

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: Booth C35-27		Date: 6/29/2023				Remediation Project #: 27918		
Associated Wells:		Age of Site:				Number of Photos Attached: 4		
Starting point: (GPS coordinates and descriptions) 40.275267/ 104.513327								
End point: (GPS coordinates and descriptions) 40.275941/ 104.513457								
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 ft							
Age								
Length	316 ft							
Construction Material	steel							
Were flowlines pulled?	yes							
Visual Integrity of lines	good							
Visual impacts if trenched	none observed							
PID Readings if trenched	0.3 - 0.5							
Sample taken? Location/Sample ID#	yes, see below							
Photo Number(s)	1 - 4							
Other observations regarding on location flowlines: Soil samples were taken at the wellhead and the separator (FL01-A@3.5 and FL01-B@3.5 respectively) as well as at a direction change midpoint of the flowline path at FL01-C@4'. All samples were sent to the lab for analysis.								
Summary								
Was impacted soil identified? No								
Total number of samples field screened: 3					Total number of samples collected: 3			
Highest PID Reading: 0.5					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:								

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. - BOOTH C35-27 FL

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude ¹	Longitude	PDOP
FL01-A@3.5'	06/29/23	0.5	No Staining	No Odor	Lab	40.27593787	-104.5134671	0.9
FL01-C@4'	06/29/23	0.3	No Staining	No Odor	Lab	40.27537325	-104.5132531	0.8
FL01-B@3.5'	06/29/23	0.3	No Staining	No Odor	Lab	40.27529394	-104.5133829	0.8

Notes:

PID = Photo-ionization detector

ppm = parts per million

PDOP = Position dilution of precision

HC = Hydrocarbon

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

TABLE 2
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - BOOTH C35-27

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 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 ^{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@3.5'	06/29/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	0.00523	0.0194	0.0317	0.0177	0.0261	0.00857	0.0268	<0.00500	0.0816	0.00840	0.0158	0.0440	<0.00500	<0.00500
FL01-C@4'	06/29/23	<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	
FL01-B@3.5'	06/29/23	<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	

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL ²		6 - 8.3	<6	<4mmhos/cm	2
FL01-A@3.5'	06/29/23	7.58	0.143	0.421	0.233
FL01-C@4'	06/29/23	7.97	0.0782	0.301	0.0984
FL01-B@3.5'	06/29/23	7.83	0.0161	0.319	0.130

Soil Sample ID	Date	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 ²		0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL ^{1,3}		0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
FL01-A@3.5'	7/21/2023	1.93	76.4	<0.237	<0.30	4.93	6.52	3.92	<0.308	<0.0237	20.4

Notes:

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

2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.

3. SSLs are applicable if a pathway for communication with groundwater is present.

Definitions:

COGCC = Colorado Oil and Gas Conservation Commission

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

TPH-ORO = Total petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

SAR = Sodium Adsorption Ratio

EC = Electrical Conductivity

mmhos/cm = 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 COGCC Table 915-1 standard

1,2,4 - TMB = 1,2,4 Trimethylbenzene

1,3,5 - TMB = 1,3,5 Trimethylbenzene

Benz(a) = Benzanthracene

Benzo(b) = Benzofluoranthene

Benzo(k) = Benzofluoranthene

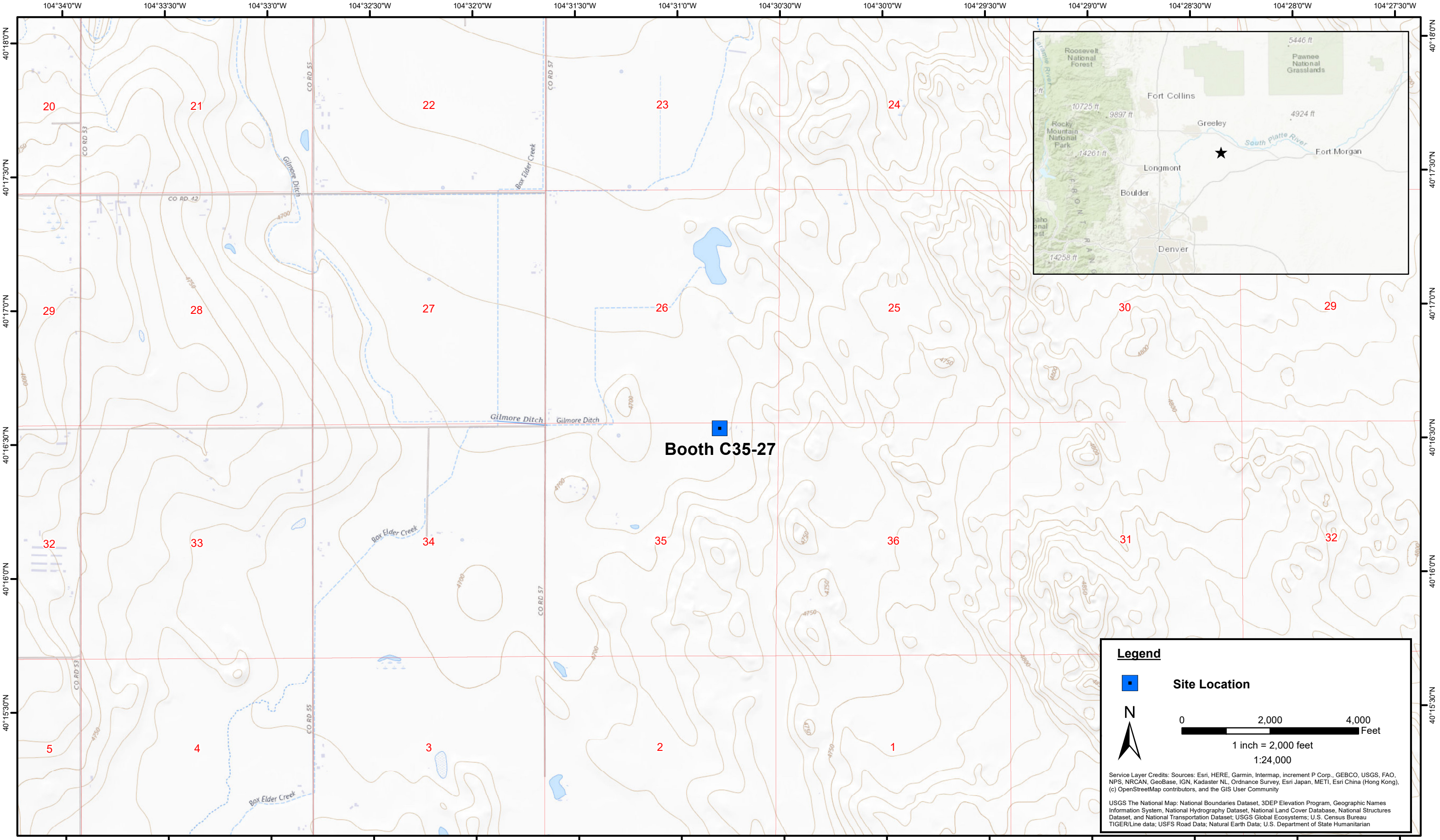
Benzo(a) = Benzopyrene

A,H = Dibenzoanthracene

1,2,3-CD = Indenopyrene

1-M = 1-methylnaphthalene

2-M = 2-methylnaphthalene



DATE:	July 2023
DESIGNED BY:	J. Whritenour
DRAWN BY:	L. Reed

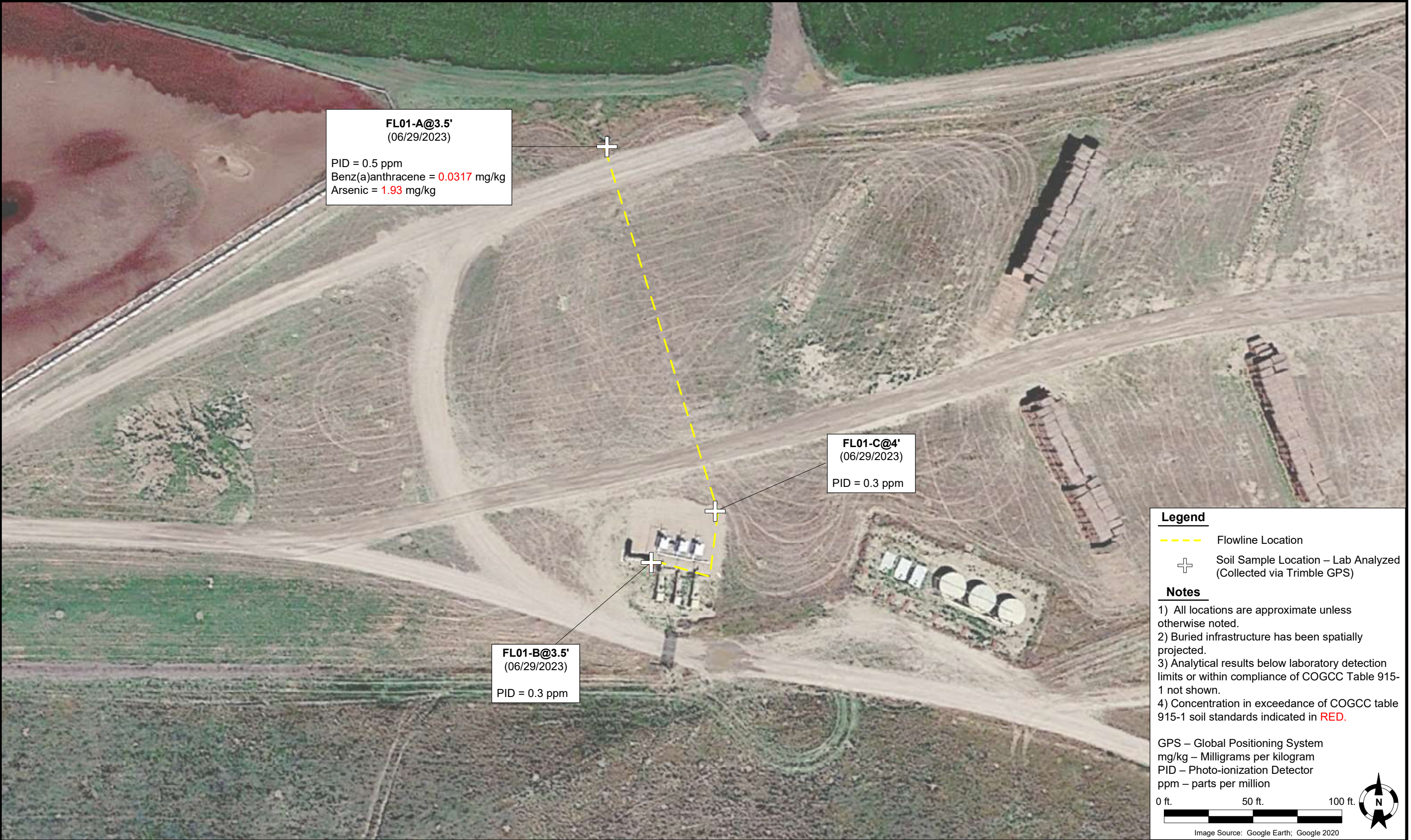


Tasman, Inc.
6855 W. 119th Ave
Broomfield, CO 80020

Noble Energy, Inc - DJ Basin
Booth C35-27
NWNE Sec. 35-T4N-R64W
Weld County, Colorado

Site Location Map

Figure
1



DATE:	07/13/2023
DESIGNED BY:	JW
DRAWN BY:	HM



TASMAN
GEOSCIENCES



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

Noble Energy, Inc. – DJ Basin
Booth C35-27 FL
NWNE, Section 35, Township 4 North, Range 64 West
Weld County, Colorado

Flowline Closure & Soil
Analytical Results Map
(06/29/2023)

FIGURE
2

Photographic Log

							
Equipment ID:		Equipment Type:		Equipment ID: FL01-A@3.5'		Equipment Type:	
Material:	Volume:	Contents:	Material:	Volume:	Contents:		
Notes/Conditions: Site photo - taken from point A, facing East			Notes/Conditions: Soil saturated with water - no pooling to collect ground water sample. Facing NW				

Photographic Log

							
Equipment ID:		Equipment Type:		Equipment ID:		Equipment Type:	
Material:		Volume:		Material:		Volume:	
		Contents:				Contents:	
Notes/Conditions: Direction change - facing East				Notes/Conditions: Soil saturated with water - no groundwater pooling Facing SE			

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80401

303.277.9310

July 21, 2023

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

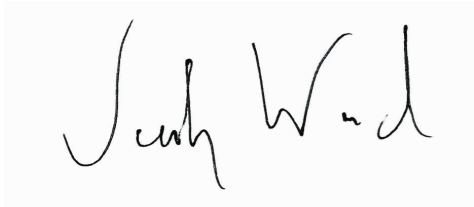
Broomfield, CO 80020

RE: Noble - Booth C35-27

Work Order # 2306637

Enclosed are the results of analyses for samples received by Summit Scientific on 06/29/23 18:00. 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, flowing style.

Jacob Wood For Paul Shrewsbury

President



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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN
Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-A@3.5'	2306637-01	Soil	06/29/23 12:15	06/29/23 18:00
FL01-C@4'	2306637-02	Soil	06/29/23 12:20	06/29/23 18:00
FL01-B@3.5'	2306637-03	Soil	06/29/23 12:30	06/29/23 18:00

Case Narrative

Sarah Quattrochi requested 915 Metals be added to FL01-A@3.5' on 7/13/2023. This report includes those results.

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

S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 1 of 1

Client: Noble / Tasman Geosciences

Project Manager: Jake Whritenour, Invoice:

Address: 6855 W. 119th Ave.

E-Mail: Jwhritenour@tasman-geo.com

City/State/Zip: Broomfield / CO/ 80020

Phone: 231-292-2576

Project Name: Booth C35-27

Wade Firestein

Sampler Name: Elyse Hossink

Project Number: UWRWE-A3163-ABIV

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions	
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD		
1	FL01-A @ 3.5'	6/29	1215	2			X			X				X	X	X	X	X		
2	FL01-C @ 4'	1	1220	1			1			1				1	1	1	1	1		
3	FL01-B @ 3.5'	1	1230	1			1			1				1	1	1	1	1		
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Relinquished by: Elyse Hossink	Date/Time: 6/29/23 1600	Received by: Tasman's Lock Box	Date/Time: 6/29/23 1600	Turn Around Time (Check) Same Day _____ 72 hours 24 hours <input checked="" type="checkbox"/> Standard 48 hours _____ Sample Integrity: Temperature Upon Receipt: 12.7 Samples Intact: <input checked="" type="checkbox"/> Yes No	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 6/29/23 1800	Received by:	Date/Time: 6/29/23 1800		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S₂

Sample Receipt Checklist

S2 Work Order# 2306637Client: Noble Tasmann Client Project ID: Booth C30-27Shipped 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) 12.7Thermometer # 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"/>	
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

6/29/23
Date/Time



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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

FL01-A@3.5'
2306637-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/29/23 12:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF1130	06/30/23	07/02/23	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: **06/29/23 12:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		82.1 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		97.4 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.5 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/29/23 12:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF1133	06/30/23	07/01/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **06/29/23 12:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		96.7 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN
Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

FL01-A@3.5'
2306637-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/29/23 12:15**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	0.00523	0.00500		mg/kg	1	BGF1105	06/30/23	07/01/23	EPA 8270D SIM	
Anthracene	0.0194	0.00500		"	"	"	"	"	"	
Benzo (a) anthracene	0.0317	0.00500		"	"	"	"	"	"	
Benzo (a) pyrene	0.0177	0.00500		"	"	"	"	"	"	
Benzo (b) fluoranthene	0.0261	0.00500		"	"	"	"	"	"	
Benzo (k) fluoranthene	0.00857	0.00500		"	"	"	"	"	"	
Chrysene	0.0268	0.00500		"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500		"	"	"	"	"	"	
Fluoranthene	0.0816	0.00500		"	"	"	"	"	"	
Fluorene	0.00840	0.00500		"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	0.0158	0.00500		"	"	"	"	"	"	
Pyrene	0.0440	0.00500		"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500		"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500		"	"	"	"	"	"	

Date Sampled: **06/29/23 12:15**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		70.8 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		70.4 %		40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/29/23 12:15**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.233	0.0100		mg/L	1	BGG0030	07/03/23	07/04/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **06/29/23 12:15**

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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

FL01-A@3.5'
2306637-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	1.93	0.237		mg/kg dry	1	BGG0511	07/18/23	07/20/23	EPA 6020B
Barium	76.4	0.475		"	"	"	"	"	"
Cadmium	ND	0.237		"	"	"	"	"	"
Copper	4.93	0.475		"	"	"	"	"	"
Lead	6.52	0.237		"	"	"	"	"	"
Nickel	3.92	0.475		"	"	"	"	"	"
Selenium	ND	0.308	0.208	"	"	"	"	"	"
Silver	ND	0.0237		"	"	"	"	"	"
Zinc	20.4	0.475		"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **06/29/23 12:15**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGG0493	07/17/23	07/17/23	EPA 7196A	

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

Date Sampled: **06/29/23 12:15**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	3030	0.0593		mg/L dry	1	BGG0236	07/10/23	07/12/23	EPA 6020B	
Magnesium	207	0.0593		"	"	"	"	"	"	
Sodium	30.2	0.0593		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/29/23 12:15**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.143	0.00100		units	1	BGG0354	07/12/23	07/12/23	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 - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

FL01-A@3.5'
2306637-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/29/23 12:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	84.3			%	1	BGG0086	07/05/23	07/05/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/29/23 12:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	0.421	0.0100		mmhos/cm	1	BGG0281	07/11/23	07/11/23	EPA 120.1	

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

Date Sampled: **06/29/23 12:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.58			pH Units	1	BGG0282	07/11/23	07/11/23	EPA 9045D	

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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

FL01-C@4'
2306637-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/29/23 12:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF1130	06/30/23	07/02/23	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: **06/29/23 12:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		80.0 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		98.2 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.6 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/29/23 12:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF1133	06/30/23	07/01/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **06/29/23 12:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		96.8 %		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 - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

FL01-C@4'
2306637-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/29/23 12:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGF1105	06/30/23	07/01/23	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: **06/29/23 12:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		69.7 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		85.5 %		40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/29/23 12:20**

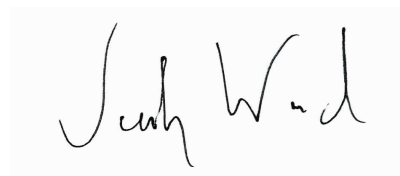
Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0984	0.0100		mg/L	1	BGG0030	07/03/23	07/04/23	EPA 6020B	

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

Date Sampled: **06/29/23 12:20**

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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

FL01-C@4'
2306637-02 (Soil)

Summit Scientific

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

Calcium	17.6	0.0589	mg/L dry	1	BGG0236	07/10/23	07/12/23	EPA 6020B
Magnesium	7.40	0.0589	"	"	"	"	"	"
Sodium	1.55	0.0589	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **06/29/23 12:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0782	0.00100		units	1	BGG0354	07/12/23	07/12/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/29/23 12:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	84.8			%	1	BGG0086	07/05/23	07/05/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/29/23 12:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.301	0.0100		mmhos/cm	1	BGG0281	07/11/23	07/11/23	EPA 120.1	

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

Date Sampled: **06/29/23 12:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.97			pH Units	1	BGG0282	07/11/23	07/11/23	EPA 9045D	

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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

FL01-B@3.5'
2306637-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/29/23 12:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF1130	06/30/23	07/02/23	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: **06/29/23 12:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		75.7 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		97.9 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/29/23 12:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF1133	06/30/23	07/01/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **06/29/23 12:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		98.7 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Tasman Geosciences
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Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

FL01-B@3.5'
2306637-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/29/23 12:30**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGF1105	06/30/23	07/01/23	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: **06/29/23 12:30**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		70.7 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		90.2 %		40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/29/23 12:30**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.130	0.0100		mg/L	1	BGG0030	07/03/23	07/04/23	EPA 6020B	

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

Date Sampled: **06/29/23 12:30**

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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

FL01-B@3.5'
2306637-03 (Soil)

Summit Scientific

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

Calcium	3130	0.0570	mg/L dry	1	BGG0236	07/10/23	07/12/23	EPA 6020B
Magnesium	167	0.0570	"	"	"	"	"	"
Sodium	3.42	0.0570	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **06/29/23 12:30**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0161	0.00100		units	1	BGG0354	07/12/23	07/12/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/29/23 12:30**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.7			%	1	BGG0086	07/05/23	07/05/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/29/23 12:30**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.319	0.0100		mmhos/cm	1	BGG0281	07/11/23	07/11/23	EPA 120.1	

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

Date Sampled: **06/29/23 12:30**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.83			pH Units	1	BGG0282	07/11/23	07/11/23	EPA 9045D	

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Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN
Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

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 BGF1130 - EPA 5030 Soil MS

Blank (BGF1130-BLK1)

Prepared & Analyzed: 06/30/23

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	0.0346		"	0.0400		86.6	50-150			
Surrogate: Toluene-d8	0.0415		"	0.0400		104	50-150			
Surrogate: 4-Bromofluorobenzene	0.0412		"	0.0400		103	50-150			

LCS (BGF1130-BS1)

Prepared & Analyzed: 06/30/23

Benzene	0.0754	0.0020	mg/kg	0.100		75.4	70-130			
Toluene	0.0824	0.0050	"	0.100		82.4	70-130			
Ethylbenzene	0.0891	0.0050	"	0.100		89.1	70-130			
m,p-Xylene	0.177	0.010	"	0.200		88.3	70-130			
o-Xylene	0.0797	0.0050	"	0.100		79.7	70-130			
1,2,4-Trimethylbenzene	0.0806	0.0050	"	0.100		80.6	70-130			
1,3,5-Trimethylbenzene	0.0856	0.0050	"	0.100		85.6	70-130			
Naphthalene	0.0708	0.0038	"	0.100		70.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0336		"	0.0400		84.1	50-150			
Surrogate: Toluene-d8	0.0403		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	50-150			

Matrix Spike (BGF1130-MS1)

Source: 2306598-01

Prepared & Analyzed: 06/30/23

Benzene	0.0742	0.0020	mg/kg	0.100	ND	74.2	70-130			
Toluene	0.0790	0.0050	"	0.100	ND	79.0	70-130			
Ethylbenzene	0.0860	0.0050	"	0.100	ND	86.0	70-130			
m,p-Xylene	0.175	0.010	"	0.200	ND	87.6	70-130			
o-Xylene	0.0791	0.0050	"	0.100	ND	79.1	70-130			
1,2,4-Trimethylbenzene	0.0836	0.0050	"	0.100	ND	83.6	70-130			
1,3,5-Trimethylbenzene	0.0864	0.0050	"	0.100	ND	86.4	70-130			
Naphthalene	0.0756	0.0038	"	0.100	ND	75.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0360		"	0.0400		90.0	50-150			
Surrogate: Toluene-d8	0.0386		"	0.0400		96.5	50-150			
Surrogate: 4-Bromofluorobenzene	0.0395		"	0.0400		98.8	50-150			

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Broomfield CO, 80020

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:

07/21/23 08:19

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BGF1130 - EPA 5030 Soil MS

Matrix Spike Dup (BGF1130-MSD1)	Source: 2306598-01			Prepared & Analyzed: 06/30/23						
Benzene	0.0741	0.0020	mg/kg	0.100	ND	74.1	70-130	0.202	30	
Toluene	0.0772	0.0050	"	0.100	ND	77.2	70-130	2.27	30	
Ethylbenzene	0.0895	0.0050	"	0.100	ND	89.5	70-130	3.93	30	
m,p-Xylene	0.175	0.010	"	0.200	ND	87.4	70-130	0.154	30	
o-Xylene	0.0788	0.0050	"	0.100	ND	78.8	70-130	0.418	30	
1,2,4-Trimethylbenzene	0.0809	0.0050	"	0.100	ND	80.9	70-130	3.17	30	
1,3,5-Trimethylbenzene	0.0853	0.0050	"	0.100	ND	85.3	70-130	1.33	30	
Naphthalene	0.0787	0.0038	"	0.100	ND	78.7	70-130	4.08	30	
Surrogate: 1,2-Dichloroethane-d4	0.0338		"	0.0400		84.6	50-150			
Surrogate: Toluene-d8	0.0393		"	0.0400		98.2	50-150			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	50-150			

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

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 BGF1133 - EPA 3550A

Blank (BGF1133-BLK1)

Prepared & Analyzed: 06/30/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	12.3		"	12.5		98.1	30-150			

LCS (BGF1133-BS1)

Prepared & Analyzed: 06/30/23

C10-C28 (DRO)	570	50	mg/kg	500		114	70-130			
Surrogate: o-Terphenyl	12.0		"	12.5		95.8	30-150			

Matrix Spike (BGF1133-MS1)

Source: 2306598-01

Prepared & Analyzed: 06/30/23

C10-C28 (DRO)	559	50	mg/kg	500	40.3	104	70-130			
Surrogate: o-Terphenyl	12.1		"	12.5		96.5	30-150			

Matrix Spike Dup (BGF1133-MSD1)

Source: 2306598-01

Prepared & Analyzed: 06/30/23

C10-C28 (DRO)	517	50	mg/kg	500	40.3	95.3	70-130	7.85	20	
Surrogate: o-Terphenyl	11.7		"	12.5		93.9	30-150			

Summit Scientific

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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN
Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

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 BGF1105 - EPA 5030 Soil MS

Blank (BGF1105-BLK1)

Prepared: 06/30/23 Analyzed: 07/01/23

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	0.0360		"	0.0333		108	40-150			
Surrogate: Fluoranthene-d10	0.0352		"	0.0333		106	40-150			

LCS (BGF1105-BS1)

Prepared: 06/30/23 Analyzed: 07/01/23

Acenaphthene	0.0394	0.00500	mg/kg	0.0333	118	31-137
Anthracene	0.0363	0.00500	"	0.0333	109	30-120
Benzo (a) anthracene	0.0377	0.00500	"	0.0333	113	30-120
Benzo (a) pyrene	0.0312	0.00500	"	0.0333	93.7	30-120
Benzo (b) fluoranthene	0.0182	0.00500	"	0.0333	54.7	30-120
Benzo (k) fluoranthene	0.0144	0.00500	"	0.0333	43.2	30-120
Chrysene	0.0348	0.00500	"	0.0333	104	30-120
Dibenz (a,h) anthracene	0.0267	0.00500	"	0.0333	80.2	30-120
Fluoranthene	0.0372	0.00500	"	0.0333	112	30-120
Fluorene	0.0337	0.00500	"	0.0333	101	30-120
Indeno (1,2,3-cd) pyrene	0.0389	0.00500	"	0.0333	117	30-120
Pyrene	0.0343	0.00500	"	0.0333	103	35-142
1-Methylnaphthalene	0.0308	0.00500	"	0.0333	92.5	35-142
2-Methylnaphthalene	0.0281	0.00500	"	0.0333	84.3	35-142
Surrogate: 2-Methylnaphthalene-d10	0.0290		"	0.0333	86.9	40-150
Surrogate: Fluoranthene-d10	0.0380		"	0.0333	114	40-150

Summit Scientific

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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

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 BGF1105 - EPA 5030 Soil MS

Matrix Spike (BGF1105-MS1)

Source: 2306600-01

Prepared: 06/30/23 Analyzed: 07/01/23

Acenaphthene	0.0208	0.00500	mg/kg	0.0333	ND	62.4	31-137				
Anthracene	0.0217	0.00500	"	0.0333	ND	65.2	30-120				
Benzo (a) anthracene	0.0230	0.00500	"	0.0333	ND	69.1	30-120				
Benzo (a) pyrene	0.0198	0.00500	"	0.0333	ND	59.5	30-120				
Benzo (b) fluoranthene	0.0179	0.00500	"	0.0333	ND	53.8	30-120				
Benzo (k) fluoranthene	0.0182	0.00500	"	0.0333	ND	54.7	30-120				
Chrysene	0.0206	0.00500	"	0.0333	ND	61.8	30-120				
Dibenz (a,h) anthracene	0.0156	0.00500	"	0.0333	ND	46.7	30-120				
Fluoranthene	0.0219	0.00500	"	0.0333	ND	65.7	30-120				
Fluorene	0.0213	0.00500	"	0.0333	ND	64.0	30-120				
Indeno (1,2,3-cd) pyrene	0.0223	0.00500	"	0.0333	ND	66.9	30-120				
Pyrene	0.0214	0.00500	"	0.0333	ND	64.3	35-142				
1-Methylnaphthalene	0.0210	0.00500	"	0.0333	ND	63.1	15-130				
2-Methylnaphthalene	0.0195	0.00500	"	0.0333	ND	58.4	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0206		"	0.0333		61.7	40-150				
Surrogate: Fluoranthene-d10	0.0232		"	0.0333		69.7	40-150				

Matrix Spike Dup (BGF1105-MSD1)

Source: 2306600-01

Prepared: 06/30/23 Analyzed: 07/01/23

Acenaphthene	0.0258	0.00500	mg/kg	0.0333	ND	77.4	31-137	21.5	30		
Anthracene	0.0248	0.00500	"	0.0333	ND	74.4	30-120	13.2	30		
Benzo (a) anthracene	0.0262	0.00500	"	0.0333	ND	78.6	30-120	12.9	30		
Benzo (a) pyrene	0.0214	0.00500	"	0.0333	ND	64.2	30-120	7.52	30		
Benzo (b) fluoranthene	0.0197	0.00500	"	0.0333	ND	59.2	30-120	9.57	30		
Benzo (k) fluoranthene	0.0215	0.00500	"	0.0333	ND	64.4	30-120	16.3	30		
Chrysene	0.0244	0.00500	"	0.0333	ND	73.1	30-120	16.9	30		
Dibenz (a,h) anthracene	0.0153	0.00500	"	0.0333	ND	45.9	30-120	1.77	30		
Fluoranthene	0.0268	0.00500	"	0.0333	ND	80.4	30-120	20.1	30		
Fluorene	0.0253	0.00500	"	0.0333	ND	75.9	30-120	17.1	30		
Indeno (1,2,3-cd) pyrene	0.0211	0.00500	"	0.0333	ND	63.3	30-120	5.62	30		
Pyrene	0.0217	0.00500	"	0.0333	ND	65.2	35-142	1.40	30		
1-Methylnaphthalene	0.0221	0.00500	"	0.0333	ND	66.4	15-130	5.12	50		
2-Methylnaphthalene	0.0199	0.00500	"	0.0333	ND	59.6	15-130	2.15	50		
Surrogate: 2-Methylnaphthalene-d10	0.0232		"	0.0333		69.6	40-150				
Surrogate: Fluoranthene-d10	0.0282		"	0.0333		84.5	40-150				

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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

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 BGG0030 - EPA 3050B

Blank (BGG0030-BLK1)

Prepared: 07/03/23 Analyzed: 07/04/23

Boron ND 0.0100 mg/L

LCS (BGG0030-BS1)

Prepared: 07/03/23 Analyzed: 07/04/23

Boron 5.98 0.0100 mg/L 5.00 120 80-120

Duplicate (BGG0030-DUP1)

Source: 2306373-04

Prepared: 07/03/23 Analyzed: 07/04/23

Boron 0.555 0.0100 mg/L 0.547 1.56 20

Matrix Spike (BGG0030-MS1)

Source: 2306373-04

Prepared: 07/03/23 Analyzed: 07/04/23

Boron 6.03 0.0100 mg/L 5.00 0.547 110 75-125

Matrix Spike Dup (BGG0030-MSD1)

Source: 2306373-04

Prepared: 07/03/23 Analyzed: 07/04/23

Boron 6.02 0.0100 mg/L 5.00 0.547 110 75-125 0.0410 25

Summit Scientific

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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

Total Metals by EPA 6020B - Quality Control

Summit Scientific

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

Batch BGG0511 - EPA 3050B

Blank (BGG0511-BLK1)

Prepared: 07/18/23 Analyzed: 07/20/23

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	"
Selenium	ND	0.260	"
Silver	ND	0.0200	"
Zinc	ND	0.400	"

LCS (BGG0511-BS1)

Prepared: 07/18/23 Analyzed: 07/20/23

Arsenic	34.9	0.200	mg/kg wet	40.0	87.2	80-120
Barium	35.5	0.400	"	40.0	88.7	80-120
Cadmium	1.80	0.200	"	2.00	90.0	80-120
Copper	38.2	0.400	"	40.0	95.4	80-120
Lead	18.0	0.200	"	20.0	89.9	80-120
Nickel	37.2	0.400	"	40.0	93.1	80-120
Selenium	3.95	0.260	"	4.00	98.7	80-120
Silver	1.79	0.0200	"	2.00	89.7	80-120
Zinc	37.4	0.400	"	40.0	93.6	80-120

Duplicate (BGG0511-DUP1)

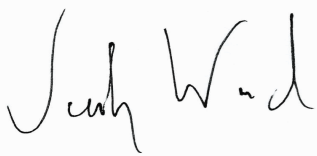
Source: 2306637-01

Prepared: 07/18/23 Analyzed: 07/20/23

Arsenic	1.97	0.237	mg/kg dry	1.93	1.92	20
Barium	76.5	0.475	"	76.4	0.145	20
Cadmium	0.214	0.237	"	0.233	8.07	20
Copper	4.62	0.475	"	4.93	6.46	20
Lead	5.13	0.237	"	6.52	23.8	20
Nickel	3.95	0.475	"	3.92	0.832	20
Selenium	ND	0.308	"	ND		20
Silver	0.0223	0.0237	"	0.0228	2.11	20
Zinc	19.0	0.475	"	20.4	7.25	20

QR-04

Summit Scientific



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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

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 BGG0511 - EPA 3050B

Matrix Spike (BGG0511-MS1)

Source: 2306637-01

Prepared: 07/18/23 Analyzed: 07/20/23

Arsenic	44.4	0.237	mg/kg dry	47.5	1.93	89.6	75-125			
Barium	152	0.475	"	47.5	76.4	158	75-125			QM-05
Cadmium	2.56	0.237	"	2.37	0.233	98.0	75-125			
Copper	41.9	0.475	"	47.5	4.93	77.8	75-125			
Lead	27.9	0.237	"	23.7	6.52	89.9	75-125			
Nickel	41.0	0.475	"	47.5	3.92	78.2	75-125			
Selenium	4.98	0.308	"	4.75	ND	105	75-125			
Silver	2.28	0.0237	"	2.37	0.0228	94.9	75-125			
Zinc	59.3	0.475	"	47.5	20.4	81.9	75-125			

Matrix Spike Dup (BGG0511-MSD1)

Source: 2306637-01

Prepared: 07/18/23 Analyzed: 07/20/23

Arsenic	43.5	0.237	mg/kg dry	47.5	1.93	87.5	75-125	2.19	25	
Barium	150	0.475	"	47.5	76.4	154	75-125	1.32	25	QM-05
Cadmium	2.53	0.237	"	2.37	0.233	96.8	75-125	1.19	25	
Copper	41.2	0.475	"	47.5	4.93	76.5	75-125	1.54	25	
Lead	27.4	0.237	"	23.7	6.52	87.9	75-125	1.74	25	
Nickel	40.4	0.475	"	47.5	3.92	76.8	75-125	1.62	25	
Selenium	4.53	0.308	"	4.75	ND	95.5	75-125	9.34	25	
Silver	2.25	0.0237	"	2.37	0.0228	93.8	75-125	1.22	25	
Zinc	58.8	0.475	"	47.5	20.4	80.8	75-125	0.955	25	

Post Spike (BGG0511-PS1)

Source: 2306637-01

Prepared: 07/18/23 Analyzed: 07/20/23

Arsenic	97.5		ug/l	100	4.07	93.5	75-125			
Barium	266		"	100	161	105	75-125			
Cadmium	5.52		"	5.00	0.490	101	75-125			
Copper	93.0		"	100	10.4	82.6	75-125			
Lead	63.1		"	50.0	13.7	98.7	75-125			
Nickel	90.3		"	100	8.26	82.1	75-125			
Selenium	10.6		"	10.0	0.190	104	75-125			
Silver	4.98		"	5.00	0.0480	98.7	75-125			
Zinc	127		"	100	43.1	84.0	75-125			

Summit Scientific

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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

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 BGG0493 - 3060A Mod

Blank (BGG0493-BLK1)

Prepared & Analyzed: 07/17/23

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BGG0493-BS1)

Prepared & Analyzed: 07/17/23

Chromium, Hexavalent 21.3 0.30 mg/kg wet 25.0 85.2 80-120

Duplicate (BGG0493-DUP1)

Source: 2307214-01

Prepared & Analyzed: 07/17/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BGG0493-MS1)

Source: 2307214-01

Prepared & Analyzed: 07/17/23

Chromium, Hexavalent 26.5 0.30 mg/kg dry 30.5 ND 87.0 75-125

Matrix Spike Dup (BGG0493-MSD1)

Source: 2307214-01

Prepared & Analyzed: 07/17/23

Chromium, Hexavalent 27.5 0.30 mg/kg dry 30.5 ND 90.0 75-125 3.39 20

Summit Scientific

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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:

07/21/23 08:19

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

Summit Scientific

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

Batch BGG0236 - General Preparation

Blank (BGG0236-BLK1)

Prepared: 07/10/23 Analyzed: 07/12/23

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

LCS (BGG0236-BS1)

Prepared: 07/10/23 Analyzed: 07/12/23

Calcium	4.24	0.0500	mg/L wet	5.00	84.9	70-130
Magnesium	4.56	0.0500	"	5.00	91.1	70-130
Sodium	4.51	0.0500	"	5.00	90.3	70-130

Summit Scientific

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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

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

Summit Scientific

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

Batch BGG0086 - General Preparation

Duplicate (BGG0086-DUP1)

Source: 2306373-04

Prepared & Analyzed: 07/05/23

% Solids	82.9	%		83.9		1.14	20
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Summit Scientific

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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

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 BGG0281 - General Preparation

Blank (BGG0281-BLK1)

Prepared & Analyzed: 07/11/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BGG0281-BS1)

Prepared & Analyzed: 07/11/23

Specific Conductance (EC) 0.155 0.0100 mmhos/cm 0.150 104 95-105

Duplicate (BGG0281-DUP1)

Source: 2306637-01

Prepared & Analyzed: 07/11/23

Specific Conductance (EC) 0.410 0.0100 mmhos/cm 0.421 2.60 20

Summit Scientific

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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN

Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

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

Summit Scientific

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

Batch BGG0282 - General Preparation

LCS (BGG0282-BS1)

Prepared & Analyzed: 07/11/23

pH	9.06	pH Units	9.18	98.7	95-105
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Duplicate (BGG0282-DUP1)

Source: 2306637-01

Prepared & Analyzed: 07/11/23

pH	7.65	pH Units	7.58	0.919	20
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Summit Scientific

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

Project: Noble - Booth C35-27

Project Number: UWRWE-A3163-ABN
Project Manager: Jacob Whritenour

Reported:
07/21/23 08:19

Notes and Definitions

QR-04	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The associated LCS and/or LCSD were within acceptance limits, therefore the data are considered valid.
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