





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 CC20-12		Date: 12/19/2023				Remediation Project #: 31548		
Associated Wells:		Age of Site:				Number of Photos Attached: 6		
Starting point: (GPS coordinates and descriptions) (40.293605, -104.466558)								
End point: (GPS coordinates and descriptions) (40.296049, -104.469104)								
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 ft							
Age	-							
Length	1241 ft.							
Construction Material	Steel							
Were flowlines pulled?	Yes							
Visual Integrity of lines	Good							
Visual impacts if trenched	Not Observed							
PID Readings if trenched	0.0-1.3							
Sample taken? Location/Sample ID#	Yes (See Below)							
Photo Number(s)	1-6							
<p>Other observations regarding on location flowlines: Samples were taken at the wellhead (FL01-A@2'), as well as along the flowline path (FL01-C@3' - FL01-G@3'). Directional changes were observed at sampling points FL01-E @3' and FL01-F@3'.</p> <p>A sample at the separator was collected during the decommissioning of the associated facility (REM #31580).</p>								
Summary								
Was impacted soil identified? No								
Total number of samples field screened: 6					Total number of samples collected: 6			
Highest PID Reading: 1.3					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			
Material: Steel	Volume:	Contents: Oil/Gas/Water			
Notes/Conditions: Facing Southeast					
					
Equipment ID: FL01-D@3'		Equipment Type: Flowline			
Material: Steel	Volume:	Contents: Oil/Gas/Water			
Notes/Conditions: Facing East					

Photographic Log

					
Equipment ID: FL01-E@3'		Equipment Type: Flowline			
Material: Steel	Volume:	Contents: Oil/Gas/Water			
Notes/Conditions: Facing Southeast Direction Change		Notes/Conditions: Facing West Direction Change Common Trench with Gutteresen State CC20-30D			

Photographic Log



					
Equipment ID: FL01-A@2'		Equipment Type: Flowline		Equipment ID: FL01-G@3'	
Material: Steel		Volume:	Contents: Oil/Gas/Water	Material: Steel	
Notes/Conditions: Facing South				Notes/Conditions: Facing Northwest	

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. - GUTTERSEN STATE CC20-12

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	40.296033	-104.469109	NC
FL01-C@3'	12/19/23	1.3	No Staining	No Odor	Grab	40.294569	-104.468188	NC
FL01-D@3'	12/19/23	0.2	No Staining	No Odor	Grab	40.294836	-104.468584	NC
FL01-E@3'	12/19/23	0.1	No Staining	No Odor	Lab	40.294995	-104.468847	NC
FL01-F@3'	12/19/23	0.3	No Staining	No Odor	Lab	40.295407	-104.469144	NC
FL01-G@3'	12/19/23	0.4	No Staining	No Odor	Grab	40.294156	-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 CC20-12

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-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	0.00577	<0.00500	<0.00500
FL01-F@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	8.41	0.0608	0.205	<2.00
FL01-E@3'	12/19/23	7.54	0.124	0.0191	<2.00
FL01-F@3'	12/19/23	7.86	0.0423	0.0855	<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	15,000	71	0.3	3,100	400	1,500	390	390	23,000
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	1.22	82.7	<0.200	<0.30	5.27	29.5	3.49	<0.260	<0.0200	18.2
FL01-E@3'	12/19/23	1.36	38.5	<0.200	<0.30	2.56	3.23	2.84	<0.260	<0.0200	10.5
FL01-F@3'	12/19/23	0.976	26.7	<0.200	<0.30	1.99	2.60	1.92	<0.260	<0.0200	7.98

Notes:

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

2. 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.

3. 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 = Millmhos per centimeter

mg/L = Milligrams per liter

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

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

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



Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

January 09, 2024

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Guttersen State CC20-12

Work Order #2312382

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 black ink, appearing to read "Jacob Wood". The signature is written in a cursive, flowing style.

