

GENERAL OBSERVATION FORM

 Site Area/AOC: WCL 24-5 Flowline Client: Noble

 Daily Forecast/Weather: 80s sunny Personnel: JH

 Task/Location Description: Flowline Abandonment

Time	Description
10:10	Due to crops, the line will be abandoned in place: a sample will be collected at the Wellhead and Separator flowline risers
	Flowline is planned to be removed in the fall
12:45	FL01R-S excavated via hydrovac, no groundwater was present in the excavation

 Need photo log?



Equipment ID:		Equipment Type:	
Material:	Volume:	Contents:	
Notes/Conditions: BKG01			

Equipment ID:		Equipment Type:	
Material:	Volume:	Contents:	
Notes/Conditions: FL01R-W			



Equipment ID:		Equipment Type:	
Material:	Volume:	Contents:	
Notes/Conditions: FL01R-S			

Equipment ID:		Equipment Type:	
Material:	Volume:	Contents:	
Notes/Conditions: BKG02			

TABLE 1
FIELD DATA SUMMARY TABLE
NOBLE ENERGY INC.- 100322
WCL 24-5, WELD COUNTY, COLORADO
REM # 21028

Sample ID	Sample Date	Depth (ft. bgs)	GPS Data Latitude/Longitude		PDOP Value	VOC Concentration (ppm)
FL01R-S@4'	06/17/2024	4	40.345002	-104.679201	0.8	0.6
FL01R-W@4'	06/17/2024	4	40.344637	-104.682332	0.8	0.4
BKG01@4'	06/17/2024	4	40.344693	-104.682207	0.8	0.2
BKG02@4'	06/17/2024	4	40.344709	-104.682412	0.8	0.7

Notes:

1. Global Positioning System (GPS) data is provided in decimal degrees using North American Datum (NAD) 83 UTMZone 13 North.
2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

bgs = Below ground surface

TABLE 2
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA
NOBLE ENERGY INC.- 100322
WCL 24-5, WELD COUNTY, COLORADO
REM # 21028

Sample ID	Sample Date	Depth (ft. bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylenes (mg/kg)	1,2,4-Trimethyl-Benzene (mg/kg)	1,3,5-Trimethyl-Benzene (mg/kg)	Naphthalene (mg/kg)	TPH (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			1.2	490	5.8	58	30	27	2	500	500**		
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500	500**		
FL01R-S@4'	06/17/2024	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL01R-W@4'	06/17/2024	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50

Notes:

1. **Bold** values exceed the ECMC Table 915-1 limit(s)
 2. Pink & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL)
 3. * Indicates laboratory minimum detection limit in excess of SSL
 4. ** Summation of GRO+DRO+ORO must be less than 500 mg/kg
- ECMC = Energy & Carbon Management Commission
(<) = Analytical result is less than the indicated laboratory reporting limit.
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
ft. = Feet
bgs = Below ground surface

TABLE 3
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA
NOBLE ENERGY INC.- 100322
WCL 24-5, WELD COUNTY, COLORADO
REM # 21028

Sample ID	Sample Date	Depth (ft. bgs)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benzo (a) Anthracene (mg/kg)	Benzo (a) Pyrene (mg/kg)	Benzo (b) Fluoranthene (mg/kg)	Benzo (k) Fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenzo (a,h) Anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno (1,2,3-cd) Pyrene (mg/kg)	Pyrene (mg/kg)	1-Methyl - Naphthalene (mg/kg)	2-Methyl - Naphthalene (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
FL01R-S@4'	06/17/2024	4	<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
FL01R-W@4'	06/17/2024	4	<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

Notes:

1. **Bold** values exceed the ECMC Table 915-1 limit(s)
2. Pink & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL)
3. * Indicates laboratory minimum detection limit in excess of SSL

ECMC = Colorado Energy & Carbon Management Commission

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

ft. = Feet

bgs = Below ground surface

mg/kg = Milligrams per kilogram

TABLE 4
SUMMARY OF SOIL SUITABILITY FOR RECLAMATION
NOBLE ENERGY INC.- 100322
WCL 24-5, WELD COUNTY, COLORADO
REM # 21028

Sample ID	Sample Date	Depth (ft. bgs)	pH (Standard Units)	EC (mmhos/cm)	SAR (Standard Units)	Boron (mg/L)
ECMC Table 915-1 Soil Suitability Limits			6 - 8.3	<4	<6	2
FL01R-S@4'	06/17/2024	4	8.17	0.0746	0.0393	<2.00
FL01R-W@4'	06/17/2024	4	8.33	0.0838	0.319	<2.00
BKG01@4'	06/17/2024	4	7.87	0.558	1.36	NA
BKG02@4'	06/17/2024	4	7.90	0.335	3.76	NA
Maximum Background Concentration			7.90	0.558	3.76	-
Mean Background Concentration			7.89	0.447	2.56	-

Notes:

1. **Bold** faced values exceed the ECMC Table 915-1 limit(s), but are within 1.25x background concentrations.
2. **Bold** faced values exceed the ECMC Table 915-1 limit(s) above native background concentrations.
3. Brown highlighted soil analytical values indicate a regulatory exceedance.

ECMC = Colorado Energy & Carbon Management Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

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

ft. = Feet

bgs = Below ground surface

NA = Constituent not analyzed

TABLE 5
SUMMARY OF METALS IN SOIL CHEMISTRY DATA
NOBLE ENERGY INC.- 100322
WCL 24-5, WELD COUNTY, COLORADO
REM # 21028

Sample ID	Sample Date	Depth (ft. bgs)	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) ⁽⁴⁾ (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
FL01R-S@4'	06/17/2024	4	2.32	64.2	<0.200	<0.30*	4.50	6.02	4.37	<0.260	0.0442	20.0
FL01R-W@4'	06/17/2024	4	2.02	53.7	0.234	<0.30*	4.73	6.87	3.77	<0.260	0.0604	20.0
BKG01@4'	06/17/2024	4	2.35	54.6	<0.200	<0.30	3.93	5.51	3.73	<0.260	0.0491	17.0
BKG02@4'	06/17/2024	4	2.41	54.3	<0.180	<0.30	3.51	5.20	3.78	<0.234	0.0362	16.2
Maximum Background Concentration			2.41	-	-	-	-	-	-	-	-	-
Maximum Background Concentration X 1.25			3.01	-	-	-	-	-	-	-	-	-
Mean Background Concentration			2.38	-	-	-	-	-	-	-	-	-
Mean Background Concentration X 1.25			2.98	-	-	-	-	-	-	-	-	-

Notes:

- 1. Bold** faced values exceed the ECMC Table 915-1 limit(s), but are within 1.25x background concentrations.
- 2. Bold** faced values exceed the ECMC Table 915-1 limit(s) above native background concentrations.
- Red & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL)
- Compound falls within ECMC Table 915-1 Footnote 9.
- Non-detect background results accounted for in the highest background concentration by using the reporting limit.

ECMC = Energy & Carbon Management Commission

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

mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface

* Indicates laboratory minimum detection limit in excess of SSL



Legend

- Flowline Location
- + Soil Sample Location – Lab Analyzed (Collected via Trimble GPS)

Notes

- 1) All locations are approximate unless otherwise noted.
- 2) Buried infrastructure has been spatially projected.
- 3) Color coded sample exceedances are in reference to ECMC Table 915-1 Organic Compounds in Soil.

GPS – Global Positioning System
 mg/kg – Milligrams per kilogram
 PID – Photoionization Detector
 ppm – Parts per million

0 ft. 75 ft. 150 ft.

Image Source: Google Earth; Google 2020

DATE:	08/01/2024
DESIGNED BY:	JW
DRAWN BY:	LM



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

Noble Energy, Inc. – 100322 – DJ Basin
WCL 24-5
 SENE, Section 5, Township 4 North, Range 65 West
 Weld County, Colorado

SOIL SAMPLE LOCATION MAP
 (06/17/2024)

FIGURE 1

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 28, 2024

Jacob Whritenour
Tasman Geosciences
6855 W. 119th Ave.
Broomfield, CO 80020
RE: Noble - WCL 24-5 Flowline
Work Order #2406237

Enclosed are the results of analyses for samples received by Summit Scientific on 06/17/24 17:49. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Natalie Tessier". The signature is written in a cursive, flowing style.

