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									
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? If yes	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 seperator (SEP01-FL01-03@3' &SEP01-DL01- 03@3')

Third Party Equipment

Type									
Age									

Photographic Log

Equipment ID: AST03@0.5'	Equipment Type: Above Ground Storage Tank	
Material: Steel	Volume:	Contents: Crude Oil
Notes/Conditions:		

Equipment ID: SEP01-FL01@3'	Equipment Type: Separator	
Material: Steel	Volume:	Contents: Oil/Gas/Water
Notes/Conditions:		

Photographic Log

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

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

Photographic Log

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

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

Photographic Log

Equipment ID: SEP03-DL03@3'	**Equipment Type:** Separator	
Material: Steel	**Volume:**	**Contents:** Oil/Gas/Water
Notes/Conditions:		

Equipment ID: SS01@2.5'	**Equipment Type:** Partially Buried Vault	
Material: Concrete	**Volume:**	**Contents:** Produced Water
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	
Material: Concrete	Volume:	Contents: Produced Water
Notes/Conditions:		

Equipment ID: SS05@2.5	Equipment Type: Partially Buried Vault	
Material: Concrete	Volume:	Contents: Produced Water
Notes/Conditions:		

Photographic Log

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

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

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

Photographic Log

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

Equipment ID: MH01@0.5'	Equipment Type:	
Material:	Volume:	Contents:
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	
Material: Concrete	**Volume:**	**Contents:** Produced Water
Notes/Conditions:		

Equipment ID: FS03@5'	**Equipment Type:** Partially Buried Vault	
Material: Concrete	**Volume:**	**Contents:** Produced Water
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	04/20/22	0.0	No Staining	No odor	Grab	40.37066442	-104.7764019	0.9
MH02	04/20/22	0.0	No Staining	No odor	Grab	40.37069501	-104.7764122	0.9
MH03	04/20/22	0.0	No Staining	No odor	Grab	40.37070978	-104.7764097	0.9
FLARE01	04/20/22	0.0	No Staining	No odor	Grab	40.37075707	-104.7764342	0.9
AST01	04/20/22	0.0	No Staining	No odor	Lab	40.37079816	-104.7767509	1.1
AST02	04/20/22	0.0	No Staining	No odor	Lab	40.37073788	-104.7767583	1.1
AST03	04/20/22	0.0	No Staining	No odor	Lab	40.37069210	-104.7767590	1
SEP01-FL01	04/20/22	0.0	No Staining	No odor	Lab	40.37066185	-104.7764384	1
SEP02-FL02	04/20/22	0.0	No Staining	No odor	Lab	40.37069553	-104.7764367	1
SEP03-FL03	04/20/22	0.0	No Staining	No odor	Lab	40.37071532	-104.7764309	1
SEP03-DL03	04/20/22	0.0	No Staining	No odor	Lab	40.37070248	-104.7764837	1.1
SEP02-DL02	04/20/22	0.0	No Staining	No odor	Lab	40.37068054	-104.7764811	1.1
SEP01-DL01	04/20/22	0.0	No Staining	No odor	Lab	40.37064766	-104.7764922	1
BG01	04/20/22	0.0	No Staining	No odor	Lab	40.37093168	-104.7763820	1
SS01	04/20/22	0.0	No Staining	No odor	Lab	40.37081652	-104.7767814	1.2
SS02	04/20/22	0.0	No Staining	No odor	Lab	40.37078491	-104.7767835	1.2
SS03	04/20/22	0.0	No Staining	No odor	Lab	40.37077662	-104.7768040	1.1
SS04	04/20/22	0.0	No Staining	No odor	Lab	40.37078887	-104.7768251	1.2
FS01	04/20/22	0.0	No Staining	No odor	Lab	40.37078953	-104.7767942	1.1
SS05	04/20/22	0.0	No Staining	No odor	Lab	40.37076233	-104.7768038	1.1
SS06	04/20/22	0.0	No Staining	No odor	Lab	40.37074186	-104.7767667	1.2
SS07	04/20/22	16.9	No Staining	Slight HC odor	Lab	40.37073091	-104.7768076	1.2
SS08	04/20/22	0.0	No Staining	No odor	Lab	40.37074522	-104.7768235	1.2
FS02	04/20/22	0.6	No Staining	No odor	Lab	40.37074964	-104.7768100	1.2
SS09	04/20/22	0.0	No Staining	No odor	Lab	40.37071923	-104.7768069	1.2
SS10	04/20/22	0.0	No Staining	No odor	Lab	40.37068279	-104.7767718	1.1
SS11	04/20/22	0.0	No Staining	No odor	Lab	40.37065793	-104.7768017	1.2
SS12	04/20/22	0.0	No Staining	No odor	Lab	40.37069253	-104.7768270	1.1
FS03	04/20/22	1.8	HC Staining	No odor	Lab	40.37068598	-104.7768034	1.2

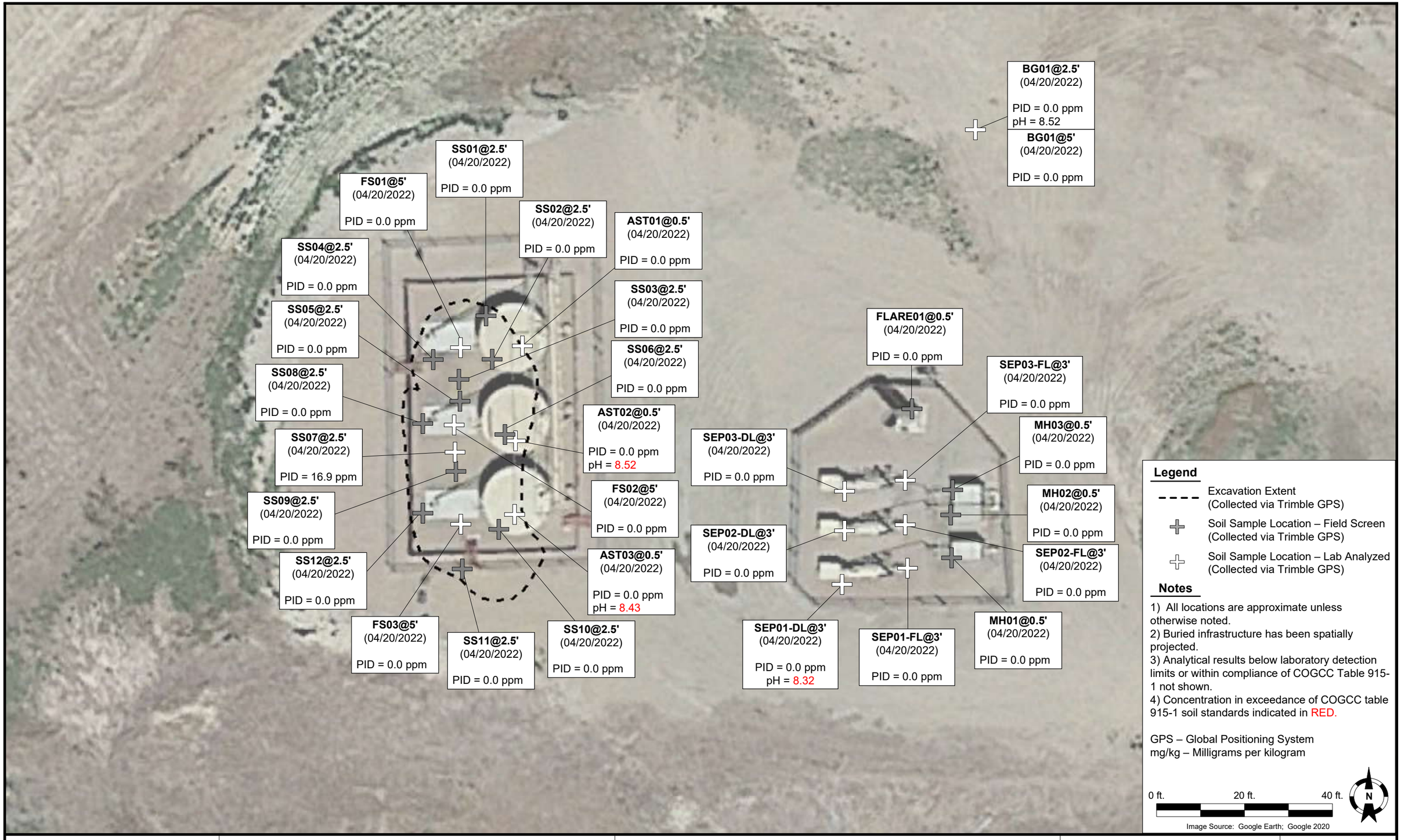
TABLE 2
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - Wiedeman J28-18D,21D,22D

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
NA = Not Analysed
1,2,4 - TMB = 1,2,4 Trimethylbenzene
1,3,5 - TMB = 1,3,5 Trimethylbenzene
Benz(a) = Benzanthracene
Benzo(b) = Benzofluoranthene
Benzo(k) = Benzofluoranthene
Benzo(a) = Benzopyrene
A,H = Dibenzoanthracene
1,2,3-CD = Indenopyrene
1-M = 1-methylnaphthalene
2-M = 2-methylnaphthalene
Highlighted results are equal to or exceed the COGCC Table 915-1 standard



DATE:	4/25/2022
DESIGNED BY:	JW
DRAWN BY:	AD

TASMAN GEOSCIENCES

Tasman Geosciences, Inc.
6855 W 119th Avenue
Broomfield, CO 80020

Noble Energy, Inc. – DJ Basin
Wiedeman J 28-18D, 21D, 22D Facility
SENE, Section 28, Township 5 North, Range 66 West
Weld County, Colorado

Wellhead Closure & Soil Analytical Results Map (04/20/2022)

FIGURE 1

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,

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

S_2

2204316.1

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

Client: Noble / Tasman
Address: 6855 W. 119th Ave
City/State/Zip: Broomfield/ CO/ 80020
Phone: 303261-6246
Sampler Name: Stanley Gilbert

Project Manager: Jake Whritenour, Invoice: Wade Fiestien
E-Mail: jwhritenour@tasman-geo.com
Project Name: Wiedeman J28-18D, 21D, 22D
Project Number: NWBWE-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		SAR, EC, pH by Saturated paste
1	SS01@2.5'	4/20/22	13:50	2			X			X				X	X	X	X	X	X	HOLD
2	SS02@2.5'		13:52																X	HOLD
3	SS03@2.5'		13:54																X	HOLD
4	SS04@2.5'		13:56																X	HOLD
5	SS05@2.5'		13:58																X	HOLD
6	SS06@2.5'		14:00																X	HOLD
7	SS07@2.5'		14:02																	
8	SS08@2.5'		14:04																X	HOLD
9	SS09@2.5'		14:06																X	HOLD
10	SS10@2.5		14:08																X	HOLD

Relinquished by:	Date/Time:	Received by:	Date/Time:
	4/20/22 16:52	Tasman's Lock Box	4/20/22 16:52
Relinquished by: Tasman's Lock Box	Date/Time: 42022 1700	Received by:	Date/Time: 42022 1700
Relinquished by:	Date/Time:	Received by:	Date/Time:

Turn Around Time (Check)
Same Day ___ 72 hours ___
24 hours ___ Standard X
48 hours ___
Sample Integrity:
Temperature Upon Receipt: 3.9
Samples Intact: (Yes) No

Notes:

Summit Scientific

S_2

2204316.2

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

Client: Noble / Tasman Geosciences
Project Manager: Jake Whritenour, Invoice: Wade Fiscbien
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

					Preservative				Matrix				Analysis Requested							Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other ___	Water	Soil	Air-Canister #	Other ___		VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD		SAR, EC, PH by Saturated paste
1	SS1625'	4/20/22	14:10	2			X			X				X	X	X	X	X	X	HOLD
2	SS2625'		14:12	↓			↓			↓				↓	↓	↓	↓	↓	X	HOLD
3	FS0165'		14:14																	
4	FS0265'		12:10																	
5	FS0365'		12:14																	
6	AST01@0.5'		12:22																	
7	AST02@0.5'		12:24																	
8	AST03@0.5'		12:26																	
9	BG01@25'		12:08																X	HOLD
10	BG0165'		12:12	↓			↓			↓				↓	↓	↓	↓	↓	X	HOLD

Relinquished by:	Date/Time:	Received by:	Date/Time:
	4/20/22 16:52	Tasman's Lock Box	4/20/22 16:52
Relinquished by: Tasman's Lock Box	Date/Time: 42022 1700	Received by:	Date/Time: 42022 1700
Relinquished by:	Date/Time:	Received by:	Date/Time:

Turn Around Time (Check)

___ Same Day
___ 24 hours
___ 48 hours
___ 72 hours
X Standard

Sample Integrity:
Temperature Upon Receipt: 3.9
Samples Intact: (Yes) No

Notes:

Summit Scientific

2204316.3

S2

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

Client:	Noble / Tasman	Project Manager:	Jake Whritenour, Invoice: Wade Fierstien
Address:	6855 W. 119th Ave	E-Mail:	jwhritenour@tasman-geo.com
City/State/Zip:	Broomfield/ CO/ 80020		
Phone: 303261-6246		Project Name:	Wiedeman 32B-18D, 21D, 22D
Sampler Name: Stanley Gilbert		Project Number:	UWRWE-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		SAR, EC, PH by Saturated paste
1	SEP01-FL01@3'	4/20/22	14:16	2			X			X			X	X	X	X	X			
2	SEP01-DL01@3'		14:18																	
3	SEP02-FL02@3'		12:16																	
4	SEP02-DL02@3'		12:18																	
5	SEP03-FL03@3'		12:20																	
6	SEP03-DL03@3'		12:22																	
7																				
8																				
9																				
10																				

Relinquished by:	Date/Time:	Received by:	Date/Time:
	4/20/22 16:52	Tasman's Lock Box	4/20/22 16:52
Relinquished by: Tasman's Lock Box	Date/Time: 42022 1700	Received by:	Date/Time: 42022 1700
Relinquished by:	Date/Time:	Received by:	Date/Time:

Turn Around Time (Check)

Same Day ___ 72 hours ___
24 hours ___ Standard X
48 hours ___

Sample Integrity:

Temperature Upon Receipt: 3.9

Samples Intact: (Yes) No

Notes:

S2

3/3

Sample Receipt Checklist

S2 Work Order# 2204316

Client: Nobel/Tasman Client Project ID: Wiedeman J28-18D, 21D, 22D

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

	–			

Matrix (Check all that apply) Air [ ] Soil/Solid [ ] Water [ ] Other [ ]

Temp (°C) 3.9 Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6 °C [1]? **NOTE:** If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	–			On 2CE
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_2SO_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

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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	

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

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

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

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**

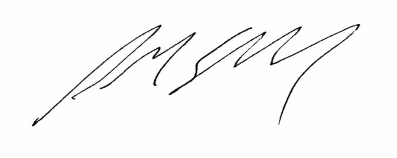
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.546**	0.0100	mg/L	1	BFD0588	04/27/22	05/04/22	EPA 6020B	

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

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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	

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

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

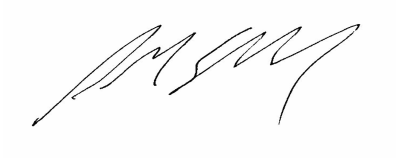
Date Sampled: **04/20/22 12:10**

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



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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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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	

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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 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 12:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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 12:14**

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

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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

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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	

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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 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 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	14.6	*117 %*	*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

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

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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	

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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 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 12:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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 12:24**

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

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

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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	

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

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 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 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	13.1	*105 %*	*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

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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	

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

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-FL01@3'

2204316-21 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

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 14:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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 14:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	13.6	*109 %*	*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

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**

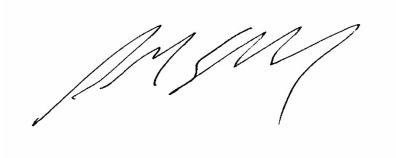
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.196**	0.0100	mg/L	1	BFD0588	04/27/22	05/04/22	EPA 6020B	

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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	

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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 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 14:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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 14:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	14.0	*112 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

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

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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	

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

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 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 12:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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 12:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	15.6	*124 %*	*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

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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	

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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 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 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	13.6	*109 %*	*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

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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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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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	

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 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 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	16.0	*128 %*	*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-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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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	

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 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 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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 12:22**

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

PAH by EPA Method 8270D SIM

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

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

SEP03-DL03@3'

2204316-26 (Soil)

Summit Scientific

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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	

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.

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

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

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

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

Extractable Petroleum Hydrocarbons by 8015 - Quality Control

Summit Scientific

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

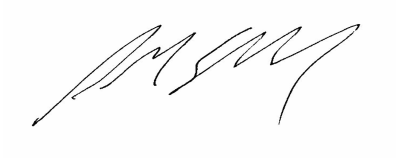
The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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



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

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

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

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

Summit Scientific

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

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

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

Summit Scientific

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

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

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

Summit Scientific

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

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

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

Summit Scientific

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

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

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

Summit Scientific

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

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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