

Tank Battery Closure Checklist

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

Additional attachments (optional):		Pit Closure		Wellhead Closure		Flowline Closure		Partially Buried Vault Closure
Site Name & COGCC Facility Number: Stroh D07-31 ID# 310770		Date: 10/05/2023				Remediation Project #: 30666		
Associated Wells:		Age of Site:				Number of Photos Attached: 19		
Location: (GPS coordinates of southeaster berm) 40.242309 / -104.608378						Estimated Facility Size (acres):		

General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)

Site in good condition, no corrosion or debris observed.

USCS Soil Type: SW	Estimated Depth to Groundwater: >5'
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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

Tanks

Tank Contents	Produced water	Crude oil					
Size (barrels)							
Age							
Construction	Concrete	Steel					
Tank type	PBV	AST					
Visual Integrity	Good condition	Good condition					
Condition of tank	Good condition	Good condition					
PID Readings	NA	NA					
Soil impacts present at valves or hatches?	None observed	None observed					
PID Readings	1.0 - 8.9	0.7, 1.0, 2.7					
Sample taken? Location/ Sample ID#	Yes, see below	Yes, see below					
Photo Number(s)	4 -12	1 - 3					

Other observations regarding tanks:

Six sidewall samples (SS01-SS06@2.5') as well as three base samples (FS01-FS03@5') were taken from the PBV excavation for three PBVs on site.

Samples were also taken from below the base of three ASTs on site (AST01-AST03@0.5').

Separators





Separator size								
Vertical or	Horizontal	Horizontal						
Age								
Soil impacts	None observed	None observed						
PID Readings	1.7, 3.7	1.1						
Sample taken? Location/ Sample ID#	Yes, see below	Yes, see below						
Photo Number(s)	17, 18	19						

Other observations regarding separators:



Samples were taken at the flowline and dumphline ends of two separators on site (SEP01-DL@4', SEP01-FL@4', SEP02-DL@4').

Third Party Equipment									
Type									
Age									
Third Party									
Removal Date									
Sample taken?									
PID Readings									
Photo Number(s)									
Other Facility Equipment									
Equipment type	Emission Control Device								
Equipment	Flare		Meter House						
Age									
Soil impacts	None observed		None observed						
PID Readings	0.2, 0.3, 0.6		0.5						
Sample taken?	Yes, see below		Yes, see below						
Photo Number(s)	13 - 15		16						
Other observations regarding other facility or third party equipment: Samples were taken below the base of all three flares on site (Flare01- Flare03@0.5'). A sample was also taken at the Meter House (MH01@0.5').									
Summary									
Was impacted soil identified?									
No									
Total number of samples field screened: 19					Total number of samples collected: 10				
Highest PID Reading: 8.9					Total number of samples submitted to lab for analysis: 10				
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?									
No									
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: AST01 @0.5'		Equipment Type: Above Ground Storage Tank			
Material: Steel	Volume:	Contents: Crude Oil			
Notes/Conditions: Facing West					
					
Equipment ID: AST02 @0.5'		Equipment Type: Above Ground Storage Tank			
Material: Steel	Volume:	Contents: Crude Oil			
Notes/Conditions: Facing West					



Photographic Log

							
Equipment ID: AST03@2.5'		Equipment Type: Above Ground Storage Tank		Equipment ID: SS01@2.5'		Equipment Type: Partially Buried Vault	
Material: Steel		Volume:		Material: Concrete		Volume:	
Contents: Crude Oil				Contents: Produced Water			
Notes/Conditions: Facing South				Notes/Conditions: Facing North			



Photographic Log

											
Equipment ID: SS02@2.5'		Equipment Type: Partially Buried Vault		Equipment ID: SS03@2.5'		Equipment Type: Partially Buried Vault					
Material: Concrete		Volume:		Contents: Produced Water		Material: Concrete		Volume:		Contents: Produced Water	
Notes/Conditions: Facing East						Notes/Conditions: Facing East					



Photographic Log

											
Equipment ID: SS04@2.5'		Equipment Type: Partially Buried Vault		Equipment ID: SS05@2.5'		Equipment Type: Partially Buried Vault					
Material: Concrete		Volume:		Contents: Produced Water		Material: Concrete		Volume:		Contents: Produced Water	
Notes/Conditions: Facing South						Notes/Conditions: Facing West					

Photographic Log

					
Equipment ID: SS06@2.5'		Equipment Type: Partially Buried Vault		Equipment ID: FS01@5'	
Material: Concrete	Volume:	Contents: Produced Water	Material: Concrete	Volume:	Contents: Produced Water
Notes/Conditions: Facing West			Notes/Conditions: Facing North		

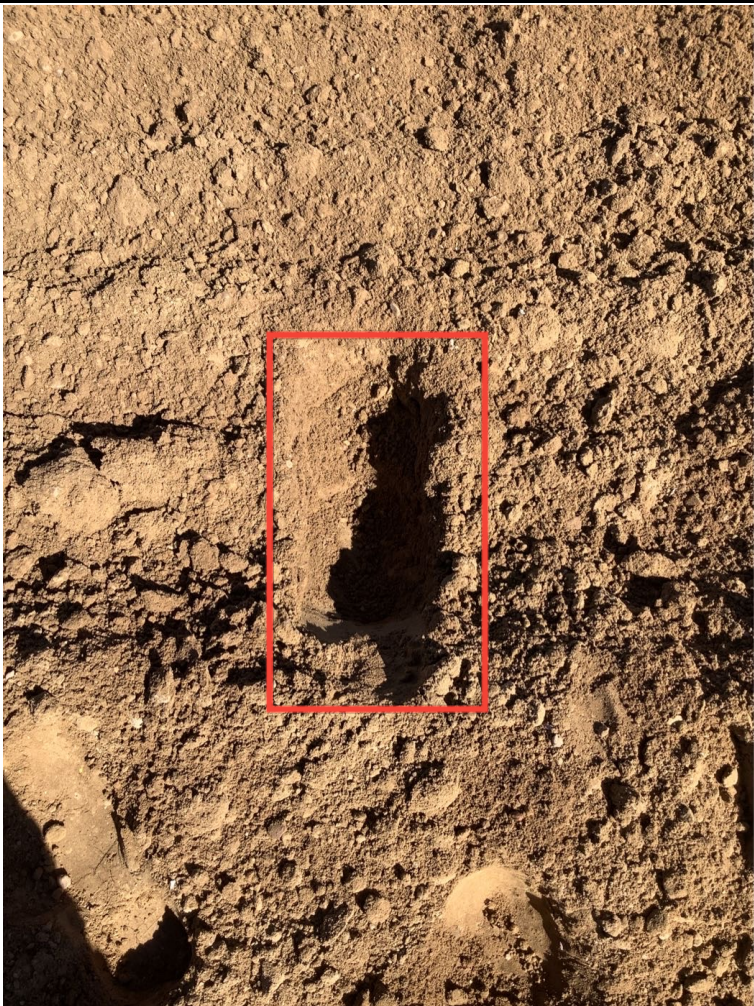

Photographic Log

							
Equipment ID: FS02@5'		Equipment Type: Partially Buried Vault		Equipment ID: FS03@5'		Equipment Type: Partially Buried Vault	
Material: Concrete		Volume:		Material: Concrete		Volume:	
		Contents: Produced Water				Contents: Produced Water	
Notes/Conditions: Facing North				Notes/Conditions: Facing South			



