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: Spike State D12-03	*Date:* 2/7/23	*Remediation Project #: 24016*
Associated Wells:	*Age of Site:*	*Number of Photos Attached:* 6

Starting point: *(GPS coordinates and descriptions)*
40.245311, -104.501869

End point: *(GPS coordinates and descriptions)*
40.246532, -104.503631

USCS Soil Type: SM	*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	724'							
Construction Material	Steel							
Were flowlines pulled?	yes							
Visual Integrity of lines	good							
Visual impacts if trenched	good							
PID Readings if trenched	0.0-0.2							
Sample taken? Location/Sample ID#	yes, see below							
Photo Number(s)								

Other observations regarding on location flowlines:

Summary

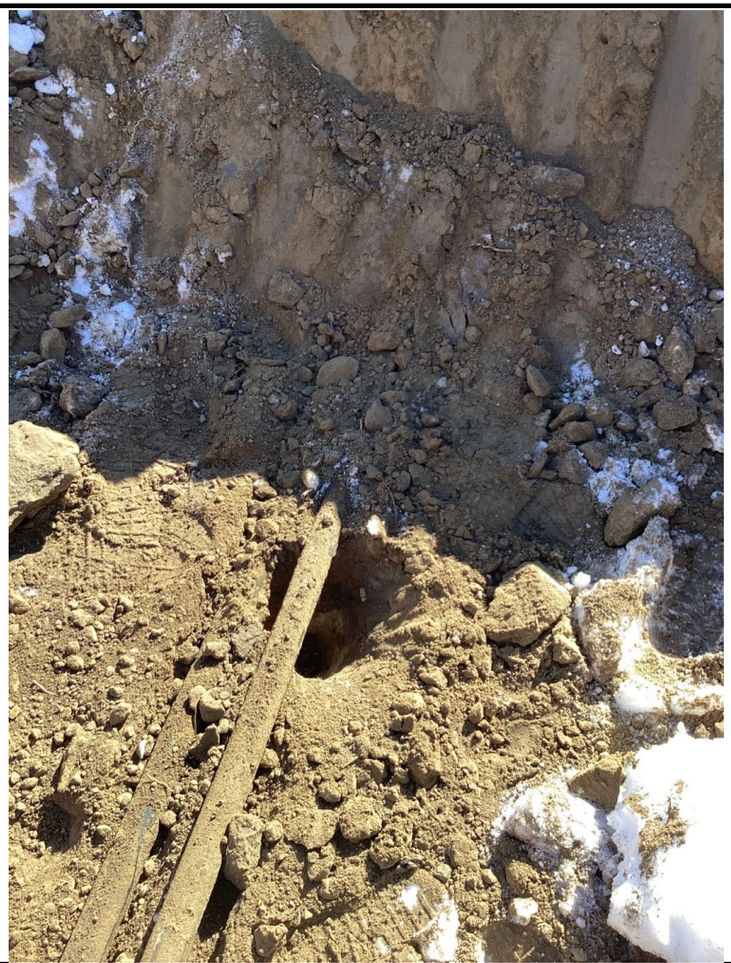
Was impacted soil identified?
No Yes - less than 10 cubic yards Yes - more than 10 cubic yards

Total number of samples field screened: 6	*Total number of samples collected:* 1
Highest PID Reading: 0.2	*Total number of samples submitted to lab for analysis:* 1
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?	

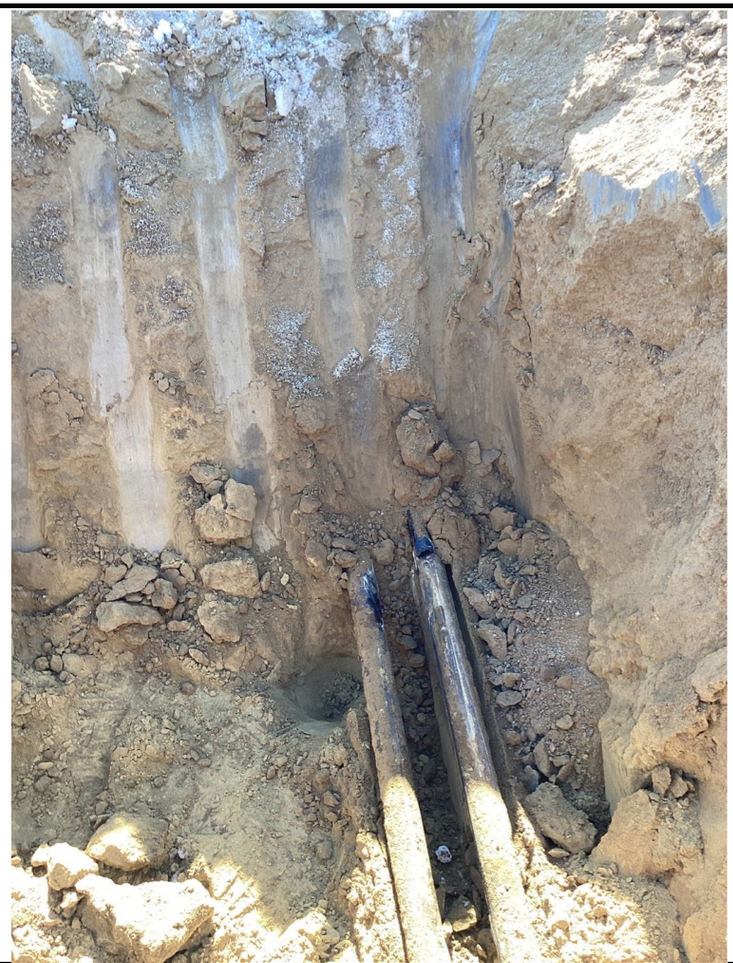
Was groundwater encountered during the investigation?
No Yes - not impacted or in contact with impacted soils Yes - groundwater impacted and/or in contact with impacted soils

Measured depth to groundwater:	*Was remedial groundwater removal conducted?* Yes No
Date Groundwater was encountered:	*Commencement date of removal:*
Sheen on groundwater? Yes No	*Volume of groundwater removed prior to sampling:*
Free product observed? Yes No	*Volume of groundwater removed post sampling:*
Total number of samples collected:	*Total Volume of groundwater removed:*
Total number of samples submitted to lab for analysis:	

Photographic Log

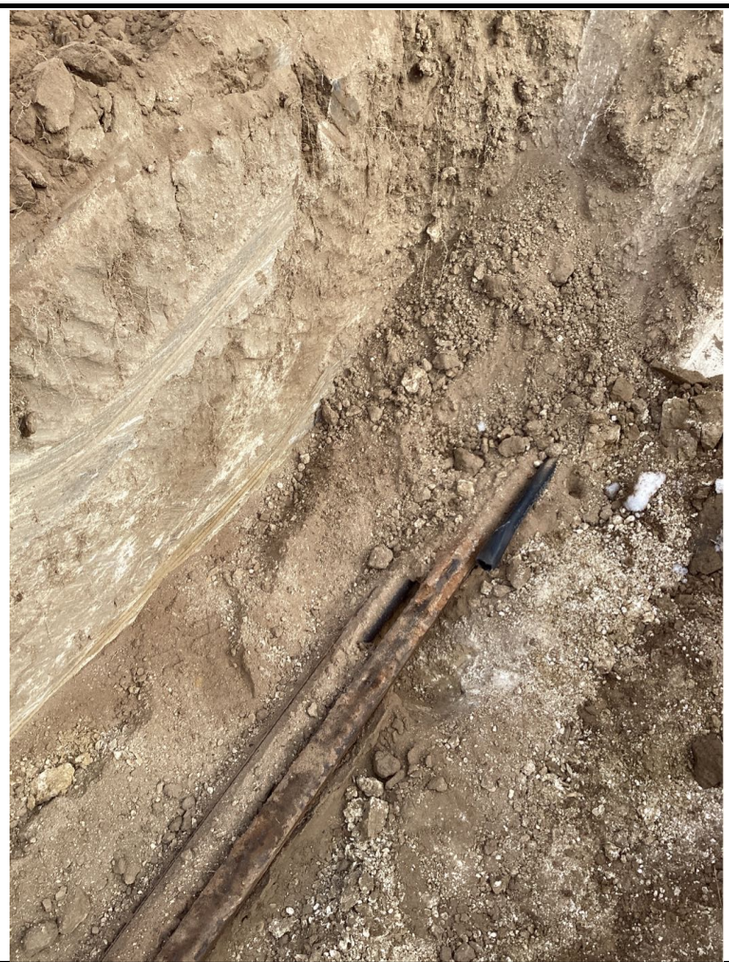


Equipment ID: FL01-C@4'	**Equipment Type:** Flowline	
Material: Steel	**Volume:**	**Contents:** Oil/Gas/Water
Notes/Conditions:		

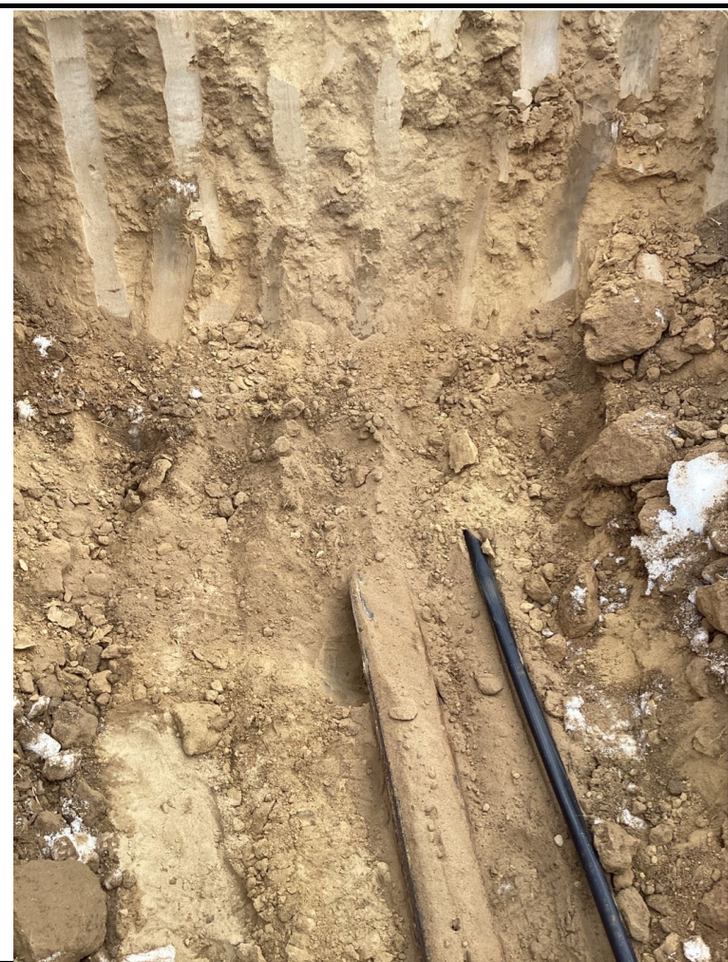


Equipment ID: FL01-D@4'	**Equipment Type:** Flowline	
Material: Steel	**Volume:**	**Contents:** Oil/Gas/Water
Notes/Conditions:		

Photographic Log

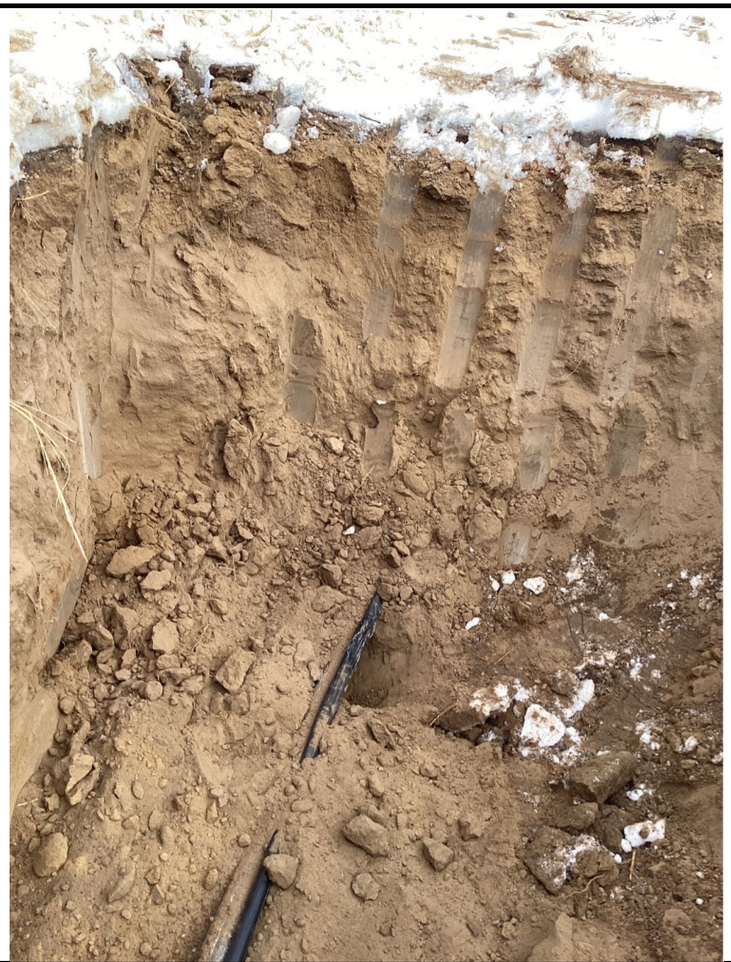


Equipment ID: FL01-E@	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: Change in direction occurs here		

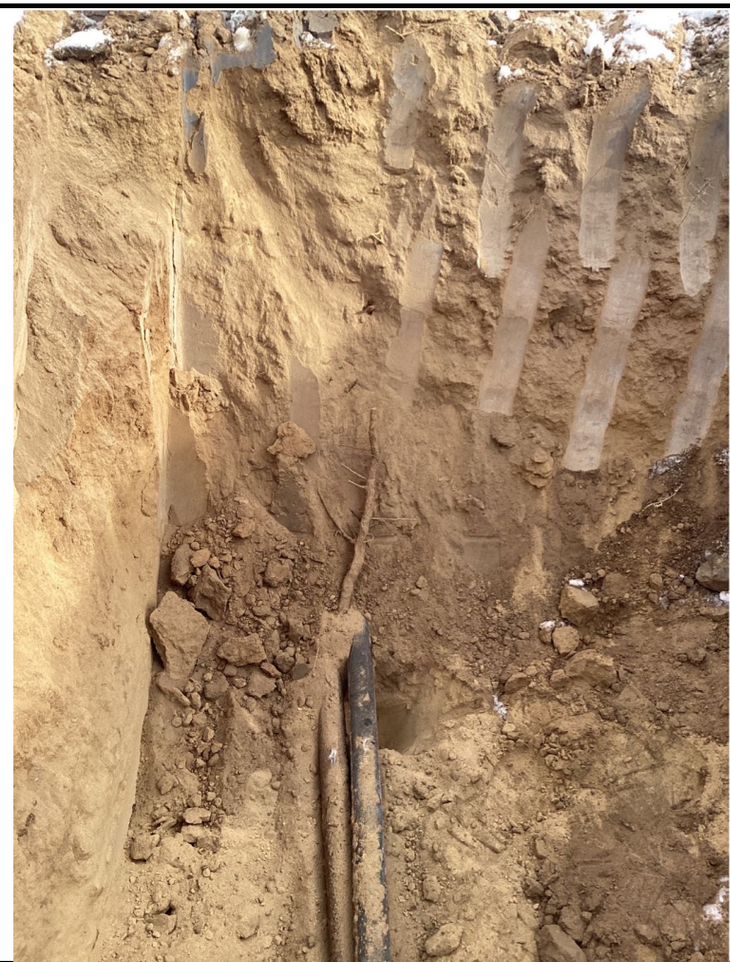


Equipment ID: FL01-F@4'	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions:		

Photographic Log



Equipment ID: FL01-G@4'	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions:		



Equipment ID: FL01-H@4'	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions:		

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. - SPIKE STATE D12-03 FL

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude[1]	Longitude	PDOP
FL01-C@4'	02/08/23	0.1	No Staining	No Odor	Grab	40.24568364	-104.5019312	0.9
FL01-D@4'	02/08/23	0.2	No Staining	No Odor	Grab	40.24548642	-104.5019100	0.9
FL01-E@4'	02/08/23	0.0	No Staining	No Odor	Lab	40.24588076	-104.5020943	1.1
FL01-F@4'	02/08/23	0.1	No Staining	No Odor	Grab	40.24606691	-104.5025102	0.9
FL01-G@4'	02/08/23	0.2	No Staining	No Odor	Grab	40.24620028	-104.5028269	0.9
FL01-H@4'	02/08/23	0.1	No Staining	No Odor	Grab	40.24635921	-104.5032651	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. - SPIKE STATE D12-03 FL

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-E@4'	02/08/23	<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

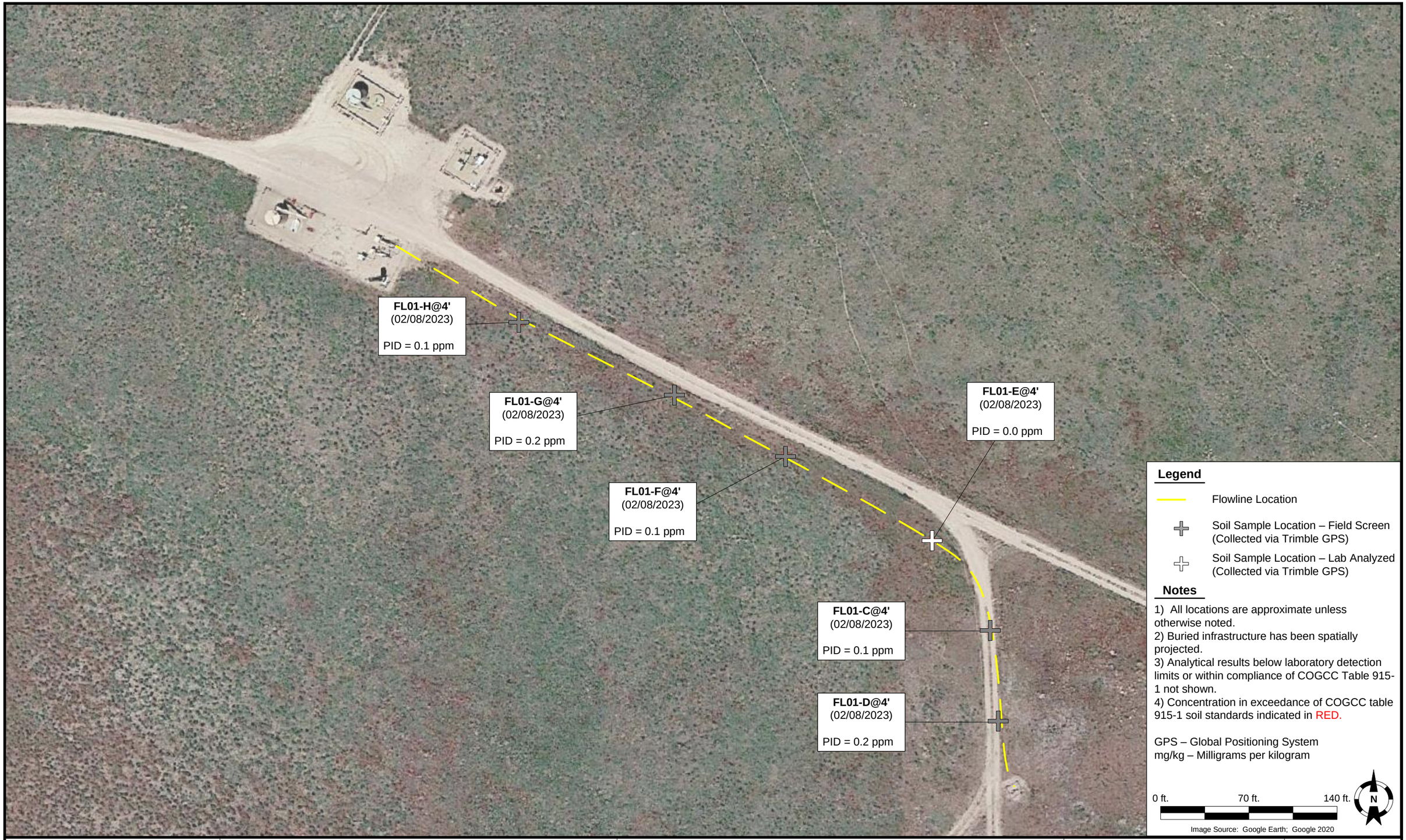
Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL[2]		**6 - 8.3**	**<6**	**<4mmhos/cm**	**2**
FL01-E@4'	02/08/23	7.99	3.89	1.00	0.114

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:	2/17/2023
DESIGNED BY:	JW
DRAWN BY:	HM

TASMAN GEOSCIENCES

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

Noble Energy, Inc. – DJ Basin
Spike State D12-03 FL
NENW, Section 12, Township 3 North, Range 64 West
Weld County, Colorado

Flowline Closure & Soil Analytical Results Map (02/08/2023)

FIGURE 1

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

February 15, 2023

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

RE: Noble - Spike State D12-03 FL
Work Order #2302162

Enclosed are the results of analyses for samples received by Summit Scientific on 02/08/23 18:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Scott Sheely For Paul Shrewsbury
President

S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Spike State D12-03 FL Project Number: UWRWE-A2281-ABN Project Manager: Jacob Whritenour	**Reported:** 02/15/23 14:41

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-E@4'	2302162-01	Soil	02/08/23 13:45	02/08/23 18:20

Summit Scientific

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

2302162

Summit Scientific

S_2

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

Page 1 of 1

Client: Noble / Tasman
Address: 6855 W. 119th Ave
City/State/Zip: Broomfield/ CO/ 80020
Phone: 503-915-3046
Sampler Name: Martin Medeiros

Project Manager: Jacob Whritenour Invoice: Cole Moore
E-Mail: Jwhritenour@tasman-geo.com
Project Name: Spike State DIZ-03 FL
Project Number: UWRWE-A2281-ABN

					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				-pH, EC, SAR by saturated paste
1	FL01-E@4'	2/8/23	13:45	2			x			x			x	x	x	x	x				
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: Martin Medeiros Date/Time: 2/8/23 15:30
Received by: Tasman's Lock Box Date/Time:

Relinquished by: Tasman's Lock Box Date/Time: 2823 1820
Received by: Date/Time: 2823 1820

Relinquished by: Date/Time:
Received by: Date/Time:

Turn Around Time (Check)
Same Day ___ 72 hours ___
24 hours ___ Standard X
48 hours ___
Sample Integrity:
Temperature Upon Receipt: 8.0
Samples Intact: (Yes) No

Notes:

S2

Sample Receipt Checklist

S2 Work Order# 2302162

Client: Noble/Tasman Client Project ID: Sakestate D12-03 FL

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

[ ] [–] [ ] [ ] [ ]

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

Temp (°C) 8.0 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.	–			on ICE
If custody seals are present, are they intact? (1)	–			
Are samples due within 48 hours present?		–		
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			–	
Is a chain-of-custody (COC) form present and filled out Completely? (1)		–		
Is the COC properly relinquished by the client w/ date and time recorded? (1)		–		
Were all samples received intact? (1)	✓			
Was adequate sample volume provided? (1)	✓			
Does the COC agree with the number and type of sample bottles received? (1)	✓			
Do the sample IDs on the bottle labels match the COC?(1)	✓			
For volatiles in water – is there headspace present? **If yes, contact client and note in narrative.**			✓	
Are samples preserved that require preservation **(excluding cooling)?** (1) Note the type of preservative in the comments column – HCl, H_2SO_4, NaOH, HNO_3, etc.			✓	
If samples are acid preserved for metals, is the pH ≤ 2? (1) Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				
(1) **If NO, then contact the client before proceeding with analysis and note in case narrative.**				

AB
Custodian Printed Name

2/8/23
Date/Time

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Spike State D12-03 FL Project Number: UWRWE-A2281-ABN Project Manager: Jacob Whritenour	**Reported:** 02/15/23 14:41

FL01-E@4'

2302162-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/08/23 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGB0245	02/09/23	02/11/23	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: **02/08/23 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0318	*79.4 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0357	*89.3 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0400	*100 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **02/08/23 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGB0248	02/09/23	02/12/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **02/08/23 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	16.1	*129 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Spike State D12-03 FL Project Number: UWRWE-A2281-ABN Project Manager: Jacob Whritenour	**Reported:** 02/15/23 14:41

FL01-E@4'

2302162-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **02/08/23 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGB0297	02/10/23	02/12/23	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: **02/08/23 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0152	*45.6 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0235	*70.6 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **02/08/23 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.114**	0.0100	mg/L	1	BGB0346	02/13/23	02/14/23	EPA 6020B	

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

Date Sampled: **02/08/23 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Summit Scientific

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Spike State D12-03 FL Project Number: UWRWE-A2281-ABN Project Manager: Jacob Whritenour	**Reported:** 02/15/23 14:41

FL01-E@4'

2302162-01 (Soil)

Summit Scientific

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**37.7**	0.0533	mg/L dry	1	BGB0283	02/09/23	02/11/23	EPA 6020B	
Magnesium	**31.0**	0.0533	"	"	"	"	"	"	
Sodium	**137**	0.0533	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **02/08/23 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**3.89**	0.00100	units	1	BGB0339	02/12/23	02/12/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **02/08/23 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**93.8**		%	1	BGB0415	02/14/23	02/15/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **02/08/23 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**1.00**	0.0100	mmhos/cm	1	BGB0320	02/10/23	02/10/23	EPA 120.1	

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

Date Sampled: **02/08/23 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.99**		pH Units	1	BGB0321	02/10/23	02/10/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Spike State D12-03 FL Project Number: UWRWE-A2281-ABN Project Manager: Jacob Whritenour	**Reported:** 02/15/23 14:41

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGB0245 - EPA 5030 Soil MS										
Blank (BGB0245-BLK1)				Prepared: 02/09/23 Analyzed: 02/10/23						
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	*0.0354*		*"*	*0.0400*		*88.5*	*50-150*			
Surrogate: Toluene-d8	*0.0347*		*"*	*0.0400*		*86.8*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0537*		*"*	*0.0400*		*134*	*50-150*			
LCS (BGB0245-BS1)				Prepared: 02/09/23 Analyzed: 02/10/23						
Benzene	0.0866	0.0020	mg/kg	0.100		86.6	70-130			
Toluene	0.0974	0.0050	"	0.100		97.4	70-130			
Ethylbenzene	0.103	0.0050	"	0.100		103	70-130			
m,p-Xylene	0.217	0.010	"	0.200		108	70-130			
o-Xylene	0.0981	0.0050	"	0.100		98.1	70-130			
1,2,4-Trimethylbenzene	0.102	0.0050	"	0.100		102	70-130			
1,3,5-Trimethylbenzene	0.108	0.0050	"	0.100		108	70-130			
Naphthalene	0.0788	0.0038	"	0.100		78.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0314*		*"*	*0.0400*		*78.6*	*50-150*			
Surrogate: Toluene-d8	*0.0400*		*"*	*0.0400*		*100*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0399*		*"*	*0.0400*		*99.8*	*50-150*			
Matrix Spike (BGB0245-MS1)	**Source: 2302141-01**			Prepared: 02/09/23 Analyzed: 02/10/23						
Benzene	0.0800	0.0020	mg/kg	0.100	ND	80.0	70-130			
Toluene	0.0748	0.0050	"	0.100	ND	74.8	70-130			
Ethylbenzene	0.103	0.0050	"	0.100	ND	103	70-130			
m,p-Xylene	0.201	0.010	"	0.200	ND	100	70-130			
o-Xylene	0.0922	0.0050	"	0.100	ND	92.2	70-130			
1,2,4-Trimethylbenzene	0.0885	0.0050	"	0.100	ND	88.5	70-130			
1,3,5-Trimethylbenzene	0.0937	0.0050	"	0.100	ND	93.7	70-130			
Naphthalene	0.0896	0.0038	"	0.100	ND	89.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0252*		*"*	*0.0400*		*63.1*	*50-150*			
Surrogate: Toluene-d8	*0.0315*		*"*	*0.0400*		*78.7*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0370*		*"*	*0.0400*		*92.6*	*50-150*			

Summit Scientific

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Spike State D12-03 FL Project Number: UWRWE-A2281-ABN Project Manager: Jacob Whritenour	**Reported:** 02/15/23 14:41

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGB0245 - EPA 5030 Soil MS										
Matrix Spike Dup (BGB0245-MSD1)	**Source: 2302141-01**			Prepared: 02/09/23 Analyzed: 02/10/23						
Benzene	0.0826	0.0020	mg/kg	0.100	ND	82.6	70-130	3.10	30	
Toluene	0.0813	0.0050	"	0.100	ND	81.3	70-130	8.34	30	
Ethylbenzene	0.0998	0.0050	"	0.100	ND	99.8	70-130	2.79	30	
m,p-Xylene	0.201	0.010	"	0.200	ND	101	70-130	0.284	30	
o-Xylene	0.0936	0.0050	"	0.100	ND	93.6	70-130	1.49	30	
1,2,4-Trimethylbenzene	0.0925	0.0050	"	0.100	ND	92.5	70-130	4.41	30	
1,3,5-Trimethylbenzene	0.0961	0.0050	"	0.100	ND	96.1	70-130	2.50	30	
Naphthalene	0.0787	0.0038	"	0.100	ND	78.7	70-130	12.9	30	
Surrogate: 1,2-Dichloroethane-d4	*0.0266*		"	*0.0400*		*66.4*	*50-150*			
Surrogate: Toluene-d8	*0.0348*		"	*0.0400*		*87.0*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0382*		"	*0.0400*		*95.5*	*50-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Spike State D12-03 FL Project Number: UWRWE-A2281-ABN Project Manager: Jacob Whritenour	**Reported:** 02/15/23 14:41

Extractable Petroleum Hydrocarbons by 8015 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGB0248 - EPA 3550A										
Blank (BGB0248-BLK1)				Prepared: 02/09/23 Analyzed: 02/11/23						
C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	*14.9*		*"*	*12.5*		*119*	*30-150*			
LCS (BGB0248-BS1)				Prepared: 02/09/23 Analyzed: 02/11/23						
C10-C28 (DRO)	494	50	mg/kg	500		98.9	70-130			
Surrogate: o-Terphenyl	*17.2*		*"*	*12.5*		*138*	*30-150*			
Matrix Spike (BGB0248-MS1)	**Source: 2302141-01**			Prepared: 02/09/23 Analyzed: 02/11/23						
C10-C28 (DRO)	385	50	mg/kg	500	12.1	74.6	70-130			
Surrogate: o-Terphenyl	*13.5*		*"*	*12.5*		*108*	*30-150*			
Matrix Spike Dup (BGB0248-MSD1)	**Source: 2302141-01**			Prepared: 02/09/23 Analyzed: 02/11/23						
C10-C28 (DRO)	400	50	mg/kg	500	12.1	77.6	70-130	3.91	20	
Surrogate: o-Terphenyl	*15.4*		*"*	*12.5*		*123*	*30-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Spike State D12-03 FL Project Number: UWRWE-A2281-ABN Project Manager: Jacob Whritenour	**Reported:** 02/15/23 14:41

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGB0297 - EPA 5030 Soil MS										
Blank (BGB0297-BLK1)				Prepared: 02/10/23 Analyzed: 02/11/23						
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	*0.0221*		*"*	*0.0333*		*66.4*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0294*		*"*	*0.0333*		*88.3*	*40-150*			
LCS (BGB0297-BS1)				Prepared: 02/10/23 Analyzed: 02/11/23						
Acenaphthene	0.0299	0.00500	mg/kg	0.0333		89.8	31-137			
Anthracene	0.0299	0.00500	"	0.0333		89.8	30-120			
Benzo (a) anthracene	0.0269	0.00500	"	0.0333		80.8	30-120			
Benzo (a) pyrene	0.0254	0.00500	"	0.0333		76.1	30-120			
Benzo (b) fluoranthene	0.0258	0.00500	"	0.0333		77.4	30-120			
Benzo (k) fluoranthene	0.0272	0.00500	"	0.0333		81.6	30-120			
Chrysene	0.0307	0.00500	"	0.0333		92.0	30-120			
Dibenz (a,h) anthracene	0.0188	0.00500	"	0.0333		56.4	30-120			
Fluoranthene	0.0304	0.00500	"	0.0333		91.1	30-120			
Fluorene	0.0310	0.00500	"	0.0333		93.1	30-120			
Indeno (1,2,3-cd) pyrene	0.0194	0.00500	"	0.0333		58.3	30-120			
Pyrene	0.0323	0.00500	"	0.0333		96.9	35-142			
1-Methylnaphthalene	0.0266	0.00500	"	0.0333		79.9	35-142			
2-Methylnaphthalene	0.0212	0.00500	"	0.0333		63.5	35-142			
Surrogate: 2-Methylnaphthalene-d10	*0.0286*		*"*	*0.0333*		*85.9*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0302*		*"*	*0.0333*		*90.7*	*40-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Spike State D12-03 FL Project Number: UWRWE-A2281-ABN Project Manager: Jacob Whritenour	**Reported:** 02/15/23 14:41

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGB0297 - EPA 5030 Soil MS										
Matrix Spike (BGB0297-MS1)	**Source: 2302124-01**			Prepared: 02/10/23 Analyzed: 02/11/23						
Acenaphthene	0.0225	0.00500	mg/kg	0.0333	ND	67.4	31-137			
Anthracene	0.0228	0.00500	"	0.0333	0.00180	62.9	30-120			
Benzo (a) anthracene	0.0253	0.00500	"	0.0333	ND	76.0	30-120			
Benzo (a) pyrene	0.0200	0.00500	"	0.0333	ND	59.9	30-120			
Benzo (b) fluoranthene	0.0185	0.00500	"	0.0333	ND	55.5	30-120			
Benzo (k) fluoranthene	0.0178	0.00500	"	0.0333	ND	53.5	30-120			
Chrysene	0.0217	0.00500	"	0.0333	ND	65.2	30-120			
Dibenz (a,h) anthracene	0.0182	0.00500	"	0.0333	ND	54.7	30-120			
Fluoranthene	0.0258	0.00500	"	0.0333	ND	77.5	30-120			
Fluorene	0.0238	0.00500	"	0.0333	ND	71.3	30-120			
Indeno (1,2,3-cd) pyrene	0.0187	0.00500	"	0.0333	ND	56.1	30-120			
Pyrene	0.0260	0.00500	"	0.0333	ND	77.9	35-142			
1-Methylnaphthalene	0.0222	0.00500	"	0.0333	ND	66.7	15-130			
2-Methylnaphthalene	0.0181	0.00500	"	0.0333	ND	54.4	15-130			
Surrogate: 2-Methylnaphthalene-d10	*0.0250*		*"*	*0.0333*		*75.0*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0259*		*"*	*0.0333*		*77.7*	*40-150*			
Matrix Spike Dup (BGB0297-MSD1)	**Source: 2302124-01**			Prepared: 02/10/23 Analyzed: 02/11/23						
Acenaphthene	0.0233	0.00500	mg/kg	0.0333	ND	69.9	31-137	3.59	30	
Anthracene	0.0243	0.00500	"	0.0333	0.00180	67.5	30-120	6.47	30	
Benzo (a) anthracene	0.0256	0.00500	"	0.0333	ND	76.9	30-120	1.19	30	
Benzo (a) pyrene	0.0195	0.00500	"	0.0333	ND	58.6	30-120	2.10	30	
Benzo (b) fluoranthene	0.0177	0.00500	"	0.0333	ND	53.0	30-120	4.61	30	
Benzo (k) fluoranthene	0.0166	0.00500	"	0.0333	ND	49.9	30-120	6.94	30	
Chrysene	0.0212	0.00500	"	0.0333	ND	63.5	30-120	2.68	30	
Dibenz (a,h) anthracene	0.0193	0.00500	"	0.0333	ND	57.9	30-120	5.70	30	
Fluoranthene	0.0254	0.00500	"	0.0333	ND	76.1	30-120	1.89	30	
Fluorene	0.0247	0.00500	"	0.0333	ND	74.1	30-120	3.82	30	
Indeno (1,2,3-cd) pyrene	0.0206	0.00500	"	0.0333	ND	61.7	30-120	9.50	30	
Pyrene	0.0240	0.00500	"	0.0333	ND	72.0	35-142	7.86	30	
1-Methylnaphthalene	0.0265	0.00500	"	0.0333	ND	79.4	15-130	17.3	50	
2-Methylnaphthalene	0.0208	0.00500	"	0.0333	ND	62.5	15-130	13.9	50	
Surrogate: 2-Methylnaphthalene-d10	*0.0290*		*"*	*0.0333*		*87.0*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0251*		*"*	*0.0333*		*75.3*	*40-150*			

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Spike State D12-03 FL Project Number: UWRWE-A2281-ABN Project Manager: Jacob Whritenour	**Reported:** 02/15/23 14:41

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGB0346 - EPA 3050B										
Blank (BGB0346-BLK1)				Prepared: 02/13/23 Analyzed: 02/14/23						
Boron	ND	0.0100	mg/L							
LCS (BGB0346-BS1)				Prepared: 02/13/23 Analyzed: 02/14/23						
Boron	5.52	0.0100	mg/L	5.00		110	80-120			
Duplicate (BGB0346-DUP1)		**Source: 2302141-01**		Prepared: 02/13/23 Analyzed: 02/14/23						
Boron	0.0501	0.0100	mg/L		0.0555			10.2	20	
Matrix Spike (BGB0346-MS1)		**Source: 2302141-01**		Prepared: 02/13/23 Analyzed: 02/14/23						
Boron	5.68	0.0100	mg/L	5.00	0.0555	113	75-125			
Matrix Spike Dup (BGB0346-MSD1)		**Source: 2302141-01**		Prepared: 02/13/23 Analyzed: 02/14/23						
Boron	5.77	0.0100	mg/L	5.00	0.0555	114	75-125	1.42	25	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Spike State D12-03 FL Project Number: UWRWE-A2281-ABN Project Manager: Jacob Whritenour	**Reported:** 02/15/23 14:41

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGB0283 - General Preparation										
Blank (BGB0283-BLK1)				Prepared: 02/09/23 Analyzed: 02/11/23						
Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							
LCS (BGB0283-BS1)				Prepared: 02/09/23 Analyzed: 02/11/23						
Calcium	5.19	0.0500	mg/L wet	5.00		104	70-130			
Magnesium	4.87	0.0500	"	5.00		97.4	70-130			
Sodium	4.73	0.0500	"	5.00		94.6	70-130			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Spike State D12-03 FL Project Number: UWRWE-A2281-ABN Project Manager: Jacob Whritenour	**Reported:** 02/15/23 14:41

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGB0415 - General Preparation										
Duplicate (BGB0415-DUP1)	**Source: 2301402-01**			Prepared: 02/14/23 Analyzed: 02/15/23						
% Solids	88.1		%		88.7			0.641	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Spike State D12-03 FL Project Number: UWRWE-A2281-ABN Project Manager: Jacob Whritenour	**Reported:** 02/15/23 14:41

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGB0320 - General Preparation										
Blank (BGB0320-BLK1)				Prepared & Analyzed: 02/10/23						
Specific Conductance (EC)	ND	0.0100	mmhos/cm							
LCS (BGB0320-BS1)				Prepared & Analyzed: 02/10/23						
Specific Conductance (EC)	0.151	0.0100	mmhos/cm	0.150		101	95-105			
Duplicate (BGB0320-DUP1)	**Source: 2302161-01**			Prepared & Analyzed: 02/10/23						
Specific Conductance (EC)	1.55	0.0100	mmhos/cm		1.57			1.22	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Spike State D12-03 FL Project Number: UWRWE-A2281-ABN Project Manager: Jacob Whritenour	**Reported:** 02/15/23 14:41

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGB0321 - General Preparation										
LCS (BGB0321-BS1)				Prepared & Analyzed: 02/10/23						
pH	9.00		pH Units	9.18		98.0	95-105			
Duplicate (BGB0321-DUP1)		**Source: 2302161-01**		Prepared & Analyzed: 02/10/23						
pH	7.68		pH Units		7.69			0.130	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Spike State D12-03 FL Project Number: UWRWE-A2281-ABN Project Manager: Jacob Whritenour	**Reported:** 02/15/23 14:41

Notes and Definitions

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