0822-MSD1)

Source: 2312380-01

Prepared: 12/21/23 Analyzed: 12/22/23

C10-C28 (DRO)	457	50	mg/kg	500	24.7	86.5		70-130	4.61	20	
Surrogate: <i>o</i> -Terphenyl	10.3		"	12.5		82.5		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 - Guttersen State CC20-32D
Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

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 BGL0957 - EPA 5030 Soil MS

Blank (BGL0957-BLK1)

Prepared: 12/27/23 Analyzed: 12/28/23

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>0.0203</i>		"	<i>0.0333</i>		<i>61.0</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0358</i>		"	<i>0.0333</i>		<i>107</i>	<i>40-150</i>			

LCS (BGL0957-BS1)

Prepared: 12/27/23 Analyzed: 12/28/23

Acenaphthene	0.0303	0.00500	mg/kg	0.0333	90.8	31-137
Anthracene	0.0343	0.00500	"	0.0333	103	30-120
Benzo (a) anthracene	0.0310	0.00500	"	0.0333	93.1	30-120
Benzo (a) pyrene	0.0197	0.00500	"	0.0333	59.1	30-120
Benzo (b) fluoranthene	0.0290	0.00500	"	0.0333	87.1	30-120
Benzo (k) fluoranthene	0.0314	0.00500	"	0.0333	94.3	30-120
Chrysene	0.0373	0.00500	"	0.0333	112	30-120
Dibenz (a,h) anthracene	0.0342	0.00500	"	0.0333	103	30-120
Fluoranthene	0.0331	0.00500	"	0.0333	99.2	30-120
Fluorene	0.0279	0.00500	"	0.0333	83.7	30-120
Indeno (1,2,3-cd) pyrene	0.0321	0.00500	"	0.0333	96.3	30-120
Pyrene	0.0386	0.00500	"	0.0333	116	35-142
1-Methylnaphthalene	0.0255	0.00500	"	0.0333	76.4	35-142
2-Methylnaphthalene	0.0365	0.00500	"	0.0333	110	35-142
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0256</i>		"	<i>0.0333</i>	<i>76.7</i>	<i>40-150</i>
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0341</i>		"	<i>0.0333</i>	<i>102</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 - Guttersen State CC20-32D
Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

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 BGL0957 - EPA 5030 Soil MS

Matrix Spike (BGL0957-MS1)	Source: 2312349-01			Prepared: 12/27/23 Analyzed: 12/28/23					
Acenaphthene	0.0162	0.00500	mg/kg	0.0333	ND	48.6	31-137		
Anthracene	0.0173	0.00500	"	0.0333	ND	51.9	30-120		
Benzo (a) anthracene	0.0184	0.00500	"	0.0333	ND	55.1	30-120		
Benzo (a) pyrene	0.0185	0.00500	"	0.0333	ND	55.4	30-120		
Benzo (b) fluoranthene	0.0160	0.00500	"	0.0333	ND	48.1	30-120		
Benzo (k) fluoranthene	0.0170	0.00500	"	0.0333	ND	50.9	30-120		
Chrysene	0.0191	0.00500	"	0.0333	ND	57.2	30-120		
Dibenz (a,h) anthracene	0.0158	0.00500	"	0.0333	ND	47.3	30-120		
Fluoranthene	0.0193	0.00500	"	0.0333	ND	57.8	30-120		
Fluorene	0.0168	0.00500	"	0.0333	ND	50.3	30-120		
Indeno (1,2,3-cd) pyrene	0.0144	0.00500	"	0.0333	ND	43.2	30-120		
Pyrene	0.0220	0.00500	"	0.0333	ND	66.1	35-142		
1-Methylnaphthalene	0.0140	0.00500	"	0.0333	ND	41.9	15-130		
2-Methylnaphthalene	0.0204	0.00500	"	0.0333	ND	61.3	15-130		
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0140</i>		"	<i>0.0333</i>		<i>42.1</i>	<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0181</i>		"	<i>0.0333</i>		<i>54.3</i>	<i>40-150</i>		

Matrix Spike Dup (BGL0957-MSD1)	Source: 2312349-01			Prepared: 12/27/23 Analyzed: 12/29/23					
Acenaphthene	0.0163	0.00500	mg/kg	0.0333	ND	49.0	31-137	0.788	30
Anthracene	0.0154	0.00500	"	0.0333	ND	46.2	30-120	11.7	30
Benzo (a) anthracene	0.0171	0.00500	"	0.0333	ND	51.3	30-120	7.18	30
Benzo (a) pyrene	0.0147	0.00500	"	0.0333	ND	44.1	30-120	22.7	30
Benzo (b) fluoranthene	0.0135	0.00500	"	0.0333	ND	40.6	30-120	16.8	30
Benzo (k) fluoranthene	0.0137	0.00500	"	0.0333	ND	41.0	30-120	21.6	30
Chrysene	0.0157	0.00500	"	0.0333	ND	47.1	30-120	19.4	30
Dibenz (a,h) anthracene	0.0170	0.00500	"	0.0333	ND	50.9	30-120	7.25	30
Fluoranthene	0.0151	0.00500	"	0.0333	ND	45.3	30-120	24.3	30
Fluorene	0.0161	0.00500	"	0.0333	ND	48.2	30-120	4.40	30
Indeno (1,2,3-cd) pyrene	0.0162	0.00500	"	0.0333	ND	48.7	30-120	11.9	30
Pyrene	0.0157	0.00500	"	0.0333	ND	47.2	35-142	33.3	30
1-Methylnaphthalene	0.0152	0.00500	"	0.0333	ND	45.6	15-130	8.44	50
2-Methylnaphthalene	0.0139	0.00500	"	0.0333	ND	41.6	15-130	38.3	50
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0209</i>		"	<i>0.0333</i>		<i>62.8</i>	<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0137</i>		"	<i>0.0333</i>		<i>41.0</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 - Gutterson State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

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

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

Batch BGL0870 - EPA 3050B

Blank (BGL0870-BLK1)

Prepared: 12/26/23 Analyzed: 12/28/23

Boron ND 2.00 mg/L

LCS (BGL0870-BS1)

Prepared: 12/26/23 Analyzed: 12/28/23

Boron 4.64 2.00 mg/L 5.00 92.9 80-120

Duplicate (BGL0870-DUP1)

Source: 2312318-01

Prepared: 12/26/23 Analyzed: 12/28/23

Boron 2.98 2.00 mg/L 2.99 0.166 20

Matrix Spike (BGL0870-MS1)

Source: 2312318-01

Prepared: 12/26/23 Analyzed: 12/28/23

Boron 7.78 2.00 mg/L 5.00 2.99 95.8 75-125

Matrix Spike Dup (BGL0870-MSD1)

Source: 2312318-01

Prepared: 12/26/23 Analyzed: 12/28/23

Boron 7.88 2.00 mg/L 5.00 2.99 97.9 75-125 1.34 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 - Guttersen State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BGL1004 - EPA 3050B

Blank (BGL1004-BLK1)

Prepared: 12/28/23 Analyzed: 01/02/24

Arsenic	ND	0.200	mg/kg wet							
Barium	ND	0.400	"							
Cadmium	ND	0.200	"							
Copper	ND	0.400	"							
Lead	ND	0.200	"							
Nickel	ND	0.400	"							
Silver	ND	0.0200	"							
Zinc	ND	0.400	"							
Selenium	ND	0.260	"							

LCS (BGL1004-BS1)

Prepared: 12/28/23 Analyzed: 01/02/24

Arsenic	36.6	0.200	mg/kg wet	40.0	91.6	80-120
Barium	35.9	0.400	"	40.0	89.8	80-120
Cadmium	1.85	0.200	"	2.00	92.4	80-120
Copper	37.6	0.400	"	40.0	94.0	80-120
Lead	18.8	0.200	"	20.0	93.9	80-120
Nickel	37.2	0.400	"	40.0	93.1	80-120
Silver	1.85	0.0200	"	2.00	92.4	80-120
Zinc	37.5	0.400	"	40.0	93.8	80-120
Selenium	3.85	0.260	"	4.00	96.4	80-120

Duplicate (BGL1004-DUP1)

Source: 2311559-02

Prepared: 12/28/23 Analyzed: 01/02/24

Arsenic	1.98	0.200	mg/kg dry	1.54	24.6	20	QR-04
Barium	83.1	0.400	"	72.2	13.9	20	
Cadmium	0.218	0.200	"	0.167	26.3	20	QR-01
Copper	5.21	0.400	"	5.20	0.0640	20	
Lead	5.76	0.200	"	5.73	0.435	20	
Nickel	4.25	0.400	"	3.48	19.9	20	
Silver	0.0208	0.0200	"	0.0220	5.83	20	
Zinc	18.8	0.400	"	20.6	9.28	20	
Selenium	ND	0.260	"	ND		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 - Guttersen State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BGL1004 - EPA 3050B

Matrix Spike (BGL1004-MS1)

