



FLOWLINE ABANDONMENT FORM

SITE NAME: Wells Ranch AE32-640							DATE: 7/8/2024	REM. PROJECT #: 34952	WEATHER: Sunny 90s	
SITE DIRECTIONS: CR67/CR64; South on 64 (1.74mi); E (3.42mi); S (0.68mi) enter on the east							CLIENT: Noble			
LEGALS AND LAT/LONG: 40.441570 -104.354400							TASMAN PERSONNEL: Molly parks			
SOIL TYPES: Silty Sand - SM							SURFACE GRADIENT: Southwest			
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)			
7/9/2024 12:40	FL01R-W@4'	4.3	No Staining	No Odor	Yes	Lab	Buried or Partially Buried Vessel			
7/9/2024 14:30	FL01R-S@4'	4.9	No Staining	No Odor	Yes	Lab	Separator			
7/9/2024 12:47	GL01R-W@5'	5.5	No Staining	No Odor	Yes	Lab	Emission Control Device (ECD)			
7/8/2024 13:11	GL01R-01@4'	3.7	No Staining	No Odor	Yes	Lab	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:			



Site Area/AOC: Wells Ranch AE32-640 Client: Noble



Daily Forecast/Weather: Sunny 90s Personnel: Molly parks

Task/Location Description:

Need photo log?



							
Equipment ID:		Equipment Type:		Equipment ID:		Equipment Type:	
Material:		Volume:		Material:		Volume:	
		Contents:				Contents:	
Notes/Conditions: Site photo facing east				Notes/Conditions: Site photo facing west			

							
Equipment ID: FL01R-W@4'		Equipment Type: Flowline		Equipment ID: FL01R-S@4'		Equipment Type: Flowline	
Material: Steel		Volume:		Contents: Oil/Gas/Water		Material: Steel	
Volume:		Contents:		Volume:		Contents: Oil/Gas/Water	
Notes/Conditions:				Notes/Conditions:			



					
Equipment ID: GL01R-W@5'		Equipment Type:		Equipment ID: GL01R-01@4'	
Material: Steel	Volume:	Contents:	Material: Steel	Volume:	Contents:
Notes/Conditions: Gas lift line next to the wellhead sample was grabbed by the crew			Notes/Conditions: Sampled on 07-08-24 Gas lift line entering the Meterhouse Shares a sample location with wells ranch AE2-635		

TABLE 1
FIELD DATA SUMMARY TABLE
NOBLE ENERGY INC. 100322
WELLS RANCH AE32-640, WELD COUNTY, COLORADO
REM # 34952

Sample ID	Sample Date	Depth (ft. bgs)	GPS Data Latitude/Longitude		PDOP Value	VOC Concentration (ppm)
GL01R-01@4'	07/08/2024	4	40.441589	-104.354408	0.9	3.7
FL01R-S@4'	07/09/2024	4	40.443226	-104.354971	1.0	4.9
FL01R-W@4'	07/09/2024	4	40.441557	-104.354387	1.1	4.3
GL01R-W@5'	07/09/2024	5	40.441589	-104.354408	1.0	5.5

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
WELLS RANCH AE32-640, WELD COUNTY, COLORADO
REM # 34952

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**		
GL01R-01@4'	07/08/2024	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<0.50
FL01R-S@4'	07/09/2024	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<0.50
FL01R-W@4'	07/09/2024	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<0.50
GL01R-W@5'	07/09/2024	5	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<0.50

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
WELLS RANCH AE32-640, WELD COUNTY, COLORADO
REM # 34952

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
GL01R-01@4'	07/08/2024	4	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FL01R-S@4'	07/09/2024	4	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FL01R-W@4'	07/09/2024	4	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
GL01R-W@5'	07/09/2024	5	<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
WELLS RANCH AE32-640, WELD COUNTY, COLORADO
REM # 34952

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
GL01R-01@4'	07/08/2024	4	8.37	0.210	0.0182	<2.00
FL01R-S@4'	07/09/2024	4	8.49	0.215	0.293	<2.00
FL01R-W@4'	07/09/2024	4	8.64	0.262	0.680	<2.00
GL01R-W@5'	07/09/2024	5	8.75	0.239	0.548	<2.00

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
WELLS RANCH AE32-640, WELD COUNTY, COLORADO
REM # 34952

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
GL01R-01@4'	07/08/2024	4	2.01	64.7	<0.200	<0.30	2.06	3.14	3.08	<0.260	<0.0200	11.2
FL01R-S@4'	07/09/2024	4	3.03	58.7	<0.200	<0.30	3.80	7.69	4.65	<0.260	0.0380	17.3
FL01R-W@4'	07/09/2024	4	2.97	65.2	<0.200	<0.30	3.27	7.88	4.08	<0.260	0.0379	16.4
GL01R-W@5'	07/09/2024	5	5.29	82.4	<0.200	<0.30	2.98	6.26	4.18	<0.260	0.0206	15.9

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:	08/12/2024	 <div>TASMAN GEOSCIENCES</div> <div>Tasman Geosciences, Inc. 6855 W 119th Avenue Broomfield, CO 80020</div>	Noble Energy, Inc. – DJ Basin Wells Ranch AE32-640 NWSW, Section 32, Township 6 North, Range 62 West Weld County, Colorado	Flowline Closure & Soil Analytical Results Map (07/09/2024)	FIGURE 1
DESIGNED BY:	JW				
DRAWN BY:	KS				

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

July 12, 2024

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Wells Ranch AE 32-640

Work Order #2407088

Enclosed are the results of analyses for samples received by Summit Scientific on 07/08/24 17:37. 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

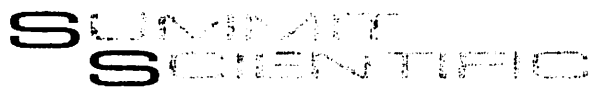
Project: Noble - Wells Ranch AE 32-640

Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GL01R-01@4'	2407088-01	Soil	07/08/24 13:11	07/08/24 17:37



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

Lab ID	Page 1 of 1
2407088	

Send Data To:		Send Invoice To:	
Client: Noble/Tasman	Project Manager: Jake Whritenour	Company: NOBLE	
Address: 6855 W. 119th Ave.	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: Wells Ranch AE32-640	
City/State/Zip: Broomfield/CO/ 80020		AFE#: UWRW-AL009-ABW	
Phone: 937-554-5108	Project Name: Wells Ranch AE32-640	PO/Billing Codes:	
Sampler Name: Molly Parks	Project Number: 34952	Contact: Wade Firestein	

				Preservative				Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD	
1	GLOIR-01 @ 4'	07-08-24	1211	3			X			X			X	X	X	X	X	X		SAR, EC, pH by saturated paste
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				

Relinquished by: MP	Date/Time: 07-08-24 / 1600	Received by: Tasman Lock Box	Date/Time: 07-08-24 / 1600	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: Tasman/lock box	Date/Time: 7824 / 1737	Received by: [Signature]	Date/Time: 7824 / 1737	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	X Field Turb.	
Temperature Upon Receipt: 95	Corrected Temperature: 6	IR gun #: 1	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2407088Client: Nicole Tasman Client Project ID: Wells Ranch AE32-WHDShipped 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"/>
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Matrix (Check all that apply) Air ☐ Soil/Solid ☐ Water ☐ Other ☐Temp (°C) 9.5 Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>an 26</u>
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

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

7/8/24
Date/Time



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

Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

GL01R-01@4'
2407088-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/08/24 13:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BHG0232	07/09/24	07/10/24	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: **07/08/24 13:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0328	82.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0394	98.6 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0415	104 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/08/24 13:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0230	07/09/24	07/11/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/08/24 13:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	8.60	68.8 %	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 - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

GL01R-01@4'
2407088-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/08/24 13:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0204	07/09/24	07/09/24	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: **07/08/24 13:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0164	49.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0177	53.0 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/08/24 13:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0214	07/09/24	07/11/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/08/24 13:11**

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 - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

GL01R-01@4'
2407088-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	2.01	0.200	mg/kg dry	1	BHG0199	07/09/24	07/10/24	EPA 6020B
Barium	64.7	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	2.06	0.400	"	"	"	"	"	"
Lead	3.14	0.200	"	"	"	"	"	"
Nickel	3.08	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	11.2	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/08/24 13:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0220	07/09/24	07/09/24	EPA 7196A	

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

Date Sampled: **07/08/24 13:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	4110	0.0500	mg/L dry	1	BHG0224	07/09/24	07/11/24	EPA 6020B	
Magnesium	158	0.0500	"	"	"	"	"	"	
Sodium	4.38	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/08/24 13:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0182	0.00100	units	1	BHG0317	07/11/24	07/11/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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

Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

GL01R-01@4'
2407088-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/08/24 13:11**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	84.6			%	1	BHG0215	07/09/24	07/10/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/08/24 13:11**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.210	0.0100		mmhos/cm	1	BHG0234	07/09/24	07/10/24	EPA 120.1	

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

Date Sampled: **07/08/24 13:11**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.37			pH Units	1	BHG0233	07/09/24	07/10/24	EPA 9045D	

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Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

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 BHG0232 - EPA 5030 Soil MS

Blank (BHG0232-BLK1)

Prepared & Analyzed: 07/09/24

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	0.0435		"	0.0400		109	50-150			
Surrogate: Toluene-d8	0.0394		"	0.0400		98.4	50-150			
Surrogate: 4-Bromofluorobenzene	0.0414		"	0.0400		103	50-150			

LCS (BHG0232-BS1)

Prepared & Analyzed: 07/09/24

Benzene	0.213	0.0020	mg/kg	0.200		107	70-130			
Toluene	0.218	0.0050	"	0.200		109	70-130			
Ethylbenzene	0.216	0.0050	"	0.200		108	70-130			
m,p-Xylene	0.432	0.010	"	0.400		108	70-130			
o-Xylene	0.213	0.0050	"	0.200		106	70-130			
1,2,4-Trimethylbenzene	0.213	0.0050	"	0.200		106	70-130			
1,3,5-Trimethylbenzene	0.214	0.0050	"	0.200		107	70-130			
Naphthalene	0.201	0.0038	"	0.200		101	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0378		"	0.0400		94.6	50-150			
Surrogate: Toluene-d8	0.0404		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0390		"	0.0400		97.6	50-150			

Matrix Spike (BHG0232-MS1)

Source: 2407086-01

Prepared: 07/09/24 Analyzed: 07/10/24

Benzene	0.166	0.0020	mg/kg	0.200	ND	83.1	70-130			
Toluene	0.170	0.0050	"	0.200	ND	85.2	70-130			
Ethylbenzene	0.165	0.0050	"	0.200	ND	82.7	70-130			
m,p-Xylene	0.326	0.010	"	0.400	ND	81.6	70-130			
o-Xylene	0.169	0.0050	"	0.200	ND	84.4	70-130			
1,2,4-Trimethylbenzene	0.155	0.0050	"	0.200	ND	77.6	70-130			
1,3,5-Trimethylbenzene	0.158	0.0050	"	0.200	ND	78.8	70-130			
Naphthalene	0.135	0.0038	"	0.200	ND	67.6	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	0.0338		"	0.0400		84.4	50-150			
Surrogate: Toluene-d8	0.0396		"	0.0400		99.0	50-150			
Surrogate: 4-Bromofluorobenzene	0.0387		"	0.0400		96.7	50-150			

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Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

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 BHG0232 - EPA 5030 Soil MS

Matrix Spike Dup (BHG0232-MSD1)		Source: 2407086-01			Prepared: 07/09/24 Analyzed: 07/10/24					
Benzene	0.196	0.0020	mg/kg	0.200	ND	98.2	70-130	16.6	30	
Toluene	0.203	0.0050	"	0.200	ND	101	70-130	17.4	30	
Ethylbenzene	0.185	0.0050	"	0.200	ND	92.6	70-130	11.2	30	
m,p-Xylene	0.364	0.010	"	0.400	ND	91.0	70-130	10.9	30	
o-Xylene	0.185	0.0050	"	0.200	ND	92.3	70-130	8.98	30	
1,2,4-Trimethylbenzene	0.165	0.0050	"	0.200	ND	82.3	70-130	5.91	30	
1,3,5-Trimethylbenzene	0.169	0.0050	"	0.200	ND	84.4	70-130	6.95	30	
Naphthalene	0.141	0.0038	"	0.200	ND	70.7	70-130	4.49	30	
Surrogate: 1,2-Dichloroethane-d4		0.0366	"	0.0400		91.5	50-150			
Surrogate: Toluene-d8		0.0410	"	0.0400		102	50-150			
Surrogate: 4-Bromofluorobenzene		0.0401	"	0.0400		100	50-150			

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Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

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 BHG0230 - EPA 3550A

Blank (BHG0230-BLK1)

Prepared: 07/09/24 Analyzed: 07/10/24

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	12.9		"	12.5		103	30-150			

LCS (BHG0230-BS1)

Prepared: 07/09/24 Analyzed: 07/10/24

C10-C28 (DRO)	477	50	mg/kg	500		95.5	70-130			
Surrogate: o-Terphenyl	8.99		"	12.5		71.9	30-150			

Matrix Spike (BHG0230-MS1)

Source: 2407086-01

Prepared: 07/09/24 Analyzed: 07/10/24

C10-C28 (DRO)	552	50	mg/kg	500	46.8	101	70-130			
Surrogate: o-Terphenyl	8.39		"	12.5		67.1	30-150			

Matrix Spike Dup (BHG0230-MSD1)

Source: 2407086-01

Prepared: 07/09/24 Analyzed: 07/10/24

C10-C28 (DRO)	524	50	mg/kg	500	46.8	95.4	70-130	5.20	20	
Surrogate: o-Terphenyl	8.94		"	12.5		71.6	30-150			

