

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

September 16, 2024

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

RE: Noble - Gutttersen USX D21-17

Work Order #2409122

Enclosed are the results of analyses for samples received by Summit Scientific on 09/09/24 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 - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01R-W@3'	2409122-01	Soil	09/09/24 00:00	09/09/24 17:33
FL01R-S@3'	2409122-02	Soil	09/09/24 00:00	09/09/24 17:33
FL01-01@3'	2409122-03	Soil	09/09/24 00:00	09/09/24 17:33
FL01-08@3'	2409122-04	Soil	09/09/24 00:00	09/09/24 17:33

Summit Scientific

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

<b>Send Data To:</b>		<b>Send Invoice To:</b>	
Client: Noble/Tasman	Project Manager: Jake Whritenour	Company: Noble Energy, Inc.	
Address: 6855 W. 119th Ave.	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: <i>Guttergen VSK 021-17</i>	
City/State/Zip: Broomfield/CO/ 80020		AFE#: <i>UWPWE-AM22-AES</i>	
Phone: 602-881-5716	Project Name: <i>Guttergen VSK 021-17</i>	PO/Billing Codes:	
Sampler Name: McKenzie Reynolds	Project Number:	Contact: <i>Miguel Barron</i>	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested							Special Instructions			
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS		HOLD		
1	<i>FL01P-W@3'</i>	<i>9/9/24</i>		<i>3</i>			<i>X</i>			<i>X</i>				<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>		SAR, EC, pH by saturated paste	
2	<i>FL01P-S@3'</i>			<i>1</i>										<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>			
3	<i>FL01-01@3'</i>			<i>1</i>										<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>			
4	<i>FL01-08@3'</i>			<i>1</i>										<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>			
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						
13																						
14																						
15																						

Relinquished by: <i>M. Reynolds</i>	Date/Time: <i>9/11/2024 1700</i>	Received by: <b>Tasman Lock Box</b>	Date/Time: <i>9/11/2024 1700</i>	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: <i>Tasman Lock Box</i>	Date/Time: <i>9/24 1733</i>	Received by: <i>[Signature]</i>	Date/Time: <i>9/24 1733</i>	1 Day	Field ORP	
				2 Days	Field pH	
				3 Days	Field Temp.	
				Standard	<input checked="" type="checkbox"/> Field Turb.	
Temperature Upon Receipt: <i>7.8</i>	Corrected Temperature: <i>0</i>	IR gun #: <i>1</i>	HNO3 lot #:			

S<sub>2</sub>

Sample Receipt Checklist

S2 Work Order# 2409122

Client: Noble Gasman Client Project ID: Gutterzen USX 021-17

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

AS  
Custodian Printed Name

9/9/24  
Date/Time



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

Project: Noble - Gutteresen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**FL01R-W@3'**  
**2409122-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHI0308	09/10/24	09/11/24	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0402	100 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0395	98.7 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0393	98.2 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHI0311	09/10/24	09/11/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	11.6	92.8 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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09/16/24 08:28

**FL01R-W@3'**  
**2409122-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHI0275	09/10/24	09/11/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0172	51.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0220	66.1 %	40-150		"	"	"	"	

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHI0286	09/10/24	09/11/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**FL01R-W@3'**  
**2409122-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	2.09	0.181	mg/kg dry	1	BHI0283	09/10/24	09/11/24	EPA 6020B	
Barium	51.8	0.362	"	"	"	"	"	"	
Cadmium	ND	0.181	"	"	"	"	"	"	
Copper	3.33	0.362	"	"	"	"	"	"	
Lead	4.91	0.181	"	"	"	"	"	"	
Nickel	3.57	0.362	"	"	"	"	"	"	
Silver	0.0234	0.0181	"	"	"	"	"	"	
Zinc	13.4	0.362	"	"	"	"	"	"	
Selenium	ND	0.236	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHI0287	09/10/24	09/10/24	EPA 7196A	

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	48.7	0.0500	mg/L dry	1	BHI0362	09/11/24	09/13/24	EPA 6020B	
Magnesium	10.5	0.0500	"	"	"	"	"	"	
Sodium	19.3	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.654	0.00100	units	1	BHI0429	09/13/24	09/13/24	Calculation	

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

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Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**FL01R-W@3'**  
**2409122-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	94.5			%	1	BHI0324	09/11/24	09/11/24	Calculation	

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.459	0.0100		mmhos/cm	1	BHI0364	09/11/24	09/12/24	EPA 120.1	

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.90			pH Units	1	BHI0363	09/11/24	09/12/24	EPA 9045D	

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Project Number: UWRWE-A4222-AES  
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**Reported:**  
09/16/24 08:28

**FL01R-S@3'**  
**2409122-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHI0308	09/10/24	09/11/24	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0454	114 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0409	102 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0412	103 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHI0311	09/10/24	09/11/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	8.69	69.6 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Project Manager: Jacob Whritenour

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09/16/24 08:28

**FL01R-S@3'**  
**2409122-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHI0275	09/10/24	09/11/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0139	41.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0177	53.0 %	40-150		"	"	"	"	

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHI0286	09/10/24	09/11/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**FL01R-S@3'**  
**2409122-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.26	0.200	mg/kg dry	1	BHI0283	09/10/24	09/11/24	EPA 6020B	
Barium	34.8	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.95	0.400	"	"	"	"	"	"	
Lead	3.99	0.200	"	"	"	"	"	"	
Nickel	2.71	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	11.7	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHI0287	09/10/24	09/10/24	EPA 7196A	

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	108	0.0500	mg/L dry	1	BHI0362	09/11/24	09/13/24	EPA 6020B	
Magnesium	15.3	0.0500	"	"	"	"	"	"	
Sodium	9.01	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.215	0.00100	units	1	BHI0429	09/13/24	09/13/24	Calculation	

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

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**Reported:**  
09/16/24 08:28

**FL01R-S@3'**  
**2409122-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	91.9			%	1	BHI0324	09/11/24	09/11/24	Calculation	

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.227	0.0100		mmhos/cm	1	BHI0364	09/11/24	09/12/24	EPA 120.1	

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.20			pH Units	1	BHI0363	09/11/24	09/12/24	EPA 9045D	

Summit Scientific

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

Project: Noble - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**FL01-01@3'**  
**2409122-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHI0308	09/10/24	09/11/24	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0404	101 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0403	101 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0386	96.4 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHI0311	09/10/24	09/11/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	10.5	83.9 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**FL01-01@3'**  
**2409122-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHI0275	09/10/24	09/11/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0149	44.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0190	57.1 %	40-150		"	"	"	"	

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHI0286	09/10/24	09/11/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **09/09/24 00:00**

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 - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**FL01-01@3'**  
**2409122-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	1.05	0.200	mg/kg dry	1	BHI0283	09/10/24	09/11/24	EPA 6020B
Barium	26.7	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	2.52	0.400	"	"	"	"	"	"
Lead	4.07	0.200	"	"	"	"	"	"
Nickel	1.92	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	9.59	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHI0287	09/10/24	09/10/24	EPA 7196A	

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	83.1	0.0500	mg/L dry	1	BHI0362	09/11/24	09/13/24	EPA 6020B	
Magnesium	13.9	0.0500	"	"	"	"	"	"	
Sodium	20.3	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.543	0.00100	units	1	BHI0429	09/13/24	09/13/24	Calculation	

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

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Broomfield CO, 80020

Project: Noble - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**FL01-01@3'**  
**2409122-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	95.7			%	1	BHI0324	09/11/24	09/11/24	Calculation	

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.331	0.0100		mmhos/cm	1	BHI0364	09/11/24	09/12/24	EPA 120.1	

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	6.66			pH Units	1	BHI0363	09/11/24	09/12/24	EPA 9045D	

Summit Scientific

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

Project: Noble - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**FL01-08@3'**  
**2409122-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHI0308	09/10/24	09/11/24	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0435	109 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0412	103 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0387	96.8 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHI0311	09/10/24	09/11/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	12.0	96.2 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Project: Noble - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**FL01-08@3'**  
**2409122-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHI0275	09/10/24	09/11/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0188	56.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0233	69.9 %	40-150		"	"	"	"	

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHI0286	09/10/24	09/11/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **09/09/24 00:00**

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

Project: Noble - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**FL01-08@3'**  
**2409122-04 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.35	0.200	mg/kg dry	1	BHI0283	09/10/24	09/11/24	EPA 6020B	
Barium	39.4	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	3.06	0.400	"	"	"	"	"	"	
Lead	4.60	0.200	"	"	"	"	"	"	
Nickel	2.72	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	13.1	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHI0287	09/10/24	09/10/24	EPA 7196A	

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	70.9	0.0500	mg/L dry	1	BHI0362	09/11/24	09/13/24	EPA 6020B	
Magnesium	19.9	0.0500	"	"	"	"	"	"	
Sodium	34.1	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.922	0.00100	units	1	BHI0429	09/13/24	09/13/24	Calculation	

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

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**FL01-08@3'**  
**2409122-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	98.1			%	1	BHI0324	09/11/24	09/11/24	Calculation	

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.771	0.0100		mmhos/cm	1	BHI0364	09/11/24	09/12/24	EPA 120.1	

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

Date Sampled: **09/09/24 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.36			pH Units	1	BHI0363	09/11/24	09/12/24	EPA 9045D	

Summit Scientific

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6855 W. 119th Ave.  
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Project: Noble - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

### 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 BHI0308 - EPA 5030 Soil MS

##### Blank (BHI0308-BLK1)

Prepared: 09/10/24 Analyzed: 09/11/24

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	0.0442		"	0.0400		110	50-150				
Surrogate: Toluene-d8	0.0417		"	0.0400		104	50-150				
Surrogate: 4-Bromofluorobenzene	0.0399		"	0.0400		99.8	50-150				

##### LCS (BHI0308-BS1)

Prepared: 09/10/24 Analyzed: 09/11/24

Benzene	0.119	0.0020	mg/kg	0.100		119	70-130				
Toluene	0.110	0.0050	"	0.100		110	70-130				
Ethylbenzene	0.108	0.0050	"	0.100		108	70-130				
m,p-Xylene	0.208	0.010	"	0.200		104	70-130				
o-Xylene	0.0925	0.0050	"	0.100		92.5	70-130				
1,2,4-Trimethylbenzene	0.0882	0.0050	"	0.100		88.2	70-130				
1,3,5-Trimethylbenzene	0.0942	0.0050	"	0.100		94.2	70-130				
Naphthalene	0.0919	0.0038	"	0.100		91.9	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0427		"	0.0400		107	50-150				
Surrogate: Toluene-d8	0.0420		"	0.0400		105	50-150				
Surrogate: 4-Bromofluorobenzene	0.0396		"	0.0400		99.0	50-150				

##### Matrix Spike (BHI0308-MS1)

Source: 2409115-01

Prepared: 09/10/24 Analyzed: 09/11/24

Benzene	0.102	0.0020	mg/kg	0.100	ND	102	70-130				
Toluene	0.0918	0.0050	"	0.100	ND	91.8	70-130				
Ethylbenzene	0.0923	0.0050	"	0.100	ND	92.3	70-130				
m,p-Xylene	0.176	0.010	"	0.200	ND	87.9	70-130				
o-Xylene	0.0784	0.0050	"	0.100	ND	78.4	70-130				
1,2,4-Trimethylbenzene	0.0728	0.0050	"	0.100	ND	72.8	70-130				
1,3,5-Trimethylbenzene	0.0800	0.0050	"	0.100	ND	80.0	70-130				
Naphthalene	0.0774	0.0038	"	0.100	ND	77.4	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0418		"	0.0400		104	50-150				
Surrogate: Toluene-d8	0.0420		"	0.0400		105	50-150				
Surrogate: 4-Bromofluorobenzene	0.0390		"	0.0400		97.6	50-150				

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Broomfield CO, 80020

Project: Noble - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**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 BHI0308 - EPA 5030 Soil MS**

Matrix Spike Dup (BHI0308-MSD1)	Source: 2409115-01			Prepared: 09/10/24 Analyzed: 09/11/24					
Benzene	0.0924	0.0020	mg/kg	0.100	ND	92.4	70-130	10.1	30
Toluene	0.0837	0.0050	"	0.100	ND	83.7	70-130	9.23	30
Ethylbenzene	0.0900	0.0050	"	0.100	ND	90.0	70-130	2.57	30
m,p-Xylene	0.176	0.010	"	0.200	ND	87.9	70-130	0.0512	30
o-Xylene	0.0770	0.0050	"	0.100	ND	77.0	70-130	1.81	30
1,2,4-Trimethylbenzene	0.0722	0.0050	"	0.100	ND	72.2	70-130	0.703	30
1,3,5-Trimethylbenzene	0.0789	0.0050	"	0.100	ND	78.9	70-130	1.40	30
Naphthalene	0.0834	0.0038	"	0.100	ND	83.4	70-130	7.47	30
Surrogate: 1,2-Dichloroethane-d4	0.0363		"	0.0400		90.8	50-150		
Surrogate: Toluene-d8	0.0404		"	0.0400		101	50-150		
Surrogate: 4-Bromofluorobenzene	0.0382		"	0.0400		95.5	50-150		

Summit Scientific

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

Project: Noble - Guttersen USX D21-17  
Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**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 BHI0311 - EPA 3550A**

**Blank (BHI0311-BLK1)**

Prepared & Analyzed: 09/10/24

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	11.1		"	12.5		89.2	30-150				

**LCS (BHI0311-BS1)**

Prepared & Analyzed: 09/10/24

C10-C28 (DRO)	412	50	mg/kg	500		82.5	70-130				
Surrogate: <i>o</i> -Terphenyl	11.0		"	12.5		88.2	30-150				

**Matrix Spike (BHI0311-MS1)**

Source: 2409115-01

Prepared & Analyzed: 09/10/24

C10-C28 (DRO)	411	50	mg/kg	500	27.4	76.7	70-130				
Surrogate: <i>o</i> -Terphenyl	7.85		"	12.5		62.8	30-150				

**Matrix Spike Dup (BHI0311-MSD1)**

Source: 2409115-01

Prepared & Analyzed: 09/10/24

C10-C28 (DRO)	384	50	mg/kg	500	27.4	71.4	70-130	6.64	20		
Surrogate: <i>o</i> -Terphenyl	7.79		"	12.5		62.3	30-150				

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**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 BHI0275 - EPA 5030 Soil MS**

**Blank (BHI0275-BLK1)**

Prepared & Analyzed: 09/10/24

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0155</i>		"	<i>0.0333</i>		<i>46.5</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0195</i>		"	<i>0.0333</i>		<i>58.6</i>	<i>40-150</i>			

**LCS (BHI0275-BS1)**

Prepared & Analyzed: 09/10/24

Acenaphthene	0.0191	0.00500	mg/kg	0.0333		57.3	31-137			
Anthracene	0.0200	0.00500	"	0.0333		60.1	30-120			
Benzo (a) anthracene	0.0201	0.00500	"	0.0333		60.3	30-120			
Benzo (a) pyrene	0.0184	0.00500	"	0.0333		55.3	30-120			
Benzo (b) fluoranthene	0.0186	0.00500	"	0.0333		55.9	30-120			
Benzo (k) fluoranthene	0.0193	0.00500	"	0.0333		57.8	30-120			
Chrysene	0.0197	0.00500	"	0.0333		59.2	30-120			
Dibenz (a,h) anthracene	0.0170	0.00500	"	0.0333		50.9	30-120			
Fluoranthene	0.0192	0.00500	"	0.0333		57.7	30-120			
Fluorene	0.0196	0.00500	"	0.0333		58.7	30-120			
Indeno (1,2,3-cd) pyrene	0.0167	0.00500	"	0.0333		50.1	30-120			
Pyrene	0.0210	0.00500	"	0.0333		62.9	35-142			
1-Methylnaphthalene	0.0167	0.00500	"	0.0333		50.1	35-142			
2-Methylnaphthalene	0.0151	0.00500	"	0.0333		45.4	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0164</i>		"	<i>0.0333</i>		<i>49.1</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0209</i>		"	<i>0.0333</i>		<i>62.8</i>	<i>40-150</i>			

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

Project: Noble - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**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 BHI0275 - EPA 5030 Soil MS**

<b>Matrix Spike (BHI0275-MS1)</b>	<b>Source: 2409116-01</b>			<b>Prepared &amp; Analyzed: 09/10/24</b>							
Acenaphthene	0.0183	0.00500	mg/kg	0.0333	ND	54.9	31-137				
Anthracene	0.0170	0.00500	"	0.0333	ND	50.9	30-120				
Benzo (a) anthracene	0.0165	0.00500	"	0.0333	ND	49.4	30-120				
Benzo (a) pyrene	0.0153	0.00500	"	0.0333	ND	45.9	30-120				
Benzo (b) fluoranthene	0.0158	0.00500	"	0.0333	ND	47.4	30-120				
Benzo (k) fluoranthene	0.0159	0.00500	"	0.0333	ND	47.6	30-120				
Chrysene	0.0162	0.00500	"	0.0333	ND	48.5	30-120				
Dibenz (a,h) anthracene	0.0126	0.00500	"	0.0333	ND	37.8	30-120				
Fluoranthene	0.0166	0.00500	"	0.0333	ND	49.7	30-120				
Fluorene	0.0186	0.00500	"	0.0333	ND	55.8	30-120				
Indeno (1,2,3-cd) pyrene	0.0134	0.00500	"	0.0333	ND	40.1	30-120				
Pyrene	0.0189	0.00500	"	0.0333	ND	56.8	35-142				
1-Methylnaphthalene	0.0194	0.00500	"	0.0333	ND	58.1	15-130				
2-Methylnaphthalene	0.0164	0.00500	"	0.0333	ND	49.2	15-130				
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0188</i>		<i>"</i>	<i>0.0333</i>		<i>56.4</i>	<i>40-150</i>				
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0174</i>		<i>"</i>	<i>0.0333</i>		<i>52.3</i>	<i>40-150</i>				

<b>Matrix Spike Dup (BHI0275-MSD1)</b>	<b>Source: 2409116-01</b>			<b>Prepared &amp; Analyzed: 09/10/24</b>							
Acenaphthene	0.0201	0.00500	mg/kg	0.0333	ND	60.4	31-137	9.54	30		
Anthracene	0.0196	0.00500	"	0.0333	ND	58.8	30-120	14.3	30		
Benzo (a) anthracene	0.0195	0.00500	"	0.0333	ND	58.4	30-120	16.6	30		
Benzo (a) pyrene	0.0172	0.00500	"	0.0333	ND	51.7	30-120	11.9	30		
Benzo (b) fluoranthene	0.0183	0.00500	"	0.0333	ND	54.8	30-120	14.3	30		
Benzo (k) fluoranthene	0.0180	0.00500	"	0.0333	ND	53.9	30-120	12.5	30		
Chrysene	0.0190	0.00500	"	0.0333	ND	57.1	30-120	16.4	30		
Dibenz (a,h) anthracene	0.0137	0.00500	"	0.0333	ND	41.2	30-120	8.66	30		
Fluoranthene	0.0192	0.00500	"	0.0333	ND	57.7	30-120	14.9	30		
Fluorene	0.0210	0.00500	"	0.0333	ND	63.1	30-120	12.2	30		
Indeno (1,2,3-cd) pyrene	0.0146	0.00500	"	0.0333	ND	43.8	30-120	8.83	30		
Pyrene	0.0221	0.00500	"	0.0333	ND	66.4	35-142	15.6	30		
1-Methylnaphthalene	0.0179	0.00500	"	0.0333	ND	53.8	15-130	7.68	50		
2-Methylnaphthalene	0.0150	0.00500	"	0.0333	ND	44.9	15-130	9.20	50		
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0168</i>		<i>"</i>	<i>0.0333</i>		<i>50.4</i>	<i>40-150</i>				
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0202</i>		<i>"</i>	<i>0.0333</i>		<i>60.6</i>	<i>40-150</i>				

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

Project: Noble - Gutterson USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**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 BHI0286 - EPA 3050B**

**Blank (BHI0286-BLK1)**

Prepared: 09/10/24 Analyzed: 09/11/24

Boron ND 2.00 mg/L

**LCS (BHI0286-BS1)**

Prepared: 09/10/24 Analyzed: 09/11/24

Boron 6.05 2.00 mg/L 5.00 121 80-120 QM-01

**Duplicate (BHI0286-DUP1)**

Source: 2409122-01

Prepared: 09/10/24 Analyzed: 09/11/24

Boron 0.208 2.00 mg/L 0.255 20.2 20 QR-01

**Matrix Spike (BHI0286-MS1)**

Source: 2409122-01

Prepared: 09/10/24 Analyzed: 09/11/24

Boron 5.88 2.00 mg/L 5.04 0.255 112 75-125

**Matrix Spike Dup (BHI0286-MSD1)**

Source: 2409122-01

Prepared: 09/10/24 Analyzed: 09/11/24

Boron 5.65 2.00 mg/L 5.04 0.255 107 75-125 3.97 25

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

Project: Noble - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**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 BHI0283 - EPA 3050B**

**Blank (BHI0283-BLK1)**

Prepared: 09/10/24 Analyzed: 09/11/24

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

**LCS (BHI0283-BS1)**

Prepared: 09/10/24 Analyzed: 09/11/24

Arsenic	34.4	0.181	mg/kg wet	36.2	95.0	80-120
Barium	36.4	0.362	"	36.2	100	80-120
Cadmium	1.84	0.181	"	1.81	102	80-120
Copper	41.1	0.362	"	36.2	113	80-120
Lead	18.6	0.181	"	18.1	103	80-120
Nickel	40.5	0.362	"	36.2	112	80-120
Silver	1.84	0.0181	"	1.81	101	80-120
Zinc	39.7	0.362	"	36.2	110	80-120
Selenium	3.95	0.236	"	3.62	109	80-120

**Duplicate (BHI0283-DUP1)**

Source: 2409109-01

Prepared: 09/10/24 Analyzed: 09/11/24

Arsenic	2.73	0.200	mg/kg dry	2.70	1.40	20
Barium	75.7	0.400	"	74.8	1.25	20
Cadmium	0.173	0.200	"	0.169	2.04	20
Copper	3.03	0.400	"	2.91	4.29	20
Lead	5.19	0.200	"	5.41	4.17	20
Nickel	4.99	0.400	"	4.31	14.8	20
Silver	0.0230	0.0200	"	0.0234	1.95	20
Zinc	14.5	0.400	"	14.6	0.301	20
Selenium	ND	0.260	"	ND		20

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**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 BHI0283 - EPA 3050B**

**Matrix Spike (BHI0283-MS1)**

Source: 2409109-01

Prepared: 09/10/24 Analyzed: 09/11/24

Arsenic	42.3	0.200	mg/kg dry	41.0	2.70	96.5	75-125				
Barium	115	0.400	"	41.0	74.8	98.6	75-125				
Cadmium	2.45	0.200	"	2.05	0.169	111	75-125				
Copper	32.9	0.400	"	41.0	2.91	73.2	75-125				QM-05
Lead	27.3	0.200	"	20.5	5.41	107	75-125				
Nickel	34.7	0.400	"	41.0	4.31	74.2	75-125				QM-05
Silver	2.16	0.0200	"	2.05	0.0234	104	75-125				
Zinc	45.0	0.400	"	41.0	14.6	74.4	75-125				QM-05
Selenium	4.35	0.260	"	4.10	ND	106	75-125				

**Matrix Spike Dup (BHI0283-MSD1)**

Source: 2409109-01

Prepared: 09/10/24 Analyzed: 09/11/24

Arsenic	38.8	0.200	mg/kg dry	40.4	2.70	89.5	75-125	8.45	25		
Barium	117	0.400	"	40.4	74.8	104	75-125	1.49	25		
Cadmium	2.34	0.200	"	2.02	0.169	107	75-125	4.69	25		
Copper	29.4	0.400	"	40.4	2.91	65.6	75-125	11.3	25		QM-05
Lead	26.2	0.200	"	20.2	5.41	103	75-125	4.34	25		
Nickel	30.9	0.400	"	40.4	4.31	66.0	75-125	11.6	25		QM-05
Silver	2.05	0.0200	"	2.02	0.0234	101	75-125	5.11	25		
Zinc	42.1	0.400	"	40.4	14.6	68.2	75-125	6.78	25		QM-05
Selenium	4.31	0.260	"	4.04	ND	107	75-125	0.942	25		

**Post Spike (BHI0283-PS1)**

Source: 2409109-01

Prepared: 09/10/24 Analyzed: 09/11/24

Arsenic	95.2		ug/l	100	6.47	88.7	75-125				
Barium	288		"	100	180	109	75-125				
Cadmium	5.23		"	5.00	0.406	96.5	75-125				
Copper	70.2		"	100	6.97	63.2	75-125				QM-01
Lead	60.6		"	50.0	13.0	95.3	75-125				
Nickel	73.9		"	100	10.3	63.6	75-125				QM-01
Silver	4.74		"	5.00	0.0562	93.7	75-125				
Zinc	102		"	100	35.0	66.7	75-125				QM-01
Selenium	9.97		"	10.0	0.119	98.5	75-125				

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

Project: Noble - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**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 BHI0287 - 3060A Mod**

**Blank (BHI0287-BLK1)**

Prepared & Analyzed: 09/10/24

Chromium, Hexavalent      ND      0.30 mg/kg wet

**LCS (BHI0287-BS1)**

Prepared & Analyzed: 09/10/24

Chromium, Hexavalent      25.6      0.30 mg/kg wet      25.0      102      80-120

**Duplicate (BHI0287-DUP1)**

**Source: 2409100-01**

Prepared & Analyzed: 09/10/24

Chromium, Hexavalent      ND      0.30 mg/kg dry      ND      20

**Matrix Spike (BHI0287-MS1)**

**Source: 2409100-01**

Prepared & Analyzed: 09/10/24

Chromium, Hexavalent      32.2      0.30 mg/kg dry      30.2      ND      107      75-125

**Matrix Spike Dup (BHI0287-MSD1)**

**Source: 2409100-01**

Prepared & Analyzed: 09/10/24

Chromium, Hexavalent      31.2      0.30 mg/kg dry      30.2      ND      103      75-125      3.24      20

Summit Scientific

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

Project: Noble - Gutterson USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**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 BHI0362 - General Preparation**

**Blank (BHI0362-BLK1)**

Prepared: 09/11/24 Analyzed: 09/12/24

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

**LCS (BHI0362-BS1)**

Prepared: 09/11/24 Analyzed: 09/12/24

Calcium	5.50	0.0500	mg/L wet	5.00	110	70-130
Magnesium	5.42	0.0500	"	5.00	108	70-130
Sodium	5.18	0.0500	"	5.00	104	70-130

Summit Scientific

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

Project: Noble - Gutteresen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**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 BHI0324 - General Preparation**

**Duplicate (BHI0324-DUP1)**

**Source: 2409018-05**

Prepared & Analyzed: 09/11/24

% Solids	83.1		%		83.5			0.484	20	
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Summit Scientific

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

Project: Noble - Gutteresen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

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

**Summit Scientific**

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

**Batch BHI0364 - General Preparation**

**Blank (BHI0364-BLK1)**

Prepared: 09/11/24 Analyzed: 09/12/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BHI0364-BS1)**

Prepared: 09/11/24 Analyzed: 09/12/24

Specific Conductance (EC) 0.153 0.0100 mmhos/cm 0.150 102 95-105

**Duplicate (BHI0364-DUP1)**

Source: 2409107-26

Prepared: 09/11/24 Analyzed: 09/12/24

Specific Conductance (EC) 1.50 0.0100 mmhos/cm 1.50 0.533 20

Summit Scientific

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



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

Project: Noble - Guttersen USX D21-17

Project Number: UWRWE-A4222-AES  
Project Manager: Jacob Whritenour

**Reported:**  
09/16/24 08:28

**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 BHI0363 - General Preparation**

**LCS (BHI0363-BS1)**

Prepared: 09/11/24 Analyzed: 09/12/24

pH	9.17	pH Units	9.18	99.9	95-105
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**Duplicate (BHI0363-DUP1)**

Source: 2409107-26

Prepared: 09/11/24 Analyzed: 09/12/24

pH	8.57	pH Units	8.62	0.582	20
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Summit Scientific

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### Notes and Definitions

- QR-01 Analyses are not controlled on RPD values from sample concentrations below the reporting limit. Sample results were accepted based on LCS and/or LCSD recoveries and/or RPD values.
- QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. Sample results were accepted based on LCS and/or LCSD recoveries and/or RPD values.
- QM-01 The spike recovery for this QC sample is outside of established control limits due to sample matrix interference. Sample results were accepted based on LCS and/or LCSD recoveries and/or RPD values.
- 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