Source: 2311559-02

Prepared: 12/28/23 Analyzed: 01/02/24

Arsenic	30.4	0.200	mg/kg dry	41.6	1.54	69.3	75-125				QM-07
Barium	105	0.400	"	41.6	72.2	79.6	75-125				
Cadmium	2.10	0.200	"	2.08	0.167	92.7	75-125				
Copper	35.4	0.400	"	41.6	5.20	72.6	75-125				QM-07
Lead	24.4	0.200	"	20.8	5.73	89.6	75-125				
Nickel	33.9	0.400	"	41.6	3.48	73.1	75-125				QM-07
Silver	1.91	0.0200	"	2.08	0.0220	90.9	75-125				
Zinc	49.6	0.400	"	41.6	20.6	69.6	75-125				QM-07
Selenium	3.18	0.260	"	4.16	ND	76.4	75-125				

Matrix Spike Dup (BGL1004-MSD1)

Source: 2311559-02

Prepared: 12/28/23 Analyzed: 01/02/24

Arsenic	31.3	0.200	mg/kg dry	41.6	1.54	71.5	75-125	3.07	25		QM-07
Barium	110	0.400	"	41.6	72.2	92.0	75-125	4.75	25		
Cadmium	2.20	0.200	"	2.08	0.167	97.7	75-125	4.82	25		
Copper	36.4	0.400	"	41.6	5.20	75.0	75-125	2.77	25		
Lead	25.4	0.200	"	20.8	5.73	94.8	75-125	4.34	25		
Nickel	34.8	0.400	"	41.6	3.48	75.3	75-125	2.70	25		
Silver	1.98	0.0200	"	2.08	0.0220	93.9	75-125	3.30	25		
Zinc	50.6	0.400	"	41.6	20.6	72.1	75-125	2.04	25		QM-07
Selenium	3.36	0.260	"	4.16	ND	80.8	75-125	5.61	25		

Batch BHA0342 - EPA 3050B

Blank (BHA0342-BLK1)

Prepared & Analyzed: 01/10/24

Arsenic	ND	0.200	mg/kg wet								
Barium	ND	0.400	"								
Cadmium	ND	0.200	"								
Copper	ND	0.400	"								
Lead	ND	0.200	"								
Nickel	ND	0.400	"								
Silver	ND	0.0200	"								
Zinc	ND	0.400	"								
Selenium	ND	0.260	"								

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 - Guttersen State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BHA0342 - EPA 3050B

LCS (BHA0342-BS1)

Prepared & Analyzed: 01/10/24

Arsenic	40.8	0.200	mg/kg wet	40.0		102	80-120			
Barium	42.3	0.400	"	40.0		106	80-120			
Cadmium	2.01	0.200	"	2.00		100	80-120			
Copper	42.0	0.400	"	40.0		105	80-120			
Lead	20.1	0.200	"	20.0		100	80-120			
Nickel	41.4	0.400	"	40.0		103	80-120			
Silver	1.99	0.0200	"	2.00		99.7	80-120			
Zinc	41.3	0.400	"	40.0		103	80-120			
Selenium	4.80	0.260	"	4.00		120	80-120			

Duplicate (BHA0342-DUP1)

Source: 2311122-01

Prepared & Analyzed: 01/10/24

Arsenic	1.26	0.200	mg/kg dry		1.45			13.4	20	
Barium	43.1	0.400	"		47.1			9.01	20	
Cadmium	0.121	0.200	"		0.123			1.02	20	
Copper	3.61	0.400	"		3.67			1.65	20	
Lead	5.98	0.200	"		6.29			5.05	20	
Nickel	2.56	0.400	"		2.54			0.600	20	
Silver	0.0323	0.0200	"		0.0327			1.27	20	
Zinc	12.0	0.400	"		12.3			2.04	20	
Selenium	ND	0.260	"		ND				20	

Matrix Spike (BHA0342-MS1)

Source: 2311122-01

Prepared & Analyzed: 01/10/24

Arsenic	42.1	0.200	mg/kg dry	41.4	1.45	98.1	75-125			
Barium	87.1	0.400	"	41.4	47.1	96.5	75-125			
Cadmium	2.15	0.200	"	2.07	0.123	98.0	75-125			
Copper	37.2	0.400	"	41.4	3.67	81.0	75-125			
Lead	25.6	0.200	"	20.7	6.29	93.4	75-125			
Nickel	36.3	0.400	"	41.4	2.54	81.5	75-125			
Silver	2.02	0.0200	"	2.07	0.0327	96.1	75-125			
Zinc	45.7	0.400	"	41.4	12.3	80.8	75-125			
Selenium	4.46	0.260	"	4.14	ND	108	75-125			

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 - Gutterson State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BHA0342 - EPA 3050B

Matrix Spike Dup (BHA0342-MSD1)