Photographic Log

							
Equipment ID: Flare01 @0.5'		Equipment Type: Flare		Equipment ID: Flare02 @0.5'		Equipment Type: Flare	
Material: Steel		Volume:		Contents: Oil/Gas/Water		Material: Steel	
Volume:		Contents:		Volume:		Contents: Oil/Gas/Water	
Notes/Conditions: Facing South				Notes/Conditions: Facing East			

Photographic Log

					
Equipment ID: Flare03@0.5'		Equipment Type: Flare		Equipment ID: MH01@0.5'	
Equipment Type: Meter House		Material: Steel	Volume:	Contents: Oil/Gas/Water	
Material: Steel			Volume:	Contents:	
Notes/Conditions: Facing North			Notes/Conditions: Facing East		

Photographic Log

							
Equipment ID: SEP01-DL@4'		Equipment Type: Dump Line		Equipment ID: SEP01-FL@4'		Equipment Type: Flowline	
Material: Steel		Volume:		Material: Steel		Volume:	
Notes/Conditions: Facing South		Contents: Production Fluids		Notes/Conditions: Facing East		Contents: Oil/Gas/Water	

Photographic Log


									
						Equipment ID: SEP02-DL@4'		Equipment Type: Dump Line	
						Material: Steel	Volume:	Contents: Production Fluids	
						Notes/Conditions: Facing South			
Equipment ID:		Equipment Type:							
Material:	Volume:	Contents:							
Notes/Conditions:									

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. - STROH D07-31

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude ¹	Longitude	PDOP
AST01@0.5'	10/05/23	0.7	No Staining	No Odor	Lab	40.242094	-104.608295	0.7
AST02@0.5'	10/05/23	1.0	No Staining	No Odor	Lab	40.242061	-104.608289	0.7
AST03@0.5'	10/05/23	2.7	No Staining	No Odor	Lab	40.242033	-104.608288	0.7
Flare01@0.5'	10/05/23	0.6	No Staining	No Odor	Grab	40.242374	-104.608422	1.1
Flare02@0.5'	10/05/23	0.2	No Staining	No Odor	Grab	40.242373	-104.608337	1.1
Flare03@0.5'	10/05/23	0.3	No Staining	No Odor	Grab	40.242371	-104.608272	1.0
FS01@5'	10/05/23	2.7	No Staining	No Odor	Lab	40.242086	-104.608363	0.8
FS02@5'	10/05/23	1.0	No Staining	No Odor	Lab	40.242057	-104.608360	0.9
FS03@5'	10/05/23	1.6	No Staining	No Odor	Lab	40.242026	-104.608353	1.0
MH01@0.5'	10/05/23	0.5	No Staining	No Odor	Grab	40.242238	-104.608266	1.0
SEP01-DL@4'	10/05/23	1.7	No Staining	No Odor	Lab	40.242249	-104.608401	0.7
SEP01-FL@4'	10/05/23	3.7	No Staining	No Odor	Lab	40.242314	-104.608425	0.9
SEP02-DL@4'	10/05/23	1.1	No Staining	No Odor	Lab	40.242277	-104.608326	0.9
SS01@2.5'	10/05/23	3.7	No Staining	No Odor	Grab	40.242127	-104.608363	1.0
SS02@2.5'	10/05/23	5.0	No Staining	No Odor	Grab	40.242080	-104.608324	1.0
SS03@2.5'	10/05/23	8.9	No Staining	No Odor	Lab	40.242038	-104.608317	1.0
SS04@2.5'	10/05/23	1.7	No Staining	No Odor	Grab	40.241994	-104.608347	0.8
SS05@2.5'	10/05/23	2.8	No Staining	No Odor	Grab	40.242031	-104.608384	0.9
SS06@2.5'	10/05/23	3.1	No Staining	No Odor	Grab	40.242075	-104.608391	0.9

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 D07-31

Soil Sample ID	Date	¹ 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 ^{1,2}		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 ^{1,2,3}		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
AST01@0.5'	10/05/23	<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
AST02@0.5'	10/05/23	<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
AST03@0.5'	10/05/23	<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
FS01@5'	10/05/23	<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
FS02@5'	10/05/23	<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
FS03@5'	10/05/23	<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
SEP01-DL@4'	10/05/23	<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
SEP01-FL@4'	10/05/23	<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
SEP02-DL@4'	10/05/23	<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
SS03@0.5'	10/05/23	<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)
SSR ^{1,2}		6 - 8.3	<6	<4mmhos/cm	2
AST01@0.5'	10/05/23	7.44	0.181	0.151	<2.00
AST02@0.5'	10/05/23	7.63	1.25	0.257	<2.00
AST03@0.5'	10/05/23	7.66	0.181	0.144	<2.00
FS01@5'	10/05/23	8.26	0.322	0.163	<2.00
FS02@5'	10/05/23	8.55	0.710	0.207	<2.00
FS03@5'	10/05/23	8.50	0.512	0.176	<2.00
SEP01-DL@4'	10/05/23	8.08	0.224	0.317	<2.00
SEP01-FL@4'	10/05/23	8.07	0.103	0.202	<2.00
SEP02-DL@4'	10/05/23	8.17	0.136	0.291	<2.00
SS03@0.5'	10/05/23	7.90	0.254	0.161	<2.00

Sample ID	Date Sampled	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
Residential SSL ^{1,2}		0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL ^{1,2,3}		0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
AST01@0.5'	10/05/23	0.791	48.6	<0.200	<0.30	1.30	5.14	1.65	<0.260	0.0224	6.48
AST02@0.5'	10/05/23	0.923	33.1	<0.200	<0.30	1.71	3.14	2.06	<0.260	<0.0200	7.10
AST03@0.5'	10/05/23	0.638	15.2	<0.200	<0.30	1.36	2.11	1.39	<0.260	<0.0200	5.76
FS01@5'	10/05/23	1.16	60.5	<0.200	<0.30	2.05	4.72	2.84	<0.260	0.0264	8.25
FS02@5'	10/05/23	0.904	78.2	<0.200	<0.30	2.55	4.74	3.25	<0.260	0.0320	9.44
FS03@5'	10/05/23	1.33	75.1	<0.200	<0.30	2.29	4.91	3.13	<0.260	0.0287	9.02
SEP01-DL@4'	10/05/23	1.03	48.4	<0.200	<0.30	1.95	3.98	2.33	<0.260	<0.0200	7.62
SEP01-FL@4'	10/05/23	0.838	39.7	<0.200	<0.30	1.93	3.51	2.35	<0.260	<0.0200	7.84
SEP02-DL@4'	10/05/23	0.970	33.5	<0.200	<0.30	1.83	2.87	2.08	<0.260	<0.0200	6.29
SS03@2.5'	10/05/23	0.702	29.0	<0.200	<0.30	1.54	3.04	1.71	<0.260	<0.0200	6.52

Notes:

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

2. Soil Screening Levels (SSL) and Soil Suitability for Reclamation (SSR) standards 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:

ECMC = Energy and Carbon Management 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 ECMC Table 915-1 standard

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

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

Benz(a) = Benzo(a)anthracene

Benzo(b) = Benzo(b)fluoranthene

Benzo(k) = Benzo(k)fluoranthene

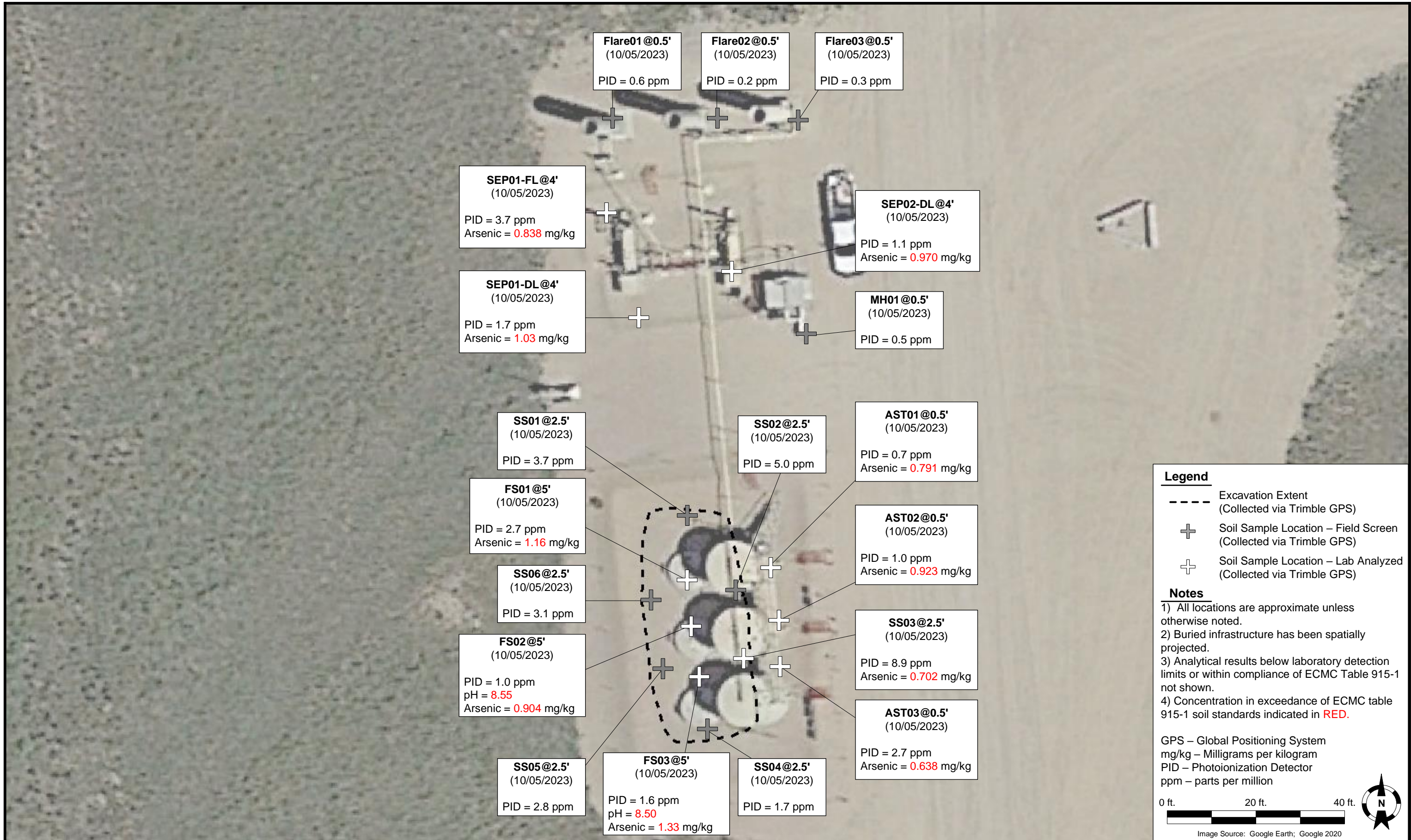
Benzo(a) = Benzo(a)pyrene

A,H = Dibenzo(a,h)anthracene

1,2,3-CD = Indeno(1,2,3-cd)pyrene

1-M = 1-methylnaphthalene

2-M = 2-methylnaphthalene



Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 31, 2023

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Stroh D07-31

Work Order #2310106

Enclosed are the results of analyses for samples received by Summit Scientific on 10/05/23 17:45. 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 D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AST01@0.5'	2310106-01	Soil	10/05/23 10:41	10/05/23 17:45
AST02@0.5'	2310106-02	Soil	10/05/23 10:43	10/05/23 17:45
AST03@0.5'	2310106-03	Soil	10/05/23 10:44	10/05/23 17:45
SS03@2.5'	2310106-06	Soil	10/05/23 10:16	10/05/23 17:45
FS01@5'	2310106-10	Soil	10/05/23 10:22	10/05/23 17:45
FS02@5'	2310106-11	Soil	10/05/23 10:23	10/05/23 17:45
FS03@5'	2310106-12	Soil	10/05/23 10:23	10/05/23 17:45
SEP01-DL@4'	2310106-13	Soil	10/05/23 10:55	10/05/23 17:45
SEP01-FL@4'	2310106-14	Soil	10/05/23 10:58	10/05/23 17:45
SEP02-DL@4'	2310106-15	Soil	10/05/23 10:59	10/05/23 17:45

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.


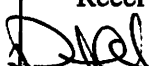
SUMMIT SCIENTIFIC

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

Lab ID	Page 1 of 1
2310106	

Client: Noble / Tasman		Send Data To: Project Manager: Jake Whritenour		Send Invoice To: Company: Chevron	
Address: 6855 W. 119th Ave		E-Mail: Jwhritenour@tasman-geo.com		Project Name/Location: Stroh D07-31	
City/State/Zip: Broomfield, CO 80020				AFE#: UWRWE-A2597-ABN	
Phone: 303-903-5168		Project Name: Stroh D07-31		PO/Billing Codes:	
Sampler Name: Dalton Hagen		Project Number:		Contact: Miguel Barron	

					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	pH,EC,SAR	Boron - HWS	Metals - 915	HOLD		
1	AST01e0.5'	10/5/23	1041	3			X			X			X	X	X	X	X	X			pH, EC, SAR by saturated paste
2	AST02e0.5'		1043																		
3	AST03e0.5'		1044																		
4	SS01e2.5'		1014																X		
5	SS02e2.5'		1015																X		
6	SS03e2.5'		1016										X	X	X	X	X	X			
7	SS04e2.5'		1018																X		
8	SS05e2.5'		1019																X		
9	SS06e2.5'		1020																X		
10	FS01e5'		1022										X	X	X	X	X	X			
11	FS02e5'		1023																		
12	FS03e5'		1023																		
13	SEP01-DLe4'		1055																		
14	SEP01-FLe4'		1058																		
15	SEP02-DLe4'		1059																		

Relinquished by:  Date/Time: 10/5/23 1500	Received by: Tasman Lockbox Date/Time: 10/5/23 1500	TAT Business Days	Field DO	Notes:
		Same Day	Field EC	
Relinquished by: Tasman Lockbox Date/Time: 10/5/23 1745	Received by:  Date/Time: 10/5/23 1745	1 Day	Field ORP	
		2 Days	Field pH	
Relinquished by:	Received by:	3 Days	Field Temp.	
		Standard	Field Turb.	
Temperature Upon Receipt: 11.7	Corrected Temperature 8	IR gun #: 1	HNO3 lot #:	

S₂

Sample Receipt Checklist

S2 Work Order# 2310106Client: Wade Asman Client Project ID: Arch D07-31Shipped 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"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 11.7 Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ON ICE
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Some sample names + times did not match
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

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

Custodian Printed Name

Date/Time

AS

10/5/23



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

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

AST01@0.5'
2310106-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/05/23 10:41**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGJ0255	10/06/23	10/07/23	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: **10/05/23 10:41**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0357	89.2 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0401	100 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0368	92.1 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/05/23 10:41**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGJ0261	10/06/23	10/07/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **10/05/23 10:41**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	9.50	76.0 %		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 D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

AST01@0.5'
2310106-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/05/23 10:41**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0375	10/10/23	10/10/23	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: **10/05/23 10:41**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0247	74.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0243	73.0 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/05/23 10:41**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGJ0454	10/11/23	10/12/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **10/05/23 10:41**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

AST01@0.5'
2310106-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.791	0.200	mg/kg dry	1	BGJ0517	10/12/23	10/13/23	EPA 6020B
Barium	48.6	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	1.30	0.400	"	"	"	"	"	"
Lead	5.14	0.200	"	"	"	"	"	"
Nickel	1.65	0.400	"	"	"	"	"	"
Silver	0.0224	0.0200	"	"	"	"	"	"
Zinc	6.48	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/05/23 10:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ0351	10/09/23	10/10/23	EPA 7196A	

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

Date Sampled: **10/05/23 10:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	131	0.0500	mg/L dry	1	BGJ0465	10/11/23	10/12/23	EPA 6020B	
Magnesium	23.9	0.0500	"	"	"	"	"	"	
Sodium	8.57	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/05/23 10:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.181	0.00100	units	1	BGJ0586	10/13/23	10/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Summit Scientific

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Tasman Geosciences
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Broomfield CO, 80020

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

AST01@0.5'
2310106-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/05/23 10:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	92.8		%	1	BGJ0482	10/11/23	10/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/05/23 10:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.151	0.0100	mmhos/cm	1	BGJ0500	10/12/23	10/12/23	EPA 120.1	

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

Date Sampled: **10/05/23 10:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.44		pH Units	1	BGJ0502	10/12/23	10/12/23	EPA 9045D	

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

AST02@0.5'
2310106-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/05/23 10:43**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGJ0255	10/06/23	10/07/23	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: **10/05/23 10:43**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0457	114 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0410	103 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0427	107 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/05/23 10:43**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGJ0261	10/06/23	10/07/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/05/23 10:43**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	9.72	77.7 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

AST02@0.5'
2310106-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/05/23 10:43**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0375	10/10/23	10/10/23	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: **10/05/23 10:43**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0248	74.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0242	72.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/05/23 10:43**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGJ0454	10/11/23	10/12/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **10/05/23 10:43**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

AST02@0.5'
2310106-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.923	0.200	mg/kg dry	1	BGJ0517	10/12/23	10/13/23	EPA 6020B
Barium	33.1	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	1.71	0.400	"	"	"	"	"	"
Lead	3.14	0.200	"	"	"	"	"	"
Nickel	2.06	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	7.10	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/05/23 10:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ0351	10/09/23	10/10/23	EPA 7196A	

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

Date Sampled: **10/05/23 10:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	159	0.0500	mg/L dry	1	BGJ0465	10/11/23	10/12/23	EPA 6020B	
Magnesium	28.8	0.0500	"	"	"	"	"	"	
Sodium	65.4	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/05/23 10:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.25	0.00100	units	1	BGJ0586	10/13/23	10/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Summit Scientific

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Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

AST02@0.5'
2310106-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/05/23 10:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.4		%	1	BGJ0482	10/11/23	10/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/05/23 10:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.257	0.0100	mmhos/cm	1	BGJ0500	10/12/23	10/12/23	EPA 120.1	

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

Date Sampled: **10/05/23 10:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.63		pH Units	1	BGJ0502	10/12/23	10/12/23	EPA 9045D	

Summit Scientific

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Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

AST03@0.5'
2310106-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/05/23 10:44**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGJ0255	10/06/23	10/07/23	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: **10/05/23 10:44**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0384	96.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0406	101 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0406	101 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/05/23 10:44**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGJ0261	10/06/23	10/07/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/05/23 10:44**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	9.43	75.4 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Reported:
10/31/23 16:47

AST03@0.5'
2310106-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/05/23 10:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0375	10/10/23	10/10/23	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: **10/05/23 10:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0174	52.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0174	52.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/05/23 10:44**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ0454	10/11/23	10/12/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **10/05/23 10:44**

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 D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

AST03@0.5'
2310106-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.638	0.200	mg/kg dry	1	BGJ0517	10/12/23	10/13/23	EPA 6020B
Barium	15.2	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	1.36	0.400	"	"	"	"	"	"
Lead	2.11	0.200	"	"	"	"	"	"
Nickel	1.39	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	5.76	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/05/23 10:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ0351	10/09/23	10/10/23	EPA 7196A	

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

Date Sampled: **10/05/23 10:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	100	0.0500	mg/L dry	1	BGJ0465	10/11/23	10/12/23	EPA 6020B	
Magnesium	18.4	0.0500	"	"	"	"	"	"	
Sodium	7.49	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/05/23 10:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.181	0.00100	units	1	BGJ0586	10/13/23	10/13/23	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 D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

AST03@0.5'
2310106-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/05/23 10:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.5		%	1	BGJ0482	10/11/23	10/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/05/23 10:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.144	0.0100	mmhos/cm	1	BGJ0500	10/12/23	10/12/23	EPA 120.1	

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

Date Sampled: **10/05/23 10:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.66		pH Units	1	BGJ0502	10/12/23	10/12/23	EPA 9045D	

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

SS03@2.5'
2310106-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/05/23 10:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGJ0255	10/06/23	10/07/23	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: **10/05/23 10:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0365	91.2 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0412	103 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0397	99.2 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/05/23 10:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGJ0261	10/06/23	10/07/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/05/23 10:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	11.4	90.9 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

SS03@2.5'
2310106-06 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/05/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0375	10/10/23	10/11/23	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: **10/05/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0198	59.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0204	61.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/05/23 10:16**

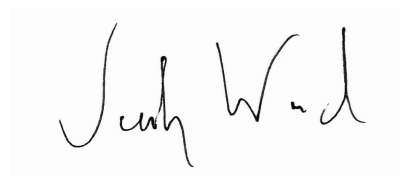
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ0454	10/11/23	10/12/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **10/05/23 10:16**

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 D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

SS03@2.5'
2310106-06 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.702	0.200	mg/kg dry	1	BGJ0517	10/12/23	10/13/23	EPA 6020B
Barium	29.0	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	1.54	0.400	"	"	"	"	"	"
Lead	3.04	0.200	"	"	"	"	"	"
Nickel	1.71	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	6.52	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/05/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ0351	10/09/23	10/10/23	EPA 7196A	

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

Date Sampled: **10/05/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	48.7	0.0500	mg/L dry	1	BGJ0465	10/11/23	10/12/23	EPA 6020B	
Magnesium	9.43	0.0500	"	"	"	"	"	"	
Sodium	7.39	0.0500	"	"	"	"	"	"	


Calculated Analysis

Date Sampled: **10/05/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.254	0.00100	units	1	BGJ0586	10/13/23	10/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

SS03@2.5'
2310106-06 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/05/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.3		%	1	BGJ0482	10/11/23	10/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/05/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.161	0.0100	mmhos/cm	1	BGJ0500	10/12/23	10/12/23	EPA 120.1	

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

Date Sampled: **10/05/23 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.90		pH Units	1	BGJ0502	10/12/23	10/12/23	EPA 9045D	

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

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

FS01@5'
2310106-10 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/05/23 10:22**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGJ0255	10/06/23	10/07/23	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: **10/05/23 10:22**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0420	105 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0390	97.4 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0381	95.2 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/05/23 10:22**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGJ0261	10/06/23	10/07/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/05/23 10:22**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	12.0	96.1 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

FS01@5'
2310106-10 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/05/23 10:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0375	10/10/23	10/11/23	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: **10/05/23 10:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0194	58.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0187	56.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/05/23 10:22**

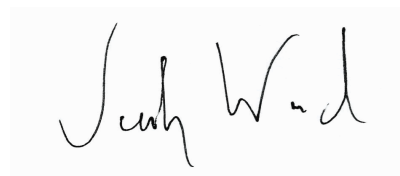
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ0454	10/11/23	10/12/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **10/05/23 10:22**

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 D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

FS01@5'
2310106-10 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	1.16	0.200	mg/kg dry	1	BGJ0517	10/12/23	10/13/23	EPA 6020B
Barium	60.5	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	2.05	0.400	"	"	"	"	"	"
Lead	4.72	0.200	"	"	"	"	"	"
Nickel	2.84	0.400	"	"	"	"	"	"
Silver	0.0264	0.0200	"	"	"	"	"	"
Zinc	8.25	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/05/23 10:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ0351	10/09/23	10/10/23	EPA 7196A	

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

Date Sampled: **10/05/23 10:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	215	0.0500	mg/L dry	1	BGJ0465	10/11/23	10/12/23	EPA 6020B	
Magnesium	52.5	0.0500	"	"	"	"	"	"	
Sodium	20.3	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/05/23 10:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.322	0.00100	units	1	BGJ0586	10/13/23	10/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

FS01@5'
2310106-10 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/05/23 10:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.4		%	1	BGJ0482	10/11/23	10/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/05/23 10:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.163	0.0100	mmhos/cm	1	BGJ0500	10/12/23	10/12/23	EPA 120.1	

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

FS01@5'
2310106-10 (Soil)

Summit Scientific

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

Date Sampled: **10/05/23 10:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.26			pH Units	1	BGJ0955	10/12/23	10/24/23	EPA 9045D	

Summit Scientific

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

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

FS02@5'
2310106-11 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGJ0255	10/06/23	10/07/23	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: **10/05/23 10:23**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0412	103 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0394	98.5 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0385	96.2 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGJ0261	10/06/23	10/07/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	10.9	87.2 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

FS02@5'
2310106-11 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0375	10/10/23	10/11/23	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: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0184	55.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0176	52.8 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ0454	10/11/23	10/12/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

FS02@5'
2310106-11 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.904	0.200	mg/kg dry	1	BGJ0517	10/12/23	10/13/23	EPA 6020B
Barium	78.2	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	2.55	0.400	"	"	"	"	"	"
Lead	4.74	0.200	"	"	"	"	"	"
Nickel	3.25	0.400	"	"	"	"	"	"
Silver	0.0320	0.0200	"	"	"	"	"	"
Zinc	9.44	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ0351	10/09/23	10/10/23	EPA 7196A	

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

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	147	0.0500	mg/L dry	1	BGJ0465	10/11/23	10/12/23	EPA 6020B	
Magnesium	23.1	0.0500	"	"	"	"	"	"	
Sodium	35.1	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.710	0.00100	units	1	BGJ0586	10/13/23	10/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

FS02@5'
2310106-11 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	86.3		%	1	BGJ0482	10/11/23	10/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.207	0.0100	mmhos/cm	1	BGJ0500	10/12/23	10/12/23	EPA 120.1	

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

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.52		pH Units	1	BGJ0502	10/12/23	10/12/23	EPA 9045D	

Summit Scientific

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Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

FS03@5'
2310106-12 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGJ0255	10/06/23	10/07/23	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: **10/05/23 10:23**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0396	99.1 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0396	99.1 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0376	94.0 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGJ0261	10/06/23	10/07/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	10.6	84.9 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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10/31/23 16:47

FS03@5'
2310106-12 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0375	10/10/23	10/11/23	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: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0205	61.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0194	58.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ0454	10/11/23	10/12/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **10/05/23 10:23**

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

Reported:
10/31/23 16:47

FS03@5'
2310106-12 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	1.33	0.200	mg/kg dry	1	BGJ0517	10/12/23	10/13/23	EPA 6020B
Barium	75.1	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	2.29	0.400	"	"	"	"	"	"
Lead	4.91	0.200	"	"	"	"	"	"
Nickel	3.13	0.400	"	"	"	"	"	"
Silver	0.0287	0.0200	"	"	"	"	"	"
Zinc	9.02	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ0351	10/09/23	10/10/23	EPA 7196A	

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

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	344	0.0500	mg/L dry	1	BGJ0465	10/11/23	10/12/23	EPA 6020B	
Magnesium	37.9	0.0500	"	"	"	"	"	"	
Sodium	37.5	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.512	0.00100	units	1	BGJ0586	10/13/23	10/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Reported:
10/31/23 16:47

FS03@5'
2310106-12 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.7		%	1	BGJ0482	10/11/23	10/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.176	0.0100	mmhos/cm	1	BGJ0500	10/12/23	10/12/23	EPA 120.1	

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

Date Sampled: **10/05/23 10:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.51		pH Units	1	BGJ0502	10/12/23	10/12/23	EPA 9045D	

Summit Scientific

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Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

SEP01-DL@4'
2310106-13 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/05/23 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGJ0255	10/06/23	10/07/23	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: **10/05/23 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0400	99.9 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0396	99.1 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0421	105 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/05/23 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGJ0261	10/06/23	10/07/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/05/23 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	13.2	105 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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SEP01-DL@4'
2310106-13 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/05/23 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0375	10/10/23	10/11/23	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: **10/05/23 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0177	53.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0172	51.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/05/23 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGJ0454	10/11/23	10/12/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **10/05/23 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

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Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

SEP01-DL@4'
2310106-13 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	1.03	0.200	mg/kg dry	1	BGJ0517	10/12/23	10/13/23	EPA 6020B
Barium	48.4	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	1.95	0.400	"	"	"	"	"	"
Lead	3.98	0.200	"	"	"	"	"	"
Nickel	2.33	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	7.62	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/05/23 10:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ0351	10/09/23	10/10/23	EPA 7196A	

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

Date Sampled: **10/05/23 10:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	36.8	0.0500	mg/L dry	1	BGJ0465	10/11/23	10/12/23	EPA 6020B	
Magnesium	11.3	0.0500	"	"	"	"	"	"	
Sodium	6.05	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/05/23 10:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.224	0.00100	units	1	BGJ0586	10/13/23	10/13/23	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 D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

SEP01-DL@4'
2310106-13 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/05/23 10:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.3		%	1	BGJ0482	10/11/23	10/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/05/23 10:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.317	0.0100	mmhos/cm	1	BGJ0500	10/12/23	10/12/23	EPA 120.1	

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

Date Sampled: **10/05/23 10:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.08		pH Units	1	BGJ0502	10/12/23	10/12/23	EPA 9045D	

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Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

SEP01-FL@4'
2310106-14 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/05/23 10:58**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGJ0255	10/06/23	10/07/23	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: **10/05/23 10:58**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0397	99.2 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0404	101 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0392	97.9 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/05/23 10:58**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGJ0261	10/06/23	10/07/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/05/23 10:58**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	11.5	92.2 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

SEP01-FL@4'
2310106-14 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/05/23 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0375	10/10/23	10/11/23	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: **10/05/23 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0211	63.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0214	64.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/05/23 10:58**

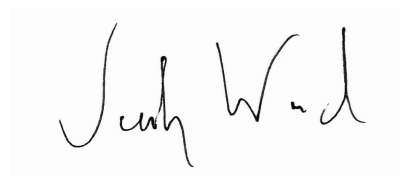
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ0454	10/11/23	10/12/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **10/05/23 10:58**

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 D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

SEP01-FL@4'
2310106-14 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.838	0.200	mg/kg dry	1	BGJ0517	10/12/23	10/13/23	EPA 6020B
Barium	39.7	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	1.93	0.400	"	"	"	"	"	"
Lead	3.51	0.200	"	"	"	"	"	"
Nickel	2.35	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	7.84	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/05/23 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ0351	10/09/23	10/10/23	EPA 7196A	

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

Date Sampled: **10/05/23 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	27.5	0.0500	mg/L dry	1	BGJ0465	10/11/23	10/12/23	EPA 6020B	
Magnesium	6.89	0.0500	"	"	"	"	"	"	
Sodium	2.34	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/05/23 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.103	0.00100	units	1	BGJ0586	10/13/23	10/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

SEP01-FL@4'
2310106-14 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/05/23 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.0		%	1	BGJ0482	10/11/23	10/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/05/23 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.202	0.0100	mmhos/cm	1	BGJ0500	10/12/23	10/12/23	EPA 120.1	

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

Date Sampled: **10/05/23 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.07		pH Units	1	BGJ0502	10/12/23	10/12/23	EPA 9045D	

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Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

SEP02-DL@4'
2310106-15 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/05/23 10:59**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGJ0255	10/06/23	10/07/23	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: **10/05/23 10:59**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0406	102 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0392	98.0 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0380	95.0 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/05/23 10:59**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGJ0261	10/06/23	10/07/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/05/23 10:59**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	13.5	108 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

SEP02-DL@4'
2310106-15 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/05/23 10:59**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0375	10/10/23	10/11/23	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: **10/05/23 10:59**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0206	61.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0211	63.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/05/23 10:59**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	2.00	mg/L	1	BGJ0454	10/11/23	10/12/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **10/05/23 10:59**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

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Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

SEP02-DL@4'
2310106-15 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.970	0.200	mg/kg dry	1	BGJ0517	10/12/23	10/13/23	EPA 6020B
Barium	33.5	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	1.83	0.400	"	"	"	"	"	"
Lead	2.87	0.200	"	"	"	"	"	"
Nickel	2.08	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	6.29	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/05/23 10:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ0351	10/09/23	10/10/23	EPA 7196A	

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

Date Sampled: **10/05/23 10:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	30.2	0.0500	mg/L dry	1	BGJ0465	10/11/23	10/12/23	EPA 6020B	
Magnesium	7.39	0.0500	"	"	"	"	"	"	
Sodium	3.22	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/05/23 10:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.136	0.00100	units	1	BGJ0586	10/13/23	10/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
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Reported:
10/31/23 16:47

SEP02-DL@4'
2310106-15 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/05/23 10:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	93.8		%	1	BGJ0482	10/11/23	10/11/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/05/23 10:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.291	0.0100	mmhos/cm	1	BGJ0500	10/12/23	10/12/23	EPA 120.1	

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

Date Sampled: **10/05/23 10:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.17		pH Units	1	BGJ0502	10/12/23	10/12/23	EPA 9045D	

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Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

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 BGJ0255 - EPA 5030 Soil MS

Blank (BGJ0255-BLK1)

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

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	0.0367		"	0.0400		91.6	50-150			
Surrogate: Toluene-d8	0.0399		"	0.0400		99.8	50-150			
Surrogate: 4-Bromofluorobenzene	0.0396		"	0.0400		99.0	50-150			

LCS (BGJ0255-BS1)

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

Benzene	0.0841	0.0020	mg/kg	0.100		84.1	70-130			
Toluene	0.0866	0.0050	"	0.100		86.6	70-130			
Ethylbenzene	0.0890	0.0050	"	0.100		89.0	70-130			
m,p-Xylene	0.178	0.010	"	0.200		89.1	70-130			
o-Xylene	0.0864	0.0050	"	0.100		86.4	70-130			
1,2,4-Trimethylbenzene	0.0859	0.0050	"	0.100		85.9	70-130			
1,3,5-Trimethylbenzene	0.0877	0.0050	"	0.100		87.7	70-130			
Naphthalene	0.0965	0.0038	"	0.100		96.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0381		"	0.0400		95.3	50-150			
Surrogate: Toluene-d8	0.0400		"	0.0400		99.9	50-150			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.6	50-150			

Matrix Spike (BGJ0255-MS1)

Source: 2310106-01

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

Benzene	0.0790	0.0020	mg/kg	0.100	ND	79.0	70-130			
Toluene	0.0787	0.0050	"	0.100	ND	78.7	70-130			
Ethylbenzene	0.0760	0.0050	"	0.100	ND	76.0	70-130			
m,p-Xylene	0.150	0.010	"	0.200	ND	74.8	70-130			
o-Xylene	0.0748	0.0050	"	0.100	ND	74.8	70-130			
1,2,4-Trimethylbenzene	0.0992	0.0050	"	0.100	ND	99.2	70-130			
1,3,5-Trimethylbenzene	0.0710	0.0050	"	0.100	ND	71.0	70-130			
Naphthalene	0.0976	0.0038	"	0.100	ND	97.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0412		"	0.0400		103	50-150			
Surrogate: Toluene-d8	0.0400		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0387		"	0.0400		96.8	50-150			

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

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 BGJ0255 - EPA 5030 Soil MS

Matrix Spike Dup (BGJ0255-MSD1)		Source: 2310106-01			Prepared: 10/06/23 Analyzed: 10/07/23					
Benzene	0.0735	0.0020	mg/kg	0.100	ND	73.5	70-130	7.12	30	
Toluene	0.0727	0.0050	"	0.100	ND	72.7	70-130	7.89	30	
Ethylbenzene	0.0748	0.0050	"	0.100	ND	74.8	70-130	1.59	30	
m,p-Xylene	0.149	0.010	"	0.200	ND	74.7	70-130	0.0803	30	
o-Xylene	0.0741	0.0050	"	0.100	ND	74.1	70-130	0.967	30	
1,2,4-Trimethylbenzene	0.0995	0.0050	"	0.100	ND	99.5	70-130	0.332	30	
1,3,5-Trimethylbenzene	0.0713	0.0050	"	0.100	ND	71.3	70-130	0.380	30	
Naphthalene	0.0927	0.0038	"	0.100	ND	92.7	70-130	5.14	30	
Surrogate: 1,2-Dichloroethane-d4		0.0408	"	0.0400		102	50-150			
Surrogate: Toluene-d8		0.0391	"	0.0400		97.7	50-150			
Surrogate: 4-Bromofluorobenzene		0.0389	"	0.0400		97.4	50-150			

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

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

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 BGJ0261 - EPA 3550A

Blank (BGJ0261-BLK1)

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

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	13.9		"	12.5		111	30-150			

LCS (BGJ0261-BS1)

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

C10-C28 (DRO)	526	50	mg/kg	500		105	70-130			
Surrogate: o-Terphenyl	14.7		"	12.5		118	30-150			

Matrix Spike (BGJ0261-MS1)

Source: 2310106-01

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

C10-C28 (DRO)	469	50	mg/kg	500	33.9	87.0	70-130			
Surrogate: o-Terphenyl	10.8		"	12.5		86.4	30-150			

Matrix Spike Dup (BGJ0261-MSD1)

Source: 2310106-01

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

C10-C28 (DRO)	495	50	mg/kg	500	33.9	92.3	70-130	5.42	20	
Surrogate: o-Terphenyl	11.2		"	12.5		89.7	30-150			

Summit Scientific

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

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

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 BGJ0375 - EPA 5030 Soil MS

Blank (BGJ0375-BLK1)

Prepared & Analyzed: 10/10/23

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	0.0248		"	0.0333		74.4	40-150			
Surrogate: Fluoranthene-d10	0.0310		"	0.0333		93.1	40-150			

LCS (BGJ0375-BS1)

Prepared & Analyzed: 10/10/23

Acenaphthene	0.0264	0.00500	mg/kg	0.0333		79.1	31-137			
Anthracene	0.0281	0.00500	"	0.0333		84.2	30-120			
Benzo (a) anthracene	0.0290	0.00500	"	0.0333		87.1	30-120			
Benzo (a) pyrene	0.0276	0.00500	"	0.0333		82.7	30-120			
Benzo (b) fluoranthene	0.0275	0.00500	"	0.0333		82.5	30-120			
Benzo (k) fluoranthene	0.0265	0.00500	"	0.0333		79.5	30-120			
Chrysene	0.0281	0.00500	"	0.0333		84.4	30-120			
Dibenz (a,h) anthracene	0.0277	0.00500	"	0.0333		83.1	30-120			
Fluoranthene	0.0284	0.00500	"	0.0333		85.3	30-120			
Fluorene	0.0278	0.00500	"	0.0333		83.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0202	0.00500	"	0.0333		60.5	30-120			
Pyrene	0.0282	0.00500	"	0.0333		84.7	35-142			
1-Methylnaphthalene	0.0279	0.00500	"	0.0333		83.8	35-142			
2-Methylnaphthalene	0.0276	0.00500	"	0.0333		82.7	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0283		"	0.0333		84.9	40-150			
Surrogate: Fluoranthene-d10	0.0281		"	0.0333		84.4	40-150			

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Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

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 BGJ0375 - EPA 5030 Soil MS

Matrix Spike (BGJ0375-MS1)

Source: 2310066-01

Prepared & Analyzed: 10/10/23

Acenaphthene	0.0173	0.00500	mg/kg	0.0333	ND	51.8	31-137		
Anthracene	0.0174	0.00500	"	0.0333	ND	52.2	30-120		
Benzo (a) anthracene	0.0177	0.00500	"	0.0333	ND	53.0	30-120		
Benzo (a) pyrene	0.0164	0.00500	"	0.0333	ND	49.2	30-120		
Benzo (b) fluoranthene	0.0165	0.00500	"	0.0333	ND	49.5	30-120		
Benzo (k) fluoranthene	0.0161	0.00500	"	0.0333	ND	48.4	30-120		
Chrysene	0.0172	0.00500	"	0.0333	ND	51.6	30-120		
Dibenz (a,h) anthracene	0.0161	0.00500	"	0.0333	ND	48.4	30-120		
Fluoranthene	0.0172	0.00500	"	0.0333	ND	51.5	30-120		
Fluorene	0.0170	0.00500	"	0.0333	ND	51.0	30-120		
Indeno (1,2,3-cd) pyrene	0.0167	0.00500	"	0.0333	ND	50.2	30-120		
Pyrene	0.0179	0.00500	"	0.0333	ND	53.8	35-142		
1-Methylnaphthalene	0.0171	0.00500	"	0.0333	ND	51.3	15-130		
2-Methylnaphthalene	0.0172	0.00500	"	0.0333	ND	51.6	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0174		"	0.0333		52.2	40-150		
Surrogate: Fluoranthene-d10	0.0176		"	0.0333		52.7	40-150		

Matrix Spike Dup (BGJ0375-MSD1)

Source: 2310066-01

Prepared & Analyzed: 10/10/23

Acenaphthene	0.0152	0.00500	mg/kg	0.0333	ND	45.6	31-137	12.6	30
Anthracene	0.0138	0.00500	"	0.0333	ND	41.3	30-120	23.3	30
Benzo (a) anthracene	0.0139	0.00500	"	0.0333	ND	41.7	30-120	24.0	30
Benzo (a) pyrene	0.0144	0.00500	"	0.0333	ND	43.2	30-120	12.8	30
Benzo (b) fluoranthene	0.0142	0.00500	"	0.0333	ND	42.7	30-120	14.7	30
Benzo (k) fluoranthene	0.0143	0.00500	"	0.0333	ND	42.8	30-120	12.3	30
Chrysene	0.0135	0.00500	"	0.0333	ND	40.4	30-120	24.1	30
Dibenz (a,h) anthracene	0.0142	0.00500	"	0.0333	ND	42.7	30-120	12.5	30
Fluoranthene	0.0144	0.00500	"	0.0333	ND	43.1	30-120	17.7	30
Fluorene	0.0149	0.00500	"	0.0333	ND	44.8	30-120	12.9	30
Indeno (1,2,3-cd) pyrene	0.0167	0.00500	"	0.0333	ND	50.1	30-120	0.156	30
Pyrene	0.0141	0.00500	"	0.0333	ND	42.4	35-142	23.6	30
1-Methylnaphthalene	0.0142	0.00500	"	0.0333	ND	42.6	15-130	18.7	50
2-Methylnaphthalene	0.0143	0.00500	"	0.0333	ND	43.0	15-130	18.1	50
Surrogate: 2-Methylnaphthalene-d10	0.0147		"	0.0333		44.1	40-150		
Surrogate: Fluoranthene-d10	0.0140		"	0.0333		41.9	40-150		

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

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

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 BGJ0454 - EPA 3050B

Blank (BGJ0454-BLK1)

Prepared: 10/11/23 Analyzed: 10/12/23

Boron ND 2.00 mg/L

LCS (BGJ0454-BS1)

Prepared: 10/11/23 Analyzed: 10/12/23

Boron 4.64 2.00 mg/L 5.00 92.9 80-120

Duplicate (BGJ0454-DUP1)

Source: 2309562-01

Prepared: 10/11/23 Analyzed: 10/12/23

Boron 0.0329 2.00 mg/L 0.0640 64.1 20 QR-01

Matrix Spike (BGJ0454-MS1)

Source: 2309562-01

Prepared: 10/11/23 Analyzed: 10/12/23

Boron 3.86 2.00 mg/L 5.00 0.0640 76.0 75-125

Matrix Spike Dup (BGJ0454-MSD1)

Source: 2309562-01

Prepared: 10/11/23 Analyzed: 10/12/23

Boron 3.90 2.00 mg/L 5.00 0.0640 76.7 75-125 0.898 25

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

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 BGJ0517 - EPA 3050B

Blank (BGJ0517-BLK1)

Prepared: 10/12/23 Analyzed: 10/13/23

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

LCS (BGJ0517-BS1)

Prepared: 10/12/23 Analyzed: 10/13/23

Arsenic	47.2	0.200	mg/kg wet	40.0	118	80-120
Barium	36.2	0.400	"	40.0	90.4	80-120
Cadmium	1.94	0.200	"	2.00	96.8	80-120
Copper	40.4	0.400	"	40.0	101	80-120
Lead	18.8	0.200	"	20.0	93.8	80-120
Nickel	41.5	0.400	"	40.0	104	80-120
Silver	1.83	0.0200	"	2.00	91.6	80-120
Zinc	41.7	0.400	"	40.0	104	80-120
Selenium	4.75	0.260	"	4.00	119	80-120

Duplicate (BGJ0517-DUP1)

Source: 2310106-01

Prepared: 10/12/23 Analyzed: 10/13/23

Arsenic	0.805	0.200	mg/kg dry	0.791	1.84	20
Barium	44.3	0.400	"	48.6	9.23	20
Cadmium	0.0849	0.200	"	0.0983	14.6	20
Copper	1.28	0.400	"	1.30	0.969	20
Lead	4.67	0.200	"	5.14	9.52	20
Nickel	1.65	0.400	"	1.65	0.00	20
Silver	0.0194	0.0200	"	0.0224	14.4	20
Zinc	6.76	0.400	"	6.48	4.15	20
Selenium	ND	0.260	"	ND		20

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Broomfield CO, 80020

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

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 BGJ0517 - EPA 3050B

Matrix Spike (BGJ0517-MS1)

Source: 2310106-01

Prepared: 10/12/23 Analyzed: 10/13/23

Arsenic	19.5	0.200	mg/kg dry	43.1	0.791	43.5	75-125			QM-07
Barium	89.1	0.400	"	43.1	48.6	94.1	75-125			
Cadmium	2.33	0.200	"	2.16	0.0983	104	75-125			
Copper	17.5	0.400	"	43.1	1.30	37.5	75-125			QM-07
Lead	24.9	0.200	"	21.6	5.14	91.5	75-125			
Nickel	18.4	0.400	"	43.1	1.65	38.9	75-125			QM-07
Silver	1.64	0.0200	"	2.16	0.0224	75.1	75-125			
Zinc	23.4	0.400	"	43.1	6.48	39.4	75-125			QM-07
Selenium	6.04	0.260	"	4.31	ND	140	75-125			QM-07

Matrix Spike Dup (BGJ0517-MSD1)

Source: 2310106-01

Prepared: 10/12/23 Analyzed: 10/13/23

Arsenic	19.8	0.200	mg/kg dry	43.1	0.791	44.0	75-125	1.11	25	QM-07
Barium	84.1	0.400	"	43.1	48.6	82.4	75-125	5.84	25	
Cadmium	2.22	0.200	"	2.16	0.0983	98.7	75-125	4.73	25	
Copper	17.8	0.400	"	43.1	1.30	38.4	75-125	2.18	25	QM-07
Lead	23.8	0.200	"	21.6	5.14	86.5	75-125	4.50	25	
Nickel	18.7	0.400	"	43.1	1.65	39.5	75-125	1.28	25	QM-07
Silver	1.55	0.0200	"	2.16	0.0224	71.0	75-125	5.54	25	QM-07
Zinc	23.9	0.400	"	43.1	6.48	40.5	75-125	2.08	25	QM-07
Selenium	5.56	0.260	"	4.31	ND	129	75-125	8.27	25	QM-07

Post Spike (BGJ0517-PS1)

Source: 2310106-01

Prepared: 10/12/23 Analyzed: 10/13/23

Arsenic	47.5		ug/l	100	1.83	45.6	75-125			QM-01
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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

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 BGJ0351 - 3060A Mod

Blank (BGJ0351-BLK1)

Prepared: 10/09/23 Analyzed: 10/10/23

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BGJ0351-BS1)

Prepared: 10/09/23 Analyzed: 10/10/23

Chromium, Hexavalent 23.6 0.30 mg/kg wet 25.0 94.6 80-120

Duplicate (BGJ0351-DUP1)

Source: 2310066-01

Prepared: 10/09/23 Analyzed: 10/10/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BGJ0351-MS1)

Source: 2310066-01

Prepared: 10/09/23 Analyzed: 10/10/23

Chromium, Hexavalent 28.5 0.30 mg/kg dry 30.8 ND 92.4 75-125

Matrix Spike Dup (BGJ0351-MSD1)

Source: 2310066-01

Prepared: 10/09/23 Analyzed: 10/10/23

Chromium, Hexavalent 28.6 0.30 mg/kg dry 30.8 ND 92.8 75-125 0.432 20

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

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 BGJ0465 - General Preparation

Blank (BGJ0465-BLK1)

Prepared: 10/11/23 Analyzed: 10/12/23

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

LCS (BGJ0465-BS1)

Prepared: 10/11/23 Analyzed: 10/12/23

Calcium	5.58	0.0500	mg/L wet	5.00	112	70-130
Magnesium	5.44	0.0500	"	5.00	109	70-130
Sodium	5.41	0.0500	"	5.00	108	70-130

Summit Scientific

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

Project: Noble - Stroh D07-31

Project Number: UWRWE-A2597-ABN

Project Manager: Jacob Whritenour

Reported:

10/31/23 16:47

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 BGJ0482 - General Preparation

Duplicate (BGJ0482-DUP1)		Source: 2309279-01			Prepared & Analyzed: 10/11/23					
% Solids	91.0		%		90.9		0.163		20	

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

Project: Noble - Stroh D07-31
Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

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 BGJ0500 - General Preparation

Blank (BGJ0500-BLK1)

Prepared & Analyzed: 10/12/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BGJ0500-BS1)

Prepared & Analyzed: 10/12/23

Specific Conductance (EC) 0.148 0.0100 mmhos/cm 0.150 98.8 95-105

Duplicate (BGJ0500-DUP1)

Source: 2310106-01

Prepared & Analyzed: 10/12/23

Specific Conductance (EC) 0.152 0.0100 mmhos/cm 0.151 0.396 20

Summit Scientific

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

Project: Noble - Stroh D07-31

Project Number: UWRWE-A2597-ABN

Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

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 BGJ0502 - General Preparation

LCS (BGJ0502-BS1)

Prepared & Analyzed: 10/12/23

pH	9.12		pH Units	9.18	99.3	95-105
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Duplicate (BGJ0502-DUP1)

Source: 2310106-01

Prepared & Analyzed: 10/12/23

pH	7.50		pH Units	7.44	0.803	20
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Batch BGJ0955 - General Preparation

LCS (BGJ0955-BS1)

Prepared & Analyzed: 10/24/23

pH	9.13		pH Units	9.18	99.5	95-105
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Duplicate (BGJ0955-DUP1)

Source: 2310023-01

Prepared & Analyzed: 10/24/23

pH	8.02		pH Units	8.02	0.00	20
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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.



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Project: Noble - Stroh D07-31

Project Number: UWRWE-A2597-ABN
Project Manager: Jacob Whritenour

Reported:
10/31/23 16:47

Notes and Definitions

QR-01	Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
QM-01	The spike recovery for this QC sample is outside of established control limits due to sample matrix interference.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference