

# Flowline Closure Checklist

## COGCC Rule 911.a.(4) Environmental Site Closure Assessment Field Form

Additional Attachments:		Tank Battery Closure		Wellhead Closure		Pit Closure		Partially Buried Vault Closure
Site Name & COGCC Facility Number: Stroh H 12-03		Date: 5/26/23, 5/30/23, 5/31/23, 6/1/23				Remediation Project #: 27717		
Associated Wells:		Age of Site:				Number of Photos Attached: 20		
Starting point: (GPS coordinates and descriptions) 40.245244/ 104.620229								
End point: (GPS coordinates and descriptions) 40.245656/ 104.613515								
USCS Soil Type: SW					Estimated Depth to Groundwater:> 7ft			
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)  none observed								
Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)  none observed								
<b>Flowlines</b>								
Flowline type	Oil / Gas / Water							
Depth	7 ft							
Age								
Length	1951 ft							
Construction Material	Steel							
Were flowlines pulled?	yes							
Visual Integrity of lines	good							
Visual impacts if trenched	None observed							
PID Readings if trenched	0.0 - 0.4							
Sample taken? Location/Sample ID#	yes, see below							
Photo Number(s)	20							
<p>Other observations regarding on location flowlines:</p> <p>Flowline removal included the removal of previously abandoned Stroh H12-4 in common trench.</p> <p>Samples were taken at the wellhead (FL01-A@4') and at the separator (FL01-B@3.5') as well as along the flowline path (FL01-C@4' - FL01-T@5').</p>								
<b>Summary</b>								
Was impacted soil identified? <b>No</b>								
Total number of samples field screened: 20					Total number of samples collected: 20			
Highest PID Reading: 0.4					Total number of samples submitted to lab for analysis: 4			
If more than 10 cubic yards of impacted soil were observed:								
Vertical extent:					Estimated spill volume:			
Lateral extent:					Volume of soil removed:			
Is additional investigation required?								
Was groundwater encountered during the investigation? <b>No</b>								
Measured depth to groundwater:					Was remedial groundwater removal conducted?			
Date Groundwater was encountered:					Commencement date of removal:			
Sheen on groundwater?					Volume of groundwater removed prior to sampling:			
Free product observed?					Volume of groundwater removed post sampling:			
Total number of samples collected:					Total Volume of groundwater removed:			
Total number of samples submitted to lab for analysis:								

## Photographic Log

																	
Equipment ID: FL01-A@4'			Equipment Type: Flowline			Equipment ID: FL01-C@4'			Equipment Type: Flowline								
Material:			Volume:			Contents:			Material:			Volume:			Contents:		
Notes/Conditions:									Notes/Conditions:								



## Photographic Log

					
<b>Equipment ID:</b> FL01-D@5'		<b>Equipment Type:</b> Flowline		<b>Equipment ID:</b> FL01-E@5'	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>
<b>Notes/Conditions:</b>			<b>Notes/Conditions:</b>		



## Photographic Log

					
<b>Equipment ID:</b> FL01-F@5'		<b>Equipment Type:</b> Flowline		<b>Equipment ID:</b> FL01-G@5'	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>
<b>Notes/Conditions:</b>			<b>Notes/Conditions:</b>		



## Photographic Log

					
<b>Equipment ID:</b> FL01-H@5'		<b>Equipment Type:</b> Flowline		<b>Equipment ID:</b> FL01-I@5'	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>
<b>Notes/Conditions:</b>			<b>Notes/Conditions:</b>		



## Photographic Log

					
<b>Equipment ID:</b> FL01-J@5'		<b>Equipment Type:</b> Flowline		<b>Equipment ID:</b> FL01-K@5'	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>
<b>Notes/Conditions:</b>			<b>Notes/Conditions:</b>		



## Photographic Log



**Equipment ID:** FL01-B@3.5'

**Equipment Type:** Flowline

**Material:**

**Volume:**

**Contents:**

**Notes/Conditions:**



**Equipment ID:** FL01-L@5'

**Equipment Type:** Flowline

**Material:**

**Volume:**

**Contents:**

**Notes/Conditions:**





## Photographic Log

							
<b>Equipment ID:</b> FL01-M@5'		<b>Equipment Type:</b> Flowline		<b>Equipment ID:</b> FL01-N@5'		<b>Equipment Type:</b> Flowline	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>		
<b>Notes/Conditions:</b>			<b>Notes/Conditions:</b>				



## Photographic Log

					
<b>Equipment ID:</b> FL01-O@7'		<b>Equipment Type:</b> Flowline		<b>Equipment ID:</b> FL01-P@5'	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>
<b>Notes/Conditions:</b>			<b>Notes/Conditions:</b>		




## Photographic Log

					
<b>Equipment ID:</b> FL01-Q@5'		<b>Equipment Type:</b> Flowline		<b>Equipment ID:</b> FL01-R@5'	
<b>Equipment Type:</b> Flowline		<b>Equipment ID:</b> FL01-R@5'		<b>Equipment Type:</b> Flowline	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>		<b>Material:</b>	<b>Volume:</b>
<b>Notes/Conditions:</b> Direction change		<b>Notes/Conditions:</b> Third flowline was remnant piece of previously abandoned flowline, this piece was pulled along with the other two flowlines during removal.			



## Photographic Log

																	
Equipment ID: FL01-S@5'			Equipment Type: Flowline			Equipment ID: FL01-T@5'			Equipment Type: Flowline								
Material:			Volume:			Contents:			Material:			Volume:			Contents:		
Notes/Conditions:									Notes/Conditions: Direction change relevant to location of B point								



**TABLE 1**  
**SOIL SAMPLE LOCATIONS**  
**NOBLE ENERGY, INC. - STROH H 12-03**

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude <sup>1</sup>	Longitude	PDOP
FL01-A@4'	05/26/23	0.1	No Staining	No Odor	Lab	40.245656	-104.613556	1.0
FL01-C@4'	05/26/23	0.2	No Staining	No Odor	Grab	40.245644	-104.613885	0.9
FL01-D@5'	05/26/23	0.2	No Staining	No Odor	Grab	40.245667	-104.614188	0.9
FL01-E@5'	05/26/23	0.1	No Staining	No Odor	Grab	40.245656	-104.614535	1.1
FL01-F@5'	05/30/23	0.4	No Staining	No Odor	Grab	40.245675	-104.614863	1.6
FL01-G@5'	05/30/23	0.1	No Staining	No Odor	Grab	40.245679	-104.615150	1.0
FL01-H@5'	05/30/23	0.0	No Staining	No Odor	Grab	40.245678	-104.615502	0.9
FL01-I@5'	05/30/23	0.4	No Staining	No Odor	Grab	40.245679	-104.615808	0.9
FL01-J@5'	05/30/23	0.0	No Staining	No Odor	Grab	40.245673	-104.616147	0.9
FL01-K@5'	05/30/23	0.0	No Staining	No Odor	Grab	40.245675	-104.616460	1.1
FL01-B@3.5'	05/31/23	0.2	No Staining	No Odor	Lab	40.245247	-104.620241	0.9
FL01-L@5'	05/31/23	0.0	No Staining	No Odor	Grab	40.245678	-104.616924	0.9
FL01-M@5'	05/31/23	0.1	No Staining	No Odor	Grab	40.245681	-104.617361	0.9
FL01-N@5'	05/31/23	0.0	No Staining	No Odor	Grab	40.245679	-104.617664	1.0
FL01-O@7'	05/31/23	0.0	No Staining	No Odor	Grab	40.245694	-104.618021	1.0
FL01-P@5'	05/31/23	0.0	No Staining	No Odor	Grab	40.245697	-104.618412	1.0
FL01-Q@5'	05/31/23	0.1	No Staining	No Odor	Lab	40.245702	-104.618787	0.9
FL01-R@5'	06/01/23	0.3	No Staining	No Odor	Grab	40.245499	-104.619068	1.3
FL01-S@5'	06/01/23	0.0	No Staining	No Odor	Grab	40.245304	-104.619352	1.2
FL01-T@5'	06/01/23	0.0	No Staining	No Odor	Lab	40.245177	-104.619667	1.1

Notes:

PID = Photoionization detector

ppm = parts per million

PDOP = Position dilution of precision

HC = Hydrocarbon

1.) Latitude and longitude coordinates will be provided in decimal degrees with an accuracy and precision of 5 decimals of a degree using the North American Datum ("NAD") of 1983



TABLE 2  
SOIL ANALYTICAL DATA  
NOBLE ENERGY, INC. - STROH H 12-03

Soil Sample ID	Date	<sup>1</sup> Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1,2,4 - TMB (mg/kg)	1,3,5 - TMB (mg/kg)	Naphthalene (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-ORO (mg/kg)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL <sup>2</sup>		1.2	490	5.8	58	30	27	2	500			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL <sup>2,3</sup>		0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500			0.55	6	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
FL01-A@4'	05/26/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00616	<0.00500	<0.00500	0.00670	<0.00500	<0.00500
FL01-B@3.5'	05/31/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FL01-Q@5'	05/31/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FL01-T@5'	06/01/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL <sup>2</sup>		6 - 8.3	<6	<4mmhos/cm	2
FL01-A@4'	05/26/23	5.85	0.0475	0.321	0.110
FL01-B@3.5'	05/31/23	7.19	0.0354	0.164	0.139
FL01-Q@5'	05/31/23	7.47	1.42	0.440	0.133
FL01-T@5'	06/01/23	6.74	0.0365	0.0384	0.0713

Notes:

1. Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.

2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.

3. SSLs are applicable if a pathway for communication with groundwater is present.

Definitions:

COGCC = Colorado Oil and Gas Conservation Commission

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

TPH-ORO = Total petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

SAR = Sodium Adsorption Ratio

EC = Electrical Conductivity

mmhos/cm = Millmhos per centimeter

mg/L = Milligrams per liter

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

Highlighted results are equal to or exceed the COGCC Table 915-1 standard

1,2,4 - TMB = 1,2,4 Trimethylbenzene

1,3,5 - TMB = 1,3,5 Trimethylbenzene

Benz(a) = Benzanthracene

Benzo(b) = Benzofluoranthene

Benzo(k) = Benzofluoranthene

Benzo(a) = Benzopyrene

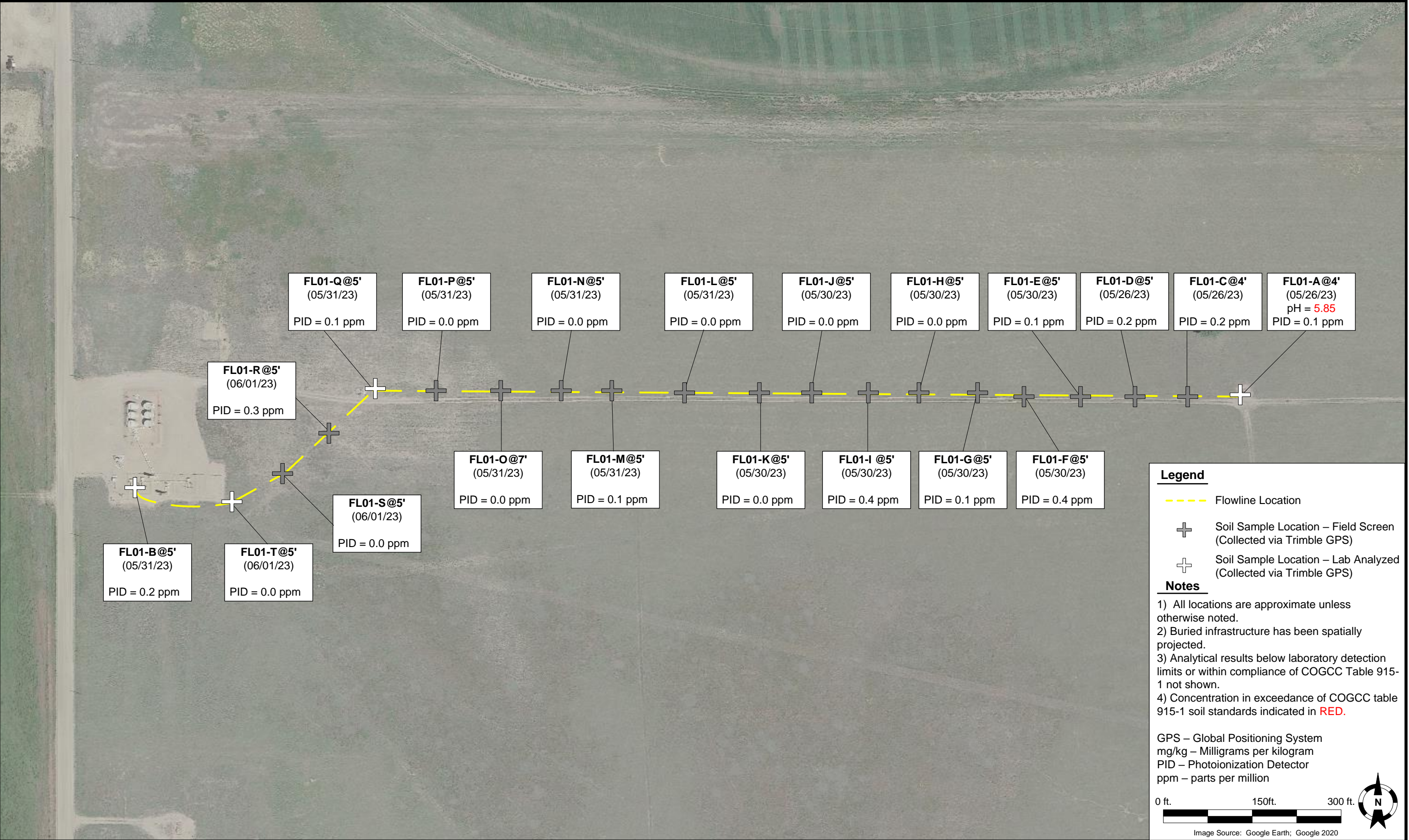
A,H = Dibenzoanthracene

1,2,3-CD = Indenopyrene

1-M = 1-methylnaphthalene

2-M = 2-methylnaphthalene







# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 16, 2023

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Stroh H12-03

Work Order #2305635

Enclosed are the results of analyses for samples received by Summit Scientific on 05/26/23 17:56. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Sheely". The signature is fluid and cursive, with the first name "Scott" and last name "Sheely" clearly distinguishable.

Scott Sheely For Paul Shrewsbury  
President





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

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/16/23 12:16

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-A@4'	2305635-01	Soil	05/26/23 11:12	05/26/23 17:56

#### Case Narrative

Dale Brokaw requested a rerun for sample FL01-A@4' on 6/9 for pH. This report has those results.

Elyse Hossink canceled all analyses for FL01-C@4', FL01-D@5', FL01-E@5' on 5/30.

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.*



Summit Scientific  
S<sub>2</sub>

Page 1 of 1

Project Number: UW RWE - A3080 - ABN

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S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2305635Client: None TruemanClient Project ID: Stroh H12-03Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐Airbill #:                     

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Matrix (Check all that apply)

Air ☐Soil/Solid ☒Water ☐Other ☐

Temp (°C)

98

Thermometer #

1

	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"/>	<u>an 70C</u>
If custody seals are present, are they intact? <sup>(1)</sup>	<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 <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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Samples 2, 3+4 missing</u>
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

5/26/23  
Date/Time





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

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/16/23 12:16

**FL01-A@4'**  
**2305635-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/26/23 11:12**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGE1085	05/31/23	06/01/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/26/23 11:12**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0492	123 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0370	92.5 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0414	104 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/26/23 11:12**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGE1088	05/31/23	06/01/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/26/23 11:12**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	11.5	91.9 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/16/23 12:16

**FL01-A@4'**  
**2305635-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/26/23 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGE1052	05/31/23	06/01/23	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	"	"	"	"	"	"	
<b>Fluoranthene</b>	<b>0.00616</b>	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
<b>Pyrene</b>	<b>0.00670</b>	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/26/23 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0144	43.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0183	54.9 %	40-150		"	"	"	"	

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

Date Sampled: **05/26/23 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.110</b>	0.0100	mg/L	1	BGF0046	06/01/23	06/03/23	EPA 6020B	

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

Date Sampled: **05/26/23 11:12**

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 - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/16/23 12:16

**FL01-A@4'**  
**2305635-01 (Soil)**

**Summit Scientific**

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

Calcium	145	0.0567	mg/L dry	1	BGF0096	06/02/23	06/07/23	EPA 6020B
Magnesium	22.7	0.0567	"	"	"	"	"	"
Sodium	2.33	0.0567	"	"	"	"	"	"

**Calculated Analysis**

Date Sampled: **05/26/23 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0475	0.00100	units	1	BGF0248	06/07/23	06/07/23	Calculation	

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

Date Sampled: **05/26/23 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	88.2		%	1	BGF0067	06/02/23	06/02/23	Calculation	

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

Date Sampled: **05/26/23 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.321	0.0100	mmhos/cm	1	BGF0128	06/05/23	06/06/23	EPA 120.1	

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

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/16/23 12:16

**FL01-A@4'**  
**2305635-01RE1 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/26/23 11:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>pH</b>	<b>5.85</b>			pH Units	1	BGF0583	06/05/23	06/15/23	EPA 9045D	

Summit Scientific

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

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/16/23 12:16

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

#### Batch BGE1085 - EPA 5030 Soil MS

##### Blank (BGE1085-BLK1)

Prepared: 05/31/23 Analyzed: 06/01/23

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	0.0378		"	0.0400		94.5	50-150			
Surrogate: Toluene-d8	0.0381		"	0.0400		95.2	50-150			
Surrogate: 4-Bromofluorobenzene	0.0368		"	0.0400		92.1	50-150			

##### LCS (BGE1085-BS1)

Prepared: 05/31/23 Analyzed: 06/01/23

Benzene	0.0924	0.0020	mg/kg	0.0750		123	70-130			
Toluene	0.0787	0.0050	"	0.0750		105	70-130			
Ethylbenzene	0.0764	0.0050	"	0.0750		102	70-130			
m,p-Xylene	0.150	0.010	"	0.150		100	70-130			
o-Xylene	0.0709	0.0050	"	0.0750		94.5	70-130			
1,2,4-Trimethylbenzene	0.0640	0.0050	"	0.0750		85.3	70-130			
1,3,5-Trimethylbenzene	0.0790	0.0050	"	0.0750		105	70-130			
Naphthalene	0.0583	0.0038	"	0.0750		77.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0497		"	0.0400		124	50-150			
Surrogate: Toluene-d8	0.0381		"	0.0400		95.2	50-150			
Surrogate: 4-Bromofluorobenzene	0.0410		"	0.0400		103	50-150			

##### Matrix Spike (BGE1085-MS1)

Source: 2305633-01

Prepared: 05/31/23 Analyzed: 06/01/23

Benzene	0.0903	0.0020	mg/kg	0.0750	ND	120	70-130			
Toluene	0.0833	0.0050	"	0.0750	ND	111	70-130			
Ethylbenzene	0.0871	0.0050	"	0.0750	ND	116	70-130			
m,p-Xylene	0.172	0.010	"	0.150	ND	114	70-130			
o-Xylene	0.0817	0.0050	"	0.0750	ND	109	70-130			
1,2,4-Trimethylbenzene	0.0731	0.0050	"	0.0750	ND	97.5	70-130			
1,3,5-Trimethylbenzene	0.0900	0.0050	"	0.0750	ND	120	70-130			
Naphthalene	0.0765	0.0038	"	0.0750	ND	102	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0515		"	0.0400		129	50-150			
Surrogate: Toluene-d8	0.0360		"	0.0400		90.0	50-150			
Surrogate: 4-Bromofluorobenzene	0.0402		"	0.0400		101	50-150			

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

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/16/23 12:16

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

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

**Batch BGE1085 - EPA 5030 Soil MS**

Matrix Spike Dup (BGE1085-MSD1)	Source: 2305633-01			Prepared: 05/31/23 Analyzed: 06/01/23						
Benzene	0.0901	0.0020	mg/kg	0.0750	ND	120	70-130	0.266	30	
Toluene	0.0826	0.0050	"	0.0750	ND	110	70-130	0.832	30	
Ethylbenzene	0.0919	0.0050	"	0.0750	ND	123	70-130	5.43	30	
m,p-Xylene	0.181	0.010	"	0.150	ND	120	70-130	5.14	30	
o-Xylene	0.0858	0.0050	"	0.0750	ND	114	70-130	4.91	30	
1,2,4-Trimethylbenzene	0.0778	0.0050	"	0.0750	ND	104	70-130	6.16	30	
1,3,5-Trimethylbenzene	0.0952	0.0050	"	0.0750	ND	127	70-130	5.67	30	
Naphthalene	0.0874	0.0038	"	0.0750	ND	117	70-130	13.4	30	
Surrogate: 1,2-Dichloroethane-d4	0.0547		"	0.0400		137	50-150			
Surrogate: Toluene-d8	0.0352		"	0.0400		88.1	50-150			
Surrogate: 4-Bromofluorobenzene	0.0393		"	0.0400		98.2	50-150			

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

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/16/23 12:16

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch BGE1088 - EPA 3550A**

**Blank (BGE1088-BLK1)**

Prepared & Analyzed: 05/31/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	11.9		"	12.5		95.1	30-150			

**LCS (BGE1088-BS1)**

Prepared & Analyzed: 05/31/23

C10-C28 (DRO)	404	50	mg/kg	500		80.8	70-130			
Surrogate: o-Terphenyl	12.6		"	12.5		101	30-150			

**Matrix Spike (BGE1088-MS1)**

Source: 2305633-01

Prepared & Analyzed: 05/31/23

C10-C28 (DRO)	371	50	mg/kg	500	6.71	72.9	70-130			
Surrogate: o-Terphenyl	11.6		"	12.5		92.8	30-150			

**Matrix Spike Dup (BGE1088-MSD1)**

Source: 2305633-01

Prepared & Analyzed: 05/31/23

C10-C28 (DRO)	397	50	mg/kg	500	6.71	78.0	70-130	6.63	20	
Surrogate: o-Terphenyl	11.9		"	12.5		95.3	30-150			

Summit Scientific

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Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/16/23 12:16

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BGE1052 - EPA 5030 Soil MS

##### Blank (BGE1052-BLK1)

Prepared & Analyzed: 05/31/23

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	0.0239		"	0.0333		71.6	40-150			
Surrogate: Fluoranthene-d10	0.0306		"	0.0333		91.9	40-150			

##### LCS (BGE1052-BS1)

Prepared & Analyzed: 05/31/23

Acenaphthene	0.0284	0.00500	mg/kg	0.0333		85.3	31-137			
Anthracene	0.0272	0.00500	"	0.0333		81.5	30-120			
Benzo (a) anthracene	0.0242	0.00500	"	0.0333		72.5	30-120			
Benzo (a) pyrene	0.0255	0.00500	"	0.0333		76.4	30-120			
Benzo (b) fluoranthene	0.0243	0.00500	"	0.0333		72.8	30-120			
Benzo (k) fluoranthene	0.0271	0.00500	"	0.0333		81.3	30-120			
Chrysene	0.0293	0.00500	"	0.0333		87.8	30-120			
Dibenz (a,h) anthracene	0.0289	0.00500	"	0.0333		86.6	30-120			
Fluoranthene	0.0266	0.00500	"	0.0333		79.7	30-120			
Fluorene	0.0248	0.00500	"	0.0333		74.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0274	0.00500	"	0.0333		82.3	30-120			
Pyrene	0.0283	0.00500	"	0.0333		84.9	35-142			
1-Methylnaphthalene	0.0260	0.00500	"	0.0333		78.0	35-142			
2-Methylnaphthalene	0.0265	0.00500	"	0.0333		79.5	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0249		"	0.0333		74.8	40-150			
Surrogate: Fluoranthene-d10	0.0262		"	0.0333		78.5	40-150			

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/16/23 12:16

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BGE1052 - EPA 5030 Soil MS

##### Matrix Spike (BGE1052-MS1)

Source: 2305608-01

Prepared & Analyzed: 05/31/23

Acenaphthene	0.0148	0.00500	mg/kg	0.0333	ND	44.3	31-137		
Anthracene	0.0192	0.00500	"	0.0333	ND	57.5	30-120		
Benzo (a) anthracene	0.0153	0.00500	"	0.0333	ND	45.9	30-120		
Benzo (a) pyrene	0.0179	0.00500	"	0.0333	ND	53.8	30-120		
Benzo (b) fluoranthene	0.0135	0.00500	"	0.0333	ND	40.5	30-120		
Benzo (k) fluoranthene	0.0148	0.00500	"	0.0333	ND	44.3	30-120		
Chrysene	0.0151	0.00500	"	0.0333	ND	45.2	30-120		
Dibenz (a,h) anthracene	0.0149	0.00500	"	0.0333	ND	44.6	30-120		
Fluoranthene	0.0136	0.00500	"	0.0333	ND	40.9	30-120		
Fluorene	0.0141	0.00500	"	0.0333	ND	42.2	30-120		
Indeno (1,2,3-cd) pyrene	0.0166	0.00500	"	0.0333	ND	49.8	30-120		
Pyrene	0.0153	0.00500	"	0.0333	ND	46.0	35-142		
1-Methylnaphthalene	0.0156	0.00500	"	0.0333	ND	46.8	15-130		
2-Methylnaphthalene	0.0152	0.00500	"	0.0333	ND	45.5	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0155		"	0.0333		46.6	40-150		
Surrogate: Fluoranthene-d10	0.0136		"	0.0333		40.8	40-150		

##### Matrix Spike Dup (BGE1052-MSD1)

Source: 2305608-01

Prepared & Analyzed: 05/31/23

Acenaphthene	0.0142	0.00500	mg/kg	0.0333	ND	42.5	31-137	4.19	30
Anthracene	0.0154	0.00500	"	0.0333	ND	46.2	30-120	21.8	30
Benzo (a) anthracene	0.0144	0.00500	"	0.0333	ND	43.2	30-120	6.17	30
Benzo (a) pyrene	0.0165	0.00500	"	0.0333	ND	49.6	30-120	8.14	30
Benzo (b) fluoranthene	0.0159	0.00500	"	0.0333	ND	47.6	30-120	16.2	30
Benzo (k) fluoranthene	0.0134	0.00500	"	0.0333	ND	40.3	30-120	9.46	30
Chrysene	0.0137	0.00500	"	0.0333	ND	41.0	30-120	9.68	30
Dibenz (a,h) anthracene	0.0176	0.00500	"	0.0333	ND	52.9	30-120	16.9	30
Fluoranthene	0.0183	0.00500	"	0.0333	ND	54.8	30-120	29.1	30
Fluorene	0.0168	0.00500	"	0.0333	ND	50.3	30-120	17.5	30
Indeno (1,2,3-cd) pyrene	0.0162	0.00500	"	0.0333	ND	48.7	30-120	2.21	30
Pyrene	0.0137	0.00500	"	0.0333	ND	41.0	35-142	11.3	30
1-Methylnaphthalene	0.0139	0.00500	"	0.0333	ND	41.7	15-130	11.5	50
2-Methylnaphthalene	0.0155	0.00500	"	0.0333	ND	46.6	15-130	2.42	50
Surrogate: 2-Methylnaphthalene-d10	0.0138		"	0.0333		41.4	40-150		
Surrogate: Fluoranthene-d10	0.0134		"	0.0333		40.2	40-150		

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

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/16/23 12:16

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

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

**Batch BGF0046 - EPA 3050B**

**Blank (BGF0046-BLK1)**

Prepared: 06/01/23 Analyzed: 06/03/23

Boron ND 0.0100 mg/L

**LCS (BGF0046-BS1)**

Prepared: 06/01/23 Analyzed: 06/03/23

Boron 5.31 0.0100 mg/L 5.00 106 80-120

**Duplicate (BGF0046-DUP1)**

**Source: 2305611-01**

Prepared: 06/01/23 Analyzed: 06/03/23

Boron 0.147 0.0100 mg/L 0.159 8.21 20

**Matrix Spike (BGF0046-MS1)**

**Source: 2305611-01**

Prepared: 06/01/23 Analyzed: 06/03/23

Boron 5.46 0.0100 mg/L 5.00 0.159 106 75-125

**Matrix Spike Dup (BGF0046-MSD1)**

**Source: 2305611-01**

Prepared: 06/01/23 Analyzed: 06/03/23

Boron 5.41 0.0100 mg/L 5.00 0.159 105 75-125 0.954 25

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Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/16/23 12:16

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

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

**Batch BGF0096 - General Preparation**

**Blank (BGF0096-BLK1)**

Prepared: 06/02/23 Analyzed: 06/07/23

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

**LCS (BGF0096-BS1)**

Prepared: 06/02/23 Analyzed: 06/07/23

Calcium	5.34	0.0500	mg/L wet	5.00	107	70-130
Magnesium	4.83	0.0500	"	5.00	96.6	70-130
Sodium	4.91	0.0500	"	5.00	98.1	70-130

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/16/23 12:16

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

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

**Batch BGF0067 - General Preparation**

Duplicate (BGF0067-DUP1)		Source: 2305635-01			Prepared & Analyzed: 06/02/23					
% Solids	88.2		%		88.2		0.0892		20	

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/16/23 12:16

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

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

**Batch BGF0128 - General Preparation**

**Blank (BGF0128-BLK1)**

Prepared: 06/05/23 Analyzed: 06/06/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BGF0128-BS1)**

Prepared: 06/05/23 Analyzed: 06/06/23

Specific Conductance (EC) 0.157 0.0100 mmhos/cm 0.150 104 95-105

**Duplicate (BGF0128-DUP1)**

**Source: 2305633-01**

Prepared: 06/05/23 Analyzed: 06/06/23

Specific Conductance (EC) 0.364 0.0100 mmhos/cm 0.393 7.50 20

Summit Scientific

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

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/16/23 12:16

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

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

**Batch BGF0129 - General Preparation**

**LCS (BGF0129-BS1)**

Prepared: 06/05/23 Analyzed: 06/06/23

pH	9.05		pH Units	9.18		98.6	95-105		
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**Duplicate (BGF0129-DUP1)**

**Source: 2305633-01**

Prepared: 06/05/23 Analyzed: 06/06/23

pH	8.25		pH Units	8.22		0.364	20		
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**Batch BGF0583 - General Preparation**

**LCS (BGF0583-BS1)**

Prepared & Analyzed: 06/15/23

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

**Duplicate (BGF0583-DUP1)**

**Source: 2305633-02RE1**

Prepared & Analyzed: 06/15/23

pH	8.53		pH Units	8.49		0.470	20		
----	------	--	----------	------	--	-------	----	--	--

Summit Scientific

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

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/16/23 12:16

### Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80401

303.277.9310

June 15, 2023

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Stroh H12-03

Work Order # 2305701

Enclosed are the results of analyses for samples received by Summit Scientific on 05/31/23 18:11. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Sheely". The signature is fluid and cursive, with the first name "Scott" and last name "Sheely" clearly distinguishable.

Scott Sheely For Paul Shrewsbury

President





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

Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-B@3.5'	2305701-01	Soil	05/31/23 11:05	05/31/23 18:11
FL01-Q@5'	2305701-02	Soil	05/31/23 12:45	05/31/23 18:11

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.*

# Summit Scientific

S<sub>2</sub>

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

2305701

Page 1 of 1

Client: Noble / Tasman Geosciences

Project Manager: Jake Whritenour, Invoice:

Address: 6855 W. 119th Ave.

E-Mail: Jwhritenour@tasman-geo.com

City/State/Zip: Broomfield / CO/ 80020

Phone: 231-292-2576

Project Name: Ston H12-03

Sampler Name: Elyse Hossink

Project Number: UWRWE-A3080-ABN

Jeff White

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions
					HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD	
1	FL01-B@3.5'	5/31/23	1705	2			X			X			X	X	X	X	X		PH, EC, SAR by saturated paste
2	FL01-Q@5'	5/31/23	1245	2			X			X			X	X	X	X	X		
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Relinquished by: <u>Elyse Hossink</u>	Date/Time: <u>5/31/23 1500</u>	Received by: <u>Tasman's Lock Box</u>	Date/Time: <u>5/31/23 1500</u>	<b>Turn Around Time</b> (Check) ___ Same Day ___ 72 hours ___ 24 hours ___ <u>Standard</u> ___ 48 hours ___ <b>Sample Integrity:</b> Temperature Upon Receipt: <u>10.8</u> Samples Intact: <u>Yes</u> No	<b>Notes:</b>
Relinquished by: <u>Tasman's Lock Box</u>	Date/Time: <u>5/31/23 1811</u>	Received by: <u>[Signature]</u>	Date/Time: <u>5/31/23 1811</u>		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2305701Client: Noble HermanClient Project ID: Stroh H12-03Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other

Airbill #: \_\_\_\_\_

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

Matrix (Check all that apply)

Air

☐

Soil/Solid

☒

Water

☐

Other

☐

Temp (°C)

10.8

Thermometer #

1

	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"/>	
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.

Custodian Printed Name

Date/Time

AS

5/31/23

12





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

Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

**FL01-B@3.5'**  
**2305701-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/31/23 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF0139	06/05/23	06/06/23	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **05/31/23 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		132 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		87.9 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/31/23 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF0141	06/05/23	06/06/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **05/31/23 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		96.9 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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

Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

**FL01-B@3.5'**  
**2305701-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/31/23 11:05**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGF0065	06/02/23	06/03/23	EPA 8270D SIM	
Anthracene	ND	0.00500		"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500		"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500		"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500		"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500		"	"	"	"	"	"	
Chrysene	ND	0.00500		"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500		"	"	"	"	"	"	
Fluoranthene	ND	0.00500		"	"	"	"	"	"	
Fluorene	ND	0.00500		"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500		"	"	"	"	"	"	
Pyrene	ND	0.00500		"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500		"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500		"	"	"	"	"	"	

Date Sampled: **05/31/23 11:05**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		61.7 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		42.8 %		40-150		"	"	"	"	

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

Date Sampled: **05/31/23 11:05**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.139</b>	0.0100		mg/L	1	BGF0173	06/06/23	06/14/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/31/23 11:05**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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

Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

**FL01-B@3.5'**  
**2305701-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	0.653	0.225		mg/kg dry	1	BGF0164	06/06/23	06/09/23	EPA 6020B
Barium	47.7	0.449		"	"	"	"	"	"
Cadmium	0.407	0.225		"	"	"	"	"	"
Copper	1.55	0.449		"	"	"	"	"	"
Lead	4.15	0.225		"	"	"	"	"	"
Nickel	1.52	0.449		"	"	"	"	"	"
Selenium	ND	0.292	0.196	"	"	"	"	"	"
Silver	ND	0.0225		"	"	"	"	"	"
Zinc	6.48	0.449		"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/31/23 11:05**

Analyte	Result	Reporting		MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit									
Chromium, Hexavalent	ND	0.30			mg/kg dry	1	BGF0297	06/08/23	06/08/23	EPA 7196A	

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

Date Sampled: **05/31/23 11:05**

Analyte	Result	Reporting		MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit									
Calcium	230	0.0561			mg/L dry	1	BGF0230	06/07/23	06/09/23	EPA 6020B	
Magnesium	38.4	0.0561			"	"	"	"	"	"	
Sodium	2.20	0.0561			"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/31/23 11:05**

Analyte	Result	Reporting		MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit									
Sodium Adsorption Ratio	0.0354	0.00100			units	1	BGF0381	06/09/23	06/09/23	Calculation	

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

Summit Scientific

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

Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

**FL01-B@3.5'**  
**2305701-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/31/23 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	89.1			%	1	BGF0162	06/06/23	06/06/23	Calculation	

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

Date Sampled: **05/31/23 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	0.164	0.0100		mmhos/cm	1	BGF0309	06/08/23	06/08/23	EPA 120.1	

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

Date Sampled: **05/31/23 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.19			pH Units	1	BGF0310	06/08/23	06/08/23	EPA 9045D	

Summit Scientific

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

Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

**FL01-Q@5'**  
**2305701-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/31/23 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGF0139	06/05/23	06/06/23	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **05/31/23 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		134 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		89.8 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/31/23 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGF0141	06/05/23	06/06/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **05/31/23 12:45**

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

**PAH by EPA Method 8270D SIM**

Summit Scientific

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

Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

**FL01-Q@5'**  
**2305701-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/31/23 12:45**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGF0065	06/02/23	06/03/23	EPA 8270D SIM	
Anthracene	ND	0.00500		"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500		"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500		"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500		"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500		"	"	"	"	"	"	
Chrysene	ND	0.00500		"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500		"	"	"	"	"	"	
Fluoranthene	ND	0.00500		"	"	"	"	"	"	
Fluorene	ND	0.00500		"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500		"	"	"	"	"	"	
Pyrene	ND	0.00500		"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500		"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500		"	"	"	"	"	"	

Date Sampled: **05/31/23 12:45**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		59.2 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		43.9 %		40-150		"	"	"	"	

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

Date Sampled: **05/31/23 12:45**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.133</b>	0.0100		mg/L	1	BGF0173	06/06/23	06/14/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/31/23 12:45**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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

Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

**FL01-Q@5'**  
**2305701-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	0.455	0.211	mg/kg dry	1	BGF0164	06/06/23	06/09/23	EPA 6020B
Barium	41.7	0.423	"	"	"	"	"	"
Cadmium	ND	0.211	"	"	"	"	"	"
Copper	1.02	0.423	"	"	"	"	"	"
Lead	3.33	0.211	"	"	"	"	"	"
Nickel	1.13	0.423	"	"	"	"	"	"
Selenium	ND	0.275	0.185	"	"	"	"	"
Silver	ND	0.0211	"	"	"	"	"	"
Zinc	4.80	0.423	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/31/23 12:45**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGF0297	06/08/23	06/08/23	EPA 7196A	

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

Date Sampled: **05/31/23 12:45**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	23.4	0.0529		mg/L dry	1	BGF0230	06/07/23	06/09/23	EPA 6020B	
Magnesium	5.47	0.0529		"	"	"	"	"	"	
Sodium	29.4	0.0529		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/31/23 12:45**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.42	0.00100		units	1	BGF0381	06/09/23	06/09/23	Calculation	

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

Summit Scientific

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

Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

**FL01-Q@5'**  
**2305701-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/31/23 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	94.6			%	1	BGF0162	06/06/23	06/06/23	Calculation	

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

Date Sampled: **05/31/23 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	0.440	0.0100		mmhos/cm	1	BGF0309	06/08/23	06/08/23	EPA 120.1	

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

Date Sampled: **05/31/23 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.47			pH Units	1	BGF0310	06/08/23	06/08/23	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

#### Batch BGF0139 - EPA 5030 Soil MS

##### Blank (BGF0139-BLK1)

Prepared & Analyzed: 06/05/23

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	0.0548		"	0.0400		137	50-150			
Surrogate: Toluene-d8	0.0371		"	0.0400		92.7	50-150			
Surrogate: 4-Bromofluorobenzene	0.0434		"	0.0400		108	50-150			

##### LCS (BGF0139-BS1)

Prepared & Analyzed: 06/05/23

Benzene	0.0964	0.0020	mg/kg	0.0750		129	70-130			
Toluene	0.0799	0.0050	"	0.0750		107	70-130			
Ethylbenzene	0.0803	0.0050	"	0.0750		107	70-130			
m,p-Xylene	0.142	0.010	"	0.150		94.6	70-130			
o-Xylene	0.0695	0.0050	"	0.0750		92.7	70-130			
1,2,4-Trimethylbenzene	0.0624	0.0050	"	0.0750		83.2	70-130			
1,3,5-Trimethylbenzene	0.0775	0.0050	"	0.0750		103	70-130			
Naphthalene	0.0601	0.0038	"	0.0750		80.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0510		"	0.0400		128	50-150			
Surrogate: Toluene-d8	0.0383		"	0.0400		95.8	50-150			
Surrogate: 4-Bromofluorobenzene	0.0451		"	0.0400		113	50-150			

##### Matrix Spike (BGF0139-MS1)

Source: 2305699-01

Prepared & Analyzed: 06/05/23

Benzene	0.0721	0.0020	mg/kg	0.0750	ND	96.1	70-130			
Toluene	0.0840	0.0050	"	0.0750	ND	112	70-130			
Ethylbenzene	0.0896	0.0050	"	0.0750	ND	119	70-130			
m,p-Xylene	0.159	0.010	"	0.150	ND	106	70-130			
o-Xylene	0.0775	0.0050	"	0.0750	ND	103	70-130			
1,2,4-Trimethylbenzene	0.0712	0.0050	"	0.0750	ND	95.0	70-130			
1,3,5-Trimethylbenzene	0.0876	0.0050	"	0.0750	ND	117	70-130			
Naphthalene	0.0739	0.0038	"	0.0750	ND	98.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0517		"	0.0400		129	50-150			
Surrogate: Toluene-d8	0.0374		"	0.0400		93.4	50-150			
Surrogate: 4-Bromofluorobenzene	0.0440		"	0.0400		110	50-150			

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

#### Batch BGF0139 - EPA 5030 Soil MS

Matrix Spike Dup (BGF0139-MSD1)	Source: 2305699-01			Prepared & Analyzed: 06/05/23						
Benzene	0.0774	0.0020	mg/kg	0.0750	ND	103	70-130	7.18	30	
Toluene	0.0874	0.0050	"	0.0750	ND	117	70-130	3.92	30	
Ethylbenzene	0.0938	0.0050	"	0.0750	ND	125	70-130	4.61	30	
m,p-Xylene	0.166	0.010	"	0.150	ND	111	70-130	4.25	30	
o-Xylene	0.0812	0.0050	"	0.0750	ND	108	70-130	4.76	30	
1,2,4-Trimethylbenzene	0.0733	0.0050	"	0.0750	ND	97.8	70-130	2.91	30	
1,3,5-Trimethylbenzene	0.0906	0.0050	"	0.0750	ND	121	70-130	3.37	30	
Naphthalene	0.0797	0.0038	"	0.0750	ND	106	70-130	7.50	30	
Surrogate: 1,2-Dichloroethane-d4	0.0522		"	0.0400		130	50-150			
Surrogate: Toluene-d8	0.0376		"	0.0400		94.0	50-150			
Surrogate: 4-Bromofluorobenzene	0.0423		"	0.0400		106	50-150			

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Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch BGF0141 - EPA 3550A**

**Blank (BGF0141-BLK1)**

Prepared & Analyzed: 06/05/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	11.6		"	12.5		92.5	30-150			

**LCS (BGF0141-BS1)**

Prepared & Analyzed: 06/05/23

C10-C28 (DRO)	524	50	mg/kg	500		105	70-130			
Surrogate: o-Terphenyl	12.0		"	12.5		96.3	30-150			

**Matrix Spike (BGF0141-MS1)**

Source: 2305699-01

Prepared & Analyzed: 06/05/23

C10-C28 (DRO)	481	50	mg/kg	500	16.8	92.9	70-130			
Surrogate: o-Terphenyl	11.5		"	12.5		92.2	30-150			

**Matrix Spike Dup (BGF0141-MSD1)**

Source: 2305699-01

Prepared & Analyzed: 06/05/23

C10-C28 (DRO)	440	50	mg/kg	500	16.8	84.6	70-130	9.03	20	
Surrogate: o-Terphenyl	11.6		"	12.5		92.6	30-150			

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Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BGF0065 - EPA 5030 Soil MS

##### Blank (BGF0065-BLK1)

Prepared: 06/02/23 Analyzed: 06/03/23

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	0.0355		"	0.0333		106	40-150			
Surrogate: Fluoranthene-d10	0.0322		"	0.0333		96.7	40-150			

##### LCS (BGF0065-BS1)

Prepared: 06/02/23 Analyzed: 06/03/23

Acenaphthene	0.0199	0.00500	mg/kg	0.0333		59.7	31-137			
Anthracene	0.0376	0.00500	"	0.0333		113	30-120			
Benzo (a) anthracene	0.0327	0.00500	"	0.0333		98.1	30-120			
Benzo (a) pyrene	0.0316	0.00500	"	0.0333		94.7	30-120			
Benzo (b) fluoranthene	0.0307	0.00500	"	0.0333		92.0	30-120			
Benzo (k) fluoranthene	0.0361	0.00500	"	0.0333		108	30-120			
Chrysene	0.0385	0.00500	"	0.0333		115	30-120			
Dibenz (a,h) anthracene	0.0387	0.00500	"	0.0333		116	30-120			
Fluoranthene	0.0327	0.00500	"	0.0333		98.0	30-120			
Fluorene	0.0387	0.00500	"	0.0333		116	30-120			
Indeno (1,2,3-cd) pyrene	0.0390	0.00500	"	0.0333		117	30-120			
Pyrene	0.0333	0.00500	"	0.0333		100	35-142			
1-Methylnaphthalene	0.0352	0.00500	"	0.0333		106	35-142			
2-Methylnaphthalene	0.0380	0.00500	"	0.0333		114	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0373		"	0.0333		112	40-150			
Surrogate: Fluoranthene-d10	0.0334		"	0.0333		100	40-150			

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Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BGF0065 - EPA 5030 Soil MS

##### Matrix Spike (BGF0065-MS1)

Source: 2305670-01

Prepared: 06/02/23 Analyzed: 06/03/23

Acenaphthene	0.0140	0.00500	mg/kg	0.0333	ND	42.1	31-137		
Anthracene	0.0172	0.00500	"	0.0333	ND	51.7	30-120		
Benzo (a) anthracene	0.0164	0.00500	"	0.0333	ND	49.1	30-120		
Benzo (a) pyrene	0.0160	0.00500	"	0.0333	ND	48.1	30-120		
Benzo (b) fluoranthene	0.0169	0.00500	"	0.0333	ND	50.8	30-120		
Benzo (k) fluoranthene	0.0202	0.00500	"	0.0333	ND	60.7	30-120		
Chrysene	0.0179	0.00500	"	0.0333	ND	53.7	30-120		
Dibenz (a,h) anthracene	0.0333	0.00500	"	0.0333	ND	99.8	30-120		
Fluoranthene	0.0141	0.00500	"	0.0333	ND	42.4	30-120		
Fluorene	0.0187	0.00500	"	0.0333	ND	56.0	30-120		
Indeno (1,2,3-cd) pyrene	0.0351	0.00500	"	0.0333	ND	105	30-120		
Pyrene	0.0325	0.00500	"	0.0333	ND	97.6	35-142		
1-Methylnaphthalene	0.0181	0.00500	"	0.0333	ND	54.4	15-130		
2-Methylnaphthalene	0.0188	0.00500	"	0.0333	ND	56.4	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0186		"	0.0333		55.7	40-150		
Surrogate: Fluoranthene-d10	0.0141		"	0.0333		42.4	40-150		

##### Matrix Spike Dup (BGF0065-MSD1)

Source: 2305670-01

Prepared: 06/02/23 Analyzed: 06/03/23

Acenaphthene	0.0164	0.00500	mg/kg	0.0333	ND	49.3	31-137	15.6	30
Anthracene	0.0167	0.00500	"	0.0333	ND	50.2	30-120	2.89	30
Benzo (a) anthracene	0.0159	0.00500	"	0.0333	ND	47.8	30-120	2.69	30
Benzo (a) pyrene	0.0167	0.00500	"	0.0333	ND	50.2	30-120	4.33	30
Benzo (b) fluoranthene	0.0155	0.00500	"	0.0333	ND	46.4	30-120	8.90	30
Benzo (k) fluoranthene	0.0214	0.00500	"	0.0333	ND	64.1	30-120	5.37	30
Chrysene	0.0181	0.00500	"	0.0333	ND	54.4	30-120	1.36	30
Dibenz (a,h) anthracene	0.0367	0.00500	"	0.0333	ND	110	30-120	9.73	30
Fluoranthene	0.0136	0.00500	"	0.0333	ND	40.7	30-120	4.13	30
Fluorene	0.0182	0.00500	"	0.0333	ND	54.5	30-120	2.58	30
Indeno (1,2,3-cd) pyrene	0.0352	0.00500	"	0.0333	ND	106	30-120	0.274	30
Pyrene	0.0330	0.00500	"	0.0333	ND	99.0	35-142	1.37	30
1-Methylnaphthalene	0.0184	0.00500	"	0.0333	ND	55.2	15-130	1.42	50
2-Methylnaphthalene	0.0190	0.00500	"	0.0333	ND	56.9	15-130	0.874	50
Surrogate: 2-Methylnaphthalene-d10	0.0180		"	0.0333		54.0	40-150		
Surrogate: Fluoranthene-d10	0.0143		"	0.0333		42.8	40-150		

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

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

#### Summit Scientific

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

#### Batch BGF0173 - EPA 3050B

##### Blank (BGF0173-BLK1)

Prepared: 06/06/23 Analyzed: 06/14/23

Boron ND 0.0100 mg/L

##### LCS (BGF0173-BS1)

Prepared: 06/06/23 Analyzed: 06/14/23

Boron 6.74 0.0100 mg/L 7.50 89.9 80-120

##### Duplicate (BGF0173-DUP1)

Source: 2305700-01

Prepared: 06/06/23 Analyzed: 06/14/23

Boron 0.142 0.0100 mg/L 0.153 7.75 20

##### Matrix Spike (BGF0173-MS1)

Source: 2305700-01

Prepared: 06/06/23 Analyzed: 06/14/23

Boron 7.08 0.0100 mg/L 7.50 0.153 92.4 75-125

##### Matrix Spike Dup (BGF0173-MSD1)

Source: 2305700-01

Prepared: 06/06/23 Analyzed: 06/14/23

Boron 6.98 0.0100 mg/L 7.50 0.153 91.0 75-125 1.54 25

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**Reported:**  
06/15/23 11:44

## Total Metals by EPA 6020B - Quality Control

### Summit Scientific

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

#### Batch BGF0164 - EPA 3050B

##### Blank (BGF0164-BLK1)

Prepared: 06/06/23 Analyzed: 06/09/23

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	"
Selenium	ND	0.260	"
Silver	ND	0.0200	"
Zinc	ND	0.400	"

##### LCS (BGF0164-BS1)

Prepared: 06/06/23 Analyzed: 06/09/23

Arsenic	37.9	0.200	mg/kg wet	40.0	94.8	80-120
Barium	42.1	0.400	"	40.0	105	80-120
Cadmium	2.10	0.200	"	2.00	105	80-120
Copper	38.3	0.400	"	40.0	95.8	80-120
Lead	21.2	0.200	"	20.0	106	80-120
Nickel	37.8	0.400	"	40.0	94.4	80-120
Selenium	3.66	0.260	"	4.00	91.5	80-120
Silver	2.10	0.0200	"	2.00	105	80-120
Zinc	37.7	0.400	"	40.0	94.3	80-120

##### Duplicate (BGF0164-DUP1)

Source: 2305700-01

Prepared: 06/06/23 Analyzed: 06/09/23

Arsenic	0.473	0.227	mg/kg dry	0.507	7.04	20	QR-03
Barium	30.8	0.454	"	38.6	22.4	20	
Cadmium	0.0689	0.227	"	0.0744	7.59	20	
Copper	1.18	0.454	"	1.30	9.60	20	
Lead	2.91	0.227	"	3.55	19.8	20	
Nickel	0.953	0.454	"	1.06	10.5	20	
Selenium	ND	0.295	"	ND		20	
Silver	0.00907	0.0227	"	0.0109	18.2	20	
Zinc	4.12	0.454	"	4.60	11.0	20	

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Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

### Total Metals by EPA 6020B - Quality Control

#### Summit Scientific

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

#### Batch BGF0164 - EPA 3050B

Matrix Spike (BGF0164-MS1)		Source: 2305700-01			Prepared: 06/06/23 Analyzed: 06/09/23					
Arsenic	17.6	0.227	mg/kg dry	45.4	0.507	37.8	75-125			QM-05
Barium	105	0.454	"	45.4	38.6	147	75-125			QM-05
Cadmium	2.53	0.227	"	2.27	0.0744	108	75-125			
Copper	19.4	0.454	"	45.4	1.30	39.8	75-125			QM-05
Lead	27.7	0.227	"	22.7	3.55	107	75-125			
Nickel	19.2	0.454	"	45.4	1.06	40.1	75-125			QM-05
Selenium	4.09	0.295	"	4.54	ND	90.3	75-125			
Silver	2.30	0.0227	"	2.27	0.0109	101	75-125			
Zinc	24.5	0.454	"	45.4	4.60	43.8	75-125			QM-05

Matrix Spike Dup (BGF0164-MSD1)		Source: 2305700-01			Prepared: 06/06/23 Analyzed: 06/09/23					
Arsenic	18.0	0.227	mg/kg dry	45.4	0.507	38.6	75-125	1.99	25	QM-05
Barium	84.1	0.454	"	45.4	38.6	100	75-125	22.5	25	
Cadmium	2.30	0.227	"	2.27	0.0744	98.0	75-125	9.53	25	
Copper	19.3	0.454	"	45.4	1.30	39.6	75-125	0.495	25	QM-05
Lead	24.8	0.227	"	22.7	3.55	93.7	75-125	11.2	25	
Nickel	18.9	0.454	"	45.4	1.06	39.3	75-125	1.77	25	QM-05
Selenium	3.78	0.295	"	4.54	ND	83.3	75-125	8.00	25	
Silver	2.19	0.0227	"	2.27	0.0109	96.1	75-125	4.83	25	
Zinc	22.7	0.454	"	45.4	4.60	40.0	75-125	7.30	25	QM-05

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Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

**Hexavalent Chromium by EPA Method 7196 - Quality Control**  
**Summit Scientific**

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

**Batch BGF0297 - 3060A Mod**

**Blank (BGF0297-BLK1)**

Prepared & Analyzed: 06/08/23

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BGF0297-BS1)**

Prepared & Analyzed: 06/08/23

Chromium, Hexavalent 21.4 0.30 mg/kg wet 25.0 85.4 80-120

**Duplicate (BGF0297-DUP1)**

**Source: 2305701-01**

Prepared & Analyzed: 06/08/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BGF0297-MS1)**

**Source: 2305701-01**

Prepared & Analyzed: 06/08/23

Chromium, Hexavalent 24.3 0.30 mg/kg dry 28.1 ND 86.6 75-125

**Matrix Spike Dup (BGF0297-MSD1)**

**Source: 2305701-01**

Prepared & Analyzed: 06/08/23

Chromium, Hexavalent 25.5 0.30 mg/kg dry 28.1 ND 91.0 75-125 4.95 20

Summit Scientific

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

Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

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

### Summit Scientific

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

#### Batch BGF0230 - General Preparation

##### Blank (BGF0230-BLK1)

Prepared: 06/07/23 Analyzed: 06/09/23

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

##### LCS (BGF0230-BS1)

Prepared: 06/07/23 Analyzed: 06/09/23

Calcium	5.10	0.0500	mg/L wet	5.00	102	70-130
Magnesium	5.01	0.0500	"	5.00	100	70-130
Sodium	4.95	0.0500	"	5.00	98.9	70-130

Summit Scientific

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

Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

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

#### Summit Scientific

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

#### Batch BGF0162 - General Preparation

**Duplicate (BGF0162-DUP1)**

**Source: 2305701-01**

Prepared & Analyzed: 06/06/23

% Solids	89.8	%	89.1	0.871	20
----------	------	---	------	-------	----

Summit Scientific

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

Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

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

#### Summit Scientific

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

#### Batch BGF0309 - General Preparation

##### Blank (BGF0309-BLK1)

Prepared & Analyzed: 06/08/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

##### LCS (BGF0309-BS1)

Prepared & Analyzed: 06/08/23

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

##### Duplicate (BGF0309-DUP1)

Source: 2305690-01

Prepared & Analyzed: 06/08/23

Specific Conductance (EC) 0.331 0.0100 mmhos/cm 0.338 2.09 20

Summit Scientific

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

Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

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

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

**Batch BGF0310 - General Preparation**

**LCS (BGF0310-BS1)**

Prepared & Analyzed: 06/08/23

pH	9.03	pH Units	9.18	98.4	95-105
----	------	----------	------	------	--------

**Duplicate (BGF0310-DUP1)**

Source: 2305690-01

Prepared & Analyzed: 06/08/23

pH	7.83	pH Units	7.78	0.641	20
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Summit Scientific

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

Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/15/23 11:44

### Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
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

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 13, 2023

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

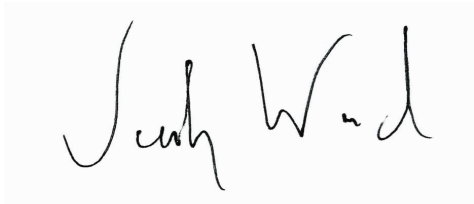
Broomfield, CO 80020

RE: Noble - Stroh H12-03

Work Order #2306022

Enclosed are the results of analyses for samples received by Summit Scientific on 06/01/23 18:09. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Jacob Wood For Paul Shrewsbury

President





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

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/13/23 09:42

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-T@5'	2306022-01	Soil	06/01/23 10:30	06/01/23 18:09

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.*

2306022

# Summit Scientific

S<sub>2</sub>

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 1 of 1

Client: Noble / Tasman Geosciences

Project Manager: Jake Whritenour, Invoice:

Address: 6855 W. 119th Ave.

E-Mail: Jwhritenour@tasman-geo.com

City/State/Zip: Broomfield / CO/ 80020

Phone: 231-292-2576

Project Name: *Strom H12-03*

Sampler Name: Elyse Hossink

Project Number: *UWRWE - A3080-ABN*

					Preservative				Matrix				Analysis Requested								Special Instructions		
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other _____	Water	Soil	Air-Canister #	Other _____		VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD			pH, EC, SAR by saturated paste	
1	FLØ1 - T@ 5'	6/1/23	1030	2			X			X				X	X	X	X	X					
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time (Check)	Notes:
<i>Elyse Hossink</i>	<i>6/1/23 1500</i>	<b>Tasman's Lock Box</b>	<i>6/1/23 1500</i>	<input type="checkbox"/> Same Day <input type="checkbox"/> 24 hours <input type="checkbox"/> 48 hours	
Relinquished by:	Date/Time:	Received by:	Date/Time:	<input type="checkbox"/> 72 hours <input checked="" type="checkbox"/> Standard	
<b>Tasman's Lock Box</b>	<i>6/23 1809</i>	<i>[Signature]</i>	<i>6/23 1809</i>	<b>Sample Integrity:</b> Temperature Upon Receipt: <i>10.0</i> Samples Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2308022Client: Noble GasmanClient Project ID: Stroh H12-03Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other

Airbill #: \_\_\_\_\_

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

Matrix (Check all that apply)

Air

☐

Soil/Solid

☒

Water

☐

Other

☐

Temp (°C)

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

6/1/23  
Date/Time



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

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/13/23 09:42

**FL01-T@5'**  
**2306022-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/01/23 10:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BGF0181	06/06/23	06/07/23	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: **06/01/23 10:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0402	101 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0395	98.8 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0374	93.5 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/01/23 10:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BGF0187	06/06/23	06/07/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **06/01/23 10:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	12.6	101 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/13/23 09:42

**FL01-T@5'**  
**2306022-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **06/01/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGF0167	06/06/23	06/07/23	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: **06/01/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0180	54.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0189	56.6 %	40-150		"	"	"	"	

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

Date Sampled: **06/01/23 10:30**

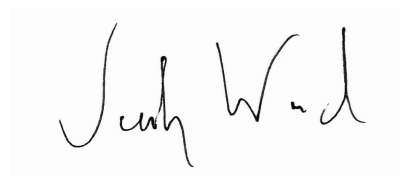
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.0713</b>	0.0100	mg/L	1	BGF0229	06/07/23	06/10/23	EPA 6020B	

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

Date Sampled: **06/01/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific



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

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/13/23 09:42

**FL01-T@5'**  
**2306022-01 (Soil)**

**Summit Scientific**

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

Calcium	43.0	0.0515	mg/L dry	1	BGF0234	06/07/23	06/10/23	EPA 6020B
Magnesium	15.7	0.0515	"	"	"	"	"	"
Sodium	1.10	0.0515	"	"	"	"	"	"

**Calculated Analysis**

Date Sampled: **06/01/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0365	0.00100	units	1	BGF0429	06/12/23	06/12/23	Calculation	

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

Date Sampled: **06/01/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	97.2		%	1	BGF0224	06/07/23	06/07/23	Calculation	

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

Date Sampled: **06/01/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0384	0.0100	mmhos/cm	1	BGF0283	06/08/23	06/08/23	EPA 120.1	

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

Date Sampled: **06/01/23 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.74		pH Units	1	BGF0284	06/08/23	06/08/23	EPA 9045D	

Summit Scientific

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

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/13/23 09:42

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

#### Batch BGF0181 - EPA 5030 Soil MS

##### Blank (BGF0181-BLK1)

Prepared: 06/06/23 Analyzed: 06/07/23

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	0.0356		"	0.0400		88.9	50-150			
Surrogate: Toluene-d8	0.0387		"	0.0400		96.8	50-150			
Surrogate: 4-Bromofluorobenzene	0.0383		"	0.0400		95.8	50-150			

##### LCS (BGF0181-BS1)

Prepared: 06/06/23 Analyzed: 06/07/23

Benzene	0.171	0.0020	mg/kg	0.150		114	70-130			
Toluene	0.154	0.0050	"	0.150		103	70-130			
Ethylbenzene	0.157	0.0050	"	0.150		104	70-130			
m,p-Xylene	0.309	0.010	"	0.300		103	70-130			
o-Xylene	0.165	0.0050	"	0.150		110	70-130			
1,2,4-Trimethylbenzene	0.162	0.0050	"	0.150		108	70-130			
1,3,5-Trimethylbenzene	0.159	0.0050	"	0.150		106	70-130			
Naphthalene	0.151	0.0038	"	0.150		101	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0409		"	0.0400		102	50-150			
Surrogate: Toluene-d8	0.0398		"	0.0400		99.6	50-150			
Surrogate: 4-Bromofluorobenzene	0.0412		"	0.0400		103	50-150			

##### Matrix Spike (BGF0181-MS1)

Source: 2305703-01

Prepared: 06/06/23 Analyzed: 06/07/23

Benzene	0.171	0.0020	mg/kg	0.150	ND	114	70-130			
Toluene	0.156	0.0050	"	0.150	ND	104	70-130			
Ethylbenzene	0.154	0.0050	"	0.150	ND	102	70-130			
m,p-Xylene	0.305	0.010	"	0.300	ND	102	70-130			
o-Xylene	0.164	0.0050	"	0.150	ND	109	70-130			
1,2,4-Trimethylbenzene	0.158	0.0050	"	0.150	ND	106	70-130			
1,3,5-Trimethylbenzene	0.155	0.0050	"	0.150	ND	103	70-130			
Naphthalene	0.157	0.0038	"	0.150	ND	104	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0398		"	0.0400		99.6	50-150			
Surrogate: Toluene-d8	0.0401		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.5	50-150			

Summit Scientific

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

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/13/23 09:42

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

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

**Batch BGF0181 - EPA 5030 Soil MS**

Matrix Spike Dup (BGF0181-MSD1)	Source: 2305703-01			Prepared: 06/06/23 Analyzed: 06/07/23						
Benzene	0.165	0.0020	mg/kg	0.150	ND	110	70-130	4.02	30	
Toluene	0.150	0.0050	"	0.150	ND	100	70-130	3.69	30	
Ethylbenzene	0.156	0.0050	"	0.150	ND	104	70-130	1.59	30	
m,p-Xylene	0.308	0.010	"	0.300	ND	103	70-130	1.10	30	
o-Xylene	0.162	0.0050	"	0.150	ND	108	70-130	1.25	30	
1,2,4-Trimethylbenzene	0.157	0.0050	"	0.150	ND	104	70-130	1.12	30	
1,3,5-Trimethylbenzene	0.156	0.0050	"	0.150	ND	104	70-130	1.00	30	
Naphthalene	0.156	0.0038	"	0.150	ND	104	70-130	0.576	30	
Surrogate: 1,2-Dichloroethane-d4	0.0397		"	0.0400		99.2	50-150			
Surrogate: Toluene-d8	0.0393		"	0.0400		98.2	50-150			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	50-150			

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

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/13/23 09:42

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch BGF0187 - EPA 3550A**

**Blank (BGF0187-BLK1)**

Prepared & Analyzed: 06/06/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	14.2		"	12.5	113	30-150				

**LCS (BGF0187-BS1)**

Prepared & Analyzed: 06/06/23

C10-C28 (DRO)	407	50	mg/kg	500	81.5	70-130				
Surrogate: o-Terphenyl	12.7		"	12.5	102	30-150				

**Matrix Spike (BGF0187-MS1)**

Source: 2305703-01

Prepared & Analyzed: 06/06/23

C10-C28 (DRO)	403	50	mg/kg	500	10.3	78.6	70-130			
Surrogate: o-Terphenyl	12.6		"	12.5	101	30-150				

**Matrix Spike Dup (BGF0187-MSD1)**

Source: 2305703-01

Prepared & Analyzed: 06/06/23

C10-C28 (DRO)	438	50	mg/kg	500	10.3	85.5	70-130	8.23	20	
Surrogate: o-Terphenyl	13.3		"	12.5	107	30-150				

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Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/13/23 09:42

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BGF0167 - EPA 5030 Soil MS

##### Blank (BGF0167-BLK1)

Prepared & Analyzed: 06/06/23

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	0.0198		"	0.0333		59.5	40-150			
Surrogate: Fluoranthene-d10	0.0224		"	0.0333		67.1	40-150			

##### LCS (BGF0167-BS1)

Prepared & Analyzed: 06/06/23

Acenaphthene	0.0276	0.00500	mg/kg	0.0333		82.7	31-137			
Anthracene	0.0269	0.00500	"	0.0333		80.7	30-120			
Benzo (a) anthracene	0.0244	0.00500	"	0.0333		73.3	30-120			
Benzo (a) pyrene	0.0246	0.00500	"	0.0333		73.9	30-120			
Benzo (b) fluoranthene	0.0292	0.00500	"	0.0333		87.5	30-120			
Benzo (k) fluoranthene	0.0289	0.00500	"	0.0333		86.8	30-120			
Chrysene	0.0273	0.00500	"	0.0333		81.8	30-120			
Dibenz (a,h) anthracene	0.0241	0.00500	"	0.0333		72.3	30-120			
Fluoranthene	0.0268	0.00500	"	0.0333		80.5	30-120			
Fluorene	0.0281	0.00500	"	0.0333		84.2	30-120			
Indeno (1,2,3-cd) pyrene	0.0339	0.00500	"	0.0333		102	30-120			
Pyrene	0.0285	0.00500	"	0.0333		85.4	35-142			
1-Methylnaphthalene	0.0155	0.00500	"	0.0333		46.6	35-142			
2-Methylnaphthalene	0.0394	0.00500	"	0.0333		118	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0325		"	0.0333		97.5	40-150			
Surrogate: Fluoranthene-d10	0.0282		"	0.0333		84.6	40-150			

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Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/13/23 09:42

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BGF0167 - EPA 5030 Soil MS

##### Matrix Spike (BGF0167-MS1)

Source: 2305703-03

Prepared & Analyzed: 06/06/23

Acenaphthene	0.0179	0.00500	mg/kg	0.0333	ND	53.6	31-137		
Anthracene	0.0133	0.00500	"	0.0333	ND	40.0	30-120		
Benzo (a) anthracene	0.0114	0.00500	"	0.0333	ND	34.3	30-120		
Benzo (a) pyrene	0.0184	0.00500	"	0.0333	ND	55.1	30-120		
Benzo (b) fluoranthene	0.0120	0.00500	"	0.0333	ND	36.1	30-120		
Benzo (k) fluoranthene	0.0112	0.00500	"	0.0333	ND	33.6	30-120		
Chrysene	0.0138	0.00500	"	0.0333	ND	41.3	30-120		
Dibenz (a,h) anthracene	0.0187	0.00500	"	0.0333	ND	56.2	30-120		
Fluoranthene	0.0165	0.00500	"	0.0333	ND	49.5	30-120		
Fluorene	0.0169	0.00500	"	0.0333	ND	50.6	30-120		
Indeno (1,2,3-cd) pyrene	0.0183	0.00500	"	0.0333	ND	55.0	30-120		
Pyrene	0.0170	0.00500	"	0.0333	ND	50.9	35-142		
1-Methylnaphthalene	0.0209	0.00500	"	0.0333	ND	62.8	15-130		
2-Methylnaphthalene	0.0153	0.00500	"	0.0333	ND	46.0	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0158		"	0.0333		47.3	40-150		
Surrogate: Fluoranthene-d10	0.0142		"	0.0333		42.7	40-150		

##### Matrix Spike Dup (BGF0167-MSD1)

Source: 2305703-03

Prepared & Analyzed: 06/06/23

Acenaphthene	0.0211	0.00500	mg/kg	0.0333	ND	63.2	31-137	16.4	30
Anthracene	0.0168	0.00500	"	0.0333	ND	50.5	30-120	23.2	30
Benzo (a) anthracene	0.0141	0.00500	"	0.0333	ND	42.2	30-120	20.5	30
Benzo (a) pyrene	0.0188	0.00500	"	0.0333	ND	56.4	30-120	2.32	30
Benzo (b) fluoranthene	0.0161	0.00500	"	0.0333	ND	48.2	30-120	28.6	30
Benzo (k) fluoranthene	0.0142	0.00500	"	0.0333	ND	42.6	30-120	23.5	30
Chrysene	0.0173	0.00500	"	0.0333	ND	51.9	30-120	22.8	30
Dibenz (a,h) anthracene	0.0141	0.00500	"	0.0333	ND	42.3	30-120	28.4	30
Fluoranthene	0.0141	0.00500	"	0.0333	ND	42.4	30-120	15.5	30
Fluorene	0.0215	0.00500	"	0.0333	ND	64.5	30-120	24.1	30
Indeno (1,2,3-cd) pyrene	0.0177	0.00500	"	0.0333	ND	53.1	30-120	3.47	30
Pyrene	0.0218	0.00500	"	0.0333	ND	65.4	35-142	25.0	30
1-Methylnaphthalene	0.0204	0.00500	"	0.0333	ND	61.1	15-130	2.73	50
2-Methylnaphthalene	0.0140	0.00500	"	0.0333	ND	42.1	15-130	8.87	50
Surrogate: 2-Methylnaphthalene-d10	0.0140		"	0.0333		41.9	40-150		
Surrogate: Fluoranthene-d10	0.0193		"	0.0333		58.0	40-150		

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

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/13/23 09:42

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

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

**Batch BGF0229 - EPA 3050B**

**Blank (BGF0229-BLK1)**

Prepared: 06/07/23 Analyzed: 06/10/23

Boron ND 0.0100 mg/L

**LCS (BGF0229-BS1)**

Prepared: 06/07/23 Analyzed: 06/10/23

Boron 4.84 0.0100 mg/L 5.00 96.8 80-120

**Duplicate (BGF0229-DUP1)**

Source: 2306022-01

Prepared: 06/07/23 Analyzed: 06/10/23

Boron 0.0593 0.0100 mg/L 0.0713 18.4 20

**Matrix Spike (BGF0229-MS1)**

Source: 2306022-01

Prepared: 06/07/23 Analyzed: 06/10/23

Boron 3.92 0.0100 mg/L 5.00 0.0713 77.1 75-125

**Matrix Spike Dup (BGF0229-MSD1)**

Source: 2306022-01

Prepared: 06/07/23 Analyzed: 06/10/23

Boron 4.00 0.0100 mg/L 5.00 0.0713 78.6 75-125 1.91 25

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Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/13/23 09:42

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

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

**Batch BGF0234 - General Preparation**

**Blank (BGF0234-BLK1)**

Prepared: 06/07/23 Analyzed: 06/10/23

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

**LCS (BGF0234-BS1)**

Prepared: 06/07/23 Analyzed: 06/10/23

Calcium	4.68	0.0500	mg/L wet	5.00	93.6	70-130
Magnesium	4.91	0.0500	"	5.00	98.3	70-130
Sodium	4.63	0.0500	"	5.00	92.5	70-130

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Broomfield CO, 80020

Project: Noble - Stroh H12-03

Project Number: UWRWE-A3080-ABN

Project Manager: Jacob Whritenour

**Reported:**

06/13/23 09:42

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

**Summit Scientific**

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

**Batch BGF0224 - General Preparation**

Duplicate (BGF0224-DUP1)		Source: 2306022-01		Prepared & Analyzed: 06/07/23	
% Solids	96.7		%	97.2	0.452 20

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/13/23 09:42

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

**Summit Scientific**

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

**Batch BGF0283 - General Preparation**

**Blank (BGF0283-BLK1)**

Prepared & Analyzed: 06/08/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BGF0283-BS1)**

Prepared & Analyzed: 06/08/23

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

**Duplicate (BGF0283-DUP1)**

**Source: 2305709-01**

Prepared & Analyzed: 06/08/23

Specific Conductance (EC) 0.900 0.0100 mmhos/cm 0.900 0.00 20

Summit Scientific

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/13/23 09:42

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

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

**Batch BGF0284 - General Preparation**

**LCS (BGF0284-BS1)**

Prepared & Analyzed: 06/08/23

pH	9.08	pH Units	9.18	98.9	95-105
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**Duplicate (BGF0284-DUP1)**

Source: 2305709-01

Prepared & Analyzed: 06/08/23

pH	7.26	pH Units	7.26	0.00	20
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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Stroh H12-03  
Project Number: UWRWE-A3080-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/13/23 09:42

### Notes and Definitions

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