

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
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Site Name & COGCC Facility Number: Gutterson D30-68-1HN	Date: 12/14/2023, 12/15/23, and 12/18/23	Remediation Project #: 30548
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Associated Wells:	Age of Site:	Number of Photos Attached: 20
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Starting point: (GPS coordinates and descriptions)
40.199960 -104.583212

End point: (GPS coordinates and descriptions)
40.201773, -104.574186

USCS Soil Type: SW	Estimated Depth to Groundwater: >3'
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Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)
None detected

Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)
None detected

Flowlines

Flowline type	Oil, gas, water			
Depth	3'			
Age				
Length	2,682'			
Construction Material	Steel			
Were flowlines pulled?	Yes			
Visual Integrity of lines	Good			
Visual impacts if trenched	None			
PID Readings if trenched	0.0			
Sample taken? Location/Sample ID#	Yes see below			
Photo Number(s)	1-10			

Other observations regarding on location flowlines: Soil sampled at the wellhead (FL01-A@3'). Samples were screened along the flowline path every 150' (FL01-C@3' - FL01-T@3'). Direction changes were observed at points FL01-C@3', FL01-H@3', and FL01-T@3'. Separator sample (FL01-B) sampled during facility closure (REM #30790).

Summary

Was impacted soil identified? No	
Total number of samples field screened: 19	Total number of samples collected: 19
Highest PID Reading: 29.3	Total number of samples submitted to lab for analysis: 4
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

					
Material: Steel	Volume:	Contents: Oil/Gas/Water	Material:	Volume:	Contents:
Notes/Conditions:			Notes/Conditions: Soil Sample collected during Facility Decommissioning		

Photographic Log

					
Material: Steel	Volume:	Contents: Oil/Gas/Water	Material: Steel	Volume:	Contents: Oil/Gas/Water
Notes/Conditions:			Notes/Conditions:		

Photographic Log

					
Material: Steel	Volume:	Contents: Oil/Gas/Water	Material: Steel	Volume:	Contents: Oil/Gas/Water
Notes/Conditions:			Notes/Conditions:		

Photographic Log

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

Photographic Log

					
Equipment ID: FL01-I@2'		Equipment Type: Flowline	Equipment ID: FL01-J@2'		Equipment Type: Flowline
Material: Steel	Volume:	Contents: Oil/Gas/Water	Material: Steel	Volume:	Contents: Oil/Gas/Water
Notes/Conditions:			Notes/Conditions:		

Photographic Log


Equipment ID: FL01-K @ 3'		Equipment Type: Flowline		Equipment ID: FL01-L @ 4'		Equipment Type: Flowline	
Material: Steel	Volume:	Contents: Oil/Gas/Water		Material: Steel	Volume:	Contents: Oil/Gas/Water	
Notes/Conditions:				Notes/Conditions:			

Photographic Log



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

Photographic Log



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

Photographic Log



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

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

Photographic Log



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

Equipment ID: FL01-T@3'	Equipment Type: Flowline	
Material: Steel	Volume:	Contents: Oil/Gas/Water
Notes/Conditions: 90 degree turn towards SEP		

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. - GUTTERSEN D30-68-1HN

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude ¹	Longitude	PDOP
FL01-A@3'	12/14/23	0.0	No Staining	No Odor	Lab	40.199962	-104.583203	1.6
FL01-C@3'	12/14/23	0.0	No Staining	No Odor	Lab	40.200131	-104.582744	NC
FL01-D@3'	12/14/23	0.0	No Staining	No Odor	Grab	40.200252	-104.582469	0.8
FL01-E@3'	12/14/23	0.0	No Staining	No Odor	Grab	40.200362	-104.582160	NC
FL01-F@3'	12/14/23	0.0	No Staining	No Odor	Grab	40.200456	-104.581860	1.2
FL01-G@3'	12/14/23	0.0	No Staining	No Odor	Grab	40.200536	-104.581579	NC
FL01-H@3'	12/14/23	0.0	No Staining	No Odor	Lab	40.200667	-104.581136	NC
FL01-I@3'	12/14/23	0.0	No Staining	HC Odor	Grab	40.200798	-104.580691	NC
FL01-J@3'	12/14/23	0.0	No Staining	No Odor	Grab	40.200973	-104.579291	NC
FL01-K@3'	12/15/23	29.3	No Staining	No Odor	Grab	40.201171	-104.577502	NC
FL01-L@4'	12/15/23	1.0	No Staining	No Odor	Grab	40.201143	-104.577789	1.0
FL01-M@3'	12/18/23	0.0	No Staining	No Odor	Grab	40.201181	-104.577477	NC
FL01-N@3'	12/18/23	0.0	No Staining	No Odor	Grab	40.201215	-104.577153	NC
FL01-O@3'	12/18/23	0.0	No Staining	No Odor	Grab	40.201249	-104.576790	NC
FL01-P@3'	12/18/23	0.2	No Staining	No Odor	Grab	40.201303	-104.576217	NC
FL01-Q@3'	12/18/23	0.0	No Staining	No Odor	Grab	40.201384	-104.575585	NC
FL01-R@3'	12/18/23	0.0	No Staining	No Odor	Grab	40.201461	-104.574973	0.9
FL01-S@3'	12/18/23	0.0	No Staining	No Odor	Grab	40.201531	-104.574418	NC
FL01-T@3'	12/18/23	0.1	No Staining	No Odor	Lab	40.201584	-104.574124	NC

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 D30-68-1HN

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@3'	12/14/23	<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-C@3'	12/14/23	<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-H@3'	12/14/23	<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-T@3'	12/18/23	<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@3'	12/14/23	8.72	0.0658	0.121	<2.00
FL01-C@3'	12/14/23	8.15	1.26	0.440	<2.00
FL01-H@3'	12/14/23	8.04	5.21	3.43	<2.00
FL01-T@3'	12/18/23	8.70	0.407	0.176	<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@3'	12/14/23	1.38	312	0.216	<0.30	4.50	3.39	2.19	<0.260	<0.0200	21.7
FL01-C@3'	12/14/23	1.03	26.7	<0.200	<0.30	2.27	3.21	1.92	<0.260	<0.0200	8.39
FL01-H@3'	12/14/23	1.84	63.6	<0.200	<0.30	3.68	5.08	3.22	<0.260	<0.0200	13.5
FL01-T@3'	12/18/23	1.64	42.8	<0.200	<0.30	4.63	4.15	3.53	<0.260	<0.0200	14.4

Notes:

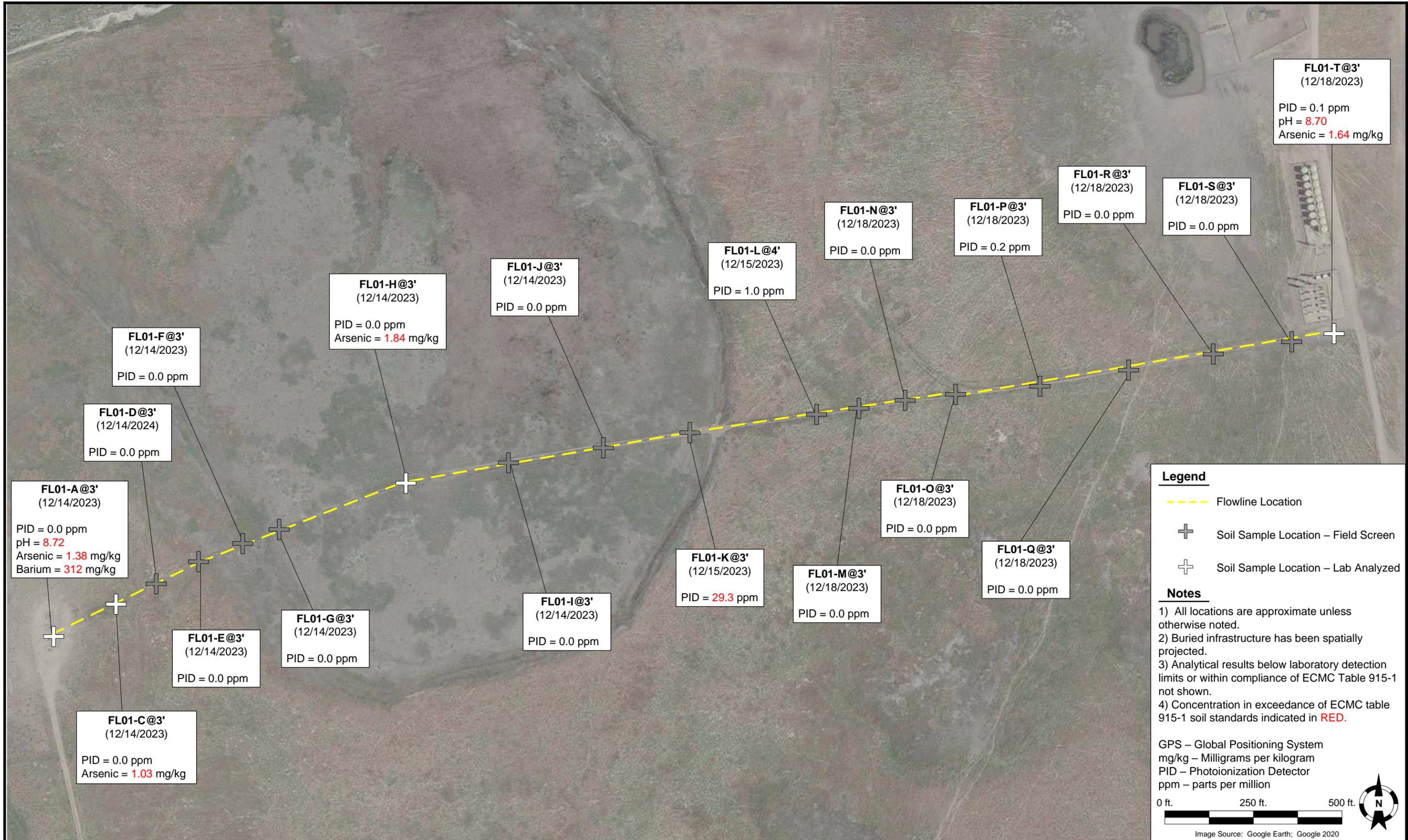
- Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.
- Soil Screening Levels (SSL) and Soil Suitability for Reclamation (SSR) standards referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
- SSLs are 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



Legend

- Flowline Location
- Soil Sample Location – Field Screen
- Soil Sample Location – Lab Analyzed

Notes

- All locations are approximate unless otherwise noted.
- Buried infrastructure has been spatially projected.
- Analytical results below laboratory detection limits or within compliance of ECMC Table 915-1 not shown.
- 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. 250 ft. 500 ft.

Image Source: Google Earth; Google 2020

DATE: 01/10/2024

DESIGNED BY: JW

DRAWN BY: MR

TASMAN
GEOSCIENCES

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

Noble Energy, Inc. – DJ Basin
Guttersen D30-68-1HN
 NWNW, Section 29, Township 3 North, Range 64 West
 Weld County, Colorado

Flowline Closure & Soil
 Analytical Results Map
 (12/14/2023-12/18/2023)

FIGURE
1

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

January 05, 2024

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

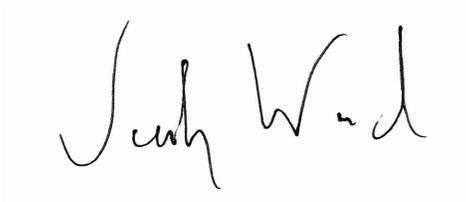
Broomfield, CO 80020

RE: Noble - Guttersen D30-68-1HN (FL)

Work Order #2312286

Enclosed are the results of analyses for samples received by Summit Scientific on 12/14/23 17:52. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black 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 - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-A@3'	2312286-01	Soil	12/14/23 12:47	12/14/23 17:52
FL01-C@3'	2312286-02	Soil	12/14/23 13:09	12/14/23 17:52
FL01-H@3'	2312286-03	Soil	12/14/23 16:01	12/14/23 17:52

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.



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

Lab ID	Page 1 of 1
231228 ^{AS} _{#6}	

Send Data To:		Send Invoice To:
Client: Noble/Tasman	Project Manager: Jake Whritenour	Company:
Address: 6855 W. 119th Ave.	E-Mail: jwhritenour@tasman-geo.com	Project Name/Location: Gutheisen D30-6E-1H111
City/State/Zip: Broomfield/CO/ 80020		AFE#: VWRMU-A300E-ABN
Phone: 978-857-4408	Project Name: Gutheisen D30-6E-1H111	PO/Billing Codes:
Sampler Name: Matthew Wentzel	Project Number:	Contact: Miguel Barrera

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested							Special Instructions		
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS		HOLD	
1	FL01-A@3'	17.14.23	1747	3			X			X			X	X	X	X	X	X		SAR, EC, pH by saturated paste	
2	FL01-C@3'		1309	1									X	X	X	X	X	X			
3	FL01-H@3'		1601	1									X	X	X	X	X	X			
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by:	Date/Time: 17.14.1750	Received by: Tasman Lock Box	Date/Time: 17.14.1750	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: Tasman Lock Box	Date/Time: 12.14.23 1752	Received by:	Date/Time: 12.14.23 1752	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	Field Turb.	
Temperature Upon Receipt: 12.2	Corrected Temperature: 6	IR gun #: 1	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 231228p

Client: Nobel Gasman

Client Project ID: Gutteresen D30-08-1HN(FC)

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

Airbill #: _____

<input type="checkbox"/>				
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Matrix (Check all that apply)

Air

Soil/Solid

Water

Other

Temp (°C)

Thermometer #

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽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"/>	<u>on ice</u>
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

12/14/23
Date/Time

0 0 0 0



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

Project: Noble - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

FL01-A@3'
2312286-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/14/23 12:47**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGL0692	12/19/23	12/20/23	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: **12/14/23 12:47**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0394	98.6 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0416	104 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0410	103 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/14/23 12:47**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGL0695	12/19/23	12/20/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **12/14/23 12:47**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	12.0	96.0 %		30-150		"	"	12/20/23	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

FL01-A@3'
2312286-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/14/23 12:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0802	12/21/23	12/26/23	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: **12/14/23 12:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0221	66.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0173	51.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/14/23 12:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0768	12/20/23	12/28/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/14/23 12:47**

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

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

Project: Noble - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

FL01-A@3'
2312286-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.38	0.200	mg/kg dry	1	BGL0867	12/26/23	12/30/23	EPA 6020B	
Barium	312	0.400	"	"	"	"	"	"	
Cadmium	0.216	0.200	"	"	"	"	"	"	
Copper	4.50	0.400	"	"	"	"	"	"	
Lead	3.39	0.200	"	"	"	"	"	"	
Nickel	2.19	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	21.7	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: 12/14/23 12:47

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0759	12/20/23	12/20/23	EPA 7196A	

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

Date Sampled: 12/14/23 12:47

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	50.0	0.0500	mg/L dry	1	BGL1038	12/29/23	01/03/24	EPA 6020B	
Magnesium	5.68	0.0500	"	"	"	"	"	"	
Sodium	1.84	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 12/14/23 12:47

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0658	0.00100	units	1	BHA0126	01/04/24	01/04/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Summit Scientific

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

Project: Noble - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

FL01-A@3'
2312286-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/14/23 12:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	93.9		%	1	BGL0856	12/26/23	12/26/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/14/23 12:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.121	0.0100	mmhos/cm	1	BHA0019	01/02/24	01/02/24	EPA 120.1	

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

Date Sampled: **12/14/23 12:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.72		pH Units	1	BHA0018	01/02/24	01/02/24	EPA 9045D	

Summit Scientific

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

Project: Noble - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

FL01-C@3'
2312286-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/14/23 13:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGL0692	12/19/23	12/20/23	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: **12/14/23 13:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0401	100 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0416	104 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0407	102 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/14/23 13:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGL0695	12/19/23	12/20/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **12/14/23 13:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	11.6	92.8 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

FL01-C@3'
2312286-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/14/23 13:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0802	12/21/23	12/26/23	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: **12/14/23 13:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0256	76.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0213	64.0 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/14/23 13:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0768	12/20/23	12/28/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/14/23 13:09**

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

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

Project: Noble - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

FL01-C@3'
2312286-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.03	0.200	mg/kg dry	1	BGL0867	12/26/23	12/30/23	EPA 6020B	
Barium	26.7	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.27	0.400	"	"	"	"	"	"	
Lead	3.21	0.200	"	"	"	"	"	"	
Nickel	1.92	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	8.39	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: 12/14/23 13:09

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0759	12/20/23	12/20/23	EPA 7196A	

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

Date Sampled: 12/14/23 13:09

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	30.3	0.0500	mg/L dry	1	BGL1038	12/29/23	01/03/24	EPA 6020B	
Magnesium	5.10	0.0500	"	"	"	"	"	"	
Sodium	28.5	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 12/14/23 13:09

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.26	0.00100	units	1	BHA0126	01/04/24	01/04/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Summit Scientific

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

Project: Noble - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

FL01-C@3'
2312286-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/14/23 13:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	97.0			%	1	BGL0856	12/26/23	12/26/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/14/23 13:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.440	0.0100		mmhos/cm	1	BHA0019	01/02/24	01/02/24	EPA 120.1	

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

Date Sampled: **12/14/23 13:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.15			pH Units	1	BHA0018	01/02/24	01/02/24	EPA 9045D	

Summit Scientific

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

Project: Noble - Guttersen D30-68-1HN (FL)
Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

FL01-H@3'
2312286-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/14/23 16:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGL0692	12/19/23	12/20/23	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: **12/14/23 16:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0408	102 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0420	105 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0418	105 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/14/23 16:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGL0695	12/19/23	12/20/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **12/14/23 16:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	12.0	96.0 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

FL01-H@3'
2312286-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/14/23 16:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0802	12/21/23	12/26/23	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: **12/14/23 16:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0248	74.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0184	55.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/14/23 16:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0768	12/20/23	12/28/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/14/23 16:01**

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

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

Project: Noble - Guttersen D30-68-1HN (FL)
Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

FL01-H@3'
2312286-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.84	0.200	mg/kg dry	1	BGL0867	12/26/23	12/30/23	EPA 6020B	
Barium	63.6	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	3.68	0.400	"	"	"	"	"	"	
Lead	5.08	0.200	"	"	"	"	"	"	
Nickel	3.22	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	13.5	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/14/23 16:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0759	12/20/23	12/20/23	EPA 7196A	

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

Date Sampled: **12/14/23 16:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	286	0.0500	mg/L dry	1	BGL1038	12/29/23	01/03/24	EPA 6020B	
Magnesium	72.1	0.0500	"	"	"	"	"	"	
Sodium	381	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **12/14/23 16:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	5.21	0.00100	units	1	BHA0126	01/04/24	01/04/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Summit Scientific

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

Project: Noble - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

FL01-H@3'
2312286-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/14/23 16:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	85.7		%	1	BGL0856	12/26/23	12/26/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/14/23 16:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	3.43	0.0100	mmhos/cm	1	BHA0019	01/02/24	01/02/24	EPA 120.1	

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

Date Sampled: **12/14/23 16:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.04		pH Units	1	BHA0018	01/02/24	01/02/24	EPA 9045D	

Summit Scientific

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

Project: Noble - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

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 BGL0692 - EPA 5030 Soil MS

Blank (BGL0692-BLK1)

Prepared & Analyzed: 12/19/23

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	0.0379		"	0.0400		94.6	50-150			
Surrogate: Toluene-d8	0.0410		"	0.0400		103	50-150			
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0400		102	50-150			

LCS (BGL0692-BS1)

Prepared & Analyzed: 12/19/23

Benzene	0.120	0.0020	mg/kg	0.100		120	70-130			
Toluene	0.114	0.0050	"	0.100		114	70-130			
Ethylbenzene	0.106	0.0050	"	0.100		106	70-130			
m,p-Xylene	0.209	0.010	"	0.200		104	70-130			
o-Xylene	0.0984	0.0050	"	0.100		98.4	70-130			
1,2,4-Trimethylbenzene	0.0960	0.0050	"	0.100		96.0	70-130			
1,3,5-Trimethylbenzene	0.0932	0.0050	"	0.100		93.2	70-130			
Naphthalene	0.0844	0.0038	"	0.100		84.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0380		"	0.0400		95.1	50-150			
Surrogate: Toluene-d8	0.0416		"	0.0400		104	50-150			
Surrogate: 4-Bromofluorobenzene	0.0406		"	0.0400		102	50-150			

Matrix Spike (BGL0692-MS1)

Source: 2312258-01

Prepared & Analyzed: 12/19/23

Benzene	0.127	0.0020	mg/kg	0.100	ND	127	70-130			
Toluene	0.125	0.0050	"	0.100	ND	125	70-130			
Ethylbenzene	0.120	0.0050	"	0.100	ND	120	70-130			
m,p-Xylene	0.239	0.010	"	0.200	ND	120	70-130			
o-Xylene	0.106	0.0050	"	0.100	ND	106	70-130			
1,2,4-Trimethylbenzene	0.105	0.0050	"	0.100	ND	105	70-130			
1,3,5-Trimethylbenzene	0.108	0.0050	"	0.100	ND	108	70-130			
Naphthalene	0.0750	0.0038	"	0.100	ND	75.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0388		"	0.0400		97.0	50-150			
Surrogate: Toluene-d8	0.0415		"	0.0400		104	50-150			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	50-150			

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

Project: Noble - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

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 BGL0692 - EPA 5030 Soil MS

Matrix Spike Dup (BGL0692-MSD1)	Source: 2312258-01			Prepared & Analyzed: 12/19/23						
Benzene	0.118	0.0020	mg/kg	0.100	ND	118	70-130	7.32	30	
Toluene	0.114	0.0050	"	0.100	ND	114	70-130	8.93	30	
Ethylbenzene	0.106	0.0050	"	0.100	ND	106	70-130	12.2	30	
m,p-Xylene	0.208	0.010	"	0.200	ND	104	70-130	14.1	30	
o-Xylene	0.0953	0.0050	"	0.100	ND	95.3	70-130	10.6	30	
1,2,4-Trimethylbenzene	0.0905	0.0050	"	0.100	ND	90.5	70-130	14.9	30	
1,3,5-Trimethylbenzene	0.0922	0.0050	"	0.100	ND	92.2	70-130	16.0	30	
Naphthalene	0.0758	0.0038	"	0.100	ND	75.8	70-130	1.11	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0399</i>		<i>"</i>	<i>0.0400</i>		<i>99.8</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0417</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0400</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>50-150</i>			

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Project: Noble - Guttersen D30-68-1HN (FL)
Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

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 BGL0695 - EPA 3550A

Blank (BGL0695-BLK1)

Prepared & Analyzed: 12/19/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	17.9		"	12.5	143	30-150					

LCS (BGL0695-BS1)

Prepared & Analyzed: 12/19/23

C10-C28 (DRO)	491	50	mg/kg	500	98.2	70-130					
Surrogate: <i>o</i> -Terphenyl	12.1		"	12.5	97.2	30-150					

Matrix Spike (BGL0695-MS1)

Source: 2312258-01

Prepared & Analyzed: 12/19/23

C10-C28 (DRO)	478	50	mg/kg	500	11.5	93.3	70-130				
Surrogate: <i>o</i> -Terphenyl	9.83		"	12.5	78.6	30-150					

Matrix Spike Dup (BGL0695-MSD1)

Source: 2312258-01

Prepared & Analyzed: 12/19/23

C10-C28 (DRO)	418	50	mg/kg	500	11.5	81.2	70-130	13.5	20		
Surrogate: <i>o</i> -Terphenyl	9.49		"	12.5	75.9	30-150					

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Project: Noble - Guttersen D30-68-1HN (FL)
Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

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 BGL0802 - EPA 5030 Soil MS

Blank (BGL0802-BLK1)

Prepared: 12/21/23 Analyzed: 12/26/23

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>	0.0275		"	0.0333		82.5	40-150			
<i>Surrogate: Fluoranthene-d10</i>	0.0303		"	0.0333		90.9	40-150			

LCS (BGL0802-BS1)

Prepared: 12/21/23 Analyzed: 12/26/23

Acenaphthene	0.0287	0.00500	mg/kg	0.0333		86.1	31-137			
Anthracene	0.0290	0.00500	"	0.0333		87.0	30-120			
Benzo (a) anthracene	0.0267	0.00500	"	0.0333		80.2	30-120			
Benzo (a) pyrene	0.0246	0.00500	"	0.0333		73.7	30-120			
Benzo (b) fluoranthene	0.0275	0.00500	"	0.0333		82.6	30-120			
Benzo (k) fluoranthene	0.0287	0.00500	"	0.0333		86.0	30-120			
Chrysene	0.0272	0.00500	"	0.0333		81.6	30-120			
Dibenz (a,h) anthracene	0.0271	0.00500	"	0.0333		81.2	30-120			
Fluoranthene	0.0243	0.00500	"	0.0333		72.8	30-120			
Fluorene	0.0288	0.00500	"	0.0333		86.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0215	0.00500	"	0.0333		64.6	30-120			
Pyrene	0.0145	0.00500	"	0.0333		43.6	35-142			
1-Methylnaphthalene	0.0254	0.00500	"	0.0333		76.2	35-142			
2-Methylnaphthalene	0.0277	0.00500	"	0.0333		83.2	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.0273		"	0.0333		82.0	40-150			
<i>Surrogate: Fluoranthene-d10</i>	0.0308		"	0.0333		92.3	40-150			

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Project: Noble - Guttersen D30-68-1HN (FL)
Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

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 BGL0802 - EPA 5030 Soil MS

Matrix Spike (BGL0802-MS1)

Source: 2312286-01

Prepared: 12/21/23 Analyzed: 12/26/23

Acenaphthene	0.0182	0.00500	mg/kg	0.0333	ND	54.5	31-137			
Anthracene	0.0180	0.00500	"	0.0333	ND	53.9	30-120			
Benzo (a) anthracene	0.0168	0.00500	"	0.0333	ND	50.5	30-120			
Benzo (a) pyrene	0.0136	0.00500	"	0.0333	ND	40.7	30-120			
Benzo (b) fluoranthene	0.0160	0.00500	"	0.0333	ND	48.1	30-120			
Benzo (k) fluoranthene	0.0185	0.00500	"	0.0333	ND	55.5	30-120			
Chrysene	0.0173	0.00500	"	0.0333	ND	51.8	30-120			
Dibenz (a,h) anthracene	0.0177	0.00500	"	0.0333	ND	53.2	30-120			
Fluoranthene	0.0166	0.00500	"	0.0333	ND	49.8	30-120			
Fluorene	0.0179	0.00500	"	0.0333	ND	53.7	30-120			
Indeno (1,2,3-cd) pyrene	0.0155	0.00500	"	0.0333	ND	46.4	30-120			
Pyrene	0.0155	0.00500	"	0.0333	ND	46.5	35-142			
1-Methylnaphthalene	0.0177	0.00500	"	0.0333	ND	53.2	15-130			
2-Methylnaphthalene	0.0169	0.00500	"	0.0333	ND	50.7	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0189		"	0.0333		56.6	40-150			
Surrogate: Fluoranthene-d10	0.0182		"	0.0333		54.7	40-150			

Matrix Spike Dup (BGL0802-MSD1)

Source: 2312286-01

Prepared: 12/21/23 Analyzed: 12/26/23

Acenaphthene	0.0150	0.00500	mg/kg	0.0333	ND	45.1	31-137	18.8	30
Anthracene	0.0140	0.00500	"	0.0333	ND	42.0	30-120	24.7	30
Benzo (a) anthracene	0.0137	0.00500	"	0.0333	ND	41.2	30-120	20.4	30
Benzo (a) pyrene	0.0165	0.00500	"	0.0333	ND	49.4	30-120	19.2	30
Benzo (b) fluoranthene	0.0160	0.00500	"	0.0333	ND	47.9	30-120	0.529	30
Benzo (k) fluoranthene	0.0149	0.00500	"	0.0333	ND	44.8	30-120	21.4	30
Chrysene	0.0148	0.00500	"	0.0333	ND	44.3	30-120	15.7	30
Dibenz (a,h) anthracene	0.0134	0.00500	"	0.0333	ND	40.1	30-120	28.1	30
Fluoranthene	0.0218	0.00500	"	0.0333	ND	65.5	30-120	27.2	30
Fluorene	0.0146	0.00500	"	0.0333	ND	43.8	30-120	20.4	30
Indeno (1,2,3-cd) pyrene	0.0149	0.00500	"	0.0333	ND	44.6	30-120	3.95	30
Pyrene	0.0143	0.00500	"	0.0333	ND	42.9	35-142	8.15	30
1-Methylnaphthalene	0.0180	0.00500	"	0.0333	ND	53.9	15-130	1.37	50
2-Methylnaphthalene	0.0151	0.00500	"	0.0333	ND	45.3	15-130	11.3	50
Surrogate: 2-Methylnaphthalene-d10	0.0211		"	0.0333		63.4	40-150		
Surrogate: Fluoranthene-d10	0.0155		"	0.0333		46.4	40-150		

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

Project: Noble - Guttersen D30-68-1HN (FL)
Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

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 BGL0768 - EPA 3050B

Blank (BGL0768-BLK1)

Prepared: 12/20/23 Analyzed: 12/28/23

Boron ND 2.00 mg/L

LCS (BGL0768-BS1)

Prepared: 12/20/23 Analyzed: 12/28/23

Boron 4.69 2.00 mg/L 5.00 93.9 80-120

Duplicate (BGL0768-DUP1)

Source: 2312286-01

Prepared: 12/20/23 Analyzed: 12/28/23

Boron 0.0993 2.00 mg/L 0.103 3.76 20

Matrix Spike (BGL0768-MS1)

Source: 2312286-01

Prepared: 12/20/23 Analyzed: 12/28/23

Boron 5.00 2.00 mg/L 5.00 0.103 98.0 75-125

Matrix Spike Dup (BGL0768-MSD1)

Source: 2312286-01

Prepared: 12/20/23 Analyzed: 12/28/23

Boron 5.16 2.00 mg/L 5.00 0.103 101 75-125 3.09 25

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Broomfield CO, 80020

Project: Noble - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

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 BGL0867 - EPA 3050B

Blank (BGL0867-BLK1)

Prepared: 12/26/23 Analyzed: 12/30/23

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 (BGL0867-BS1)

Prepared: 12/26/23 Analyzed: 12/30/23

Arsenic	36.1	0.200	mg/kg wet	40.0		90.2	80-120
Barium	38.7	0.400	"	40.0		96.7	80-120
Cadmium	1.91	0.200	"	2.00		95.6	80-120
Copper	41.7	0.400	"	40.0		104	80-120
Lead	19.6	0.200	"	20.0		97.8	80-120
Nickel	40.9	0.400	"	40.0		102	80-120
Silver	1.81	0.0200	"	2.00		90.5	80-120
Zinc	40.9	0.400	"	40.0		102	80-120
Selenium	3.75	0.260	"	4.00		93.8	80-120

Duplicate (BGL0867-DUP1)

Source: 2312208-01

Prepared: 12/26/23 Analyzed: 12/30/23

Arsenic	1.68	0.200	mg/kg dry	1.95		14.8	20
Barium	33.2	0.400	"	34.5		4.02	20
Cadmium	0.0940	0.200	"	0.0989		5.03	20
Copper	2.72	0.400	"	2.83		4.31	20
Lead	3.35	0.200	"	3.70		9.78	20
Nickel	2.90	0.400	"	2.91		0.425	20
Silver	0.0124	0.0200	"	0.0124		0.00	20
Zinc	11.3	0.400	"	11.5		1.42	20
Selenium	ND	0.260	"	ND			20

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6855 W. 119th Ave.
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Project: Noble - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

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 BGL0867 - EPA 3050B

Matrix Spike (BGL0867-MS1)

Source: 2312208-01

Prepared: 12/26/23 Analyzed: 12/30/23

Arsenic	38.7	0.200	mg/kg dry	44.1	1.95	83.2	75-125			
Barium	71.6	0.400	"	44.1	34.5	84.0	75-125			
Cadmium	2.01	0.200	"	2.21	0.0989	86.8	75-125			
Copper	34.3	0.400	"	44.1	2.83	71.2	75-125			QM-07
Lead	22.7	0.200	"	22.1	3.70	86.3	75-125			
Nickel	34.6	0.400	"	44.1	2.91	71.8	75-125			QM-07
Silver	1.90	0.0200	"	2.21	0.0124	85.4	75-125			
Zinc	43.6	0.400	"	44.1	11.5	72.7	75-125			QM-07
Selenium	3.86	0.260	"	4.41	ND	87.6	75-125			

Matrix Spike Dup (BGL0867-MSD1)

Source: 2312208-01

Prepared: 12/26/23 Analyzed: 12/30/23

Arsenic	40.5	0.200	mg/kg dry	44.1	1.95	87.4	75-125	4.67	25	
Barium	74.5	0.400	"	44.1	34.5	90.6	75-125	4.00	25	
Cadmium	2.12	0.200	"	2.21	0.0989	91.6	75-125	5.14	25	
Copper	35.4	0.400	"	44.1	2.83	73.8	75-125	3.29	25	QM-07
Lead	23.8	0.200	"	22.1	3.70	91.2	75-125	4.64	25	
Nickel	35.6	0.400	"	44.1	2.91	74.0	75-125	2.78	25	QM-07
Silver	1.99	0.0200	"	2.21	0.0124	89.6	75-125	4.79	25	
Zinc	44.9	0.400	"	44.1	11.5	75.8	75-125	3.13	25	
Selenium	3.93	0.260	"	4.41	ND	88.9	75-125	1.56	25	

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Project: Noble - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BGL0759 - 3060A Mod

Blank (BGL0759-BLK1)

Prepared & Analyzed: 12/20/23

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BGL0759-BS1)

Prepared & Analyzed: 12/20/23

Chromium, Hexavalent 27.2 0.30 mg/kg wet 25.0 109 80-120

Duplicate (BGL0759-DUP1)

Source: 2312286-01

Prepared & Analyzed: 12/20/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BGL0759-MS1)

Source: 2312286-01

Prepared & Analyzed: 12/20/23

Chromium, Hexavalent 27.5 0.30 mg/kg dry 26.6 ND 103 75-125

Matrix Spike Dup (BGL0759-MSD1)

Source: 2312286-01

Prepared & Analyzed: 12/20/23

Chromium, Hexavalent 26.8 0.30 mg/kg dry 26.6 ND 101 75-125 2.75 20

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Broomfield CO, 80020

Project: Noble - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

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

Summit Scientific

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

Batch BGL1038 - General Preparation

Blank (BGL1038-BLK1)

Prepared: 12/29/23 Analyzed: 01/03/24

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

LCS (BGL1038-BS1)

Prepared: 12/29/23 Analyzed: 01/03/24

Calcium	6.09	0.0500	mg/L wet	5.00	122	70-130				
Magnesium	5.18	0.0500	"	5.00	104	70-130				
Sodium	5.18	0.0500	"	5.00	104	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 D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

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

Summit Scientific

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

Batch BGL0856 - General Preparation

Duplicate (BGL0856-DUP1)	Source: 2312286-01			Prepared & Analyzed: 12/26/23				
% Solids	94.1	%		93.9			0.216	20

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

Project: Noble - Gutteresen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

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 BHA0019 - General Preparation

Blank (BHA0019-BLK1)

Prepared & Analyzed: 01/02/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHA0019-BS1)

Prepared & Analyzed: 01/02/24

Specific Conductance (EC) 0.158 0.0100 mmhos/cm 0.150 105 95-105

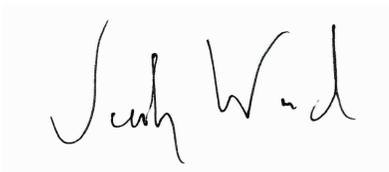
Duplicate (BHA0019-DUP1)

Source: 2312285-01

Prepared & Analyzed: 01/02/24

Specific Conductance (EC) 0.0812 0.0100 mmhos/cm 0.0814 0.271 20

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

Project: Noble - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

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 BHA0018 - General Preparation

LCS (BHA0018-BS1)

Prepared & Analyzed: 01/02/24

pH 9.00 pH Units 9.18 98.0 95-105

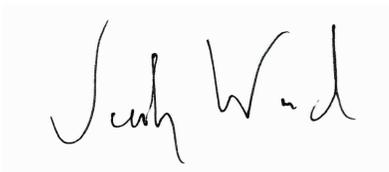
Duplicate (BHA0018-DUP1)

Source: 2312285-01

Prepared & Analyzed: 01/02/24

pH 7.25 pH Units 7.36 1.51 20

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

Project: Noble - Guttersen D30-68-1HN (FL)

Project Number: UWRMU-A3008-ABN

Project Manager: Jacob Whritenour

Reported:
01/05/24 11:40

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

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

January 09, 2024

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

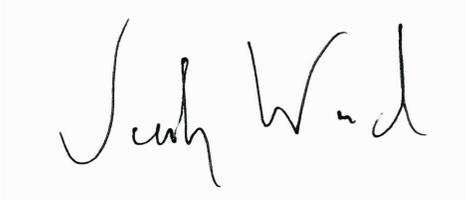
Broomfield, CO 80020

RE: Noble - Guttersen D30-68-1HN

Work Order #2312350

Enclosed are the results of analyses for samples received by Summit Scientific on 12/18/23 17:54. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Jacob Wood For Paul Shrewsbury

President



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

Project: Noble - Guttersen D30-68-1HN

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-T@3'	2312350-01	Soil	12/18/23 11:15	12/18/23 17:54

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
2312350	

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: Gutteresen D30-68-1HN
City/State/Zip: Broomfield, CO 80020		AFE#: UWRMU-A3008-ABN
Phone: 303-903-5168	Project Name: Gutteresen D30-68-1HN	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-TE3	12/18/23	1115	3			X			X				X	X	X	X	X	X	X		pH, EC, SAR by saturated paste
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						
13																						
14																						
15																						

Relinquished by: 	Date/Time: 12/18/23 1500	Received by: Tasman Lockbox	Date/Time: 12/18/23 1500	TAT Business Days	Field DO	Notes:
Relinquished by: Tasman Lockbox	Date/Time: 12/18/23 1704	Received by: 	Date/Time: 12/18/23 1704	Same Day	Field EC	
				1 Day	Field ORP	
				2 Days	Field pH	
				3 Days	Field Temp.	
Temperature Upon Receipt: 7.5	Corrected Temperature: 8	IR gun #: 1	HNO3 lot #:	Standard	X	Field Turb.

S₂

Sample Receipt Checklist

S2 Work Order# 2312350

Client: Nadefrasman Client Project ID: Gutteresen 030-08-1HN

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

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

Temp (°C) 7.5

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"/>	
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ice
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

12/18/23

Date/Time

0 11 9 23



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

Project: Noble - Guttersen D30-68-1HN

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

FL01-T@3'
2312350-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/18/23 11:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGL0693	12/19/23	12/20/23	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: **12/18/23 11:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0555	139 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0397	99.2 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0424	106 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/18/23 11:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGL0696	12/19/23	12/20/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **12/18/23 11:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	10.5	84.2 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Guttersen D30-68-1HN

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

FL01-T@3'
2312350-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/18/23 11:15**

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: **12/18/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0159	47.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0148	44.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/18/23 11:15**

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: **12/18/23 11:15**

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

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

Project: Noble - Guttersen D30-68-1HN
Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

FL01-T@3'
2312350-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	1.64	0.200	mg/kg dry	1	BGL1057	12/29/23	01/07/24	EPA 6020B
Barium	42.8	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	4.63	0.400	"	"	"	"	"	"
Lead	4.15	0.200	"	"	"	"	"	"
Nickel	3.53	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	14.4	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/18/23 11:15**

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: **12/18/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	37.3	0.0500	mg/L dry	1	BGL1038	12/29/23	01/03/24	EPA 6020B	
Magnesium	7.97	0.0500	"	"	"	"	"	"	
Sodium	10.5	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **12/18/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.407	0.00100	units	1	BHA0126	01/04/24	01/04/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Summit Scientific

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

Project: Noble - Guttersen D30-68-1HN

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

FL01-T@3'
2312350-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/18/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.7		%	1	BGL0909	12/27/23	12/27/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/18/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.176	0.0100	mmhos/cm	1	BHA0019	01/02/24	01/02/24	EPA 120.1	

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

Date Sampled: **12/18/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.70		pH Units	1	BHA0018	01/02/24	01/02/24	EPA 9045D	

Summit Scientific

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

Project: Noble - Guttersen D30-68-1HN
Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

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 BGL0693 - EPA 5030 Soil MS

Blank (BGL0693-BLK1)

Prepared & Analyzed: 12/19/23

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	0.0536		"	0.0400		134	50-150			
Surrogate: Toluene-d8	0.0410		"	0.0400		102	50-150			
Surrogate: 4-Bromofluorobenzene	0.0426		"	0.0400		106	50-150			

LCS (BGL0693-BS1)

Prepared & Analyzed: 12/19/23

Benzene	0.100	0.0020	mg/kg	0.100		100	70-130			
Toluene	0.116	0.0050	"	0.100		116	70-130			
Ethylbenzene	0.121	0.0050	"	0.100		121	70-130			
m,p-Xylene	0.252	0.010	"	0.200		126	70-130			
o-Xylene	0.123	0.0050	"	0.100		123	70-130			
1,2,4-Trimethylbenzene	0.127	0.0050	"	0.100		127	70-130			
1,3,5-Trimethylbenzene	0.126	0.0050	"	0.100		126	70-130			
Naphthalene	0.104	0.0038	"	0.100		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0479		"	0.0400		120	50-150			
Surrogate: Toluene-d8	0.0387		"	0.0400		96.8	50-150			
Surrogate: 4-Bromofluorobenzene	0.0413		"	0.0400		103	50-150			

Matrix Spike (BGL0693-MS1)

Source: 2312208-01

Prepared & Analyzed: 12/19/23

Benzene	0.101	0.0020	mg/kg	0.100	ND	101	70-130			
Toluene	0.119	0.0050	"	0.100	ND	119	70-130			
Ethylbenzene	0.113	0.0050	"	0.100	ND	113	70-130			
m,p-Xylene	0.236	0.010	"	0.200	ND	118	70-130			
o-Xylene	0.116	0.0050	"	0.100	ND	116	70-130			
1,2,4-Trimethylbenzene	0.117	0.0050	"	0.100	ND	117	70-130			
1,3,5-Trimethylbenzene	0.118	0.0050	"	0.100	ND	118	70-130			
Naphthalene	0.0978	0.0038	"	0.100	ND	97.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0533		"	0.0400		133	50-150			
Surrogate: Toluene-d8	0.0404		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0415		"	0.0400		104	50-150			

Summit Scientific

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

Project: Noble - Guttersen D30-68-1HN
Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

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 BGL0693 - EPA 5030 Soil MS

Matrix Spike Dup (BGL0693-MSD1)	Source: 2312208-01			Prepared & Analyzed: 12/19/23						
Benzene	0.112	0.0020	mg/kg	0.100	ND	112	70-130	10.6	30	
Toluene	0.107	0.0050	"	0.100	ND	107	70-130	10.1	30	
Ethylbenzene	0.102	0.0050	"	0.100	ND	102	70-130	10.6	30	
m,p-Xylene	0.241	0.010	"	0.200	ND	121	70-130	2.10	30	
o-Xylene	0.101	0.0050	"	0.100	ND	101	70-130	14.3	30	
1,2,4-Trimethylbenzene	0.103	0.0050	"	0.100	ND	103	70-130	12.6	30	
1,3,5-Trimethylbenzene	0.106	0.0050	"	0.100	ND	106	70-130	10.3	30	
Naphthalene	0.0974	0.0038	"	0.100	ND	97.4	70-130	0.400	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0539</i>		<i>"</i>	<i>0.0400</i>		<i>135</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0405</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0428</i>		<i>"</i>	<i>0.0400</i>		<i>107</i>	<i>50-150</i>			

Summit Scientific

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

Project: Noble - Guttersen D30-68-1HN
Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

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 BGL0696 - EPA 3550A

Blank (BGL0696-BLK1)

Prepared & Analyzed: 12/19/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	14.6		"	12.5		117		30-150			

LCS (BGL0696-BS1)

Prepared & Analyzed: 12/19/23

C10-C28 (DRO)	449	50	mg/kg	500		89.7		70-130			
Surrogate: <i>o</i> -Terphenyl	12.1		"	12.5		97.2		30-150			

Matrix Spike (BGL0696-MS1)

Source: 2312208-01

Prepared & Analyzed: 12/19/23

C10-C28 (DRO)	484	50	mg/kg	500	ND	96.9		70-130			
Surrogate: <i>o</i> -Terphenyl	8.98		"	12.5		71.8		30-150			

Matrix Spike Dup (BGL0696-MSD1)

Source: 2312208-01

Prepared & Analyzed: 12/19/23

C10-C28 (DRO)	473	50	mg/kg	500	ND	94.6		70-130	2.36	20	
Surrogate: <i>o</i> -Terphenyl	9.19		"	12.5		73.5		30-150			

Summit Scientific

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

Project: Noble - Guttersen D30-68-1HN
Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

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>"</i>	<i>0.0333</i>		<i>61.0</i>		<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0358</i>		<i>"</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>"</i>	<i>0.0333</i>	<i>76.7</i>	<i>40-150</i>
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0341</i>		<i>"</i>	<i>0.0333</i>	<i>102</i>	<i>40-150</i>

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

Project: Noble - Guttersen D30-68-1HN
Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

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>"</i>	<i>0.0333</i>		<i>42.1</i>	<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0181</i>		<i>"</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>"</i>	<i>0.0333</i>		<i>62.8</i>	<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0137</i>		<i>"</i>	<i>0.0333</i>		<i>41.0</i>	<i>40-150</i>		

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

Project: Noble - Guttersen D30-68-1HN

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

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		

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

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

Project: Noble - Guttersen D30-68-1HN

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

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 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

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

Project: Noble - Guttersen D30-68-1HN

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

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 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	

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Broomfield CO, 80020

Project: Noble - Gutteresen D30-68-1HN

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

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

Project: Noble - Guttersen D30-68-1HN

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

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

Summit Scientific

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

Batch BGL1038 - General Preparation

Blank (BGL1038-BLK1)

Prepared: 12/29/23 Analyzed: 01/03/24

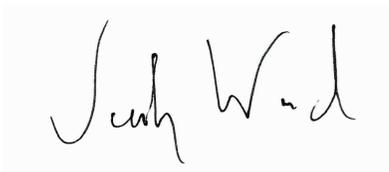
Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							

LCS (BGL1038-BS1)

Prepared: 12/29/23 Analyzed: 01/03/24

Calcium	6.09	0.0500	mg/L wet	5.00		122	70-130			
Magnesium	5.18	0.0500	"	5.00		104	70-130			
Sodium	5.18	0.0500	"	5.00		104	70-130			

Summit Scientific



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

Project: Noble - Gutteresen D30-68-1HN

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

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

Summit Scientific

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

Batch BGL0909 - General Preparation

Duplicate (BGL0909-DUP1)	Source: 2312326-01			Prepared & Analyzed: 12/27/23							
% Solids	79.8		%		80.0				0.210	20	

Summit Scientific



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

Project: Noble - Gutteresen D30-68-1HN

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

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 BHA0019 - General Preparation

Blank (BHA0019-BLK1)

Prepared & Analyzed: 01/02/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHA0019-BS1)

Prepared & Analyzed: 01/02/24

Specific Conductance (EC) 0.158 0.0100 mmhos/cm 0.150 105 95-105

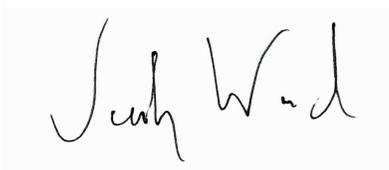
Duplicate (BHA0019-DUP1)

Source: 2312285-01

Prepared & Analyzed: 01/02/24

Specific Conductance (EC) 0.0812 0.0100 mmhos/cm 0.0814 0.271 20

Summit Scientific



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

Project: Noble - Gutteresen D30-68-1HN

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

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 BHA0018 - General Preparation

LCS (BHA0018-BS1)

Prepared & Analyzed: 01/02/24

pH 9.00 pH Units 9.18 98.0 95-105

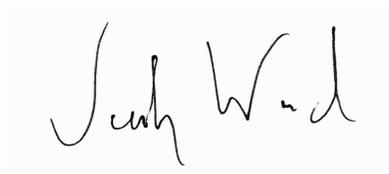
Duplicate (BHA0018-DUP1)

Source: 2312285-01

Prepared & Analyzed: 01/02/24

pH 7.25 pH Units 7.36 1.51 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 D30-68-1HN

Project Number: UWRMU-A3008-ABN
Project Manager: Jacob Whritenour

Reported:
01/09/24 11:02

Notes and Definitions

- 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.
- 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