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Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BHG0204 - EPA 5030 Soil MS

Blank (BHG0204-BLK1)

Prepared & Analyzed: 07/09/24

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	0.0301		"	0.0333		90.3	40-150			
Surrogate: Fluoranthene-d10	0.0339		"	0.0333		102	40-150			

LCS (BHG0204-BS1)

Prepared & Analyzed: 07/09/24

Acenaphthene	0.0282	0.00500	mg/kg	0.0333		84.7	31-137			
Anthracene	0.0287	0.00500	"	0.0333		86.1	30-120			
Benzo (a) anthracene	0.0303	0.00500	"	0.0333		91.0	30-120			
Benzo (a) pyrene	0.0271	0.00500	"	0.0333		81.2	30-120			
Benzo (b) fluoranthene	0.0276	0.00500	"	0.0333		82.8	30-120			
Benzo (k) fluoranthene	0.0283	0.00500	"	0.0333		85.0	30-120			
Chrysene	0.0298	0.00500	"	0.0333		89.3	30-120			
Dibenz (a,h) anthracene	0.0258	0.00500	"	0.0333		77.5	30-120			
Fluoranthene	0.0297	0.00500	"	0.0333		89.2	30-120			
Fluorene	0.0287	0.00500	"	0.0333		86.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0166	0.00500	"	0.0333		49.9	30-120			
Pyrene	0.0330	0.00500	"	0.0333		98.9	35-142			
1-Methylnaphthalene	0.0287	0.00500	"	0.0333		86.2	35-142			
2-Methylnaphthalene	0.0263	0.00500	"	0.0333		79.0	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0268		"	0.0333		80.4	40-150			
Surrogate: Fluoranthene-d10	0.0316		"	0.0333		94.7	40-150			

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Broomfield CO, 80020

Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

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 BHG0204 - EPA 5030 Soil MS

Matrix Spike (BHG0204-MS1)

Source: 2407067-01

Prepared & Analyzed: 07/09/24

Acenaphthene	0.0260	0.00500	mg/kg	0.0333	ND	77.9	31-137		
Anthracene	0.0267	0.00500	"	0.0333	ND	80.0	30-120		
Benzo (a) anthracene	0.0290	0.00500	"	0.0333	ND	86.9	30-120		
Benzo (a) pyrene	0.0251	0.00500	"	0.0333	ND	75.3	30-120		
Benzo (b) fluoranthene	0.0254	0.00500	"	0.0333	ND	76.2	30-120		
Benzo (k) fluoranthene	0.0242	0.00500	"	0.0333	ND	72.5	30-120		
Chrysene	0.0272	0.00500	"	0.0333	ND	81.7	30-120		
Dibenz (a,h) anthracene	0.0231	0.00500	"	0.0333	ND	69.2	30-120		
Fluoranthene	0.0325	0.00500	"	0.0333	ND	97.5	30-120		
Fluorene	0.0263	0.00500	"	0.0333	ND	78.9	30-120		
Indeno (1,2,3-cd) pyrene	0.0164	0.00500	"	0.0333	ND	49.2	30-120		
Pyrene	0.0325	0.00500	"	0.0333	ND	97.6	35-142		
1-Methylnaphthalene	0.0271	0.00500	"	0.0333	ND	81.2	15-130		
2-Methylnaphthalene	0.0246	0.00500	"	0.0333	ND	73.8	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0266		"	0.0333		79.7	40-150		
Surrogate: Fluoranthene-d10	0.0272		"	0.0333		81.6	40-150		

Matrix Spike Dup (BHG0204-MSD1)

Source: 2407067-01

Prepared & Analyzed: 07/09/24

Acenaphthene	0.0249	0.00500	mg/kg	0.0333	ND	74.8	31-137	4.14	30
Anthracene	0.0258	0.00500	"	0.0333	ND	77.4	30-120	3.27	30
Benzo (a) anthracene	0.0282	0.00500	"	0.0333	ND	84.7	30-120	2.54	30
Benzo (a) pyrene	0.0247	0.00500	"	0.0333	ND	74.1	30-120	1.59	30
Benzo (b) fluoranthene	0.0252	0.00500	"	0.0333	ND	75.6	30-120	0.737	30
Benzo (k) fluoranthene	0.0228	0.00500	"	0.0333	ND	68.5	30-120	5.61	30
Chrysene	0.0265	0.00500	"	0.0333	ND	79.4	30-120	2.81	30
Dibenz (a,h) anthracene	0.0217	0.00500	"	0.0333	ND	65.1	30-120	6.08	30
Fluoranthene	0.0336	0.00500	"	0.0333	ND	101	30-120	3.46	30
Fluorene	0.0256	0.00500	"	0.0333	ND	76.8	30-120	2.79	30
Indeno (1,2,3-cd) pyrene	0.0156	0.00500	"	0.0333	ND	46.7	30-120	5.15	30
Pyrene	0.0325	0.00500	"	0.0333	ND	97.6	35-142	0.0717	30
1-Methylnaphthalene	0.0259	0.00500	"	0.0333	ND	77.8	15-130	4.31	50
2-Methylnaphthalene	0.0247	0.00500	"	0.0333	ND	74.2	15-130	0.590	50
Surrogate: 2-Methylnaphthalene-d10	0.0250		"	0.0333		75.1	40-150		
Surrogate: Fluoranthene-d10	0.0270		"	0.0333		80.9	40-150		

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

Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

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 BHG0214 - EPA 3050B

Blank (BHG0214-BLK1)

Prepared: 07/09/24 Analyzed: 07/11/24

Boron ND 2.00 mg/L

LCS (BHG0214-BS1)

Prepared: 07/09/24 Analyzed: 07/11/24

Boron 5.04 2.00 mg/L 5.00 101 80-120

Duplicate (BHG0214-DUP1)

Source: 2406397-06

Prepared: 07/09/24 Analyzed: 07/11/24

Boron 3.38 2.00 mg/L 3.14 7.41 20

Matrix Spike (BHG0214-MS1)

Source: 2406397-06

Prepared: 07/09/24 Analyzed: 07/11/24

Boron 8.75 2.00 mg/L 5.00 3.14 112 75-125

Matrix Spike Dup (BHG0214-MSD1)

Source: 2406397-06

Prepared: 07/09/24 Analyzed: 07/11/24

Boron 8.77 2.00 mg/L 5.00 3.14 113 75-125 0.274 25

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Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

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 BHG0199 - EPA 3050B

Blank (BHG0199-BLK1)

Prepared: 07/09/24 Analyzed: 07/10/24

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 (BHG0199-BS1)

Prepared: 07/09/24 Analyzed: 07/11/24

Arsenic	36.6	0.200	mg/kg wet	40.0	91.5	80-120
Barium	37.9	0.400	"	40.0	94.8	80-120
Cadmium	1.90	0.200	"	2.00	95.1	80-120
Copper	40.8	0.400	"	40.0	102	80-120
Lead	19.3	0.200	"	20.0	96.6	80-120
Nickel	40.5	0.400	"	40.0	101	80-120
Silver	1.90	0.0200	"	2.00	94.8	80-120
Zinc	40.3	0.400	"	40.0	101	80-120
Selenium	4.13	0.260	"	4.00	103	80-120

Duplicate (BHG0199-DUP1)

Source: 2407074-01

Prepared: 07/09/24 Analyzed: 07/11/24

Arsenic	2.33	0.200	mg/kg dry	2.43	3.91	20
Barium	26.5	0.400	"	25.6	3.40	20
Cadmium	0.255	0.200	"	0.229	10.9	20
Copper	6.29	0.400	"	6.13	2.62	20
Lead	10.4	0.200	"	10.2	2.49	20
Nickel	5.75	0.400	"	5.75	0.00285	20
Silver	0.0265	0.0200	"	0.0236	11.5	20
Zinc	31.6	0.400	"	31.1	1.51	20
Selenium	ND	0.260	"	ND		20

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Broomfield CO, 80020

Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

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 BHG0199 - EPA 3050B

Matrix Spike (BHG0199-MS1)		Source: 2407074-01			Prepared: 07/09/24 Analyzed: 07/11/24					
Arsenic	43.9	0.200	mg/kg dry	44.9	2.43	92.4	75-125			
Barium	75.3	0.400	"	44.9	25.6	111	75-125			
Cadmium	2.44	0.200	"	2.24	0.229	98.3	75-125			
Copper	27.3	0.400	"	44.9	6.13	47.2	75-125			QM-05
Lead	31.0	0.200	"	22.4	10.2	92.5	75-125			
Nickel	27.2	0.400	"	44.9	5.75	47.9	75-125			QM-05
Silver	2.17	0.0200	"	2.24	0.0236	95.4	75-125			
Zinc	51.4	0.400	"	44.9	31.1	45.2	75-125			QM-05
Selenium	4.14	0.260	"	4.49	ND	92.2	75-125			

Matrix Spike Dup (BHG0199-MSD1)		Source: 2407074-01			Prepared: 07/09/24 Analyzed: 07/11/24					
Arsenic	42.6	0.200	mg/kg dry	45.2	2.43	88.8	75-125	3.00	25	
Barium	65.4	0.400	"	45.2	25.6	88.0	75-125	14.2	25	
Cadmium	2.45	0.200	"	2.26	0.229	98.2	75-125	0.644	25	
Copper	27.0	0.400	"	45.2	6.13	46.2	75-125	1.08	25	QM-05
Lead	30.7	0.200	"	22.6	10.2	90.6	75-125	0.880	25	
Nickel	26.8	0.400	"	45.2	5.75	46.5	75-125	1.70	25	QM-05
Silver	2.17	0.0200	"	2.26	0.0236	95.0	75-125	0.277	25	
Zinc	50.7	0.400	"	45.2	31.1	43.2	75-125	1.51	25	QM-05
Selenium	4.67	0.260	"	4.52	ND	103	75-125	12.1	25	

Post Spike (BHG0199-PS1)		Source: 2407074-01			Prepared: 07/09/24 Analyzed: 07/10/24					
Arsenic	109		ug/l	100	5.08	104	75-125			
Barium	124		"	100	53.5	70.1	75-125			QM-01
Cadmium	5.50		"	5.00	0.479	100	75-125			
Copper	82.5		"	100	12.8	69.6	75-125			QM-01
Lead	62.5		"	50.0	21.3	82.4	75-125			
Nickel	82.3		"	100	12.0	70.2	75-125			QM-01
Silver	5.02		"	5.00	0.0494	99.4	75-125			
Zinc	127		"	100	65.2	62.0	75-125			QM-01
Selenium	13.1		"	10.0	0.190	129	75-125			QM-07

Summit Scientific

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

Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

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 BHG0220 - 3060A Mod

Blank (BHG0220-BLK1)

Prepared & Analyzed: 07/09/24

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BHG0220-BS1)

Prepared & Analyzed: 07/09/24

Chromium, Hexavalent 24.6 0.30 mg/kg wet 25.0 98.6 80-120

Duplicate (BHG0220-DUP1)

Source: 2407061-01

Prepared & Analyzed: 07/09/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BHG0220-MS1)

Source: 2407061-01

Prepared & Analyzed: 07/09/24

Chromium, Hexavalent 26.7 0.30 mg/kg dry 27.6 ND 96.8 75-125

Matrix Spike Dup (BHG0220-MSD1)

Source: 2407061-01

Prepared & Analyzed: 07/09/24

Chromium, Hexavalent 26.9 0.30 mg/kg dry 27.6 ND 97.6 75-125 0.823 20

Summit Scientific

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

Project: Noble - Wells Ranch AE 32-640

Project Number: UWRWR-A4009-ABN

Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

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

Summit Scientific

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

Batch BHG0224 - General Preparation

Blank (BHG0224-BLK1)

Prepared: 07/09/24 Analyzed: 07/11/24

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

LCS (BHG0224-BS1)

Prepared: 07/09/24 Analyzed: 07/11/24

Calcium	4.82	0.0500	mg/L wet	5.00	96.5	70-130
Magnesium	4.82	0.0500	"	5.00	96.4	70-130
Sodium	4.82	0.0500	"	5.00	96.5	70-130

Summit Scientific

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

Project: Noble - Wells Ranch AE 32-640

Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

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 BHG0215 - General Preparation

Duplicate (BHG0215-DUP1)		Source: 2407082-01			Prepared: 07/09/24 Analyzed: 07/10/24					
% Solids	92.1		%		92.5		0.375		20	

Summit Scientific

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

Project: Noble - Wells Ranch AE 32-640

Project Number: UWRWR-A4009-ABN

Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

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 BHG0234 - General Preparation

Blank (BHG0234-BLK1)

Prepared: 07/09/24 Analyzed: 07/10/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHG0234-BS1)

Prepared: 07/09/24 Analyzed: 07/10/24

Specific Conductance (EC) 0.152 0.0100 mmhos/cm 0.150 101 95-105

Duplicate (BHG0234-DUP1)

Source: 2407086-01

Prepared: 07/09/24 Analyzed: 07/10/24

Specific Conductance (EC) 0.310 0.0100 mmhos/cm 0.311 0.322 20

Summit Scientific

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

Project: Noble - Wells Ranch AE 32-640

Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

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

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

Batch BHG0233 - General Preparation

LCS (BHG0233-BS1)

Prepared: 07/09/24 Analyzed: 07/10/24

pH	9.18	pH Units	9.18	100	95-105
----	------	----------	------	-----	--------

Duplicate (BHG0233-DUP1)

Source: 2407086-01

Prepared: 07/09/24 Analyzed: 07/10/24

pH	8.34	pH Units	8.34	0.00	20
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Summit Scientific

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

Project: Noble - Wells Ranch AE 32-640

Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/12/24 08:44

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.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The associated LCS and/or LCSD were within acceptance limits, therefore the data are considered valid.
QM-01	The spike recovery for this QC sample is outside of established control limits due to sample matrix interference.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

July 15, 2024

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Wells Ranch AE 32-640

Work Order #2407104

Enclosed are the results of analyses for samples received by Summit Scientific on 07/09/24 17:38. 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 - Wells Ranch AE 32-640

Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

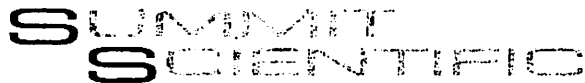
Reported:
07/15/24 08:04

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01R-W@4'	2407104-01	Soil	07/09/24 12:40	07/09/24 17:38
FL01R-S@4'	2407104-02	Soil	07/09/24 14:30	07/09/24 17:38
GL01R-W@5'	2407104-03	Soil	07/09/24 12:47	07/09/24 17:38

Summit Scientific

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

Lab ID	Page 1 of 2
2407104	

Send Data To:		Send Invoice To:
Client: Noble/Tasman	Project Manager: Jake Whritenour	Company: Noble
Address: 6855 W. 119th Ave.	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: Wells Ranch AE32-640
City/State/Zip: Broomfield/CO/ 80020		AFE#: UWRWZ-A4009-ABN
Phone: 937-554-5108	Project Name: Wells Ranch AE32-640	PO/Billing Codes:
Sampler Name: Molly Parks	Project Number: 34952	Contact: Wade Firestein

					Preservative				Matrix				Analysis Requested								Special Instructions	
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other _____	Water	Soil	Air-Canister #	Other _____	Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD			
1	FLDIR-W@4'	07-09-24	1240	3			X			X			X	X	X	X	X	X	X			SAR, EC, pH by saturated paste
2	FLDIR-S@4'	07-09-24	1430	3			X			X			X	X	X	X	X	X	X			
3	GLDIR-W@5'	07-09-24	1247	3			X			X			X	X	X	X	X	X	X			
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						
13																						
14																						
15																						

Relinquished by: <u>MP</u>	Date/Time: <u>07-09-24/1630</u>	Received by: <u>Tasman Lock Box</u>	Date/Time: <u>07-09-24/1630</u>	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: <u>Tasman Lock Box</u>	Date/Time: <u>7924</u>	Received by: <u>[Signature]</u>	Date/Time: <u>7924</u>	1 Day	Field ORP	
	<u>1738</u>		<u>1738</u>	2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	Field Turb.	
Temperature Upon Receipt: <u>8.8</u>	Corrected Temperature: <u>8</u>	IR gun #:		HNO3 lot #:		

S₂

Sample Receipt Checklist

S2 Work Order# 2407104Client: Noble Gasman Client Project ID: Wells Ranch AE 32-640Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: _____

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

Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 8.8 Thermometer # 1

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

Additional Comments (if any):

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

AS

Custodian Printed Name

7/9/24

Date/Time



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

Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

FL01R-W@4'
2407104-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/09/24 12:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BHG0269	07/10/24	07/11/24	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: **07/09/24 12:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0452	113 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0391	97.8 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0424	106 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/09/24 12:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0274	07/10/24	07/11/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/09/24 12:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	9.03	72.2 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

FL01R-W@4'
2407104-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/09/24 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0245	07/10/24	07/11/24	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: **07/09/24 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0185	55.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0186	55.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/09/24 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0257	07/10/24	07/12/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/09/24 12:40**

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 - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

FL01R-W@4'
2407104-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	2.97	0.200	mg/kg dry	1	BHG0242	07/10/24	07/11/24	EPA 6020B
Barium	65.2	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	3.27	0.400	"	"	"	"	"	"
Lead	7.88	0.200	"	"	"	"	"	"
Nickel	4.08	0.400	"	"	"	"	"	"
Silver	0.0379	0.0200	"	"	"	"	"	"
Zinc	16.4	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/09/24 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0248	07/10/24	07/10/24	EPA 7196A	

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

Date Sampled: **07/09/24 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	602	0.0500	mg/L dry	1	BHG0251	07/10/24	07/11/24	EPA 6020B	
Magnesium	87.6	0.0500	"	"	"	"	"	"	
Sodium	67.5	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/09/24 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.680	0.00100	units	1	BHG0350	07/12/24	07/12/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Summit Scientific

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

Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

FL01R-W@4'
2407104-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/09/24 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.3		%	1	BHG0243	07/10/24	07/10/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/09/24 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.262	0.0100	mmhos/cm	1	BHG0259	07/10/24	07/11/24	EPA 120.1	

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

Date Sampled: **07/09/24 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.64		pH Units	1	BHG0261	07/10/24	07/11/24	EPA 9045D	

Summit Scientific

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

Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

FL01R-S@4'
2407104-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/09/24 14:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BHG0269	07/10/24	07/11/24	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: **07/09/24 14:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0368	92.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0389	97.3 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0416	104 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/09/24 14:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0274	07/10/24	07/11/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/09/24 14:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	9.67	77.4 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

FL01R-S@4'
2407104-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/09/24 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0245	07/10/24	07/11/24	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: **07/09/24 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0228	68.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0206	61.8 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/09/24 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0257	07/10/24	07/12/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/09/24 14:30**

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 - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

FL01R-S@4'
2407104-02 (Soil)

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Total Metals by EPA 6020B

Arsenic	3.03	0.200	mg/kg dry	1	BHG0242	07/10/24	07/11/24	EPA 6020B
Barium	58.7	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	3.80	0.400	"	"	"	"	"	"
Lead	7.69	0.200	"	"	"	"	"	"
Nickel	4.65	0.400	"	"	"	"	"	"
Silver	0.0380	0.0200	"	"	"	"	"	"
Zinc	17.3	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/09/24 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0248	07/10/24	07/10/24	EPA 7196A	

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

Date Sampled: **07/09/24 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	47.3	0.0500	mg/L dry	1	BHG0251	07/10/24	07/11/24	EPA 6020B	
Magnesium	6.31	0.0500	"	"	"	"	"	"	
Sodium	8.08	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/09/24 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.293	0.00100	units	1	BHG0350	07/12/24	07/12/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Project: Noble - Wells Ranch AE 32-640

Project Number: UWRWR-A4009-ABN

Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

FL01R-S@4'
2407104-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/09/24 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.9		%	1	BHG0243	07/10/24	07/10/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/09/24 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.215	0.0100	mmhos/cm	1	BHG0259	07/10/24	07/11/24	EPA 120.1	

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

Date Sampled: **07/09/24 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.49		pH Units	1	BHG0261	07/10/24	07/11/24	EPA 9045D	

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Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

GL01R-W@5'
2407104-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/09/24 12:47**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BHG0269	07/10/24	07/11/24	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: **07/09/24 12:47**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0331	82.6 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0397	99.2 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0417	104 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/09/24 12:47**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0274	07/10/24	07/11/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/09/24 12:47**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	10.5	84.2 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: Noble - Wells Ranch AE 32-640
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Reported:
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GL01R-W@5'
2407104-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/09/24 12:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0245	07/10/24	07/11/24	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: **07/09/24 12:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0193	58.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0199	59.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/09/24 12:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0257	07/10/24	07/12/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/09/24 12:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

GL01R-W@5'
2407104-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	5.29	0.200	mg/kg dry	1	BHG0242	07/10/24	07/11/24	EPA 6020B
Barium	82.4	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	2.98	0.400	"	"	"	"	"	"
Lead	6.26	0.200	"	"	"	"	"	"
Nickel	4.18	0.400	"	"	"	"	"	"
Silver	0.0206	0.0200	"	"	"	"	"	"
Zinc	15.9	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/09/24 12:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0248	07/10/24	07/10/24	EPA 7196A	

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

Date Sampled: **07/09/24 12:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	272	0.0500	mg/L dry	1	BHG0251	07/10/24	07/11/24	EPA 6020B	
Magnesium	43.3	0.0500	"	"	"	"	"	"	
Sodium	36.9	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/09/24 12:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.548	0.00100	units	1	BHG0350	07/12/24	07/12/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

GL01R-W@5'
2407104-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/09/24 12:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.8		%	1	BHG0243	07/10/24	07/10/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/09/24 12:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.239	0.0100	mmhos/cm	1	BHG0259	07/10/24	07/11/24	EPA 120.1	

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

Date Sampled: **07/09/24 12:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.75		pH Units	1	BHG0261	07/10/24	07/11/24	EPA 9045D	

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Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

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 BHG0269 - EPA 5030 Soil MS

Blank (BHG0269-BLK1)

Prepared & Analyzed: 07/10/24

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	0.0401	"	0.0400	100	50-150
Surrogate: Toluene-d8	0.0394	"	0.0400	98.4	50-150
Surrogate: 4-Bromofluorobenzene	0.0417	"	0.0400	104	50-150

LCS (BHG0269-BS1)

Prepared: 07/10/24 Analyzed: 07/11/24

Benzene	0.0966	0.0020	mg/kg	0.100	96.6	70-130
Toluene	0.115	0.0050	"	0.100	115	70-130
Ethylbenzene	0.113	0.0050	"	0.100	113	70-130
m,p-Xylene	0.224	0.010	"	0.200	112	70-130
o-Xylene	0.110	0.0050	"	0.100	110	70-130
1,2,4-Trimethylbenzene	0.108	0.0050	"	0.100	108	70-130
1,3,5-Trimethylbenzene	0.109	0.0050	"	0.100	109	70-130
Naphthalene	0.0841	0.0038	"	0.100	84.1	70-130

Surrogate: 1,2-Dichloroethane-d4	0.0358	"	0.0400	89.4	50-150
Surrogate: Toluene-d8	0.0410	"	0.0400	103	50-150
Surrogate: 4-Bromofluorobenzene	0.0387	"	0.0400	96.8	50-150

Matrix Spike (BHG0269-MS1)

Source: 2406465-05

Prepared: 07/10/24 Analyzed: 07/11/24

Benzene	0.0977	0.0020	mg/kg	0.100	ND	97.7	70-130
Toluene	0.118	0.0050	"	0.100	ND	118	70-130
Ethylbenzene	0.105	0.0050	"	0.100	ND	105	70-130
m,p-Xylene	0.202	0.010	"	0.200	ND	101	70-130
o-Xylene	0.101	0.0050	"	0.100	ND	101	70-130
1,2,4-Trimethylbenzene	0.0944	0.0050	"	0.100	ND	94.4	70-130
1,3,5-Trimethylbenzene	0.0990	0.0050	"	0.100	ND	99.0	70-130
Naphthalene	0.0720	0.0038	"	0.100	ND	72.0	70-130

Surrogate: 1,2-Dichloroethane-d4	0.0376	"	0.0400	94.1	50-150
Surrogate: Toluene-d8	0.0426	"	0.0400	107	50-150
Surrogate: 4-Bromofluorobenzene	0.0394	"	0.0400	98.5	50-150

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Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

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 BHG0269 - EPA 5030 Soil MS

Matrix Spike Dup (BHG0269-MSD1)		Source: 2406465-05			Prepared: 07/10/24 Analyzed: 07/11/24					
Benzene	0.105	0.0020	mg/kg	0.100	ND	105	70-130	6.88	30	
Toluene	0.124	0.0050	"	0.100	ND	124	70-130	4.55	30	
Ethylbenzene	0.112	0.0050	"	0.100	ND	112	70-130	6.52	30	
m,p-Xylene	0.216	0.010	"	0.200	ND	108	70-130	6.55	30	
o-Xylene	0.105	0.0050	"	0.100	ND	105	70-130	4.30	30	
1,2,4-Trimethylbenzene	0.0964	0.0050	"	0.100	ND	96.4	70-130	2.04	30	
1,3,5-Trimethylbenzene	0.0995	0.0050	"	0.100	ND	99.5	70-130	0.453	30	
Naphthalene	0.0737	0.0038	"	0.100	ND	73.7	70-130	2.35	30	
<hr/>										
Surrogate: 1,2-Dichloroethane-d4	0.0424		"	0.0400		106	50-150			
Surrogate: Toluene-d8	0.0424		"	0.0400		106	50-150			
Surrogate: 4-Bromofluorobenzene	0.0380		"	0.0400		95.0	50-150			

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

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 BHG0274 - EPA 3550A

Blank (BHG0274-BLK1)

Prepared: 07/10/24 Analyzed: 07/11/24

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	12.2		"	12.5		97.7	30-150			

LCS (BHG0274-BS1)

Prepared: 07/10/24 Analyzed: 07/11/24

C10-C28 (DRO)	569	50	mg/kg	500		114	70-130			
Surrogate: o-Terphenyl	12.9		"	12.5		103	30-150			

Matrix Spike (BHG0274-MS1)

Source: 2406465-05

Prepared: 07/10/24 Analyzed: 07/11/24

C10-C28 (DRO)	539	50	mg/kg	500	ND	108	70-130			
Surrogate: o-Terphenyl	8.46		"	12.5		67.7	30-150			

Matrix Spike Dup (BHG0274-MSD1)

Source: 2406465-05

Prepared: 07/10/24 Analyzed: 07/11/24

C10-C28 (DRO)	464	50	mg/kg	500	ND	92.8	70-130	15.0	20	
Surrogate: o-Terphenyl	8.26		"	12.5		66.1	30-150			

Summit Scientific

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

Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BHG0245 - EPA 5030 Soil MS

Blank (BHG0245-BLK1)

Prepared & Analyzed: 07/10/24

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	"							
Surrogate: 2-Methylnaphthalene-d10	0.0152		"	0.0333		45.6	40-150			
Surrogate: Fluoranthene-d10	0.0189		"	0.0333		56.6	40-150			

LCS (BHG0245-BS1)

Prepared & Analyzed: 07/10/24

Acenaphthene	0.0185	0.00500	mg/kg	0.0333		55.6	31-137			
Anthracene	0.0177	0.00500	"	0.0333		53.2	30-120			
Benzo (a) anthracene	0.0190	0.00500	"	0.0333		57.0	30-120			
Benzo (a) pyrene	0.0174	0.00500	"	0.0333		52.3	30-120			
Benzo (b) fluoranthene	0.0175	0.00500	"	0.0333		52.4	30-120			
Benzo (k) fluoranthene	0.0182	0.00500	"	0.0333		54.7	30-120			
Chrysene	0.0189	0.00500	"	0.0333		56.7	30-120			
Dibenz (a,h) anthracene	0.0152	0.00500	"	0.0333		45.7	30-120			
Fluoranthene	0.0190	0.00500	"	0.0333		56.9	30-120			
Fluorene	0.0186	0.00500	"	0.0333		55.9	30-120			
Indeno (1,2,3-cd) pyrene	0.0157	0.00500	"	0.0333		47.1	30-120			
Pyrene	0.0213	0.00500	"	0.0333		63.8	35-142			
1-Methylnaphthalene	0.0193	0.00500	"	0.0333		57.8	35-142			
2-Methylnaphthalene	0.0172	0.00500	"	0.0333		51.6	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0184		"	0.0333		55.1	40-150			
Surrogate: Fluoranthene-d10	0.0205		"	0.0333		61.6	40-150			

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Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

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 BHG0245 - EPA 5030 Soil MS

Matrix Spike (BHG0245-MS1)

Source: 2407091-01

Prepared & Analyzed: 07/10/24

Acenaphthene	0.0154	0.00500	mg/kg	0.0333	ND	46.1	31-137				
Anthracene	0.0147	0.00500	"	0.0333	ND	44.0	30-120				
Benzo (a) anthracene	0.0157	0.00500	"	0.0333	ND	47.2	30-120				
Benzo (a) pyrene	0.0165	0.00500	"	0.0333	ND	49.5	30-120				
Benzo (b) fluoranthene	0.0168	0.00500	"	0.0333	ND	50.5	30-120				
Benzo (k) fluoranthene	0.0181	0.00500	"	0.0333	ND	54.2	30-120				
Chrysene	0.0156	0.00500	"	0.0333	ND	46.8	30-120				
Dibenz (a,h) anthracene	0.0135	0.00500	"	0.0333	ND	40.4	30-120				
Fluoranthene	0.0147	0.00500	"	0.0333	ND	44.1	30-120				
Fluorene	0.0158	0.00500	"	0.0333	ND	47.4	30-120				
Indeno (1,2,3-cd) pyrene	0.0151	0.00500	"	0.0333	ND	45.3	30-120				
Pyrene	0.0172	0.00500	"	0.0333	ND	51.5	35-142				
1-Methylnaphthalene	0.0158	0.00500	"	0.0333	ND	47.5	15-130				
2-Methylnaphthalene	0.0151	0.00500	"	0.0333	ND	45.3	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0155		"	0.0333		46.6	40-150				
Surrogate: Fluoranthene-d10	0.0157		"	0.0333		47.1	40-150				

Matrix Spike Dup (BHG0245-MSD1)

Source: 2407091-01

Prepared & Analyzed: 07/10/24

Acenaphthene	0.0164	0.00500	mg/kg	0.0333	ND	49.1	31-137	6.26	30
Anthracene	0.0162	0.00500	"	0.0333	ND	48.5	30-120	9.65	30
Benzo (a) anthracene	0.0163	0.00500	"	0.0333	ND	48.8	30-120	3.25	30
Benzo (a) pyrene	0.0171	0.00500	"	0.0333	ND	51.2	30-120	3.37	30
Benzo (b) fluoranthene	0.0175	0.00500	"	0.0333	ND	52.4	30-120	3.73	30
Benzo (k) fluoranthene	0.0184	0.00500	"	0.0333	ND	55.1	30-120	1.71	30
Chrysene	0.0157	0.00500	"	0.0333	ND	47.2	30-120	0.943	30
Dibenz (a,h) anthracene	0.0143	0.00500	"	0.0333	ND	42.9	30-120	6.07	30
Fluoranthene	0.0164	0.00500	"	0.0333	ND	49.3	30-120	11.1	30
Fluorene	0.0169	0.00500	"	0.0333	ND	50.8	30-120	6.99	30
Indeno (1,2,3-cd) pyrene	0.0155	0.00500	"	0.0333	ND	46.6	30-120	2.65	30
Pyrene	0.0174	0.00500	"	0.0333	ND	52.1	35-142	1.11	30
1-Methylnaphthalene	0.0177	0.00500	"	0.0333	ND	53.2	15-130	11.4	50
2-Methylnaphthalene	0.0165	0.00500	"	0.0333	ND	49.5	15-130	8.79	50
Surrogate: 2-Methylnaphthalene-d10	0.0171		"	0.0333		51.2	40-150		
Surrogate: Fluoranthene-d10	0.0175		"	0.0333		52.4	40-150		

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

Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

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 BHG0257 - EPA 3050B

Blank (BHG0257-BLK1)

Prepared: 07/10/24 Analyzed: 07/12/24

Boron ND 2.00 mg/L

LCS (BHG0257-BS1)

Prepared: 07/10/24 Analyzed: 07/12/24

Boron 4.75 2.00 mg/L 5.00 95.0 80-120

Duplicate (BHG0257-DUP1)

Source: 2407104-01

Prepared: 07/10/24 Analyzed: 07/12/24

Boron 0.299 2.00 mg/L 0.366 20.1 20 QR-02

Matrix Spike (BHG0257-MS1)

Source: 2407104-01

Prepared: 07/10/24 Analyzed: 07/12/24

Boron 5.48 2.00 mg/L 5.05 0.366 101 75-125

Matrix Spike Dup (BHG0257-MSD1)

Source: 2407104-01

Prepared: 07/10/24 Analyzed: 07/12/24

Boron 5.47 2.00 mg/L 5.05 0.366 101 75-125 0.255 25

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

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 BHG0242 - EPA 3050B

Blank (BHG0242-BLK1)

Prepared: 07/10/24 Analyzed: 07/11/24

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 (BHG0242-BS1)

Prepared: 07/10/24 Analyzed: 07/11/24

Arsenic	35.0	0.200	mg/kg wet	40.0	87.5	80-120
Barium	37.2	0.400	"	40.0	92.9	80-120
Cadmium	1.88	0.200	"	2.00	93.8	80-120
Copper	37.5	0.400	"	40.0	93.8	80-120
Lead	18.6	0.200	"	20.0	93.2	80-120
Nickel	37.2	0.400	"	40.0	93.0	80-120
Silver	1.86	0.0200	"	2.00	93.1	80-120
Zinc	36.6	0.400	"	40.0	91.5	80-120
Selenium	3.99	0.260	"	4.00	99.8	80-120

Duplicate (BHG0242-DUP1)

Source: 2405469-13RE1

Prepared: 07/10/24 Analyzed: 07/11/24

Arsenic	5.41	0.200	mg/kg wet	5.48	1.36	20
Barium	113	0.400	"	92.4	19.9	20
Cadmium	0.211	0.200	"	0.235	10.7	20
Copper	5.47	0.400	"	5.65	3.25	20
Lead	9.70	0.200	"	9.52	1.86	20
Nickel	4.64	0.400	"	4.55	2.13	20
Silver	0.0742	0.0200	"	0.0770	3.62	20
Zinc	16.1	0.400	"	16.3	1.17	20
Selenium	ND	0.260	"	0.189	200	20

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

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 BHG0242 - EPA 3050B

Matrix Spike (BHG0242-MS1)

Source: 2405469-13RE1 Prepared: 07/10/24 Analyzed: 07/11/24

Arsenic	41.8	0.200	mg/kg wet	39.4	5.48	92.2	75-125			
Barium	124	0.400	"	39.4	92.4	81.2	75-125			
Cadmium	2.19	0.200	"	1.97	0.235	99.2	75-125			
Copper	24.9	0.400	"	39.4	5.65	48.9	75-125			QM-05
Lead	28.9	0.200	"	19.7	9.52	98.5	75-125			
Nickel	24.2	0.400	"	39.4	4.55	49.8	75-125			QM-05
Silver	1.94	0.0200	"	1.97	0.0770	94.7	75-125			
Zinc	36.3	0.400	"	39.4	16.3	51.0	75-125			QM-05
Selenium	3.99	0.260	"	3.94	0.189	96.4	75-125			

Matrix Spike Dup (BHG0242-MSD1)

Source: 2405469-13RE1 Prepared: 07/10/24 Analyzed: 07/11/24

Arsenic	42.3	0.200	mg/kg wet	39.4	5.48	93.6	75-125	1.28	25	
Barium	125	0.400	"	39.4	92.4	81.6	75-125	0.117	25	
Cadmium	2.19	0.200	"	1.97	0.235	99.5	75-125	0.270	25	
Copper	25.1	0.400	"	39.4	5.65	49.4	75-125	0.696	25	QM-05
Lead	28.8	0.200	"	19.7	9.52	98.1	75-125	0.264	25	
Nickel	24.4	0.400	"	39.4	4.55	50.3	75-125	0.862	25	QM-05
Silver	1.96	0.0200	"	1.97	0.0770	95.5	75-125	0.849	25	
Zinc	36.4	0.400	"	39.4	16.3	51.2	75-125	0.223	25	QM-05
Selenium	3.97	0.260	"	3.94	0.189	96.1	75-125	0.356	25	

Post Spike (BHG0242-PS1)

Source: 2405469-13RE1 Prepared: 07/10/24 Analyzed: 07/11/24

Arsenic	105		ug/l	100	13.7	91.3	75-125			
Barium	328		"	100	231	97.4	75-125			
Cadmium	5.06		"	5.00	0.587	89.4	75-125			
Copper	62.7		"	100	14.1	48.6	75-125			QM-01
Lead	69.6		"	50.0	23.8	91.6	75-125			
Nickel	60.0		"	100	11.4	48.6	75-125			QM-01
Silver	4.61		"	5.00	0.192	88.4	75-125			
Zinc	91.6		"	100	40.7	50.9	75-125			QM-01
Selenium	10.3		"	10.0	0.474	98.6	75-125			

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Broomfield CO, 80020

Project: Noble - Wells Ranch AE 32-640
Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

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 BHG0248 - 3060A Mod

Blank (BHG0248-BLK1)

Prepared & Analyzed: 07/10/24

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BHG0248-BS1)

Prepared & Analyzed: 07/10/24

Chromium, Hexavalent 25.2 0.30 mg/kg wet 25.0 101 80-120

Duplicate (BHG0248-DUP1)

Source: 2407091-01

Prepared & Analyzed: 07/10/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BHG0248-MS1)

Source: 2407091-01

Prepared & Analyzed: 07/10/24

Chromium, Hexavalent 30.3 0.30 mg/kg dry 29.5 ND 103 75-125

Matrix Spike Dup (BHG0248-MSD1)

Source: 2407091-01

Prepared & Analyzed: 07/10/24

Chromium, Hexavalent 29.5 0.30 mg/kg dry 29.5 ND 100 75-125 2.57 20

Summit Scientific

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

Project: Noble - Wells Ranch AE 32-640

Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

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 BHG0251 - General Preparation

Blank (BHG0251-BLK1)

Prepared: 07/10/24 Analyzed: 07/11/24

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

LCS (BHG0251-BS1)

Prepared: 07/10/24 Analyzed: 07/11/24

Calcium	5.55	0.0500	mg/L wet	5.00	111	70-130
Magnesium	4.60	0.0500	"	5.00	92.1	70-130
Sodium	4.70	0.0500	"	5.00	94.1	70-130

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Project: Noble - Wells Ranch AE 32-640

Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

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

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

Batch BHG0243 - General Preparation

Duplicate (BHG0243-DUP1)		Source: 2407091-01		Prepared & Analyzed: 07/10/24							
% Solids	84.7		%		84.7			0.0176		20	

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Broomfield CO, 80020

Project: Noble - Wells Ranch AE 32-640

Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

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 BHG0259 - General Preparation

Blank (BHG0259-BLK1)

Prepared: 07/10/24 Analyzed: 07/11/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHG0259-BS1)

Prepared: 07/10/24 Analyzed: 07/11/24

Specific Conductance (EC) 0.151 0.0100 mmhos/cm 0.150 101 95-105

Duplicate (BHG0259-DUP1)

Source: 2407103-01

Prepared: 07/10/24 Analyzed: 07/11/24

Specific Conductance (EC) 2.95 0.0100 mmhos/cm 2.89 2.12 20

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Wells Ranch AE 32-640

Project Number: UWRWR-A4009-ABN

Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

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 BHG0261 - General Preparation

LCS (BHG0261-BS1)

Prepared: 07/10/24 Analyzed: 07/11/24

pH	9.19	pH Units	9.18	100	95-105
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Duplicate (BHG0261-DUP1)

Source: 2407103-01

Prepared: 07/10/24 Analyzed: 07/11/24

pH	8.10	pH Units	8.06	0.495	20
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Summit Scientific

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

Project: Noble - Wells Ranch AE 32-640

Project Number: UWRWR-A4009-ABN
Project Manager: Jacob Whritenour

Reported:
07/15/24 08:04

Notes and Definitions

QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
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