



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: Wiedeman J28-18D, 21D, 22D		Date: 4/20/2022						Remediation Project #: 21948
Associated Wells:		Age of Site:						Number of Photos Attached: 30
Location: (GPS coordinates of southeaster berm) 40.370693, -104.776451								Estimated Facility Size (acres):
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.) Good, no visible sign of erosion and corrosion								
USCS Soil Type: Well Graded Sand - SW					Estimated Depth to Groundwater: >5'			
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 Material	Steele	Steele						
Tank type (AST/PBV, etc.)	PBV	AST						
Visual Integrity of Tank	Good	Good						
Condition of tank footprint	Good	Good						
PID Readings								
Soil impacts present at valves or hatches?	None observed	None observed						
PID Readings	0.0 - 0.6, 1.8, 16.9	0.0, 0.0, 0.0						
Sample taken? Location/ Sample ID#	yes, see below	yes, see below						
Photo Number(s)	10 - 22, 29, 30	7, 8, 9						
Other observations regarding tanks: Samples taken on all 4 sidewalls and base of excavations (SS01-12@2.5', FS01-3@5') Sample taken at base of AST, AST01-03@0.5'								
Separators								
Separator size								
Vertical or Horizontal	Horizontal							
Age								
Soil impacts observed?	None observed							
PID Readings	0.0 - 0.0							
Sample taken? Location/ Sample ID#	yes, see below							
Photo Number(s)	1 - 6							
Other observations regarding separators: Samples taken at Flowline and Dumpline ends of separator (SEP01-FL01-03@3' & SEP01-DL01- 03@3')								
Third Party Equipment								
Type								
Age								

Third Party														
Removal Date														
Sample taken?														
PID Readings														
Photo Number(s)														
Other Facility Equipment														
Equipment type	Meter House	Flare												
Equipment Condition	Good	Good												
Age														
Soil impacts observed during	None observed	None observed												
PID Readings	0.0	0.0												
Sample taken?	Yes, see below	Yes, see below												
Photo Number(s)	24, 25, 26	23												
Other observations regarding other facility or third party equipment:														
Sample taken below Flare and meter house. (MH01@0.5' & FLARE01@0.5')														
Summary														
Was impacted soil identified?														
<div> <div>No</div> <div>Yes - less than 10 cubic yards</div> <div>Yes - more than 10 cubic yards</div> </div>														
Total number of samples field screened: 30					Total number of samples collected: 30									
Highest PID Reading: 16.9					Total number of samples submitted to lab for analysis: 26									
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?														
<div> <div>No</div> <div>Yes - not impacted or in contact with impacted soils</div> <div>Yes - groundwater impacted and/or in contact with impacted soils</div> </div>														
Measured depth to groundwater:					Was remedial groundwater removal conducted? Yes No									
Date Groundwater was encountered:					Commencement date of removal:									
Sheen on groundwater? Yes No					Volume of groundwater removed prior to sampling:									
Free product observed? Yes No					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	Equipment ID: AST02 @0.5'		Equipment Type: Above Ground Storage Tank
Material: Steel			Volume:		Contents: Crude Oil
Notes/Conditions:			Notes/Conditions:		



Photographic Log

					
Equipment ID: AST03@0.5'		Equipment Type: Above Ground Storage Tank			
Material: Steel	Volume:	Contents: Crude Oil	Equipment ID: SEP01-FL01@3'		Equipment Type: Separator
Material: Steel	Volume:	Contents: Oil/Gas/Water	Notes/Conditions:		
Notes/Conditions:			Notes/Conditions:		



Photographic Log

					
Equipment ID: SEP01-DL01 @3'		Equipment Type: Separator		Equipment ID: SEP02-FL02 @3'	
Material: Steel		Volume:	Contents: Oil/Gas/Water	Equipment Type: Separator	
Material: Steel		Volume:	Contents: Oil/Gas/Water	Equipment ID: SEP02-FL02 @3'	
Notes/Conditions:			Notes/Conditions:		



Photographic Log



					
Equipment ID: SEP02-DL02 @3'		Equipment Type: Separator		Equipment ID: SEP03-FL03 @3'	
Material: Steel		Volume:	Contents: Oil/Gas/Water	Material: Steel	
Volume:		Contents: Oil/Gas/Water		Volume:	
Notes/Conditions:			Notes/Conditions:		

Photographic Log



							
Equipment ID: SEP03-DL03@3'		Equipment Type: Separator		Equipment ID: SS01 @2.5'		Equipment Type: Partially Buried Vault	
Material: Steel		Volume:		Material: Concrete		Volume:	
Notes/Conditions:				Notes/Conditions:			

Photographic Log



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

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



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:						Notes/Conditions:							

Photographic Log



											
Equipment ID: SS06@2.5'		Equipment Type: Partially Buried Vault		Equipment ID: SS07@2.5'		Equipment Type: Partially Buried Vault					
Material: Concrete		Volume:		Contents: Produced Water		Material: Concrete		Volume:		Contents: Produced Water	
Notes/Conditions:						Notes/Conditions:					



Photographic Log

					
Equipment ID: SS08@2.5'		Equipment Type: Partially Buried Vault			
Material: Concrete		Volume:		Contents: Produced Water	
Notes/Conditions:					



					
Equipment ID: SS09@2.5'		Equipment Type: Partially Buried Vault			
Material: Concrete		Volume:		Contents: Produced Water	
Notes/Conditions:					

Photographic Log

					
Equipment ID: SS10@2.5'		Equipment Type: Partially Buried Vault			
Material: Concrete		Volume:		Contents: Produced Water	
Notes/Conditions:					

					
Equipment ID: SS11@2.5'		Equipment Type: Partially Buried Vault			
Material: Concrete		Volume:		Contents: Produced Water	
Notes/Conditions:					

Photographic Log

											
Equipment ID: SS12@2.5'		Equipment Type: Partially Buried Vault		Equipment ID: FS01@5'		Equipment Type: Partially Buried Vault					
Material: Concrete		Volume:		Contents: Produced Water		Material: Concrete		Volume:		Contents: Produced Water	
Notes/Conditions:						Notes/Conditions:					

Photographic Log

													
Equipment ID: FLARE01 @ 0.5'			Equipment Type:			Equipment ID: MH01 @ 0.5'			Equipment Type:				
Material:			Volume:		Contents:		Material:			Volume:		Contents:	
Notes/Conditions:						Notes/Conditions:							

Photographic Log

					
Equipment ID: MH02@0.5'		Equipment Type:			
Material:	Volume:	Contents:			
Notes/Conditions:					
					
Equipment ID: MH03@0.5'		Equipment Type:			
Material:	Volume:	Contents:			
Notes/Conditions:					

Photographic Log



Equipment ID:BG01@2.5'

Equipment Type:

Material:

Volume:

Contents:

Notes/Conditions:



Equipment ID:BG01@5'

Equipment Type:

Material:

Volume:

Contents:

Notes/Conditions:

Photographic Log



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

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. - WIEDEMAN J28, 21D,22D

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude ¹	Longitude	PDOP
MH01@0.5'	04/20/22	0.0	No Staining	No odor	Grab	40.37066442	-104.7764019	0.9
MH02@0.5'	04/20/22	0.0	No Staining	No odor	Grab	40.37069501	-104.7764122	0.9
MH03@0.5'	04/20/22	0.0	No Staining	No odor	Grab	40.37070978	-104.7764097	0.9
FLARE01@0.5'	04/20/22	0.0	No Staining	No odor	Grab	40.37075707	-104.7764342	0.9
AST01@0.5'	04/20/22	0.0	No Staining	No odor	Lab	40.37079816	-104.7767509	1.1
AST02@0.5'	04/20/22	0.0	No Staining	No odor	Lab	40.37073788	-104.7767583	1.1
AST03@0.5'	04/20/22	0.0	No Staining	No odor	Lab	40.37069210	-104.7767590	1.0
SEP01-FL01@3'	04/20/22	0.0	No Staining	No odor	Lab	40.37066185	-104.7764384	1.0
SEP02-FL02@3'	04/20/22	0.0	No Staining	No odor	Lab	40.37069553	-104.7764367	1.0
SEP03-FL03@3'	04/20/22	0.0	No Staining	No odor	Lab	40.37071532	-104.7764309	1.0
SEP03-DL03@3'	04/20/22	0.0	No Staining	No odor	Lab	40.37070248	-104.7764837	1.1
SEP02-DL02@3'	04/20/22	0.0	No Staining	No odor	Lab	40.37068054	-104.7764811	1.1
SEP01-DL01@3'	04/20/22	0.0	No Staining	No odor	Lab	40.37064766	-104.7764922	1.0
BG01@2.5'	04/20/22	0.0	No Staining	No odor	Lab	40.37093168	-104.7763820	1.0
BG01@5'	04/20/22	0.0	No Staining	No odor	Lab	40.37093168	-104.7763820	1.0
SS01@2.5'	04/20/22	0.0	No Staining	No odor	Lab	40.37081652	-104.7767814	1.2
SS02@2.5'	04/20/22	0.0	No Staining	No odor	Lab	40.37078491	-104.7767835	1.2
SS03@2.5'	04/20/22	0.0	No Staining	No odor	Lab	40.37077662	-104.7768040	1.1
SS04@2.5'	04/20/22	0.0	No Staining	No odor	Lab	40.37078887	-104.7768251	1.2
FS01@5'	04/20/22	0.0	No Staining	No odor	Lab	40.37078953	-104.7767942	1.1
SS05@2.5'	04/20/22	0.0	No Staining	No odor	Lab	40.37076233	-104.7768038	1.1
SS06@2.5'	04/20/22	0.0	No Staining	No odor	Lab	40.37074186	-104.7767667	1.2
SS07@2.5'	04/20/22	16.9	No Staining	Slight HC odor	Lab	40.37073091	-104.7768076	1.2
SS08@2.5'	04/20/22	0.0	No Staining	No odor	Lab	40.37074522	-104.7768235	1.2
FS02@5'	04/20/22	0.6	No Staining	No odor	Lab	40.37074964	-104.7768100	1.2
SS09@2.5'	04/20/22	0.0	No Staining	No odor	Lab	40.37071923	-104.7768069	1.2
SS10@2.5'	04/20/22	0.0	No Staining	No odor	Lab	40.37068279	-104.7767718	1.1
SS11@2.5'	04/20/22	0.0	No Staining	No odor	Lab	40.37065793	-104.7768017	1.2
SS12@2.5'	04/20/22	0.0	No Staining	No odor	Lab	40.37069253	-104.7768270	1.1
FS03@5'	04/20/22	1.8	HC Staining	No odor	Lab	40.37068598	-104.7768034	1.2

Notes:

PID = Photo-ionization 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. - Wiedeman J28-18D,21D,22D

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 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 ^{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
SS07@2.5'	04/20/22	<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'	04/20/22	<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'	04/20/22	<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'	04/20/22	<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
AST01@0.5'	04/20/22	<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'	04/20/22	<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'	04/20/22	<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-FL01@3'	04/20/22	<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-DL01@3'	04/20/22	<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-FL02@3'	04/20/22	<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-DL02@3'	04/20/22	<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
SEP03-FL03@3'	04/20/22	<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
SEP03-DL03@3'	04/20/22	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL ²		6 - 8.3	<6	<4mmhos/cm	2
SS07@2.5'	04/20/22	8.24	0.0682	0.526	0.314
FS01@5'	04/20/22	7.33	0.1030	0.875	0.546
FS02@5'	04/20/22	8.21	0.0370	0.273	0.394
FS03@5'	04/20/22	7.79	0.0450	0.217	0.318
AST01@0.5'	04/20/22	7.88	0.0747	0.948	0.308
AST02@0.5'	04/20/22	8.52	0.1020	0.371	0.273
AST03@0.5'	04/20/22	8.43	0.0318	0.238	0.253
SEP01-FL01@3'	04/20/22	8.22	0.0262	0.176	0.196
SEP01-DL01@3'	04/20/22	8.32	0.0307	0.167	0.192
SEP02-FL02@3'	04/20/22	8.08	0.0349	0.198	0.187
SEP02-DL02@3'	04/20/22	7.93	0.0396	0.226	0.194
SEP03-FL03@3'	04/20/22	8.19	0.0472	0.265	0.217
SEP03-DL03@3'	04/20/22	8.25	0.0656	0.213	0.292
BG01@2.5'	04/20/22	8.52	NA	NA	NA

Notes:

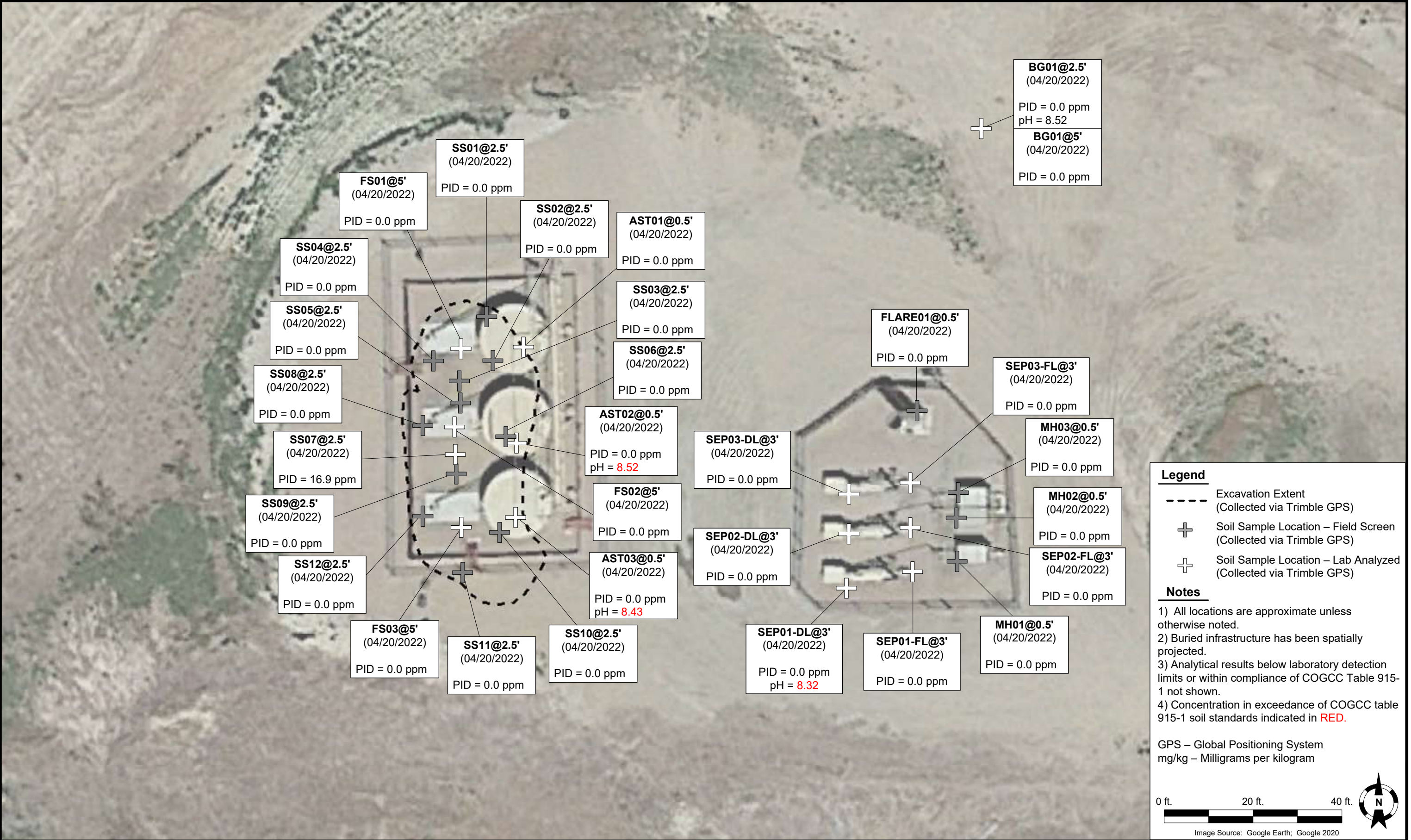
1. Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.
2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
3. SSLs are applicable if a pathway for communication with groundwater is present.

Definitions:

COGCC = Colorado Oil and Gas Conservation Commission
TPH-GRO = Total petroleum hydrocarbons - gasoline range organics
TPH-DRO = Total petroleum hydrocarbons - diesel range organics
TPH-ORO = Total petroleum hydrocarbons - oil range organics
mg/kg = Milligrams per kilogram
SAR = Sodium Adsorption Ratio
EC = Electrical Conductivity
mmhos/cm = Millmhos per centimeter
mg/L = Milligrams per liter
< = Analytical result is less than the indicated laboratory reporting limit

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

NA = Not Analysed
1,2,4 - TMB = 1,2,4 Trimethylbenzene
1,3,5 - TMB = 1,3,5 Trimethylbenzene
Benz(a) = Benzanthracene
Benzo(b) = Benzoofluoranthene
Benzo(k) = Benzoofluoranthene
Benzo(a) = Benzopyrene
A,H = Dibenzoanthracene
1,2,3-CD = Indenopyrene
1-M = 1-methylnaphthalene
2-M = 2-methylnaphthalene



Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

May 10, 2022

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Wiedeman J28-18D,21D,22D

Work Order #2204316

Enclosed are the results of analyses for samples received by Summit Scientific on 04/20/22 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, flowing script.

Paul Shrewsbury

President



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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS07@2.5'	2204316-07	Soil	04/20/22 14:02	04/20/22 17:00
FS01@5'	2204316-13	Soil	04/20/22 14:14	04/20/22 17:00
FS02@5'	2204316-14	Soil	04/20/22 12:10	04/20/22 17:00
FS03@5'	2204316-15	Soil	04/20/22 12:14	04/20/22 17:00
AST01@0.5'	2204316-16	Soil	04/20/22 12:22	04/20/22 17:00
AST02@0.5'	2204316-17	Soil	04/20/22 12:24	04/20/22 17:00
AST03@0.5'	2204316-18	Soil	04/20/22 12:26	04/20/22 17:00
BG01@2.5'	2204316-19	Soil	04/20/22 12:08	04/20/22 17:00
SEP01-FL01@3'	2204316-21	Soil	04/20/22 14:16	04/20/22 17:00
SEP01-DL01@3'	2204316-22	Soil	04/20/22 14:18	04/20/22 17:00
SEP02-FL02@3'	2204316-23	Soil	04/20/22 12:16	04/20/22 17:00
SEP02-DL02@3'	2204316-24	Soil	04/20/22 12:18	04/20/22 17:00
SEP03-FL03@3'	2204316-25	Soil	04/20/22 12:20	04/20/22 17:00
SEP03-DL03@3'	2204316-26	Soil	04/20/22 12:22	04/20/22 17:00

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

S₂

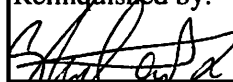
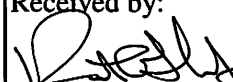
2204316.1

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

Page 1 of 3

Client: Noble / Tasman Project Manager: Jake Whritenour, Invoice: Wade Firestien
Address: 6855 W. 119th Ave E-Mail: jwhritenour@tasman-geo.com
City/State/Zip: Broomfield/ CO/ 80020
Phone: 303261-6246 Project Name: Wiedeman J28-18D, 21D, 22D
Sampler Name: Stanley Gilbert Project Number: UNBWE-A1640-ABN

					Preservative				Matrix				Analysis Requested							Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	VOC - 915	TPH - 915	PAH - 915	pH, EC, SAR	Boron - HWS	HOLD		
1	5501 @ 2.5'	4/20/22	13:50	2			X			X			X	X	X	X	X	X	X	BAR, EC, PH by Saturated paste
2	5502 @ 2.5'		13:52							X			X	X	X	X	X	X	X	HOLD
3	5503 @ 2.5'		13:54							X			X	X	X	X	X	X	X	HOLD
4	5504 @ 2.5'		13:56							X			X	X	X	X	X	X	X	HOLD
5	5505 @ 2.5'		13:58							X			X	X	X	X	X	X	X	HOLD
6	5506 @ 2.5'		14:00							X			X	X	X	X	X	X	X	HOLD
7	5507 @ 2.5'		14:02							X			X	X	X	X	X	X	X	HOLD
8	5508 @ 2.5'		14:04							X			X	X	X	X	X	X	X	HOLD
9	5509 @ 2.5'	✓	14:06	✓						X			X	X	X	X	X	X	X	HOLD
10	5510 @ 2.5'	✓	14:08	✓						X			X	X	X	X	X	X	X	HOLD

Relinquished by: 	Date/Time: 4/20/22 16:52	Received by: Tasman's Lock Box	Date/Time: 4/20/22 16:52	Turn Around Time (Check)	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 4/20/22 1700	Received by: 	Date/Time: 4/20/22 1700	Same Day — 72 hours — 24 hours — Standard <input checked="" type="checkbox"/> 48 hours —	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity: Temperature Upon Receipt: 3.9 Samples Intact: <input checked="" type="checkbox"/> Yes No	

Summit Scientific

S₂

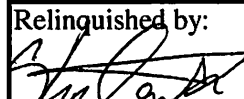
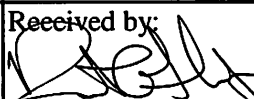
2204316.2

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

Page 2 of 3

Client: Noble / Tasman Geosciences Project Manager: Jake Whritenour, Invoice: Wade Gieschen
Address: 6855 W. 119th Ave. E-Mail: Jwhritenour@tasman-geo.com
City/State/Zip: Broomfield / CO/ 80020
Phone: 303-261-6246 Project Name: Wiedeman J28-18D, 21D, 22D
Sampler Name: Stanley Gilbert Project Number: UWRWE-A1640-ABN

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested							Special Instructions
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD		
1	5511625'	4/20/22	14:10	2			X			X				X	X	X	X	X	X	HOLD
2	5512625'		14:12				X			X				X	X	X	X	X	X	HOLD
3	F50165'		14:14																	
4	F50265'		12:10																	
5	F50365'		12:14																	
6	AST0160.5'		12:22																	
7	AST0260.5'		12:24																	
8	AST0360.5'		12:26																	
9	B601625'		12:08																X	HOLD
10	B60165'		12:12																X	HOLD

Relinquished by: 	Date/Time: 4/20/22 16:52	Received by: Tasman's Lock Box	Date/Time: 4/20/22 16:52	Turn Around Time (Check) Same Day _____ 72 hours 24 hours <input checked="" type="checkbox"/> Standard 48 hours _____ Sample Integrity: Temperature Upon Receipt: 3.9 Samples Intact: <input checked="" type="checkbox"/> Yes No	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 4/20/22 1700	Received by: 	Date/Time: 4/20/22 1700		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

Summit Scientific

S₂

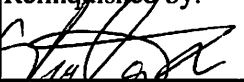
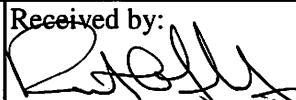
2204316.3

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

Page 3 of 3

Client: Noble / Tasman Project Manager: Jake Whritenour, Invoice: Wade Fire Station
Address: 6855 W. 119th Ave E-Mail: jwhritenour@tasman-geo.com
City/State/Zip: Broomfield/ CO/ 80020
Phone: 303261-6246 Project Name: Wiedeman J28-18D, 21D, 22D
Sampler Name: Stanley Gilbert Project Number: UWRWE-A1640-ABN

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested							Special Instructions	
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	VOC - 915	TPH - 915	PAH - 915	pH, EC, SAR	Boron - HWS	HOLD		
1	SEP01-FLO1 @ 3'	4/20/22	14:16	2			X			X				X	X	X	X	X		SAR, EC, PH by Saturated paste
2	SEP01-DLO1 @ 3'		14:18											X	X	X	X	X		
3	SEP02-FLO2 @ 3'		12:16																	
4	SEP02-DLO2 @ 3'		12:18																	
5	SEP03-FLO3 @ 3'		12:20																	
6	SEP03-DLO3 @ 3'		12:22																	
7																				
8																				
9																				
10																				

Relinquished by: 	Date/Time: 4/20/22 16:52	Received by: Tasman's Lock Box	Date/Time: 4/20/22 16:52	Turn Around Time (Check)	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 4/20/22 1700	Received by: 	Date/Time: 4/20/22 1700	Same Day — 72 hours	
				24 hours — Standard <input checked="" type="checkbox"/>	
				48 hours —	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:	
				Temperature Upon Receipt: 3.9	
				Samples Intact: (Yes) No	

S₂

3/3
Sample Receipt Checklist


S2 Work Order# 2204316Client: Noble/TasmanClient Project ID: Wiedeman J28-180, 210, 220

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

	-		
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Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 3.9Thermometer # 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.	-			on 2 CE
Were all samples received intact ⁽¹⁾ ?	-			
Was adequate sample volume provided ⁽¹⁾ ?	-			
If custody seals are present, are they intact ⁽¹⁾ ?	-			
Are samples due within 48 hours present?		-		
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			-	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	-			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	-			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	-			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	-			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			-	
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.			-	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.			-	
If dissolved metals are requested, were samples field filtered?			-	
Additional Comments (if any): 				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				


Custodian Printed Name

4.20.22
Date/Time



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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

SS07@2.5'
2204316-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/20/22 14:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFD0482	04/22/22	04/24/22	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: **04/20/22 14:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0387	96.8 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0415	104 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0379	94.6 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/20/22 14:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFD0483	04/22/22	04/23/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/20/22 14:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	13.3	107 %	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 - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

SS07@2.5'
2204316-07 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/20/22 14:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFD0479	04/22/22	04/25/22	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: **04/20/22 14:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0278	83.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0210	63.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/20/22 14:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.314	0.0100	mg/L	1	BFD0588	04/27/22	05/04/22	EPA 6020B	

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

Date Sampled: **04/20/22 14:02**

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 - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

SS07@2.5'
2204316-07 (Soil)

Summit Scientific

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

Calcium	20.6	0.0571	mg/L dry	1	BFD0608	04/29/22	05/05/22	EPA 6020B
Magnesium	2.70	0.0571	"	"	"	"	"	"
Sodium	1.24	0.0571	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **04/20/22 14:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0682	0.00100	units	1	BFE0116	05/06/22	05/06/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/20/22 14:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.6		%	1	BFD0572	04/26/22	04/27/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/20/22 14:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.526	0.0100	mmhos/cm	1	BFD0622	04/28/22	04/29/22	EPA 120.1	

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

Date Sampled: **04/20/22 14:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.24		pH Units	1	BFD0621	04/28/22	04/29/22	EPA 9045D	

Summit Scientific

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

FS01@5'
2204316-13 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/20/22 14:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFD0482	04/22/22	04/23/22	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: **04/20/22 14:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0378	94.4 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0413	103 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0388	97.0 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/20/22 14:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFD0483	04/22/22	04/23/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/20/22 14:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	13.0	104 %	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 - Wiedeman J28-18D,21D,22D

Project Number: [none]

Project Manager: Jacob Whritenour

Reported:

05/10/22 14:08

FS01@5'
2204316-13 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/20/22 14:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFD0479	04/22/22	04/25/22	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: **04/20/22 14:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0215	64.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0197	59.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/20/22 14:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.546	0.0100	mg/L	1	BFD0588	04/27/22	05/04/22	EPA 6020B	

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

Date Sampled: **04/20/22 14:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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.



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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

FS01@5'
2204316-13 (Soil)

Summit Scientific

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

Calcium	1.86	0.0550	mg/L dry	1	BFD0608	04/29/22	05/05/22	EPA 6020B
Magnesium	1.22	0.0550	"	"	"	"	"	"
Sodium	0.739	0.0550	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **04/20/22 14:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.103	0.00100	units	1	BFE0116	05/06/22	05/06/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/20/22 14:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.8		%	1	BFD0572	04/26/22	04/27/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/20/22 14:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.875	0.0100	mmhos/cm	1	BFD0622	04/28/22	04/29/22	EPA 120.1	

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

Date Sampled: **04/20/22 14:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.33		pH Units	1	BFD0621	04/28/22	04/29/22	EPA 9045D	

Summit Scientific

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

FS02@5'
2204316-14 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/20/22 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFD0482	04/22/22	04/23/22	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: **04/20/22 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0372	93.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0405	101 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0376	93.9 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/20/22 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFD0483	04/22/22	04/23/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/20/22 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	13.2	106 %	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 - Wiedeman J28-18D,21D,22D

Project Number: [none]

Project Manager: Jacob Whritenour

Reported:

05/10/22 14:08

FS02@5'
2204316-14 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/20/22 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFD0479	04/22/22	04/25/22	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: **04/20/22 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0207	62.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0209	62.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/20/22 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.394	0.0100	mg/L	1	BFD0588	04/27/22	05/04/22	EPA 6020B	

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

Date Sampled: **04/20/22 12:10**

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 - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

FS02@5'
2204316-14 (Soil)

Summit Scientific

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

Calcium	5.32	0.0543	mg/L dry	1	BFD0608	04/29/22	05/05/22	EPA 6020B
Magnesium	1.51	0.0543	"	"	"	"	"	"
Sodium	0.375	0.0543	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **04/20/22 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0370	0.00100	units	1	BFE0116	05/06/22	05/06/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/20/22 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	92.0		%	1	BFD0572	04/26/22	04/27/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/20/22 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.273	0.0100	mmhos/cm	1	BFD0622	04/28/22	04/29/22	EPA 120.1	

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

Date Sampled: **04/20/22 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.21		pH Units	1	BFD0621	04/28/22	04/29/22	EPA 9045D	

Summit Scientific

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]

Project Manager: Jacob Whritenour

Reported:

05/10/22 14:08

FS03@5'
2204316-15 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/20/22 12:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFD0482	04/22/22	04/23/22	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: **04/20/22 12:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0383	95.7 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0414	104 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0383	95.8 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/20/22 12:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFD0483	04/22/22	04/23/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/20/22 12:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	13.0	104 %	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 - Wiedeman J28-18D,21D,22D

Project Number: [none]

Project Manager: Jacob Whritenour

Reported:

05/10/22 14:08

FS03@5'
2204316-15 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/20/22 12:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFD0479	04/22/22	04/25/22	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: **04/20/22 12:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0201	60.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0197	59.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/20/22 12:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.318	0.0100	mg/L	1	BFD0588	04/27/22	05/04/22	EPA 6020B	

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

Date Sampled: **04/20/22 12:14**

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 - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

FS03@5'
2204316-15 (Soil)

Summit Scientific

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

Calcium	1.83	0.0551	mg/L dry	1	BFD0608	04/29/22	05/05/22	EPA 6020B
Magnesium	0.800	0.0551	"	"	"	"	"	"
Sodium	0.290	0.0551	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **04/20/22 12:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0450	0.00100	units	1	BFE0116	05/06/22	05/06/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/20/22 12:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.7		%	1	BFD0572	04/26/22	04/27/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/20/22 12:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.217	0.0100	mmhos/cm	1	BFD0622	04/28/22	04/29/22	EPA 120.1	

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

Date Sampled: **04/20/22 12:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.79		pH Units	1	BFD0621	04/28/22	04/29/22	EPA 9045D	

Summit Scientific

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]

Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

AST01@0.5'
2204316-16 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/20/22 12:22**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFD0482	04/22/22	04/23/22	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: **04/20/22 12:22**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0384	95.9 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0411	103 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0374	93.5 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/20/22 12:22**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFD0483	04/22/22	04/23/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/20/22 12:22**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	14.6	117 %	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 - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

AST01@0.5'
2204316-16 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/20/22 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFD0479	04/22/22	04/25/22	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: **04/20/22 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0190	56.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0187	56.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/20/22 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.308	0.0100	mg/L	1	BFD0588	04/27/22	05/04/22	EPA 6020B	

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

Date Sampled: **04/20/22 12:22**

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 - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

AST01@0.5'
2204316-16 (Soil)

Summit Scientific

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

Calcium	16.4	0.0549	mg/L dry	1	BFD0608	04/29/22	05/05/22	EPA 6020B
Magnesium	2.51	0.0549	"	"	"	"	"	"
Sodium	1.23	0.0549	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **04/20/22 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0747	0.00100	units	1	BFE0116	05/06/22	05/06/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/20/22 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.1		%	1	BFD0572	04/26/22	04/27/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/20/22 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.948	0.0100	mmhos/cm	1	BFD0622	04/28/22	04/29/22	EPA 120.1	

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

Date Sampled: **04/20/22 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.88		pH Units	1	BFD0621	04/28/22	04/29/22	EPA 9045D	

Summit Scientific

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]

Project Manager: Jacob Whritenour

Reported:

05/10/22 14:08

AST02@0.5'
2204316-17 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/20/22 12:24**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFD0482	04/22/22	04/23/22	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: **04/20/22 12:24**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0389	97.2 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0410	102 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0370	92.6 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/20/22 12:24**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFD0483	04/22/22	04/23/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/20/22 12:24**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	13.4	107 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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



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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

AST02@0.5'
2204316-17 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/20/22 12:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFD0479	04/22/22	04/25/22	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: **04/20/22 12:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0182	54.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0183	55.0 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/20/22 12:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.273	0.0100	mg/L	1	BFD0588	04/27/22	05/04/22	EPA 6020B	

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

Date Sampled: **04/20/22 12:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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.



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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

AST02@0.5'
2204316-17 (Soil)

Summit Scientific

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

Calcium	13.9	0.0555	mg/L dry	1	BFD0608	04/29/22	05/05/22	EPA 6020B
Magnesium	2.04	0.0555	"	"	"	"	"	"
Sodium	1.54	0.0555	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **04/20/22 12:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.102	0.00100	units	1	BFE0116	05/06/22	05/06/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/20/22 12:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.2		%	1	BFD0572	04/26/22	04/27/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/20/22 12:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.371	0.0100	mmhos/cm	1	BFD0622	04/28/22	04/29/22	EPA 120.1	

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

Date Sampled: **04/20/22 12:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.52		pH Units	1	BFD0621	04/28/22	04/29/22	EPA 9045D	

Summit Scientific

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]

Project Manager: Jacob Whritenour

Reported:

05/10/22 14:08

AST03@0.5'
2204316-18 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/20/22 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFD0482	04/22/22	04/23/22	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: **04/20/22 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0376	94.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0403	101 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0381	95.2 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/20/22 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFD0483	04/22/22	04/23/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/20/22 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	13.1	105 %	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 - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

AST03@0.5'
2204316-18 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/20/22 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFD0479	04/22/22	04/25/22	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: **04/20/22 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0213	64.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0209	62.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/20/22 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.253	0.0100	mg/L	1	BFD0588	04/27/22	05/04/22	EPA 6020B	

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

Date Sampled: **04/20/22 12:26**

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 - Wiedeman J28-18D,21D,22D

Project Number: [none]

Project Manager: Jacob Whritenour

Reported:

05/10/22 14:08

AST03@0.5'
2204316-18 (Soil)

Summit Scientific

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

Calcium	22.2	0.0548	mg/L dry	1	BFD0608	04/29/22	05/05/22	EPA 6020B
Magnesium	2.57	0.0548	"	"	"	"	"	"
Sodium	0.594	0.0548	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **04/20/22 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0318	0.00100	units	1	BFE0116	05/06/22	05/06/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/20/22 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.2		%	1	BFD0572	04/26/22	04/27/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/20/22 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.238	0.0100	mmhos/cm	1	BFD0622	04/28/22	04/29/22	EPA 120.1	

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

Date Sampled: **04/20/22 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.43		pH Units	1	BFD0621	04/28/22	04/29/22	EPA 9045D	

Summit Scientific

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]

Project Manager: Jacob Whritenour

Reported:

05/10/22 14:08

BG01@2.5'
2204316-19 (Soil)

Summit Scientific

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

Date Sampled: **04/20/22 12:08**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.52			pH Units	1	BFE0172	05/09/22	05/09/22	EPA 9045D	

Summit Scientific

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]

Project Manager: Jacob Whritenour

Reported:

05/10/22 14:08

SEP01-FL01@3'

2204316-21 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/20/22 14:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFD0482	04/22/22	04/23/22	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: **04/20/22 14:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0380	95.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0413	103 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0382	95.4 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/20/22 14:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFD0483	04/22/22	04/23/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/20/22 14:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	13.6	109 %	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 - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

SEP01-FL01@3'
2204316-21 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/20/22 14:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFD0479	04/22/22	04/25/22	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: **04/20/22 14:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0192	57.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0193	57.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/20/22 14:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.196	0.0100	mg/L	1	BFD0588	04/27/22	05/04/22	EPA 6020B	

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

Date Sampled: **04/20/22 14:16**

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 - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

SEP01-FL01@3'
2204316-21 (Soil)

Summit Scientific

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

Calcium	7.76	0.0556	mg/L dry	1	BFD0608	04/29/22	05/05/22	EPA 6020B
Magnesium	1.99	0.0556	"	"	"	"	"	"
Sodium	0.316	0.0556	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **04/20/22 14:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0262	0.00100	units	1	BFE0116	05/06/22	05/06/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/20/22 14:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.9		%	1	BFD0572	04/26/22	04/27/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/20/22 14:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.176	0.0100	mmhos/cm	1	BFD0622	04/28/22	04/29/22	EPA 120.1	

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

Date Sampled: **04/20/22 14:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.22		pH Units	1	BFD0621	04/28/22	04/29/22	EPA 9045D	

Summit Scientific

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]

Project Manager: Jacob Whritenour

Reported:

05/10/22 14:08

SEP01-DL01@3'

2204316-22 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/20/22 14:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFD0482	04/22/22	04/23/22	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: **04/20/22 14:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0380	94.9 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0413	103 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0374	93.5 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/20/22 14:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFD0483	04/22/22	04/23/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/20/22 14:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	14.0	112 %	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 - Wiedeman J28-18D,21D,22D

Project Number: [none]

Project Manager: Jacob Whritenour

Reported:

05/10/22 14:08

SEP01-DL01@3'

2204316-22 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/20/22 14:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFD0479	04/22/22	04/25/22	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: **04/20/22 14:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0207	62.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0208	62.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/20/22 14:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.192	0.0100	mg/L	1	BFD0588	04/27/22	05/04/22	EPA 6020B	

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

Date Sampled: **04/20/22 14:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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.



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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

SEP01-DL01@3'
2204316-22 (Soil)

Summit Scientific

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

Calcium	8.30	0.0561	mg/L dry	1	BFD0608	04/29/22	05/05/22	EPA 6020B
Magnesium	2.25	0.0561	"	"	"	"	"	"
Sodium	0.386	0.0561	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **04/20/22 14:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0307	0.00100	units	1	BFE0116	05/06/22	05/06/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/20/22 14:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.2		%	1	BFD0572	04/26/22	04/27/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/20/22 14:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.167	0.0100	mmhos/cm	1	BFD0622	04/28/22	04/29/22	EPA 120.1	

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

Date Sampled: **04/20/22 14:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.32		pH Units	1	BFD0621	04/28/22	04/29/22	EPA 9045D	

Summit Scientific

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

SEP02-FL02@3'
2204316-23 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/20/22 12:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFD0482	04/22/22	04/23/22	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: **04/20/22 12:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0388	97.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0408	102 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0381	95.3 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/20/22 12:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFD0483	04/22/22	04/23/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/20/22 12:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	15.6	124 %	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 - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

SEP02-FL02@3'
2204316-23 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/20/22 12:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFD0479	04/22/22	04/25/22	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: **04/20/22 12:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0216	64.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0215	64.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/20/22 12:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.187	0.0100	mg/L	1	BFD0588	04/27/22	05/04/22	EPA 6020B	

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

Date Sampled: **04/20/22 12:16**

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 - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

SEP02-FL02@3'
2204316-23 (Soil)

Summit Scientific

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

Calcium	3.65	0.0553	mg/L dry	1	BFD0608	04/29/22	05/05/22	EPA 6020B
Magnesium	1.56	0.0553	"	"	"	"	"	"
Sodium	0.316	0.0553	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **04/20/22 12:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0349	0.00100	units	1	BFE0116	05/06/22	05/06/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/20/22 12:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.3		%	1	BFD0572	04/26/22	04/27/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/20/22 12:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.198	0.0100	mmhos/cm	1	BFD0622	04/28/22	04/29/22	EPA 120.1	

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

Date Sampled: **04/20/22 12:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.08		pH Units	1	BFD0621	04/28/22	04/29/22	EPA 9045D	

Summit Scientific

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]

Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

SEP02-DL02@3'
2204316-24 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/20/22 12:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFD0482	04/22/22	04/23/22	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: **04/20/22 12:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0368	92.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0412	103 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0373	93.2 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/20/22 12:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFD0483	04/22/22	04/23/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/20/22 12:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	13.6	109 %	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 - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

SEP02-DL02@3'
2204316-24 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/20/22 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFD0479	04/22/22	04/25/22	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: **04/20/22 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0202	60.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0201	60.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/20/22 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.194	0.0100	mg/L	1	BFD0588	04/27/22	05/04/22	EPA 6020B	

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

Date Sampled: **04/20/22 12:18**

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 - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

SEP02-DL02@3'
2204316-24 (Soil)

Summit Scientific

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

Calcium	9.61	0.0577	mg/L dry	1	BFD0608	04/29/22	05/05/22	EPA 6020B
Magnesium	3.69	0.0577	"	"	"	"	"	"
Sodium	0.569	0.0577	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **04/20/22 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0396	0.00100	units	1	BFE0116	05/06/22	05/06/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/20/22 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	86.7		%	1	BFD0572	04/26/22	04/27/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/20/22 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.226	0.0100	mmhos/cm	1	BFD0622	04/28/22	04/29/22	EPA 120.1	

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

Date Sampled: **04/20/22 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.93		pH Units	1	BFD0621	04/28/22	04/29/22	EPA 9045D	

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]

Project Manager: Jacob Whritenour

Reported:

05/10/22 14:08

SEP03-FL03@3'

2204316-25 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/20/22 12:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFD0482	04/22/22	04/23/22	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: **04/20/22 12:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0378	94.6 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0406	101 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0375	93.8 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/20/22 12:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFD0483	04/22/22	04/23/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/20/22 12:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	16.0	128 %	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 - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

SEP03-FL03@3'
2204316-25 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/20/22 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFD0479	04/22/22	04/25/22	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: **04/20/22 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0193	57.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0187	56.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/20/22 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.217	0.0100	mg/L	1	BFD0588	04/27/22	05/04/22	EPA 6020B	

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

Date Sampled: **04/20/22 12:20**

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 - Wiedeman J28-18D,21D,22D

Project Number: [none]

Project Manager: Jacob Whritenour

Reported:

05/10/22 14:08

SEP03-FL03@3'

2204316-25 (Soil)

Summit Scientific

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

Calcium	5.41	0.0556	mg/L dry	1	BFD0608	04/29/22	05/05/22	EPA 6020B
Magnesium	2.40	0.0556	"	"	"	"	"	"
Sodium	0.525	0.0556	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **04/20/22 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0472	0.00100	units	1	BFE0116	05/06/22	05/06/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/20/22 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.0		%	1	BFD0572	04/26/22	04/27/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/20/22 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.265	0.0100	mmhos/cm	1	BFD0622	04/28/22	04/29/22	EPA 120.1	

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

Date Sampled: **04/20/22 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.19		pH Units	1	BFD0621	04/28/22	04/29/22	EPA 9045D	

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]

Project Manager: Jacob Whritenour

Reported:

05/10/22 14:08

SEP03-DL03@3'

2204316-26 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/20/22 12:22**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFD0482	04/22/22	04/23/22	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: **04/20/22 12:22**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0360	89.9 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0409	102 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0379	94.7 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/20/22 12:22**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFD0483	04/22/22	04/23/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/20/22 12:22**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	15.8	126 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

SEP03-DL03@3'
2204316-26 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/20/22 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFD0479	04/22/22	04/25/22	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: **04/20/22 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0204	61.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0223	66.8 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/20/22 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.292	0.0100	mg/L	1	BFD0588	04/27/22	05/04/22	EPA 6020B	

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

Date Sampled: **04/20/22 12:22**

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 - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

SEP03-DL03@3'
2204316-26 (Soil)

Summit Scientific

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

Calcium	6.47	0.0570	mg/L dry	1	BFD0608	04/29/22	05/05/22	EPA 6020B
Magnesium	2.44	0.0570	"	"	"	"	"	"
Sodium	0.772	0.0570	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **04/20/22 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0656	0.00100	units	1	BFE0116	05/06/22	05/06/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/20/22 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.8		%	1	BFD0572	04/26/22	04/27/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/20/22 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.213	0.0100	mmhos/cm	1	BFD0622	04/28/22	04/29/22	EPA 120.1	

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

Date Sampled: **04/20/22 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.25		pH Units	1	BFD0621	04/28/22	04/29/22	EPA 9045D	

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

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 BFD0482 - EPA 5030 Soil MS

Blank (BFD0482-BLK1)

Prepared: 04/22/22 Analyzed: 04/23/22

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0356		"	0.0400		88.9	50-150			
Surrogate: Toluene-d8	0.0412		"	0.0400		103	50-150			
Surrogate: 4-Bromofluorobenzene	0.0375		"	0.0400		93.8	50-150			

LCS (BFD0482-BS1)

Prepared: 04/22/22 Analyzed: 04/23/22

Benzene	0.0566	0.0020	mg/kg	0.0750		75.4	70-130			
Toluene	0.0602	0.0050	"	0.0750		80.3	70-130			
Ethylbenzene	0.0591	0.0050	"	0.0750		78.8	70-130			
m,p-Xylene	0.124	0.010	"	0.150		82.8	70-130			
o-Xylene	0.0702	0.0050	"	0.0750		93.6	70-130			
1,2,4-Trimethylbenzene	0.0662	0.0050	"	0.0750		88.2	70-130			
1,3,5-Trimethylbenzene	0.0626	0.0050	"	0.0750		83.4	70-130			
Naphthalene	0.0839	0.0038	"	0.0750		112	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0358		"	0.0400		89.6	50-150			
Surrogate: Toluene-d8	0.0412		"	0.0400		103	50-150			
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0400		97.9	50-150			

Matrix Spike (BFD0482-MS1)

Source: 2204311-01

Prepared: 04/22/22 Analyzed: 04/23/22

Benzene	0.0590	0.0020	mg/kg	0.0750	ND	78.6	70-130			
Toluene	0.0612	0.0050	"	0.0750	ND	81.6	70-130			
Ethylbenzene	0.0565	0.0050	"	0.0750	ND	75.4	70-130			
m,p-Xylene	0.118	0.010	"	0.150	ND	78.9	70-130			
o-Xylene	0.0683	0.0050	"	0.0750	ND	91.0	70-130			
1,2,4-Trimethylbenzene	0.0645	0.0050	"	0.0750	ND	86.0	70-130			
1,3,5-Trimethylbenzene	0.0596	0.0050	"	0.0750	ND	79.5	70-130			
Naphthalene	0.0811	0.0038	"	0.0750	ND	108	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0424		"	0.0400		106	50-150			
Surrogate: Toluene-d8	0.0408		"	0.0400		102	50-150			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.4	50-150			

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Tasman Geosciences
6855 W. 119th Ave.
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Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]

Project Manager: Jacob Whritenour

Reported:

05/10/22 14:08

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 BFD0482 - EPA 5030 Soil MS

Matrix Spike Dup (BFD0482-MSD1)	Source: 2204311-01			Prepared: 04/22/22 Analyzed: 04/23/22						
Benzene	0.0569	0.0020	mg/kg	0.0750	ND	75.9	70-130	3.52	30	
Toluene	0.0614	0.0050	"	0.0750	ND	81.8	70-130	0.196	30	
Ethylbenzene	0.0577	0.0050	"	0.0750	ND	77.0	70-130	2.10	30	
m,p-Xylene	0.122	0.010	"	0.150	ND	81.5	70-130	3.24	30	
o-Xylene	0.0693	0.0050	"	0.0750	ND	92.4	70-130	1.44	30	
1,2,4-Trimethylbenzene	0.0655	0.0050	"	0.0750	ND	87.3	70-130	1.48	30	
1,3,5-Trimethylbenzene	0.0609	0.0050	"	0.0750	ND	81.2	70-130	2.04	30	
Naphthalene	0.0917	0.0038	"	0.0750	ND	122	70-130	12.3	30	
Surrogate: 1,2-Dichloroethane-d4	0.0392		"	0.0400		98.1	50-150			
Surrogate: Toluene-d8	0.0412		"	0.0400		103	50-150			
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0400		97.9	50-150			

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BFD0483 - EPA 3550A

Blank (BFD0483-BLK1)

Prepared: 04/22/22 Analyzed: 04/23/22

C10-C28 (DRO)	ND	50	mg/kg
C28-C36 (ORO)	ND	50	"

LCS (BFD0483-BS1)

Prepared: 04/22/22 Analyzed: 04/23/22

C10-C28 (DRO)	413	50	mg/kg	500	82.6	70-130
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Matrix Spike (BFD0483-MS1)

Source: 2204311-01

Prepared: 04/22/22 Analyzed: 04/23/22

C10-C28 (DRO)	493	50	mg/kg	500	11.5	96.2	70-130
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Matrix Spike Dup (BFD0483-MSD1)

Source: 2204311-01

Prepared: 04/22/22 Analyzed: 04/23/22

C10-C28 (DRO)	435	50	mg/kg	500	11.5	84.6	70-130	12.5	20
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Tasman Geosciences
6855 W. 119th Ave.
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Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

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 BFD0479 - EPA 5030 Soil MS

Blank (BFD0479-BLK1)

Prepared: 04/22/22 Analyzed: 04/24/22

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	0.0296		"	0.0333		88.7	40-150			
Surrogate: Fluoranthene-d10	0.0268		"	0.0333		80.5	40-150			

LCS (BFD0479-BS1)

Prepared: 04/22/22 Analyzed: 04/24/22

Acenaphthene	0.0307	0.00500	mg/kg	0.0333		92.1	31-137			
Anthracene	0.0313	0.00500	"	0.0333		94.0	30-120			
Benzo (a) anthracene	0.0293	0.00500	"	0.0333		87.9	30-120			
Benzo (a) pyrene	0.0282	0.00500	"	0.0333		84.5	30-120			
Benzo (b) fluoranthene	0.0290	0.00500	"	0.0333		87.0	30-120			
Benzo (k) fluoranthene	0.0310	0.00500	"	0.0333		92.9	30-120			
Chrysene	0.0317	0.00500	"	0.0333		95.1	30-120			
Dibenz (a,h) anthracene	0.0283	0.00500	"	0.0333		84.9	30-120			
Fluoranthene	0.0317	0.00500	"	0.0333		95.2	30-120			
Fluorene	0.0311	0.00500	"	0.0333		93.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0175	0.00500	"	0.0333		52.5	30-120			
Pyrene	0.0313	0.00500	"	0.0333		93.9	35-142			
1-Methylnaphthalene	0.0269	0.00500	"	0.0333		80.7	35-142			
2-Methylnaphthalene	0.0335	0.00500	"	0.0333		100	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0334		"	0.0333		100	40-150			
Surrogate: Fluoranthene-d10	0.0332		"	0.0333		99.5	40-150			

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Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

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 BFD0479 - EPA 5030 Soil MS

Matrix Spike (BFD0479-MS1)

Source: 2204316-07

Prepared: 04/22/22 Analyzed: 04/24/22

Acenaphthene	0.0225	0.00500	mg/kg	0.0333	ND	67.6	31-137			
Anthracene	0.0224	0.00500	"	0.0333	ND	67.3	30-120			
Benzo (a) anthracene	0.0225	0.00500	"	0.0333	ND	67.5	30-120			
Benzo (a) pyrene	0.0203	0.00500	"	0.0333	ND	61.0	30-120			
Benzo (b) fluoranthene	0.0198	0.00500	"	0.0333	ND	59.3	30-120			
Benzo (k) fluoranthene	0.0196	0.00500	"	0.0333	ND	58.9	30-120			
Chrysene	0.0223	0.00500	"	0.0333	ND	66.8	30-120			
Dibenz (a,h) anthracene	0.0202	0.00500	"	0.0333	ND	60.5	30-120			
Fluoranthene	0.0240	0.00500	"	0.0333	ND	72.0	30-120			
Fluorene	0.0233	0.00500	"	0.0333	ND	70.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0140	0.00500	"	0.0333	ND	41.9	30-120			
Pyrene	0.0235	0.00500	"	0.0333	ND	70.5	35-142			
1-Methylnaphthalene	0.0222	0.00500	"	0.0333	ND	66.6	15-130			
2-Methylnaphthalene	0.0255	0.00500	"	0.0333	ND	76.6	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0243		"	0.0333		73.0	40-150			
Surrogate: Fluoranthene-d10	0.0248		"	0.0333		74.3	40-150			

Matrix Spike Dup (BFD0479-MSD1)

Source: 2204316-07

Prepared: 04/22/22 Analyzed: 04/25/22

Acenaphthene	0.0218	0.00500	mg/kg	0.0333	ND	65.3	31-137	3.45	30	
Anthracene	0.0221	0.00500	"	0.0333	ND	66.4	30-120	1.36	30	
Benzo (a) anthracene	0.0215	0.00500	"	0.0333	ND	64.5	30-120	4.52	30	
Benzo (a) pyrene	0.0199	0.00500	"	0.0333	ND	59.7	30-120	2.01	30	
Benzo (b) fluoranthene	0.0196	0.00500	"	0.0333	ND	58.9	30-120	0.680	30	
Benzo (k) fluoranthene	0.0191	0.00500	"	0.0333	ND	57.3	30-120	2.76	30	
Chrysene	0.0213	0.00500	"	0.0333	ND	63.8	30-120	4.70	30	
Dibenz (a,h) anthracene	0.0195	0.00500	"	0.0333	ND	58.5	30-120	3.37	30	
Fluoranthene	0.0228	0.00500	"	0.0333	ND	68.4	30-120	5.17	30	
Fluorene	0.0224	0.00500	"	0.0333	ND	67.3	30-120	3.95	30	
Indeno (1,2,3-cd) pyrene	0.0134	0.00500	"	0.0333	ND	40.1	30-120	4.28	30	
Pyrene	0.0221	0.00500	"	0.0333	ND	66.2	35-142	6.35	30	
1-Methylnaphthalene	0.0194	0.00500	"	0.0333	ND	58.2	15-130	13.4	50	
2-Methylnaphthalene	0.0253	0.00500	"	0.0333	ND	76.0	15-130	0.723	50	
Surrogate: 2-Methylnaphthalene-d10	0.0237		"	0.0333		71.2	40-150			
Surrogate: Fluoranthene-d10	0.0240		"	0.0333		72.0	40-150			

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

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 BFD0588 - EPA 3050B

Blank (BFD0588-BLK1)

Prepared: 04/27/22 Analyzed: 05/04/22

Boron ND 0.0100 mg/L

LCS (BFD0588-BS1)

Prepared: 04/27/22 Analyzed: 05/04/22

Boron 5.02 0.0100 mg/L 5.00 100 80-120

Duplicate (BFD0588-DUP1)

Source: 2204311-01

Prepared: 04/27/22 Analyzed: 05/04/22

Boron 0.296 0.0100 mg/L 0.303 2.21 20

Matrix Spike (BFD0588-MS1)

Source: 2204311-01

Prepared: 04/27/22 Analyzed: 05/04/22

Boron 5.61 0.0100 mg/L 5.00 0.303 106 75-125

Matrix Spike Dup (BFD0588-MSD1)

Source: 2204311-01

Prepared: 04/27/22 Analyzed: 05/04/22

Boron 5.20 0.0100 mg/L 5.00 0.303 98.0 75-125 7.57 25

Summit Scientific

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

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

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

Batch BFD0608 - General Preparation

Blank (BFD0608-BLK1)

Prepared: 04/29/22 Analyzed: 05/05/22

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

LCS (BFD0608-BS1)

Prepared: 04/29/22 Analyzed: 05/05/22

Calcium	5.84	0.0500	mg/L wet	5.00	117	70-130
Magnesium	6.33	0.0500	"	5.00	127	70-130
Sodium	5.81	0.0500	"	5.00	116	70-130

Summit Scientific

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

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 BFD0572 - General Preparation

Duplicate (BFD0572-DUP1)		Source: 2204311-01		Prepared: 04/26/22 Analyzed: 04/27/22	
% Solids	80.9		%	80.6	0.373 20

Summit Scientific

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

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 BFD0622 - General Preparation

Blank (BFD0622-BLK1)

Prepared: 04/28/22 Analyzed: 04/29/22

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BFD0622-BS1)

Prepared: 04/28/22 Analyzed: 04/29/22

Specific Conductance (EC) 0.152 0.0100 mmhos/cm 0.150 101 95-105

Duplicate (BFD0622-DUP1)

Source: 2204316-07

Prepared: 04/28/22 Analyzed: 04/29/22

Specific Conductance (EC) 0.504 0.0100 mmhos/cm 0.526 4.16 20

Summit Scientific

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

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 BFD0621 - General Preparation

LCS (BFD0621-BS1)				Prepared: 04/28/22 Analyzed: 04/29/22						
pH	9.08		pH Units	9.18		98.9	95-105			
Duplicate (BFD0621-DUP1)				Source: 2204316-07		Prepared: 04/28/22 Analyzed: 04/29/22				
pH	8.30		pH Units		8.24			0.726	20	

Batch BFE0172 - General Preparation

LCS (BFE0172-BS1)				Prepared & Analyzed: 05/09/22						
pH	9.16		pH Units	9.18		99.8	95-105			
Duplicate (BFE0172-DUP1)				Source: 2204316-19		Prepared & Analyzed: 05/09/22				
pH	8.52		pH Units		8.52			0.00	20	

Summit Scientific

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

Project: Noble - Wiedeman J28-18D,21D,22D

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
05/10/22 14:08

Notes and Definitions

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