Source: 2311122-01

Prepared & Analyzed: 01/10/24

Arsenic	41.8	0.200	mg/kg dry	41.4	1.45	97.4	75-125	0.735	25	
Barium	88.1	0.400	"	41.4	47.1	99.0	75-125	1.16	25	
Cadmium	2.19	0.200	"	2.07	0.123	99.7	75-125	1.66	25	
Copper	37.2	0.400	"	41.4	3.67	81.1	75-125	0.109	25	
Lead	26.3	0.200	"	20.7	6.29	96.4	75-125	2.39	25	
Nickel	36.1	0.400	"	41.4	2.54	81.0	75-125	0.500	25	
Silver	2.05	0.0200	"	2.07	0.0327	97.6	75-125	1.54	25	
Zinc	45.6	0.400	"	41.4	12.3	80.4	75-125	0.318	25	
Selenium	4.54	0.260	"	4.14	ND	110	75-125	1.85	25	

Post Spike (BHA0342-PS1)

Source: 2311122-01

Prepared: 01/10/24 Analyzed: 01/11/24

Arsenic	108		ug/l	100	3.49	105	75-125			
Barium	212		"	100	114	98.6	75-125			
Cadmium	5.54		"	5.00	0.296	105	75-125			
Copper	96.1		"	100	8.86	87.3	75-125			
Lead	65.9		"	50.0	15.2	101	75-125			
Nickel	92.5		"	100	6.15	86.3	75-125			
Silver	5.26		"	5.00	0.0790	104	75-125			
Zinc	117		"	100	29.6	87.8	75-125			
Selenium	13.0		"	10.0	0.122	129	75-125			

QR-01

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 - Gutterson State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BGL0843 - 3060A Mod

Blank (BGL0843-BLK1)

Prepared & Analyzed: 12/21/23

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BGL0843-BS1)

Prepared & Analyzed: 12/21/23

Chromium, Hexavalent 24.6 0.30 mg/kg wet 25.0 98.4 80-120

Duplicate (BGL0843-DUP1)

Source: 2312324-01

Prepared & Analyzed: 12/21/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BGL0843-MS1)

Source: 2312324-01

Prepared & Analyzed: 12/21/23

Chromium, Hexavalent 28.1 0.30 mg/kg dry 29.4 ND 95.4 75-125

Matrix Spike Dup (BGL0843-MSD1)

Source: 2312324-01

Prepared & Analyzed: 12/21/23

Chromium, Hexavalent 27.9 0.30 mg/kg dry 29.4 ND 94.6 75-125 0.842 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 - Gutterson State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

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 BHA0027 - General Preparation

Blank (BHA0027-BLK1)

Prepared: 01/02/24 Analyzed: 01/05/24

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

LCS (BHA0027-BS1)

Prepared: 01/02/24 Analyzed: 01/05/24

Calcium	5.83	0.0500	mg/L wet	5.00	117	70-130
Magnesium	5.26	0.0500	"	5.00	105	70-130
Sodium	5.14	0.0500	"	5.00	103	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 - Gutterson State CC20-32D

Project Number: UWRWE-A3470-ABN

Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control

Summit Scientific

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

Batch BGL0978 - General Preparation

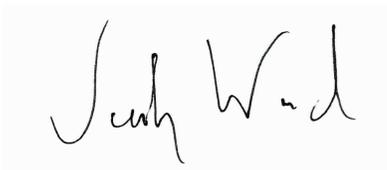
Duplicate (BGL0978-DUP1)

Source: 2312348-01

Prepared & Analyzed: 12/28/23

% Solids	85.7		%		85.7			0.00829	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 - Guttersen State CC20-32D
Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

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 BHA0098 - General Preparation

Blank (BHA0098-BLK1)

Prepared & Analyzed: 01/03/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHA0098-BS1)

Prepared & Analyzed: 01/03/24

Specific Conductance (EC) 0.153 0.0100 mmhos/cm 0.150 102 95-105

Duplicate (BHA0098-DUP1)

Source: 2312348-01

Prepared & Analyzed: 01/03/24

Specific Conductance (EC) 0.651 0.0100 mmhos/cm 0.655 0.567 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 - Gutterson State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

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 BHA0099 - General Preparation

LCS (BHA0099-BS1)

Prepared & Analyzed: 01/03/24

pH 9.21 pH Units 9.18 100 95-105

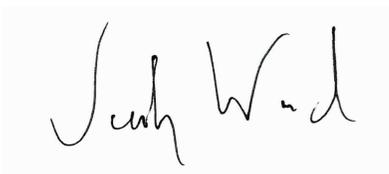
Duplicate (BHA0099-DUP1)

Source: 2312348-01

Prepared & Analyzed: 01/03/24

pH 7.69 pH Units 7.68 0.130 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 - Guttersen State CC20-32D

Project Number: UWRWE-A3470-ABN
Project Manager: Jacob Whritenour

Reported:
01/15/24 16:08

Notes and Definitions

- QR-04 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
- QR-01 Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- 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