



SITE NAME: Johnston 22-4 FL							DATE: 5/9/2024	REM. PROJECT #:	WEATHER: Cloudy, 40s
SITE DIRECTIONS: CR55 X CR44, S on CR55, E into							CLIENT: Noble		
LEGALS AND LAT/LONG: 40.301520, -104.543920							TASMAN PERSONNEL: MW, RY		
SOIL TYPES: Well Graded Sand - SW							SURFACE GRADIENT:		
SOIL SAMPLING							FACILITY INFRASTRUCTURE		
Date/Time	Soil Sample ID	PID (ppm)	Visual	Olfactory	Photo?	Grab or Lab Sample?	EQUIPMENT	Quantity	
5/9/2024 09:48	FL01R-W@3'	2.8	No Staining	No Odor	Yes	Lab	Above Ground Storage Tank (AST)		
5/9/2024 11:21	FL01R-S@3'	0.2	No Staining	No Odor	Yes	Lab	Buried or Partially Buried Vessel		
							Separator		
							Emission Control Device (ECD)		
							Dump Line		
							Wellhead		
							Flowline	1	
							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:		

Photographic Log



					
Material:	Volume:	Contents:	Material:	Volume:	Contents:
Notes/Conditions: FACING NORTH			Notes/Conditions: FACING SOUTH SAMPLED UNDER FACILITY UNDER SAMPLE ID SEP01-FL		

TABLE 1
FIELD DATA SUMMARY TABLE
NOBLE ENERGY INC. - 100322
JOHNSTON 22-4, WELD COUNTY, COLORADO
REM # 33793

Sample ID	Sample Date	Depth (ft. bgs)	GPS Data Latitude/Longitude		PDOP Value	VOC Concentration (ppm)
FL01R-W@3'	5/9/2024	3	40.302844	-104.543592	NC	2.8
BKG01@0-6" ^[1]	5/9/2024	0-0.5	40.301376	-104.544209	NC	0.1
BKG01@2.5' ^[1]	5/9/2024	2.5	40.301376	-104.544209	NC	0.0
BKG01@3' ^[1]	5/9/2024	3	40.301376	-104.544209	NC	0.2
BKG01@4' ^[1]	5/9/2024	4	40.301376	-104.544209	NC	0.3
BKG02@0-6" ^[1]	5/9/2024	0-0.5	40.301366	-104.544454	0.9	0.2
BKG02@2.5' ^[1]	5/9/2024	2.5	40.301366	-104.544454	0.9	0.3
BKG02@3' ^[1]	5/9/2024	3	40.301366	-104.544454	0.9	0.1
BKG02@4' ^[1]	5/9/2024	4	40.301366	-104.544454	0.9	0.1

Notes:

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

^[1] Background samples taken at facility of the same name. REM # 33475.

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

bgs = Below ground surface

NC = Data not collected

TABLE 2
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA
NOBLE ENERGY INC. - 100322
JOHNSTON 22-4, WELD COUNTY, COLORADO
REM # 33793

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-W@3'	5/9/2024	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 ENERGY INC. - 100322
JOHNSTON 22-4, WELD COUNTY, COLORADO
REM # 33793

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
FLO1R-W@3'	5/9/2024	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 ENERGY INC. - 100322
JOHNSTON 22-4, WELD COUNTY, COLORADO
REM # 33793

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-W@3'	5/9/2024	3	9.01	0.266	1.01	<2.00
BKG01@0-6" ^[1]	5/9/2024	0-0.5	7.37	0.918	3.23	NA
BKG01@2.5' ^[1]	5/9/2024	2.5	7.31	0.301	1.36	NA
BKG01@3' ^[1]	5/9/2024	3	7.24	0.402	1.67	NA
BKG01@4' ^[1]	5/9/2024	4	7.33	0.360	1.35	NA
BKG02@0-6" ^[1]	5/9/2024	0-0.5	7.60	0.431	1.61	NA
BKG02@2.5' ^[1]	5/9/2024	2.5	7.29	0.246	1.03	NA
BKG02@3' ^[1]	5/9/2024	3	7.29	0.318	1.05	NA
BKG02@4' ^[1]	5/9/2024	4	7.35	0.330	1.23	NA
Maximum Background Concentration			7.60	0.918	3.23	-
Mean Background Concentration			7.35	0.413	1.57	-

Notes:

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

^[1] Background samples taken at facility of the same name. REM # 33475.

ECMC = Colorado Energy & Carbon Management Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

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

ft. = Feet

bgs = Below ground surface

NA = Constituent not analyzed

TABLE 5
SUMMARY OF METALS IN SOIL CHEMISTRY DATA
NOBLE ENERGY INC. - 100322
JOHNSTON 22-4, WELD COUNTY, COLORADO
REM # 33793

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-W@3'	5/9/2024	3	3.21	96.8	0.314	<0.30*	16.4	17.9	10.3	<0.260	0.0539	55.6
BKG01@0-6" ⁽¹⁾	5/9/2024	0-0.5	1.13	22.8	<0.200	<0.30*	3.35	4.10	2.42	<0.260	<0.0200	17.4
BKG01@2.5' ⁽¹⁾	5/9/2024	2.5	1.19	29.3	<0.181	<0.30*	2.59	3.90	2.54	<0.236	<0.0181	11.8
BKG01@3' ⁽¹⁾	5/9/2024	3	1.18	24.1	<0.200	<0.30*	2.75	4.83	2.42	<0.260	<0.0200	11.4
BKG01@4' ⁽¹⁾	5/9/2024	4	1.14	25.9	<0.200	<0.30*	2.63	4.27	2.52	<0.260	<0.0200	11.6
BKG02@0-6" ⁽¹⁾	5/9/2024	0-0.5	1.09	24.2	<0.200	<0.30*	3.24	4.69	2.30	<0.260	<0.0200	17.3
BKG02@2.5' ⁽¹⁾	5/9/2024	2.5	1.02	20.9	<0.200	<0.30*	2.37	4.12	1.99	<0.260	<0.0200	10.3
BKG02@3' ⁽¹⁾	5/9/2024	3	0.997	19.4	<0.200	<0.30*	2.65	4.17	2.35	<0.260	<0.0200	9.98
BKG02@4' ⁽¹⁾	5/9/2024	4	1.01	21.0	<0.200	<0.30*	2.46	3.93	2.06	<0.260	<0.0200	10.9
Maximum Background Concentration			1.19	29.3	-	-	-	4.83	-	-	-	-
Maximum Background Concentration X 1.25			1.49	36.6	-	-	-	6.04	-	-	-	-
Mean Background Concentration			1.09	23.5	-	-	-	4.25	-	-	-	-
Mean Background Concentration X 1.25			1.37	29.3	-	-	-	5.31	-	-	-	-

Notes:

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

⁽¹⁾ Background samples taken at facility of the same name. REM # 33475.

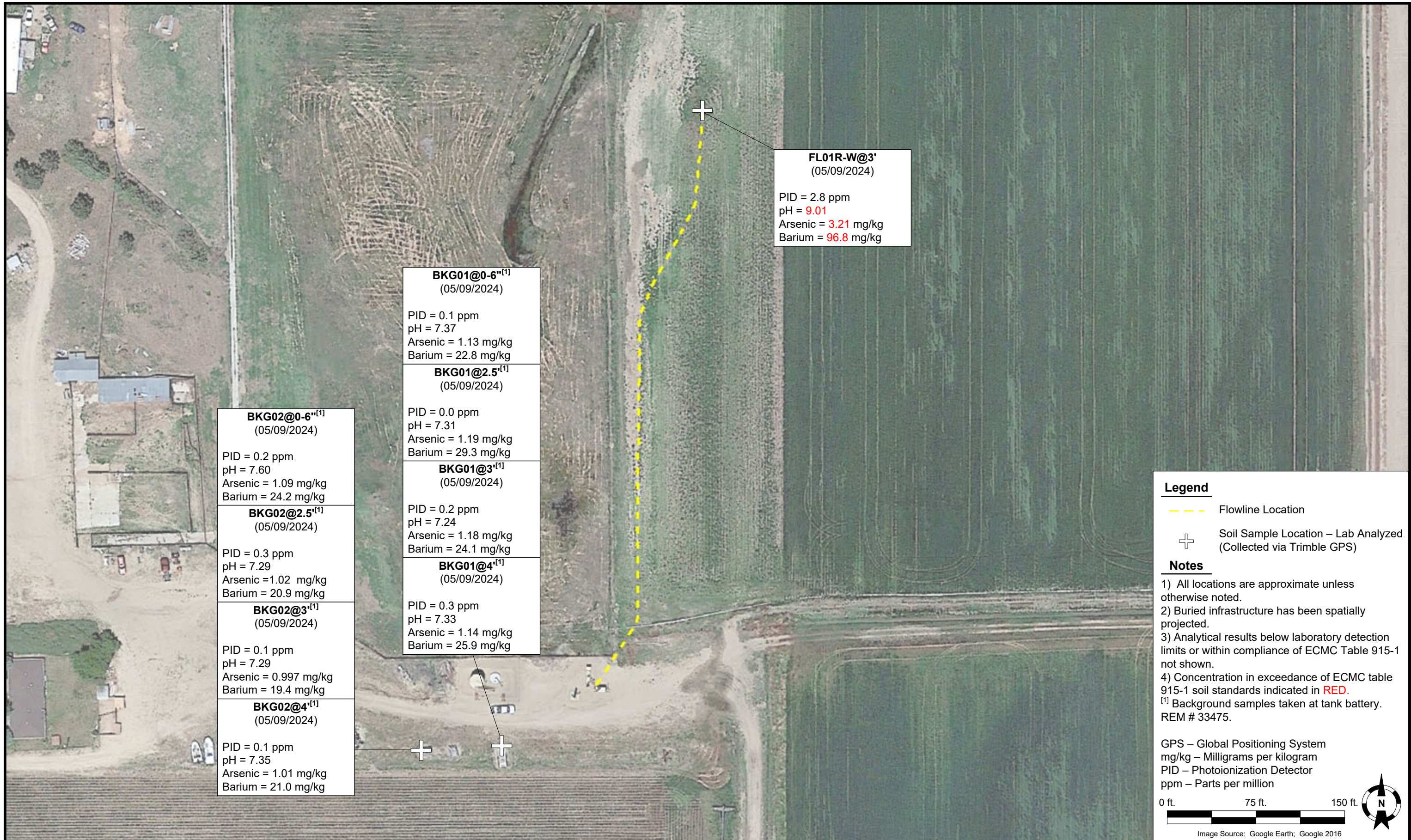
ECMC = Energy & Carbon Management Commission

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

mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface



FL01R-W@3'
(05/09/2024)

PID = 2.8 ppm
 pH = **9.01**
 Arsenic = **3.21** mg/kg
 Barium = **96.8** mg/kg

BKG01@0-6"^[1]
(05/09/2024)

PID = 0.1 ppm
 pH = 7.37
 Arsenic = 1.13 mg/kg
 Barium = 22.8 mg/kg

BKG01@2.5"^[1]
(05/09/2024)

PID = 0.0 ppm
 pH = 7.31
 Arsenic = 1.19 mg/kg
 Barium = 29.3 mg/kg

BKG01@3"^[1]
(05/09/2024)

PID = 0.2 ppm
 pH = 7.24
 Arsenic = 1.18 mg/kg
 Barium = 24.1 mg/kg

BKG01@4"^[1]
(05/09/2024)

PID = 0.3 ppm
 pH = 7.33
 Arsenic = 1.14 mg/kg
 Barium = 25.9 mg/kg

BKG02@0-6"^[1]
(05/09/2024)

PID = 0.2 ppm
 pH = 7.60
 Arsenic = 1.09 mg/kg
 Barium = 24.2 mg/kg

BKG02@2.5"^[1]
(05/09/2024)

PID = 0.3 ppm
 pH = 7.29
 Arsenic = 1.02 mg/kg
 Barium = 20.9 mg/kg

BKG02@3"^[1]
(05/09/2024)

PID = 0.1 ppm
 pH = 7.29
 Arsenic = 0.997 mg/kg
 Barium = 19.4 mg/kg

BKG02@4"^[1]
(05/09/2024)

PID = 0.1 ppm
 pH = 7.35
 Arsenic = 1.01 mg/kg
 Barium = 21.0 mg/kg

Legend

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

Notes

- 1) All locations are approximate unless otherwise noted.
 - 2) Buried infrastructure has been spatially projected.
 - 3) Analytical results below laboratory detection limits or within compliance of ECMC Table 915-1 not shown.
 - 4) Concentration in exceedance of ECMC table 915-1 soil standards indicated in **RED**.
- ^[1] Background samples taken at tank battery. REM # 33475.

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

0 ft. 75 ft. 150 ft.



Image Source: Google Earth; Google 2016



DATE: 07/22/2024

DESIGNED BY: JW

DRAWN BY: LoB



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

**Noble Energy, Inc. – DJ Basin
 Johnston 22-4**
 NWNW, Section 22, Township 4 North, Range 64 West
 Weld County, Colorado

Flowline Closure & Soil
 Analytical Results Map
 (05/09/2024)

FIGURE
 1

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 13, 2024

Jacob Whritenour
Tasman Geosciences
6855 W. 119th Ave.
Broomfield, CO 80020
RE: Noble - Johnston 22-4 FL
Work Order #2405152

Enclosed are the results of analyses for samples received by Summit Scientific on 05/09/24 17:41. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Natalie Tessier For Paul Shrewsbury
President



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

Project: Noble - Johnston 22-4 FL

Project Number: UWRWE-A3156-ABN

Project Manager: Jacob Whritenour

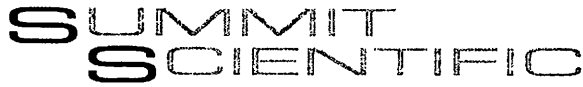
Reported:
06/13/24 09:48

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FLL01R-W@3'	2405152-01	Soil	05/09/24 09:48	05/09/24 17:41

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.



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

Lab ID	Page 1 of 1
2405152	

		Send Data To:	Send Invoice To:
Client: Noble/Tasman		Project Manager: Jake Whritenour	Company: Chevron
Address: 6855 W. 119th Ave.		E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: Johnston 22-4 FL
City/State/Zip: Broomfield/CO/ 80020			AFE#: UWRWE-A3156-ABN
Phone:		Project Name: Johnston 22-4 FL	PO/Billing Codes:
Sampler Name: Ryan Yavinsky / Matt Wentzel		Project Number:	Contact: Miguel Barron

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	VOC -915	TPH - 915	PAH - 915	Metals - 915	pH, EC, SAR	Boron - HWS		
1	FLOIR-W@3'	5/9/24	0948	3			X			X				X	X	X	X	X		
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				

Relinquished by: <i>[Signature]</i> Date/Time: 5/9/24 1330	Received by: Tasman Lock Box Date/Time: 5/9/24 1330	TAT Business Days	Field DO	Notes:
		Same Day	Field EC	
Relinquished by: Tasman Lock Box Date/Time: 5/24 1741	Received by: <i>[Signature]</i> Date/Time: 5/24 1741	1 Day	Field ORP	
		2 Days	Field pH	
Relinquished by: Date/Time:	Received by: Date/Time:	3 Days	Field Temp.	
Temperature Upon Receipt: 80	Corrected Temperature: 6	Standard	X Field Turb.	
	IR gun #: 1		HNO3 lot #:	

S₂

Sample Receipt Checklist

S2 Work Order# 2905152

Client: Nuditharman Client Project ID: Johnson 22-4 FL

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

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

Temp (°C) 8.0 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"/>	
If custody seals are present, are they intact? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK
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. Coll, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water - is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? (1) Note the type of preservative in the comments column - HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? (1) Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

SN
Custodian Printed Name

5/9/24
Date/Time



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

Project: Noble - Johnston 22-4 FL

Project Number: UWRWE-A3156-ABN
Project Manager: Jacob Whritenour

Reported:
06/13/24 09:48

FLL01R-W@3'
2405152-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/09/24 09:48**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHE0339	05/10/24	05/11/24	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: **05/09/24 09:48**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0326	81.4 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0407	102 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0395	98.8 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/09/24 09:48**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHE0341	05/10/24	05/15/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **05/09/24 09:48**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	6.05	48.4 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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



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

Project: Noble - Johnston 22-4 FL
Project Number: UWRWE-A3156-ABN
Project Manager: Jacob Whritenour

Reported:
06/13/24 09:48

FLL01R-W@3'
2405152-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **05/09/24 09:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHE0328	05/10/24	05/11/24	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: **05/09/24 09:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0222	66.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0224	67.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **05/09/24 09:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHE0347	05/10/24	06/04/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **05/09/24 09:48**

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 - Johnston 22-4 FL

Project Number: UWRWE-A3156-ABN
Project Manager: Jacob Whritenour

Reported:
06/13/24 09:48

FLL01R-W@3'
2405152-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	3.21	0.200	mg/kg dry	1	BHE0333	05/10/24	05/30/24	EPA 6020B
Barium	96.8	0.400	"	"	"	"	"	"
Cadmium	0.314	0.200	"	"	"	"	"	"
Copper	16.4	0.400	"	"	"	"	"	"
Lead	17.9	0.200	"	"	"	"	"	"
Nickel	10.3	0.400	"	"	"	"	"	"
Silver	0.0539	0.0200	"	"	"	"	"	"
Zinc	55.6	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **05/09/24 09:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHE0336	05/10/24	05/10/24	EPA 7196A	

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

Date Sampled: **05/09/24 09:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	62.0	0.0500	mg/L dry	1	BHE0360	05/10/24	06/12/24	EPA 6020B	
Magnesium	13.0	0.0500	"	"	"	"	"	"	
Sodium	33.4	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **05/09/24 09:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.01	0.00100	units	1	BHF0327	06/12/24	06/12/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **05/09/24 09:48**

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 - Johnston 22-4 FL
Project Number: UWRWE-A3156-ABN
Project Manager: Jacob Whritenour

Reported:
06/13/24 09:48

FLL01R-W@3'
2405152-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	80.0	%	1	BHE0353	05/10/24	05/10/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **05/09/24 09:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.266	0.0100	mmhos/cm	1	BHE0366	05/10/24	05/13/24	EPA 120.1	

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

Date Sampled: **05/09/24 09:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	9.01		pH Units	1	BHE0367	05/10/24	05/13/24	EPA 9045D	

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Project: Noble - Johnston 22-4 FL

Project Number: UWRWE-A3156-ABN
Project Manager: Jacob Whritenour

Reported:
06/13/24 09:48

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BHE0339 - EPA 5030 Soil MS

Blank (BHE0339-BLK1)

Prepared & Analyzed: 05/10/24

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	0.0286		"	0.0400		71.4	50-150			
Surrogate: Toluene-d8	0.0401		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0400		98.1	50-150			

LCS (BHE0339-BS1)

Prepared & Analyzed: 05/10/24

Benzene	0.0845	0.0020	mg/kg	0.100		84.5	70-130			
Toluene	0.106	0.0050	"	0.100		106	70-130			
Ethylbenzene	0.107	0.0050	"	0.100		107	70-130			
m,p-Xylene	0.213	0.010	"	0.200		107	70-130			
o-Xylene	0.103	0.0050	"	0.100		103	70-130			
1,2,4-Trimethylbenzene	0.0960	0.0050	"	0.100		96.0	70-130			
1,3,5-Trimethylbenzene	0.0992	0.0050	"	0.100		99.2	70-130			
Naphthalene	0.0836	0.0038	"	0.100		83.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0333		"	0.0400		83.3	50-150			
Surrogate: Toluene-d8	0.0419		"	0.0400		105	50-150			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		100	50-150			

Matrix Spike (BHE0339-MS1)

Source: 2405137-01

Prepared & Analyzed: 05/10/24

Benzene	0.0782	0.0020	mg/kg	0.100	ND	78.2	70-130			
Toluene	0.0998	0.0050	"	0.100	ND	99.8	70-130			
Ethylbenzene	0.104	0.0050	"	0.100	ND	104	70-130			
m,p-Xylene	0.204	0.010	"	0.200	ND	102	70-130			
o-Xylene	0.0985	0.0050	"	0.100	ND	98.5	70-130			
1,2,4-Trimethylbenzene	0.0886	0.0050	"	0.100	ND	88.6	70-130			
1,3,5-Trimethylbenzene	0.0931	0.0050	"	0.100	ND	93.1	70-130			
Naphthalene	0.0816	0.0038	"	0.100	ND	81.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0298		"	0.0400		74.6	50-150			
Surrogate: Toluene-d8	0.0421		"	0.0400		105	50-150			
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0400		97.0	50-150			

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Project: Noble - Johnston 22-4 FL

Project Number: UWRWE-A3156-ABN
Project Manager: Jacob Whritenour

Reported:
06/13/24 09:48

Volatile Organic Compounds by EPA Method 8260B - Quality Control

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

Batch BHE0339 - EPA 5030 Soil MS

Matrix Spike Dup (BHE0339-MSD1)	Source: 2405137-01			Prepared & Analyzed: 05/10/24						
Benzene	0.0895	0.0020	mg/kg	0.100	ND	89.5	70-130	13.4	30	
Toluene	0.117	0.0050	"	0.100	ND	117	70-130	15.7	30	
Ethylbenzene	0.117	0.0050	"	0.100	ND	117	70-130	12.1	30	
m,p-Xylene	0.233	0.010	"	0.200	ND	116	70-130	12.9	30	
o-Xylene	0.110	0.0050	"	0.100	ND	110	70-130	11.5	30	
1,2,4-Trimethylbenzene	0.0994	0.0050	"	0.100	ND	99.4	70-130	11.5	30	
1,3,5-Trimethylbenzene	0.106	0.0050	"	0.100	ND	106	70-130	13.1	30	
Naphthalene	0.0863	0.0038	"	0.100	ND	86.3	70-130	5.61	30	
Surrogate: 1,2-Dichloroethane-d4	0.0272		"	0.0400		68.1	50-150			
Surrogate: Toluene-d8	0.0414		"	0.0400		103	50-150			
Surrogate: 4-Bromofluorobenzene	0.0396		"	0.0400		99.0	50-150			

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Project: Noble - Johnston 22-4 FL
Project Number: UWRWE-A3156-ABN
Project Manager: Jacob Whritenour

Reported:
06/13/24 09:48

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BHE0341 - EPA 3550A

Blank (BHE0341-BLK1)

Prepared: 05/10/24 Analyzed: 05/14/24

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	13.7		"	12.5		110	30-150				

LCS (BHE0341-BS1)

Prepared: 05/10/24 Analyzed: 05/14/24

C10-C28 (DRO)	399	50	mg/kg	500		79.9	70-130				
Surrogate: <i>o</i> -Terphenyl	9.82		"	12.5		78.6	30-150				

Matrix Spike (BHE0341-MS1)

Source: 2405137-01

Prepared: 05/10/24 Analyzed: 05/14/24

C10-C28 (DRO)	520	50	mg/kg	500	ND	104	70-130				
Surrogate: <i>o</i> -Terphenyl	6.50		"	12.5		52.0	30-150				

Matrix Spike Dup (BHE0341-MSD1)

Source: 2405137-01

Prepared: 05/10/24 Analyzed: 05/14/24

C10-C28 (DRO)	485	50	mg/kg	500	ND	97.1	70-130	6.89	20		
Surrogate: <i>o</i> -Terphenyl	5.64		"	12.5		45.1	30-150				

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Project: Noble - Johnston 22-4 FL

Project Number: UWRWE-A3156-ABN
Project Manager: Jacob Whritenour

Reported:
06/13/24 09:48

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 BHE0328 - EPA 5030 Soil MS

Blank (BHE0328-BLK1)

Prepared & Analyzed: 05/10/24

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	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0362</i>		"	<i>0.0333</i>		<i>108</i>		<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0389</i>		"	<i>0.0333</i>		<i>117</i>		<i>40-150</i>		

LCS (BHE0328-BS1)

Prepared & Analyzed: 05/10/24

Acenaphthene	0.0286	0.00500	mg/kg	0.0333	85.9	31-137
Anthracene	0.0294	0.00500	"	0.0333	88.2	30-120
Benzo (a) anthracene	0.0294	0.00500	"	0.0333	88.2	30-120
Benzo (a) pyrene	0.0303	0.00500	"	0.0333	90.8	30-120
Benzo (b) fluoranthene	0.0300	0.00500	"	0.0333	90.0	30-120
Benzo (k) fluoranthene	0.0323	0.00500	"	0.0333	96.9	30-120
Chrysene	0.0315	0.00500	"	0.0333	94.6	30-120
Dibenz (a,h) anthracene	0.0259	0.00500	"	0.0333	77.6	30-120
Fluoranthene	0.0290	0.00500	"	0.0333	87.1	30-120
Fluorene	0.0282	0.00500	"	0.0333	84.5	30-120
Indeno (1,2,3-cd) pyrene	0.0384	0.00500	"	0.0333	115	30-120
Pyrene	0.0343	0.00500	"	0.0333	103	35-142
1-Methylnaphthalene	0.0282	0.00500	"	0.0333	84.7	35-142
2-Methylnaphthalene	0.0254	0.00500	"	0.0333	76.1	35-142
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0288</i>		"	<i>0.0333</i>	<i>86.3</i>	<i>40-150</i>
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0291</i>		"	<i>0.0333</i>	<i>87.2</i>	<i>40-150</i>

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Project: Noble - Johnston 22-4 FL
Project Number: UWRWE-A3156-ABN
Project Manager: Jacob Whritenour

Reported:
06/13/24 09:48

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 BHE0328 - EPA 5030 Soil MS

Matrix Spike (BHE0328-MS1)	Source: 2405137-01			Prepared & Analyzed: 05/10/24						
Acenaphthene	0.0201	0.00500	mg/kg	0.0333	ND	60.4	31-137			
Anthracene	0.0201	0.00500	"	0.0333	ND	60.2	30-120			
Benzo (a) anthracene	0.0224	0.00500	"	0.0333	ND	67.1	30-120			
Benzo (a) pyrene	0.0203	0.00500	"	0.0333	ND	61.0	30-120			
Benzo (b) fluoranthene	0.0185	0.00500	"	0.0333	ND	55.5	30-120			
Benzo (k) fluoranthene	0.0186	0.00500	"	0.0333	ND	55.7	30-120			
Chrysene	0.0216	0.00500	"	0.0333	ND	64.9	30-120			
Dibenz (a,h) anthracene	0.0178	0.00500	"	0.0333	ND	53.4	30-120			
Fluoranthene	0.0215	0.00500	"	0.0333	ND	64.4	30-120			
Fluorene	0.0212	0.00500	"	0.0333	ND	63.7	30-120			
Indeno (1,2,3-cd) pyrene	0.0262	0.00500	"	0.0333	ND	78.7	30-120			
Pyrene	0.0225	0.00500	"	0.0333	ND	67.6	35-142			
1-Methylnaphthalene	0.0205	0.00500	"	0.0333	ND	61.4	15-130			
2-Methylnaphthalene	0.0181	0.00500	"	0.0333	ND	54.2	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0219</i>		<i>"</i>	<i>0.0333</i>		<i>65.6</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0225</i>		<i>"</i>	<i>0.0333</i>		<i>67.6</i>	<i>40-150</i>			

Matrix Spike Dup (BHE0328-MSD1)	Source: 2405137-01			Prepared & Analyzed: 05/10/24						
Acenaphthene	0.0159	0.00500	mg/kg	0.0333	ND	47.8	31-137	23.2	30	
Anthracene	0.0163	0.00500	"	0.0333	ND	49.0	30-120	20.5	30	
Benzo (a) anthracene	0.0187	0.00500	"	0.0333	ND	56.2	30-120	17.5	30	
Benzo (a) pyrene	0.0169	0.00500	"	0.0333	ND	50.6	30-120	18.6	30	
Benzo (b) fluoranthene	0.0157	0.00500	"	0.0333	ND	47.2	30-120	16.0	30	
Benzo (k) fluoranthene	0.0148	0.00500	"	0.0333	ND	44.5	30-120	22.2	30	
Chrysene	0.0171	0.00500	"	0.0333	ND	51.4	30-120	23.2	30	
Dibenz (a,h) anthracene	0.0165	0.00500	"	0.0333	ND	49.4	30-120	7.89	30	
Fluoranthene	0.0168	0.00500	"	0.0333	ND	50.4	30-120	24.3	30	
Fluorene	0.0165	0.00500	"	0.0333	ND	49.5	30-120	25.1	30	
Indeno (1,2,3-cd) pyrene	0.0245	0.00500	"	0.0333	ND	73.4	30-120	6.97	30	
Pyrene	0.0224	0.00500	"	0.0333	ND	67.1	35-142	0.794	30	
1-Methylnaphthalene	0.0163	0.00500	"	0.0333	ND	48.9	15-130	22.6	50	
2-Methylnaphthalene	0.0159	0.00500	"	0.0333	ND	47.6	15-130	12.9	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0165</i>		<i>"</i>	<i>0.0333</i>		<i>49.4</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0180</i>		<i>"</i>	<i>0.0333</i>		<i>53.9</i>	<i>40-150</i>			

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

Project: Noble - Johnston 22-4 FL

Project Number: UWRWE-A3156-ABN
Project Manager: Jacob Whritenour

Reported:
06/13/24 09:48

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

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

Batch BHE0347 - EPA 3050B

Blank (BHE0347-BLK1)

Prepared: 05/10/24 Analyzed: 06/04/24

Boron ND 2.00 mg/L

LCS (BHE0347-BS1)

Prepared: 05/10/24 Analyzed: 06/04/24

Boron 5.35 2.00 mg/L 5.00 107 80-120

Duplicate (BHE0347-DUP1)

Source: 2405137-01

Prepared: 05/10/24 Analyzed: 06/04/24

Boron 0.311 2.00 mg/L 0.330 5.66 20

Matrix Spike (BHE0347-MS1)

Source: 2405137-01

Prepared: 05/10/24 Analyzed: 06/04/24

Boron 6.07 2.00 mg/L 5.01 0.330 115 75-125

Matrix Spike Dup (BHE0347-MSD1)

Source: 2405137-01

Prepared: 05/10/24 Analyzed: 06/04/24

Boron 5.86 2.00 mg/L 5.01 0.330 110 75-125 3.58 25

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Project: Noble - Johnston 22-4 FL

Project Number: UWRWE-A3156-ABN
Project Manager: Jacob Whritenour

Reported:
06/13/24 09:48

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BHE0333 - EPA 3050B

Blank (BHE0333-BLK1)

Prepared: 05/10/24 Analyzed: 05/30/24

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 (BHE0333-BS1)

Prepared: 05/10/24 Analyzed: 05/30/24

Arsenic	39.0	0.200	mg/kg wet	40.0	97.6	80-120
Barium	39.1	0.400	"	40.0	97.8	80-120
Cadmium	1.93	0.200	"	2.00	96.3	80-120
Copper	38.9	0.400	"	40.0	97.1	80-120
Lead	19.0	0.200	"	20.0	95.2	80-120
Nickel	38.8	0.400	"	40.0	97.0	80-120
Silver	1.90	0.0200	"	2.00	95.2	80-120
Zinc	38.8	0.400	"	40.0	97.0	80-120
Selenium	3.99	0.260	"	4.00	99.7	80-120

Duplicate (BHE0333-DUP1)

Source: 2405131-01

Prepared: 05/10/24 Analyzed: 05/30/24

Arsenic	3.44	0.200	mg/kg dry	2.33	38.4	20	QR-04
Barium	30.5	0.400	"	32.0	4.92	20	
Cadmium	0.149	0.200	"	0.121	20.3	20	QR-01
Copper	4.06	0.400	"	3.83	5.84	20	
Lead	3.76	0.200	"	3.53	6.30	20	
Nickel	3.97	0.400	"	3.52	11.9	20	
Silver	0.0126	0.0200	"	0.0136	7.24	20	
Zinc	15.6	0.400	"	14.9	4.15	20	
Selenium	ND	0.260	"	ND		20	

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

Project: Noble - Johnston 22-4 FL

Project Number: UWRWE-A3156-ABN
Project Manager: Jacob Whritenour

Reported:
06/13/24 09:48

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BHE0333 - EPA 3050B

Matrix Spike (BHE0333-MS1)

Source: 2405131-01

Prepared: 05/10/24 Analyzed: 05/30/24

Arsenic	40.4	0.200	mg/kg dry	40.0	2.33	95.2	75-125			
Barium	69.5	0.400	"	40.0	32.0	93.8	75-125			
Cadmium	2.06	0.200	"	2.00	0.121	97.1	75-125			
Copper	41.8	0.400	"	40.0	3.83	95.1	75-125			
Lead	22.4	0.200	"	20.0	3.53	94.6	75-125			
Nickel	41.6	0.400	"	40.0	3.52	95.2	75-125			
Silver	1.88	0.0200	"	2.00	0.0136	93.6	75-125			
Zinc	53.2	0.400	"	40.0	14.9	95.7	75-125			
Selenium	3.35	0.260	"	4.00	ND	83.9	75-125			

Matrix Spike Dup (BHE0333-MSD1)

Source: 2405131-01

Prepared: 05/10/24 Analyzed: 05/30/24

Arsenic	41.2	0.200	mg/kg dry	40.0	2.33	97.1	75-125	1.86	25
Barium	70.4	0.400	"	40.0	32.0	96.1	75-125	1.29	25
Cadmium	2.09	0.200	"	2.00	0.121	98.4	75-125	1.31	25
Copper	42.4	0.400	"	40.0	3.83	96.6	75-125	1.42	25
Lead	22.9	0.200	"	20.0	3.53	96.7	75-125	1.84	25
Nickel	42.1	0.400	"	40.0	3.52	96.4	75-125	1.14	25
Silver	1.93	0.0200	"	2.00	0.0136	95.8	75-125	2.33	25
Zinc	54.2	0.400	"	40.0	14.9	98.1	75-125	1.84	25
Selenium	3.41	0.260	"	4.00	ND	85.2	75-125	1.54	25

Post Spike (BHE0333-PS1)

Source: 2405131-01

Prepared: 05/10/24 Analyzed: 05/30/24

Arsenic	105		ug/l	100	5.61	99.4	75-125		
Barium	179		"	100	77.0	102	75-125		
Cadmium	5.46		"	5.00	0.292	103	75-125		
Copper	106		"	100	9.20	97.0	75-125		
Lead	58.7		"	50.0	8.50	100	75-125		
Nickel	106		"	100	8.47	97.5	75-125		
Silver	5.11		"	5.00	0.0326	102	75-125		
Zinc	137		"	100	35.9	101	75-125		
Selenium	9.25		"	10.0	0.134	91.2	75-125		

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Project: Noble - Johnston 22-4 FL
Project Number: UWRWE-A3156-ABN
Project Manager: Jacob Whritenour

Reported:
06/13/24 09:48

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BHE0336 - 3060A Mod

Blank (BHE0336-BLK1)

Prepared & Analyzed: 05/10/24

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BHE0336-BS1)

Prepared & Analyzed: 05/10/24

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

Duplicate (BHE0336-DUP1)

Source: 2405137-01

Prepared & Analyzed: 05/10/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BHE0336-MS1)

Source: 2405137-01

Prepared & Analyzed: 05/10/24

Chromium, Hexavalent 24.9 0.30 mg/kg dry 29.2 ND 85.4 75-125

Matrix Spike Dup (BHE0336-MSD1)

Source: 2405137-01

Prepared & Analyzed: 05/10/24

Chromium, Hexavalent 25.7 0.30 mg/kg dry 29.2 ND 88.2 75-125 3.23 20

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Broomfield CO, 80020

Project: Noble - Johnston 22-4 FL

Project Number: UWRWE-A3156-ABN
Project Manager: Jacob Whritenour

Reported:
06/13/24 09:48

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

Summit Scientific

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

Batch BHE0360 - General Preparation

Blank (BHE0360-BLK1)

Prepared: 05/10/24 Analyzed: 06/12/24

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

LCS (BHE0360-BS1)

Prepared: 05/10/24 Analyzed: 06/12/24

Calcium	5.46	0.0500	mg/L wet	5.00		109	70-130			
Magnesium	5.42	0.0500	"	5.00		108	70-130			
Sodium	5.60	0.0500	"	5.00		112	70-130			

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Project: Noble - Johnston 22-4 FL

Project Number: UWRWE-A3156-ABN
Project Manager: Jacob Whritenour

Reported:
06/13/24 09:48

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

Summit Scientific

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

Batch BHE0353 - General Preparation

Duplicate (BHE0353-DUP1)		Source: 2405145-01			Prepared & Analyzed: 05/10/24			
% Solids	87.6		%		88.3		0.871	20

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Project: Noble - Johnston 22-4 FL

Project Number: UWRWE-A3156-ABN
Project Manager: Jacob Whritenour

Reported:
06/13/24 09:48

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

Summit Scientific

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

Batch BHE0366 - General Preparation

Blank (BHE0366-BLK1)

Prepared: 05/10/24 Analyzed: 05/13/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHE0366-BS1)

Prepared: 05/10/24 Analyzed: 05/13/24

Specific Conductance (EC) 0.158 0.0100 mmhos/cm 0.150 105 95-105

Duplicate (BHE0366-DUP1)

Source: 2405137-01

Prepared: 05/10/24 Analyzed: 05/13/24

Specific Conductance (EC) 0.116 0.0100 mmhos/cm 0.118 1.20 20

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Project: Noble - Johnston 22-4 FL

Project Number: UWRWE-A3156-ABN
Project Manager: Jacob Whritenour

Reported:
06/13/24 09:48

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

Summit Scientific

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

Batch BHE0367 - General Preparation

LCS (BHE0367-BS1)

Prepared: 05/10/24 Analyzed: 05/13/24

pH	9.20	pH Units	9.18	100	95-105
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Duplicate (BHE0367-DUP1)

Source: 2405137-01

Prepared: 05/10/24 Analyzed: 05/13/24

pH	8.30	pH Units	8.41	1.32	20
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Project: Noble - Johnston 22-4 FL

Project Number: UWRWE-A3156-ABN
Project Manager: Jacob Whritenour

Reported:
06/13/24 09:48

Notes and Definitions

- QR-04 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- QR-01 Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
- 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