

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 16, 2024

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

RE: Noble - UPRC 64N67W 23SESW Tank Battery

Work Order #2408075

Enclosed are the results of analyses for samples received by Summit Scientific on 08/08/24 17:33. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Natalie Tessier For Paul Shrewsbury
President



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

Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
PWV01-B@4'	2408075-01	Soil	08/08/24 09:48	08/08/24 17:33
PWV01-N@2'	2408075-02	Soil	08/08/24 09:50	08/08/24 17:33
SEP01-FL@2'	2408075-06	Soil	08/08/24 10:10	08/08/24 17:33
SEP02-FL@3'	2408075-07	Soil	08/08/24 10:08	08/08/24 17:33
AST01@0-6"	2408075-08	Soil	08/08/24 10:02	08/08/24 17:33
SEP01-DL@2'	2408075-09	Soil	08/08/24 11:02	08/08/24 17:33
BKG01@0-6"	2408075-10	Soil	08/08/24 11:16	08/08/24 17:33
BKG01@2'	2408075-11	Soil	08/08/24 11:18	08/08/24 17:33
BKG01@3'	2408075-12	Soil	08/08/24 11:22	08/08/24 17:33
BKG01@4'	2408075-13	Soil	08/08/24 11:24	08/08/24 17:33

Case Narrative

Client requested sample 7 be renamed on 8/16/24.

This is a revision of the report originally sent on 8/14/24 at 10:19 MT.



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

Lab ID
2408075
Page 1 of 1

Send Data To:		Send Invoice To:	
Client: Noble/Tasman	Project Manager: Jake Whritenour	Company: <u>CRC/TOM</u>	
Address: 6855 W. 119th Ave.	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location:	
City/State/Zip: Broomfield/CO/ 80020		AFE#: <u>UNRWE-A2678-ABN</u>	
Phone: 810-923-0781	Project Name: <u>ARC-04N67W 235ESW</u>	PO/Billing Codes:	
Sampler Name: Shannon Walus	Project Number: <u>TUNNINCHACRU</u>	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	pH, EC, SAR	Boron-915		Metals-915	HOLD	
1	PWV01-B @ 1'	8/18/21	0948	3			X						X	X	X	X	X	X			
2	PWV01-N @ 2'		0950	1									X	X	X	X	X	X			
3	PWV01-E @ 2'		0952	1																	X
4	PWV01-S @ 2'		0954	1																	X
5	PWV01-W @ 2'		0956	1																	X
6	SEPO1-FL @ 2'		1016	1									X	X	X	X	X	X			
7	SEPO2-FL @ 2'		1008	1																	
8	ASTO @ 0-6"		1002	1																	
9	SEPO1-DL @ 2'		1102	1																	
10	BVH01 @ 0-6"		1116	2																	
11	BVH01 @ 2'		1118	1																	
12	BVH01 @ 3'		1122	1																	
13	BVH01 @ 4'		1124	1																	
14																					
15																					

Relinquished by: <u>Shannon Walus</u>	Date/Time: <u>8/18/21 1400</u>	Received by: <u>Tasman Lock Box</u>	Date/Time: <u>8/18/21 1400</u>	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: <u>Tasman Lock Box</u>	Date/Time: <u>8/24 1733</u>	Received by: <u>[Signature]</u>	Date/Time: <u>8/24 1733</u>	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	<input checked="" type="checkbox"/> Field Turb.	
Temperature Upon Receipt: <u>9.4</u>	Corrected Temperature: <u>8</u>	IR gun #: <u>1</u>	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order # 2408015

Client: Nche/Tasman Client Project ID: UPRC-04N 07W 23 SFSW (Tank Battery)

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

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

Temp (°C) Thermometer #

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ice
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

8/8/24
Date/Time



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

Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

PWV01-B@4'
2408075-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/08/24 09:48**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHH0253	08/09/24	08/12/24	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: **08/08/24 09:48**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0446	111 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0380	95.0 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0420	105 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/08/24 09:48**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHH0256	08/09/24	08/10/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **08/08/24 09:48**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	11.3	90.7 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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PAH by EPA Method 8270D SIM

Date Sampled: **08/08/24 09:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0236	08/09/24	08/13/24	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: **08/08/24 09:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0199	59.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0279	83.8 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/08/24 09:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0245	08/09/24	08/13/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/08/24 09:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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PWV01-B@4'
2408075-01 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	4.29	0.200	mg/kg dry	1	BHH0240	08/09/24	08/09/24	EPA 6020B
Barium	113	0.400	"	"	"	"	"	"
Cadmium	0.213	0.200	"	"	"	"	"	"
Copper	6.00	0.400	"	"	"	"	"	"
Lead	8.53	0.200	"	"	"	"	"	"
Nickel	6.51	0.400	"	"	"	"	"	"
Silver	0.0401	0.0200	"	"	"	"	"	"
Zinc	22.8	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/08/24 09:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0239	08/09/24	08/09/24	EPA 7196A	

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

Date Sampled: **08/08/24 09:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	44.5	0.0500	mg/L dry	1	BHH0291	08/12/24	08/13/24	EPA 6020B	
Magnesium	19.6	0.0500	"	"	"	"	"	"	
Sodium	11.5	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/08/24 09:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.361	0.00100	units	1	BHH0354	08/14/24	08/14/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/08/24 09:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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2408075-01 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

% Solids	90.7	%	1	BHH0247	08/09/24	08/09/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/08/24 09:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.485	0.0100	mmhos/cm	1	BHH0293	08/12/24	08/13/24	EPA 120.1	

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

Date Sampled: **08/08/24 09:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.32		pH Units	1	BHH0292	08/12/24	08/13/24	EPA 9045D	

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Reported:
08/16/24 11:13

PWV01-N@2'
2408075-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/08/24 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHH0253	08/09/24	08/12/24	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: **08/08/24 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0516	129 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0392	98.0 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0412	103 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/08/24 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHH0256	08/09/24	08/10/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/08/24 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	10.2	81.7 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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PAH by EPA Method 8270D SIM

Date Sampled: **08/08/24 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0236	08/09/24	08/13/24	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: **08/08/24 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0148	44.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0222	66.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/08/24 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0245	08/09/24	08/13/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/08/24 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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08/16/24 11:13

PWV01-N@2'
2408075-02 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	4.65	0.200	mg/kg dry	1	BHH0240	08/09/24	08/09/24	EPA 6020B
Barium	136	0.400	"	"	"	"	"	"
Cadmium	0.221	0.200	"	"	"	"	"	"
Copper	5.95	0.400	"	"	"	"	"	"
Lead	8.54	0.200	"	"	"	"	"	"
Nickel	6.76	0.400	"	"	"	"	"	"
Silver	0.0398	0.0200	"	"	"	"	"	"
Zinc	22.5	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/08/24 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0239	08/09/24	08/09/24	EPA 7196A	

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

Date Sampled: **08/08/24 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	79.4	0.0500	mg/L dry	1	BHH0291	08/12/24	08/13/24	EPA 6020B	
Magnesium	13.1	0.0500	"	"	"	"	"	"	
Sodium	12.4	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/08/24 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.340	0.00100	units	1	BHH0354	08/14/24	08/14/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/08/24 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Broomfield CO, 80020

Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

PWV01-N@2'
2408075-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	86.6	%	1	BHH0247	08/09/24	08/09/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/08/24 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.217	0.0100	mmhos/cm	1	BHH0293	08/12/24	08/13/24	EPA 120.1	

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

Date Sampled: **08/08/24 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.77		pH Units	1	BHH0292	08/12/24	08/13/24	EPA 9045D	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

SEP01-FL@2'
2408075-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BHH0253	08/09/24	08/12/24	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: **08/08/24 10:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0408	102 %	50-150	"	"	"	"	"	
Surrogate: Toluene-d8	0.0399	99.8 %	50-150	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0421	105 %	50-150	"	"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BHH0256	08/09/24	08/10/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	11.2	89.9 %	30-150	"	"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

SEP01-FL@2'
2408075-06 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0236	08/09/24	08/13/24	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: **08/08/24 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0147	44.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0211	63.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0245	08/09/24	08/13/24	EPA 6020B	

Total Metals by EPA 6020B

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Broomfield CO, 80020

Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

SEP01-FL@2'
2408075-06 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	4.58	0.180	mg/kg dry	1	BHH0240	08/09/24	08/09/24	EPA 6020B
Barium	156	0.360	"	"	"	"	"	"
Cadmium	0.245	0.180	"	"	"	"	"	"
Copper	5.99	0.360	"	"	"	"	"	"
Lead	8.59	0.180	"	"	"	"	"	"
Nickel	6.69	0.360	"	"	"	"	"	"
Silver	0.0421	0.0180	"	"	"	"	"	"
Zinc	21.5	0.360	"	"	"	"	"	"
Selenium	ND	0.234	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0239	08/09/24	08/09/24	EPA 7196A	

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	55.8	0.0500	mg/L dry	1	BHH0291	08/12/24	08/13/24	EPA 6020B	
Magnesium	12.1	0.0500	"	"	"	"	"	"	
Sodium	4.39	0.0500	"	"	"	"	"	"	

Calculated Analysis

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.139	0.00100	units	1	BHH0354	08/14/24	08/14/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

SEP01-FL@2'
2408075-06 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	89.7	%	1	BHH0247	08/09/24	08/09/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.291	0.0100	mmhos/cm	1	BHH0293	08/12/24	08/13/24	EPA 120.1	

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.39		pH Units	1	BHH0292	08/12/24	08/13/24	EPA 9045D	

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Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

SEP02-FL@3'
2408075-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHH0253	08/09/24	08/12/24	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: **08/08/24 10:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0421	105 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0385	96.3 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0438	110 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHH0256	08/09/24	08/10/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	10.6	85.1 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

SEP02-FL@3'
2408075-07 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0236	08/09/24	08/13/24	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: **08/08/24 10:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0146	43.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0215	64.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0245	08/09/24	08/13/24	EPA 6020B	

Total Metals by EPA 6020B

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

SEP02-FL@3'
2408075-07 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	4.80	0.200	mg/kg dry	1	BHH0240	08/09/24	08/09/24	EPA 6020B
Barium	152	0.400	"	"	"	"	"	"
Cadmium	0.238	0.200	"	"	"	"	"	"
Copper	6.22	0.400	"	"	"	"	"	"
Lead	8.16	0.200	"	"	"	"	"	"
Nickel	7.28	0.400	"	"	"	"	"	"
Silver	0.0458	0.0200	"	"	"	"	"	"
Zinc	23.5	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0239	08/09/24	08/09/24	EPA 7196A	

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	47.8	0.0500	mg/L dry	1	BHH0291	08/12/24	08/13/24	EPA 6020B	
Magnesium	26.8	0.0500	"	"	"	"	"	"	
Sodium	8.14	0.0500	"	"	"	"	"	"	

Calculated Analysis

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.234	0.00100	units	1	BHH0354	08/14/24	08/14/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

SEP02-FL@3'
2408075-07 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	86.3	%	1	BHH0247	08/09/24	08/09/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.517	0.0100	mmhos/cm	1	BHH0293	08/12/24	08/13/24	EPA 120.1	

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.39		pH Units	1	BHH0292	08/12/24	08/13/24	EPA 9045D	

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Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

AST01@0-6"
2408075-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/08/24 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHH0253	08/09/24	08/12/24	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: **08/08/24 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0445	111 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0380	95.0 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0446	111 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/08/24 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHH0256	08/09/24	08/10/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/08/24 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	10.0	80.0 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

AST01@0-6"
2408075-08 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/08/24 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0236	08/09/24	08/13/24	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: **08/08/24 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0141	42.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0219	65.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/08/24 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0245	08/09/24	08/13/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/08/24 10:02**

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 - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

AST01@0-6"
2408075-08 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	2.90	0.200	mg/kg dry	1	BHH0240	08/09/24	08/09/24	EPA 6020B	
Barium	72.4	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	5.12	0.400	"	"	"	"	"	"	
Lead	8.69	0.200	"	"	"	"	"	"	
Nickel	4.83	0.400	"	"	"	"	"	"	
Silver	0.0303	0.0200	"	"	"	"	"	"	
Zinc	20.3	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/08/24 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0239	08/09/24	08/09/24	EPA 7196A	

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

Date Sampled: **08/08/24 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	47.1	0.0500	mg/L dry	1	BHH0291	08/12/24	08/13/24	EPA 6020B	
Magnesium	11.2	0.0500	"	"	"	"	"	"	
Sodium	3.34	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/08/24 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.114	0.00100	units	1	BHH0354	08/14/24	08/14/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Summit Scientific

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Project Number: UWRWE-A2678-ABN
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Reported:
08/16/24 11:13

AST01@0-6"
2408075-08 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/08/24 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.4		%	1	BHH0247	08/09/24	08/09/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/08/24 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.431	0.0100	mmhos/cm	1	BHH0293	08/12/24	08/13/24	EPA 120.1	

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

Date Sampled: **08/08/24 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.22		pH Units	1	BHH0292	08/12/24	08/13/24	EPA 9045D	

Summit Scientific

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Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

SEP01-DL@2'
2408075-09 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/08/24 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHH0253	08/09/24	08/12/24	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: **08/08/24 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0406	101 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0395	98.8 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0441	110 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/08/24 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHH0256	08/09/24	08/10/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/08/24 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	13.1	105 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Reported:
08/16/24 11:13

SEP01-DL@2'
2408075-09 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/08/24 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0236	08/09/24	08/13/24	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: **08/08/24 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0158	47.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0189	56.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/08/24 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0245	08/09/24	08/13/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/08/24 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

SEP01-DL@2'
2408075-09 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	4.57	0.200	mg/kg dry	1	BHH0240	08/09/24	08/10/24	EPA 6020B
Barium	140	0.400	"	"	"	"	"	"
Cadmium	0.253	0.200	"	"	"	"	"	"
Copper	6.01	0.400	"	"	"	"	"	"
Lead	8.46	0.200	"	"	"	"	"	"
Nickel	7.29	0.400	"	"	"	"	"	"
Silver	0.0404	0.0200	"	"	"	"	"	"
Zinc	23.4	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/08/24 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0239	08/09/24	08/09/24	EPA 7196A	

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

Date Sampled: **08/08/24 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	33.2	0.0500	mg/L dry	1	BHH0291	08/12/24	08/13/24	EPA 6020B	
Magnesium	18.2	0.0500	"	"	"	"	"	"	
Sodium	8.96	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/08/24 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.310	0.00100	units	1	BHH0354	08/14/24	08/14/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/08/24 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Reported:
08/16/24 11:13

SEP01-DL@2'
2408075-09 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	87.1	%	1	BHH0247	08/09/24	08/09/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/08/24 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.267	0.0100	mmhos/cm	1	BHH0293	08/12/24	08/13/24	EPA 120.1	

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

Date Sampled: **08/08/24 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.59		pH Units	1	BHH0292	08/12/24	08/13/24	EPA 9045D	

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Reported:
08/16/24 11:13

**BKG01@0-6''
2408075-10 (Soil)**

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/08/24 11:16**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BHH0245	08/09/24	08/13/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/08/24 11:16**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	5.63	0.200	mg/kg dry	1	BHH0240	08/09/24	08/10/24	EPA 6020B	
Barium	371	0.400	"	"	"	"	"	"	
Cadmium	0.276	0.200	"	"	"	"	"	"	
Copper	7.23	0.400	"	"	"	"	"	"	
Lead	11.8	0.200	"	"	"	"	"	"	
Nickel	7.29	0.400	"	"	"	"	"	"	
Silver	0.0565	0.0200	"	"	"	"	"	"	
Zinc	25.7	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/08/24 11:16**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0239	08/09/24	08/09/24	EPA 7196A	

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

Date Sampled: **08/08/24 11:16**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	69.0	0.0500	mg/L dry	1	BHH0291	08/12/24	08/13/24	EPA 6020B	
Magnesium	18.7	0.0500	"	"	"	"	"	"	
Sodium	6.14	0.0500	"	"	"	"	"	"	

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Reported:
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BKG01@0-6''
2408075-10 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **08/08/24 11:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.169	0.00100	units	1	BHH0354	08/14/24	08/14/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/08/24 11:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.8		%	1	BHH0247	08/09/24	08/09/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/08/24 11:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.717	0.0100	mmhos/cm	1	BHH0293	08/12/24	08/13/24	EPA 120.1	

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

Date Sampled: **08/08/24 11:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.66		pH Units	1	BHH0292	08/12/24	08/13/24	EPA 9045D	

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Reported:
08/16/24 11:13

BKG01@2'
2408075-11 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/08/24 11:18**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BHH0245	08/09/24	08/13/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/08/24 11:18**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	5.67	0.200	mg/kg dry	1	BHH0240	08/09/24	08/10/24	EPA 6020B	
Barium	463	0.400	"	"	"	"	"	"	
Cadmium	0.242	0.200	"	"	"	"	"	"	
Copper	6.56	0.400	"	"	"	"	"	"	
Lead	10.1	0.200	"	"	"	"	"	"	
Nickel	7.16	0.400	"	"	"	"	"	"	
Silver	0.0505	0.0200	"	"	"	"	"	"	
Zinc	24.8	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/08/24 11:18**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0239	08/09/24	08/09/24	EPA 7196A	

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

Date Sampled: **08/08/24 11:18**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	296	0.0500	mg/L dry	1	BHH0291	08/12/24	08/13/24	EPA 6020B	
Magnesium	247	0.0500	"	"	"	"	"	"	
Sodium	38.2	0.0500	"	"	"	"	"	"	

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Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

BKG01@2'
2408075-11 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **08/08/24 11:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.397	0.00100	units	1	BHH0354	08/14/24	08/14/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/08/24 11:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.5		%	1	BHH0247	08/09/24	08/09/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/08/24 11:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.773	0.0100	mmhos/cm	1	BHH0293	08/12/24	08/13/24	EPA 120.1	

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

Date Sampled: **08/08/24 11:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.01		pH Units	1	BHH0292	08/12/24	08/13/24	EPA 9045D	

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Reported:
08/16/24 11:13

BKG01@3'
2408075-12 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/08/24 11:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BHH0245	08/09/24	08/13/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/08/24 11:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	6.19	0.200	mg/kg dry	1	BHH0240	08/09/24	08/10/24	EPA 6020B	
Barium	150	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	5.39	0.400	"	"	"	"	"	"	
Lead	8.98	0.200	"	"	"	"	"	"	
Nickel	6.70	0.400	"	"	"	"	"	"	
Silver	0.0394	0.0200	"	"	"	"	"	"	
Zinc	23.4	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/08/24 11:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0239	08/09/24	08/09/24	EPA 7196A	

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

Date Sampled: **08/08/24 11:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	114	0.0500	mg/L dry	1	BHH0291	08/12/24	08/13/24	EPA 6020B	
Magnesium	212	0.0500	"	"	"	"	"	"	
Sodium	597	0.0500	"	"	"	"	"	"	

Summit Scientific

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Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

BKG01@3'
2408075-12 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **08/08/24 11:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	7.64	0.00100	units	1	BHH0354	08/14/24	08/14/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/08/24 11:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	92.0		%	1	BHH0247	08/09/24	08/09/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/08/24 11:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	4.86	0.0100	mmhos/cm	1	BHH0293	08/12/24	08/13/24	EPA 120.1	

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

Date Sampled: **08/08/24 11:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.29		pH Units	1	BHH0292	08/12/24	08/13/24	EPA 9045D	

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

Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

BKG01@4'
2408075-13 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BHH0245	08/09/24	08/13/24	EPA 6020B	

Total Metals by EPA 6020B

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	6.22	0.200	mg/kg dry	1	BHH0240	08/09/24	08/10/24	EPA 6020B	
Barium	137	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	5.20	0.400	"	"	"	"	"	"	
Lead	7.80	0.200	"	"	"	"	"	"	
Nickel	6.79	0.400	"	"	"	"	"	"	
Silver	0.0399	0.0200	"	"	"	"	"	"	
Zinc	22.8	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0239	08/09/24	08/09/24	EPA 7196A	

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

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	284	0.0500	mg/L dry	1	BHH0291	08/12/24	08/13/24	EPA 6020B	
Magnesium	508	0.0500	"	"	"	"	"	"	
Sodium	885	0.0500	"	"	"	"	"	"	

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Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

BKG01@4'
2408075-13 (Soil)

Summit Scientific

Calculated Analysis

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	7.28	0.00100	units	1	BHH0354	08/14/24	08/14/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.8		%	1	BHH0247	08/09/24	08/09/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	8.97	0.0100	mmhos/cm	1	BHH0293	08/12/24	08/13/24	EPA 120.1	

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.15		pH Units	1	BHH0292	08/12/24	08/13/24	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BHH0253 - EPA 5030 Soil MS

Blank (BHH0253-BLK1)

Prepared: 08/09/24 Analyzed: 08/12/24

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	"								
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.6</i>	<i>50-150</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0384</i>		<i>"</i>	<i>0.0400</i>		<i>95.9</i>	<i>50-150</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0382</i>		<i>"</i>	<i>0.0400</i>		<i>95.6</i>	<i>50-150</i>				

LCS (BHH0253-BS1)

Prepared: 08/09/24 Analyzed: 08/12/24

Benzene	0.0932	0.0020	mg/kg	0.100		93.2	70-130				
Toluene	0.108	0.0050	"	0.100		108	70-130				
Ethylbenzene	0.110	0.0050	"	0.100		110	70-130				
m,p-Xylene	0.216	0.010	"	0.200		108	70-130				
o-Xylene	0.104	0.0050	"	0.100		104	70-130				
1,2,4-Trimethylbenzene	0.0983	0.0050	"	0.100		98.3	70-130				
1,3,5-Trimethylbenzene	0.101	0.0050	"	0.100		101	70-130				
Naphthalene	0.0857	0.0038	"	0.100		85.7	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0370</i>		<i>"</i>	<i>0.0400</i>		<i>92.4</i>	<i>50-150</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0407</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>50-150</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0379</i>		<i>"</i>	<i>0.0400</i>		<i>94.8</i>	<i>50-150</i>				

Matrix Spike (BHH0253-MS1)

Source: 2408071-01

Prepared: 08/09/24 Analyzed: 08/12/24

Benzene	0.0885	0.0020	mg/kg	0.100	ND	88.5	70-130				
Toluene	0.102	0.0050	"	0.100	ND	102	70-130				
Ethylbenzene	0.0982	0.0050	"	0.100	ND	98.2	70-130				
m,p-Xylene	0.190	0.010	"	0.200	ND	95.2	70-130				
o-Xylene	0.0929	0.0050	"	0.100	ND	92.9	70-130				
1,2,4-Trimethylbenzene	0.0865	0.0050	"	0.100	ND	86.5	70-130				
1,3,5-Trimethylbenzene	0.0874	0.0050	"	0.100	ND	87.4	70-130				
Naphthalene	0.0841	0.0038	"	0.100	ND	84.1	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0460</i>		<i>"</i>	<i>0.0400</i>		<i>115</i>	<i>50-150</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0411</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>	<i>50-150</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0412</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>	<i>50-150</i>				

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

Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

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		

Batch BHH0253 - EPA 5030 Soil MS

Matrix Spike Dup (BHH0253-MSD1)	Source: 2408071-01			Prepared: 08/09/24 Analyzed: 08/12/24						
Benzene	0.0738	0.0020	mg/kg	0.100	ND	73.8	70-130	18.1	30	
Toluene	0.0850	0.0050	"	0.100	ND	85.0	70-130	18.1	30	
Ethylbenzene	0.0868	0.0050	"	0.100	ND	86.8	70-130	12.3	30	
m,p-Xylene	0.170	0.010	"	0.200	ND	84.9	70-130	11.4	30	
o-Xylene	0.0821	0.0050	"	0.100	ND	82.1	70-130	12.3	30	
1,2,4-Trimethylbenzene	0.0741	0.0050	"	0.100	ND	74.1	70-130	15.4	30	
1,3,5-Trimethylbenzene	0.0753	0.0050	"	0.100	ND	75.3	70-130	14.8	30	
Naphthalene	0.0736	0.0038	"	0.100	ND	73.6	70-130	13.3	30	QM-07
Surrogate: 1,2-Dichloroethane-d4	0.0413		"	0.0400		103	50-150			
Surrogate: Toluene-d8	0.0408		"	0.0400		102	50-150			
Surrogate: 4-Bromofluorobenzene	0.0396		"	0.0400		99.0	50-150			

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Project: Noble - UPRC 64N67W 23SESW Tank Battery
Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

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 BHH0256 - EPA 3550A

Blank (BHH0256-BLK1)

Prepared & Analyzed: 08/09/24

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	11.7		"	12.5		94.0		30-150			

LCS (BHH0256-BS1)

Prepared: 08/09/24 Analyzed: 08/10/24

C10-C28 (DRO)	512	50	mg/kg	500		102		70-130			
Surrogate: <i>o</i> -Terphenyl	13.0		"	12.5		104		30-150			

Matrix Spike (BHH0256-MS1)

Source: 2408071-01

Prepared: 08/09/24 Analyzed: 08/10/24

C10-C28 (DRO)	505	50	mg/kg	500	ND	101		70-130			
Surrogate: <i>o</i> -Terphenyl	10.1		"	12.5		80.9		30-150			

Matrix Spike Dup (BHH0256-MSD1)

Source: 2408071-01

Prepared: 08/09/24 Analyzed: 08/10/24

C10-C28 (DRO)	456	50	mg/kg	500	ND	91.1		70-130	10.3	20	
Surrogate: <i>o</i> -Terphenyl	9.30		"	12.5		74.4		30-150			

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Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BHH0236 - EPA 5030 Soil MS

Blank (BHH0236-BLK1)

Prepared: 08/09/24 Analyzed: 08/13/24

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	0.0196		"	0.0333		58.8	40-150			
Surrogate: Fluoranthene-d10	0.0270		"	0.0333		80.9	40-150			

LCS (BHH0236-BS1)

Prepared: 08/09/24 Analyzed: 08/13/24

Acenaphthene	0.0238	0.00500	mg/kg	0.0333		71.4	31-137			
Anthracene	0.0269	0.00500	"	0.0333		80.7	30-120			
Benzo (a) anthracene	0.0318	0.00500	"	0.0333		95.3	30-120			
Benzo (a) pyrene	0.0256	0.00500	"	0.0333		76.8	30-120			
Benzo (b) fluoranthene	0.0227	0.00500	"	0.0333		68.0	30-120			
Benzo (k) fluoranthene	0.0413	0.00500	"	0.0333		124	30-120			QLCS-01
Chrysene	0.0471	0.00500	"	0.0333		141	30-120			QLCS-01
Dibenz (a,h) anthracene	0.0179	0.00500	"	0.0333		53.8	30-120			
Fluoranthene	0.0286	0.00500	"	0.0333		85.9	30-120			
Fluorene	0.0238	0.00500	"	0.0333		71.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0277	0.00500	"	0.0333		83.1	30-120			
Pyrene	0.0188	0.00500	"	0.0333		56.5	35-142			
1-Methylnaphthalene	0.0221	0.00500	"	0.0333		66.2	35-142			
2-Methylnaphthalene	0.0222	0.00500	"	0.0333		66.7	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0224		"	0.0333		67.1	40-150			
Surrogate: Fluoranthene-d10	0.0304		"	0.0333		91.1	40-150			

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Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

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 BHH0236 - EPA 5030 Soil MS

Matrix Spike (BHH0236-MS1)

Source: 2408074-01

Prepared: 08/09/24 Analyzed: 08/13/24

Acenaphthene	0.0137	0.00500	mg/kg	0.0333	ND	41.0	31-137			
Anthracene	0.0178	0.00500	"	0.0333	ND	53.3	30-120			
Benzo (a) anthracene	0.0267	0.00500	"	0.0333	ND	80.1	30-120			
Benzo (a) pyrene	0.0141	0.00500	"	0.0333	ND	42.4	30-120			
Benzo (b) fluoranthene	0.0202	0.00500	"	0.0333	ND	60.7	30-120			
Benzo (k) fluoranthene	0.0152	0.00500	"	0.0333	ND	45.7	30-120			
Chrysene	0.0161	0.00500	"	0.0333	ND	48.2	30-120			
Dibenz (a,h) anthracene	0.0142	0.00500	"	0.0333	ND	42.7	30-120			
Fluoranthene	0.0207	0.00500	"	0.0333	ND	62.1	30-120			
Fluorene	0.0137	0.00500	"	0.0333	ND	41.2	30-120			
Indeno (1,2,3-cd) pyrene	0.0187	0.00500	"	0.0333	ND	56.0	30-120			
Pyrene	0.0138	0.00500	"	0.0333	ND	41.4	35-142			
1-Methylnaphthalene	0.0143	0.00500	"	0.0333	ND	43.0	15-130			
2-Methylnaphthalene	0.0140	0.00500	"	0.0333	ND	42.0	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0143		"	0.0333		43.0	40-150			
Surrogate: Fluoranthene-d10	0.0219		"	0.0333		65.6	40-150			

Matrix Spike Dup (BHH0236-MSD1)

Source: 2408074-01

Prepared: 08/09/24 Analyzed: 08/13/24

Acenaphthene	0.0177	0.00500	mg/kg	0.0333	ND	53.0	31-137	25.4	30	
Anthracene	0.0198	0.00500	"	0.0333	ND	59.3	30-120	10.7	30	
Benzo (a) anthracene	0.0289	0.00500	"	0.0333	ND	86.6	30-120	7.73	30	
Benzo (a) pyrene	0.0228	0.00500	"	0.0333	ND	68.4	30-120	47.0	30	QR-02
Benzo (b) fluoranthene	0.0192	0.00500	"	0.0333	ND	57.5	30-120	5.38	30	
Benzo (k) fluoranthene	0.0198	0.00500	"	0.0333	ND	59.3	30-120	25.9	30	
Chrysene	0.0179	0.00500	"	0.0333	ND	53.7	30-120	10.9	30	
Dibenz (a,h) anthracene	0.0169	0.00500	"	0.0333	ND	50.7	30-120	17.2	30	
Fluoranthene	0.0227	0.00500	"	0.0333	ND	68.1	30-120	9.26	30	
Fluorene	0.0179	0.00500	"	0.0333	ND	53.7	30-120	26.2	30	
Indeno (1,2,3-cd) pyrene	0.0164	0.00500	"	0.0333	ND	49.2	30-120	13.0	30	
Pyrene	0.0159	0.00500	"	0.0333	ND	47.7	35-142	14.2	30	
1-Methylnaphthalene	0.0166	0.00500	"	0.0333	ND	49.7	15-130	14.5	50	
2-Methylnaphthalene	0.0164	0.00500	"	0.0333	ND	49.1	15-130	15.6	50	
Surrogate: 2-Methylnaphthalene-d10	0.0167		"	0.0333		50.1	40-150			
Surrogate: Fluoranthene-d10	0.0240		"	0.0333		71.9	40-150			

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Tasman Geosciences
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Broomfield CO, 80020

Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

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 BHH0245 - EPA 3050B

Blank (BHH0245-BLK1)

Prepared: 08/09/24 Analyzed: 08/13/24

Boron ND 2.00 mg/L

LCS (BHH0245-BS1)

Prepared: 08/09/24 Analyzed: 08/13/24

Boron 5.62 2.00 mg/L 5.00 112 80-120

Duplicate (BHH0245-DUP1)

Source: 2408075-01

Prepared: 08/09/24 Analyzed: 08/13/24

Boron 0.197 2.00 mg/L 0.216 9.25 20

Matrix Spike (BHH0245-MS1)

Source: 2408075-01

Prepared: 08/09/24 Analyzed: 08/13/24

Boron 5.96 2.00 mg/L 5.00 0.216 115 75-125

Matrix Spike Dup (BHH0245-MSD1)

Source: 2408075-01

Prepared: 08/09/24 Analyzed: 08/13/24

Boron 6.10 2.00 mg/L 5.00 0.216 118 75-125 2.23 25

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Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BHH0240 - EPA 3050B

Blank (BHH0240-BLK1)

Prepared & Analyzed: 08/09/24

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 (BHH0240-BS1)

Prepared & Analyzed: 08/09/24

Arsenic	38.8	0.200	mg/kg wet	38.8	100	80-120
Barium	46.4	0.400	"	38.8	120	80-120
Cadmium	1.83	0.200	"	1.94	94.4	80-120
Copper	36.1	0.400	"	38.8	93.2	80-120
Lead	18.0	0.200	"	19.4	92.8	80-120
Nickel	36.2	0.400	"	38.8	93.4	80-120
Silver	1.81	0.0200	"	1.94	93.3	80-120
Zinc	36.4	0.400	"	38.8	93.9	80-120
Selenium	3.68	0.260	"	3.88	94.9	80-120

Duplicate (BHH0240-DUP1)

Source: 2408069-01

Prepared & Analyzed: 08/09/24

Arsenic	3.75	0.200	mg/kg dry	3.59	4.15	20
Barium	63.0	0.400	"	72.4	13.9	20
Cadmium	0.133	0.200	"	0.123	7.06	20
Copper	4.18	0.400	"	4.07	2.89	20
Lead	5.57	0.200	"	4.81	14.8	20
Nickel	4.94	0.400	"	4.54	8.40	20
Silver	0.0193	0.0200	"	0.0187	3.01	20
Zinc	15.2	0.400	"	15.0	1.83	20
Selenium	ND	0.260	"	ND		20

Summit Scientific

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

Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

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 BHH0240 - EPA 3050B

Matrix Spike (BHH0240-MS1)

Source: 2408069-01

Prepared & Analyzed: 08/09/24

Arsenic	46.7	0.200	mg/kg dry	44.6	3.59	96.7	75-125				
Barium	101	0.400	"	44.6	72.4	65.1	75-125				QM-07
Cadmium	2.30	0.200	"	2.23	0.123	97.6	75-125				
Copper	31.3	0.400	"	44.6	4.07	61.2	75-125				QM-05
Lead	25.4	0.200	"	22.3	4.81	92.3	75-125				
Nickel	31.9	0.400	"	44.6	4.54	61.4	75-125				QM-05
Silver	2.10	0.0200	"	2.23	0.0187	93.5	75-125				
Zinc	43.3	0.400	"	44.6	15.0	63.6	75-125				QM-05
Selenium	3.67	0.260	"	4.46	ND	82.4	75-125				

Matrix Spike Dup (BHH0240-MSD1)

Source: 2408069-01

Prepared & Analyzed: 08/09/24

Arsenic	44.8	0.200	mg/kg dry	43.9	3.59	94.0	75-125	4.04	25		
Barium	103	0.400	"	43.9	72.4	69.7	75-125	1.58	25		QM-07
Cadmium	2.18	0.200	"	2.19	0.123	93.9	75-125	5.13	25		
Copper	30.2	0.400	"	43.9	4.07	59.6	75-125	3.61	25		QM-05
Lead	26.0	0.200	"	21.9	4.81	96.4	75-125	2.35	25		
Nickel	31.5	0.400	"	43.9	4.54	61.5	75-125	1.18	25		QM-05
Silver	1.97	0.0200	"	2.19	0.0187	88.9	75-125	6.53	25		
Zinc	42.3	0.400	"	43.9	15.0	62.4	75-125	2.25	25		QM-05
Selenium	3.45	0.260	"	4.39	ND	78.6	75-125	6.32	25		

Summit Scientific

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

Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BHH0239 - 3060A Mod

Blank (BHH0239-BLK1)

Prepared & Analyzed: 08/09/24

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BHH0239-BS1)

Prepared & Analyzed: 08/09/24

Chromium, Hexavalent 24.8 0.30 mg/kg wet 25.0 99.0 80-120

Duplicate (BHH0239-DUP1)

Source: 2408069-01

Prepared & Analyzed: 08/09/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BHH0239-MS1)

Source: 2408069-01

Prepared & Analyzed: 08/09/24

Chromium, Hexavalent 29.4 0.30 mg/kg dry 28.7 ND 102 75-125

Matrix Spike Dup (BHH0239-MSD1)

Source: 2408069-01

Prepared & Analyzed: 08/09/24

Chromium, Hexavalent 28.9 0.30 mg/kg dry 28.7 ND 100 75-125 1.97 20

Summit Scientific

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

Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

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

Summit Scientific

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

Batch BHH0291 - General Preparation

Blank (BHH0291-BLK1)

Prepared: 08/12/24 Analyzed: 08/13/24

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

LCS (BHH0291-BS1)

Prepared: 08/12/24 Analyzed: 08/13/24

Calcium	6.03	0.0500	mg/L wet	5.00	121	70-130
Magnesium	5.78	0.0500	"	5.00	116	70-130
Sodium	5.74	0.0500	"	5.00	115	70-130

Summit Scientific

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

Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
 Project Manager: Jacob Whritenour

Reported:
 08/16/24 11:13

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 BHH0247 - General Preparation

Duplicate (BHH0247-DUP1)

Source: 2408075-01

Prepared & Analyzed: 08/09/24

% Solids	90.6		%		90.7			0.171	20	
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Summit Scientific

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

Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

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 BHH0293 - General Preparation

Blank (BHH0293-BLK1)

Prepared: 08/12/24 Analyzed: 08/13/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHH0293-BS1)

Prepared: 08/12/24 Analyzed: 08/13/24

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

Duplicate (BHH0293-DUP1)

Source: 2408075-01

Prepared: 08/12/24 Analyzed: 08/13/24

Specific Conductance (EC) 0.476 0.0100 mmhos/cm 0.485 1.91 20

Summit Scientific

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

Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

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 BHH0292 - General Preparation

LCS (BHH0292-BS1)

Prepared: 08/12/24 Analyzed: 08/13/24

pH	9.18	pH Units	9.18	100	95-105
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Duplicate (BHH0292-DUP1)

Source: 2408075-01

Prepared: 08/12/24 Analyzed: 08/13/24

pH	8.27	pH Units	8.32	0.603	20
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Summit Scientific

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

Project: Noble - UPRC 64N67W 23SESW Tank Battery

Project Number: UWRWE-A2678-ABN
Project Manager: Jacob Whritenour

Reported:
08/16/24 11:13

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-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.
- QLCS-01 The spike recovery was outside acceptance limits for this analyte indicating a potential high bias. The corresponding samples did not exhibit concentrations above reporting level for this analyte. Data quality is not affected.
- 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