Jacob Wood For Paul Shrewsbury

President



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

Project: Noble - Guttersen State CC20-12

Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-A@2'	2312382-01	Soil	12/19/23 12:33	12/19/23 18:00
FL01-E@3'	2312382-02	Soil	12/19/23 12:20	12/19/23 18:00
FL01-F@3'	2312382-03	Soil	12/19/23 12:26	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.


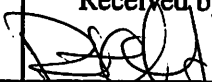
SUMMIT SCIENTIFIC

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

Lab ID	Page 1 of 1
2312382	

Client: Noble / Tasman		Send Data To:		Send Invoice To:	
Address: 6855 W. 119th Ave		Project Manager: Jake Whritenour		Company: Chevron	
City/State/Zip: Broomfield, CO 80020		E-Mail: Jwhritenour@tasman-geo.com		Project Name/Location: Gutter Sen State CC20-12	
Phone: 303-903-5168		Project Name: Gutter Sen State CC20-12		AFE#: UWRWE-A3452-ABN	
Sampler Name: Dalton Hagen		Project Number:		PO/Billing Codes:	
				Contact: Miguel Barron	

				Preservative				Matrix				Analysis Requested								Special Instruction
ID	Sample Description	Date Sampled	Time Sampled	# of containers	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-A02'	12/19/23	1233	2			X			X			X	X	X	X	X	X		pH, EC, SAR by saturated paste
2	FL01-E03'	I	1220	I			I			I			I	I	I	I	I	I		
3	FL01-F03'	I	1226	I			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: 12/19/23 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: 18.1	Corrected Temperature: 0	IR gun #:	HNO3 lot #:	

S₂

Sample Receipt Checklist

S2 Work Order# 2312382Client: Noble Gasman Client Project ID: Gutherson State CC20-12Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #:

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 15.1Thermometer # 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"/>	
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NOTE
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



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

Project: Noble - Gutttersen State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

FL01-A@2'
2312382-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/19/23 12:33**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BGL0820	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 12:33**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0388	97.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0428	107 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0424	106 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/19/23 12:33**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0826	12/21/23	12/21/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/19/23 12:33**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	11.4	91.5 %	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 - Gutttersen State CC20-12

Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

FL01-A@2'
2312382-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/19/23 12:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0958	12/27/23	12/30/23	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 12:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0135	40.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0194	58.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/19/23 12:33**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0871	12/26/23	12/29/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/19/23 12:33**

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 - Gutttersen State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

FL01-A@2'
2312382-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	1.22	0.200	mg/kg dry	1	BGL1057	12/29/23	01/07/24	EPA 6020B
Barium	82.7	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	5.27	0.400	"	"	"	"	"	"
Lead	29.5	0.200	"	"	"	"	"	"
Nickel	3.49	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	18.2	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/19/23 12:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0844	12/21/23	12/21/23	EPA 7196A	

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

Date Sampled: **12/19/23 12:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	91.2	0.0500	mg/L dry	1	BHA0028	01/02/24	01/04/24	EPA 6020B	
Magnesium	6.53	0.0500	"	"	"	"	"	"	
Sodium	2.23	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **12/19/23 12:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0608	0.00100	units	1	BHA0178	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 - Gutterson State CC20-12

Project Number: UWRWE-A3452-ABN

Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

FL01-A@2'
2312382-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/19/23 12:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	93.2		%	1	BGL0979	12/28/23	12/28/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/19/23 12:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.205	0.0100	mmhos/cm	1	BHA0075	01/03/24	01/03/24	EPA 120.1	

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

Date Sampled: **12/19/23 12:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.41		pH Units	1	BHA0076	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 - Gutttersen State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

FL01-E@3'
2312382-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/19/23 12:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0820	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 12:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0389	97.3 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0418	104 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0422	105 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/19/23 12:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0826	12/21/23	12/21/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/19/23 12:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	12.5	100 %	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 - Gutttersen State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

FL01-E@3'
2312382-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/19/23 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0958	12/27/23	12/30/23	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	0.00577	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **12/19/23 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0134	40.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0193	58.0 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/19/23 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0871	12/26/23	12/29/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/19/23 12:20**

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 - Gutttersen State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

FL01-E@3'
2312382-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	1.36	0.200	mg/kg dry	1	BGL1057	12/29/23	01/07/24	EPA 6020B
Barium	38.5	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	2.56	0.400	"	"	"	"	"	"
Lead	3.23	0.200	"	"	"	"	"	"
Nickel	2.84	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	10.5	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/19/23 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0844	12/21/23	12/21/23	EPA 7196A	

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

Date Sampled: **12/19/23 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	22.7	0.0500	mg/L dry	1	BHA0028	01/02/24	01/04/24	EPA 6020B	
Magnesium	5.42	0.0500	"	"	"	"	"	"	
Sodium	2.54	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **12/19/23 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.124	0.00100	units	1	BHA0178	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 - Gutterson State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

FL01-E@3'
2312382-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/19/23 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	97.7		%	1	BGL0979	12/28/23	12/28/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/19/23 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0191	0.0100	mmhos/cm	1	BHA0075	01/03/24	01/03/24	EPA 120.1	

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

Date Sampled: **12/19/23 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.54		pH Units	1	BHA0076	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 - Gutttersen State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

FL01-F@3'
2312382-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/19/23 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGL0820	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 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0386	96.5 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0427	107 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0411	103 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/19/23 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0826	12/21/23	12/21/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/19/23 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	13.4	107 %	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 - Gutttersen State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

FL01-F@3'
2312382-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/19/23 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0958	12/27/23	12/30/23	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 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0158	47.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0214	64.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/19/23 12:26**

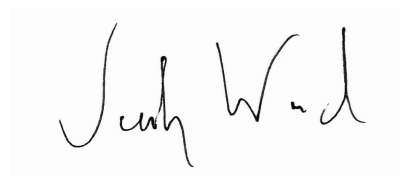
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0871	12/26/23	12/29/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/19/23 12:26**

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 - Gutttersen State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

FL01-F@3'
2312382-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.976	0.200	mg/kg dry	1	BGL1057	12/29/23	01/07/24	EPA 6020B
Barium	26.7	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	1.99	0.400	"	"	"	"	"	"
Lead	2.60	0.200	"	"	"	"	"	"
Nickel	1.92	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	7.98	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/19/23 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0844	12/21/23	12/21/23	EPA 7196A	

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

Date Sampled: **12/19/23 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	57.1	0.0500	mg/L dry	1	BHA0028	01/02/24	01/04/24	EPA 6020B	
Magnesium	10.8	0.0500	"	"	"	"	"	"	
Sodium	1.33	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **12/19/23 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0423	0.00100	units	1	BHA0178	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 - Gutterson State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

FL01-F@3'
2312382-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/19/23 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	97.1		%	1	BGL0979	12/28/23	12/28/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/19/23 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0855	0.0100	mmhos/cm	1	BHA0075	01/03/24	01/03/24	EPA 120.1	

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

Date Sampled: **12/19/23 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.86		pH Units	1	BHA0076	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 - Gutttersen State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BGL0820 - EPA 5030 Soil MS

Blank (BGL0820-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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0394		"	0.0400		98.4	50-150			
Surrogate: Toluene-d8	0.0423		"	0.0400		106	50-150			
Surrogate: 4-Bromofluorobenzene	0.0421		"	0.0400		105	50-150			

LCS (BGL0820-BS1)

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

Benzene	0.115	0.0020	mg/kg	0.100		115	70-130			
Toluene	0.108	0.0050	"	0.100		108	70-130			
Ethylbenzene	0.0868	0.0050	"	0.100		86.8	70-130			
m,p-Xylene	0.169	0.010	"	0.200		84.5	70-130			
o-Xylene	0.0808	0.0050	"	0.100		80.8	70-130			
1,2,4-Trimethylbenzene	0.0992	0.0050	"	0.100		99.2	70-130			
1,3,5-Trimethylbenzene	0.0748	0.0050	"	0.100		74.8	70-130			
Naphthalene	0.108	0.0038	"	0.100		108	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0394		"	0.0400		98.6	50-150			
Surrogate: Toluene-d8	0.0428		"	0.0400		107	50-150			
Surrogate: 4-Bromofluorobenzene	0.0412		"	0.0400		103	50-150			

Matrix Spike (BGL0820-MS1)

Source: 2312382-01

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

Benzene	0.107	0.0020	mg/kg	0.100	ND	107	70-130			
Toluene	0.0902	0.0050	"	0.100	ND	90.2	70-130			
Ethylbenzene	0.0974	0.0050	"	0.100	ND	97.4	70-130			
m,p-Xylene	0.184	0.010	"	0.200	ND	91.8	70-130			
o-Xylene	0.0826	0.0050	"	0.100	ND	82.6	70-130			
1,2,4-Trimethylbenzene	0.0932	0.0050	"	0.100	ND	93.2	70-130			
1,3,5-Trimethylbenzene	0.107	0.0050	"	0.100	ND	107	70-130			
Naphthalene	0.0968	0.0038	"	0.100	ND	96.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0383		"	0.0400		95.7	50-150			
Surrogate: Toluene-d8	0.0424		"	0.0400		106	50-150			
Surrogate: 4-Bromofluorobenzene	0.0416		"	0.0400		104	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 - Gutttersen State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

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

Batch BGL0820 - EPA 5030 Soil MS

Matrix Spike Dup (BGL0820-MSD1)	Source: 2312382-01			Prepared: 12/21/23 Analyzed: 12/22/23						
Benzene	0.110	0.0020	mg/kg	0.100	ND	110	70-130	3.05	30	
Toluene	0.0884	0.0050	"	0.100	ND	88.4	70-130	2.02	30	
Ethylbenzene	0.0945	0.0050	"	0.100	ND	94.5	70-130	3.06	30	
m,p-Xylene	0.180	0.010	"	0.200	ND	90.1	70-130	1.88	30	
o-Xylene	0.110	0.0050	"	0.100	ND	110	70-130	28.9	30	
1,2,4-Trimethylbenzene	0.105	0.0050	"	0.100	ND	105	70-130	11.7	30	
1,3,5-Trimethylbenzene	0.104	0.0050	"	0.100	ND	104	70-130	2.30	30	
Naphthalene	0.0914	0.0038	"	0.100	ND	91.4	70-130	5.71	30	
Surrogate: 1,2-Dichloroethane-d4	0.0391		"	0.0400		97.8	50-150			
Surrogate: Toluene-d8	0.0425		"	0.0400		106	50-150			
Surrogate: 4-Bromofluorobenzene	0.0421		"	0.0400		105	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 - Gutttersen State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BGL0826 - EPA 3550A

Blank (BGL0826-BLK1)

Prepared & Analyzed: 12/21/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	14.1		"	12.5		113	30-150			

LCS (BGL0826-BS1)

Prepared & Analyzed: 12/21/23

C10-C28 (DRO)	459	50	mg/kg	500		91.8	70-130			
Surrogate: o-Terphenyl	9.64		"	12.5		77.1	30-150			

Matrix Spike (BGL0826-MS1)

Source: 2312382-01

Prepared & Analyzed: 12/21/23

C10-C28 (DRO)	534	50	mg/kg	500	29.8	101	70-130			
Surrogate: o-Terphenyl	9.69		"	12.5		77.5	30-150			


Matrix Spike Dup (BGL0826-MSD1)

Source: 2312382-01

Prepared & Analyzed: 12/21/23

C10-C28 (DRO)	553	50	mg/kg	500	29.8	105	70-130	3.50	20	
Surrogate: o-Terphenyl	8.80		"	12.5		70.4	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 - Gutttersen State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BGL0958 - EPA 5030 Soil MS

Blank (BGL0958-BLK1)

Prepared: 12/27/23 Analyzed: 12/29/23

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	0.0279		"	0.0333		83.8	40-150			
Surrogate: Fluoranthene-d10	0.0298		"	0.0333		89.4	40-150			

LCS (BGL0958-BS1)

Prepared: 12/27/23 Analyzed: 12/29/23

Acenaphthene	0.0292	0.00500	mg/kg	0.0333		87.7	31-137			
Anthracene	0.0280	0.00500	"	0.0333		84.1	30-120			
Benzo (a) anthracene	0.0267	0.00500	"	0.0333		80.2	30-120			
Benzo (a) pyrene	0.0266	0.00500	"	0.0333		79.8	30-120			
Benzo (b) fluoranthene	0.0288	0.00500	"	0.0333		86.3	30-120			
Benzo (k) fluoranthene	0.0299	0.00500	"	0.0333		89.6	30-120			
Chrysene	0.0282	0.00500	"	0.0333		84.5	30-120			
Dibenz (a,h) anthracene	0.0263	0.00500	"	0.0333		79.0	30-120			
Fluoranthene	0.0305	0.00500	"	0.0333		91.5	30-120			
Fluorene	0.0291	0.00500	"	0.0333		87.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0207	0.00500	"	0.0333		62.0	30-120			
Pyrene	0.0288	0.00500	"	0.0333		86.6	35-142			
1-Methylnaphthalene	0.0283	0.00500	"	0.0333		84.9	35-142			
2-Methylnaphthalene	0.0259	0.00500	"	0.0333		77.8	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0306		"	0.0333		91.8	40-150			
Surrogate: Fluoranthene-d10	0.0304		"	0.0333		91.1	40-150			

Summit Scientific

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



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

Project: Noble - Guttarsen State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BGL0958 - EPA 5030 Soil MS

Matrix Spike (BGL0958-MS1)

Source: 2312381-01

Prepared: 12/27/23 Analyzed: 12/29/23

Acenaphthene	0.0222	0.00500	mg/kg	0.0333	ND	66.6	31-137		
Anthracene	0.0221	0.00500	"	0.0333	ND	66.3	30-120		
Benzo (a) anthracene	0.0220	0.00500	"	0.0333	ND	66.1	30-120		
Benzo (a) pyrene	0.0217	0.00500	"	0.0333	ND	65.1	30-120		
Benzo (b) fluoranthene	0.0231	0.00500	"	0.0333	ND	69.3	30-120		
Benzo (k) fluoranthene	0.0240	0.00500	"	0.0333	ND	72.1	30-120		
Chrysene	0.0232	0.00500	"	0.0333	ND	69.5	30-120		
Dibenz (a,h) anthracene	0.0197	0.00500	"	0.0333	ND	59.0	30-120		
Fluoranthene	0.0270	0.00500	"	0.0333	ND	81.0	30-120		
Fluorene	0.0224	0.00500	"	0.0333	ND	67.1	30-120		
Indeno (1,2,3-cd) pyrene	0.0143	0.00500	"	0.0333	ND	42.9	30-120		
Pyrene	0.0244	0.00500	"	0.0333	ND	73.2	35-142		
1-Methylnaphthalene	0.0225	0.00500	"	0.0333	ND	67.5	15-130		
2-Methylnaphthalene	0.0227	0.00500	"	0.0333	ND	68.2	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0202		"	0.0333		60.6	40-150		
Surrogate: Fluoranthene-d10	0.0241		"	0.0333		72.2	40-150		

Matrix Spike Dup (BGL0958-MSD1)

Source: 2312381-01

Prepared: 12/27/23 Analyzed: 12/29/23

Acenaphthene	0.0185	0.00500	mg/kg	0.0333	ND	55.6	31-137	18.0	30
Anthracene	0.0188	0.00500	"	0.0333	ND	56.4	30-120	16.0	30
Benzo (a) anthracene	0.0189	0.00500	"	0.0333	ND	56.8	30-120	15.2	30
Benzo (a) pyrene	0.0178	0.00500	"	0.0333	ND	53.3	30-120	20.0	30
Benzo (b) fluoranthene	0.0195	0.00500	"	0.0333	ND	58.6	30-120	16.7	30
Benzo (k) fluoranthene	0.0206	0.00500	"	0.0333	ND	61.9	30-120	15.1	30
Chrysene	0.0200	0.00500	"	0.0333	ND	60.0	30-120	14.7	30
Dibenz (a,h) anthracene	0.0181	0.00500	"	0.0333	ND	54.3	30-120	8.36	30
Fluoranthene	0.0210	0.00500	"	0.0333	ND	62.9	30-120	25.1	30
Fluorene	0.0188	0.00500	"	0.0333	ND	56.4	30-120	17.3	30
Indeno (1,2,3-cd) pyrene	0.0137	0.00500	"	0.0333	ND	41.1	30-120	4.28	30
Pyrene	0.0208	0.00500	"	0.0333	ND	62.5	35-142	15.8	30
1-Methylnaphthalene	0.0182	0.00500	"	0.0333	ND	54.7	15-130	20.9	50
2-Methylnaphthalene	0.0188	0.00500	"	0.0333	ND	56.3	15-130	19.1	50
Surrogate: 2-Methylnaphthalene-d10	0.0167		"	0.0333		50.1	40-150		
Surrogate: Fluoranthene-d10	0.0199		"	0.0333		59.6	40-150		

Summit Scientific

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



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

Project: Noble - Guttarsen State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

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

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

Batch BGL0871 - EPA 3050B

Blank (BGL0871-BLK1)

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

Boron ND 2.00 mg/L

LCS (BGL0871-BS1)

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

Boron 5.05 2.00 mg/L 5.00 101 80-120

Duplicate (BGL0871-DUP1)

Source: 2312381-01

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

Boron 0.0707 2.00 mg/L 0.0797 11.9 20

Matrix Spike (BGL0871-MS1)

Source: 2312381-01

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

Boron 5.24 2.00 mg/L 5.00 0.0797 103 75-125

Matrix Spike Dup (BGL0871-MSD1)

Source: 2312381-01

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

Boron 5.26 2.00 mg/L 5.00 0.0797 104 75-125 0.347 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 - Guttarsen State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BGL1057 - EPA 3050B

Blank (BGL1057-BLK1)

Prepared: 12/29/23 Analyzed: 01/07/24

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 (BGL1057-BS1)

Prepared: 12/29/23 Analyzed: 01/07/24

Arsenic	35.9	0.200	mg/kg wet	40.0	89.6	80-120
Barium	36.9	0.400	"	40.0	92.2	80-120
Cadmium	1.83	0.200	"	2.00	91.4	80-120
Copper	36.9	0.400	"	40.0	92.2	80-120
Lead	18.3	0.200	"	20.0	91.7	80-120
Nickel	36.3	0.400	"	40.0	90.7	80-120
Silver	1.84	0.0200	"	2.00	92.2	80-120
Zinc	36.3	0.400	"	40.0	90.7	80-120
Selenium	4.46	0.260	"	4.00	111	80-120

Duplicate (BGL1057-DUP1)

Source: 2312350-01

Prepared: 12/29/23 Analyzed: 01/07/24

Arsenic	1.54	0.200	mg/kg dry	1.64	6.20	20
Barium	43.5	0.400	"	42.8	1.51	20
Cadmium	0.120	0.200	"	0.111	7.87	20
Copper	5.01	0.400	"	4.63	7.77	20
Lead	4.68	0.200	"	4.15	12.0	20
Nickel	3.86	0.400	"	3.53	9.01	20
Silver	0.0192	0.0200	"	0.0164	15.4	20
Zinc	15.9	0.400	"	14.4	9.94	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 - Gutttersen State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BGL1057 - EPA 3050B

Matrix Spike (BGL1057-MS1)		Source: 2312350-01			Prepared: 12/29/23 Analyzed: 01/07/24					
Arsenic	42.1	0.200	mg/kg dry	45.6	1.64	88.6	75-125			
Barium	100	0.400	"	45.6	42.8	126	75-125			QM-07
Cadmium	2.31	0.200	"	2.28	0.111	96.2	75-125			
Copper	50.4	0.400	"	45.6	4.63	100	75-125			
Lead	26.0	0.200	"	22.8	4.15	96.0	75-125			
Nickel	46.3	0.400	"	45.6	3.53	93.7	75-125			
Silver	2.11	0.0200	"	2.28	0.0164	91.8	75-125			
Zinc	69.3	0.400	"	45.6	14.4	120	75-125			
Selenium	4.39	0.260	"	4.56	ND	96.2	75-125			

Matrix Spike Dup (BGL1057-MSD1)		Source: 2312350-01			Prepared: 12/29/23 Analyzed: 01/07/24					
Arsenic	42.3	0.200	mg/kg dry	45.6	1.64	89.1	75-125	0.496	25	
Barium	101	0.400	"	45.6	42.8	127	75-125	0.353	25	QM-07
Cadmium	2.39	0.200	"	2.28	0.111	99.7	75-125	3.44	25	
Copper	51.2	0.400	"	45.6	4.63	102	75-125	1.62	25	
Lead	26.5	0.200	"	22.8	4.15	97.9	75-125	1.65	25	
Nickel	47.2	0.400	"	45.6	3.53	95.7	75-125	1.89	25	
Silver	2.14	0.0200	"	2.28	0.0164	93.0	75-125	1.22	25	
Zinc	70.6	0.400	"	45.6	14.4	123	75-125	1.88	25	
Selenium	4.55	0.260	"	4.56	ND	99.7	75-125	3.57	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 - Gutttersen State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BGL0844 - 3060A Mod

Blank (BGL0844-BLK1)

Prepared & Analyzed: 12/21/23

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BGL0844-BS1)

Prepared & Analyzed: 12/21/23

Chromium, Hexavalent 24.7 0.30 mg/kg wet 25.0 98.8 80-120

Duplicate (BGL0844-DUP1)

Source: 2312381-01

Prepared & Analyzed: 12/21/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BGL0844-MS1)

Source: 2312381-01

Prepared & Analyzed: 12/21/23

Chromium, Hexavalent 24.4 0.30 mg/kg dry 26.5 ND 92.2 75-125

Matrix Spike Dup (BGL0844-MSD1)

Source: 2312381-01

Prepared & Analyzed: 12/21/23

Chromium, Hexavalent 24.3 0.30 mg/kg dry 26.5 ND 91.8 75-125 0.435 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 CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

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

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

Batch BHA0028 - General Preparation

Blank (BHA0028-BLK1)

Prepared: 01/02/24 Analyzed: 01/04/24

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

LCS (BHA0028-BS1)

Prepared: 01/02/24 Analyzed: 01/04/24

Calcium	5.97	0.0500	mg/L wet	5.00	119	70-130
Magnesium	5.40	0.0500	"	5.00	108	70-130
Sodium	5.44	0.0500	"	5.00	109	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 - Guttersen State CC20-12

Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

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

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

Batch BGL0979 - General Preparation

Duplicate (BGL0979-DUP1)			Source: 2312381-01			Prepared & Analyzed: 12/28/23				
% Solids	94.5		%			94.3		0.180	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 - Guttarsen State CC20-12
Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

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

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

Batch BHA0075 - General Preparation

Blank (BHA0075-BLK1)

Prepared & Analyzed: 01/03/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHA0075-BS1)

Prepared & Analyzed: 01/03/24

Specific Conductance (EC) 0.152 0.0100 mmhos/cm 0.150 101 95-105

Duplicate (BHA0075-DUP1)

Source: 2312381-01

Prepared & Analyzed: 01/03/24

Specific Conductance (EC) 0.164 0.0100 mmhos/cm 0.167 1.93 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 - Guttarsen State CC20-12

Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

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

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

Batch BHA0076 - General Preparation

LCS (BHA0076-BS1)

Prepared & Analyzed: 01/03/24

pH	9.21	pH Units	9.18	100	95-105
----	------	----------	------	-----	--------

Duplicate (BHA0076-DUP1)

Source: 2312381-01

Prepared & Analyzed: 01/03/24

pH	8.20	pH Units	8.36	1.93	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 - Gutttersen State CC20-12

Project Number: UWRWE-A3452-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:11

Notes and Definitions

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