



FLOWLINE ABANDONMENT FORM

SITE NAME: Hanscome C28-29D Flowline							DATE: 6/27/2024	REM. PROJECT #: 34734	WEATHER: Sunny, 80s	
SITE DIRECTIONS: N CR53 and E CR42, go E on CR42 for 0.49mi and turn S into							CLIENT: Noble			
LEGALS AND LAT/LONG: 40.290166, -104.556370							TASMAN PERSONNEL: LB			
SOIL TYPES: Well Graded Sand - SW							SURFACE GRADIENT: Southeast			
SOIL SAMPLING							FACILITY INFRASTRUCTURE			
Date/Time	Soil Sample ID	PID (ppm)	Visual	Olfactory	Photo?	Grab or Lab Sample?	EQUIPMENT	Quantity	Photo?	
							Above Ground Storage Tank (AST)			
6/27/2024 11:40	FL01R-S@2'	0.1	No Staining	No Odor	Yes	Lab	Buried or Partially Buried Vessel			
							Separator			
6/28/2024 08:00	FL01R-W@1'	0.1	No Staining	No Odor	Yes	Lab	Emission Control Device (ECD)			
6/28/2024 08:06	FL01-01@1'	0.1	No Staining	No Odor	Yes	Lab	Dump Line			
6/28/2024 08:10	BKG01@1'	0.2	No Staining	No Odor	Yes	Lab	Wellhead			
6/28/2024 08:12	BKG01@2'	0.1	No Staining	No Odor	Yes	Lab	Flowline			
							Other:			
							Soil Loads Removed			
							IMPACTED SOIL IDENTIFIED?			
							ESTIMATED VOLUME OF IMPACTS:			
							Date	Number	CY	
							Total Removed	0	0	
							Disposal Facility:			
							Groundwater Recovery			
							DATE GW ENCOUNTERED:	DEPTH:		
							GROUNDWATER IN CONTACT WITH IMPACTED SOIL?			
							LNAPL OR SHEEN OBSERVED ON GW?			
GROUNDWATER SAMPLING							Date	BBLs		
Date/Time	Groundwater Sample ID	Depth Collected	Turbid?	Sheen?	Odor?	Photo?				
							Total Removed	0		
							Disposal Facility:			



Site Area/AOC: Hanscome C28-29D Flowline Client: Noble

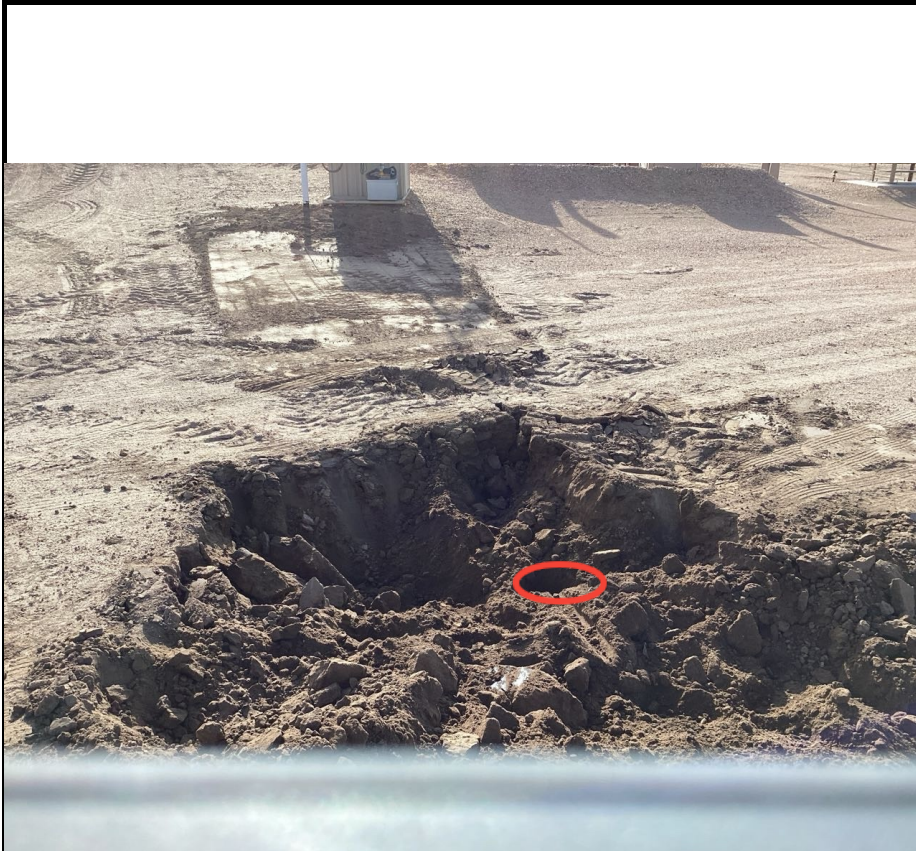
Daily Forecast/Weather: Sunny, 80s Personnel: LB

Task/Location Description: Flowline Removal

Need photo log?



							
Equipment ID:		Equipment Type:		Equipment ID:		Equipment Type:	
Material:	Volume:	Contents:		Material:	Volume:	Contents:	
Notes/Conditions: FL01R-S@2' FACING SW				Notes/Conditions: FL01R-W@2' FACING SW			



Equipment ID:		Equipment Type:		Equipment ID:		Equipment Type:	
Material:	Volume:	Contents:		Material:	Volume:	Contents:	
Notes/Conditions: FL01-01 @ 1' FACING E				Notes/Conditions: BKG01 FACING E			

TABLE 1
FIELD DATA SUMMARY TABLE
NOBLE ENERGY, INC - 100322
HANSCOME C28-29D, WELD COUNTY, COLORADO
REM # 34734

Sample ID	Sample Date	Depth (ft. bgs)	GPS Data Latitude/Longitude		PDOP Value	VOC Concentration (ppm)
FL01R-S@2'	6/27/2024	2	40.290059	-104.555949	0.9	0.1
FL01R-W@1'	6/28/2024	1	40.290152	-104.556324	0.9	0.1
FL01-01@1'	6/28/2024	1	40.290048	-104.556176	0.8	0.1
BKG01@1'	6/28/2024	1	40.290152	-104.556546	0.8	0.2
BKG01@2'	6/28/2024	2	40.290131	-104.556546	0.8	0.1

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

in. = Inches

ft. = Feet

bgs = Below ground surface

NC = Data not collected

TABLE 2
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA
NOBLE ENERGY, INC - 100322
HANSCOME C28-29D, WELD COUNTY, COLORADO
REM # 34734

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@2 '	6/27/2024	2	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL01R-W@1'	6/28/2024	1	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL01-01@1'	6/28/2024	1	<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
HANSCOME C28-29D, WELD COUNTY, COLORADO
REM # 34734

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@2'	06/27/2024	2	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00979	<0.00500	<0.00500	<0.00500
FL01-01@1'	06/28/2024	1	0.0126	0.0260	0.0308	0.0220	0.0364	0.0121	0.0271	0.00629	0.0751	0.0162	0.0112	0.0757	<0.00500	<0.00500
FL01R-W@1'	06/28/2024	1	0.0566	0.0893	0.100	0.0653	0.113	0.0407	0.0915	0.0101	0.244	0.0667	0.0268	0.2680	0.00651	0.0132

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
HANSCOME C28-29D, WELD COUNTY, COLORADO
REM # 34734

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@2'	06/27/2024	2	7.56	0.242	0.105	<2.00
FL01-01@1'	06/28/2024	1	7.81	0.922	2.29	<2.00
FL01R-W@1'	06/28/2024	1	8.53	0.232	0.394	<2.00
BKG01@1'	06/28/2024	1	8.55	0.470	1.12	<2.00
BKG01@2'	06/28/2024	2	8.67	0.268	0.996	<2.00
Maximum Background Concentration			8.67	0.470	1.12	-
Mean Background Concentration			8.61	0.369	1.06	-

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

TABLE 5
SUMMARY OF METALS IN SOIL CHEMISTRY DATA
NOBLE ENERGY, INC - 100322
HANSCOME C28-29D, WELD COUNTY, COLORADO
REM # 34734

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@2'	06/27/2024	2	1.99	44.1	<0.200	<0.30	6.75	6.16	2.91	<0.260	0.0340	29.3
FL01-01@1'	06/28/2024	1	2.78	58.4	0.241	<0.30	5.64	8.80	3.99	<0.260	0.0325	22.1
FL01R-W@1'	06/28/2024	1	2.95	75.0	0.215	<0.30	5.05	45.8	4.73	<0.260	0.0414	20.5
BKG01@1'	06/28/2024	1	2.74	42.9	0.200	<0.30	4.39	6.62	3.45	<0.260	0.0222	15.6
BKG01@2'	06/28/2024	2	2.85	49.6	<0.200	<0.30	4.61	6.94	3.88	<0.260	0.0223	16.4
Maximum Background Concentration			2.85	-	-	-	-	6.94	-	-	-	-
Maximum Background Concentration X 1.25			3.56	-	-	-	-	8.68	-	-	-	-
Mean Background Concentration			2.80	-	-	-	-	6.78	-	-	-	-
Mean Background Concentration X 1.25			3.49	-	-	-	-	8.48	-	-	-	-

Notes:

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

ECMC = Energy & Carbon Management Commission

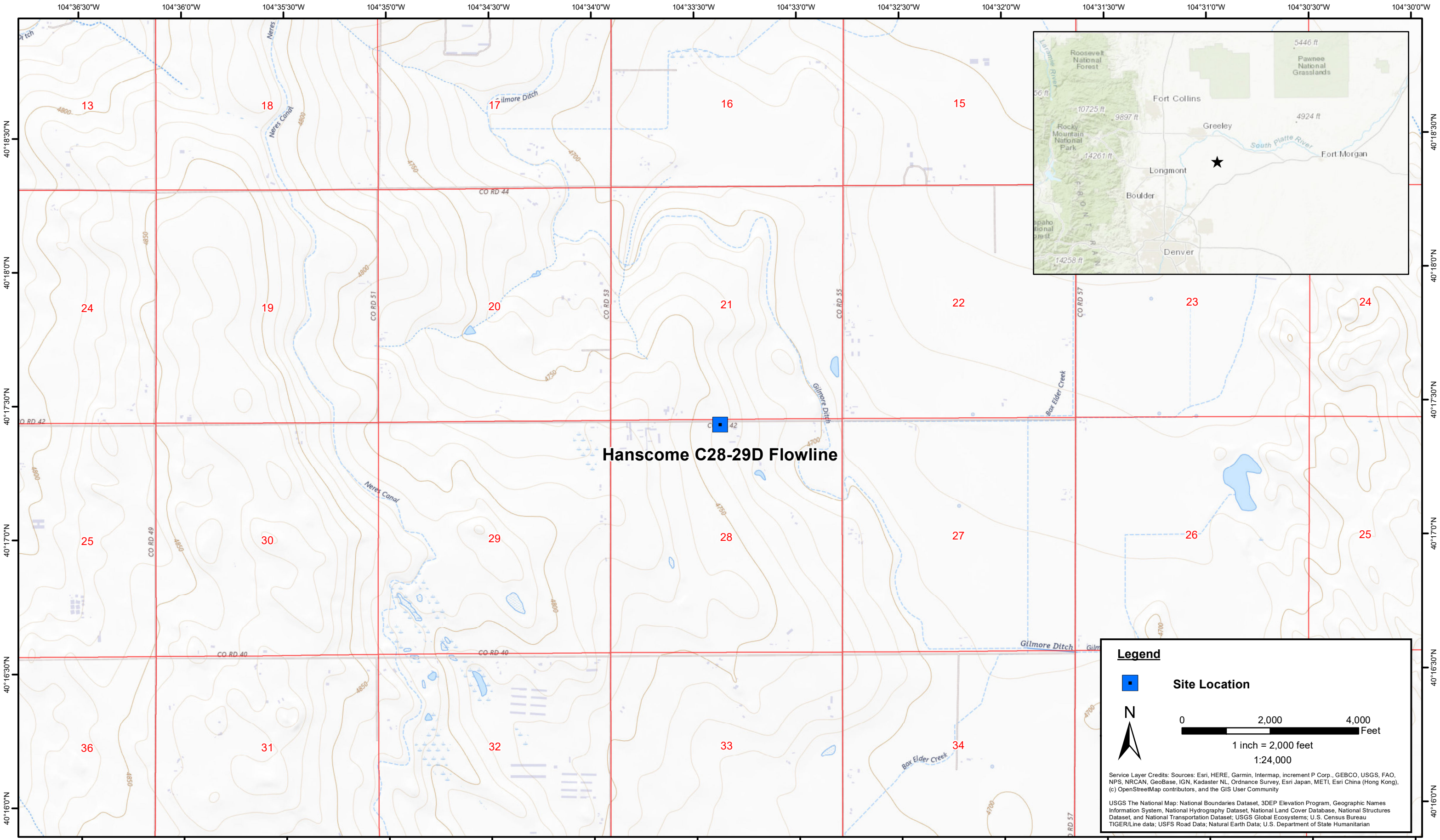
(<) = Analytical result is less than the indicated laboratory reporting limit.

mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface

* Indicates laboratory minimum detection limit in excess of SSL



DATE:	July 2024
DESIGNED BY:	B. Nelson
DRAWN BY:	J. Clonts




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

Noble Energy, Inc. – DJ Basin
Hanscome C28-29D Flowline
NENW, Section 28, Township 4 North, Range 64 West
Weld County, Colorado

Site Location Map

Figure
1



DATE:	07/16/2024	 <div>Tasman Geosciences, Inc. 6855 W 119th Avenue Broomfield, CO 80020</div>	Noble Energy, Inc. – DJ Basin Hanscome C28-29D NENW, Section 28, Township 4 North, Range 64 West Weld County, Colorado	Flowline Closure & Soil Analytical Results Map (06/27/2024 & 06/28/2024)	FIGURE 2
DESIGNED BY:	JW				
DRAWN BY:	ML				

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

July 10, 2024

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Hanscome C28-29D Flowline

Work Order #2406441

Enclosed are the results of analyses for samples received by Summit Scientific on 06/27/24 18:00. 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 fluid and cursive, with the first name being more prominent.

Natalie Tessier For Paul Shrewsbury

President



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

Project: Noble - Hanscome C28-29D Flowline

Project Number: UWRWE-A3135-ABN

Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01R-S@2'	2406441-01	Soil	06/27/24 11:40	06/27/24 18:00

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.

Client: Noble/Tasman				Send Data To: Project Manager: Jake Whritenour				Send Invoice To: Company: Chevron													
Address: 6855 W 119th Ave				E-Mail: Jwhritenour@tasman-geo.com				Project Name/Location: Hanscome C28-29D FL													
City/State/Zip: Broomfield / CO / 80020								AFE#: UWRWE-A3135-ABN													
Phone: 970-214-7901				Project Name: Hanscome C28-29D FL ^{us}				PO/Billing Codes:													
Sampler Name: Lillian Buck				Project Number: Flowline				Contact: Dan Peterson ^{us} Miguel Barron													
				Preservative		Matrix		Analysis Requested				Special Instructions									
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	VOC - 915	TPH - 915	PAH - 915	pH, EC, SAR	Boron - HWS	Metals - 915	HOLD		
1	FL01R-S c2'	6/27/24	1140	3			X			X			X	X	X	X	X	X			pH, EC, SAR by saturated paste
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by: <i>Liz</i>	Date/Time: 6/27/24 1415	Received by: Tasman lockbox	Date/Time: 6/27/24 1415	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: Tasman lockbox	Date/Time: 6/27/24 1800	Received by: <i>[Signature]</i>	Date/Time: 6/27/24 1800	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: 10.7		Corrected Temperature: 8		IR gun #:	HNO3 lot #:	

S₂

Sample Receipt Checklist

S2 Work Order# 2406441Client: Nobel Tasmann Client Project ID: Hanscome C28-290 FlowlineShipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: _____

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 10.5 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"/>	<u>on 20E</u>
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.
AS
Custodian Printed Name

6/21/24
Date/Time



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

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

FL01R-S@2'
2406441-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/27/24 11:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHF0969	06/28/24	07/01/24	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: **06/27/24 11:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0434	108 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0397	99.3 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0407	102 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/27/24 11:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHF0972	06/28/24	07/03/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **06/27/24 11:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	7.44	59.5 %		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 - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

FL01R-S@2'
2406441-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/27/24 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BHF0936	06/28/24	07/03/24	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	0.00979	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **06/27/24 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0150	45.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0236	70.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/27/24 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BHF0942	06/28/24	07/02/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **06/27/24 11:40**

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 - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

FL01R-S@2'
2406441-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	1.99	0.200	mg/kg dry	1	BHF0951	06/28/24	07/03/24	EPA 6020B
Barium	44.1	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	6.75	0.400	"	"	"	"	"	"
Lead	6.16	0.200	"	"	"	"	"	"
Nickel	2.91	0.400	"	"	"	"	"	"
Silver	0.0340	0.0200	"	"	"	"	"	"
Zinc	29.3	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **06/27/24 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHF0941	06/28/24	06/28/24	EPA 7196A	

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

Date Sampled: **06/27/24 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	58.2	0.0500	mg/L dry	1	BHG0080	07/02/24	07/04/24	EPA 6020B	
Magnesium	9.88	0.0500	"	"	"	"	"	"	
Sodium	3.30	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/27/24 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.105	0.00100	units	1	BHG0162	07/08/24	07/08/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Broomfield CO, 80020

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

FL01R-S@2'
2406441-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/27/24 11:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	89.8			%	1	BHF0944	06/28/24	07/01/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/27/24 11:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.242	0.0100		mmhos/cm	1	BHG0082	07/02/24	07/08/24	EPA 120.1	

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

Date Sampled: **06/27/24 11:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.56			pH Units	1	BHG0081	07/02/24	07/08/24	EPA 9045D	

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Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

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 BHF0969 - EPA 5030 Soil MS

Blank (BHF0969-BLK1)

Prepared: 06/28/24 Analyzed: 07/01/24

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	0.0402		"	0.0400		100	50-150			
Surrogate: Toluene-d8	0.0394		"	0.0400		98.6	50-150			
Surrogate: 4-Bromofluorobenzene	0.0403		"	0.0400		101	50-150			

LCS (BHF0969-BS1)

Prepared: 06/28/24 Analyzed: 07/01/24

Benzene	0.107	0.0020	mg/kg	0.100		107	70-130			
Toluene	0.107	0.0050	"	0.100		107	70-130			
Ethylbenzene	0.118	0.0050	"	0.100		118	70-130			
m,p-Xylene	0.219	0.010	"	0.200		109	70-130			
o-Xylene	0.106	0.0050	"	0.100		106	70-130			
1,2,4-Trimethylbenzene	0.110	0.0050	"	0.100		110	70-130			
1,3,5-Trimethylbenzene	0.111	0.0050	"	0.100		111	70-130			
Naphthalene	0.103	0.0038	"	0.100		103	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0419		"	0.0400		105	50-150			
Surrogate: Toluene-d8	0.0400		"	0.0400		99.9	50-150			
Surrogate: 4-Bromofluorobenzene	0.0395		"	0.0400		98.8	50-150			

Matrix Spike (BHF0969-MS1)

Source: 2406441-01

Prepared: 06/28/24 Analyzed: 07/01/24

Benzene	0.0999	0.0020	mg/kg	0.100	ND	99.9	70-130			
Toluene	0.0994	0.0050	"	0.100	ND	99.4	70-130			
Ethylbenzene	0.110	0.0050	"	0.100	ND	110	70-130			
m,p-Xylene	0.204	0.010	"	0.200	ND	102	70-130			
o-Xylene	0.0971	0.0050	"	0.100	ND	97.1	70-130			
1,2,4-Trimethylbenzene	0.0933	0.0050	"	0.100	ND	93.3	70-130			
1,3,5-Trimethylbenzene	0.0965	0.0050	"	0.100	ND	96.5	70-130			
Naphthalene	0.0810	0.0038	"	0.100	ND	81.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0422		"	0.0400		105	50-150			
Surrogate: Toluene-d8	0.0403		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0397		"	0.0400		99.3	50-150			

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

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

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 BHF0969 - EPA 5030 Soil MS

Matrix Spike Dup (BHF0969-MSD1)	Source: 2406441-01			Prepared: 06/28/24 Analyzed: 07/01/24						
Benzene	0.107	0.0020	mg/kg	0.100	ND	107	70-130	7.15	30	
Toluene	0.105	0.0050	"	0.100	ND	105	70-130	5.60	30	
Ethylbenzene	0.117	0.0050	"	0.100	ND	117	70-130	6.62	30	
m,p-Xylene	0.215	0.010	"	0.200	ND	107	70-130	5.17	30	
o-Xylene	0.102	0.0050	"	0.100	ND	102	70-130	4.53	30	
1,2,4-Trimethylbenzene	0.0968	0.0050	"	0.100	ND	96.8	70-130	3.63	30	
1,3,5-Trimethylbenzene	0.0997	0.0050	"	0.100	ND	99.7	70-130	3.27	30	
Naphthalene	0.0808	0.0038	"	0.100	ND	80.8	70-130	0.260	30	
Surrogate: 1,2-Dichloroethane-d4	0.0419		"	0.0400		105	50-150			
Surrogate: Toluene-d8	0.0403		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0400		98.1	50-150			

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

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 BHF0972 - EPA 3550A

Blank (BHF0972-BLK1)

Prepared: 06/28/24 Analyzed: 07/03/24

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	11.7		"	12.5		93.2	30-150			

LCS (BHF0972-BS1)

Prepared: 06/28/24 Analyzed: 07/03/24

C10-C28 (DRO)	519	50	mg/kg	500		104	70-130			
Surrogate: o-Terphenyl	12.1		"	12.5		97.2	30-150			

Matrix Spike (BHF0972-MS1)

Source: 2406441-01

Prepared: 06/28/24 Analyzed: 07/03/24

C10-C28 (DRO)	462	50	mg/kg	500	ND	92.4	70-130			
Surrogate: o-Terphenyl	7.94		"	12.5		63.6	30-150			

Matrix Spike Dup (BHF0972-MSD1)

Source: 2406441-01

Prepared: 06/28/24 Analyzed: 07/03/24

C10-C28 (DRO)	464	50	mg/kg	500	ND	92.8	70-130	0.434	20	
Surrogate: o-Terphenyl	9.02		"	12.5		72.1	30-150			

Summit Scientific

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Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

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 BHF0936 - EPA 5030 Soil MS

Blank (BHF0936-BLK1)

Prepared: 06/28/24 Analyzed: 07/03/24

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	0.0337		"	0.0333		101	40-150			

LCS (BHF0936-BS1)

Prepared: 06/28/24 Analyzed: 07/03/24

Acenaphthene	0.0304	0.00500	mg/kg	0.0333		91.3	31-137			
Anthracene	0.0309	0.00500	"	0.0333		92.8	30-120			
Benzo (a) anthracene	0.0369	0.00500	"	0.0333		111	30-120			
Benzo (a) pyrene	0.0343	0.00500	"	0.0333		103	30-120			
Benzo (b) fluoranthene	0.0349	0.00500	"	0.0333		105	30-120			
Benzo (k) fluoranthene	0.0295	0.00500	"	0.0333		88.6	30-120			
Chrysene	0.0319	0.00500	"	0.0333		95.7	30-120			
Dibenz (a,h) anthracene	0.0338	0.00500	"	0.0333		101	30-120			
Fluoranthene	0.0320	0.00500	"	0.0333		96.0	30-120			
Fluorene	0.0299	0.00500	"	0.0333		89.8	30-120			
Indeno (1,2,3-cd) pyrene	0.0363	0.00500	"	0.0333		109	30-120			
Pyrene	0.0345	0.00500	"	0.0333		103	35-142			
1-Methylnaphthalene	0.0382	0.00500	"	0.0333		115	35-142			
2-Methylnaphthalene	0.0293	0.00500	"	0.0333		88.0	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0368		"	0.0333		110	40-150			
Surrogate: Fluoranthene-d10	0.0344		"	0.0333		103	40-150			

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

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BHF0936 - EPA 5030 Soil MS

Matrix Spike (BHF0936-MS1)

Source: 2406429-01

Prepared: 06/28/24 Analyzed: 07/03/24

Acenaphthene	0.0261	0.00500	mg/kg	0.0333	ND	78.2	31-137		
Anthracene	0.0253	0.00500	"	0.0333	ND	75.8	30-120		
Benzo (a) anthracene	0.0316	0.00500	"	0.0333	ND	94.8	30-120		
Benzo (a) pyrene	0.0295	0.00500	"	0.0333	ND	88.5	30-120		
Benzo (b) fluoranthene	0.0299	0.00500	"	0.0333	ND	89.7	30-120		
Benzo (k) fluoranthene	0.0242	0.00500	"	0.0333	ND	72.6	30-120		
Chrysene	0.0261	0.00500	"	0.0333	ND	78.3	30-120		
Dibenz (a,h) anthracene	0.0306	0.00500	"	0.0333	ND	91.8	30-120		
Fluoranthene	0.0265	0.00500	"	0.0333	ND	79.6	30-120		
Fluorene	0.0275	0.00500	"	0.0333	ND	82.6	30-120		
Indeno (1,2,3-cd) pyrene	0.0254	0.00500	"	0.0333	ND	76.1	30-120		
Pyrene	0.0287	0.00500	"	0.0333	ND	86.1	35-142		
1-Methylnaphthalene	0.0302	0.00500	"	0.0333	ND	90.5	15-130		
2-Methylnaphthalene	0.0239	0.00500	"	0.0333	ND	71.6	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0320		"	0.0333		96.1	40-150		
Surrogate: Fluoranthene-d10	0.0281		"	0.0333		84.2	40-150		

Matrix Spike Dup (BHF0936-MSD1)

Source: 2406429-01

Prepared: 06/28/24 Analyzed: 07/03/24

Acenaphthene	0.0283	0.00500	mg/kg	0.0333	ND	84.9	31-137	8.17	30
Anthracene	0.0279	0.00500	"	0.0333	ND	83.7	30-120	9.87	30
Benzo (a) anthracene	0.0341	0.00500	"	0.0333	ND	102	30-120	7.75	30
Benzo (a) pyrene	0.0315	0.00500	"	0.0333	ND	94.5	30-120	6.63	30
Benzo (b) fluoranthene	0.0322	0.00500	"	0.0333	ND	96.5	30-120	7.32	30
Benzo (k) fluoranthene	0.0257	0.00500	"	0.0333	ND	77.1	30-120	5.93	30
Chrysene	0.0285	0.00500	"	0.0333	ND	85.6	30-120	8.91	30
Dibenz (a,h) anthracene	0.0328	0.00500	"	0.0333	ND	98.4	30-120	7.02	30
Fluoranthene	0.0287	0.00500	"	0.0333	ND	86.1	30-120	7.85	30
Fluorene	0.0277	0.00500	"	0.0333	ND	83.0	30-120	0.566	30
Indeno (1,2,3-cd) pyrene	0.0277	0.00500	"	0.0333	ND	83.2	30-120	8.81	30
Pyrene	0.0320	0.00500	"	0.0333	ND	96.1	35-142	11.0	30
1-Methylnaphthalene	0.0361	0.00500	"	0.0333	ND	108	15-130	17.9	50
2-Methylnaphthalene	0.0251	0.00500	"	0.0333	ND	75.4	15-130	5.23	50
Surrogate: 2-Methylnaphthalene-d10	0.0373		"	0.0333		112	40-150		
Surrogate: Fluoranthene-d10	0.0305		"	0.0333		91.6	40-150		

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

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

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 BHF0942 - EPA 3050B

Blank (BHF0942-BLK1)

Prepared: 06/28/24 Analyzed: 07/02/24

Boron ND 2.00 mg/L

LCS (BHF0942-BS1)

Prepared: 06/28/24 Analyzed: 07/02/24

Boron 5.38 2.00 mg/L 5.00 108 80-120

Duplicate (BHF0942-DUP1)

Source: 2406429-01

Prepared: 06/28/24 Analyzed: 07/02/24

Boron 0.242 2.00 mg/L 0.265 9.18 20

Matrix Spike (BHF0942-MS1)

Source: 2406429-01

Prepared: 06/28/24 Analyzed: 07/02/24

Boron 5.31 2.00 mg/L 4.97 0.265 102 75-125

Matrix Spike Dup (BHF0942-MSD1)

Source: 2406429-01

Prepared: 06/28/24 Analyzed: 07/02/24

Boron 5.89 2.00 mg/L 4.97 0.265 113 75-125 10.3 25

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Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

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 BHF0951 - EPA 3050B

Blank (BHF0951-BLK1)

Prepared: 06/28/24 Analyzed: 07/02/24

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 (BHF0951-BS1)

Prepared: 06/28/24 Analyzed: 07/02/24

Arsenic	40.2	0.200	mg/kg wet	40.0	101	80-120
Barium	40.8	0.400	"	40.0	102	80-120
Cadmium	2.03	0.200	"	2.00	101	80-120
Copper	40.9	0.400	"	40.0	102	80-120
Lead	20.1	0.200	"	20.0	101	80-120
Nickel	42.6	0.400	"	40.0	106	80-120
Silver	2.02	0.0200	"	2.00	101	80-120
Zinc	40.0	0.400	"	40.0	99.9	80-120
Selenium	4.00	0.260	"	4.00	100	80-120

Duplicate (BHF0951-DUP1)

Source: 2406429-01

Prepared: 06/28/24 Analyzed: 07/02/24

Arsenic	2.89	0.200	mg/kg dry	2.73	5.48	20	
Barium	35.7	0.400	"	22.8	44.1	20	QR-04
Cadmium	0.856	0.200	"	0.411	70.2	20	QR-01
Copper	11.0	0.400	"	9.79	12.0	20	
Lead	15.0	0.200	"	8.69	53.5	20	QR-04
Nickel	15.9	0.400	"	8.19	64.0	20	QR-04
Silver	0.0240	0.0200	"	0.0238	1.01	20	
Zinc	59.1	0.400	"	54.3	8.40	20	
Selenium	ND	0.260	"	ND		20	

Summit Scientific

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Tasman Geosciences
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Broomfield CO, 80020

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

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 BHF0951 - EPA 3050B

Matrix Spike (BHF0951-MS1)		Source: 2406429-01			Prepared: 06/28/24 Analyzed: 07/02/24					
Arsenic	48.2	0.200	mg/kg dry	45.4	2.73	100	75-125			
Barium	63.5	0.400	"	45.4	22.8	89.8	75-125			
Cadmium	2.79	0.200	"	2.27	0.411	105	75-125			
Copper	55.6	0.400	"	45.4	9.79	101	75-125			
Lead	31.1	0.200	"	22.7	8.69	98.9	75-125			
Nickel	30.3	0.400	"	45.4	8.19	48.8	75-125			QM-05
Silver	2.33	0.0200	"	2.27	0.0238	102	75-125			
Zinc	101	0.400	"	45.4	54.3	104	75-125			
Selenium	3.68	0.260	"	4.54	ND	81.2	75-125			

Matrix Spike Dup (BHF0951-MSD1)		Source: 2406429-01			Prepared: 06/28/24 Analyzed: 07/02/24					
Arsenic	51.3	0.200	mg/kg dry	48.6	2.73	100	75-125	6.37	25	
Barium	65.1	0.400	"	48.6	22.8	87.1	75-125	2.46	25	
Cadmium	2.94	0.200	"	2.43	0.411	104	75-125	5.24	25	
Copper	58.5	0.400	"	48.6	9.79	100	75-125	5.08	25	
Lead	33.2	0.200	"	24.3	8.69	101	75-125	6.37	25	
Nickel	34.3	0.400	"	48.6	8.19	53.7	75-125	12.2	25	QM-05
Silver	2.49	0.0200	"	2.43	0.0238	102	75-125	6.62	25	
Zinc	106	0.400	"	48.6	54.3	106	75-125	4.40	25	
Selenium	3.96	0.260	"	4.86	ND	81.5	75-125	7.35	25	

Post Spike (BHF0951-PS1)		Source: 2406429-01			Prepared: 06/28/24 Analyzed: 07/03/24					
Arsenic	112		ug/l	100	5.58	106	75-125			
Barium	139		"	100	46.5	92.8	75-125			
Cadmium	6.19		"	5.00	0.840	107	75-125			
Copper	124		"	100	20.0	104	75-125			
Lead	69.8		"	50.0	17.7	104	75-125			
Nickel	73.4		"	100	16.7	56.7	75-125			QM-01
Silver	5.22		"	5.00	0.0485	103	75-125			
Zinc	223		"	100	111	112	75-125			
Selenium	8.75		"	10.0	0.183	85.7	75-125			

Summit Scientific

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

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

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 BHF0941 - 3060A Mod

Blank (BHF0941-BLK1)

Prepared & Analyzed: 06/28/24

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BHF0941-BS1)

Prepared & Analyzed: 06/28/24

Chromium, Hexavalent 25.7 0.30 mg/kg wet 25.0 103 80-120

Duplicate (BHF0941-DUP1)

Source: 2406414-01

Prepared & Analyzed: 06/28/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BHF0941-MS1)

Source: 2406414-01

Prepared & Analyzed: 06/28/24

Chromium, Hexavalent 27.2 0.30 mg/kg dry 27.4 ND 99.4 75-125

Matrix Spike Dup (BHF0941-MSD1)

Source: 2406414-01

Prepared & Analyzed: 06/28/24

Chromium, Hexavalent 27.0 0.30 mg/kg dry 27.4 ND 98.4 75-125 1.01 20

Summit Scientific

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

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

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

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

Batch BHG0080 - General Preparation

Blank (BHG0080-BLK1)

Prepared: 07/02/24 Analyzed: 07/03/24

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

LCS (BHG0080-BS1)

Prepared: 07/02/24 Analyzed: 07/04/24

Calcium	5.29	0.0500	mg/L wet	5.00	106	70-130
Magnesium	5.31	0.0500	"	5.00	106	70-130
Sodium	5.15	0.0500	"	5.00	103	70-130

Summit Scientific

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

Project: Noble - Hanscome C28-29D Flowline

Project Number: UWRWE-A3135-ABN

Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

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 BHF0944 - General Preparation

Duplicate (BHF0944-DUP1)		Source: 2406430-01			Prepared: 06/28/24 Analyzed: 07/01/24					
% Solids	91.5		%		91.1			0.433	20	

Summit Scientific

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

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

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 BHG0082 - General Preparation

Blank (BHG0082-BLK1)

Prepared: 07/02/24 Analyzed: 07/08/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHG0082-BS1)

Prepared: 07/02/24 Analyzed: 07/08/24

Specific Conductance (EC) 0.154 0.0100 mmhos/cm 0.150 103 95-105

Duplicate (BHG0082-DUP1)

Source: 2406418-01

Prepared: 07/02/24 Analyzed: 07/08/24

Specific Conductance (EC) 5.37 0.0100 mmhos/cm 5.43 1.22 20

Summit Scientific

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

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

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 BHG0081 - General Preparation

LCS (BHG0081-BS1)

Prepared: 07/02/24 Analyzed: 07/08/24

pH	9.16	pH Units	9.18	99.8	95-105
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Duplicate (BHG0081-DUP1)

Source: 2406418-01

Prepared: 07/02/24 Analyzed: 07/08/24

pH	7.90	pH Units	7.89	0.127	20
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Hanscome C28-29D Flowline

Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:17

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-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-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.
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

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

July 16, 2024

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

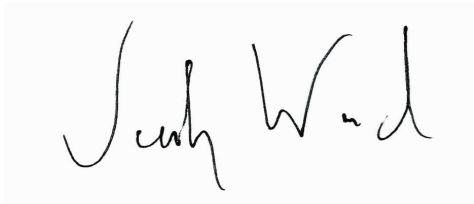
Broomfield, CO 80020

RE: Noble - Hanscome C28-29D Flowline

Work Order #2406462

Enclosed are the results of analyses for samples received by Summit Scientific on 06/28/24 17:56. 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 - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01R-W@1'	2406462-01	Soil	06/28/24 08:00	06/28/24 17:56
FL01-01@1'	2406462-02	Soil	06/28/24 08:06	06/28/24 17:56
BKG01@1'	2406462-03	Soil	06/28/24 08:10	06/28/24 17:56
BKG01@2'	2406462-04	Soil	06/28/24 08:12	06/28/24 17:56

Case Narrative

This revised report has been reissued per client request on 7/16/2024.
Original report sent on 7/10/2024 at 09:28 MT.

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.

Client: Noble/Tasman		Send Data To: Project Manager: Jake Whritenour		Send Invoice To: Company: Chevron	
Address: 6855 W 119th Ave		E-Mail: Jwhritenour@tasman-geo.com		Project Name/Location: Hanscome C28-29D FL	
City/State/Zip: Broomfield / CO / 80020				AFE#: UW RWE - A3135-ABN	
Phone: 970-214-7901		Project Name: Hanscome C28-29D Flowline		PO/Billing Codes:	
Sampler Name: Lillian Buck		Project Number:		Contact: Dan Peterson ^{us} Miguel Barron	

					Preservative				Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other _____	Water	Soil	Air-Canister #	Other _____	VOC - 915	TPH - 915	PAH - 915	pH, EC, SAR	Boron - HWS	Metals - 915	HOLD		
1	FL01R-W e1'	6/28/24	0800	3			X			X			X	X	X	X	X	X			pH, EC, SAR by saturated paste
2	FL01-O1 e1'	↓	0806	↓			↓			↓			X	X	X	X	X	X			
3	BH601 e1'	↓	0810	2			↓			↓						X	X	X			
4	BH601 e2'	↓	0812	↓			↓			↓						X	X	X			
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by: <u>Lillian Buck</u>	Date/Time: <u>6/28/24 1000</u>	Received by: <u>Tasman Lockbox</u>	Date/Time: <u>6/28/24 1000</u>	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: <u>Tasman Lockbox</u>	Date/Time: <u>6/28/24 1736</u>	Received by: <u>RAEL</u>	Date/Time: <u>6/28/24 1734</u>	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	X Field Turb.	
Temperature Upon Receipt: <u>8.8</u>	Corrected Temperature: <u>8</u>	IR gun #:		HNO3 lot #:		

S₂

Sample Receipt Checklist

S2 Work Order# 2406462Client: Nobel Casman

Client Project ID:

Hanscome C28-290 Flumline

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

Airbill #:

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Matrix (Check all that apply)

Air

☐

Soil/Solid

☐

Water

☐

Other

☐

Temp (°C)

8.8

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"/>	<u>on ice</u>
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.

AS

Custodian Printed Name

6/28/24
Date/Time



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

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

FL01R-W@1'
2406462-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/28/24 08:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BHG0077	07/02/24	07/02/24	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: **06/28/24 08:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0349	87.3 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0387	96.7 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0413	103 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/28/24 08:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0078	07/02/24	07/03/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **06/28/24 08:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	6.54	52.4 %	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 - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

FL01R-W@1'
2406462-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/28/24 08:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Acenaphthene	0.0566	0.00500	mg/kg	1	BHG0006	07/01/24	07/02/24	EPA 8270D SIM	
Anthracene	0.0893	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.100	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	0.0653	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	0.113	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	0.0407	0.00500	"	"	"	"	"	"	
Chrysene	0.0915	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	0.0101	0.00500	"	"	"	"	"	"	
Fluoranthene	0.244	0.00500	"	"	"	"	"	"	E
Fluorene	0.0667	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	0.0268	0.00500	"	"	"	"	"	"	
Pyrene	0.268	0.00500	"	"	"	"	"	"	E
1-Methylnaphthalene	0.00651	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	0.0132	0.00500	"	"	"	"	"	"	

Date Sampled: **06/28/24 08:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 2-Methylnaphthalene-d10	0.0152	45.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0163	49.0 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/28/24 08:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BHG0064	07/02/24	07/04/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **06/28/24 08:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.95	0.200	mg/kg dry	1	BHG0025	07/01/24	07/03/24	EPA 6020B	

Summit Scientific

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

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

FL01R-W@1'
2406462-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Barium	75.0	0.400	mg/kg dry	1	BHG0025	07/01/24	07/03/24	EPA 6020B
Cadmium	0.215	0.200	"	"	"	"	"	"
Copper	5.05	0.400	"	"	"	"	"	"
Lead	45.8	0.200	"	"	"	"	"	"
Nickel	4.73	0.400	"	"	"	"	"	"
Silver	0.0414	0.0200	"	"	"	"	"	"
Zinc	20.5	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **06/28/24 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0061	07/02/24	07/02/24	EPA 7196A	

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

Date Sampled: **06/28/24 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	103	0.0500	mg/L dry	1	BHG0122	07/03/24	07/09/24	EPA 6020B	
Magnesium	19.0	0.0500	"	"	"	"	"	"	
Sodium	16.6	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/28/24 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.394	0.00100	units	1	BHG0209	07/09/24	07/09/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/28/24 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	88.2		%	1	BHG0033	07/01/24	07/02/24	Calculation	

Summit Scientific

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

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

FL01R-W@1'
2406462-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/28/24 08:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Specific Conductance (EC)	0.232	0.0100	mmhos/cm	1	BHG0132	07/03/24	07/08/24	EPA 120.1	

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

Date Sampled: **06/28/24 08:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
pH	8.53		pH Units	1	BHG0131	07/03/24	07/08/24	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

FL01-01@1'
2406462-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/28/24 08:06**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BHG0077	07/02/24	07/02/24	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: **06/28/24 08:06**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0440	110 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0401	100 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0424	106 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/28/24 08:06**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0078	07/02/24	07/03/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **06/28/24 08:06**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	9.18	73.5 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

FL01-01@1'
2406462-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/28/24 08:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	0.0126	0.00500	mg/kg	1	BHG0006	07/01/24	07/02/24	EPA 8270D SIM	
Anthracene	0.0260	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.0308	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	0.0220	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	0.0364	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	0.0121	0.00500	"	"	"	"	"	"	
Chrysene	0.0271	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	0.00629	0.00500	"	"	"	"	"	"	
Fluoranthene	0.0751	0.00500	"	"	"	"	"	"	
Fluorene	0.0162	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	0.0112	0.00500	"	"	"	"	"	"	
Pyrene	0.0757	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **06/28/24 08:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0146	43.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0169	50.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/28/24 08:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0064	07/02/24	07/04/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **06/28/24 08:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	2.78	0.200	mg/kg dry	1	BHG0025	07/01/24	07/03/24	EPA 6020B	

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Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

FL01-01@1'
2406462-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Barium	58.4	0.400	mg/kg dry	1	BHG0025	07/01/24	07/03/24	EPA 6020B
Cadmium	0.241	0.200	"	"	"	"	"	"
Copper	5.64	0.400	"	"	"	"	"	"
Lead	8.80	0.200	"	"	"	"	"	"
Nickel	3.99	0.400	"	"	"	"	"	"
Silver	0.0325	0.0200	"	"	"	"	"	"
Zinc	22.1	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **06/28/24 08:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0061	07/02/24	07/02/24	EPA 7196A	

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

Date Sampled: **06/28/24 08:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	32.4	0.0500	mg/L dry	1	BHG0122	07/03/24	07/09/24	EPA 6020B	
Magnesium	11.0	0.0500	"	"	"	"	"	"	
Sodium	59.2	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/28/24 08:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.29	0.00100	units	1	BHG0209	07/09/24	07/09/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/28/24 08:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.9		%	1	BHG0033	07/01/24	07/02/24	Calculation	

Summit Scientific

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Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

FL01-01@1'
2406462-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/28/24 08:06**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.922	0.0100		mmhos/cm	1	BHG0132	07/03/24	07/08/24	EPA 120.1	

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

Date Sampled: **06/28/24 08:06**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.81			pH Units	1	BHG0131	07/03/24	07/08/24	EPA 9045D	

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Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

BKG01@1'
2406462-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/28/24 08:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BHG0064	07/02/24	07/04/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **06/28/24 08:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	2.74	0.200	mg/kg dry	1	BHG0025	07/01/24	07/03/24	EPA 6020B	
Barium	42.9	0.400	"	"	"	"	"	"	
Cadmium	0.200	0.200	"	"	"	"	"	"	
Copper	4.39	0.400	"	"	"	"	"	"	
Lead	6.62	0.200	"	"	"	"	"	"	
Nickel	3.45	0.400	"	"	"	"	"	"	
Silver	0.0222	0.0200	"	"	"	"	"	"	
Zinc	15.6	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **06/28/24 08:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0061	07/02/24	07/02/24	EPA 7196A	

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

Date Sampled: **06/28/24 08:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	121	0.0500	mg/L dry	1	BHG0122	07/03/24	07/09/24	EPA 6020B	
Magnesium	37.4	0.0500	"	"	"	"	"	"	
Sodium	54.9	0.0500	"	"	"	"	"	"	

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Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

BKG01@1'
2406462-03 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **06/28/24 08:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.12	0.00100	units	1	BHG0209	07/09/24	07/09/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/28/24 08:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	92.1		%	1	BHG0033	07/01/24	07/02/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/28/24 08:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.470	0.0100	mmhos/cm	1	BHG0132	07/03/24	07/08/24	EPA 120.1	

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

Date Sampled: **06/28/24 08:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.55		pH Units	1	BHG0131	07/03/24	07/08/24	EPA 9045D	

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Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

BKG01@2'
2406462-04 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/28/24 08:12**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BHG0064	07/02/24	07/04/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **06/28/24 08:12**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	2.85	0.200	mg/kg dry	1	BHG0025	07/01/24	07/03/24	EPA 6020B	
Barium	49.6	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	4.61	0.400	"	"	"	"	"	"	
Lead	6.94	0.200	"	"	"	"	"	"	
Nickel	3.88	0.400	"	"	"	"	"	"	
Silver	0.0223	0.0200	"	"	"	"	"	"	
Zinc	16.4	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **06/28/24 08:12**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0061	07/02/24	07/02/24	EPA 7196A	

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

Date Sampled: **06/28/24 08:12**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	31.4	0.0500	mg/L dry	1	BHG0122	07/03/24	07/09/24	EPA 6020B	
Magnesium	11.8	0.0500	"	"	"	"	"	"	
Sodium	25.8	0.0500	"	"	"	"	"	"	

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Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

BKG01@2'
2406462-04 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **06/28/24 08:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.996	0.00100	units	1	BHG0209	07/09/24	07/09/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/28/24 08:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	92.1		%	1	BHG0033	07/01/24	07/02/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/28/24 08:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.268	0.0100	mmhos/cm	1	BHG0132	07/03/24	07/08/24	EPA 120.1	

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

Date Sampled: **06/28/24 08:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.67		pH Units	1	BHG0131	07/03/24	07/08/24	EPA 9045D	

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Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

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 BHG0077 - EPA 5030 Soil MS

Blank (BHG0077-BLK1)

Prepared & Analyzed: 07/02/24

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	0.0360		"	0.0400		90.0	50-150			
Surrogate: Toluene-d8	0.0396		"	0.0400		98.9	50-150			
Surrogate: 4-Bromofluorobenzene	0.0406		"	0.0400		102	50-150			

LCS (BHG0077-BS1)

Prepared & Analyzed: 07/02/24

Benzene	0.0877	0.0020	mg/kg	0.100		87.7	70-130			
Toluene	0.0993	0.0050	"	0.100		99.3	70-130			
Ethylbenzene	0.0959	0.0050	"	0.100		95.9	70-130			
m,p-Xylene	0.189	0.010	"	0.200		94.5	70-130			
o-Xylene	0.0921	0.0050	"	0.100		92.1	70-130			
1,2,4-Trimethylbenzene	0.0884	0.0050	"	0.100		88.4	70-130			
1,3,5-Trimethylbenzene	0.0892	0.0050	"	0.100		89.2	70-130			
Naphthalene	0.0852	0.0038	"	0.100		85.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0366		"	0.0400		91.6	50-150			
Surrogate: Toluene-d8	0.0423		"	0.0400		106	50-150			
Surrogate: 4-Bromofluorobenzene	0.0378		"	0.0400		94.5	50-150			

Matrix Spike (BHG0077-MS1)

Source: 2406462-01

Prepared & Analyzed: 07/02/24

Benzene	0.0960	0.0020	mg/kg	0.100	ND	96.0	70-130			
Toluene	0.106	0.0050	"	0.100	ND	106	70-130			
Ethylbenzene	0.107	0.0050	"	0.100	ND	107	70-130			
m,p-Xylene	0.212	0.010	"	0.200	ND	106	70-130			
o-Xylene	0.0998	0.0050	"	0.100	ND	99.8	70-130			
1,2,4-Trimethylbenzene	0.0973	0.0050	"	0.100	ND	97.3	70-130			
1,3,5-Trimethylbenzene	0.0982	0.0050	"	0.100	ND	98.2	70-130			
Naphthalene	0.0958	0.0038	"	0.100	ND	95.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0405		"	0.0400		101	50-150			
Surrogate: Toluene-d8	0.0422		"	0.0400		106	50-150			
Surrogate: 4-Bromofluorobenzene	0.0405		"	0.0400		101	50-150			

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Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

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 BHG0077 - EPA 5030 Soil MS

Matrix Spike Dup (BHG0077-MSD1)		Source: 2406462-01			Prepared & Analyzed: 07/02/24					
Benzene	0.0936	0.0020	mg/kg	0.100	ND	93.6	70-130	2.56	30	
Toluene	0.105	0.0050	"	0.100	ND	105	70-130	1.13	30	
Ethylbenzene	0.102	0.0050	"	0.100	ND	102	70-130	5.26	30	
m,p-Xylene	0.202	0.010	"	0.200	ND	101	70-130	4.48	30	
o-Xylene	0.0985	0.0050	"	0.100	ND	98.5	70-130	1.36	30	
1,2,4-Trimethylbenzene	0.0929	0.0050	"	0.100	ND	92.9	70-130	4.67	30	
1,3,5-Trimethylbenzene	0.0935	0.0050	"	0.100	ND	93.5	70-130	4.88	30	
Naphthalene	0.100	0.0038	"	0.100	ND	100	70-130	4.41	30	
Surrogate: 1,2-Dichloroethane-d4		0.0412	"	0.0400		103	50-150			
Surrogate: Toluene-d8		0.0415	"	0.0400		104	50-150			
Surrogate: 4-Bromofluorobenzene		0.0395	"	0.0400		98.8	50-150			

Summit Scientific

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Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

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 BHG0078 - EPA 3550A

Blank (BHG0078-BLK1)

Prepared: 07/02/24 Analyzed: 07/03/24

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	15.4		"	12.5		124	30-150			

LCS (BHG0078-BS1)

Prepared: 07/02/24 Analyzed: 07/03/24

C10-C28 (DRO)	413	50	mg/kg	500		82.6	70-130			
Surrogate: o-Terphenyl	11.6		"	12.5		93.2	30-150			

Matrix Spike (BHG0078-MS1)

Source: 2406462-01

Prepared: 07/02/24 Analyzed: 07/03/24

C10-C28 (DRO)	396	50	mg/kg	500	ND	79.1	70-130			
Surrogate: o-Terphenyl	9.62		"	12.5		77.0	30-150			

Matrix Spike Dup (BHG0078-MSD1)

Source: 2406462-01

Prepared: 07/02/24 Analyzed: 07/03/24

C10-C28 (DRO)	441	50	mg/kg	500	ND	88.2	70-130	10.8	20	
Surrogate: o-Terphenyl	9.92		"	12.5		79.3	30-150			

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

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

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 BHG0006 - EPA 5030 Soil MS

Blank (BHG0006-BLK1)

Prepared: 07/01/24 Analyzed: 07/02/24

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	0.0195		"	0.0333		58.5	40-150			
Surrogate: Fluoranthene-d10	0.0231		"	0.0333		69.4	40-150			

LCS (BHG0006-BS1)

Prepared: 07/01/24 Analyzed: 07/02/24

Acenaphthene	0.0288	0.00500	mg/kg	0.0333		86.4	31-137			
Anthracene	0.0282	0.00500	"	0.0333		84.6	30-120			
Benzo (a) anthracene	0.0326	0.00500	"	0.0333		97.8	30-120			
Benzo (a) pyrene	0.0313	0.00500	"	0.0333		93.8	30-120			
Benzo (b) fluoranthene	0.0364	0.00500	"	0.0333		109	30-120			
Benzo (k) fluoranthene	0.0317	0.00500	"	0.0333		95.1	30-120			
Chrysene	0.0284	0.00500	"	0.0333		85.1	30-120			
Dibenz (a,h) anthracene	0.0203	0.00500	"	0.0333		61.0	30-120			
Fluoranthene	0.0288	0.00500	"	0.0333		86.3	30-120			
Fluorene	0.0277	0.00500	"	0.0333		83.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0207	0.00500	"	0.0333		62.0	30-120			
Pyrene	0.0345	0.00500	"	0.0333		103	35-142			
1-Methylnaphthalene	0.0279	0.00500	"	0.0333		83.7	35-142			
2-Methylnaphthalene	0.0276	0.00500	"	0.0333		82.9	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0283		"	0.0333		84.8	40-150			
Surrogate: Fluoranthene-d10	0.0306		"	0.0333		91.7	40-150			

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Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

PAH by EPA Method 8270D SIM - Quality Control

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

Batch BHG0006 - EPA 5030 Soil MS

Matrix Spike (BHG0006-MS1)

Source: 2406239-19

Prepared: 07/01/24 Analyzed: 07/02/24

Acenaphthene	0.0193	0.00500	mg/kg	0.0333	ND	58.0	31-137		
Anthracene	0.0182	0.00500	"	0.0333	ND	54.6	30-120		
Benzo (a) anthracene	0.0218	0.00500	"	0.0333	ND	65.3	30-120		
Benzo (a) pyrene	0.0249	0.00500	"	0.0333	ND	74.7	30-120		
Benzo (b) fluoranthene	0.0300	0.00500	"	0.0333	ND	90.0	30-120		
Benzo (k) fluoranthene	0.0259	0.00500	"	0.0333	ND	77.6	30-120		
Chrysene	0.0186	0.00500	"	0.0333	ND	55.8	30-120		
Dibenz (a,h) anthracene	0.0165	0.00500	"	0.0333	ND	49.6	30-120		
Fluoranthene	0.0188	0.00500	"	0.0333	ND	56.3	30-120		
Fluorene	0.0173	0.00500	"	0.0333	ND	52.0	30-120		
Indeno (1,2,3-cd) pyrene	0.0164	0.00500	"	0.0333	ND	49.2	30-120		
Pyrene	0.0228	0.00500	"	0.0333	ND	68.5	35-142		
1-Methylnaphthalene	0.0178	0.00500	"	0.0333	ND	53.3	15-130		
2-Methylnaphthalene	0.0191	0.00500	"	0.0333	ND	57.4	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0180		"	0.0333		54.0	40-150		
Surrogate: Fluoranthene-d10	0.0200		"	0.0333		60.1	40-150		

Matrix Spike Dup (BHG0006-MSD1)

Source: 2406239-19

Prepared: 07/01/24 Analyzed: 07/02/24

Acenaphthene	0.0245	0.00500	mg/kg	0.0333	ND	73.6	31-137	23.8	30
Anthracene	0.0212	0.00500	"	0.0333	ND	63.7	30-120	15.4	30
Benzo (a) anthracene	0.0255	0.00500	"	0.0333	ND	76.5	30-120	15.7	30
Benzo (a) pyrene	0.0253	0.00500	"	0.0333	ND	76.0	30-120	1.73	30
Benzo (b) fluoranthene	0.0322	0.00500	"	0.0333	ND	96.6	30-120	7.07	30
Benzo (k) fluoranthene	0.0271	0.00500	"	0.0333	ND	81.3	30-120	4.71	30
Chrysene	0.0219	0.00500	"	0.0333	ND	65.8	30-120	16.6	30
Dibenz (a,h) anthracene	0.0156	0.00500	"	0.0333	ND	46.8	30-120	5.97	30
Fluoranthene	0.0218	0.00500	"	0.0333	ND	65.4	30-120	14.9	30
Fluorene	0.0199	0.00500	"	0.0333	ND	59.6	30-120	13.6	30
Indeno (1,2,3-cd) pyrene	0.0153	0.00500	"	0.0333	ND	46.0	30-120	6.67	30
Pyrene	0.0289	0.00500	"	0.0333	ND	86.8	35-142	23.5	30
1-Methylnaphthalene	0.0195	0.00500	"	0.0333	ND	58.6	15-130	9.39	50
2-Methylnaphthalene	0.0213	0.00500	"	0.0333	ND	63.8	15-130	10.5	50
Surrogate: 2-Methylnaphthalene-d10	0.0208		"	0.0333		62.3	40-150		
Surrogate: Fluoranthene-d10	0.0227		"	0.0333		68.2	40-150		

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Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

PAH by EPA Method 8270D SIM - Quality Control

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

Batch BHG0293 - EPA 5030 Soil MS

Blank (BHG0293-BLK1)

Prepared & Analyzed: 07/11/24

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	0.0254		"	0.0333		76.3	40-150			
Surrogate: Fluoranthene-d10	0.0251		"	0.0333		75.3	40-150			

LCS (BHG0293-BS1)

Prepared & Analyzed: 07/11/24

Acenaphthene	0.0240	0.00500	mg/kg	0.0333		72.1	31-137			
Anthracene	0.0240	0.00500	"	0.0333		72.1	30-120			
Benzo (a) anthracene	0.0251	0.00500	"	0.0333		75.4	30-120			
Benzo (a) pyrene	0.0229	0.00500	"	0.0333		68.6	30-120			
Benzo (b) fluoranthene	0.0236	0.00500	"	0.0333		70.8	30-120			
Benzo (k) fluoranthene	0.0245	0.00500	"	0.0333		73.4	30-120			
Chrysene	0.0242	0.00500	"	0.0333		72.7	30-120			
Dibenz (a,h) anthracene	0.0195	0.00500	"	0.0333		58.4	30-120			
Fluoranthene	0.0245	0.00500	"	0.0333		73.6	30-120			
Fluorene	0.0243	0.00500	"	0.0333		72.9	30-120			
Indeno (1,2,3-cd) pyrene	0.0182	0.00500	"	0.0333		54.6	30-120			
Pyrene	0.0270	0.00500	"	0.0333		81.1	35-142			
1-Methylnaphthalene	0.0267	0.00500	"	0.0333		80.1	35-142			
2-Methylnaphthalene	0.0244	0.00500	"	0.0333		73.2	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0268		"	0.0333		80.5	40-150			
Surrogate: Fluoranthene-d10	0.0255		"	0.0333		76.5	40-150			

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Broomfield CO, 80020

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

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 BHG0293 - EPA 5030 Soil MS

Matrix Spike (BHG0293-MS1)

Source: 2406465-05

Prepared & Analyzed: 07/11/24

Acenaphthene	0.0176	0.00500	mg/kg	0.0333	ND	52.7	31-137				
Anthracene	0.0175	0.00500	"	0.0333	ND	52.4	30-120				
Benzo (a) anthracene	0.0177	0.00500	"	0.0333	ND	53.2	30-120				
Benzo (a) pyrene	0.0164	0.00500	"	0.0333	ND	49.3	30-120				
Benzo (b) fluoranthene	0.0172	0.00500	"	0.0333	ND	51.6	30-120				
Benzo (k) fluoranthene	0.0175	0.00500	"	0.0333	ND	52.6	30-120				
Chrysene	0.0167	0.00500	"	0.0333	ND	50.2	30-120				
Dibenz (a,h) anthracene	0.0141	0.00500	"	0.0333	ND	42.2	30-120				
Fluoranthene	0.0166	0.00500	"	0.0333	ND	49.8	30-120				
Fluorene	0.0172	0.00500	"	0.0333	ND	51.5	30-120				
Indeno (1,2,3-cd) pyrene	0.0137	0.00500	"	0.0333	ND	41.2	30-120				
Pyrene	0.0203	0.00500	"	0.0333	ND	60.9	35-142				
1-Methylnaphthalene	0.0194	0.00500	"	0.0333	ND	58.1	15-130				
2-Methylnaphthalene	0.0169	0.00500	"	0.0333	ND	50.6	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0157		"	0.0333		47.0	40-150				
Surrogate: Fluoranthene-d10	0.0170		"	0.0333		50.9	40-150				

Matrix Spike Dup (BHG0293-MSD1)

Source: 2406465-05

Prepared & Analyzed: 07/11/24

Acenaphthene	0.0209	0.00500	mg/kg	0.0333	ND	62.8	31-137	17.6	30		
Anthracene	0.0207	0.00500	"	0.0333	ND	62.1	30-120	16.8	30		
Benzo (a) anthracene	0.0212	0.00500	"	0.0333	ND	63.6	30-120	17.9	30		
Benzo (a) pyrene	0.0193	0.00500	"	0.0333	ND	57.8	30-120	15.9	30		
Benzo (b) fluoranthene	0.0207	0.00500	"	0.0333	ND	62.0	30-120	18.2	30		
Benzo (k) fluoranthene	0.0204	0.00500	"	0.0333	ND	61.1	30-120	14.9	30		
Chrysene	0.0211	0.00500	"	0.0333	ND	63.3	30-120	23.1	30		
Dibenz (a,h) anthracene	0.0162	0.00500	"	0.0333	ND	48.6	30-120	14.2	30		
Fluoranthene	0.0190	0.00500	"	0.0333	ND	57.0	30-120	13.4	30		
Fluorene	0.0220	0.00500	"	0.0333	ND	66.0	30-120	24.6	30		
Indeno (1,2,3-cd) pyrene	0.0173	0.00500	"	0.0333	ND	51.9	30-120	23.0	30		
Pyrene	0.0256	0.00500	"	0.0333	ND	76.9	35-142	23.2	30		
1-Methylnaphthalene	0.0277	0.00500	"	0.0333	ND	83.2	15-130	35.6	50		
2-Methylnaphthalene	0.0238	0.00500	"	0.0333	ND	71.4	15-130	34.1	50		
Surrogate: 2-Methylnaphthalene-d10	0.0213		"	0.0333		63.9	40-150				
Surrogate: Fluoranthene-d10	0.0197		"	0.0333		59.0	40-150				

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

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

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 BHG0064 - EPA 3050B

Blank (BHG0064-BLK1)

Prepared: 07/02/24 Analyzed: 07/04/24

Boron ND 2.00 mg/L

LCS (BHG0064-BS1)

Prepared: 07/02/24 Analyzed: 07/04/24

Boron 5.33 2.00 mg/L 5.00 107 80-120

Duplicate (BHG0064-DUP1)

Source: 2406447-01

Prepared: 07/02/24 Analyzed: 07/04/24

Boron 0.401 2.00 mg/L 0.426 6.13 20

Matrix Spike (BHG0064-MS1)

Source: 2406447-01

Prepared: 07/02/24 Analyzed: 07/04/24

Boron 5.62 2.00 mg/L 4.97 0.426 105 75-125

Matrix Spike Dup (BHG0064-MSD1)

Source: 2406447-01

Prepared: 07/02/24 Analyzed: 07/04/24

Boron 6.17 2.00 mg/L 4.97 0.426 116 75-125 9.31 25

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Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

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 BHG0025 - EPA 3050B

Blank (BHG0025-BLK1)

Prepared: 07/01/24 Analyzed: 07/03/24

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 (BHG0025-BS1)

Prepared: 07/01/24 Analyzed: 07/03/24

Arsenic	38.1	0.200	mg/kg wet	40.0	95.3	80-120
Barium	39.1	0.400	"	40.0	97.8	80-120
Cadmium	1.95	0.200	"	2.00	97.4	80-120
Copper	42.2	0.400	"	40.0	106	80-120
Lead	19.8	0.200	"	20.0	98.9	80-120
Nickel	41.3	0.400	"	40.0	103	80-120
Silver	1.96	0.0200	"	2.00	98.2	80-120
Zinc	40.9	0.400	"	40.0	102	80-120
Selenium	3.84	0.260	"	4.00	96.0	80-120

Duplicate (BHG0025-DUP1)

Source: 2406450-01

Prepared: 07/01/24 Analyzed: 07/03/24

Arsenic	4.77	0.200	mg/kg dry	4.47	6.56	20
Barium	75.0	0.400	"	75.2	0.305	20
Cadmium	0.289	0.200	"	0.311	7.51	20
Copper	8.06	0.400	"	7.72	4.38	20
Lead	11.9	0.200	"	11.0	7.96	20
Nickel	8.13	0.400	"	7.63	6.37	20
Silver	0.0832	0.0200	"	0.0847	1.70	20
Zinc	25.9	0.400	"	24.7	4.95	20
Selenium	0.179	0.260	"	ND	200	20

QR-01

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Broomfield CO, 80020

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

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 BHG0025 - EPA 3050B

Matrix Spike (BHG0025-MS1)		Source: 2406450-01			Prepared: 07/01/24 Analyzed: 07/03/24					
Arsenic	44.4	0.179	mg/kg dry	43.1	4.47	92.8	75-125			
Barium	108	0.357	"	43.1	75.2	76.0	75-125			
Cadmium	2.34	0.179	"	2.15	0.311	94.4	75-125			
Copper	24.6	0.357	"	43.1	7.72	39.3	75-125			QM-05
Lead	31.1	0.179	"	21.5	11.0	93.7	75-125			
Nickel	25.6	0.357	"	43.1	7.63	41.6	75-125			QM-05
Silver	2.15	0.0179	"	2.15	0.0847	96.1	75-125			
Zinc	43.2	0.357	"	43.1	24.7	43.0	75-125			QM-05
Selenium	3.23	0.232	"	4.31	0.157	71.3	75-125			QM-07

Matrix Spike Dup (BHG0025-MSD1)		Source: 2406450-01			Prepared: 07/01/24 Analyzed: 07/03/24					
Arsenic	46.4	0.200	mg/kg dry	45.7	4.47	91.7	75-125	4.30	25	
Barium	115	0.400	"	45.7	75.2	87.6	75-125	6.53	25	
Cadmium	2.52	0.200	"	2.28	0.311	96.9	75-125	7.38	25	
Copper	27.2	0.400	"	45.7	7.72	42.6	75-125	9.68	25	QM-05
Lead	31.8	0.200	"	22.8	11.0	91.4	75-125	2.22	25	
Nickel	28.0	0.400	"	45.7	7.63	44.6	75-125	9.11	25	QM-05
Silver	2.26	0.0200	"	2.28	0.0847	95.4	75-125	4.92	25	
Zinc	47.0	0.400	"	45.7	24.7	48.9	75-125	8.49	25	QM-05
Selenium	3.49	0.260	"	4.57	ND	76.4	75-125	7.82	25	

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

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 BHG0061 - 3060A Mod

Blank (BHG0061-BLK1)

Prepared & Analyzed: 07/02/24

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BHG0061-BS1)

Prepared & Analyzed: 07/02/24

Chromium, Hexavalent 23.2 0.30 mg/kg wet 25.0 92.8 80-120

Duplicate (BHG0061-DUP1)

Source: 2406462-01

Prepared & Analyzed: 07/02/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BHG0061-MS1)

Source: 2406462-01

Prepared & Analyzed: 07/02/24

Chromium, Hexavalent 27.6 0.30 mg/kg dry 28.4 ND 97.4 75-125

Matrix Spike Dup (BHG0061-MSD1)

Source: 2406462-01

Prepared & Analyzed: 07/02/24

Chromium, Hexavalent 27.0 0.30 mg/kg dry 28.4 ND 95.4 75-125 2.07 20

Summit Scientific

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

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

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 BHG0122 - General Preparation

Blank (BHG0122-BLK1)

Prepared: 07/03/24 Analyzed: 07/08/24

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

LCS (BHG0122-BS1)

Prepared: 07/03/24 Analyzed: 07/08/24

Calcium	5.15	0.0500	mg/L wet	5.00	103	70-130
Magnesium	5.29	0.0500	"	5.00	106	70-130
Sodium	5.29	0.0500	"	5.00	106	70-130

Summit Scientific

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Project: Noble - Hanscome C28-29D Flowline

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Reported:

07/16/24 08:45

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

Summit Scientific

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

Batch BHG0033 - General Preparation

Duplicate (BHG0033-DUP2)

Source: 2406462-01

Prepared: 07/01/24 Analyzed: 07/02/24

% Solids	88.9	%	88.2	0.770	20
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Summit Scientific

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

Project: Noble - Hanscome C28-29D Flowline
Project Number: UWRWE-A3135-ABN
Project Manager: Jacob Whritenour

Reported:
07/16/24 08:45

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 BHG0132 - General Preparation

Blank (BHG0132-BLK1)

Prepared: 07/03/24 Analyzed: 07/08/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHG0132-BS1)

Prepared: 07/03/24 Analyzed: 07/08/24

Specific Conductance (EC) 0.156 0.0100 mmhos/cm 0.150 104 95-105

Duplicate (BHG0132-DUP1)

Source: 2406239-19

Prepared: 07/03/24 Analyzed: 07/08/24

Specific Conductance (EC) 0.0288 0.0100 mmhos/cm 0.0290 0.588 20

Summit Scientific

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Project: Noble - Hanscome C28-29D Flowline

Project Number: UWRWE-A3135-ABN

Project Manager: Jacob Whritenour

Reported:

07/16/24 08:45

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 BHG0131 - General Preparation

LCS (BHG0131-BS1)

Prepared: 07/03/24 Analyzed: 07/08/24

pH	9.22	pH Units	9.18	100	95-105
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Duplicate (BHG0131-DUP1)

Source: 2406239-19

Prepared: 07/03/24 Analyzed: 07/08/24

pH	7.43	pH Units	7.55	1.60	20
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Summit Scientific

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Project: Noble - Hanscome C28-29D Flowline

Project Number: UWRWE-A3135-ABN
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Reported:
07/16/24 08:45

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-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.
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