

Flowline Closure Checklist

ECMC 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 & ECMC Facility Number: Five Rivers K09-21D FL		Date: 3/21/2024				Remediation Project #: 29932		
Associated Wells:		Age of Site:				Number of Photos Attached: 14		
Starting point: (GPS coordinates and descriptions) 40.325942-104.790699								
End point: (GPS coordinates and descriptions) 40.329206/-104.787760								
USCS Soil Type: SW					Estimated Depth to Groundwater: <3'			
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) None detected								
Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) None detected								
Flowlines								
Flowline type	Oil/Gas/Water							
Depth	3'							
Age								
Length	1,563'							
Construction Material	Steel							
Were flowlines pulled?	Yes, see below							
Visual Integrity of lines	Good							
Visual impacts if trenched	None							
PID Readings if trenched	0.0-0.6							
Sample taken? Location/Sample ID#	Yes, see below							
Photo Number(s)	1-14							
Other observations regarding on location flowlines: Samples taken directly beneath Flowline separator risers at former facility pad (FL01-B@2', FL01-C@2'), at directional changes along Flowline (FL01-D@2'-FL01-N@3'), and directly beneath wellhead riser (FL01-A@3').								
Summary								
Was impacted soil identified? No								
Total number of samples field screened: 14					Total number of samples collected: 14			
Highest PID Reading: 2.9					Total number of samples submitted to lab for analysis: 11			
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: 14					Total Volume of groundwater removed:			
Total number of samples submitted to lab for analysis: 11								

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. (100322) - FIVE RIVERS K09-21D



Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude ¹	Longitude	PDOP
FL01-A@3'	03/21/24	0.6	No Staining	No Odor	Lab	40.32919279	-104.7877563	NC
FL01-D@2'	03/21/24	0.0	No Staining	No Odor	Lab	40.32594676	-104.7903520	NC
FL01-E@2'	03/21/24	0.0	No Staining	No Odor	Grab	40.32650980	-104.7898628	NC
FL01-H@3'	03/21/24	0.4	No Staining	No Odor	Lab	40.32849651	-104.7879850	1.0
FL01-I@3'	03/21/24	0.6	No Staining	No Odor	Lab	40.32862875	-104.7880137	NC
FL01-J@3'	03/21/24	0.4	No Staining	No Odor	Lab	40.32909435	-104.7879627	0.9
FL01-F@2'	03/22/24	0.0	No Staining	No Odor	Grab	40.32774763	-104.7888952	NC
FL01-G@2'	03/22/24	0.0	No Staining	No Odor	Lab	40.32827971	-104.7884496	NC
FL01-K@3'	03/22/24	0.4	No Staining	No Odor	Grab	40.32560521	-104.7905516	NC
FL01-L@3'	03/22/24	0.5	No Staining	No Odor	Lab	40.32521171	-104.7909125	NC
FL01-M@3'	03/22/24	2.9	Organic Content	No Odor	Lab	40.32503657	-104.7910973	1.0
FL01-N@3'	03/22/24	0.5	No Staining	No Odor	Lab	40.32492129	-104.7914184	NC

Notes:

PID = Photoionization detector

ppm = parts per million

PDOP = Position dilution of precision

NC = Data Not Collected

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

TABLE 2
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. (100322) - FIVE RIVERS K09-21D

Soil Sample ID	Date	¹ Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1,2,4 - TMB (mg/kg)	1,3,5 - TMB (mg/kg)	Naphthalene (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-ORO (mg/kg)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL ^{1,2}		1.2	490	5.8	58	30	27	2	500			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL ^{1,2,3}		0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500			0.55	6	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
FL01-A@3'	03/21/24	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	0.0111	0.00658	0.0108	<0.00500	0.0113	<0.00500	0.0202	<0.00500	<0.00500	0.0221	<0.00500	<0.00500
FL01-D@2'	03/21/24	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	0.050	<0.50	<50	<50	0.519	0.685	1.05	0.850	1.13	0.476	1.08	0.122	1.17	0.740	0.637	1.28	0.115	0.125
FL01-H@3'	03/21/24	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	0.0121	0.0139	0.00685	0.0115	<0.00500	0.0141	<0.00500	0.0374	<0.00500	<0.00500	0.0319	<0.00500	<0.00500
FL01-I@3'	03/21/24	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	0.0076	<0.50	<50	<50	0.186	0.517	0.517	0.312	0.423	0.164	0.513	0.0366	0.989	0.261	0.172	0.930	0.0196	0.0323
FL01-J@3'	03/21/24	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	0.012	<0.50	<50	<50	0.0960	0.347	0.571	0.349	0.510	0.197	0.584	0.0412	0.932	0.111	0.197	0.945	0.00804	0.0100
FL01-G@2'	03/22/24	<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-L@3'	03/22/24	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	0.0170	0.0811	0.0311	0.0164	0.0204	0.00817	0.0352	<0.00500	0.0640	0.0239	0.0237	0.0826	<0.00500	<0.00500
FL01-M@3'	03/22/24	<0.0020	<0.0050	<0.0050	0.022	<0.0050	0.0090	<0.0038	<0.50	<50	<50	0.0203	0.0295	0.0358	0.0203	0.0276	0.0103	0.0320	<0.00500	0.0791	0.0199	0.0346	0.108	<0.00500	0.00535
FL01-N@3'	03/22/24	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	0.0829	0.116	0.135	0.0727	0.101	0.0365	0.110	<0.00500	0.281	0.0799	0.109	0.344	0.0150	0.0276

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
SSR ^{1,2}		6 - 8.3	<6	<4mmhos/cm	2
FL01-A@3'	03/21/24	8.62	0.0268	0.206	<2.00
FL01-D@2'	03/21/24	6.95	0.612	1.31	<2.00
FL01-H@3'	03/21/24	7.74	0.157	0.385	<2.00
FL01-I@3'	03/21/24	7.46	0.0213	0.0963	<2.00
FL01-J@3'	03/21/24	8.30	0.874	0.552	<2.00
FL01-G@2'	03/22/24	7.72	1.76	2.07	<2.00
FL01-L@3'	03/22/24	9.01	1.31	0.675	<2.00
FL01-M@3'	03/22/24	8.42	2.02	0.636	<2.00
FL01-N@3'	03/22/24	6.95	0.114	0.0859	<2.00

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 ^{1,2}		0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL ^{1,2,3}		0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
FL01-A@3'	03/21/24	1.68	262	<0.200	<0.30	4.88	176	3.65	<0.260	0.0350	26.4
FL01-D@2'	03/21/24	1.38	56.2	0.213	<0.30	5.29	7.20	<0.400	<0.260	0.0472	26.4
FL01-H@3'	03/21/24	1.28	55.7	<0.200	<0.30	3.43	5.48	<0.400	<0.260	0.0248	18.3
FL01-I@3'	03/21/24	0.943	40.5	<0.200	<0.30	1.80	3.29	<0.400	<0.260	<0.0200	9.36
FL01-J@3'	03/21/24	1.49	90.3	<0.200	<0.30	2.61	17.1	<0.400	<0.260	0.0212	12.2
FL01-G@2'	03/22/24	1.48	109	0.257	<0.30	5.29	9.46	4.65	<0.260	0.0523	24.2
FL01-L@3'	03/22/24	1.14	38.0	<0.200	<0.30	4.41	6.74	2.40	<0.260	0.0526	19.0
FL01-M@3'	03/22/24	0.815	45.6	<0.200	<0.30	4.61	6.55	2.33	0.449	0.0492	18.9
FL01-N@3'	03/22/24	0.449	21.4	<0.200	<0.30	2.07	2.27	1.24	<0.260	<0.0200	12.8

Notes:

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

Definitions:

ECMC = Energy and Carbon Management Commission

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

TPH-ORO = Total petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

SAR = Sodium Adsorption Ratio

EC = Electrical Conductivity

mmhos/cm = Millmhos per centimeter

mg/L = Milligrams per liter

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

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

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

Benz(a) = Benzo(a)anthracene

Benzo(b) = Benzo(b)fluoranthene

Benzo(k) = Benzo(k)fluoranthene

Benzo(a) = Benzo(a)pyrene

A,H = Dibenzo(a,h)anthracene



1,2,3-CD = Indeno(1,2,3-cd)pyrene

1-M = 1-methylnaphthalene



2-M = 2-methylnaphthalene

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



Photographic Log

							
Equipment ID: FL01-E @2'		Equipment Type:		Equipment ID: FL01-D @2'		Equipment Type:	
Material:	Volume:	Contents:		Material:	Volume:	Contents:	
Notes/Conditions: Facing East				Notes/Conditions: Facing east			



Photographic Log

											
Equipment ID: FL01-B@2'		Equipment Type:		Equipment ID: FL01-C@2'		Equipment Type:					
Material:		Volume:		Contents:		Material:		Volume:		Contents:	
Notes/Conditions: Facing west						Notes/Conditions: Facing south					



Photographic Log



											
Equipment ID: FL01-H@3'		Equipment Type:		Equipment ID: FL01-I@3'		Equipment Type:					
Material:		Volume:		Contents:		Material:		Volume:		Contents:	
Notes/Conditions: Facing west						Notes/Conditions: Facing east					

Photographic Log



											
Equipment ID: FL01-F@2'		Equipment Type:		Equipment ID: FL01-G@2'		Equipment Type:					
Material:		Volume:		Contents:		Material:		Volume:		Contents:	
Notes/Conditions: Facing west						Notes/Conditions: Facing east					

Photographic Log



					
Equipment ID: FL01-J@3'			Equipment Type:		
Material:	Volume:	Contents:			
Notes/Conditions: Facing north					

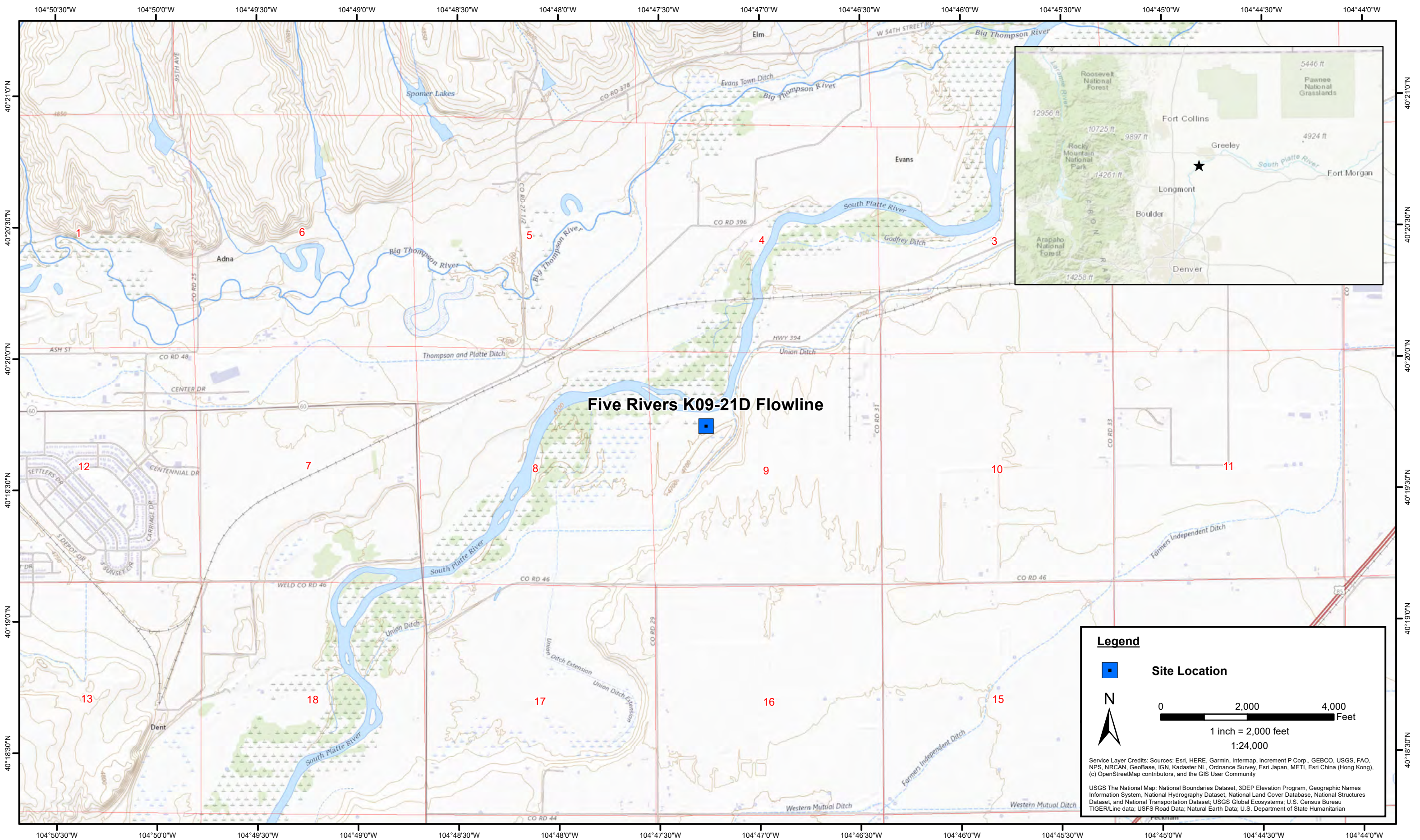
					
Equipment ID: FL01-A@3'			Equipment Type:		
Material:	Volume:	Contents:			
Notes/Conditions: Facing East					

Photographic Log

											
Equipment ID: FL01-K@3'		Equipment Type:		Equipment ID: FL01-L@3'		Equipment Type:					
Material:		Volume:		Contents:		Material:		Volume:		Contents:	
Notes/Conditions: Facing south						Notes/Conditions: Facing west					

Photographic Log

											
Equipment ID: FL01-M@3'		Equipment Type:		Equipment ID: FL01-N@3'		Equipment Type:					
Material:		Volume:		Contents:		Material:		Volume:		Contents:	
Notes/Conditions: Facing west						Notes/Conditions: Facing west					



DATE:	April 2024
DESIGNED BY:	J. Whritenour
DRAWN BY:	L. Reed

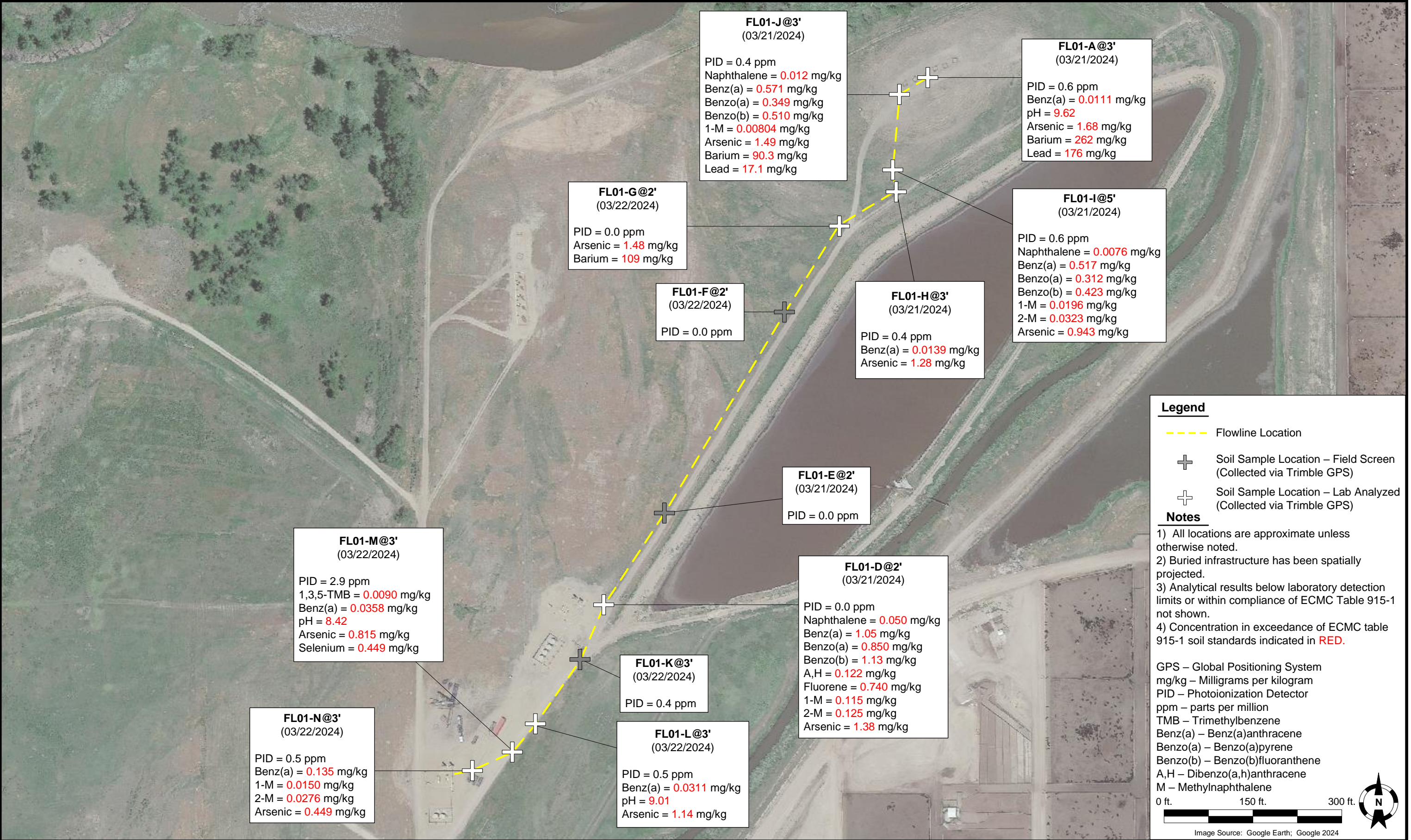


Tasman, Inc.
6855 W. 119th Ave
Broomfield, CO 80020

Noble Energy, Inc. (100322) - DJ Basin
Five Rivers K09-21D Flowline
SWNW, Section 9, Township 4 North, Range 66 West
Weld County, Colorado

Site Location Map

Figure
1



Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

May 09, 2024

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

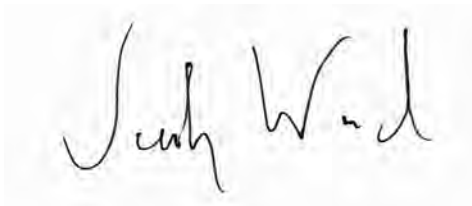
Broomfield, CO 80020

RE: Noble - Five Rivers K09-21D FL

Work Order #2403370

Enclosed are the results of analyses for samples received by Summit Scientific on 03/22/24 18:23. 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", is written on a light gray background.

Jacob Wood For Paul Shrewsbury

President



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

Project: Noble - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

ANALYTICAL REPORT FOR SAMPLES



Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-G@2'	2403370-01	Soil	03/22/24 08:31	03/22/24 18:23
FL01-L@3'	2403370-02	Soil	03/22/24 10:37	03/22/24 18:23
FL01-M@3'	2403370-03	Soil	03/22/24 10:45	03/22/24 18:23
FL01-N@3'	2403370-04	Soil	03/22/24 10:53	03/22/24 18:23

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.

Send Data To:		Send Invoice To:
Client: Noble/Tasman	Project Manager: Jake Whritenour	Company: <u>Chericon</u>
Address: 6855 W. 119th Ave.	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: <u>Five Rivers K09-210 EL</u>
City/State/Zip: Broomfield/CO/ 80020		AFE#: <u>UWRWE-A3356-ARN</u>
Phone: 978-857-4408	Project Location: <u>Five Rivers K09-210 EL</u>	PO/Billing Codes:
Sampler Name: Matthew Wentzel	Project Number:	Contact: <u>Miguel Barron</u>

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix		Air-Canister #	Other	Analysis Requested							Special Instructions
					HCl	HNO3	None	Other	Water	Soil			Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD	
1	FC01-G@2'	3-22-24	0831	3			X			X			X	X	X	X	X	X		SAR, EC, pH by saturated paste
2	FC01-L@3'	I	1037	I			I			I			I	I	I	I	I	I		
3	FC01-M@3'	I	1045	I			I			I			I	I	I	I	I	I		
4	FC01-N@3'	I	1053	I			I			I			I	I	I	I	I	I		
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				

Relinquished by: 	Date/Time: 3-22-24 1245	Received by: Tasman Lock Box	Date/Time: 3-22-24 1245	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: Tasman Lock Box	Date/Time: 3-22-24 1823	Received by: 	Date/Time: 3-22-24 1823	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	Field Turb.	
Temperature Upon Receipt: 8.5	Corrected Temperature: F	IR gun #: 1	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2403370Client: Noble GasmanClient Project ID: Five Rivers K09-210 FLShipped Via: H.D./P.U./FedEx/UPS/USPS/Other

Airbill #:

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Matrix (Check all that apply)

Air

☐

Soil/Solid

☐

Water

☐

Other

☐

Temp (°C)

8.5

Thermometer #

1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	and etc
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

AS

3/22/24

BAG



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

Project: Noble - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

FL01-G@2'
2403370-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/24 08:31**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BHC0944	03/25/24	03/27/24	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: **03/22/24 08:31**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0435	109 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0413	103 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0409	102 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/22/24 08:31**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BHC0947	03/25/24	03/28/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/22/24 08:31**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	8.29	66.3 %	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 - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

FL01-G@2'
2403370-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/22/24 08:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BHC1041	03/28/24	03/29/24	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: **03/22/24 08:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0257	77.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0200	60.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/22/24 08:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BHC0922	03/25/24	04/25/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **03/22/24 08:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

Summit Scientific

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

Project: Noble - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

FL01-G@2'
2403370-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	1.48	0.200	mg/kg dry	1	BHC0926	03/25/24	04/19/24	EPA 6020B
Barium	109	0.400	"	"	"	"	"	"
Cadmium	0.257	0.200	"	"	"	"	"	"
Copper	5.29	0.400	"	"	"	"	"	"
Lead	9.46	0.200	"	"	"	"	"	"
Nickel	4.65	0.400	"	"	"	"	"	"
Silver	0.0523	0.0200	"	"	"	"	"	"
Zinc	24.2	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **03/22/24 08:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHC0916	03/25/24	03/29/24	EPA 7196A	

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

Date Sampled: **03/22/24 08:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	152	0.0500	mg/L dry	1	BHD0194	04/05/24	05/08/24	EPA 6020B	
Magnesium	54.5	0.0500	"	"	"	"	"	"	
Sodium	99.3	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/22/24 08:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.76	0.00100	units	1	BHE0307	05/09/24	05/09/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/22/24 08:31**

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

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

Project: Noble - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

FL01-G@2'
2403370-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	85.3	%	1	BHC0904	03/25/24	03/27/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/22/24 08:31**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	2.07	0.0100		mmhos/cm	1	BHD0196	04/05/24	04/09/24	EPA 120.1	

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

Date Sampled: **03/22/24 08:31**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.72			pH Units	1	BHD0195	04/05/24	04/09/24	EPA 9045D	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

FL01-L@3'
2403370-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/24 10:37**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BHC0944	03/25/24	03/27/24	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: **03/22/24 10:37**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0463	116 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0401	100 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0419	105 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/22/24 10:37**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BHC0947	03/25/24	03/28/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/22/24 10:37**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	7.48	59.8 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

FL01-L@3'
2403370-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/22/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	0.0170	0.00500	mg/kg	1	BHC1041	03/28/24	03/29/24	EPA 8270D SIM	
Anthracene	0.0811	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.0311	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	0.0164	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	0.0204	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	0.00817	0.00500	"	"	"	"	"	"	
Chrysene	0.0352	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	0.0640	0.00500	"	"	"	"	"	"	
Fluorene	0.0239	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	0.0237	0.00500	"	"	"	"	"	"	
Pyrene	0.0826	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/22/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0247	74.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0224	67.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/22/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHC0922	03/25/24	04/25/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **03/22/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.14	0.200	mg/kg dry	1	BHC0926	03/25/24	04/19/24	EPA 6020B	

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

FL01-L@3'
2403370-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Barium	38.0	0.400	mg/kg dry	1	BHC0926	03/25/24	04/19/24	EPA 6020B
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	4.41	0.400	"	"	"	"	"	"
Lead	6.74	0.200	"	"	"	"	"	"
Nickel	2.40	0.400	"	"	"	"	"	"
Silver	0.0526	0.0200	"	"	"	"	"	"
Zinc	19.0	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **03/22/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHC0916	03/25/24	03/29/24	EPA 7196A	

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

Date Sampled: **03/22/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	92.5	0.0500	mg/L dry	1	BHD0194	04/05/24	05/08/24	EPA 6020B	
Magnesium	30.8	0.0500	"	"	"	"	"	"	
Sodium	57.0	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/22/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.31	0.00100	units	1	BHE0307	05/09/24	05/09/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/22/24 10:37**

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 - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

FL01-L@3'
2403370-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	94.4	%	1	BHC0904	03/25/24	03/27/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/22/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.675	0.0100	mmhos/cm	1	BHD0196	04/05/24	04/09/24	EPA 120.1	

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

Date Sampled: **03/22/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	9.01		pH Units	1	BHD0195	04/05/24	04/09/24	EPA 9045D	

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

Project: Noble - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

FL01-M@3'
2403370-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHC0944	03/25/24	03/27/24	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.022	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	0.0090	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **03/22/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0400	99.9 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0391	97.6 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0414	104 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/22/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHC0947	03/25/24	03/28/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/22/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	7.81	62.5 %	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 - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

FL01-M@3'
2403370-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/22/24 10:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Acenaphthene	0.0203	0.00500	mg/kg	1	BHC1041	03/28/24	03/29/24	EPA 8270D SIM	
Anthracene	0.0295	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.0358	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	0.0203	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	0.0276	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	0.0103	0.00500	"	"	"	"	"	"	
Chrysene	0.0320	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	0.0791	0.00500	"	"	"	"	"	"	
Fluorene	0.0199	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	0.0346	0.00500	"	"	"	"	"	"	
Pyrene	0.108	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	0.00535	0.00500	"	"	"	"	"	"	

Date Sampled: **03/22/24 10:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 2-Methylnaphthalene-d10	0.0230	69.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0204	61.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/22/24 10:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BHC0922	03/25/24	04/25/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **03/22/24 10:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.815	0.200	mg/kg dry	1	BHC0926	03/25/24	04/19/24	EPA 6020B	

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

Project: Noble - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

FL01-M@3'
2403370-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Barium	45.6	0.400	mg/kg dry	1	BHC0926	03/25/24	04/19/24	EPA 6020B
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	4.61	0.400	"	"	"	"	"	"
Lead	6.55	0.200	"	"	"	"	"	"
Nickel	2.33	0.400	"	"	"	"	"	"
Silver	0.0492	0.0200	"	"	"	"	"	"
Zinc	18.9	0.400	"	"	"	"	"	"
Selenium	0.449	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **03/22/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHC0916	03/25/24	03/29/24	EPA 7196A	

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

Date Sampled: **03/22/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	70.8	0.0500	mg/L dry	1	BHD0194	04/05/24	05/08/24	EPA 6020B	
Magnesium	22.4	0.0500	"	"	"	"	"	"	
Sodium	76.3	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/22/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.02	0.00100	units	1	BHE0307	05/09/24	05/09/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/22/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	85.7		%	1	BHC0904	03/25/24	03/27/24	Calculation	

Summit Scientific

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

Project: Noble - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

FL01-M@3'
2403370-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/22/24 10:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.636	0.0100		mmhos/cm	1	BHD0196	04/05/24	04/09/24	EPA 120.1	

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

Date Sampled: **03/22/24 10:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.42			pH Units	1	BHD0195	04/05/24	04/09/24	EPA 9045D	

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Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

FL01-N@3'
2403370-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/22/24 10:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BHC0944	03/25/24	03/27/24	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: **03/22/24 10:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0445	111 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0415	104 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0411	103 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/22/24 10:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BHC0947	03/25/24	03/28/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/22/24 10:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	9.08	72.6 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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FL01-N@3'
2403370-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/22/24 10:53**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Acenaphthene	0.0829	0.00500	mg/kg	1	BHC1041	03/28/24	03/29/24	EPA 8270D SIM	
Anthracene	0.116	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.135	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	0.0727	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	0.101	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	0.0365	0.00500	"	"	"	"	"	"	
Chrysene	0.110	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	0.281	0.00500	"	"	"	"	"	"	E
Fluorene	0.0799	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	0.109	0.00500	"	"	"	"	"	"	
Pyrene	0.344	0.00500	"	"	"	"	"	"	E
1-Methylnaphthalene	0.0150	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	0.0276	0.00500	"	"	"	"	"	"	

Date Sampled: **03/22/24 10:53**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 2-Methylnaphthalene-d10	0.0193	57.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0200	60.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/22/24 10:53**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BHC0922	03/25/24	04/25/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **03/22/24 10:53**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.449	0.200	mg/kg dry	1	BHC0926	03/25/24	04/19/24	EPA 6020B	

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FL01-N@3'
2403370-04 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Barium	21.4	0.400	mg/kg dry	1	BHC0926	03/25/24	04/19/24	EPA 6020B
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	2.07	0.400	"	"	"	"	"	"
Lead	2.27	0.200	"	"	"	"	"	"
Nickel	1.24	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	12.8	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **03/22/24 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHC0916	03/25/24	03/29/24	EPA 7196A	

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

Date Sampled: **03/22/24 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	66.8	0.0500	mg/L dry	1	BHD0194	04/05/24	05/08/24	EPA 6020B	
Magnesium	11.8	0.0500	"	"	"	"	"	"	
Sodium	3.86	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/22/24 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.114	0.00100	units	1	BHE0307	05/09/24	05/09/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/22/24 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Reported:
05/09/24 12:25

FL01-N@3'
2403370-04 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	96.2	%	1	BHC0904	03/25/24	03/27/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/22/24 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0859	0.0100	mmhos/cm	1	BHD0196	04/05/24	04/09/24	EPA 120.1	

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

Date Sampled: **03/22/24 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.95		pH Units	1	BHD0195	04/05/24	04/09/24	EPA 9045D	

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Reported:
05/09/24 12:25

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 BHC0944 - EPA 5030 Soil MS

Blank (BHC0944-BLK1)

Prepared: 03/25/24 Analyzed: 03/27/24

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	0.0462		"	0.0400		116	50-150			
Surrogate: Toluene-d8	0.0426		"	0.0400		107	50-150			
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0400		102	50-150			

LCS (BHC0944-BS1)

Prepared: 03/25/24 Analyzed: 03/27/24

Benzene	0.0863	0.0020	mg/kg	0.100		86.3	70-130			
Toluene	0.0920	0.0050	"	0.100		92.0	70-130			
Ethylbenzene	0.0892	0.0050	"	0.100		89.2	70-130			
m,p-Xylene	0.177	0.010	"	0.200		88.6	70-130			
o-Xylene	0.0892	0.0050	"	0.100		89.2	70-130			
1,2,4-Trimethylbenzene	0.0770	0.0050	"	0.100		77.0	70-130			
1,3,5-Trimethylbenzene	0.0784	0.0050	"	0.100		78.4	70-130			
Naphthalene	0.0950	0.0038	"	0.100		95.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0422		"	0.0400		105	50-150			
Surrogate: Toluene-d8	0.0401		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0410		"	0.0400		102	50-150			

Matrix Spike (BHC0944-MS1)

Source: 2403358-01

Prepared: 03/25/24 Analyzed: 03/27/24

Benzene	0.0826	0.0020	mg/kg	0.100	ND	82.6	70-130			
Toluene	0.0866	0.0050	"	0.100	ND	86.6	70-130			
Ethylbenzene	0.0750	0.0050	"	0.100	ND	75.0	70-130			
m,p-Xylene	0.150	0.010	"	0.200	ND	74.8	70-130			
o-Xylene	0.0746	0.0050	"	0.100	ND	74.6	70-130			
1,2,4-Trimethylbenzene	0.0904	0.0050	"	0.100	ND	90.4	70-130			
1,3,5-Trimethylbenzene	0.0931	0.0050	"	0.100	ND	93.1	70-130			
Naphthalene	0.0792	0.0038	"	0.100	ND	79.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0485		"	0.0400		121	50-150			
Surrogate: Toluene-d8	0.0421		"	0.0400		105	50-150			
Surrogate: 4-Bromofluorobenzene	0.0418		"	0.0400		105	50-150			

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Reported:
05/09/24 12:25

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 BHC0944 - EPA 5030 Soil MS

Matrix Spike Dup (BHC0944-MSD1)		Source: 2403358-01			Prepared: 03/25/24 Analyzed: 03/27/24					
Benzene	0.0802	0.0020	mg/kg	0.100	ND	80.2	70-130	2.91	30	
Toluene	0.0846	0.0050	"	0.100	ND	84.6	70-130	2.31	30	
Ethylbenzene	0.0761	0.0050	"	0.100	ND	76.1	70-130	1.47	30	
m,p-Xylene	0.151	0.010	"	0.200	ND	75.5	70-130	0.858	30	
o-Xylene	0.0749	0.0050	"	0.100	ND	74.9	70-130	0.522	30	
1,2,4-Trimethylbenzene	0.120	0.0050	"	0.100	ND	120	70-130	27.9	30	
1,3,5-Trimethylbenzene	0.0920	0.0050	"	0.100	ND	92.0	70-130	1.23	30	
Naphthalene	0.0782	0.0038	"	0.100	ND	78.2	70-130	1.37	30	
Surrogate: 1,2-Dichloroethane-d4		0.0472	"	0.0400		118	50-150			
Surrogate: Toluene-d8		0.0410	"	0.0400		102	50-150			
Surrogate: 4-Bromofluorobenzene		0.0417	"	0.0400		104	50-150			

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Reported:
05/09/24 12:25

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 BHC0947 - EPA 3550A

Blank (BHC0947-BLK1)

Prepared: 03/25/24 Analyzed: 03/27/24

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	17.0		"	12.5		136	30-150			

LCS (BHC0947-BS1)

Prepared: 03/25/24 Analyzed: 03/27/24

C10-C28 (DRO)	562	50	mg/kg	500		112	70-130			
Surrogate: o-Terphenyl	15.4		"	12.5		123	30-150			

Matrix Spike (BHC0947-MS1)

Source: 2403358-01

Prepared: 03/25/24 Analyzed: 03/28/24

C10-C28 (DRO)	569	50	mg/kg	500	14.1	111	70-130			
Surrogate: o-Terphenyl	15.3		"	12.5		123	30-150			

Matrix Spike Dup (BHC0947-MSD1)

Source: 2403358-01

Prepared: 03/25/24 Analyzed: 03/28/24

C10-C28 (DRO)	589	50	mg/kg	500	14.1	115	70-130	3.56	20	
Surrogate: o-Terphenyl	13.8		"	12.5		110	30-150			

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Reported:
05/09/24 12:25

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

Batch BHC1041 - EPA 5030 Soil MS

Blank (BHC1041-BLK1)

Prepared: 03/28/24 Analyzed: 03/29/24

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	0.0308		"	0.0333		92.3		40-150			
Surrogate: Fluoranthene-d10	0.0290		"	0.0333		86.9		40-150			

LCS (BHC1041-BS1)

Prepared: 03/28/24 Analyzed: 03/29/24

Acenaphthene	0.0323	0.00500	mg/kg	0.0333		96.9		31-137			
Anthracene	0.0349	0.00500	"	0.0333		105		30-120			
Benzo (a) anthracene	0.0329	0.00500	"	0.0333		98.6		30-120			
Benzo (a) pyrene	0.0286	0.00500	"	0.0333		85.8		30-120			
Benzo (b) fluoranthene	0.0325	0.00500	"	0.0333		97.4		30-120			
Benzo (k) fluoranthene	0.0300	0.00500	"	0.0333		90.1		30-120			
Chrysene	0.0318	0.00500	"	0.0333		95.4		30-120			
Dibenz (a,h) anthracene	0.0354	0.00500	"	0.0333		106		30-120			
Fluoranthene	0.0298	0.00500	"	0.0333		89.5		30-120			
Fluorene	0.0260	0.00500	"	0.0333		77.9		30-120			
Indeno (1,2,3-cd) pyrene	0.0311	0.00500	"	0.0333		93.4		30-120			
Pyrene	0.0363	0.00500	"	0.0333		109		35-142			
1-Methylnaphthalene	0.0328	0.00500	"	0.0333		98.5		35-142			
2-Methylnaphthalene	0.0387	0.00500	"	0.0333		116		35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0330		"	0.0333		99.1		40-150			
Surrogate: Fluoranthene-d10	0.0309		"	0.0333		92.6		40-150			

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05/09/24 12:25

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 BHC1041 - EPA 5030 Soil MS

Matrix Spike (BHC1041-MS1)

Source: 2403363-01

Prepared: 03/28/24 Analyzed: 03/29/24

Acenaphthene	0.0247	0.00500	mg/kg	0.0333	ND	74.1	31-137				
Anthracene	0.0258	0.00500	"	0.0333	ND	77.6	30-120				
Benzo (a) anthracene	0.0264	0.00500	"	0.0333	ND	79.1	30-120				
Benzo (a) pyrene	0.0205	0.00500	"	0.0333	ND	61.4	30-120				
Benzo (b) fluoranthene	0.0185	0.00500	"	0.0333	ND	55.6	30-120				
Benzo (k) fluoranthene	0.0172	0.00500	"	0.0333	ND	51.5	30-120				
Chrysene	0.0242	0.00500	"	0.0333	ND	72.5	30-120				
Dibenz (a,h) anthracene	0.0240	0.00500	"	0.0333	ND	72.1	30-120				
Fluoranthene	0.0230	0.00500	"	0.0333	ND	68.9	30-120				
Fluorene	0.0229	0.00500	"	0.0333	ND	68.8	30-120				
Indeno (1,2,3-cd) pyrene	0.0185	0.00500	"	0.0333	ND	55.5	30-120				
Pyrene	0.0338	0.00500	"	0.0333	0.00605	83.3	35-142				
1-Methylnaphthalene	0.0275	0.00500	"	0.0333	ND	82.4	15-130				
2-Methylnaphthalene	0.0354	0.00500	"	0.0333	ND	106	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0266		"	0.0333		79.9	40-150				
Surrogate: Fluoranthene-d10	0.0250		"	0.0333		74.9	40-150				

Matrix Spike Dup (BHC1041-MSD1)

Source: 2403363-01

Prepared: 03/28/24 Analyzed: 03/29/24

Acenaphthene	0.0170	0.00500	mg/kg	0.0333	ND	51.0	31-137	36.9	30	QR-02
Anthracene	0.0182	0.00500	"	0.0333	ND	54.6	30-120	34.8	30	QR-02
Benzo (a) anthracene	0.0193	0.00500	"	0.0333	ND	57.8	30-120	31.1	30	QR-02
Benzo (a) pyrene	0.0154	0.00500	"	0.0333	ND	46.1	30-120	28.5	30	
Benzo (b) fluoranthene	0.0146	0.00500	"	0.0333	ND	43.7	30-120	24.0	30	
Benzo (k) fluoranthene	0.0129	0.00500	"	0.0333	ND	38.7	30-120	28.5	30	
Chrysene	0.0174	0.00500	"	0.0333	ND	52.2	30-120	32.6	30	QR-02
Dibenz (a,h) anthracene	0.0333	0.00500	"	0.0333	ND	99.9	30-120	32.4	30	QR-02
Fluoranthene	0.0161	0.00500	"	0.0333	ND	48.3	30-120	35.2	30	QR-02
Fluorene	0.0165	0.00500	"	0.0333	ND	49.6	30-120	32.5	30	QR-02
Indeno (1,2,3-cd) pyrene	0.0187	0.00500	"	0.0333	ND	56.2	30-120	1.31	30	
Pyrene	0.0323	0.00500	"	0.0333	0.00605	78.6	35-142	4.75	30	
1-Methylnaphthalene	0.0170	0.00500	"	0.0333	ND	50.9	15-130	47.4	50	
2-Methylnaphthalene	0.0182	0.00500	"	0.0333	ND	54.5	15-130	64.2	50	QR-02
Surrogate: 2-Methylnaphthalene-d10	0.0173		"	0.0333		51.8	40-150			
Surrogate: Fluoranthene-d10	0.0173		"	0.0333		52.0	40-150			

Summit Scientific

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



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

Project: Noble - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

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 BHC0922 - EPA 3050B

Blank (BHC0922-BLK1)

Prepared: 03/25/24 Analyzed: 04/24/24

Boron ND 2.00 mg/L

LCS (BHC0922-BS1)

Prepared: 03/25/24 Analyzed: 04/24/24

Boron 4.97 2.00 mg/L 5.00 99.3 80-120

Duplicate (BHC0922-DUP1)

Source: 2402521-02RE1

Prepared: 03/25/24 Analyzed: 04/25/24

Boron 3.03 2.00 mg/L 3.00 0.875 20

Matrix Spike (BHC0922-MS1)

Source: 2402521-02RE1

Prepared: 03/25/24 Analyzed: 04/25/24

Boron 8.69 2.00 mg/L 5.00 3.00 114 75-125

Matrix Spike Dup (BHC0922-MSD1)

Source: 2402521-02RE1

Prepared: 03/25/24 Analyzed: 04/25/24

Boron 8.41 2.00 mg/L 5.00 3.00 108 75-125 3.33 25

Summit Scientific

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

Project: Noble - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

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 BHC0926 - EPA 3050B

Blank (BHC0926-BLK1)

Prepared: 03/25/24 Analyzed: 04/19/24

Arsenic	ND	0.200	mg/kg wet
Barium	ND	0.400	"
Cadmium	ND	0.200	"
Copper	ND	0.400	"
Lead	ND	0.200	"
Nickel	ND	0.400	"
Silver	ND	0.0200	"
Zinc	ND	0.400	"
Selenium	ND	0.260	"

LCS (BHC0926-BS1)

Prepared: 03/25/24 Analyzed: 04/19/24

Arsenic	40.7	0.200	mg/kg wet	40.0	102	80-120
Barium	38.7	0.400	"	40.0	96.9	80-120
Cadmium	1.88	0.200	"	2.00	93.8	80-120
Copper	40.4	0.400	"	40.0	101	80-120
Lead	18.9	0.200	"	20.0	94.5	80-120
Nickel	40.0	0.400	"	40.0	100	80-120
Silver	1.90	0.0200	"	2.00	94.9	80-120
Zinc	40.6	0.400	"	40.0	102	80-120
Selenium	3.97	0.260	"	4.00	99.3	80-120

Duplicate (BHC0926-DUP1)

Source: 2403365-01

Prepared: 03/25/24 Analyzed: 04/19/24

Arsenic	3.27	0.200	mg/kg dry	3.32	1.76	20	QR-04
Barium	348	0.400	"	242	36.1	20	
Cadmium	0.382	0.200	"	0.411	7.25	20	
Copper	6.20	0.400	"	6.24	0.636	20	
Lead	11.4	0.200	"	11.3	1.05	20	
Nickel	7.34	0.400	"	7.44	1.30	20	
Silver	0.0721	0.0200	"	0.0724	0.538	20	
Zinc	26.3	0.400	"	23.4	11.7	20	
Selenium	ND	0.260	"	ND		20	

Summit Scientific

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

Project: Noble - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

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 BHC0926 - EPA 3050B

Matrix Spike (BHC0926-MS1)		Source: 2403365-01			Prepared: 03/25/24 Analyzed: 04/19/24					
Arsenic	25.6	0.200	mg/kg dry	47.0	3.32	47.5	75-125			QM-07
Barium	363	0.400	"	47.0	242	257	75-125			QM-07
Cadmium	2.60	0.200	"	2.35	0.411	93.3	75-125			
Copper	28.7	0.400	"	47.0	6.24	47.8	75-125			QM-07
Lead	31.6	0.200	"	23.5	11.3	86.6	75-125			
Nickel	29.9	0.400	"	47.0	7.44	47.9	75-125			QM-07
Silver	2.21	0.0200	"	2.35	0.0724	90.9	75-125			
Zinc	45.6	0.400	"	47.0	23.4	47.3	75-125			QM-07
Selenium	3.34	0.260	"	4.70	ND	71.1	75-125			QM-07

Matrix Spike Dup (BHC0926-MSD1)		Source: 2403365-01			Prepared: 03/25/24 Analyzed: 04/19/24					
Arsenic	26.2	0.200	mg/kg dry	47.0	3.32	48.6	75-125	1.98	25	QM-07
Barium	366	0.400	"	47.0	242	264	75-125	0.879	25	QM-07
Cadmium	2.66	0.200	"	2.35	0.411	95.7	75-125	2.07	25	
Copper	29.0	0.400	"	47.0	6.24	48.5	75-125	1.17	25	QM-07
Lead	32.3	0.200	"	23.5	11.3	89.3	75-125	2.02	25	
Nickel	30.4	0.400	"	47.0	7.44	48.8	75-125	1.49	25	QM-07
Silver	2.27	0.0200	"	2.35	0.0724	93.4	75-125	2.63	25	
Zinc	46.7	0.400	"	47.0	23.4	49.6	75-125	2.33	25	QM-07
Selenium	3.33	0.260	"	4.70	ND	70.9	75-125	0.394	25	QM-07

Summit Scientific

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

Project: Noble - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

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 BHC0916 - 3060A Mod

Blank (BHC0916-BLK1)

Prepared: 03/25/24 Analyzed: 03/29/24

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BHC0916-BS1)

Prepared: 03/25/24 Analyzed: 03/29/24

Chromium, Hexavalent 25.3 0.30 mg/kg wet 25.0 101 80-120

Duplicate (BHC0916-DUP1)

Source: 2403369-01

Prepared: 03/25/24 Analyzed: 03/29/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BHC0916-MS1)

Source: 2403369-01

Prepared: 03/25/24 Analyzed: 03/29/24

Chromium, Hexavalent 31.8 0.30 mg/kg dry 30.7 ND 104 75-125

Matrix Spike Dup (BHC0916-MSD1)

Source: 2403369-01

Prepared: 03/25/24 Analyzed: 03/29/24

Chromium, Hexavalent 31.8 0.30 mg/kg dry 30.7 ND 104 75-125 0.00 20

Summit Scientific

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

Project: Noble - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

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 BHD0194 - General Preparation

Blank (BHD0194-BLK1)

Prepared: 04/05/24 Analyzed: 05/08/24

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

LCS (BHD0194-BS1)

Prepared: 04/05/24 Analyzed: 05/08/24

Calcium	5.58	0.0500	mg/L wet	5.00	112	70-130
Magnesium	4.78	0.0500	"	5.00	95.6	70-130
Sodium	4.86	0.0500	"	5.00	97.2	70-130

Summit Scientific

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

Project: Noble - Five Rivers K09-21D FL

Project Number: UWRWE-A3356-ABN

Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

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 BHC0904 - General Preparation

Duplicate (BHC0904-DUP1)		Source: 2403362-01		Prepared: 03/25/24 Analyzed: 03/27/24	
% Solids	78.9		%	77.4	2.02 20

Summit Scientific

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

Project: Noble - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

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 BHD0196 - General Preparation

Blank (BHD0196-BLK1)

Prepared: 04/05/24 Analyzed: 04/09/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHD0196-BS1)

Prepared: 04/05/24 Analyzed: 04/09/24

Specific Conductance (EC) 0.147 0.0100 mmhos/cm 0.150 98.1 95-105

Duplicate (BHD0196-DUP1)

Source: 2403370-01

Prepared: 04/05/24 Analyzed: 04/09/24

Specific Conductance (EC) 2.00 0.0100 mmhos/cm 2.07 3.24 20

Summit Scientific

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

Project: Noble - Five Rivers K09-21D FL

Project Number: UWRWE-A3356-ABN

Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

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 BHD0195 - General Preparation

LCS (BHD0195-BS1)

Prepared: 04/05/24 Analyzed: 04/09/24

pH	9.02	pH Units	9.18	98.3	95-105
----	------	----------	------	------	--------

Duplicate (BHD0195-DUP1)

Source: 2403370-01

Prepared: 04/05/24 Analyzed: 04/09/24

pH	7.68	pH Units	7.72	0.519	20
----	------	----------	------	-------	----

Summit Scientific

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

Project: Noble - Five Rivers K09-21D FL
Project Number: UWRWE-A3356-ABN
Project Manager: Jacob Whritenour

Reported:
05/09/24 12:25

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.
QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

May 23, 2024

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

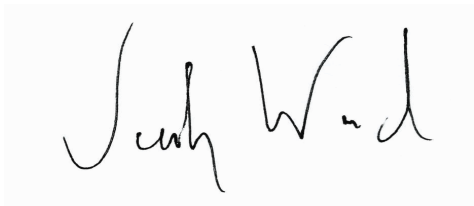
Broomfield, CO 80020

RE: Noble - Five Rivers K09-21D

Work Order #2403341

Enclosed are the results of analyses for samples received by Summit Scientific on 03/21/24 17:45. 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 - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-A@3'	2403341-01	Soil	03/21/24 12:57	03/21/24 17:45

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.

Send Data To:		Send Invoice To:
Client: Noble/Tasman	Project Manager: Jake Whritenour	Company: <u>Chevron</u>
Address: 6855 W. 119th Ave.	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: <u>Five Rivers K09-07D FL</u>
City/State/Zip: Broomfield/CO/ 80020		AFE#:
Phone: 978-857-4408	<u>Project Location: Five Rivers K09-07D FL</u>	PO/Billing Codes:
Sampler Name: Matthew Wentzel	Project Number:	Contact: <u>Miguel Barron</u>

				Preservative				Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD	
1	<u>FLOI-A @ 3'</u>	<u>3-21-24</u>	<u>1257</u>	<u>3</u>			<u>X</u>			<u>X</u>			<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>		SAR, EC, pH by saturated paste
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				

Relinquished by: <u>[Signature]</u>	Date/Time: <u>3-21-24 1520</u>	Received by: Tasman Lock Box	Date/Time: <u>3-21-24 1520</u>	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: <u>Tasman Lock Box</u>	Date/Time: <u>3-21-24 1745</u>	Received by: <u>[Signature]</u>	Date/Time: <u>3-21-24 1745</u>	1 Day	Field ORP	
				2 Days	Field pH	
				3 Days	Field Temp.	
				Standard	<u>X</u> Field Turb.	
Temperature Upon Receipt: <u>9.3</u>		Corrected Temperature: <u>5</u>		IR gun #: <u>1</u>	HNO3 lot #: _____	

S₂

Sample Receipt Checklist

S2 Work Order# 2403341Client: Nadrasman Client Project ID: Fine River K09-07D FLShipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ ☐ ☐ ☐ ☐ Airbill #: _____Matrix (Check all that apply) Air ☐ Soil ☒ Solid ☐ Water ☐ Other ☐Temp (°C) 9.3 Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on 2 OE
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

AS

3/2/24

RSC



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

Project: Noble - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

FL01-A@3'
2403341-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/21/24 12:57**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BHC0939	03/25/24	03/26/24	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: **03/21/24 12:57**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0375	93.8 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0403	101 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0391	97.6 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/21/24 12:57**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BHC0942	03/25/24	03/28/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/21/24 12:57**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	5.96	47.7 %	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 - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

FL01-A@3'
2403341-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/21/24 12:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHC0978	03/26/24	03/28/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.0111	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	0.00658	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	0.0108	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	0.0113	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	0.0202	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	0.0221	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/21/24 12:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0197	59.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0184	55.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/21/24 12:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHC0869	03/22/24	05/11/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **03/21/24 12:57**

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 - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

FL01-A@3'
2403341-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	1.68	0.200	mg/kg dry	1	BHC0862	03/22/24	04/04/24	EPA 6020B
Barium	262	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	4.88	0.400	"	"	"	"	"	"
Lead	176	0.200	"	"	"	"	"	"
Nickel	3.65	0.400	"	"	"	"	"	"
Silver	0.0350	0.0200	"	"	"	"	"	"
Zinc	26.4	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **03/21/24 12:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHC0855	03/22/24	03/29/24	EPA 7196A	

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

Date Sampled: **03/21/24 12:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	186	0.0500	mg/L dry	1	BHD0150	04/04/24	05/21/24	EPA 6020B	
Magnesium	10.7	0.0500	"	"	"	"	"	"	
Sodium	1.39	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/21/24 12:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0268	0.00100	units	1	BHE0676	05/22/24	05/22/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Project: Noble - Five Rivers K09-21D

Project Number: [none]

Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

FL01-A@3'
2403341-01 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/21/24 12:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	93.8			%	1	BHC0851	03/22/24	03/27/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/21/24 12:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.206	0.0100		mmhos/cm	1	BHD0152	04/04/24	04/08/24	EPA 120.1	

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

Date Sampled: **03/21/24 12:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.62			pH Units	1	BHD0151	04/04/24	04/08/24	EPA 9045D	

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Project: Noble - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

Volatile Organic Compounds by EPA Method 8260B - Quality Control

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

Batch BHC0939 - EPA 5030 Soil MS

Blank (BHC0939-BLK1)

Prepared: 03/25/24 Analyzed: 03/26/24

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	0.0371		"	0.0400		92.8	50-150			
Surrogate: Toluene-d8	0.0398		"	0.0400		99.4	50-150			
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0400		98.0	50-150			

LCS (BHC0939-BS1)

Prepared: 03/25/24 Analyzed: 03/26/24

Benzene	0.103	0.0020	mg/kg	0.100		103	70-130			
Toluene	0.0925	0.0050	"	0.100		92.5	70-130			
Ethylbenzene	0.0932	0.0050	"	0.100		93.2	70-130			
m,p-Xylene	0.183	0.010	"	0.200		91.4	70-130			
o-Xylene	0.0842	0.0050	"	0.100		84.2	70-130			
1,2,4-Trimethylbenzene	0.0785	0.0050	"	0.100		78.5	70-130			
1,3,5-Trimethylbenzene	0.0806	0.0050	"	0.100		80.6	70-130			
Naphthalene	0.0715	0.0038	"	0.100		71.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0409		"	0.0400		102	50-150			
Surrogate: Toluene-d8	0.0404		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0374		"	0.0400		93.5	50-150			

Matrix Spike (BHC0939-MS1)

Source: 2403332-01

Prepared: 03/25/24 Analyzed: 03/26/24

Benzene	0.0866	0.0020	mg/kg	0.100	ND	86.6	70-130			
Toluene	0.0729	0.0050	"	0.100	ND	72.9	70-130			
Ethylbenzene	0.0761	0.0050	"	0.100	ND	76.1	70-130			
m,p-Xylene	0.145	0.010	"	0.200	ND	72.7	70-130			
o-Xylene	0.0698	0.0050	"	0.100	ND	69.8	70-130			QM-07
1,2,4-Trimethylbenzene	0.0577	0.0050	"	0.100	ND	57.7	70-130			QM-07
1,3,5-Trimethylbenzene	0.0597	0.0050	"	0.100	ND	59.7	70-130			QM-07
Naphthalene	0.0501	0.0038	"	0.100	ND	50.1	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	0.0372		"	0.0400		93.1	50-150			
Surrogate: Toluene-d8	0.0406		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0362		"	0.0400		90.5	50-150			

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Project: Noble - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

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 BHC0939 - EPA 5030 Soil MS

Matrix Spike Dup (BHC0939-MSD1)

Source: 2403332-01

Prepared: 03/25/24 Analyzed: 03/26/24

Benzene	0.0934	0.0020	mg/kg	0.100	ND	93.4	70-130	7.60	30	
Toluene	0.0795	0.0050	"	0.100	ND	79.5	70-130	8.62	30	
Ethylbenzene	0.0788	0.0050	"	0.100	ND	78.8	70-130	3.48	30	
m,p-Xylene	0.151	0.010	"	0.200	ND	75.3	70-130	3.55	30	
o-Xylene	0.0711	0.0050	"	0.100	ND	71.1	70-130	1.87	30	
1,2,4-Trimethylbenzene	0.0627	0.0050	"	0.100	ND	62.7	70-130	8.28	30	QM-07
1,3,5-Trimethylbenzene	0.0641	0.0050	"	0.100	ND	64.1	70-130	7.08	30	QM-07
Naphthalene	0.0545	0.0038	"	0.100	ND	54.5	70-130	8.43	30	QM-07
Surrogate: 1,2-Dichloroethane-d4	0.0420		"	0.0400		105	50-150			
Surrogate: Toluene-d8	0.0402		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0384		"	0.0400		95.9	50-150			

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Project: Noble - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

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 BHC0942 - EPA 3550A

Blank (BHC0942-BLK1)

Prepared: 03/25/24 Analyzed: 03/27/24

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	10.8		"	12.5		86.6	30-150			

LCS (BHC0942-BS1)

Prepared: 03/25/24 Analyzed: 03/27/24

C10-C28 (DRO)	527	50	mg/kg	500		105	70-130			
Surrogate: o-Terphenyl	10.1		"	12.5		80.9	30-150			

Matrix Spike (BHC0942-MS1)

Source: 2403332-01

Prepared: 03/25/24 Analyzed: 03/28/24

C10-C28 (DRO)	477	50	mg/kg	500	15.6	92.2	70-130			
Surrogate: o-Terphenyl	8.59		"	12.5		68.7	30-150			

Matrix Spike Dup (BHC0942-MSD1)

Source: 2403332-01

Prepared: 03/25/24 Analyzed: 03/28/24

C10-C28 (DRO)	394	50	mg/kg	500	15.6	75.6	70-130	19.1	20	
Surrogate: o-Terphenyl	8.21		"	12.5		65.6	30-150			

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Project: Noble - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

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 BHC0978 - EPA 5030 Soil MS

Blank (BHC0978-BLK1)

Prepared: 03/26/24 Analyzed: 03/27/24

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	0.0385		"	0.0333		116	40-150			
Surrogate: Fluoranthene-d10	0.0349		"	0.0333		105	40-150			

LCS (BHC0978-BS1)

Prepared: 03/26/24 Analyzed: 03/27/24

Acenaphthene	0.0363	0.00500	mg/kg	0.0333	109	31-137
Anthracene	0.0392	0.00500	"	0.0333	118	30-120
Benzo (a) anthracene	0.0373	0.00500	"	0.0333	112	30-120
Benzo (a) pyrene	0.0316	0.00500	"	0.0333	94.7	30-120
Benzo (b) fluoranthene	0.0359	0.00500	"	0.0333	108	30-120
Benzo (k) fluoranthene	0.0358	0.00500	"	0.0333	107	30-120
Chrysene	0.0357	0.00500	"	0.0333	107	30-120
Dibenz (a,h) anthracene	0.0215	0.00500	"	0.0333	64.5	30-120
Fluoranthene	0.0373	0.00500	"	0.0333	112	30-120
Fluorene	0.0286	0.00500	"	0.0333	85.8	30-120
Indeno (1,2,3-cd) pyrene	0.0148	0.00500	"	0.0333	44.4	30-120
Pyrene	0.0434	0.00500	"	0.0333	130	35-142
1-Methylnaphthalene	0.0352	0.00500	"	0.0333	106	35-142
2-Methylnaphthalene	0.0350	0.00500	"	0.0333	105	35-142
Surrogate: 2-Methylnaphthalene-d10	0.0393		"	0.0333	118	40-150
Surrogate: Fluoranthene-d10	0.0321		"	0.0333	96.2	40-150

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Project: Noble - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

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 BHC0978 - EPA 5030 Soil MS

Matrix Spike (BHC0978-MS1)		Source: 2403338-01			Prepared: 03/26/24 Analyzed: 03/27/24					
Acenaphthene	0.0462	0.00500	mg/kg	0.0333	0.0211	75.4	31-137			
Anthracene	0.0918	0.00500	"	0.0333	0.0728	57.0	30-120			
Benzo (a) anthracene	0.113	0.00500	"	0.0333	0.108	14.0	30-120			QR-03, RPD-01
Benzo (a) pyrene	0.0657	0.00500	"	0.0333	0.0579	23.3	30-120			QR-03, RPD-01
Benzo (b) fluoranthene	0.0841	0.00500	"	0.0333	0.0837	1.15	30-120			QR-03, RPD-01
Benzo (k) fluoranthene	0.0528	0.00500	"	0.0333	0.0340	56.4	30-120			
Chrysene	0.117	0.00500	"	0.0333	0.110	21.7	30-120			QR-03, RPD-01
Dibenz (a,h) anthracene	0.0261	0.00500	"	0.0333	0.0104	46.9	30-120			
Fluoranthene	0.228	0.00500	"	0.0333	0.234	NR	30-120			QR-03, RPD-01
Fluorene	0.0414	0.00500	"	0.0333	0.0186	68.3	30-120			
Indeno (1,2,3-cd) pyrene	0.0333	0.00500	"	0.0333	0.0254	23.7	30-120			QR-03, RPD-01
Pyrene	0.206	0.00500	"	0.0333	0.224	NR	35-142			QR-03, RPD-01
1-Methylnaphthalene	0.0289	0.00500	"	0.0333	ND	86.7	15-130			
2-Methylnaphthalene	0.0258	0.00500	"	0.0333	ND	77.4	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0270		"	0.0333		81.0	40-150			
Surrogate: Fluoranthene-d10	0.0256		"	0.0333		76.8	40-150			

Matrix Spike Dup (BHC0978-MSD1)		Source: 2403338-01			Prepared: 03/26/24 Analyzed: 03/28/24					
Acenaphthene	0.0694	0.00500	mg/kg	0.0333	0.0211	145	31-137	40.1	30	QR-03, RPD-01
Anthracene	0.159	0.00500	"	0.0333	0.0728	257	30-120	53.3	30	QR-03, RPD-01
Benzo (a) anthracene	0.202	0.00500	"	0.0333	0.108	281	30-120	56.5	30	QR-03, RPD-01
Benzo (a) pyrene	0.117	0.00500	"	0.0333	0.0579	177	30-120	56.1	30	QR-03, RPD-01
Benzo (b) fluoranthene	0.151	0.00500	"	0.0333	0.0837	202	30-120	56.8	30	QR-03, RPD-01
Benzo (k) fluoranthene	0.0818	0.00500	"	0.0333	0.0340	144	30-120	43.2	30	QR-03, RPD-01
Chrysene	0.204	0.00500	"	0.0333	0.110	281	30-120	54.0	30	QR-03, RPD-01
Dibenz (a,h) anthracene	0.0273	0.00500	"	0.0333	0.0104	50.6	30-120	4.71	30	
Fluoranthene	0.404	0.00500	"	0.0333	0.234	508	30-120	55.5	30	QR-03, RPD-01

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Broomfield CO, 80020

Project: Noble - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

PAH by EPA Method 8270D SIM - Quality Control

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

Batch BHC0978 - EPA 5030 Soil MS

Matrix Spike Dup (BHC0978-MSD1)		Source: 2403338-01			Prepared: 03/26/24 Analyzed: 03/28/24					
Fluorene	0.0669	0.00500	mg/kg	0.0333	0.0186	145	30-120	47.1	30	QR-03, RPD-01
Indeno (1,2,3-cd) pyrene	0.0576	0.00500	"	0.0333	0.0254	96.5	30-120	53.4	30	QR-03, RPD-01
Pyrene	0.349	0.00500	"	0.0333	0.224	374	35-142	51.7	30	QR-03, RPD-01
1-Methylnaphthalene	0.0340	0.00500	"	0.0333	ND	102	15-130	16.2	50	
2-Methylnaphthalene	0.0308	0.00500	"	0.0333	ND	92.4	15-130	17.6	50	
Surrogate: 2-Methylnaphthalene-d10	0.0336		"	0.0333		101	40-150			
Surrogate: Fluoranthene-d10	0.0288		"	0.0333		86.4	40-150			

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Project: Noble - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

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 BHC0869 - EPA 3050B

Blank (BHC0869-BLK1)

Prepared: 03/22/24 Analyzed: 05/11/24

Boron ND 2.00 mg/L

LCS (BHC0869-BS1)

Prepared: 03/22/24 Analyzed: 05/11/24

Boron 4.93 2.00 mg/L 5.00 98.6 80-120

Duplicate (BHC0869-DUP1)

Source: 2403331-01

Prepared: 03/22/24 Analyzed: 05/11/24

Boron 0.233 2.00 mg/L 0.155 40.5 20 QR-01

Matrix Spike (BHC0869-MS1)

Source: 2403331-01

Prepared: 03/22/24 Analyzed: 05/11/24

Boron 4.86 2.00 mg/L 5.00 0.155 94.1 75-125

Matrix Spike Dup (BHC0869-MSD1)

Source: 2403331-01

Prepared: 03/22/24 Analyzed: 05/11/24

Boron 4.88 2.00 mg/L 5.00 0.155 94.5 75-125 0.455 25

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Broomfield CO, 80020

Project: Noble - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

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 BHC0862 - EPA 3050B

Blank (BHC0862-BLK1)

Prepared: 03/22/24 Analyzed: 04/04/24

Arsenic	ND	0.200	mg/kg wet
Barium	ND	0.400	"
Cadmium	ND	0.200	"
Copper	ND	0.400	"
Lead	ND	0.200	"
Nickel	ND	0.400	"
Silver	ND	0.0200	"
Zinc	ND	0.400	"
Selenium	ND	0.260	"

LCS (BHC0862-BS1)

Prepared: 03/22/24 Analyzed: 04/04/24

Arsenic	37.8	0.200	mg/kg wet	40.0	94.5	80-120
Barium	38.6	0.400	"	40.0	96.4	80-120
Cadmium	1.96	0.200	"	2.00	98.0	80-120
Copper	41.9	0.400	"	40.0	105	80-120
Lead	19.3	0.200	"	20.0	96.6	80-120
Nickel	41.4	0.400	"	40.0	104	80-120
Silver	1.95	0.0200	"	2.00	97.5	80-120
Zinc	41.6	0.400	"	40.0	104	80-120
Selenium	3.81	0.260	"	4.00	95.3	80-120

Duplicate (BHC0862-DUP1)

Source: 2403331-01

Prepared: 03/22/24 Analyzed: 04/04/24

Arsenic	3.59	0.200	mg/kg dry	2.70	28.3	20	QR-04
Barium	71.7	0.400	"	66.0	8.36	20	
Cadmium	0.140	0.200	"	0.131	6.70	20	
Copper	3.87	0.400	"	3.50	9.97	20	
Lead	12.4	0.200	"	9.59	25.6	20	QR-04
Nickel	3.21	0.400	"	2.61	20.7	20	QR-01
Silver	0.0358	0.0200	"	0.0242	38.8	20	QR-01
Zinc	15.6	0.400	"	13.7	13.1	20	
Selenium	0.183	0.260	"	ND	200	20	QR-01

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

Project: Noble - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

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 BHC0862 - EPA 3050B

Matrix Spike (BHC0862-MS1)

Source: 2403331-01

Prepared: 03/22/24 Analyzed: 04/04/24

Arsenic	42.8	0.200	mg/kg dry	43.2	2.70	92.9	75-125			
Barium	103	0.400	"	43.2	66.0	85.5	75-125			
Cadmium	2.30	0.200	"	2.16	0.131	100	75-125			
Copper	35.5	0.400	"	43.2	3.50	74.1	75-125			QM-05
Lead	36.1	0.200	"	21.6	9.59	123	75-125			
Nickel	34.4	0.400	"	43.2	2.61	73.8	75-125			QM-05
Silver	2.14	0.0200	"	2.16	0.0242	97.9	75-125			
Zinc	47.0	0.400	"	43.2	13.7	77.2	75-125			
Selenium	3.64	0.260	"	4.32	ND	84.2	75-125			

Matrix Spike Dup (BHC0862-MSD1)

Source: 2403331-01

Prepared: 03/22/24 Analyzed: 04/04/24

Arsenic	43.4	0.200	mg/kg dry	43.2	2.70	94.3	75-125	1.42	25	
Barium	102	0.400	"	43.2	66.0	83.1	75-125	0.996	25	
Cadmium	2.27	0.200	"	2.16	0.131	99.1	75-125	1.12	25	
Copper	35.1	0.400	"	43.2	3.50	73.2	75-125	1.12	25	QM-05
Lead	36.0	0.200	"	21.6	9.59	122	75-125	0.308	25	
Nickel	34.0	0.400	"	43.2	2.61	72.8	75-125	1.24	25	QM-05
Silver	2.12	0.0200	"	2.16	0.0242	97.1	75-125	0.750	25	
Zinc	46.2	0.400	"	43.2	13.7	75.2	75-125	1.79	25	
Selenium	3.62	0.260	"	4.32	ND	83.9	75-125	0.428	25	

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Project: Noble - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

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 BHC0855 - 3060A Mod

Blank (BHC0855-BLK1)

Prepared: 03/22/24 Analyzed: 03/29/24

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BHC0855-BS1)

Prepared: 03/22/24 Analyzed: 03/29/24

Chromium, Hexavalent 24.6 0.30 mg/kg wet 25.0 98.4 80-120

Duplicate (BHC0855-DUP1)

Source: 2403341-01

Prepared: 03/22/24 Analyzed: 03/29/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BHC0855-MS1)

Source: 2403341-01

Prepared: 03/22/24 Analyzed: 03/29/24

Chromium, Hexavalent 26.8 0.30 mg/kg dry 26.7 ND 101 75-125

Matrix Spike Dup (BHC0855-MSD1)

Source: 2403341-01

Prepared: 03/22/24 Analyzed: 03/29/24

Chromium, Hexavalent 26.8 0.30 mg/kg dry 26.7 ND 101 75-125 0.00 20

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Broomfield CO, 80020

Project: Noble - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

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 BHD0150 - General Preparation

Blank (BHD0150-BLK1)

Prepared: 04/04/24 Analyzed: 05/21/24

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

LCS (BHD0150-BS1)

Prepared: 04/04/24 Analyzed: 05/21/24

Calcium	5.67	0.0500	mg/L wet	5.00	113	70-130
Magnesium	4.91	0.0500	"	5.00	98.3	70-130
Sodium	4.82	0.0500	"	5.00	96.4	70-130

Summit Scientific

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

Project: Noble - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

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 BHC0851 - General Preparation

Duplicate (BHC0851-DUP1)		Source: 2403341-01		Prepared: 03/22/24 Analyzed: 03/27/24	
% Solids	92.4		%	93.8	1.43 20

Summit Scientific

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

Project: Noble - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

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 BHD0152 - General Preparation

Blank (BHD0152-BLK1)

Prepared: 04/04/24 Analyzed: 04/08/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHD0152-BS1)

Prepared: 04/04/24 Analyzed: 04/08/24

Specific Conductance (EC) 0.151 0.0100 mmhos/cm 0.150 101 95-105

Duplicate (BHD0152-DUP1)

Source: 2403326-01

Prepared: 04/04/24 Analyzed: 04/08/24

Specific Conductance (EC) 0.353 0.0100 mmhos/cm 0.363 2.91 20

Summit Scientific

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

Project: Noble - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

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 BHD0151 - General Preparation

LCS (BHD0151-BS1)

Prepared: 04/04/24 Analyzed: 04/08/24

pH	9.08	pH Units	9.18	98.9	95-105
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Duplicate (BHD0151-DUP1)

Source: 2403326-01

Prepared: 04/04/24 Analyzed: 04/08/24

pH	8.50	pH Units	8.72	2.56	20
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Summit Scientific

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

Project: Noble - Five Rivers K09-21D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/23/24 10:35

Notes and Definitions

RPD-01	The RPD failure for the sample duplicate analysis due to non-homogeneous sample matrix.
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.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
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.
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