



SITE NAME: STATE 16-414 Flowline							DATE: 6/27/2024	REM. PROJECT #: 34654	WEATHER: 70s drizzle
SITE DIRECTIONS: CR 53 & 46, E 0.5 miles, then SW 0.5 miles along access rd							CLIENT: Noble		
LEGALS AND LAT/LONG: 40.31656347, -104.5605694							TASMAN PERSONNEL: JH, DS		
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 10:05	FL01R-S @ 3'	900.6	HC Staining	HC Odor	Yes	Lab	Buried or Partially Buried Vessel		
6/27/2024 11:45	FL01R-W @ 3'	78.5	No Staining	Slight HC Odor	Yes	Lab	Separator		
6/27/2024 12:10	BKG01 @ 3'	0.2	No Staining	No Odor	Yes	Lab	Emission Control Device (ECD)		
							Dump Line		
							Wellhead		
							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: STATE 16-414 Flowline Client: Noble

Daily Forecast/Weather: 70s drizzle Personnel: JH, DS

Task/Location Description: _____

Need photo log?





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



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


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

TABLE 1
FIELD DATA SUMMARY TABLE
NOBLE ENERGY, INC - 100322
STATE 16-0414, WELD COUNTY, COLORADO
REM # 34654

Sample ID	Sample Date	Depth (ft. bgs)	GPS Data Latitude/Longitude		PDOP Value	VOC Concentration (ppm)
FL01R-S@3'	6/27/2024	3	40.319445	-104.562353	0.9	900.6
FL01R-W@3'	6/27/2024	3	40.316562	-104.560576	0.9	78.5
BKG01@3'	6/27/2024	3	40.316435	-104.560627	0.9	0.2

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

TABLE 2
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA
NOBLE ENERGY, INC - 100322
STATE 16-0414, WELD COUNTY, COLORADO
REM # 34654

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@3'	6/27/2024	3	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	1,070	120	810	140
FL01R-W@3'	6/27/2024	3	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	826	16.0	690	120

Notes:

- Bold** values exceed the ECMC Table 915-1 limit(s)
 - Pink & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL)
 - * Indicates laboratory minimum detection limit in excess of SSL
 - ** 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
STATE 16-0414, WELD COUNTY, COLORADO
REM # 34654

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@3'	6/27/2024	3	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.102	<0.00500	<0.00500	0.0244	0.0726
FL01R-W@3'	6/27/2024	3	<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:

- Bold** values exceed the ECMC Table 915-1 limit(s)
 - Pink & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL)
 - * 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
STATE 16-0414, WELD COUNTY, COLORADO
REM # 34654

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@3'	06/27/2024	3	7.46	0.617	1.42	<2.00
FL01R-W@3'	06/27/2024	3	8.01	0.634	0.400	<2.00
BKG01@3'	06/27/2024	3	8.08	1.65	4.73	<2.00
Maximum Background Concentration			8.08	1.65	4.73	-

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
STATE 16-0414, WELD COUNTY, COLORADO
REM # 34654

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@3'	06/27/2024	3	2.14	43.1	<0.200	<0.30	4.74	5.06	3.65	<0.260	0.024	18.2
FL01R-W@3'	06/27/2024	3	4.58	174	0.631	<0.30	19.5	41.8	5.54	<0.260	0.0457	68.4
BKG01@3'	06/27/2024	3	1.99	47.4	<0.200	<0.30	3.74	4.19	3.33	<0.260	<0.0200	15.0
Maximum Background Concentration			1.99	47.4	-	-	-	4.19	-	-	-	-
Maximum Background Concentration X 1.25			2.49	59.3	-	-	-	5.24	-	-	-	-

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

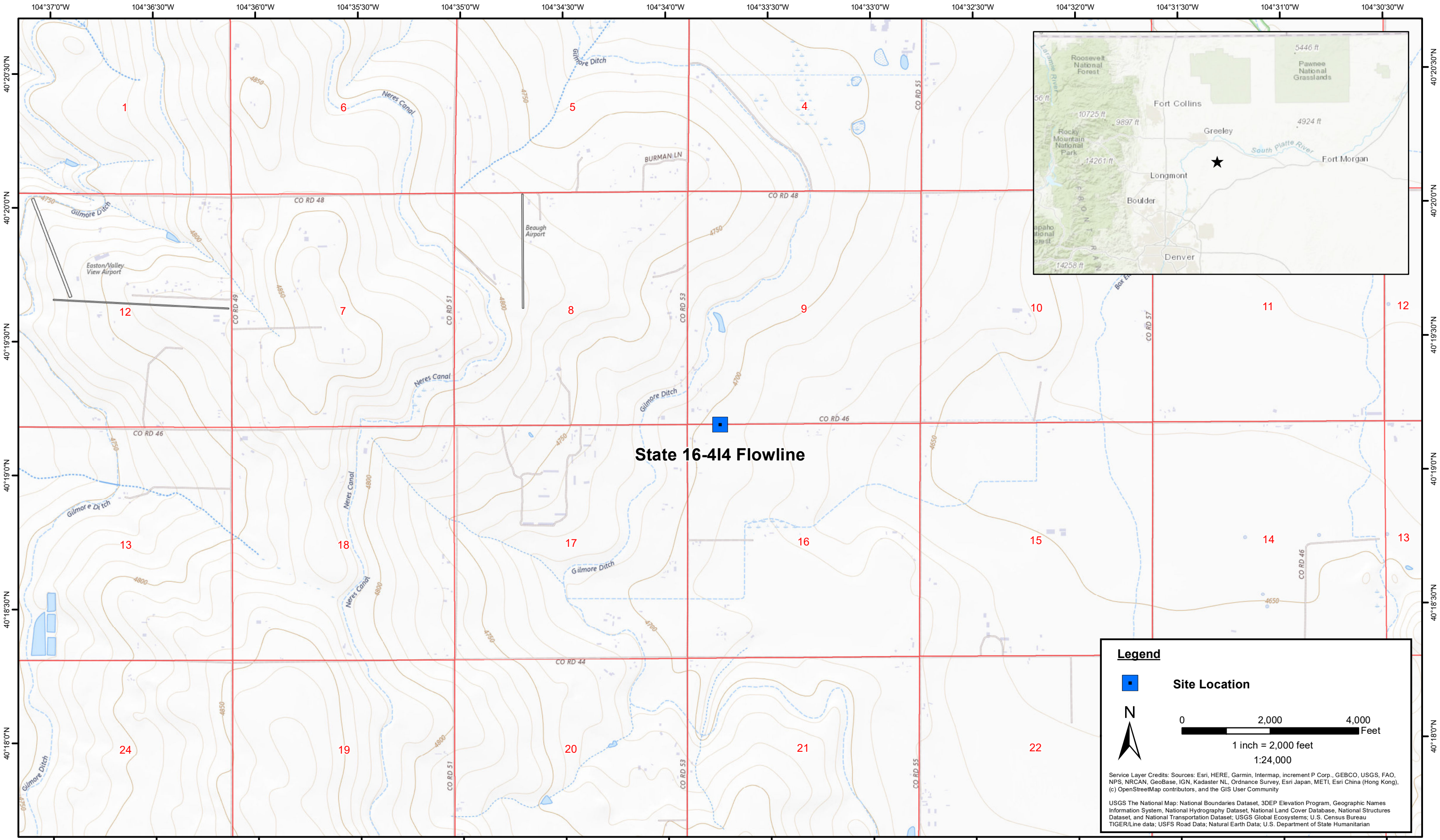
(<) = Analytical result is less than the indicated laboratory reporting limit.

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**

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

Noble Energy, Inc. – DJ Basin
State 16-414 Flowline
NWNW, Section 16, Township 4 North, Range 64 West
Weld County, Colorado

Site Location Map

Figure
1



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 - State 16-4I4 Flowline

Work Order #2406439

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 - State 16-414 Flowline

Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01R-S@3'	2406439-01	Soil	06/27/24 10:05	06/27/24 18:00
FL01R-W@3'	2406439-02	Soil	06/27/24 11:45	06/27/24 18:00
BKG01@3'	2406439-03	Soil	06/27/24 12:10	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.

				Send Data To:				Send Invoice To:															
Client: Noble Noble / Tasman				Project Manager: Jake Whritenour				Company: <u>Chevron</u>															
Address: 6855 W 119th Ave				E-Mail: Jwhritenour@tasman-geo.com				Project Name/Location: <u>STATE 16-414 Flowline</u>															
City/State/Zip: Broomfield / CO / 80220								AFE#: <u>06RW2-A4088-ABN</u>															
Phone:				Project Name: <u>STATE 16-414 Flowline</u>				PO/Billing Codes:															
Sampler Name: Jordan Hestmark				Project Number:				Contact: <u>Mike Montoya</u>															
				Preservative				Matrix				Analysis Requested				Special Instructions							
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5 - TMB	Boron - HWS	pH, EC, SAR	PAHs - 915	Metals - 915	TDS, SO4, Cl	Hold		
1	FL01R-S @ 3'	6/27/24	1005	3			X			X			X	X	X	X	X	X	X	X			
2	FL01R-W @ 3'	1	1145	1			1			1			X	X	X	X	X	X	X				
3	BK601 @ 3'	1	1210	1			1			1						X	X		X				
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							
13																							
14																							
15																							

Relinquished by:	Date/Time:	Received by:	Date/Time:	TAT Business Days	Field DO	Notes:
<u>Jordan Hestmark</u>	<u>6/27/24 1300</u>	<u>C-E</u>	<u>6/27/24 1300</u>	Same Day	Field EC	
Relinquished by:	Date/Time:	Received by:	Date/Time:	1 Day	Field ORP	
<u>Tasman Lochbox</u>	<u>6/27/24 1415</u>	<u>Tasman Lochbox</u>	<u>6/27/24 1415</u>	2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
<u>Tasman Lochbox</u>	<u>6/27/24 1800</u>	<u>Tasman Lochbox</u>	<u>6/27/24 1800</u>	Standard	Field Turb.	
Temperature Upon Receipt: <u>11.5</u>	Corrected Temperature: <u>9</u>	IR gun #: <u>1</u>	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2406439Client: Nade TasmanClient Project ID: State 16-414 FlowlineShipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐

Airbill #: _____

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

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"/>	and 1E
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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1 Sample labeled "4140"
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

6/27/24
Date/Time



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

Project: Noble - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

FL01R-S@3'
2406439-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/27/24 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHF0968	06/28/24	06/29/24	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	120	5.0	"	10	"	"	06/29/24	"	

Date Sampled: **06/27/24 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0391	97.8 %	50-150		"	"	06/29/24	"	
Surrogate: Toluene-d8	0.0369	92.3 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0456	114 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/27/24 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	810	50	mg/kg	1	BHF0971	06/28/24	06/29/24	EPA 8015M	
C28-C36 (ORO)	140	50	"	"	"	"	"	"	

Date Sampled: **06/27/24 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	10.7	85.3 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: Noble - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

FL01R-S@3'
2406439-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/27/24 10:05**

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	0.102	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	0.0244	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	0.0726	0.00500	"	"	"	"	"	"	

Date Sampled: **06/27/24 10:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	-0.00273	%	40-150		"	"	"	"	S-04
Surrogate: Fluoranthene-d10	0.0210	62.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/27/24 10:05**

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 10:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

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

Project: Noble - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

FL01R-S@3'
2406439-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	2.14	0.200	mg/kg dry	1	BHF0951	06/28/24	07/03/24	EPA 6020B
Barium	43.1	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	4.74	0.400	"	"	"	"	"	"
Lead	5.06	0.200	"	"	"	"	"	"
Nickel	3.65	0.400	"	"	"	"	"	"
Silver	0.0240	0.0200	"	"	"	"	"	"
Zinc	18.2	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **06/27/24 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHF0958	06/28/24	06/28/24	EPA 7196A	

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

Date Sampled: **06/27/24 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	44.8	0.0500	mg/L dry	1	BHG0080	07/02/24	07/04/24	EPA 6020B	
Magnesium	17.9	0.0500	"	"	"	"	"	"	
Sodium	44.6	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/27/24 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.42	0.00100	units	1	BHG0162	07/08/24	07/08/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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

Project: Noble - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

FL01R-S@3'
2406439-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/27/24 10:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	85.0			%	1	BHF0944	06/28/24	07/01/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/27/24 10:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.617	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 10:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.46			pH Units	1	BHG0081	07/02/24	07/08/24	EPA 9045D	

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Project: Noble - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

FL01R-W@3'
2406439-02 (Soil)

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Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/27/24 11:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BHF0968	06/28/24	06/29/24	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	16	0.50	"	"	"	"	"	"	

Date Sampled: **06/27/24 11:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0408	102 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0403	101 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0486	121 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/27/24 11:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	690	50	mg/kg	1	BHF0971	06/28/24	06/29/24	EPA 8015M	
C28-C36 (ORO)	120	50	"	"	"	"	"	"	

Date Sampled: **06/27/24 11:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	10.0	80.2 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: Noble - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

FL01R-W@3'
2406439-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/27/24 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **06/27/24 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0358	107 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0250	75.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/27/24 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

FL01R-W@3'
2406439-02 (Soil)

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Total Metals by EPA 6020B

Arsenic	4.58	0.200	mg/kg dry	1	BHF0951	06/28/24	07/03/24	EPA 6020B
Barium	174	0.400	"	"	"	"	"	"
Cadmium	0.631	0.200	"	"	"	"	"	"
Copper	19.5	0.400	"	"	"	"	"	"
Lead	41.8	0.200	"	"	"	"	"	"
Nickel	5.54	0.400	"	"	"	"	"	"
Silver	0.0457	0.0200	"	"	"	"	"	"
Zinc	68.4	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **06/27/24 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHF0958	06/28/24	06/28/24	EPA 7196A	

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

Date Sampled: **06/27/24 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	3670	0.0500	mg/L dry	1	BHG0080	07/02/24	07/04/24	EPA 6020B	
Magnesium	293	0.0500	"	"	"	"	"	"	
Sodium	93.6	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/27/24 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.400	0.00100	units	1	BHG0162	07/08/24	07/08/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/27/24 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

FL01R-W@3'
2406439-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	87.7	%	1	BHF0944	06/28/24	07/01/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/27/24 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.634	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 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.01		pH Units	1	BHG0081	07/02/24	07/08/24	EPA 9045D	

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Project: Noble - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

BKG01@3'
2406439-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/27/24 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
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 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.99	0.200	mg/kg dry	1	BHF0951	06/28/24	07/03/24	EPA 6020B	
Barium	47.4	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	3.74	0.400	"	"	"	"	"	"	
Lead	4.19	0.200	"	"	"	"	"	"	
Nickel	3.33	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	15.0	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **06/27/24 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHF0958	06/28/24	06/28/24	EPA 7196A	

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

Date Sampled: **06/27/24 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	84.9	0.0500	mg/L dry	1	BHG0080	07/02/24	07/04/24	EPA 6020B	
Magnesium	23.5	0.0500	"	"	"	"	"	"	
Sodium	191	0.0500	"	"	"	"	"	"	

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Project: Noble - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

BKG01@3'
2406439-03 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **06/27/24 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	4.73	0.00100	units	1	BHG0162	07/08/24	07/08/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/27/24 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	96.6		%	1	BHF0944	06/28/24	07/01/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/27/24 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.65	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 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.08		pH Units	1	BHG0081	07/02/24	07/08/24	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

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 BHF0968 - EPA 5030 Soil MS

Blank (BHF0968-BLK1)

Prepared: 06/28/24 Analyzed: 06/29/24

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	0.0403		"	0.0400		101	50-150			
Surrogate: Toluene-d8	0.0404		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0407		"	0.0400		102	50-150			

LCS (BHF0968-BS1)

Prepared: 06/28/24 Analyzed: 06/29/24

Benzene	0.108	0.0020	mg/kg	0.100		108	70-130			
Toluene	0.106	0.0050	"	0.100		106	70-130			
Ethylbenzene	0.117	0.0050	"	0.100		117	70-130			
m,p-Xylene	0.216	0.010	"	0.200		108	70-130			
o-Xylene	0.107	0.0050	"	0.100		107	70-130			
1,2,4-Trimethylbenzene	0.106	0.0050	"	0.100		106	70-130			
1,3,5-Trimethylbenzene	0.106	0.0050	"	0.100		106	70-130			
Naphthalene	0.0907	0.0038	"	0.100		90.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0407		"	0.0400		102	50-150			
Surrogate: Toluene-d8	0.0400		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0396		"	0.0400		99.0	50-150			

Matrix Spike (BHF0968-MS1)

Source: 2406239-19

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

Benzene	0.121	0.0020	mg/kg	0.100	ND	121	70-130			
Toluene	0.121	0.0050	"	0.100	ND	121	70-130			
Ethylbenzene	0.135	0.0050	"	0.100	ND	135	70-130			
m,p-Xylene	0.244	0.010	"	0.200	ND	122	70-130			
o-Xylene	0.113	0.0050	"	0.100	ND	113	70-130			
1,2,4-Trimethylbenzene	0.115	0.0050	"	0.100	ND	115	70-130			
1,3,5-Trimethylbenzene	0.123	0.0050	"	0.100	ND	123	70-130			
Naphthalene	0.0937	0.0038	"	0.100	ND	93.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0440		"	0.0400		110	50-150			
Surrogate: Toluene-d8	0.0404		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		100	50-150			

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Project: Noble - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

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 BHF0968 - EPA 5030 Soil MS

Matrix Spike Dup (BHF0968-MSD1)	Source: 2406239-19			Prepared: 06/28/24 Analyzed: 07/01/24						
Benzene	0.108	0.0020	mg/kg	0.100	ND	108	70-130	11.3	30	
Toluene	0.106	0.0050	"	0.100	ND	106	70-130	13.1	30	
Ethylbenzene	0.122	0.0050	"	0.100	ND	122	70-130	10.3	30	
m,p-Xylene	0.219	0.010	"	0.200	ND	110	70-130	10.5	30	
o-Xylene	0.104	0.0050	"	0.100	ND	104	70-130	8.52	30	
1,2,4-Trimethylbenzene	0.102	0.0050	"	0.100	ND	102	70-130	12.6	30	
1,3,5-Trimethylbenzene	0.108	0.0050	"	0.100	ND	108	70-130	12.5	30	
Naphthalene	0.0869	0.0038	"	0.100	ND	86.9	70-130	7.54	30	
Surrogate: 1,2-Dichloroethane-d4	0.0423		"	0.0400		106	50-150			
Surrogate: Toluene-d8	0.0400		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0391		"	0.0400		97.7	50-150			

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Project: Noble - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BHF0971 - EPA 3550A

Blank (BHF0971-BLK1)

Prepared & Analyzed: 06/28/24

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	13.5		"	12.5		108	30-150			

LCS (BHF0971-BS1)

Prepared & Analyzed: 06/28/24

C10-C28 (DRO)	570	50	mg/kg	500		114	70-130			
Surrogate: o-Terphenyl	13.4		"	12.5		108	30-150			

Matrix Spike (BHF0971-MS1)

Source: 2406239-19

Prepared & Analyzed: 06/28/24

C10-C28 (DRO)	523	50	mg/kg	500	19.3	101	70-130			
Surrogate: o-Terphenyl	11.2		"	12.5		89.4	30-150			

Matrix Spike Dup (BHF0971-MSD1)

Source: 2406239-19

Prepared & Analyzed: 06/28/24

C10-C28 (DRO)	487	50	mg/kg	500	19.3	93.6	70-130	7.07	20	
Surrogate: o-Terphenyl	11.3		"	12.5		90.8	30-150			

Summit Scientific

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Project: Noble - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

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 - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

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		

Summit Scientific

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

Project: Noble - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

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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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

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

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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Broomfield CO, 80020

Project: Noble - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

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			

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

Project: Noble - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

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 BHF0958 - 3060A Mod

Blank (BHF0958-BLK1)

Prepared & Analyzed: 06/28/24

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BHF0958-BS1)

Prepared & Analyzed: 06/28/24

Chromium, Hexavalent 24.9 0.30 mg/kg wet 25.0 99.6 80-120

Duplicate (BHF0958-DUP1)

Source: 2406419-01

Prepared & Analyzed: 06/28/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BHF0958-MS1)

Source: 2406419-01

Prepared & Analyzed: 06/28/24

Chromium, Hexavalent 28.7 0.30 mg/kg dry 28.4 ND 101 75-125

Matrix Spike Dup (BHF0958-MSD1)

Source: 2406419-01

Prepared & Analyzed: 06/28/24

Chromium, Hexavalent 29.1 0.30 mg/kg dry 28.4 ND 103 75-125 1.57 20

Summit Scientific

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

Project: Noble - State 16-414 Flowline

Project Number: UWRWE-A4088-ABN

Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

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
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Broomfield CO, 80020

Project: Noble - State 16-414 Flowline

Project Number: UWRWE-A4088-ABN

Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

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 - State 16-414 Flowline
Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

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 - State 16-414 Flowline

Project Number: UWRWE-A4088-ABN

Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

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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Summit Scientific

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

Project: Noble - State 16-414 Flowline

Project Number: UWRWE-A4088-ABN
Project Manager: Jacob Whritenour

Reported:
07/10/24 09:11

Notes and Definitions

S-04	A sample matrix effect prevented complete surrogate recovery.
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-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.
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