Natalie Tessier For Paul Shrewsbury
President



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

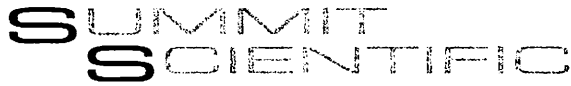
Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01R-W@4'	2406237-01	Soil	06/17/24 11:55	06/17/24 17:49
FL01R-S@4'	2406237-02	Soil	06/17/24 12:35	06/17/24 17:49
BKG01@4'	2406237-03	Soil	06/17/24 11:50	06/17/24 17:49
BKG02@4'	2406237-04	Soil	06/17/24 13:40	06/17/24 17:49



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

Lab ID	Page 1 of 1
2406237	

Client: Noble Noble / Tasman		Project Manager: Jake Whritenour		Company: Chevron	
Address: 6855 W 119th Ave		E-Mail: Jwhritenour@tasman-geo.com		Project Name/Location: WCL 24-5 Flowline	
City/State/Zip: Broomfield / CO / 80220				AFE#: UWRWE-A1761-ARN	
Phone:		Project Name: WCL 24-5 Flowline		PO/Billing Codes:	
Sampler Name: Jordan Hestmark		Project Number:		Contact: Dan Peterson, Wade Firestien	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix		Air-Canister #	Other	Analysis Requested							Special Instructions
					HCl	HNO3	None	Other	Water	Soil			BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5 - TMB	Boron - HWS	pH, EC, SAR	PAHs - 915	Metals - 915	
1	FLOIR-W @ 4'	6/17/24	1155	3			X			X		X	X	X	X	X	X	X		
2	FLOIR-S @ 4'	1	1235	1								X	X	X	X	X	X	X		
3	BK601 @ 4'	1	1150	1											X	X	X	X		
4	BK602 @ 4'	1	1340	1											X	X	X	X		
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				

Relinquished by: Jordan Hestmark	Date/Time: 6/17/24 1740	Received by: Tasman Lockbox	Date/Time: 6/17/24 1740	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: Tasman Lockbox	Date/Time: 6/17/24 1749	Received by: [Signature]	Date/Time: 6/17/24 1749	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	Field Turb. <input checked="" type="checkbox"/>	
Temperature Upon Receipt: 11.1	Corrected Temperature: 8	IR gun #: 1	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2406237

Client: Northwestern Client Project ID: WCL 24-S Flowline

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

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

Temp (°C) Thermometer #

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ice
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<u>Additional Comments (if any):</u>				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

AS
Custodian Printed Name

6/17/24
Date/Time



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

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

FL01R-W@4'
2406237-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHF0540	06/18/24	06/19/24	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: **06/17/24 11:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0383	95.7 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0384	95.9 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0414	103 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHF0541	06/18/24	06/19/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	9.42	75.4 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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 - WCL 24-5 Flowline
Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

FL01R-W@4'
2406237-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHF0500	06/18/24	06/20/24	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: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0195	58.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0184	55.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHF0559	06/19/24	06/20/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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 - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

FL01R-W@4'
2406237-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	2.02	0.200	mg/kg dry	1	BHF0528	06/18/24	06/19/24	EPA 6020B
Barium	53.7	0.400	"	"	"	"	"	"
Cadmium	0.234	0.200	"	"	"	"	"	"
Copper	4.73	0.400	"	"	"	"	"	"
Lead	6.87	0.200	"	"	"	"	"	"
Nickel	3.77	0.400	"	"	"	"	"	"
Silver	0.0604	0.0200	"	"	"	"	"	"
Zinc	20.0	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHF0565	06/19/24	06/19/24	EPA 7196A	

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

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	248	0.0500	mg/L dry	1	BHF0571	06/19/24	06/21/24	EPA 6020B	
Magnesium	50.2	0.0500	"	"	"	"	"	"	
Sodium	21.1	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.319	0.00100	units	1	BHF0675	06/21/24	06/21/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/17/24 11:55**

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 - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

FL01R-W@4'
2406237-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	89.6	%	1	BHF0525	06/18/24	06/18/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0838	0.0100	mmhos/cm	1	BHF0573	06/19/24	06/20/24	EPA 120.1	

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

Date Sampled: **06/17/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.33		pH Units	1	BHF0572	06/19/24	06/20/24	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

FL01R-S@4'
2406237-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHF0540	06/18/24	06/19/24	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: **06/17/24 12:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0400	100 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0402	101 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0401	100 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHF0541	06/18/24	06/19/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	9.39	75.1 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Broomfield CO, 80020

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

FL01R-S@4'
2406237-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHF0500	06/18/24	06/20/24	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: **06/17/24 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0171	51.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0172	51.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHF0559	06/19/24	06/20/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **06/17/24 12:35**

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 - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

FL01R-S@4'
2406237-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	2.32	0.200	mg/kg dry	1	BHF0528	06/18/24	06/19/24	EPA 6020B
Barium	64.2	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	4.50	0.400	"	"	"	"	"	"
Lead	6.02	0.200	"	"	"	"	"	"
Nickel	4.37	0.400	"	"	"	"	"	"
Silver	0.0442	0.0200	"	"	"	"	"	"
Zinc	20.0	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHF0565	06/19/24	06/19/24	EPA 7196A	

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

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	213	0.0500	mg/L dry	1	BHF0571	06/19/24	06/21/24	EPA 6020B	
Magnesium	39.8	0.0500	"	"	"	"	"	"	
Sodium	2.38	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0393	0.00100	units	1	BHF0675	06/21/24	06/21/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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

Project: Noble - WCL 24-5 Flowline
Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

FL01R-S@4'
2406237-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	86.9			%	1	BHF0525	06/18/24	06/18/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.0746	0.0100		mmhos/cm	1	BHF0573	06/19/24	06/20/24	EPA 120.1	

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

Date Sampled: **06/17/24 12:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.17			pH Units	1	BHF0572	06/19/24	06/20/24	EPA 9045D	

Summit Scientific

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Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

BKG01@4'
2406237-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **06/17/24 11:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.35	0.200	mg/kg dry	1	BHF0528	06/18/24	06/19/24	EPA 6020B	
Barium	54.6	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	3.93	0.400	"	"	"	"	"	"	
Lead	5.51	0.200	"	"	"	"	"	"	
Nickel	3.73	0.400	"	"	"	"	"	"	
Silver	0.0491	0.0200	"	"	"	"	"	"	
Zinc	17.0	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **06/17/24 11:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHF0565	06/19/24	06/19/24	EPA 7196A	

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

Date Sampled: **06/17/24 11:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	29.3	0.0500	mg/L dry	1	BHF0571	06/19/24	06/21/24	EPA 6020B	
Magnesium	9.58	0.0500	"	"	"	"	"	"	
Sodium	33.1	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/17/24 11:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.36	0.00100	units	1	BHF0675	06/21/24	06/21/24	Calculation	

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

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

BKG01@4'
2406237-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/17/24 11:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	90.4			%	1	BHF0525	06/18/24	06/18/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/17/24 11:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.558	0.0100		mmhos/cm	1	BHF0573	06/19/24	06/20/24	EPA 120.1	

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

Date Sampled: **06/17/24 11:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.87			pH Units	1	BHF0572	06/19/24	06/20/24	EPA 9045D	

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

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

BKG02@4'
2406237-04 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **06/17/24 13:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.41	0.180	mg/kg dry	1	BHF0528	06/18/24	06/19/24	EPA 6020B	
Barium	54.3	0.360	"	"	"	"	"	"	
Cadmium	ND	0.180	"	"	"	"	"	"	
Copper	3.51	0.360	"	"	"	"	"	"	
Lead	5.20	0.180	"	"	"	"	"	"	
Nickel	3.78	0.360	"	"	"	"	"	"	
Silver	0.0362	0.0180	"	"	"	"	"	"	
Zinc	16.2	0.360	"	"	"	"	"	"	
Selenium	ND	0.234	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **06/17/24 13:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHF0565	06/19/24	06/19/24	EPA 7196A	

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

Date Sampled: **06/17/24 13:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	31.9	0.0500	mg/L dry	1	BHF0571	06/19/24	06/21/24	EPA 6020B	
Magnesium	28.2	0.0500	"	"	"	"	"	"	
Sodium	121	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/17/24 13:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	3.76	0.00100	units	1	BHF0675	06/21/24	06/21/24	Calculation	

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Broomfield CO, 80020

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

BKG02@4'
2406237-04 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/17/24 13:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	93.3			%	1	BHF0525	06/18/24	06/18/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/17/24 13:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.335	0.0100		mmhos/cm	1	BHF0573	06/19/24	06/20/24	EPA 120.1	

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

Date Sampled: **06/17/24 13:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.90			pH Units	1	BHF0572	06/19/24	06/20/24	EPA 9045D	

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BHF0540 - EPA 5030 Soil MS

Blank (BHF0540-BLK1)

Prepared & Analyzed: 06/18/24

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0428</i>		<i>"</i>	<i>0.0400</i>		<i>107</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0388</i>		<i>"</i>	<i>0.0400</i>		<i>97.1</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0409</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>50-150</i>			

LCS (BHF0540-BS1)

Prepared & Analyzed: 06/18/24

Benzene	0.0970	0.0020	mg/kg	0.100		97.0	70-130			
Toluene	0.106	0.0050	"	0.100		106	70-130			
Ethylbenzene	0.101	0.0050	"	0.100		101	70-130			
m,p-Xylene	0.201	0.010	"	0.200		100	70-130			
o-Xylene	0.0995	0.0050	"	0.100		99.5	70-130			
1,2,4-Trimethylbenzene	0.0994	0.0050	"	0.100		99.4	70-130			
1,3,5-Trimethylbenzene	0.0992	0.0050	"	0.100		99.2	70-130			
Naphthalene	0.0865	0.0038	"	0.100		86.5	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0431</i>		<i>"</i>	<i>0.0400</i>		<i>108</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0421</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0405</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>50-150</i>			

Matrix Spike (BHF0540-MS1)

Source: 2406210-01

Prepared & Analyzed: 06/18/24

Benzene	0.0912	0.0020	mg/kg	0.100	ND	91.2	70-130			
Toluene	0.0979	0.0050	"	0.100	ND	97.9	70-130			
Ethylbenzene	0.0971	0.0050	"	0.100	ND	97.1	70-130			
m,p-Xylene	0.189	0.010	"	0.200	ND	94.7	70-130			
o-Xylene	0.0952	0.0050	"	0.100	ND	95.2	70-130			
1,2,4-Trimethylbenzene	0.0925	0.0050	"	0.100	ND	92.5	70-130			
1,3,5-Trimethylbenzene	0.0919	0.0050	"	0.100	ND	91.9	70-130			
Naphthalene	0.0857	0.0038	"	0.100	ND	85.7	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0418</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0400</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.5</i>	<i>50-150</i>			

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

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BHF0540 - EPA 5030 Soil MS

Matrix Spike Dup (BHF0540-MSD1)	Source: 2406210-01			Prepared & Analyzed: 06/18/24						
Benzene	0.110	0.0020	mg/kg	0.100	ND	110	70-130	18.2	30	
Toluene	0.119	0.0050	"	0.100	ND	119	70-130	19.2	30	
Ethylbenzene	0.112	0.0050	"	0.100	ND	112	70-130	14.6	30	
m,p-Xylene	0.213	0.010	"	0.200	ND	107	70-130	11.9	30	
o-Xylene	0.106	0.0050	"	0.100	ND	106	70-130	10.6	30	
1,2,4-Trimethylbenzene	0.104	0.0050	"	0.100	ND	104	70-130	11.6	30	
1,3,5-Trimethylbenzene	0.105	0.0050	"	0.100	ND	105	70-130	12.9	30	
Naphthalene	0.0922	0.0038	"	0.100	ND	92.2	70-130	7.25	30	
Surrogate: 1,2-Dichloroethane-d4	0.0487		"	0.0400		122	50-150			
Surrogate: Toluene-d8	0.0411		"	0.0400		103	50-150			
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0400		102	50-150			

Summit Scientific

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

Project: Noble - WCL 24-5 Flowline
Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BHF0541 - EPA 3550A

Blank (BHF0541-BLK1)

Prepared & Analyzed: 06/18/24

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	14.3		"	12.5	114	30-150					

LCS (BHF0541-BS1)

Prepared & Analyzed: 06/18/24

C10-C28 (DRO)	460	50	mg/kg	500	92.1	70-130					
Surrogate: <i>o</i> -Terphenyl	14.1		"	12.5	113	30-150					

Matrix Spike (BHF0541-MS1)

Source: 2406210-01

Prepared & Analyzed: 06/18/24

C10-C28 (DRO)	493	50	mg/kg	500	28.7	93.0	70-130				
Surrogate: <i>o</i> -Terphenyl	14.1		"	12.5	113	30-150					

Matrix Spike Dup (BHF0541-MSD1)

Source: 2406210-01

Prepared: 06/18/24 Analyzed: 06/19/24

C10-C28 (DRO)	538	50	mg/kg	500	28.7	102	70-130	8.66	20		
Surrogate: <i>o</i> -Terphenyl	15.7		"	12.5	126	30-150					

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

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BHF0500 - EPA 5030 Soil MS

Blank (BHF0500-BLK1)

Prepared: 06/18/24 Analyzed: 06/19/24

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	0.0280		"	0.0333		84.1	40-150			
Surrogate: Fluoranthene-d10	0.0255		"	0.0333		76.4	40-150			

LCS (BHF0500-BS1)

Prepared: 06/18/24 Analyzed: 06/19/24

Acenaphthene	0.0256	0.00500	mg/kg	0.0333	76.8	31-137	
Anthracene	0.0262	0.00500	"	0.0333	78.7	30-120	
Benzo (a) anthracene	0.0267	0.00500	"	0.0333	80.2	30-120	
Benzo (a) pyrene	0.0240	0.00500	"	0.0333	72.0	30-120	
Benzo (b) fluoranthene	0.0240	0.00500	"	0.0333	72.0	30-120	
Benzo (k) fluoranthene	0.0242	0.00500	"	0.0333	72.6	30-120	
Chrysene	0.0259	0.00500	"	0.0333	77.6	30-120	
Dibenz (a,h) anthracene	0.0227	0.00500	"	0.0333	68.0	30-120	
Fluoranthene	0.0259	0.00500	"	0.0333	77.6	30-120	
Fluorene	0.0254	0.00500	"	0.0333	76.3	30-120	
Indeno (1,2,3-cd) pyrene	0.0232	0.00500	"	0.0333	69.5	30-120	
Pyrene	0.0284	0.00500	"	0.0333	85.1	35-142	
1-Methylnaphthalene	0.0332	0.00500	"	0.0333	99.6	35-142	
2-Methylnaphthalene	0.0314	0.00500	"	0.0333	94.3	35-142	
Surrogate: 2-Methylnaphthalene-d10	0.0333		"	0.0333	99.9	40-150	
Surrogate: Fluoranthene-d10	0.0277		"	0.0333	83.2	40-150	

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Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

PAH by EPA Method 8270D SIM - Quality Control

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

Batch BHF0500 - EPA 5030 Soil MS

Matrix Spike (BHF0500-MS1)	Source: 2406220-01			Prepared: 06/18/24 Analyzed: 06/19/24						
Acenaphthene	0.0240	0.00500	mg/kg	0.0333	ND	72.0	31-137			
Anthracene	0.0240	0.00500	"	0.0333	ND	71.9	30-120			
Benzo (a) anthracene	0.0253	0.00500	"	0.0333	ND	75.9	30-120			
Benzo (a) pyrene	0.0229	0.00500	"	0.0333	ND	68.6	30-120			
Benzo (b) fluoranthene	0.0236	0.00500	"	0.0333	ND	70.8	30-120			
Benzo (k) fluoranthene	0.0232	0.00500	"	0.0333	ND	69.7	30-120			
Chrysene	0.0243	0.00500	"	0.0333	ND	72.8	30-120			
Dibenz (a,h) anthracene	0.0196	0.00500	"	0.0333	ND	58.9	30-120			
Fluoranthene	0.0239	0.00500	"	0.0333	ND	71.6	30-120			
Fluorene	0.0245	0.00500	"	0.0333	ND	73.5	30-120			
Indeno (1,2,3-cd) pyrene	0.0142	0.00500	"	0.0333	ND	42.5	30-120			
Pyrene	0.0275	0.00500	"	0.0333	ND	82.6	35-142			
1-Methylnaphthalene	0.0296	0.00500	"	0.0333	ND	88.7	15-130			
2-Methylnaphthalene	0.0285	0.00500	"	0.0333	ND	85.4	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0301</i>		<i>"</i>	<i>0.0333</i>		<i>90.3</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0257</i>		<i>"</i>	<i>0.0333</i>		<i>77.1</i>	<i>40-150</i>			

Matrix Spike Dup (BHF0500-MSD1)	Source: 2406220-01			Prepared: 06/18/24 Analyzed: 06/19/24						
Acenaphthene	0.0234	0.00500	mg/kg	0.0333	ND	70.2	31-137	2.58	30	
Anthracene	0.0241	0.00500	"	0.0333	ND	72.4	30-120	0.700	30	
Benzo (a) anthracene	0.0250	0.00500	"	0.0333	ND	75.1	30-120	0.997	30	
Benzo (a) pyrene	0.0232	0.00500	"	0.0333	ND	69.6	30-120	1.50	30	
Benzo (b) fluoranthene	0.0245	0.00500	"	0.0333	ND	73.5	30-120	3.64	30	
Benzo (k) fluoranthene	0.0232	0.00500	"	0.0333	ND	69.7	30-120	0.0215	30	
Chrysene	0.0238	0.00500	"	0.0333	ND	71.5	30-120	1.76	30	
Dibenz (a,h) anthracene	0.0185	0.00500	"	0.0333	ND	55.6	30-120	5.65	30	
Fluoranthene	0.0239	0.00500	"	0.0333	ND	71.6	30-120	0.0726	30	
Fluorene	0.0238	0.00500	"	0.0333	ND	71.5	30-120	2.65	30	
Indeno (1,2,3-cd) pyrene	0.0137	0.00500	"	0.0333	ND	41.0	30-120	3.57	30	
Pyrene	0.0272	0.00500	"	0.0333	ND	81.7	35-142	1.09	30	
1-Methylnaphthalene	0.0305	0.00500	"	0.0333	ND	91.6	15-130	3.14	50	
2-Methylnaphthalene	0.0270	0.00500	"	0.0333	ND	81.1	15-130	5.21	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0293</i>		<i>"</i>	<i>0.0333</i>		<i>87.9</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0254</i>		<i>"</i>	<i>0.0333</i>		<i>76.1</i>	<i>40-150</i>			

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

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

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

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

Batch BHF0559 - EPA 3050B

Blank (BHF0559-BLK1)

Prepared: 06/19/24 Analyzed: 06/20/24

Boron ND 2.00 mg/L

LCS (BHF0559-BS1)

Prepared: 06/19/24 Analyzed: 06/20/24

Boron 4.94 2.00 mg/L 5.00 98.8 80-120

Duplicate (BHF0559-DUP1)

Source: 2406179-01

Prepared: 06/19/24 Analyzed: 06/20/24

Boron 0.237 2.00 mg/L 0.247 4.22 20

Matrix Spike (BHF0559-MS1)

Source: 2406179-01

Prepared: 06/19/24 Analyzed: 06/20/24

Boron 5.37 2.00 mg/L 5.01 0.247 102 75-125

Matrix Spike Dup (BHF0559-MSD1)

Source: 2406179-01

Prepared: 06/19/24 Analyzed: 06/20/24

Boron 5.39 2.00 mg/L 5.01 0.247 103 75-125 0.388 25

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Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BHF0528 - EPA 3050B

Blank (BHF0528-BLK1)

Prepared: 06/18/24 Analyzed: 06/19/24

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 (BHF0528-BS1)

Prepared: 06/18/24 Analyzed: 06/19/24

Arsenic	38.8	0.200	mg/kg wet	40.0	97.0	80-120
Barium	39.3	0.400	"	40.0	98.4	80-120
Cadmium	1.95	0.200	"	2.00	97.7	80-120
Copper	40.9	0.400	"	40.0	102	80-120
Lead	19.7	0.200	"	20.0	98.7	80-120
Nickel	40.6	0.400	"	40.0	102	80-120
Silver	1.96	0.0200	"	2.00	98.0	80-120
Zinc	40.7	0.400	"	40.0	102	80-120
Selenium	3.92	0.260	"	4.00	98.0	80-120

Duplicate (BHF0528-DUP1)

Source: 2406220-01

Prepared: 06/18/24 Analyzed: 06/19/24

Arsenic	4.92	0.200	mg/kg dry	5.12	3.87	20
Barium	159	0.400	"	163	2.42	20
Cadmium	0.370	0.200	"	0.371	0.0943	20
Copper	6.57	0.400	"	6.47	1.48	20
Lead	10.3	0.200	"	10.2	0.436	20
Nickel	7.13	0.400	"	7.14	0.127	20
Silver	0.0613	0.0200	"	0.0668	8.61	20
Zinc	26.2	0.400	"	25.2	3.82	20
Selenium	0.178	0.260	"	ND	200	20

QR-01

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6855 W. 119th Ave.
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Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BHF0528 - EPA 3050B

Matrix Spike (BHF0528-MS1)

Source: 2406220-01

Prepared: 06/18/24 Analyzed: 06/19/24

Arsenic	47.0	0.200	mg/kg dry	43.0	5.12	97.3	75-125				
Barium	171	0.400	"	43.0	163	17.3	75-125				QM-07
Cadmium	2.50	0.200	"	2.15	0.371	99.0	75-125				
Copper	26.2	0.400	"	43.0	6.47	46.0	75-125				QM-07
Lead	28.2	0.200	"	21.5	10.2	83.6	75-125				
Nickel	27.1	0.400	"	43.0	7.14	46.5	75-125				QM-07
Silver	2.12	0.0200	"	2.15	0.0668	95.7	75-125				
Zinc	45.8	0.400	"	43.0	25.2	47.9	75-125				QM-07
Selenium	3.41	0.260	"	4.30	ND	79.3	75-125				

Matrix Spike Dup (BHF0528-MSD1)

Source: 2406220-01

Prepared: 06/18/24 Analyzed: 06/19/24

Arsenic	46.3	0.200	mg/kg dry	42.3	5.12	97.3	75-125	1.39	25		
Barium	162	0.400	"	42.3	163	NR	75-125	5.10	25		QM-07
Cadmium	2.50	0.200	"	2.12	0.371	100	75-125	0.0546	25		
Copper	24.8	0.400	"	42.3	6.47	43.3	75-125	5.62	25		QM-07
Lead	27.8	0.200	"	21.2	10.2	83.0	75-125	1.47	25		
Nickel	25.9	0.400	"	42.3	7.14	44.2	75-125	4.76	25		QM-07
Silver	2.12	0.0200	"	2.12	0.0668	97.2	75-125	0.0481	25		
Zinc	45.1	0.400	"	42.3	25.2	47.0	75-125	1.54	25		QM-07
Selenium	3.47	0.260	"	4.23	ND	81.9	75-125	1.69	25		

Post Spike (BHF0528-PS1)

Source: 2406220-01

Prepared: 06/18/24 Analyzed: 06/19/24

Arsenic	120		ug/l	100	12.2	107	75-125				
Barium	483		"	100	389	94.0	75-125				
Cadmium	6.23		"	5.00	0.882	107	75-125				
Copper	65.5		"	100	15.4	50.1	75-125				QM-01
Lead	69.6		"	50.0	24.3	90.5	75-125				
Nickel	67.6		"	100	17.0	50.6	75-125				QM-01
Silver	5.40		"	5.00	0.159	105	75-125				
Zinc	112		"	100	59.9	52.1	75-125				QM-01
Selenium	9.51		"	10.0	0.407	91.0	75-125				

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - WCL 24-5 Flowline
Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BHF0565 - 3060A Mod

Blank (BHF0565-BLK1)

Prepared & Analyzed: 06/19/24

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BHF0565-BS1)

Prepared & Analyzed: 06/19/24

Chromium, Hexavalent 25.1 0.30 mg/kg wet 25.0 100 80-120

Duplicate (BHF0565-DUP1)

Source: 2406237-01

Prepared & Analyzed: 06/19/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BHF0565-MS1)

Source: 2406237-01

Prepared & Analyzed: 06/19/24

Chromium, Hexavalent 27.2 0.30 mg/kg dry 28.2 ND 96.4 75-125

Matrix Spike Dup (BHF0565-MSD1)

Source: 2406237-01

Prepared & Analyzed: 06/19/24

Chromium, Hexavalent 25.3 0.30 mg/kg dry 28.2 ND 89.8 75-125 7.09 20

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Broomfield CO, 80020

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

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

Summit Scientific

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

Batch BHF0571 - General Preparation

Blank (BHF0571-BLK1)

Prepared: 06/19/24 Analyzed: 06/21/24

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

LCS (BHF0571-BS1)

Prepared: 06/19/24 Analyzed: 06/21/24

Calcium	4.84	0.0500	mg/L wet	5.00	96.7	70-130				
Magnesium	5.04	0.0500	"	5.00	101	70-130				
Sodium	5.11	0.0500	"	5.00	102	70-130				

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Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

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

Summit Scientific

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

Batch BHF0525 - General Preparation

Duplicate (BHF0525-DUP2)	Source: 2406220-01			Prepared & Analyzed: 06/18/24							
% Solids	92.7		%		92.3				0.424	20	

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

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

Summit Scientific

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

Batch BHF0573 - General Preparation

Blank (BHF0573-BLK1)

Prepared: 06/19/24 Analyzed: 06/20/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHF0573-BS1)

Prepared: 06/19/24 Analyzed: 06/20/24

Specific Conductance (EC) 0.155 0.0100 mmhos/cm 0.150 103 95-105

Duplicate (BHF0573-DUP1)

Source: 2406220-01

Prepared: 06/19/24 Analyzed: 06/20/24

Specific Conductance (EC) 1.55 0.0100 mmhos/cm 1.57 1.47 20

Summit Scientific

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

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

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

Summit Scientific

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

Batch BHF0572 - General Preparation

LCS (BHF0572-BS1)

Prepared: 06/19/24 Analyzed: 06/20/24

pH	9.16	pH Units	9.18	99.8	95-105
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Duplicate (BHF0572-DUP1)

Source: 2405230-07

Prepared: 06/19/24 Analyzed: 06/20/24

pH	8.49	pH Units	8.41	0.947	20
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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - WCL 24-5 Flowline

Project Number: UWRWE-A1761-ABN
Project Manager: Jacob Whritenour

Reported:
06/28/24 08:13

Notes and Definitions

- QR-01 Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- QM-01 The spike recovery for this QC sample is outside of established control limits due to sample matrix interference.
- 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