

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

September 06, 2024

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

RE: Noble - Walcker AB 12-08 Multi

Work Order #2408340

Enclosed are the results of analyses for samples received by Summit Scientific on 08/27/24 17:40. 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, written in a professional style.

Natalie Tessier For Paul Shrewsbury
President



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

Project: Noble - Walcker AB 12-08 Multi

Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AST01@0-6"	2408340-01	Soil	08/27/24 10:32	08/27/24 17:40
AST02@0-6"	2408340-02	Soil	08/27/24 10:37	08/27/24 17:40
SEP01-FL@2'	2408340-03	Soil	08/27/24 10:04	08/27/24 17:40
SEP01-DL@2'	2408340-04	Soil	08/27/24 10:09	08/27/24 17:40
PWV01-S@2'	2408340-05	Soil	08/27/24 10:45	08/27/24 17:40
PWV01-B@4'	2408340-06	Soil	08/27/24 10:53	08/27/24 17:40
PWV02-E@2'	2408340-07	Soil	08/27/24 10:58	08/27/24 17:40
PWV02-B@4'	2408340-08	Soil	08/27/24 11:04	08/27/24 17:40
BKG01@0-6"	2408340-09	Soil	08/27/24 11:21	08/27/24 17:40
BKG01@2'	2408340-10	Soil	08/27/24 11:22	08/27/24 17:40
BKG01@4'	2408340-11	Soil	08/27/24 11:23	08/27/24 17:40

Case Narrative

This revised report has been reissued per client request on 9/6/24.

This is a revision of the report originally sent on 9/3/24 at 12:10 MT.



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

Lab ID	Page 1 of 1
2408340	

Send Data To:		Send Invoice To:	
Client: Noble / Tasman, Inc.	Project Manager: Jake Whritenour	Company: Noble	
Address: 6855 W. 119th Ave.	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: Walker AB 1208 Multi	
City/State/Zip: Broomfield / CO / 80020		AFE#: UWRWE - A2141 - ABN	
Phone: 719-937-1898	Project Name: Walker AB 1208 Multi	PO/Billing Codes:	
Sampler Name: Josh Adams	Project Number: N/A	Contact: Mike Montoya	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix		Air-Canister #	Other	Analysis Requested							Special Instructions
					HCl	HNO3	None	Other	Water	Soil			Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD	
1	AST01 @ 0-6"	8/27/24	1032	3			X			X			X	X	X	X	X	X		SAR, EC, pH by saturated paste
2	AST02 @ 0-6"		1037										X	X	X	X	X	X		
3	SEP01 - PL @ 2'		1004																	
4	SEP01 - DL @ 2'		1009																	
5	PW001 - S @ 2'		1045																	
6	PW001 - B @ 4'		1053																	
7	PW002 - E @ 2'		1058																	
8	PW002 - B @ 4'		1104																	
9	BK001 @ 0-6"		1121										X				X	X		
10	BK001 @ 0-6"		1122																	
11	BK001 @ 0-6"		1123																	
12	DW001 - W @ 2'		1048																	X
13	PW001 - N @ 2'		1056																	X
14	DW002 - S @ 2'		1101																	X
15	DW002 - N @ 2'		1101																	X

Relinquished by: Josh Adams	Date/Time: 8/27/24 1437	Received by: [Signature]	Date/Time: 8/27/24 1437	TAT Business Days	Field DO	Notes:
Relinquished by: Tasman/Geo	Date/Time: 8/27/24 1740	Received by: [Signature]	Date/Time: 8/27/24 1740	Same Day	Field EC	
				1 Day	Field ORP	
				2 Days	Field pH	
				3 Days	Field Temp.	
Temperature Upon Receipt: 7.4	Corrected Temperature: [Symbol]	IR gun #: 1	HNO3 lot #:	Standard	X	Field Turb.

S₂

Sample Receipt Checklist

S2 Work Order# 2408340

Client: Wet Toman Client Project ID: Walcker AB 12-08 multi

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"/>	outside
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

8/27/24
Date/Time



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

Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

AST01@0-6"
2408340-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/27/24 10:32**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHH0878	08/28/24	08/29/24	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **08/27/24 10:32**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0421	105 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0403	101 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0382	95.5 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/27/24 10:32**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHH0880	08/28/24	08/29/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **08/27/24 10:32**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	9.55	76.4 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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PAH by EPA Method 8270D SIM

Date Sampled: **08/27/24 10:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0852	08/28/24	08/30/24	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: **08/27/24 10:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0161	48.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0204	61.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/27/24 10:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0864	08/28/24	08/30/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/27/24 10:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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09/06/24 07:44

AST01@0-6"
2408340-01 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	3.22	0.200	mg/kg dry	1	BHH0873	08/28/24	08/30/24	EPA 6020B	
Barium	42.2	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	4.55	0.400	"	"	"	"	"	"	
Lead	4.05	0.200	"	"	"	"	"	"	
Nickel	3.46	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	13.5	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/27/24 10:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0858	08/28/24	08/29/24	EPA 7196A	

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

Date Sampled: **08/27/24 10:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	28.8	0.0500	mg/L dry	1	BHH0937	08/29/24	08/30/24	EPA 6020B	
Magnesium	8.08	0.0500	"	"	"	"	"	"	
Sodium	3.62	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/27/24 10:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.154	0.00100	units	1	BHI0025	09/03/24	09/03/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Project Number: UWRWE-A2141-ABN
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Reported:
09/06/24 07:44

AST01@0-6"
2408340-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/27/24 10:32**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	96.8			%	1	BHH0870	08/28/24	08/29/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/27/24 10:32**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.323	0.0100		mmhos/cm	1	BHH0939	08/29/24	08/30/24	EPA 120.1	

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

Date Sampled: **08/27/24 10:32**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.89			pH Units	1	BHH0938	08/29/24	08/30/24	EPA 9045D	

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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

AST02@0-6"
2408340-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/27/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHH0878	08/28/24	08/29/24	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/27/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0421	105 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0394	98.6 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0378	94.5 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/27/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHH0880	08/28/24	08/29/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/27/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	9.19	73.6 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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09/06/24 07:44

AST02@0-6"
2408340-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/27/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0852	08/28/24	08/30/24	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	0.00795	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	0.00751	0.00500	"	"	"	"	"	"	

Date Sampled: **08/27/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0154	46.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0194	58.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/27/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0864	08/28/24	08/30/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/27/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Reported:
09/06/24 07:44

AST02@0-6"
2408340-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	3.00	0.200	mg/kg dry	1	BHH0873	08/28/24	08/30/24	EPA 6020B	
Barium	40.7	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	3.78	0.400	"	"	"	"	"	"	
Lead	3.29	0.200	"	"	"	"	"	"	
Nickel	3.03	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	11.5	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/27/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0858	08/28/24	08/29/24	EPA 7196A	

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

Date Sampled: **08/27/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	28.8	0.0500	mg/L dry	1	BHH0937	08/29/24	08/30/24	EPA 6020B	
Magnesium	5.64	0.0500	"	"	"	"	"	"	
Sodium	4.95	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/27/24 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.221	0.00100	units	1	BHI0025	09/03/24	09/03/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Summit Scientific

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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

AST02@0-6"
2408340-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/27/24 10:37**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	94.7			%	1	BHH0870	08/28/24	08/29/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/27/24 10:37**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.276	0.0100		mmhos/cm	1	BHH0939	08/29/24	08/30/24	EPA 120.1	

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

Date Sampled: **08/27/24 10:37**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.05			pH Units	1	BHH0938	08/29/24	08/30/24	EPA 9045D	

Summit Scientific

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

Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

SEP01-FL@2'
2408340-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/27/24 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHH0878	08/28/24	08/29/24	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/27/24 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0465	116 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0379	94.6 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0394	98.6 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/27/24 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHH0880	08/28/24	08/29/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/27/24 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	9.83	78.6 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

SEP01-FL@2'
2408340-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/27/24 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0852	08/28/24	08/30/24	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: **08/27/24 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0152	45.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0192	57.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/27/24 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0864	08/28/24	08/30/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/27/24 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

SEP01-FL@2'
2408340-03 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	2.76	0.200	mg/kg dry	1	BHH0873	08/28/24	08/30/24	EPA 6020B	
Barium	43.2	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	3.91	0.400	"	"	"	"	"	"	
Lead	3.24	0.200	"	"	"	"	"	"	
Nickel	3.18	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	10.9	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/27/24 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0858	08/28/24	08/29/24	EPA 7196A	

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

Date Sampled: **08/27/24 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	18.4	0.0500	mg/L dry	1	BHH0937	08/29/24	08/30/24	EPA 6020B	
Magnesium	4.15	0.0500	"	"	"	"	"	"	
Sodium	3.39	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/27/24 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.186	0.00100	units	1	BHI0025	09/03/24	09/03/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Reported:
09/06/24 07:44

SEP01-FL@2'
2408340-03 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/27/24 10:04**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	95.0			%	1	BHH0870	08/28/24	08/29/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/27/24 10:04**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.152	0.0100		mmhos/cm	1	BHH0939	08/29/24	08/30/24	EPA 120.1	

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

Date Sampled: **08/27/24 10:04**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.41			pH Units	1	BHH0938	08/29/24	08/30/24	EPA 9045D	

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Project: Noble - Walcker AB 12-08 Multi

Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

SEP01-DL@2'
2408340-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/27/24 10:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHH0878	08/28/24	08/29/24	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **08/27/24 10:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0458	114 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0391	97.6 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0394	98.5 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/27/24 10:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHH0880	08/28/24	08/29/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **08/27/24 10:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	8.58	68.6 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Reported:
09/06/24 07:44

SEP01-DL@2'
2408340-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/27/24 10:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0852	08/28/24	08/30/24	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: **08/27/24 10:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0140	42.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0143	42.8 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/27/24 10:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0864	08/28/24	08/30/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/27/24 10:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Reported:
09/06/24 07:44

SEP01-DL@2'
2408340-04 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	2.98	0.200	mg/kg dry	1	BHH0873	08/28/24	08/30/24	EPA 6020B	
Barium	61.3	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	3.81	0.400	"	"	"	"	"	"	
Lead	5.37	0.200	"	"	"	"	"	"	
Nickel	4.09	0.400	"	"	"	"	"	"	
Silver	0.0261	0.0200	"	"	"	"	"	"	
Zinc	14.7	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/27/24 10:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0858	08/28/24	08/29/24	EPA 7196A	

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

Date Sampled: **08/27/24 10:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	50.5	0.0500	mg/L dry	1	BHH0937	08/29/24	08/31/24	EPA 6020B	
Magnesium	12.5	0.0500	"	"	"	"	"	"	
Sodium	6.20	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/27/24 10:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.202	0.00100	units	1	BH10025	09/03/24	09/03/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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09/06/24 07:44

SEP01-DL@2'
2408340-04 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/27/24 10:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	92.1			%	1	BHH0870	08/28/24	08/29/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/27/24 10:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.443	0.0100		mmhos/cm	1	BHH0939	08/29/24	08/30/24	EPA 120.1	

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

Date Sampled: **08/27/24 10:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.12			pH Units	1	BHH0938	08/29/24	08/30/24	EPA 9045D	

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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

PWV01-S@2'
2408340-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/27/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHH0878	08/28/24	08/29/24	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/27/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0426	106 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0394	98.4 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0374	93.4 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/27/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHH0880	08/28/24	08/29/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/27/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	7.79	62.4 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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PWV01-S@2'
2408340-05 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/27/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0852	08/28/24	08/30/24	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: **08/27/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0147	44.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0185	55.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/27/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0864	08/28/24	08/30/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/27/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

PWV01-S@2'
2408340-05 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	3.15	0.200	mg/kg dry	1	BHH0873	08/28/24	08/30/24	EPA 6020B	
Barium	60.9	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	3.77	0.400	"	"	"	"	"	"	
Lead	5.65	0.200	"	"	"	"	"	"	
Nickel	4.52	0.400	"	"	"	"	"	"	
Silver	0.0370	0.0200	"	"	"	"	"	"	
Zinc	14.8	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/27/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0858	08/28/24	08/29/24	EPA 7196A	

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

Date Sampled: **08/27/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	39.5	0.0500	mg/L dry	1	BHH0937	08/29/24	08/31/24	EPA 6020B	
Magnesium	8.42	0.0500	"	"	"	"	"	"	
Sodium	0.770	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/27/24 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0290	0.00100	units	1	BH10025	09/03/24	09/03/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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

Project: Noble - Walcker AB 12-08 Multi

Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

PWV01-S@2'
2408340-05 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/27/24 10:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	87.9			%	1	BHH0870	08/28/24	08/29/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/27/24 10:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.194	0.0100		mmhos/cm	1	BHH0939	08/29/24	08/30/24	EPA 120.1	

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

Date Sampled: **08/27/24 10:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.26			pH Units	1	BHH0938	08/29/24	08/30/24	EPA 9045D	

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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

PWV01-B@4'
2408340-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/27/24 10:53**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHH0878	08/28/24	08/29/24	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **08/27/24 10:53**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0422	106 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0399	99.7 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0390	97.4 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/27/24 10:53**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHH0880	08/28/24	08/29/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **08/27/24 10:53**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	6.68	53.4 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: Noble - Walcker AB 12-08 Multi

Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

PWV01-B@4'
2408340-06 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/27/24 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0852	08/28/24	08/30/24	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: **08/27/24 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0137	41.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0166	49.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/27/24 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0864	08/28/24	08/30/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/27/24 10:53**

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

Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

PWV01-B@4'
2408340-06 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	2.60	0.200	mg/kg dry	1	BHH0873	08/28/24	08/30/24	EPA 6020B
Barium	92.0	0.400	"	"	"	"	"	"
Cadmium	0.223	0.200	"	"	"	"	"	"
Copper	4.73	0.400	"	"	"	"	"	"
Lead	6.79	0.200	"	"	"	"	"	"
Nickel	4.36	0.400	"	"	"	"	"	"
Silver	0.0430	0.0200	"	"	"	"	"	"
Zinc	20.9	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/27/24 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0858	08/28/24	08/29/24	EPA 7196A	

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

Date Sampled: **08/27/24 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	206	0.0500	mg/L dry	1	BHH0937	08/29/24	08/31/24	EPA 6020B	
Magnesium	26.6	0.0500	"	"	"	"	"	"	
Sodium	1.70	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/27/24 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0296	0.00100	units	1	BH10025	09/03/24	09/03/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/27/24 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

PWV01-B@4'
2408340-06 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	86.8	%	1	BHH0870	08/28/24	08/29/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/27/24 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.26	0.0100	mmhos/cm	1	BHH0939	08/29/24	08/30/24	EPA 120.1	

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

Date Sampled: **08/27/24 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.84		pH Units	1	BHH0938	08/29/24	08/30/24	EPA 9045D	

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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

PWV02-E@2'
2408340-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/27/24 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHH0878	08/28/24	08/29/24	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/27/24 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0403	101 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0386	96.6 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0381	95.3 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/27/24 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHH0880	08/28/24	08/29/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/27/24 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	9.62	77.0 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Tasman Geosciences
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Broomfield CO, 80020

Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

PWV02-E@2'
2408340-07 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/27/24 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0852	08/28/24	08/30/24	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: **08/27/24 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0145	43.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0183	54.8 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/27/24 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0864	08/28/24	08/30/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/27/24 10:58**

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

Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

PWV02-E@2'
2408340-07 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	3.31	0.181	mg/kg dry	1	BHH0873	08/28/24	08/30/24	EPA 6020B	
Barium	78.9	0.362	"	"	"	"	"	"	
Cadmium	0.203	0.181	"	"	"	"	"	"	
Copper	4.36	0.362	"	"	"	"	"	"	
Lead	6.51	0.181	"	"	"	"	"	"	
Nickel	4.39	0.362	"	"	"	"	"	"	
Silver	0.0377	0.0181	"	"	"	"	"	"	
Zinc	17.1	0.362	"	"	"	"	"	"	
Selenium	ND	0.236	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/27/24 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0858	08/28/24	08/29/24	EPA 7196A	

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

Date Sampled: **08/27/24 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	277	0.0500	mg/L dry	1	BHH0937	08/29/24	08/31/24	EPA 6020B	
Magnesium	29.2	0.0500	"	"	"	"	"	"	
Sodium	1.69	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/27/24 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0258	0.00100	units	1	BH10025	09/03/24	09/03/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/27/24 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

PWV02-E@2'
2408340-07 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	87.4	%	1	BHH0870	08/28/24	08/29/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/27/24 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.59	0.0100	mmhos/cm	1	BHH0939	08/29/24	08/30/24	EPA 120.1	

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

Date Sampled: **08/27/24 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.81		pH Units	1	BHH0938	08/29/24	08/30/24	EPA 9045D	

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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

PWV02-B@4'
2408340-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/27/24 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHH0878	08/28/24	08/29/24	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/27/24 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0455	114 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0411	103 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0382	95.4 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/27/24 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHH0880	08/28/24	08/29/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/27/24 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	7.69	61.5 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

PWV02-B@4'
2408340-08 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **08/27/24 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHH0852	08/28/24	08/30/24	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: **08/27/24 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0136	40.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0170	51.0 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/27/24 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHH0864	08/28/24	08/30/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/27/24 11:04**

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 - Walcker AB 12-08 Multi

Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

PWV02-B@4'
2408340-08 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	5.08	0.200	mg/kg dry	1	BHH0873	08/28/24	08/30/24	EPA 6020B
Barium	64.3	0.400	"	"	"	"	"	"
Cadmium	0.223	0.200	"	"	"	"	"	"
Copper	4.31	0.400	"	"	"	"	"	"
Lead	6.55	0.200	"	"	"	"	"	"
Nickel	4.73	0.400	"	"	"	"	"	"
Silver	0.0329	0.0200	"	"	"	"	"	"
Zinc	16.1	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/27/24 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0858	08/28/24	08/29/24	EPA 7196A	

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

Date Sampled: **08/27/24 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	46.9	0.0500	mg/L dry	1	BHH0937	08/29/24	08/31/24	EPA 6020B	
Magnesium	9.26	0.0500	"	"	"	"	"	"	
Sodium	4.56	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **08/27/24 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.159	0.00100	units	1	BH10025	09/03/24	09/03/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/27/24 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

PWV02-B@4'
2408340-08 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	87.3	%	1	BHH0870	08/28/24	08/29/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/27/24 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.354	0.0100	mmhos/cm	1	BHH0939	08/29/24	08/30/24	EPA 120.1	

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

Date Sampled: **08/27/24 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.20		pH Units	1	BHH0938	08/29/24	08/30/24	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

BKG01@0-6"
2408340-09 (Soil)

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Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/27/24 11:21**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BHH0864	08/28/24	08/30/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/27/24 11:21**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	3.23	0.200	mg/kg dry	1	BHH0873	08/28/24	08/30/24	EPA 6020B	
Barium	52.9	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	3.82	0.400	"	"	"	"	"	"	
Lead	6.41	0.200	"	"	"	"	"	"	
Nickel	3.86	0.400	"	"	"	"	"	"	
Silver	0.0283	0.0200	"	"	"	"	"	"	
Zinc	15.0	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/27/24 11:21**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0858	08/28/24	08/29/24	EPA 7196A	

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

Date Sampled: **08/27/24 11:21**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	45.3	0.0500	mg/L dry	1	BHH0937	08/29/24	08/31/24	EPA 6020B	
Magnesium	10.1	0.0500	"	"	"	"	"	"	
Sodium	0.518	0.0500	"	"	"	"	"	"	

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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

BKG01@0-6''
2408340-09 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **08/27/24 11:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0181	0.00100	units	1	BHI0025	09/03/24	09/03/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/27/24 11:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	97.0		%	1	BHH0870	08/28/24	08/29/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/27/24 11:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.377	0.0100	mmhos/cm	1	BHH0939	08/29/24	08/30/24	EPA 120.1	

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

Date Sampled: **08/27/24 11:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.29		pH Units	1	BHH0938	08/29/24	08/30/24	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

BKG01@2'
2408340-10 (Soil)

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Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/27/24 11:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BHH0864	08/28/24	08/30/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/27/24 11:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	3.47	0.181	mg/kg dry	1	BHH0873	08/28/24	08/30/24	EPA 6020B	
Barium	55.7	0.362	"	"	"	"	"	"	
Cadmium	0.185	0.181	"	"	"	"	"	"	
Copper	3.74	0.362	"	"	"	"	"	"	
Lead	6.52	0.181	"	"	"	"	"	"	
Nickel	4.12	0.362	"	"	"	"	"	"	
Silver	0.0301	0.0181	"	"	"	"	"	"	
Zinc	14.6	0.362	"	"	"	"	"	"	
Selenium	ND	0.236	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/27/24 11:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0858	08/28/24	08/29/24	EPA 7196A	

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

Date Sampled: **08/27/24 11:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	43.7	0.0500	mg/L dry	1	BHH0937	08/29/24	08/31/24	EPA 6020B	
Magnesium	9.78	0.0500	"	"	"	"	"	"	
Sodium	1.38	0.0500	"	"	"	"	"	"	

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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

BKG01@2'
2408340-10 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **08/27/24 11:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0491	0.00100	units	1	BHI0025	09/03/24	09/03/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/27/24 11:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.1		%	1	BHH0870	08/28/24	08/29/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/27/24 11:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.315	0.0100	mmhos/cm	1	BHH0939	08/29/24	08/30/24	EPA 120.1	

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

Date Sampled: **08/27/24 11:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.62		pH Units	1	BHH0938	08/29/24	08/30/24	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - Walcker AB 12-08 Multi

Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

BKG01@4'
2408340-11 (Soil)

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Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **08/27/24 11:23**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BHH0864	08/28/24	08/30/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **08/27/24 11:23**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	3.18	0.200	mg/kg dry	1	BHH0873	08/28/24	08/30/24	EPA 6020B	
Barium	58.5	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	3.89	0.400	"	"	"	"	"	"	
Lead	7.11	0.200	"	"	"	"	"	"	
Nickel	5.76	0.400	"	"	"	"	"	"	
Silver	0.0296	0.0200	"	"	"	"	"	"	
Zinc	15.3	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **08/27/24 11:23**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHH0858	08/28/24	08/29/24	EPA 7196A	

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

Date Sampled: **08/27/24 11:23**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	43.0	0.0500	mg/L dry	1	BHH0937	08/29/24	08/31/24	EPA 6020B	
Magnesium	8.84	0.0500	"	"	"	"	"	"	
Sodium	3.25	0.0500	"	"	"	"	"	"	

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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

BKG01@4'
2408340-11 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **08/27/24 11:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.118	0.00100	units	1	BHI0025	09/03/24	09/03/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **08/27/24 11:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.7		%	1	BHH0870	08/28/24	08/29/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **08/27/24 11:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.255	0.0100	mmhos/cm	1	BHH0939	08/29/24	08/30/24	EPA 120.1	

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

Date Sampled: **08/27/24 11:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.97		pH Units	1	BHH0938	08/29/24	08/30/24	EPA 9045D	

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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BHH0878 - EPA 5030 Soil MS

Blank (BHH0878-BLK1)

Prepared & Analyzed: 08/28/24

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	0.0425		"	0.0400		106	50-150			
Surrogate: Toluene-d8	0.0398		"	0.0400		99.4	50-150			
Surrogate: 4-Bromofluorobenzene	0.0395		"	0.0400		98.8	50-150			

LCS (BHH0878-BS1)

Prepared & Analyzed: 08/28/24

Benzene	0.112	0.0020	mg/kg	0.100		112	70-130			
Toluene	0.110	0.0050	"	0.100		110	70-130			
Ethylbenzene	0.119	0.0050	"	0.100		119	70-130			
m,p-Xylene	0.233	0.010	"	0.200		116	70-130			
o-Xylene	0.112	0.0050	"	0.100		112	70-130			
1,2,4-Trimethylbenzene	0.110	0.0050	"	0.100		110	70-130			
1,3,5-Trimethylbenzene	0.112	0.0050	"	0.100		112	70-130			
Naphthalene	0.107	0.0038	"	0.100		107	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0441		"	0.0400		110	50-150			
Surrogate: Toluene-d8	0.0396		"	0.0400		99.1	50-150			
Surrogate: 4-Bromofluorobenzene	0.0405		"	0.0400		101	50-150			

Matrix Spike (BHH0878-MS1)

Source: 2408323-01

Prepared & Analyzed: 08/28/24

Benzene	0.112	0.0020	mg/kg	0.100	ND	112	70-130			
Toluene	0.113	0.0050	"	0.100	ND	113	70-130			
Ethylbenzene	0.112	0.0050	"	0.100	ND	112	70-130			
m,p-Xylene	0.219	0.010	"	0.200	ND	110	70-130			
o-Xylene	0.106	0.0050	"	0.100	ND	106	70-130			
1,2,4-Trimethylbenzene	0.103	0.0050	"	0.100	ND	103	70-130			
1,3,5-Trimethylbenzene	0.104	0.0050	"	0.100	ND	104	70-130			
Naphthalene	0.0950	0.0038	"	0.100	ND	95.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0462		"	0.0400		116	50-150			
Surrogate: Toluene-d8	0.0409		"	0.0400		102	50-150			
Surrogate: 4-Bromofluorobenzene	0.0393		"	0.0400		98.2	50-150			

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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

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

Batch BHH0878 - EPA 5030 Soil MS

Matrix Spike Dup (BHH0878-MSD1)	Source: 2408323-01			Prepared & Analyzed: 08/28/24						
Benzene	0.107	0.0020	mg/kg	0.100	ND	107	70-130	4.11	30	
Toluene	0.104	0.0050	"	0.100	ND	104	70-130	8.01	30	
Ethylbenzene	0.103	0.0050	"	0.100	ND	103	70-130	8.12	30	
m,p-Xylene	0.204	0.010	"	0.200	ND	102	70-130	7.14	30	
o-Xylene	0.0960	0.0050	"	0.100	ND	96.0	70-130	10.1	30	
1,2,4-Trimethylbenzene	0.0916	0.0050	"	0.100	ND	91.6	70-130	11.2	30	
1,3,5-Trimethylbenzene	0.0931	0.0050	"	0.100	ND	93.1	70-130	10.6	30	
Naphthalene	0.0832	0.0038	"	0.100	ND	83.2	70-130	13.3	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0474</i>		<i>"</i>	<i>0.0400</i>		<i>118</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0399</i>		<i>"</i>	<i>0.0400</i>		<i>99.8</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0390</i>		<i>"</i>	<i>0.0400</i>		<i>97.5</i>	<i>50-150</i>			

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

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 BHH0880 - EPA 3550A

Blank (BHH0880-BLK1)

Prepared: 08/28/24 Analyzed: 08/29/24

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	10.3		"	12.5		82.7	30-150				

LCS (BHH0880-BS1)

Prepared: 08/28/24 Analyzed: 08/29/24

C10-C28 (DRO)	493	50	mg/kg	500		98.6	70-130				
Surrogate: <i>o</i> -Terphenyl	10.2		"	12.5		81.3	30-150				

Matrix Spike (BHH0880-MS1)

Source: 2408323-01

Prepared: 08/28/24 Analyzed: 08/29/24

C10-C28 (DRO)	505	50	mg/kg	500	12.9	98.5	70-130				
Surrogate: <i>o</i> -Terphenyl	9.48		"	12.5		75.9	30-150				

Matrix Spike Dup (BHH0880-MSD1)

Source: 2408323-01

Prepared: 08/28/24 Analyzed: 08/29/24

C10-C28 (DRO)	384	50	mg/kg	500	12.9	74.3	70-130	27.2	20		QR-02
Surrogate: <i>o</i> -Terphenyl	8.98		"	12.5		71.8	30-150				

Summit Scientific

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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

PAH by EPA Method 8270D SIM - Quality Control
Summit Scientific

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

Batch BHH0852 - EPA 5030 Soil MS

Blank (BHH0852-BLK1)

Prepared: 08/28/24 Analyzed: 08/29/24

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	0.0160		"	0.0333		48.1	40-150			
Surrogate: Fluoranthene-d10	0.0229		"	0.0333		68.7	40-150			

LCS (BHH0852-BS1)

Prepared: 08/28/24 Analyzed: 08/29/24

Acenaphthene	0.0192	0.00500	mg/kg	0.0333		57.7	31-137			
Anthracene	0.0190	0.00500	"	0.0333		57.0	30-120			
Benzo (a) anthracene	0.0161	0.00500	"	0.0333		48.4	30-120			
Benzo (a) pyrene	0.0180	0.00500	"	0.0333		54.0	30-120			
Benzo (b) fluoranthene	0.0198	0.00500	"	0.0333		59.5	30-120			
Benzo (k) fluoranthene	0.0198	0.00500	"	0.0333		59.4	30-120			
Chrysene	0.0169	0.00500	"	0.0333		50.6	30-120			
Dibenz (a,h) anthracene	0.0154	0.00500	"	0.0333		46.1	30-120			
Fluoranthene	0.0192	0.00500	"	0.0333		57.6	30-120			
Fluorene	0.0192	0.00500	"	0.0333		57.6	30-120			
Indeno (1,2,3-cd) pyrene	0.0221	0.00500	"	0.0333		66.3	30-120			
Pyrene	0.0195	0.00500	"	0.0333		58.4	35-142			
1-Methylnaphthalene	0.0153	0.00500	"	0.0333		45.9	35-142			
2-Methylnaphthalene	0.0150	0.00500	"	0.0333		45.0	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0157		"	0.0333		47.1	40-150			
Surrogate: Fluoranthene-d10	0.0206		"	0.0333		61.9	40-150			

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Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

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 BHH0852 - EPA 5030 Soil MS

Matrix Spike (BHH0852-MS1)	Source: 2408335-01			Prepared: 08/28/24 Analyzed: 08/29/24						
Acenaphthene	0.0137	0.00500	mg/kg	0.0333	ND	41.2	31-137			
Anthracene	0.0153	0.00500	"	0.0333	ND	45.9	30-120			
Benzo (a) anthracene	0.0195	0.00500	"	0.0333	ND	58.4	30-120			
Benzo (a) pyrene	0.0143	0.00500	"	0.0333	ND	43.0	30-120			
Benzo (b) fluoranthene	0.0150	0.00500	"	0.0333	ND	45.1	30-120			
Benzo (k) fluoranthene	0.0152	0.00500	"	0.0333	ND	45.7	30-120			
Chrysene	0.0169	0.00500	"	0.0333	ND	50.8	30-120			
Dibenz (a,h) anthracene	0.0187	0.00500	"	0.0333	ND	56.2	30-120			
Fluoranthene	0.0152	0.00500	"	0.0333	ND	45.7	30-120			
Fluorene	0.0138	0.00500	"	0.0333	ND	41.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0153	0.00500	"	0.0333	ND	45.9	30-120			
Pyrene	0.0136	0.00500	"	0.0333	ND	40.7	35-142			
1-Methylnaphthalene	0.0141	0.00500	"	0.0333	ND	42.4	15-130			
2-Methylnaphthalene	0.0145	0.00500	"	0.0333	ND	43.6	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0147</i>		<i>"</i>	<i>0.0333</i>		<i>44.0</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0165</i>		<i>"</i>	<i>0.0333</i>		<i>49.5</i>	<i>40-150</i>			

Matrix Spike Dup (BHH0852-MSD1)	Source: 2408335-01			Prepared: 08/28/24 Analyzed: 08/29/24						
Acenaphthene	0.0146	0.00500	mg/kg	0.0333	ND	43.7	31-137	5.86	30	
Anthracene	0.0154	0.00500	"	0.0333	ND	46.2	30-120	0.567	30	
Benzo (a) anthracene	0.0152	0.00500	"	0.0333	ND	45.6	30-120	24.8	30	
Benzo (a) pyrene	0.0144	0.00500	"	0.0333	ND	43.2	30-120	0.531	30	
Benzo (b) fluoranthene	0.0160	0.00500	"	0.0333	ND	48.0	30-120	6.30	30	
Benzo (k) fluoranthene	0.0165	0.00500	"	0.0333	ND	49.4	30-120	7.79	30	
Chrysene	0.0136	0.00500	"	0.0333	ND	40.8	30-120	21.8	30	
Dibenz (a,h) anthracene	0.0170	0.00500	"	0.0333	ND	50.9	30-120	9.80	30	
Fluoranthene	0.0159	0.00500	"	0.0333	ND	47.7	30-120	4.29	30	
Fluorene	0.0146	0.00500	"	0.0333	ND	43.9	30-120	5.78	30	
Indeno (1,2,3-cd) pyrene	0.0135	0.00500	"	0.0333	ND	40.5	30-120	12.5	30	
Pyrene	0.0137	0.00500	"	0.0333	ND	41.0	35-142	0.847	30	
1-Methylnaphthalene	0.0137	0.00500	"	0.0333	ND	41.2	15-130	2.90	50	
2-Methylnaphthalene	0.0134	0.00500	"	0.0333	ND	40.3	15-130	7.84	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0142</i>		<i>"</i>	<i>0.0333</i>		<i>42.6</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0175</i>		<i>"</i>	<i>0.0333</i>		<i>52.4</i>	<i>40-150</i>			

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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

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 BHI0052 - EPA 5030 Soil MS

Blank (BHI0052-BLK1)

Prepared & Analyzed: 09/04/24

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	0.0208		"	0.0333	62.3	40-150				
Surrogate: Fluoranthene-d10	0.0215		"	0.0333	64.5	40-150				

LCS (BHI0052-BS1)

Prepared & Analyzed: 09/04/24

Acenaphthene	0.0249	0.00500	mg/kg	0.0333	74.7	31-137				
Anthracene	0.0256	0.00500	"	0.0333	76.8	30-120				
Benzo (a) anthracene	0.0275	0.00500	"	0.0333	82.6	30-120				
Benzo (a) pyrene	0.0262	0.00500	"	0.0333	78.6	30-120				
Benzo (b) fluoranthene	0.0253	0.00500	"	0.0333	75.8	30-120				
Benzo (k) fluoranthene	0.0242	0.00500	"	0.0333	72.6	30-120				
Chrysene	0.0258	0.00500	"	0.0333	77.3	30-120				
Dibenz (a,h) anthracene	0.0254	0.00500	"	0.0333	76.1	30-120				
Fluoranthene	0.0278	0.00500	"	0.0333	83.5	30-120				
Fluorene	0.0232	0.00500	"	0.0333	69.7	30-120				
Indeno (1,2,3-cd) pyrene	0.0267	0.00500	"	0.0333	80.1	30-120				
Pyrene	0.0258	0.00500	"	0.0333	77.3	35-142				
1-Methylnaphthalene	0.0239	0.00500	"	0.0333	71.6	35-142				
2-Methylnaphthalene	0.0208	0.00500	"	0.0333	62.5	35-142				
Surrogate: 2-Methylnaphthalene-d10	0.0233		"	0.0333	69.9	40-150				
Surrogate: Fluoranthene-d10	0.0292		"	0.0333	87.6	40-150				

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Project: Noble - Walcker AB 12-08 Multi

Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

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 BHI0052 - EPA 5030 Soil MS

Matrix Spike (BHI0052-MS1)	Source: 2409002-01			Prepared & Analyzed: 09/04/24								
Acenaphthene	0.0189	0.00500	mg/kg	0.0333	ND	56.7	31-137					
Anthracene	0.0195	0.00500	"	0.0333	ND	58.5	30-120					
Benzo (a) anthracene	0.0199	0.00500	"	0.0333	ND	59.6	30-120					
Benzo (a) pyrene	0.0184	0.00500	"	0.0333	ND	55.1	30-120					
Benzo (b) fluoranthene	0.0165	0.00500	"	0.0333	ND	49.5	30-120					
Benzo (k) fluoranthene	0.0163	0.00500	"	0.0333	ND	48.8	30-120					
Chrysene	0.0184	0.00500	"	0.0333	ND	55.1	30-120					
Dibenz (a,h) anthracene	0.0179	0.00500	"	0.0333	ND	53.7	30-120					
Fluoranthene	0.0198	0.00500	"	0.0333	ND	59.3	30-120					
Fluorene	0.0153	0.00500	"	0.0333	ND	45.9	30-120					
Indeno (1,2,3-cd) pyrene	0.0176	0.00500	"	0.0333	ND	52.7	30-120					
Pyrene	0.0187	0.00500	"	0.0333	ND	56.1	35-142					
1-Methylnaphthalene	0.0185	0.00500	"	0.0333	ND	55.4	15-130					
2-Methylnaphthalene	0.0136	0.00500	"	0.0333	ND	40.8	15-130					
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0179</i>		<i>"</i>	<i>0.0333</i>		<i>53.6</i>	<i>40-150</i>					
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0208</i>		<i>"</i>	<i>0.0333</i>		<i>62.4</i>	<i>40-150</i>					

Matrix Spike Dup (BHI0052-MSD1)	Source: 2409002-01			Prepared & Analyzed: 09/04/24								
Acenaphthene	0.0199	0.00500	mg/kg	0.0333	ND	59.6	31-137	4.91	30			
Anthracene	0.0210	0.00500	"	0.0333	ND	63.1	30-120	7.43	30			
Benzo (a) anthracene	0.0224	0.00500	"	0.0333	ND	67.3	30-120	12.2	30			
Benzo (a) pyrene	0.0209	0.00500	"	0.0333	ND	62.6	30-120	12.8	30			
Benzo (b) fluoranthene	0.0194	0.00500	"	0.0333	ND	58.1	30-120	16.0	30			
Benzo (k) fluoranthene	0.0184	0.00500	"	0.0333	ND	55.1	30-120	12.2	30			
Chrysene	0.0207	0.00500	"	0.0333	ND	62.2	30-120	12.1	30			
Dibenz (a,h) anthracene	0.0205	0.00500	"	0.0333	ND	61.6	30-120	13.5	30			
Fluoranthene	0.0216	0.00500	"	0.0333	ND	64.9	30-120	8.88	30			
Fluorene	0.0188	0.00500	"	0.0333	ND	56.5	30-120	20.7	30			
Indeno (1,2,3-cd) pyrene	0.0199	0.00500	"	0.0333	ND	59.7	30-120	12.5	30			
Pyrene	0.0211	0.00500	"	0.0333	ND	63.4	35-142	12.2	30			
1-Methylnaphthalene	0.0168	0.00500	"	0.0333	ND	50.4	15-130	9.31	50			
2-Methylnaphthalene	0.0140	0.00500	"	0.0333	ND	42.0	15-130	3.00	50			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0159</i>		<i>"</i>	<i>0.0333</i>		<i>47.6</i>	<i>40-150</i>					
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0229</i>		<i>"</i>	<i>0.0333</i>		<i>68.7</i>	<i>40-150</i>					

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Project: Noble - Walcker AB 12-08 Multi
Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

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

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

Batch BHH0864 - EPA 3050B

Blank (BHH0864-BLK1)

Prepared: 08/28/24 Analyzed: 08/29/24

Boron ND 2.00 mg/L

LCS (BHH0864-BS1)

Prepared: 08/28/24 Analyzed: 08/29/24

Boron 4.67 2.00 mg/L 5.00 93.4 80-120

Duplicate (BHH0864-DUP1)

Source: 2408335-01

Prepared: 08/28/24 Analyzed: 08/30/24

Boron 0.341 2.00 mg/L 0.325 4.78 20

Matrix Spike (BHH0864-MS1)

Source: 2408335-01

Prepared: 08/28/24 Analyzed: 08/30/24

Boron 4.73 2.00 mg/L 5.00 0.325 88.2 75-125

Matrix Spike Dup (BHH0864-MSD1)

Source: 2408335-01

Prepared: 08/28/24 Analyzed: 08/30/24

Boron 4.69 2.00 mg/L 5.00 0.325 87.4 75-125 0.832 25

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Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

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 BHH0873 - EPA 3050B

Blank (BHH0873-BLK1)

Prepared: 08/28/24 Analyzed: 08/30/24

Arsenic	ND	0.200	mg/kg wet							
Barium	ND	0.400	"							
Cadmium	ND	0.200	"							
Copper	ND	0.400	"							
Lead	ND	0.200	"							
Nickel	ND	0.400	"							
Silver	ND	0.0200	"							
Zinc	ND	0.400	"							
Selenium	ND	0.260	"							

LCS (BHH0873-BS1)

Prepared: 08/28/24 Analyzed: 08/30/24

Arsenic	33.3	0.200	mg/kg wet	36.8	90.7	80-120
Barium	33.5	0.400	"	36.8	91.2	80-120
Cadmium	1.65	0.200	"	1.84	89.6	80-120
Copper	36.2	0.400	"	36.8	98.5	80-120
Lead	17.2	0.200	"	18.4	93.8	80-120
Nickel	36.1	0.400	"	36.8	98.1	80-120
Silver	1.69	0.0200	"	1.84	91.9	80-120
Zinc	35.8	0.400	"	36.8	97.4	80-120
Selenium	3.41	0.260	"	3.68	92.7	80-120

Duplicate (BHH0873-DUP1)

Source: 2408340-01

Prepared: 08/28/24 Analyzed: 08/30/24

Arsenic	2.17	0.200	mg/kg dry	3.22	39.0	20	QR-02
Barium	38.3	0.400	"	42.2	9.55	20	
Cadmium	0.111	0.200	"	0.152	31.3	20	QR-01
Copper	3.57	0.400	"	4.55	24.1	20	QR-01
Lead	3.45	0.200	"	4.05	16.1	20	
Nickel	2.71	0.400	"	3.46	24.2	20	QR-01
Silver	0.0105	0.0200	"	0.0133	23.7	20	QR-01
Zinc	10.3	0.400	"	13.5	27.6	20	QR-01
Selenium	ND	0.260	"	ND		20	

Summit Scientific

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Project: Noble - Walcker AB 12-08 Multi

Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

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 BHH0873 - EPA 3050B

Matrix Spike (BHH0873-MS1)

Source: 2408340-01

Prepared: 08/28/24 Analyzed: 08/30/24

Arsenic	37.8	0.200	mg/kg dry	40.3	3.22	85.8	75-125				
Barium	69.5	0.400	"	40.3	42.2	67.6	75-125				QM-05
Cadmium	1.92	0.200	"	2.02	0.152	87.7	75-125				
Copper	30.1	0.400	"	40.3	4.55	63.4	75-125				QM-05
Lead	20.2	0.200	"	20.2	4.05	80.1	75-125				
Nickel	29.1	0.400	"	40.3	3.46	63.6	75-125				QM-05
Silver	1.72	0.0200	"	2.02	0.0133	84.6	75-125				
Zinc	37.4	0.400	"	40.3	13.5	59.1	75-125				QM-05
Selenium	3.17	0.260	"	4.03	ND	78.4	75-125				

Matrix Spike Dup (BHH0873-MSD1)

Source: 2408340-01

Prepared: 08/28/24 Analyzed: 08/30/24

Arsenic	37.8	0.200	mg/kg dry	40.3	3.22	85.8	75-125	0.0224	25		
Barium	74.2	0.400	"	40.3	42.2	79.2	75-125	6.53	25		
Cadmium	1.96	0.200	"	2.02	0.152	89.7	75-125	2.10	25		
Copper	30.4	0.400	"	40.3	4.55	64.0	75-125	0.742	25		QM-05
Lead	20.8	0.200	"	20.2	4.05	82.9	75-125	2.80	25		
Nickel	29.3	0.400	"	40.3	3.46	64.2	75-125	0.770	25		QM-05
Silver	1.76	0.0200	"	2.02	0.0133	86.7	75-125	2.43	25		
Zinc	38.1	0.400	"	40.3	13.5	60.9	75-125	1.88	25		QM-05
Selenium	3.17	0.260	"	4.03	ND	78.6	75-125	0.153	25		

Summit Scientific

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

Project: Noble - Walcker AB 12-08 Multi

Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BHH0858 - 3060A Mod

Blank (BHH0858-BLK1)

Prepared: 08/28/24 Analyzed: 08/29/24

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BHH0858-BS1)

Prepared: 08/28/24 Analyzed: 08/29/24

Chromium, Hexavalent 23.8 0.30 mg/kg wet 25.0 95.0 80-120

Duplicate (BHH0858-DUP1)

Source: 2408340-01

Prepared: 08/28/24 Analyzed: 08/29/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BHH0858-MS1)

Source: 2408340-01

Prepared: 08/28/24 Analyzed: 08/29/24

Chromium, Hexavalent 24.8 0.30 mg/kg dry 25.8 ND 96.0 75-125

Matrix Spike Dup (BHH0858-MSD1)

Source: 2408340-01

Prepared: 08/28/24 Analyzed: 08/29/24

Chromium, Hexavalent 23.5 0.30 mg/kg dry 25.8 ND 91.0 75-125 5.35 20

Summit Scientific

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

Project: Noble - Walcker AB 12-08 Multi

Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

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

Summit Scientific

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

Batch BHH0937 - General Preparation

Blank (BHH0937-BLK1)

Prepared: 08/29/24 Analyzed: 08/30/24

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

LCS (BHH0937-BS1)

Prepared: 08/29/24 Analyzed: 08/30/24

Calcium	4.89	0.0500	mg/L wet	5.00	97.7	70-130				
Magnesium	4.80	0.0500	"	5.00	96.1	70-130				
Sodium	5.08	0.0500	"	5.00	102	70-130				

Summit Scientific

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

Project: Noble - Walcker AB 12-08 Multi

Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

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 BHH0870 - General Preparation

Duplicate (BHH0870-DUP1)

Source: 2408335-01

Prepared: 08/28/24 Analyzed: 08/29/24

% Solids	82.1		%		81.2			1.03	20	
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Summit Scientific

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

Project: Noble - Walcker AB 12-08 Multi

Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

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 BHH0939 - General Preparation

Blank (BHH0939-BLK1)

Prepared: 08/29/24 Analyzed: 08/30/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHH0939-BS1)

Prepared: 08/29/24 Analyzed: 08/30/24

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

Duplicate (BHH0939-DUP1)

Source: 2408318-01

Prepared: 08/29/24 Analyzed: 08/30/24

Specific Conductance (EC) 0.510 0.0100 mmhos/cm 0.532 4.16 20

Summit Scientific

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

Project: Noble - Walcker AB 12-08 Multi

Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

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 BHH0938 - General Preparation

LCS (BHH0938-BS1)

Prepared: 08/29/24 Analyzed: 08/30/24

pH	9.05	pH Units	9.18	98.6	95-105
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Duplicate (BHH0938-DUP1)

Source: 2408318-01

Prepared: 08/29/24 Analyzed: 08/30/24

pH	8.70	pH Units	8.70	0.00	20
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Summit Scientific

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

Project: Noble - Walcker AB 12-08 Multi

Project Number: UWRWE-A2141-ABN
Project Manager: Jacob Whritenour

Reported:
09/06/24 07:44

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.
- QR-01 Analyses are not controlled on RPD values from sample concentrations below the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
- 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.
- 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