



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: Gutterson State CC20-06		Date: 10/10/2023				Remediation Project #: 30024		
Associated Wells:		Age of Site:				Number of Photos Attached: 3		
Starting point: (GPS coordinates and descriptions) 40.299341/-104.464129								
End point: (GPS coordinates and descriptions) 40.298828/-104.464110								
USCS Soil Type: SW					Estimated Depth to Groundwater: > 4'			
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) None observed								
Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) None observed								
Flowlines								
Flowline type	Oil / Gas / Water							
Depth	4'							
Age								
Length	188'							
Construction Material	steel							
Were flowlines pulled?	no							
Visual Integrity of lines	good							
Visual impacts if trenched	none observed							
PID Readings if trenched	0.9 - 1.5							
Sample taken? Location/Sample ID#	yes, see below							
Photo Number(s)	1-3							
Other observations regarding on location flowlines: Samples were taken at the wellhead (FL01-A@4') the separator (FL01-B@4'), and where a direction change was observed (FL01-C@4'). Flowline was abandoned-in-place due to common trench and an active facility.								
Summary								
Was impacted soil identified? No								
Total number of samples field screened: 3					Total number of samples collected: 3			
Highest PID Reading: 1.5					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-A@4'		Equipment Type: Flowline			
Material: Steel	Volume:	Contents: Oil/Gas/Water			
Notes/Conditions: Facing North					
Equipment ID: FL01-B@4'			Equipment Type: Flowline		
Material: Steel	Volume:	Contents: Oil/Gas/Water			
Notes/Conditions: Facing West					

Photographic Log


									
						Equipment ID: FL01-C@4'		Equipment Type: Flowline	
						Material: Steel	Volume:	Contents: Oil/Gas/Water	
						Notes/Conditions: Facing South			
			Equipment ID:			Equipment Type:			
			Material:		Volume:		Contents:		
			Notes/Conditions:						

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. - GUTTERSEN STATE CC20-06

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude ¹	Longitude	PDOP
FL01-A@4'	10/10/23	0.9	No Staining	No Odor	Lab	40.299338	-104.464132	0.9
FL01-B@4'	10/10/23	1.2	No Staining	No Odor	Lab	40.298826	-104.464113	0.9
FL01-C@4'	10/10/23	1.5	No Staining	No Odor	Lab	40.299148	-104.464150	1.1

Notes:

PID = Photoionization detector

ppm = parts per million

PDOP = Position dilution of precision

HC = Hydrocarbon

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

TABLE 2
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - GUTTERSEN STATE CC20-06

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@4'	10/10/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FL01-B@4'	10/10/23	<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@4'	10/10/23	<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@4'	10/10/23	7.91	1.39	0.0971	<2.00
FL01-B@4'	10/10/23	6.09	0.0508	0.0331	<2.00
FL01-C@4'	10/10/23	6.56	0.0863	0.0263	<2.00

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

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

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@4'	10/10/23	1.66	39.8	<0.200	<0.30	1.74	4.53	1.53	<0.260	<0.0200	7.67
FL01-B@4'	10/10/23	0.799	29.9	<0.200	<0.30	1.26	2.60	<0.400	<0.260	<0.0200	6.96
FL01-C@4'	10/10/23	0.703	23.8	<0.200	<0.30	0.679	1.58	<0.400	<0.260	<0.0200	4.96



DATE:	11/03/2023	 <div>Tasman Geosciences, Inc. 6855 W 119th Avenue Broomfield, CO 80020</div>	Noble Energy, Inc. – DJ Basin Guttersen State CC20-06 SENW, Section 20, Township 4 North, Range 63 West Weld County, Colorado	Flowline Closure & Soil Analytical Results Map (10/10/2023)	FIGURE 1
DESIGNED BY:	JW				
DRAWN BY:	EH				

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 27, 2023

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

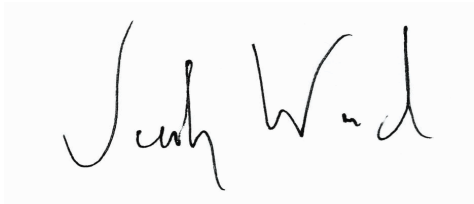
Broomfield, CO 80020

RE: Noble - Guttersen State CC20-06

Work Order #2310190

Enclosed are the results of analyses for samples received by Summit Scientific on 10/10/23 17:40. 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 - Guttarsen State CC20-06

Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-A@4'	2310190-01	Soil	10/10/23 11:32	10/10/23 17:40
FL01-B@4'	2310190-02	Soil	10/10/23 10:41	10/10/23 17:40
FL01-C@4'	2310190-03	Soil	10/10/23 11:13	10/10/23 17:40

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
2310190	

Client: Noble / Tasman		Send Data To: Project Manager: Jake Whritenour		Send Invoice To: Company: Chevron	
Address: 6855 W. 119th Ave		E-Mail: Jwhritenour@tasman-geo.com		Project Name/Location: GutterSen State CC200	
City/State/Zip: Broomfield, CO 80020				AFE#: UWRWE-A3325-ABW	
Phone: 303-903-5168		Project Name: GutterSen State CC200-06		PO/Billing Codes:	
Sampler Name: Dalton Hagen		Project Number:		Contact: Miguel Barron	

					Preservative				Matrix				Analysis Requested								Special Instructions	
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			pH, EC, SAR by saturated paste
1	FL01-A04	10/10/23	1132	1			X			X			X	X	X	X	X	X				
2	FL01-B04	1	1041	1			X			X			X	X	X	X	X	X				
3	FL01-C04	1	1113	1			X			X			X	X	X	X	X	X				
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						
13																						
14																						
15																						

Relinquished by:  Date/Time: 10/10/23 1530	Received by: Tasman Leckbox Date/Time: 10/10/23 1530	TAT Business Days	Field DO	Notes:
Relinquished by: Tasman Leckbox Date/Time: 10/10/23 1740	Received by:  Date/Time: 10/10/23 1740	Same Day	Field EC	
		1 Day	Field ORP	
		2 Days	Field pH	
		3 Days	Field Temp.	
Relinquished by: Date/Time:	Received by: Date/Time:	Standard	X Field Turb.	
Temperature Upon Receipt: 10.9	Corrected Temperature: 8	IR gun #: 1	HNO3 lot #:	

S₂

Sample Receipt Checklist

S2 Work Order# 2310/90Client: Noble GasmanClient Project ID: Guttarsen State CC 2006Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other

Airbill #:

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

Air

☐

Soil/Solid

☒

Water

☐

Other

☐

Temp (°C)

10.9

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"/>	<u>mzoe</u>
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.				

Custodian Printed Name

Date/Time

John Wild10/10/23 17:40



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

Project: Noble - Gutttersen State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

FL01-A@4'
2310190-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/10/23 11:32**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BGJ0912	10/23/23	10/23/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/10/23 11:32**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0446	112 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0363	90.7 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0368	92.1 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/10/23 11:32**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BGJ0913	10/23/23	10/23/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/10/23 11:32**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	7.97	63.7 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - Gutttersen State CC20-06

Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

FL01-A@4'
2310190-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/10/23 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0865	10/23/23	10/23/23	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: **10/10/23 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0219	65.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0251	75.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/10/23 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ0920	10/24/23	10/24/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **10/10/23 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Gutterson State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

FL01-A@4'
2310190-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	1.66	0.200	mg/kg dry	1	BGJ0924	10/24/23	10/25/23	EPA 6020B
Barium	39.8	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	1.74	0.400	"	"	"	"	"	"
Lead	4.53	0.200	"	"	"	"	"	"
Nickel	1.53	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	7.67	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/23 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ0935	10/24/23	10/24/23	EPA 7196A	

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

Date Sampled: **10/10/23 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	79.2	0.0500	mg/L dry	1	BGJ0945	10/24/23	10/26/23	EPA 6020B	
Magnesium	20.7	0.0500	"	"	"	"	"	"	
Sodium	53.7	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/10/23 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.39	0.00100	units	1	BGJ1109	10/27/23	10/27/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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

Project: Noble - Gutterson State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

FL01-A@4'
2310190-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/23 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.8		%	1	BGJ0899	10/23/23	10/23/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/10/23 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0971	0.0100	mmhos/cm	1	BGJ0990	10/25/23	10/25/23	EPA 120.1	

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

Date Sampled: **10/10/23 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.91		pH Units	1	BGJ0989	10/25/23	10/25/23	EPA 9045D	

Summit Scientific

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

Project: Noble - Gutttersen State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

FL01-B@4'
2310190-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/10/23 10:41**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGJ0912	10/23/23	10/23/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/10/23 10:41**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0447	112 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0362	90.4 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0358	89.5 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/10/23 10:41**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGJ0913	10/23/23	10/23/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/10/23 10:41**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	7.35	58.8 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: Noble - Gutttersen State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

FL01-B@4'
2310190-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/10/23 10:41**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0865	10/23/23	10/23/23	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: **10/10/23 10:41**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0195	58.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0243	72.8 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/10/23 10:41**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGJ0920	10/24/23	10/24/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **10/10/23 10:41**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Gutttersen State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

FL01-B@4'
2310190-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.799	0.200	mg/kg dry	1	BGJ0924	10/24/23	10/25/23	EPA 6020B
Barium	29.9	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	1.26	0.400	"	"	"	"	"	"
Lead	2.60	0.200	"	"	"	"	"	"
Nickel	ND	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	6.96	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/23 10:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ0935	10/24/23	10/24/23	EPA 7196A	

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

Date Sampled: **10/10/23 10:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	123	0.0500	mg/L dry	1	BGJ0945	10/24/23	10/26/23	EPA 6020B	
Magnesium	27.1	0.0500	"	"	"	"	"	"	
Sodium	2.39	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/10/23 10:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0508	0.00100	units	1	BGJ1109	10/27/23	10/27/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Tasman Geosciences
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Project: Noble - Gutttersen State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

FL01-B@4'
2310190-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/23 10:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	92.1		%	1	BGJ0899	10/23/23	10/23/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/10/23 10:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0331	0.0100	mmhos/cm	1	BGJ0990	10/25/23	10/25/23	EPA 120.1	

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

Date Sampled: **10/10/23 10:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.09		pH Units	1	BGJ0989	10/25/23	10/25/23	EPA 9045D	

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Project: Noble - Gutttersen State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

FL01-C@4'
2310190-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/10/23 11:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGJ0912	10/23/23	10/23/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/10/23 11:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0452	113 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0360	90.1 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0375	93.8 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/10/23 11:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGJ0913	10/23/23	10/23/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/10/23 11:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	10.0	80.3 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

FL01-C@4'
2310190-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/10/23 11:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0865	10/23/23	10/23/23	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: **10/10/23 11:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0185	55.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0218	65.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/10/23 11:13**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ0920	10/24/23	10/24/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **10/10/23 11:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Broomfield CO, 80020

Project: Noble - Gutttersen State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

FL01-C@4'
2310190-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.703	0.200	mg/kg dry	1	BGJ0924	10/24/23	10/25/23	EPA 6020B
Barium	23.8	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	0.679	0.400	"	"	"	"	"	"
Lead	1.58	0.200	"	"	"	"	"	"
Nickel	ND	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	4.96	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/23 11:13**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ0935	10/24/23	10/24/23	EPA 7196A		

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

Date Sampled: **10/10/23 11:13**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Calcium	41.0	0.0500	mg/L dry	1	BGJ0945	10/24/23	10/26/23	EPA 6020B		
Magnesium	10.7	0.0500	"	"	"	"	"	"		
Sodium	2.40	0.0500	"	"	"	"	"	"		

Calculated Analysis

Date Sampled: **10/10/23 11:13**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Sodium Adsorption Ratio	0.0863	0.00100	units	1	BGJ1109	10/27/23	10/27/23	Calculation		

Physical Parameters by APHA/ASTM/EPA Methods

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Reported:
10/27/23 09:53

FL01-C@4'
2310190-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/23 11:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	96.3		%	1	BGJ0899	10/23/23	10/23/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/10/23 11:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0263	0.0100	mmhos/cm	1	BGJ0990	10/25/23	10/25/23	EPA 120.1	

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

Date Sampled: **10/10/23 11:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.56		pH Units	1	BGJ0989	10/25/23	10/25/23	EPA 9045D	

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Project: Noble - Guttarsen State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

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 BGJ0912 - EPA 5030 Soil MS

Blank (BGJ0912-BLK1)

Prepared & Analyzed: 10/23/23

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	0.0428		"	0.0400		107	50-150			
Surrogate: Toluene-d8	0.0365		"	0.0400		91.3	50-150			
Surrogate: 4-Bromofluorobenzene	0.0376		"	0.0400		94.0	50-150			

LCS (BGJ0912-BS1)

Prepared & Analyzed: 10/23/23

Benzene	0.114	0.0020	mg/kg	0.100		114	70-130			
Toluene	0.0960	0.0050	"	0.100		96.0	70-130			
Ethylbenzene	0.0967	0.0050	"	0.100		96.7	70-130			
m,p-Xylene	0.191	0.010	"	0.200		95.6	70-130			
o-Xylene	0.0929	0.0050	"	0.100		92.9	70-130			
1,2,4-Trimethylbenzene	0.0996	0.0050	"	0.100		99.6	70-130			
1,3,5-Trimethylbenzene	0.100	0.0050	"	0.100		100	70-130			
Naphthalene	0.0709	0.0038	"	0.100		70.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0465		"	0.0400		116	50-150			
Surrogate: Toluene-d8	0.0374		"	0.0400		93.5	50-150			
Surrogate: 4-Bromofluorobenzene	0.0367		"	0.0400		91.8	50-150			

Matrix Spike (BGJ0912-MS1)

Source: 2310190-01

Prepared & Analyzed: 10/23/23

Benzene	0.0978	0.0020	mg/kg	0.100	ND	97.8	70-130			
Toluene	0.0838	0.0050	"	0.100	ND	83.8	70-130			
Ethylbenzene	0.0945	0.0050	"	0.100	ND	94.5	70-130			
m,p-Xylene	0.188	0.010	"	0.200	ND	94.1	70-130			
o-Xylene	0.0904	0.0050	"	0.100	ND	90.4	70-130			
1,2,4-Trimethylbenzene	0.0903	0.0050	"	0.100	ND	90.3	70-130			
1,3,5-Trimethylbenzene	0.0948	0.0050	"	0.100	ND	94.8	70-130			
Naphthalene	0.0811	0.0038	"	0.100	ND	81.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0445		"	0.0400		111	50-150			
Surrogate: Toluene-d8	0.0366		"	0.0400		91.6	50-150			
Surrogate: 4-Bromofluorobenzene	0.0375		"	0.0400		93.8	50-150			

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Project: Noble - Gutttersen State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

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 BGJ0912 - EPA 5030 Soil MS

Matrix Spike Dup (BGJ0912-MSD1)	Source: 2310190-01			Prepared & Analyzed: 10/23/23						
Benzene	0.108	0.0020	mg/kg	0.100	ND	108	70-130	9.86	30	
Toluene	0.0874	0.0050	"	0.100	ND	87.4	70-130	4.31	30	
Ethylbenzene	0.0951	0.0050	"	0.100	ND	95.1	70-130	0.696	30	
m,p-Xylene	0.189	0.010	"	0.200	ND	94.4	70-130	0.366	30	
o-Xylene	0.0918	0.0050	"	0.100	ND	91.8	70-130	1.45	30	
1,2,4-Trimethylbenzene	0.0917	0.0050	"	0.100	ND	91.7	70-130	1.55	30	
1,3,5-Trimethylbenzene	0.0946	0.0050	"	0.100	ND	94.6	70-130	0.253	30	
Naphthalene	0.0866	0.0038	"	0.100	ND	86.6	70-130	6.55	30	
Surrogate: 1,2-Dichloroethane-d4	0.0453		"	0.0400		113	50-150			
Surrogate: Toluene-d8	0.0364		"	0.0400		91.0	50-150			
Surrogate: 4-Bromofluorobenzene	0.0370		"	0.0400		92.6	50-150			

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Project: Noble - Gutttersen State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

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 BGJ0913 - EPA 3550A

Blank (BGJ0913-BLK1)

Prepared & Analyzed: 10/23/23

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	12.7		"	12.5		102	30-150			

LCS (BGJ0913-BS1)

Prepared & Analyzed: 10/23/23

C10-C28 (DRO)	417	50	mg/kg	500		83.4	70-130			
Surrogate: o-Terphenyl	9.80		"	12.5		78.4	30-150			

Matrix Spike (BGJ0913-MS1)

Source: 2310190-01

Prepared & Analyzed: 10/23/23

C10-C28 (DRO)	450	50	mg/kg	500	8.86	88.2	70-130			
Surrogate: o-Terphenyl	8.89		"	12.5		71.1	30-150			

Matrix Spike Dup (BGJ0913-MSD1)

Source: 2310190-01

Prepared & Analyzed: 10/23/23

C10-C28 (DRO)	432	50	mg/kg	500	8.86	84.6	70-130	4.08	20	
Surrogate: o-Terphenyl	8.61		"	12.5		68.9	30-150			

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

Project: Noble - Guttarsen State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

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 BGJ0865 - EPA 5030 Soil MS

Blank (BGJ0865-BLK1)

Prepared & Analyzed: 10/23/23

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	0.0278		"	0.0333		83.4	40-150			
Surrogate: Fluoranthene-d10	0.0299		"	0.0333		89.6	40-150			

LCS (BGJ0865-BS1)

Prepared & Analyzed: 10/23/23

Acenaphthene	0.0284	0.00500	mg/kg	0.0333		85.2	31-137			
Anthracene	0.0299	0.00500	"	0.0333		89.8	30-120			
Benzo (a) anthracene	0.0296	0.00500	"	0.0333		88.9	30-120			
Benzo (a) pyrene	0.0266	0.00500	"	0.0333		79.8	30-120			
Benzo (b) fluoranthene	0.0298	0.00500	"	0.0333		89.3	30-120			
Benzo (k) fluoranthene	0.0304	0.00500	"	0.0333		91.2	30-120			
Chrysene	0.0314	0.00500	"	0.0333		94.1	30-120			
Dibenz (a,h) anthracene	0.0212	0.00500	"	0.0333		63.5	30-120			
Fluoranthene	0.0309	0.00500	"	0.0333		92.8	30-120			
Fluorene	0.0333	0.00500	"	0.0333		100	30-120			
Indeno (1,2,3-cd) pyrene	0.0301	0.00500	"	0.0333		90.3	30-120			
Pyrene	0.0318	0.00500	"	0.0333		95.3	35-142			
1-Methylnaphthalene	0.0319	0.00500	"	0.0333		95.8	35-142			
2-Methylnaphthalene	0.0351	0.00500	"	0.0333		105	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0241		"	0.0333		72.3	40-150			
Surrogate: Fluoranthene-d10	0.0309		"	0.0333		92.7	40-150			

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Project: Noble - Guttarsen State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BGJ0865 - EPA 5030 Soil MS

Matrix Spike (BGJ0865-MS1)

Source: 2310408-01

Prepared & Analyzed: 10/23/23

Acenaphthene	0.0178	0.00500	mg/kg	0.0333	ND	53.5	31-137				
Anthracene	0.0158	0.00500	"	0.0333	ND	47.5	30-120				
Benzo (a) anthracene	0.0190	0.00500	"	0.0333	ND	57.0	30-120				
Benzo (a) pyrene	0.0156	0.00500	"	0.0333	ND	46.8	30-120				
Benzo (b) fluoranthene	0.0172	0.00500	"	0.0333	ND	51.6	30-120				
Benzo (k) fluoranthene	0.0171	0.00500	"	0.0333	ND	51.4	30-120				
Chrysene	0.0191	0.00500	"	0.0333	ND	57.4	30-120				
Dibenz (a,h) anthracene	0.0147	0.00500	"	0.0333	ND	44.1	30-120				
Fluoranthene	0.0166	0.00500	"	0.0333	ND	49.9	30-120				
Fluorene	0.0199	0.00500	"	0.0333	ND	59.6	30-120				
Indeno (1,2,3-cd) pyrene	0.0168	0.00500	"	0.0333	ND	50.3	30-120				
Pyrene	0.0201	0.00500	"	0.0333	ND	60.4	35-142				
1-Methylnaphthalene	0.0189	0.00500	"	0.0333	ND	56.7	15-130				
2-Methylnaphthalene	0.0211	0.00500	"	0.0333	ND	63.4	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0141		"	0.0333		42.3	40-150				
Surrogate: Fluoranthene-d10	0.0170		"	0.0333		51.0	40-150				

Matrix Spike Dup (BGJ0865-MSD1)

Source: 2310408-01

Prepared & Analyzed: 10/23/23

Acenaphthene	0.0173	0.00500	mg/kg	0.0333	ND	52.0	31-137	2.85	30
Anthracene	0.0181	0.00500	"	0.0333	ND	54.3	30-120	13.4	30
Benzo (a) anthracene	0.0186	0.00500	"	0.0333	ND	55.9	30-120	1.92	30
Benzo (a) pyrene	0.0165	0.00500	"	0.0333	ND	49.6	30-120	5.89	30
Benzo (b) fluoranthene	0.0181	0.00500	"	0.0333	ND	54.3	30-120	5.19	30
Benzo (k) fluoranthene	0.0181	0.00500	"	0.0333	ND	54.3	30-120	5.42	30
Chrysene	0.0184	0.00500	"	0.0333	ND	55.3	30-120	3.79	30
Dibenz (a,h) anthracene	0.0143	0.00500	"	0.0333	ND	42.9	30-120	2.76	30
Fluoranthene	0.0189	0.00500	"	0.0333	ND	56.7	30-120	12.8	30
Fluorene	0.0211	0.00500	"	0.0333	ND	63.2	30-120	5.85	30
Indeno (1,2,3-cd) pyrene	0.0176	0.00500	"	0.0333	ND	52.8	30-120	4.82	30
Pyrene	0.0194	0.00500	"	0.0333	ND	58.1	35-142	3.95	30
1-Methylnaphthalene	0.0181	0.00500	"	0.0333	ND	54.2	15-130	4.43	50
2-Methylnaphthalene	0.0216	0.00500	"	0.0333	ND	64.9	15-130	2.37	50
Surrogate: 2-Methylnaphthalene-d10	0.0139		"	0.0333		41.6	40-150		
Surrogate: Fluoranthene-d10	0.0191		"	0.0333		57.3	40-150		

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

Project: Noble - Guttarsen State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

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 BGJ0920 - EPA 3050B

Blank (BGJ0920-BLK1)

Prepared & Analyzed: 10/24/23

Boron ND 2.00 mg/L

LCS (BGJ0920-BS1)

Prepared & Analyzed: 10/24/23

Boron 4.20 2.00 mg/L 5.00 84.0 80-120

Duplicate (BGJ0920-DUP1)

Source: 2310190-01

Prepared & Analyzed: 10/24/23

Boron 0.175 2.00 mg/L 0.202 14.0 20

Matrix Spike (BGJ0920-MS1)

Source: 2310190-01

Prepared & Analyzed: 10/24/23

Boron 4.56 2.00 mg/L 5.00 0.202 87.2 75-125

Matrix Spike Dup (BGJ0920-MSD1)

Source: 2310190-01

Prepared & Analyzed: 10/24/23

Boron 4.59 2.00 mg/L 5.00 0.202 87.8 75-125 0.654 25

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Guttarsen State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

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 BGJ0924 - EPA 3050B

Blank (BGJ0924-BLK1)

Prepared: 10/24/23 Analyzed: 10/25/23

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 (BGJ0924-BS1)

Prepared: 10/24/23 Analyzed: 10/25/23

Arsenic	36.4	0.200	mg/kg wet	40.0	91.0	80-120
Barium	35.0	0.400	"	40.0	87.6	80-120
Cadmium	1.91	0.200	"	2.00	95.7	80-120
Copper	37.4	0.400	"	40.0	93.5	80-120
Lead	23.6	0.200	"	20.0	118	80-120
Nickel	37.7	0.400	"	40.0	94.1	80-120
Silver	1.93	0.0200	"	2.00	96.3	80-120
Zinc	37.7	0.400	"	40.0	94.3	80-120
Selenium	4.42	0.260	"	4.00	110	80-120

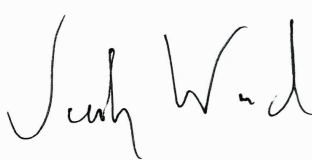
Duplicate (BGJ0924-DUP1)

Source: 2310190-01

Prepared: 10/24/23 Analyzed: 10/25/23

Arsenic	1.33	0.200	mg/kg dry	1.66	22.2	20	QR-01
Barium	36.7	0.400	"	39.8	8.18	20	
Cadmium	0.0586	0.200	"	0.0662	12.2	20	
Copper	1.54	0.400	"	1.74	11.8	20	
Lead	120	0.200	"	4.53	185	20	QR-01
Nickel	1.28	0.400	"	1.53	17.7	20	
Silver	0.0215	0.0200	"	0.00886	83.3	20	QR-01
Zinc	6.51	0.400	"	7.67	16.4	20	
Selenium	ND	0.260	"	ND		20	

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Broomfield CO, 80020

Project: Noble - Gutttersen State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

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 BGJ0924 - EPA 3050B

Matrix Spike (BGJ0924-MS1)			Source: 2310190-01		Prepared: 10/24/23		Analyzed: 10/25/23			
Arsenic	38.3	0.200	mg/kg dry	42.2	1.66	86.8	75-125			
Barium	67.9	0.400	"	42.2	39.8	66.5	75-125			QM-07
Cadmium	1.61	0.200	"	2.11	0.0662	73.4	75-125			QM-07
Copper	27.2	0.400	"	42.2	1.74	60.3	75-125			QM-07
Lead	19.3	0.200	"	21.1	4.53	69.8	75-125			QM-07
Nickel	27.8	0.400	"	42.2	1.53	62.2	75-125			QM-07
Silver	1.55	0.0200	"	2.11	0.00886	73.1	75-125			QM-07
Zinc	31.9	0.400	"	42.2	7.67	57.3	75-125			QM-07
Selenium	4.88	0.260	"	4.22	ND	116	75-125			

Matrix Spike Dup (BGJ0924-MSD1)			Source: 2310190-01		Prepared: 10/24/23		Analyzed: 10/25/23			
Arsenic	40.6	0.200	mg/kg dry	42.2	1.66	92.3	75-125	5.88	25	
Barium	68.5	0.400	"	42.2	39.8	68.0	75-125	0.933	25	QM-07
Cadmium	1.63	0.200	"	2.11	0.0662	74.0	75-125	0.781	25	QM-07
Copper	28.0	0.400	"	42.2	1.74	62.2	75-125	2.94	25	QM-07
Lead	19.6	0.200	"	21.1	4.53	71.6	75-125	1.92	25	QM-07
Nickel	28.5	0.400	"	42.2	1.53	64.0	75-125	2.72	25	QM-07
Silver	1.58	0.0200	"	2.11	0.00886	74.4	75-125	1.81	25	QM-07
Zinc	32.5	0.400	"	42.2	7.67	58.9	75-125	2.07	25	QM-07
Selenium	5.01	0.260	"	4.22	ND	119	75-125	2.50	25	

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Broomfield CO, 80020

Project: Noble - Gutterson State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

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 BGJ0935 - 3060A Mod

Blank (BGJ0935-BLK1)

Prepared & Analyzed: 10/24/23

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BGJ0935-BS1)

Prepared & Analyzed: 10/24/23

Chromium, Hexavalent 23.5 0.30 mg/kg wet 25.0 94.0 80-120

Duplicate (BGJ0935-DUP1)

Source: 2308318-01

Prepared & Analyzed: 10/24/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BGJ0935-MS1)

Source: 2308318-01

Prepared & Analyzed: 10/24/23

Chromium, Hexavalent 30.0 0.30 mg/kg dry 30.7 ND 97.8 75-125

Matrix Spike Dup (BGJ0935-MSD1)

Source: 2308318-01

Prepared & Analyzed: 10/24/23

Chromium, Hexavalent 29.6 0.30 mg/kg dry 30.7 ND 96.6 75-125 1.23 20

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Broomfield CO, 80020

Project: Noble - Gutterson State CC20-06
Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

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

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

Batch BGJ0945 - General Preparation

Blank (BGJ0945-BLK1)

Prepared: 10/24/23 Analyzed: 10/26/23

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

LCS (BGJ0945-BS1)

Prepared: 10/24/23 Analyzed: 10/26/23

Calcium	5.45	0.0500	mg/L wet	5.00	109	70-130
Magnesium	5.33	0.0500	"	5.00	107	70-130
Sodium	5.49	0.0500	"	5.00	110	70-130

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Guttarsen State CC20-06

Project Number: UWRWE-A3325-ABN

Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

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 BGJ0899 - General Preparation

Duplicate (BGJ0899-DUP1)

Source: 2310190-01

Prepared & Analyzed: 10/23/23

% Solids	94.8	%	94.8	0.00290	20
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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Guttarsen State CC20-06

Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

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 BGJ0990 - General Preparation

Blank (BGJ0990-BLK1)

Prepared & Analyzed: 10/25/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BGJ0990-BS1)

Prepared & Analyzed: 10/25/23

Specific Conductance (EC) 0.150 0.0100 mmhos/cm 0.150 99.7 95-105

Duplicate (BGJ0990-DUP1)

Source: 2310190-01

Prepared & Analyzed: 10/25/23

Specific Conductance (EC) 0.0971 0.0100 mmhos/cm 0.0971 0.00 20

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Guttarsen State CC20-06

Project Number: UWRWE-A3325-ABN

Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

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 BGJ0989 - General Preparation

LCS (BGJ0989-BS1)

Prepared & Analyzed: 10/25/23

pH	9.01	pH Units	9.18	98.1	95-105
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Duplicate (BGJ0989-DUP1)

Source: 2310190-01

Prepared & Analyzed: 10/25/23

pH	7.91	pH Units	7.91	0.00	20
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Guttarsen State CC20-06

Project Number: UWRWE-A3325-ABN
Project Manager: Jacob Whritenour

Reported:
10/27/23 09:53

Notes and Definitions

QR-01	Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference