



SITE NAME: Julie C21-25							DATE: 6/7/2024	REM. PROJECT #: 34730	WEATHER: 70s sunny	
SITE DIRECTIONS:							CLIENT: Noble			
LEGALS AND LAT/LONG:							TASMAN PERSONNEL: CL			
SOIL TYPES:							SURFACE GRADIENT:			
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)			
6/7/2024 14:29	FL01R-S@3'	0.2	No Staining	No Odor	Yes	Lab	Buried or Partially Buried Vessel			
6/7/2024 14:39	FL01R-W@3'	0.2	No Staining	No Odor	Yes	Lab	Separator			
6/7/2024 14:45	BKG01@3'	0.3	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: Julie C21-25 Client: Noble

Daily Forecast/Weather: 70s sunny Personnel: CL



Task/Location Description: FLOWLINE DECOM

Need photo log?



									
<b>Equipment ID:</b> FL01R-S		<b>Equipment Type:</b>				<b>Equipment ID:</b> FL01R-W		<b>Equipment Type:</b>	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>		<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>			
<b>Notes/Conditions:</b>				<b>Notes/Conditions:</b>					



									
<b>Equipment ID:</b> BKG01		<b>Equipment Type:</b>		<b>Equipment ID:</b> BKG01		<b>Equipment Type:</b>			
<b>Material:</b>		<b>Volume:</b>		<b>Material:</b>		<b>Volume:</b>		<b>Contents:</b>	
<b>Notes/Conditions:</b> 0-3': brown, clayey sand, fine grained, well sorted, low plasticity, no HC odor/staining.					<b>Notes/Conditions:</b>				

**TABLE 1**  
**FIELD DATA SUMMARY TABLE**  
**NOBLE - 100322**  
**Julie C21-25, WELD COUNTY, COLORADO**  
**REM # 34730**

Sample ID	Sample Date	Depth (ft. bgs)	GPS Data		PDOP Value	VOC Concentration (ppm)
			Latitude/Longitude			
FL01R-S@3'	6/7/2024	3	40.291306	-104.562811	0.9	0.2
FL01R-W@3'	6/7/2024	3	40.293731	-104.560153	1.0	0.2
BKG01@3'	6/7/2024	3	40.293795	-104.560193	0.9	0.3

1. Global Positioning System (GPS) data is provided in decimal degrees using North American Datum (NAD) 83 UTMZone 13 North.

2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

bgs = Below ground surface

TABLE 2  
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA  
NOBLE - 100322  
JULIE C21-25, WELD COUNTY, COLORADO  
REM # 34730

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'	6/7/2024	3	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL01R-W@3'	6/7/2024	3	<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 - 100322  
JULIE C21-25, WELD COUNTY, COLORADO  
REM # 34730

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	1800	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'	6/7/2024	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
FL01R-W@3'	6/7/2024	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:**

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 - 100322  
JULIE C21-25, WELD COUNTY, COLORADO  
REM #34730

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'	6/7/2024	3	9.08	0.136	0.0176	<2.00
FL01R-W@3'	6/7/2024	3	9.13	0.138	0.243	<2.00
BKG01@3'	6/7/2024	3	8.68	0.470	2.26	NA
Maximum Background Concentration			8.68	-	-	-
Mean Background Concentration			8.68	-	-	-

**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 - 100322  
JULIE C21-25, WELD COUNTY, COLORADO  
REM # 34730

Sample ID	Sample Date	Depth (ft. bgs)	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			0.68	15000	71	0.3	3100	400	1500	390	390	23000
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'	6/7/2024	3	2.95	161	0.217	<0.30*	5.71	5.96	5.62	<0.260	0.0207	24.0
FL01R-W@3'	6/7/2024	3	1.99	45.7	0.341	<0.30*	6.56	24.3	4.87	<0.260	0.0241	27.1
BKG01@3'	6/7/2024	3	3.08	59.9	0.210	<0.30	6.03	7.78	7.42	<0.260	0.0252	27.4
Maximum Background Concentration			3.08	59.9	-	-	-	7.78	-	-	-	-
Maximum Background Concentration X 1.25			3.85	74.9	-	-	-	9.73	-	-	-	-
Mean Background Concentration			3.08	59.9	-	-	-	7.78	-	-	-	-
Mean Background Concentration X 1.25			3.85	74.9	-	-	-	9.73	-	-	-	-

**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.

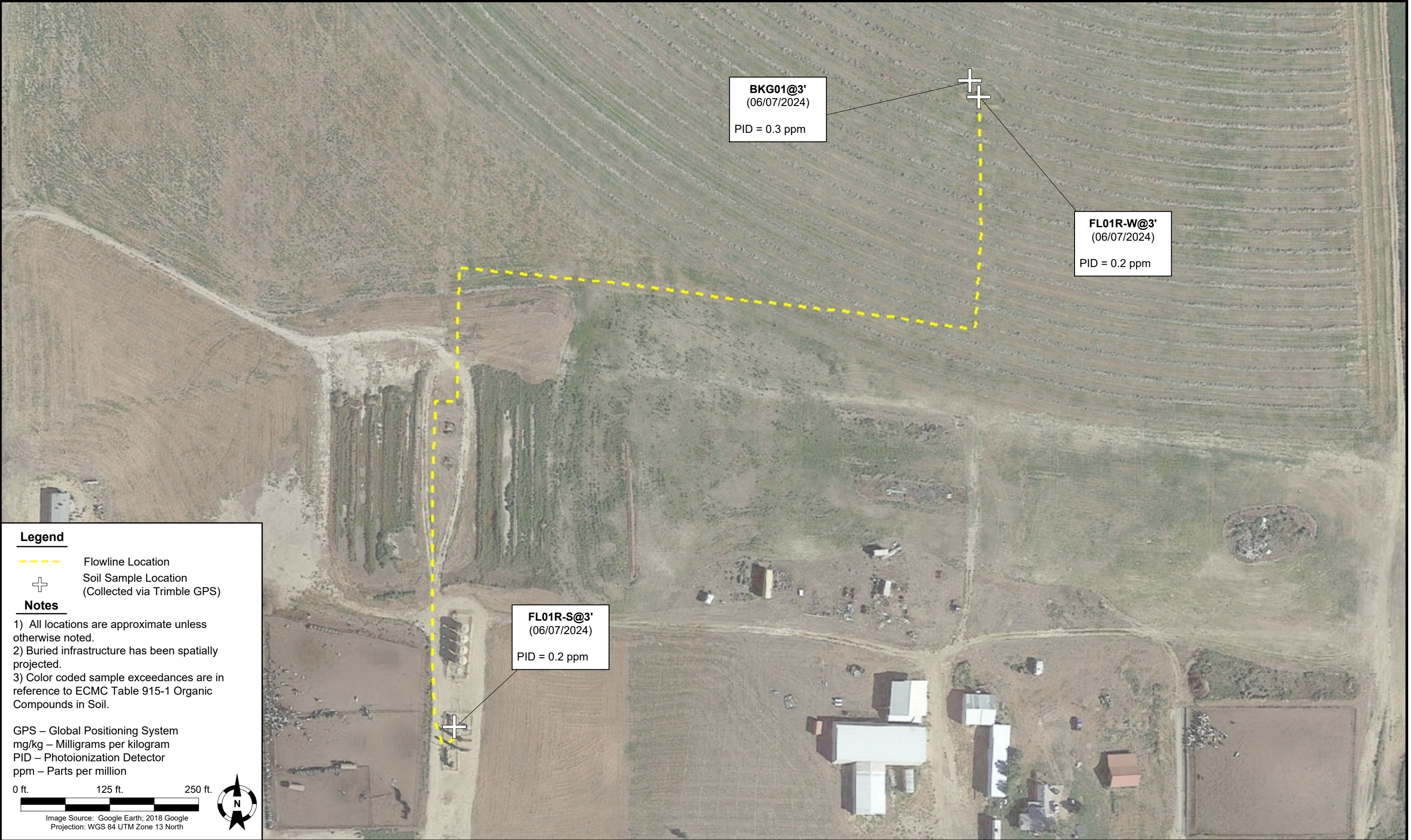
mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface

\* Indicates laboratory minimum detection limit in excess of SSL





DATE:	July 30 , 2024	 <b>Tasman, Inc.</b> 6855 W. 119 <sup>th</sup> Ave. Broomfield, CO 80020	<b>Noble Energy, Inc. – DJ Basin</b> <b>Julie C21-25 Flowline</b> SESW, Section 21, Township 4 North, Range 64 West Weld County, Colorado	SOIL SAMPLE LOCATION MAP (06/07/2024)	FIGURE 1
DESIGNED BY:	C. Hamlin				
DRAWN BY:	L. Moran				



# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 24, 2024

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Julie C21-25

Work Order #2406104

Enclosed are the results of analyses for samples received by Summit Scientific on 06/07/24 17:43. 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 - Julie C21-25  
Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01R-S@3'	2406104-01	Soil	06/07/24 14:29	06/07/24 17:43
FL01R-W@3'	2406104-02	Soil	06/07/24 14:39	06/07/24 17:43
BKG01@3'	2406104-03	Soil	06/07/24 14:45	06/07/24 17:43

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.*

<b>Send Data To:</b>		<b>Send Invoice To:</b>
Client: Noble/Tasman	Project Manager: Jake Whritenour	Company: <u>Chevron</u>
Address: 6855 W. 119th Ave.	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: <u>Julie C21-25</u>
City/State/Zip: Broomfield/CO/ 80020		AFE#: <u>UWRWE-A3072-ABN</u>
Phone:	Project Name: <u>Julie C21-25</u>	PO/Billing Codes:
Sampler Name: <u>Conor Lowell</u>	Project Number:	Contact: <u>Dan Peterson</u> <sup>CC</sup> <u>Wade Firestien</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	1,2,4 & 1,3,5-TMBs	TDS, Cl, SO4	TPH-915	PAH-915	Baron	Methyls-915	EC, SAR, pH	
1	FLOIR-SE3'	6/7/24	1429	3			3			3			x	x		x	x	x	x	x	
2	FLOIR-WE3'	1	1439	1			1			1			x	x		x	x	x	x	x	
3	BKGOI E3'	1	1445	1			1			1									x	x	
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by: <u>C-21</u>	Date/Time: <u>6/7/24 1715</u>	Received by: <u>Tasman Lock Box</u>	Date/Time: <u>6/7/24 1715</u>	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: <u>Tasman Lock Box</u>	Date/Time: <u>6/7/24 1743</u>	Received by: <u>[Signature]</u>	Date/Time: <u>6/7/24 1743</u>	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: <u>99</u>	Corrected Temperature: <u>0</u>	IR gun #:		HNO3 lot #:		



S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2406104Client: NoblewomanClient Project ID: Julie C21-25Shipped 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)

9.9

Thermometer #

1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>on DOE</u>
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 <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , 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? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? <sup>(1)</sup>	<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)? <sup>(1)</sup> Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? <sup>(1)</sup> 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):				

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

Custodian Printed Name

Date/Time



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

Project: Noble - Julie C21-25  
Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**FL01R-S@3'**  
**2406104-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **06/07/24 14:29**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BHF0251	06/10/24	06/11/24	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: **06/07/24 14:29**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0388	97.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0396	99.1 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0413	103 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/07/24 14:29**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BHF0252	06/10/24	06/11/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **06/07/24 14:29**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	9.33	74.6 %	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 - Julie C21-25  
Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**FL01R-S@3'**  
**2406104-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **06/07/24 14:29**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHF0277	06/11/24	06/11/24	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: **06/07/24 14:29**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0289	86.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0298	89.4 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **06/07/24 14:29**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHF0225	06/10/24	06/12/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **06/07/24 14:29**

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

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

Project: Noble - Julie C21-25  
Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**FL01R-S@3'**  
**2406104-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	2.95	0.200	mg/kg dry	1	BHF0289	06/11/24	06/14/24	EPA 6020B
Barium	161	0.400	"	"	"	"	"	"
Cadmium	0.217	0.200	"	"	"	"	"	"
Copper	5.71	0.400	"	"	"	"	"	"
Lead	5.96	0.200	"	"	"	"	"	"
Nickel	5.62	0.400	"	"	"	"	"	"
Silver	0.0207	0.0200	"	"	"	"	"	"
Zinc	24.0	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/07/24 14:29**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHF0283	06/11/24	06/11/24	EPA 7196A	

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

Date Sampled: **06/07/24 14:29**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	269	0.0500	mg/L dry	1	BHF0346	06/12/24	06/13/24	EPA 6020B	
Magnesium	22.1	0.0500	"	"	"	"	"	"	
Sodium	1.12	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **06/07/24 14:29**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0176	0.00100	units	1	BHF0428	06/14/24	06/14/24	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **06/07/24 14:29**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Julie C21-25  
Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**FL01R-S@3'**  
**2406104-01 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	88.0	%	1	BHF0291	06/11/24	06/11/24	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **06/07/24 14:29**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	<b>0.136</b>	0.0100	mmhos/cm	1	BHF0347	06/12/24	06/13/24	EPA 120.1	

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

Date Sampled: **06/07/24 14:29**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	<b>9.08</b>		pH Units	1	BHF0348	06/12/24	06/13/24	EPA 9045D	

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Julie C21-25  
Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**FL01R-W@3'**  
**2406104-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **06/07/24 14:39**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BHF0251	06/10/24	06/11/24	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: **06/07/24 14:39**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0336	84.1 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0390	97.4 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0388	97.1 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/07/24 14:39**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BHF0252	06/10/24	06/11/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **06/07/24 14:39**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	6.51	52.1 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Project: Noble - Julie C21-25  
Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**FL01R-W@3'**  
**2406104-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **06/07/24 14:39**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHF0277	06/11/24	06/11/24	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: **06/07/24 14:39**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0277	83.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0269	80.7 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **06/07/24 14:39**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHF0225	06/10/24	06/12/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **06/07/24 14:39**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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6855 W. 119th Ave.  
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Project: Noble - Julie C21-25  
Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**FL01R-W@3'**  
**2406104-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	1.99	0.200	mg/kg dry	1	BHF0289	06/11/24	06/14/24	EPA 6020B
Barium	45.7	0.400	"	"	"	"	"	"
Cadmium	0.341	0.200	"	"	"	"	"	"
Copper	6.56	0.400	"	"	"	"	"	"
Lead	24.3	0.200	"	"	"	"	"	"
Nickel	4.87	0.400	"	"	"	"	"	"
Silver	0.0241	0.0200	"	"	"	"	"	"
Zinc	27.1	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/07/24 14:39**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHF0283	06/11/24	06/11/24	EPA 7196A	

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

Date Sampled: **06/07/24 14:39**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	130	0.0500	mg/L dry	1	BHF0346	06/12/24	06/13/24	EPA 6020B	
Magnesium	8.66	0.0500	"	"	"	"	"	"	
Sodium	10.6	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **06/07/24 14:39**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.243	0.00100	units	1	BHF0428	06/14/24	06/14/24	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **06/07/24 14:39**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**FL01R-W@3'**  
**2406104-02 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	87.7	%	1	BHF0291	06/11/24	06/11/24	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **06/07/24 14:39**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	<b>0.138</b>	0.0100	mmhos/cm	1	BHF0347	06/12/24	06/13/24	EPA 120.1	

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

Date Sampled: **06/07/24 14:39**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	<b>9.13</b>		pH Units	1	BHF0348	06/12/24	06/13/24	EPA 9045D	

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Project: Noble - Julie C21-25  
Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**BKG01@3'**  
**2406104-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **06/07/24 14:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	3.08	0.200	mg/kg dry	1	BHF0289	06/11/24	06/14/24	EPA 6020B	
Barium	59.9	0.400	"	"	"	"	"	"	
Cadmium	0.210	0.200	"	"	"	"	"	"	
Copper	6.03	0.400	"	"	"	"	"	"	
Lead	7.78	0.200	"	"	"	"	"	"	
Nickel	7.42	0.400	"	"	"	"	"	"	
Silver	0.0252	0.0200	"	"	"	"	"	"	
Zinc	27.4	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/07/24 14:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHF0283	06/11/24	06/11/24	EPA 7196A	

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

Date Sampled: **06/07/24 14:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	37.6	0.0500	mg/L dry	1	BHF0346	06/12/24	06/13/24	EPA 6020B	
Magnesium	12.1	0.0500	"	"	"	"	"	"	
Sodium	62.2	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **06/07/24 14:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	2.26	0.00100	units	1	BHF0428	06/14/24	06/14/24	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

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Project: Noble - Julie C21-25  
Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**BKG01@3'**  
**2406104-03 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **06/07/24 14:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.9		%	1	BHF0291	06/11/24	06/11/24	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **06/07/24 14:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.470	0.0100	mmhos/cm	1	BHF0347	06/12/24	06/13/24	EPA 120.1	

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

Date Sampled: **06/07/24 14:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.68		pH Units	1	BHF0348	06/12/24	06/13/24	EPA 9045D	

Summit Scientific

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Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

## 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 BHF0251 - EPA 5030 Soil MS

##### Blank (BHF0251-BLK1)

Prepared & Analyzed: 06/10/24

1,2,4-Trimethylbenzene	ND	0.0050	mg/kg							
Surrogate: 1,2-Dichloroethane-d4	0.0495		"	0.0400	124	50-150				
Surrogate: Toluene-d8	0.0422		"	0.0400	105	50-150				

##### LCS (BHF0251-BS1)

Prepared & Analyzed: 06/10/24

1,2,4-Trimethylbenzene	0.104	0.0050	mg/kg	0.100	104	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0415		"	0.0400	104	50-150				
Surrogate: Toluene-d8	0.0406		"	0.0400	102	50-150				

##### Matrix Spike (BHF0251-MS1)

Source: 2405451-02

Prepared & Analyzed: 06/10/24

1,2,4-Trimethylbenzene	0.104	0.0050	mg/kg	0.100	ND	104	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0422		"	0.0400	105	50-150				
Surrogate: Toluene-d8	0.0412		"	0.0400	103	50-150				

##### Matrix Spike Dup (BHF0251-MSD1)

Source: 2405451-02

Prepared & Analyzed: 06/10/24

1,2,4-Trimethylbenzene	0.102	0.0050	mg/kg	0.100	ND	102	70-130	1.77	30	
Surrogate: 1,2-Dichloroethane-d4	0.0415		"	0.0400	104	50-150				
Surrogate: Toluene-d8	0.0419		"	0.0400	105	50-150				

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6855 W. 119th Ave.  
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Project: Noble - Julie C21-25  
Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**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 BHF0252 - EPA 3550A**

**Blank (BHF0252-BLK1)**

Prepared & Analyzed: 06/10/24

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	14.3		"	12.5		115	30-150			

**LCS (BHF0252-BS1)**

Prepared & Analyzed: 06/10/24

C10-C28 (DRO)	439	50	mg/kg	500		87.8	70-130			
Surrogate: o-Terphenyl	12.8		"	12.5		102	30-150			

**Matrix Spike (BHF0252-MS1)**

Source: 2405451-02

Prepared & Analyzed: 06/10/24

C10-C28 (DRO)	446	50	mg/kg	500	10.1	87.1	70-130			
Surrogate: o-Terphenyl	12.3		"	12.5		98.8	30-150			

**Matrix Spike Dup (BHF0252-MSD1)**

Source: 2405451-02

Prepared & Analyzed: 06/10/24

C10-C28 (DRO)	476	50	mg/kg	500	10.1	93.2	70-130	6.55	20	
Surrogate: o-Terphenyl	11.7		"	12.5		93.6	30-150			

Summit Scientific

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6855 W. 119th Ave.  
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Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**PAH by EPA Method 8270D SIM - Quality Control**

**Summit Scientific**

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

**Batch BHF0277 - EPA 5030 Soil MS**

**Blank (BHF0277-BLK1)**

Prepared & Analyzed: 06/11/24

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	0.0317		"	0.0333		95.1	40-150			
Surrogate: Fluoranthene-d10	0.0365		"	0.0333		110	40-150			

**LCS (BHF0277-BS1)**

Prepared & Analyzed: 06/11/24

Acenaphthene	0.0215	0.00500	mg/kg	0.0333		64.4	31-137			
Anthracene	0.0229	0.00500	"	0.0333		68.8	30-120			
Benzo (a) anthracene	0.0234	0.00500	"	0.0333		70.3	30-120			
Benzo (a) pyrene	0.0210	0.00500	"	0.0333		63.1	30-120			
Benzo (b) fluoranthene	0.0211	0.00500	"	0.0333		63.3	30-120			
Benzo (k) fluoranthene	0.0207	0.00500	"	0.0333		62.1	30-120			
Chrysene	0.0223	0.00500	"	0.0333		67.0	30-120			
Dibenz (a,h) anthracene	0.0191	0.00500	"	0.0333		57.2	30-120			
Fluoranthene	0.0229	0.00500	"	0.0333		68.6	30-120			
Fluorene	0.0218	0.00500	"	0.0333		65.5	30-120			
Indeno (1,2,3-cd) pyrene	0.0204	0.00500	"	0.0333		61.3	30-120			
Pyrene	0.0256	0.00500	"	0.0333		76.9	35-142			
1-Methylnaphthalene	0.0213	0.00500	"	0.0333		64.0	35-142			
2-Methylnaphthalene	0.0210	0.00500	"	0.0333		63.1	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0223		"	0.0333		66.8	40-150			
Surrogate: Fluoranthene-d10	0.0251		"	0.0333		75.4	40-150			

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Project: Noble - Julie C21-25  
Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

## 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 BHF0277 - EPA 5030 Soil MS

##### Matrix Spike (BHF0277-MS1)

Source: 2406082-01

Prepared & Analyzed: 06/11/24

Acenaphthene	0.0158	0.00500	mg/kg	0.0333	ND	47.4	31-137				
Anthracene	0.0165	0.00500	"	0.0333	ND	49.6	30-120				
Benzo (a) anthracene	0.0171	0.00500	"	0.0333	ND	51.4	30-120				
Benzo (a) pyrene	0.0150	0.00500	"	0.0333	ND	45.1	30-120				
Benzo (b) fluoranthene	0.0150	0.00500	"	0.0333	ND	45.0	30-120				
Benzo (k) fluoranthene	0.0145	0.00500	"	0.0333	ND	43.4	30-120				
Chrysene	0.0164	0.00500	"	0.0333	ND	49.1	30-120				
Dibenz (a,h) anthracene	0.0152	0.00500	"	0.0333	ND	45.7	30-120				
Fluoranthene	0.0181	0.00500	"	0.0333	ND	54.2	30-120				
Fluorene	0.0160	0.00500	"	0.0333	ND	48.1	30-120				
Indeno (1,2,3-cd) pyrene	0.0154	0.00500	"	0.0333	ND	46.1	30-120				
Pyrene	0.0202	0.00500	"	0.0333	ND	60.5	35-142				
1-Methylnaphthalene	0.0170	0.00500	"	0.0333	ND	50.9	15-130				
2-Methylnaphthalene	0.0153	0.00500	"	0.0333	ND	45.9	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0175		"	0.0333		52.5	40-150				
Surrogate: Fluoranthene-d10	0.0166		"	0.0333		49.8	40-150				

##### Matrix Spike Dup (BHF0277-MSD1)

Source: 2406082-01

Prepared & Analyzed: 06/11/24

Acenaphthene	0.0183	0.00500	mg/kg	0.0333	ND	55.0	31-137	14.8	30
Anthracene	0.0192	0.00500	"	0.0333	ND	57.5	30-120	14.7	30
Benzo (a) anthracene	0.0187	0.00500	"	0.0333	ND	56.0	30-120	8.48	30
Benzo (a) pyrene	0.0170	0.00500	"	0.0333	ND	51.0	30-120	12.3	30
Benzo (b) fluoranthene	0.0166	0.00500	"	0.0333	ND	49.9	30-120	10.3	30
Benzo (k) fluoranthene	0.0169	0.00500	"	0.0333	ND	50.6	30-120	15.4	30
Chrysene	0.0182	0.00500	"	0.0333	ND	54.5	30-120	10.5	30
Dibenz (a,h) anthracene	0.0150	0.00500	"	0.0333	ND	45.0	30-120	1.58	30
Fluoranthene	0.0185	0.00500	"	0.0333	ND	55.6	30-120	2.68	30
Fluorene	0.0184	0.00500	"	0.0333	ND	55.1	30-120	13.6	30
Indeno (1,2,3-cd) pyrene	0.0153	0.00500	"	0.0333	ND	46.0	30-120	0.109	30
Pyrene	0.0217	0.00500	"	0.0333	ND	65.2	35-142	7.49	30
1-Methylnaphthalene	0.0191	0.00500	"	0.0333	ND	57.3	15-130	12.0	50
2-Methylnaphthalene	0.0182	0.00500	"	0.0333	ND	54.7	15-130	17.6	50
Surrogate: 2-Methylnaphthalene-d10	0.0203		"	0.0333		60.8	40-150		
Surrogate: Fluoranthene-d10	0.0204		"	0.0333		61.3	40-150		

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

Project: Noble - Julie C21-25  
Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**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 BHF0225 - EPA 3050B**

**LCS (BHF0225-BS1)**

Prepared: 06/10/24 Analyzed: 06/12/24

Boron	5.19	2.00	mg/L	5.00	104	80-120
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**Duplicate (BHF0225-DUP1)**

**Source: 2405442-26**

Prepared: 06/10/24 Analyzed: 06/12/24

Boron	0.422	2.00	mg/L	0.427	1.24	20
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**Matrix Spike (BHF0225-MS1)**

**Source: 2405442-26**

Prepared: 06/10/24 Analyzed: 06/12/24

Boron	5.99	2.00	mg/L	5.00	0.427	111	75-125
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**Matrix Spike Dup (BHF0225-MSD1)**

**Source: 2405442-26**

Prepared: 06/10/24 Analyzed: 06/12/24

Boron	6.23	2.00	mg/L	5.00	0.427	116	75-125	3.94	25
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Summit Scientific

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

Project: Noble - Julie C21-25  
Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**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 BHF0289 - EPA 3050B**

**Blank (BHF0289-BLK1)**

Prepared: 06/11/24 Analyzed: 06/14/24

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 (BHF0289-BS1)**

Prepared: 06/11/24 Analyzed: 06/14/24

Arsenic	36.1	0.200	mg/kg wet	40.0	90.3	80-120
Barium	39.0	0.400	"	40.0	97.4	80-120
Cadmium	1.94	0.200	"	2.00	96.8	80-120
Copper	36.5	0.400	"	40.0	91.2	80-120
Lead	19.8	0.200	"	20.0	99.0	80-120
Nickel	36.0	0.400	"	40.0	90.0	80-120
Silver	1.92	0.0200	"	2.00	96.1	80-120
Zinc	36.1	0.400	"	40.0	90.4	80-120
Selenium	3.84	0.260	"	4.00	96.0	80-120

**Duplicate (BHF0289-DUP1)**

Source: 2405167-03

Prepared: 06/11/24 Analyzed: 06/14/24

Arsenic	5.22	0.200	mg/kg dry	5.14	1.51	20
Barium	149	0.400	"	147	1.77	20
Cadmium	0.360	0.200	"	0.342	5.01	20
Copper	12.9	0.400	"	12.7	1.41	20
Lead	9.23	0.200	"	8.88	3.84	20
Nickel	14.8	0.400	"	14.7	0.329	20
Silver	0.0527	0.0200	"	0.0511	3.05	20
Zinc	48.9	0.400	"	48.5	0.781	20
Selenium	ND	0.260	"	ND		20

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Julie C21-25  
Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**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 BHF0289 - EPA 3050B**

**Matrix Spike (BHF0289-MS1)**

Source: 2405167-03

Prepared: 06/11/24 Analyzed: 06/14/24

Arsenic	47.4	0.200	mg/kg dry	47.4	5.14	89.3	75-125
Barium	203	0.400	"	47.4	147	120	75-125
Cadmium	2.62	0.200	"	2.37	0.342	96.2	75-125
Copper	54.3	0.400	"	47.4	12.7	87.8	75-125
Lead	29.0	0.200	"	23.7	8.88	85.2	75-125
Nickel	56.9	0.400	"	47.4	14.7	89.2	75-125
Silver	2.27	0.0200	"	2.37	0.0511	93.8	75-125
Zinc	91.2	0.400	"	47.4	48.5	90.1	75-125
Selenium	3.55	0.260	"	4.74	ND	75.0	75-125

**Matrix Spike Dup (BHF0289-MSD1)**

Source: 2405167-03

Prepared: 06/11/24 Analyzed: 06/14/24

Arsenic	47.2	0.200	mg/kg dry	47.7	5.14	88.1	75-125	0.478	25
Barium	202	0.400	"	47.7	147	117	75-125	0.436	25
Cadmium	2.79	0.200	"	2.39	0.342	102	75-125	6.19	25
Copper	54.2	0.400	"	47.7	12.7	87.0	75-125	0.0731	25
Lead	30.3	0.200	"	23.9	8.88	89.8	75-125	4.24	25
Nickel	56.5	0.400	"	47.7	14.7	87.6	75-125	0.734	25
Silver	2.38	0.0200	"	2.39	0.0511	97.5	75-125	4.49	25
Zinc	91.7	0.400	"	47.7	48.5	90.5	75-125	0.568	25
Selenium	3.57	0.260	"	4.77	ND	74.9	75-125	0.537	25

QM-07

**Post Spike (BHF0289-PS1)**

Source: 2405167-03

Prepared: 06/11/24 Analyzed: 06/14/24

Arsenic	106		ug/l	100	11.4	94.3	75-125
Barium	436		"	100	324	112	75-125
Cadmium	5.67		"	5.00	0.757	98.3	75-125
Copper	118		"	100	28.0	89.6	75-125
Lead	63.3		"	50.0	19.6	87.4	75-125
Nickel	123		"	100	32.5	90.1	75-125
Silver	4.82		"	5.00	0.113	94.1	75-125
Zinc	202		"	100	107	94.8	75-125
Selenium	8.40		"	10.0	0.308	81.0	75-125

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

Project: Noble - Julie C21-25  
Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**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 BHF0283 - 3060A Mod**

**Blank (BHF0283-BLK1)**

Prepared & Analyzed: 06/11/24

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BHF0283-BS1)**

Prepared & Analyzed: 06/11/24

Chromium, Hexavalent 23.8 0.30 mg/kg wet 25.0 95.4 80-120

**Duplicate (BHF0283-DUP1)**

Source: 2403312-01

Prepared & Analyzed: 06/11/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BHF0283-MS1)**

Source: 2403312-01

Prepared & Analyzed: 06/11/24

Chromium, Hexavalent 29.5 0.30 mg/kg dry 30.7 ND 96.2 75-125

**Matrix Spike Dup (BHF0283-MSD1)**

Source: 2403312-01

Prepared & Analyzed: 06/11/24

Chromium, Hexavalent 29.4 0.30 mg/kg dry 30.7 ND 95.8 75-125 0.417 20

Summit Scientific

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

Project: Noble - Julie C21-25  
Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**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 BHF0346 - General Preparation**

**Blank (BHF0346-BLK1)**

Prepared: 06/12/24 Analyzed: 06/13/24

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

**LCS (BHF0346-BS1)**

Prepared: 06/12/24 Analyzed: 06/13/24

Calcium	5.76	0.0500	mg/L wet	5.00	115	70-130
Magnesium	5.38	0.0500	"	5.00	108	70-130
Sodium	5.36	0.0500	"	5.00	107	70-130

Summit Scientific

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Julie C21-25

Project Number: UWRWE-A3072-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**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 BHF0291 - General Preparation**

Duplicate (BHF0291-DUP2)			Source: 2406095-01			Prepared & Analyzed: 06/11/24				
% Solids	94.4		%			94.3		0.0424	20	

Summit Scientific

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

Project: Noble - Julie C21-25  
Project Number: UWRWE-A3072-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**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 BHF0347 - General Preparation**

**Blank (BHF0347-BLK1)**

Prepared: 06/12/24 Analyzed: 06/13/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BHF0347-BS1)**

Prepared: 06/12/24 Analyzed: 06/13/24

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

**Duplicate (BHF0347-DUP1)**

**Source: 2406103-01**

Prepared: 06/12/24 Analyzed: 06/13/24

Specific Conductance (EC) 0.165 0.0100 mmhos/cm 0.166 0.422 20

Summit Scientific

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

Project: Noble - Julie C21-25

Project Number: UWRWE-A3072-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

**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 BHF0348 - General Preparation**

**LCS (BHF0348-BS1)**

Prepared: 06/12/24 Analyzed: 06/13/24

pH	9.15	pH Units	9.18	99.7	95-105
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**Duplicate (BHF0348-DUP1)**

**Source: 2406103-01**

Prepared: 06/12/24 Analyzed: 06/13/24

pH	9.06	pH Units	9.11	0.550	20
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Summit Scientific

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

Project: Noble - Julie C21-25

Project Number: UWRWE-A3072-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/24/24 09:05

### Notes and Definitions

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.
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